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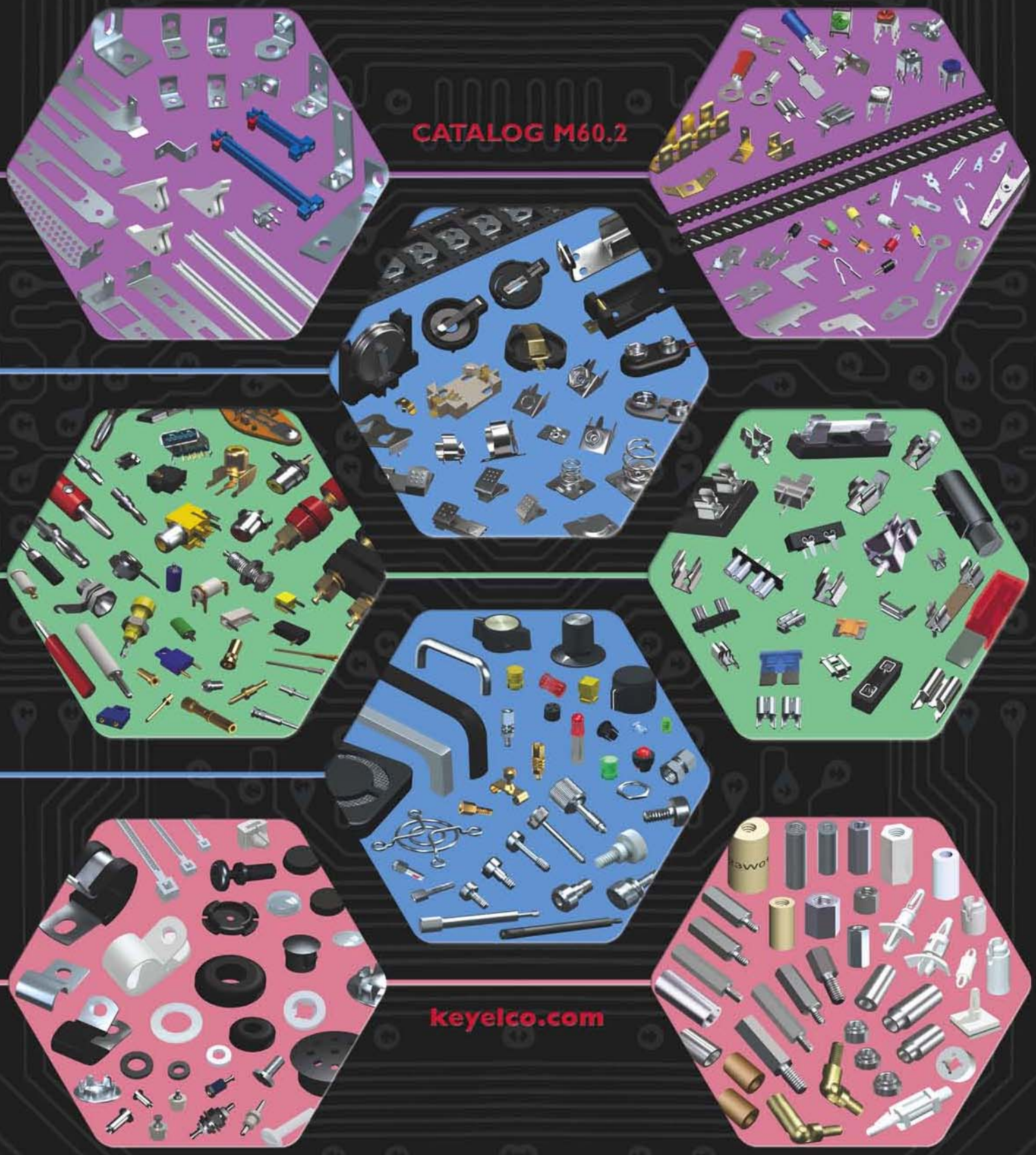

CATALOG M60.2

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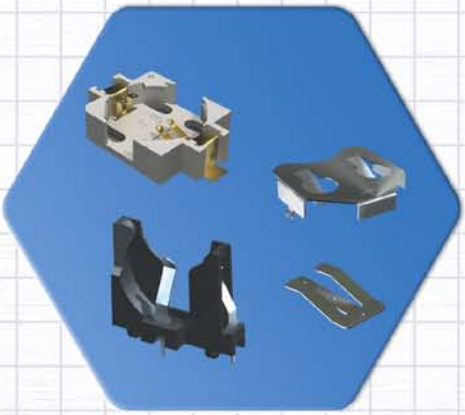
PRODUCT SPOTLIGHT



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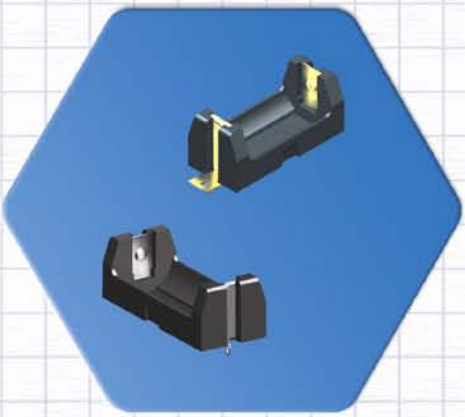

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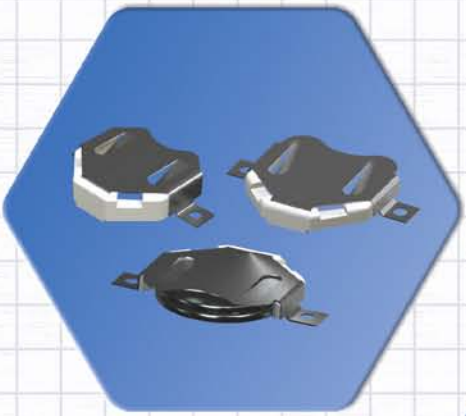

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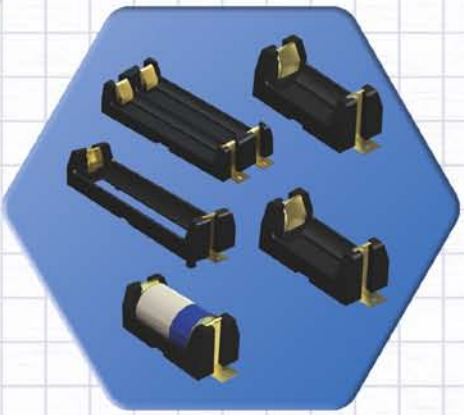

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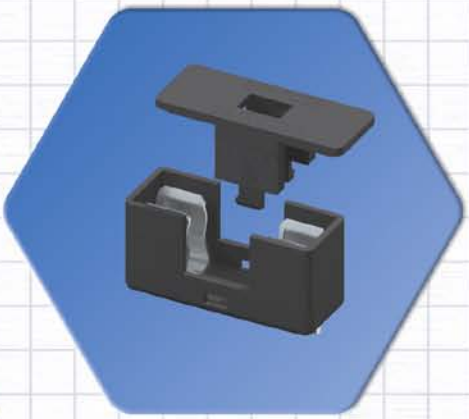

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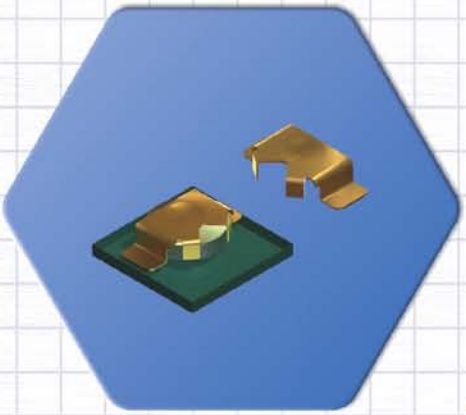

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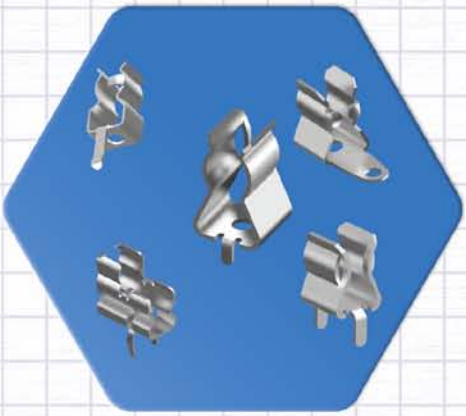

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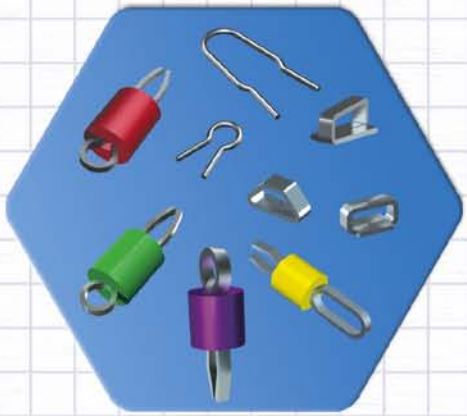

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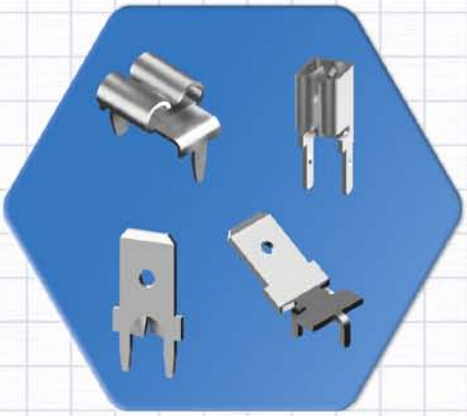
PRODUCT SPOTLIGHT



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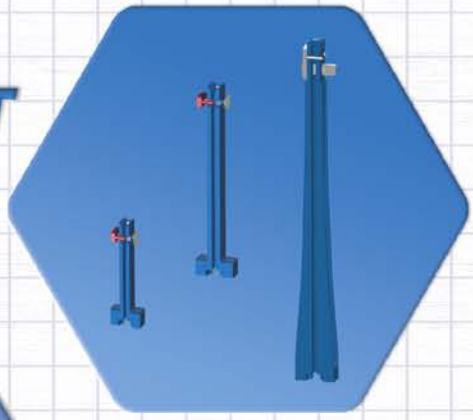

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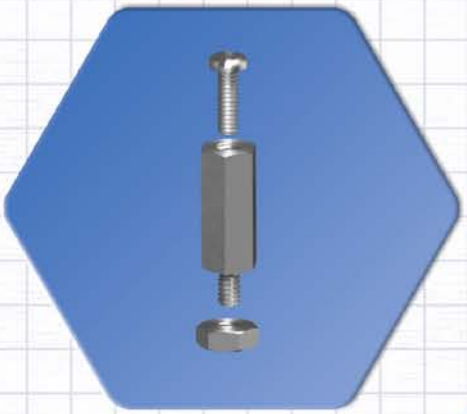

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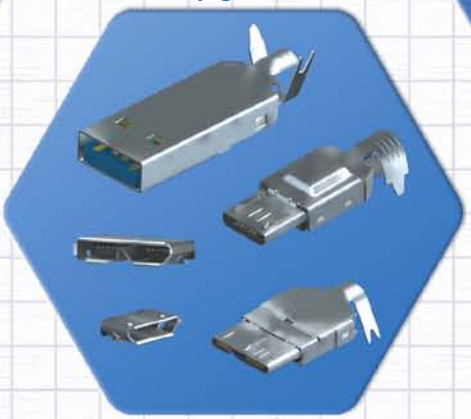

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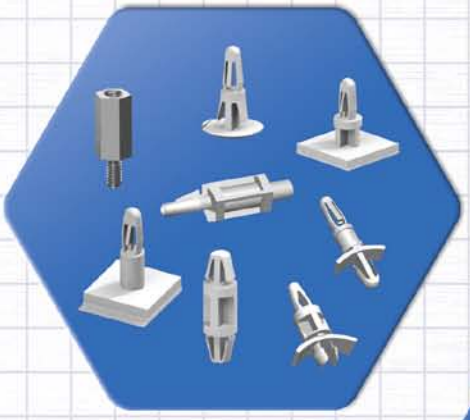

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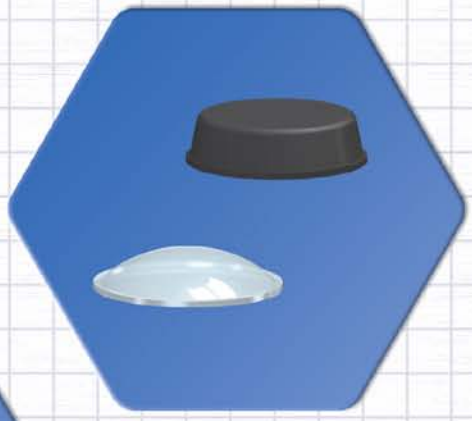

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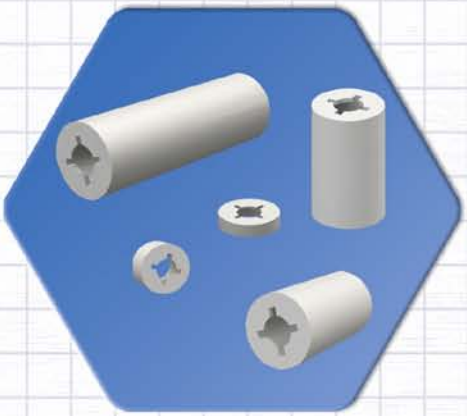

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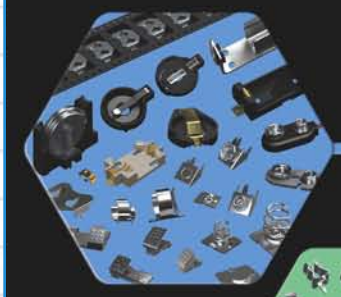

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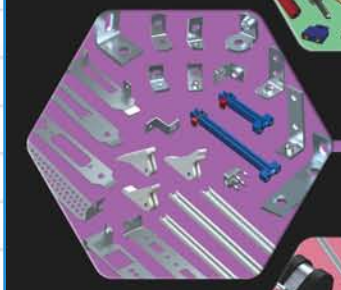

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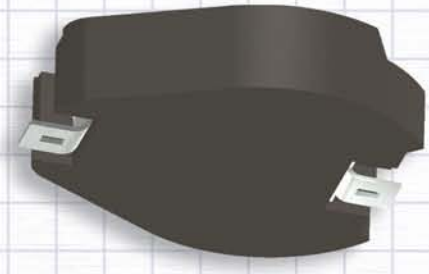
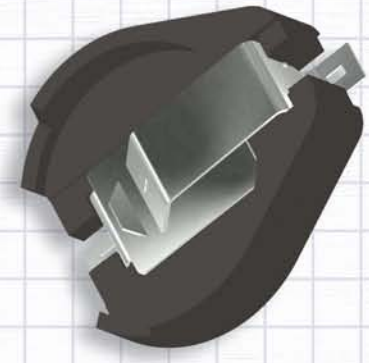
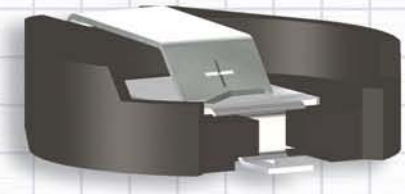
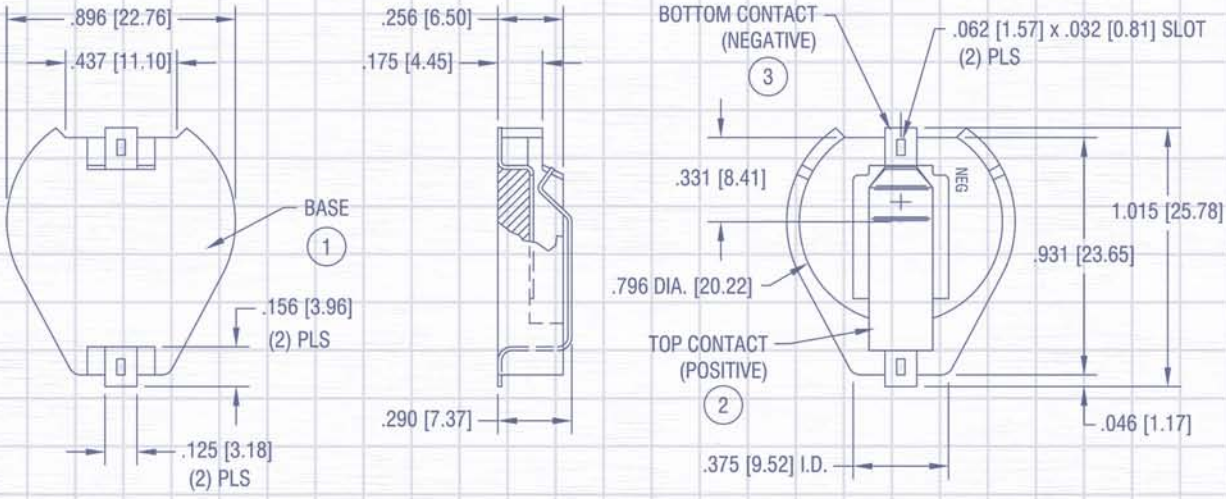






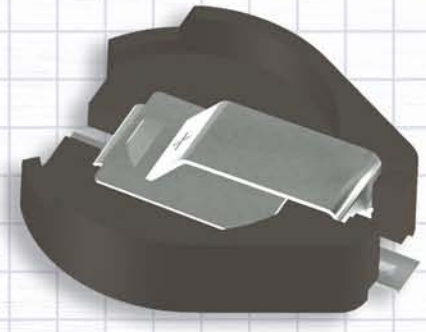


BATTERY CLIPS, CONTACTS & HOLDERS

Our battery clips, contacts and holders are designed with leading edge technology in mind, to accommodate all major manufacturers' batteries. Available in a wide range of materials and mounting styles including surface mount, thru hole and off board, some of the applications include:

- Telecommunications and Video power back-up
- Laptop and mobile computing applications
- Communication system's power requirements
- Microcomputer and memory hold
- Preprogrammed electronic and video games
- Emergency power systems
- Industrial and commercial security and alarm systems
- Miniature battery power devices
- Computer memory, power transfer and back-up systems
- Personal medical monitoring devices

Our quality system is ISO 9001:2008 certified. Our products are in compliance with the RoHS and REACH directives. We provide 3D modeling, CAD andother application-engineering support for modifications, special designs or assemblyrequirements to assist you in choosing the right Keystone product for your application.



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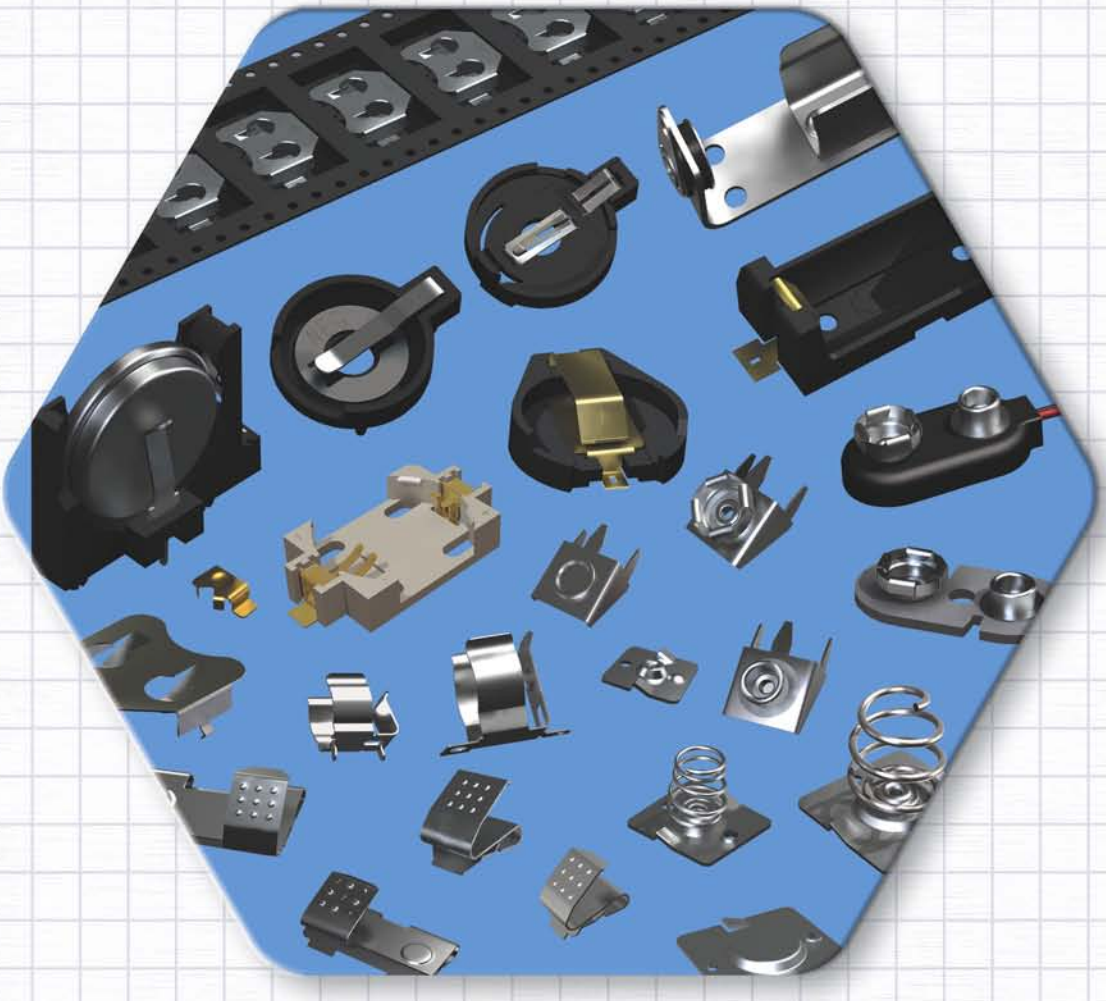

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THRU-HOLE (THM) & SURFACE MOUNT (SMT) COIN CELL HOLDERS

DESIGN ADVANTAGES...

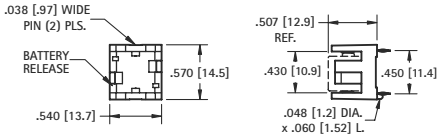
- Reliable spring tension assures low contact resistance
- Retains battery securely to withstand shock and vibration
- Base material UL Rated 94V-0. Impervious to most industrial solvents
- Operating temperature range: -60°F to +293°F (-50°C to +145°C)

IDEALLY SUITED FOR...

- Computer memory, power transfer and back-up systems
- Video and telecommunications power back-up
- Microprocessors and Microcomputer memory hold (desktop and laptop applications)
- Industrial and commercial security and alarm systems
- PC/104 application

1/3N

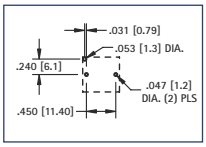
THRU HOLE MOUNT



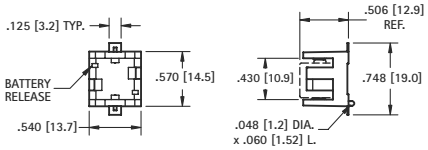
MATERIAL:
Base: High Temperature Nylon 46, UL Rated 94V-0
Contacts: .012 (.30) Phosphor Bronze, Tin Plate

CAT. NO.	CELLS	BATTERY REFERENCE
503	1	DL1/3N, K58L, CR1/3N
	2	SR44, 357, MS76, G-13, 303, V313, PX76A

Mounting Detail



AVAILABLE ON TAPE AND REEL



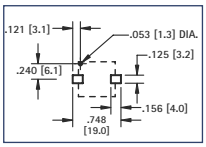
SURFACE MOUNT

MATERIAL:
Base: High Temperature Nylon 46, UL Rated 94V-0
Contacts: .012 (.30) Phosphor Bronze, Gold Plate (Flash)

CAT. NO. BULK	ON TAPE & REEL	CELLS	BATTERY REFERENCE
498	498TR	1	DL1/3N, K58L, CR1/3N
		2	SR44, 357, MS76, G-13, 303, V313, PX76A

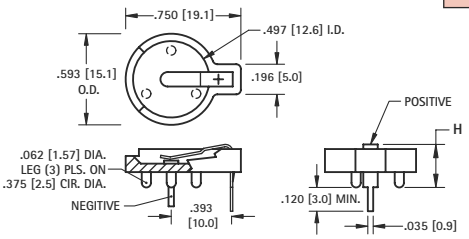
Tape & Reel Spec's: 44mm wide; 20mm pitch; 13 inch reel (200 pieces per reel)

Pad Layout



12mm

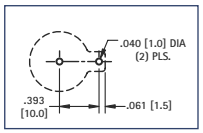
THRU HOLE MOUNT



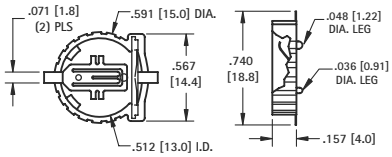
MATERIAL:
Base: PBT, UL Rated 94V-0
Positive Contact: .015 (.38) Spring Steel, Tin-Nickel Plate
Negative Contact: .035 (.89) Dia. Steel, Tin-Nickel Plate

CAT. NO.	HEIGHT (H)	CELLS	BATTERY REFERENCE
500	.280 (7.1)	1	BR1212, CR1216, CL1220, CR1225
501	.380 (9.7)	2	BR1212, CR1216, CL1220, CR1225

Mounting Detail



AVAILABLE ON TAPE AND REEL



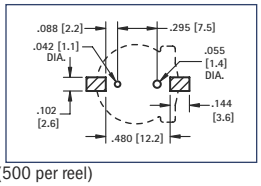
SURFACE MOUNT

MATERIAL:
Base: Glass Filled PPS. UL Rated 94V-0
Contacts: .008 (.20) Phosphor Bronze, Gold Plate (Flash)

CAT. NO. BULK	ON TAPE & REEL	CELLS	BATTERY REFERENCE
1056	1056TR	1	CR1220, BR1220

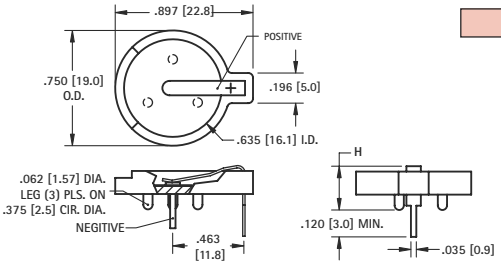
Tape & Reel Spec's: 32mm wide; 20mm pitch; 13 inch reel (500 per reel)

Pad Layout



16mm

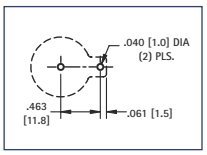
THRU HOLE MOUNT



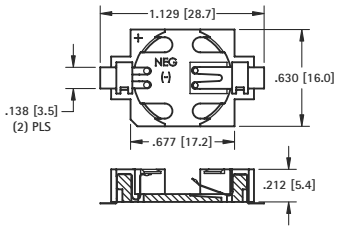
MATERIAL:
Base: Glass Filled LCP, UL Rated 94V-0
Positive Contact: .015 (.38) Spring Steel, Tin-Nickel Plate
Negative Contact: .035 (.89) Dia. Steel, Tin-Nickel Plate

CAT. NO.	HEIGHT (H)	CELLS	BATTERY REFERENCE
502	.285 (7.3)	1	CR1612, CL1616, CL1620
		2	CR1612
502-3	.330 (8.4)	1	BR1625, CR1632
		2	BR1616, CR1620, CL1620

Mounting Detail



AVAILABLE ON TAPE AND REEL



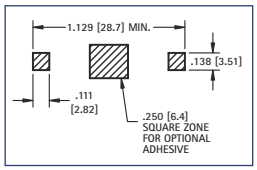
SURFACE MOUNT

MATERIAL:
Base: Glass Filled LCP, UL Rated 94V-0
Contacts: .006 (.15) Phosphor Bronze, Gold Plate (Flash)

CAT. NO. BULK	ON TAPE & REEL	CELLS	BATTERY REFERENCE
504	504TR	1	BR1625, CR1632

Tape & Reel Spec's: 44mm wide; 24mm pitch; 13 inch reel (450 per reel)

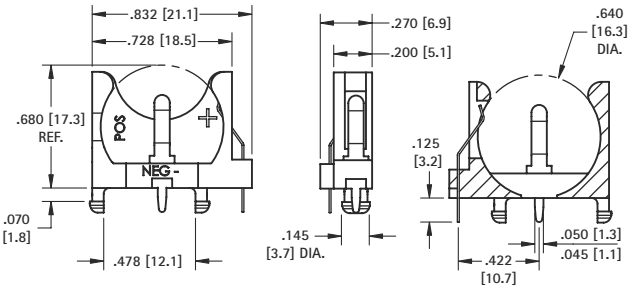
Pad Layout



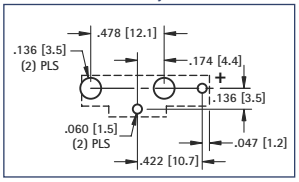
16mm VERTICAL

MATERIAL:
Base: PBT, UL Rated 94V-0
Contacts: .010 (.25) Steel, Tin-Nickel Plate
Battery Reference: **(1) cell:** BR1612, CR1616, CL1620, CR1625, BR1632

CAT. NO. 1069



Pad Layout



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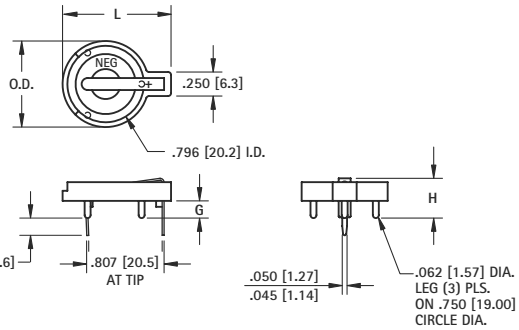


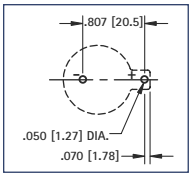
- Advanced air-flow design enhances air circulation around battery
- Reliable spring tension assures low contact resistance
- Unique notched slots assure quick and easy battery insertion and replacement
- Retains battery securely to withstand shock and vibration
- PBT base material UL rated 94V-0. Impervious to most industrial solvents
- Operating temperature range: -60°F to +293°F (-50°C to +145°C)

MATERIAL:
Contacts: .020 (.50) Spring Steel, Tin-Nickel Plate
Base: PBT, UL Rated 94V-0

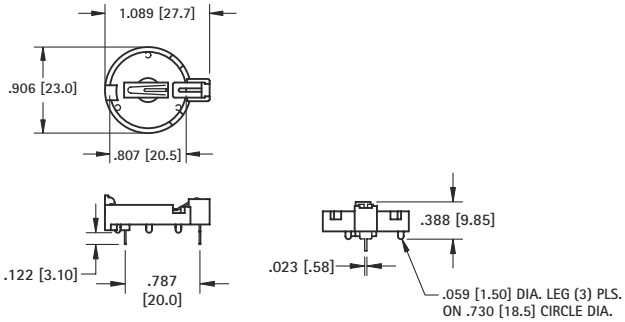
- **Cat. No. 101** is designed to maximize PC Board Capacity
- Unique raised mounting design allows components to be placed underneath the holder
- Ideal when board space is more important than board height; such as PC/104 applicatons

CAT. NO.	G	H	L	O.D.	NO. OF CELLS	BATTERY REFERENCE
103	.100 (2.5)	.335 (8.5)	1.130 (28.7)	.896 (22.8)	(1) cell (any 20mm) (2) 2012, (2) 2016	BR2012,CR2012, CR2016, CL2016, DL2020, CL2025, BR2025, CR2032, CL2032
101	.179 (4.6)	.414 (10.5)	1.130 (28.7)	.896 (22.8)	(1) cell (any 20mm) (2) 2012, (2) 2016	BR2012,CR2012, CR2016, CL2016, DL2020, CL2025, BR2025, CR2032, CL2032
106	.100 (2.5)	.335 (8.5)	1.219 (31.0)	1.093 (27.8)	(1) cell (any 20mm) (2) 2012, (2) 2016	BR2012,CR2012, CR2016, CL2016, DL2020, CL2025, BR2025, CR2032, CL2032
1026	.100 (2.5)	.452 (11.5)	1.219 (31.0)	1.093 (27.8)	(2) 2020, (2) 2025, (2) 2032	DL2020, CR2020, CL2025, BR2025, CR2032, CL2032

Mounting Detail



TOP LOADING

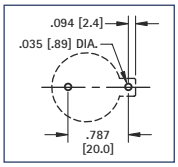


- Battery "Pop-in"from top for compact applications
- Finger pressure against leaver will release battery
- No tools required for battery changes

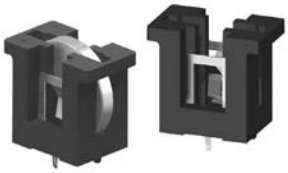
MATERIAL:
Contacts: .016 (.40) Phosphor Bronze, Tin Plate
Base: Nylon UL Rated 94V-0

CAT. NO.	BATTERY REFERENCE
1066	BR2025, CR2032

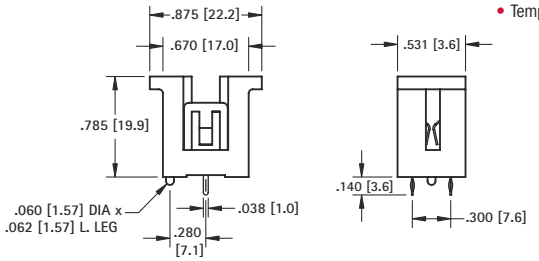
Mounting Detail



VERTICAL COMPACT



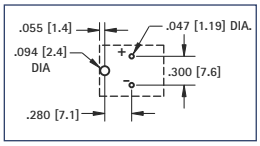
- Accepts all major manufacturers' 20mm diameter batteries
- Molded notch prevents improper insertion of 2032 size cells
- Retains cells securely, withstands shock and vibration
- Polarity clearly marked
- Mounts securely for wave soldering
- Temperature range: -60°F to +293°F (-50°Cto+145°C)



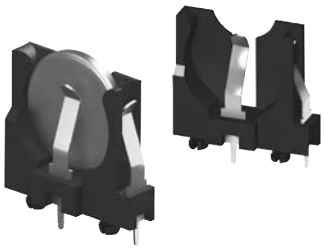
MATERIAL:
Contacts: .012 (.30) Spring Steel, Tin-Nickel Plate
Base: PBT, UL Rated 94V-0

CAT. NO.	BATTERY REFERENCE
1067	CR2016, DL2020, CL2025, CR2032

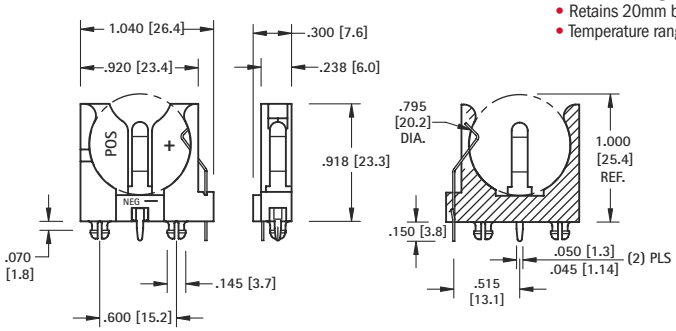
Mounting Detail



VERTICAL SLIMLINE



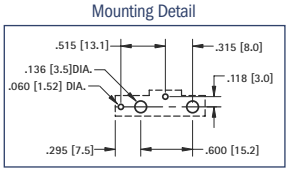
- Polarized holder
- Mounts securely for wave soldering
- Reliable spring tension assures low contact resistance
- Retains 20mm batteries securely to withstand shock and vibration
- Temperature range -60°F to +293°F (-50°C to +145°C)



MATERIAL:
Contacts:.016 (.40) Spring Steel, Tin-Nickel Plate
Base: PBT, UL Rated 94V-0

CAT. NO.	BATTERY REFERENCE
1065	BR2012, CR2016, DL2020, CL2025, CR2032

Mounting Detail



THRU-HOLE (THM) & SURFACE MOUNT (SMT) COIN CELL HOLDERS

DESIGN ADVANTAGES...

- Reliable spring tension assures low contact resistance
- Retains battery securely to withstand shock and vibration
- All conductive polystyrene carrier tape meets ANSI/EIA - 481 standard
- Base material UL Rated 94V-0. Impervious to most industrial solvents
- Operating temperature range: -60°F to +293°F (-50°C to +145°C)

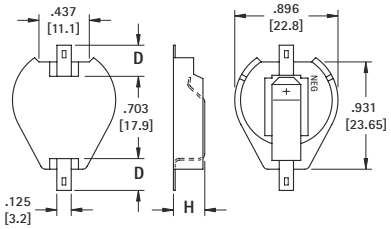
IDEALLY SUITED FOR...

- Computer memory, power transfer and back-up systems
- Video and telecommunications power back-up
- Microprocessors and Microcomputer memory hold (desktop and laptop applications)
- Industrial and commercial security and alarm systems
- Communications power sources
- PC/104 applications

20mm CELLS

- Polarity clearly marked (+)
- Compatible with vacuum and mechanical pick & place assembly systems
- Low profile for high density packaging
- Rugged construction, light weight
- SMT solder tail with "Flow-Hole" design for increased joint strength
- Viewable solder tails assures reliable joint inspection
- Safe for all soldering & reflow operations

AVAILABLE ON TAPE AND REEL

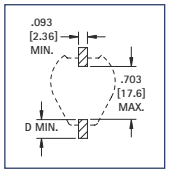


MATERIAL:
Contacts: .015 (.38) Steel
Base: High Temperature, Nylon 46, UL Rated 94V-0

Tin-Nickel Plate		Gold Plate (Flash)					
CAT. NO. BULK	ON TAPE & REEL	CAT. NO. BULK	ON TAPE & REEL	D PAD SIZE	H HIEGHT	CELLS	BATTERY REFERENCE
1061	1061TR	1081	1081TR	.156 (4.0)	.290 (7.4)	(1) Cell (any 20mm) (2) 2012, (2) 2016	CR2012, CL2016, BR2020, DL2032 CR2032
1063	1063TR	1093	1093TR	.278 (7.1)			
1062	1062TR	1082	1082TR	.156 (4.0)	.391 (9.9)	(2) 2020, (2) 2025, (2) 2032 (3) 2012, (3) 2016	
1064	1064TR	1094	1094TR	.278 (7.1)			

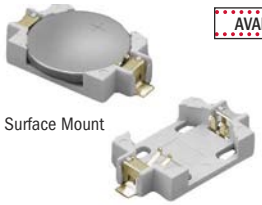
Tape & Reel Spec's: 44mm wide; 32mm pitch; 13 inch reel (200 pieces per reel)

Pad Layout



2025 / 2032 CELL

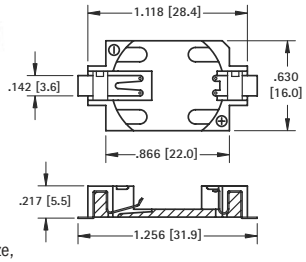
AVAILABLE ON TAPE AND REEL

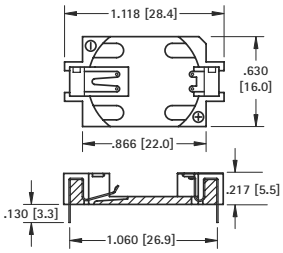


Surface Mount

- Polarized Holders
- Low Profile for high density packaged PCB's
- Vertical entry

Thru Hole Mount





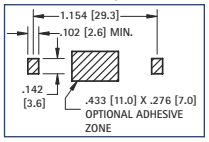
- Compatible with vacuum and mechanical pick & place assembly systems

MATERIAL:
Contacts: .006 (.15) Phosphor Bronze, Gold Plate (Flash)
Base: Glass Filled LCP, UL Rated 94V-0

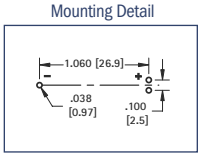
CAT. NO. BULK	ON TAPE & REEL	BATTERY REFERENCE
1060	1060TR	CR2025, DL2032

Tape & Reel Spec's: 44mm wide; 24mm pitch; 13 inch reel (500 pieces per reel)

Pad Layout



Mounting Detail



MATERIAL:
Contacts: .006 (.15) Phosphor Bronze, Tin Plate
Base: Glass Filled LCP, UL Rated 94V-0

CAT. NO.	BATTERY REFERENCE
1059	CR2025, DL2032

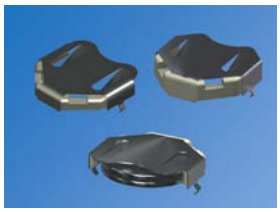
INSULATED RETAINERS

AVAILABLE ON TAPE AND REEL

20mm CELLS

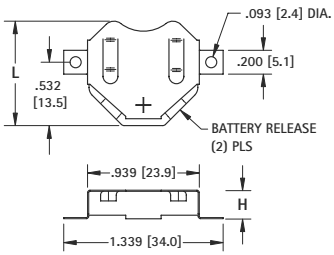
- Ideal for 6 volt or 3 volt applications
- Two coin cell batteries can be installed in series
- Plastic insulator prevents shorting of battery, within the holder, when installed improperly
- Low profile
- Battery release ports for easy battery replacement
- Refer to pages 6 & 7 for a complete offering of coin cell retainers

MATERIAL: **Contacts:** .010 (.25) Phosphor Bronze **Insulator:** High Temperature, Nylon 46, UL Rated 94V-0

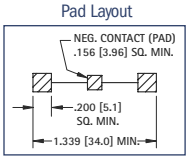


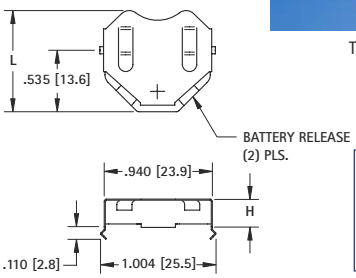
Thru Hole Mount

Surface Mount

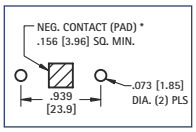


Pad Layout





Mounting Detail



Surface Mount												Thru Hole Mount	
Tin-Nickel Plate			Matte Tin Plate					BATTERY REFERENCE				Tin-Nickel Plate	
CAT. NO. LOOSE*	CAT. NO. BULK	ON TAPE & REEL	CAT. NO. LOOSE*	CAT. NO. BULK	ON TAPE & REEL	L	H	6 VOLT (2) CELLS	3 VOLT (1) CELL	L	H	CAT. NO. LOOSE*	CAT. NO. BULK
3020-2	3020	3020TR	3070-2	3070	3070TR	.890 (22.6)	.156 (4.0)	2012, 2016	2020, 2025	.890 (22.6)	.156 (4.0)	3021-2	3021
3022-2	3022	3022TR	3072-2	3072	3072TR	.877 (22.3)	.240 (6.1)	2020, 2025	2032	.877 (22.3)	.240 (6.1)	3023-2	3023
3024-2	3024	3024TR	3074-2	3074	3074TR	.877 (22.3)	.295 (7.5)	2032	Not Applicable	.877 (22.3)	.295 (7.5)	3025-2	3025

* Supplied Unassembled

Tape & Reel Spec's: 56mm wide; 28mm pitch; 13 inch reel: **3020TR, 3070TR** 400 pieces per reel; **3022TR, 3072TR** 250 pieces per reel; **3024TR, 3074TR** 250 pieces per reel

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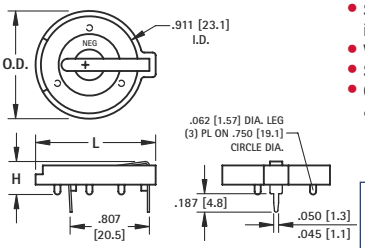
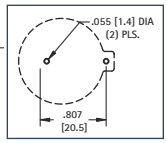
23mm

Thru Hole Mount



- Polarity clearly marked (+)
- Rugged construction, light weight
- SMT solder tail with "Flow-Hole" design for increased joint strength
- Viewable solder tails assures reliable joint inspection
- Safe for all soldering & reflow operations
- Compatible with vacuum and mechanical pick & place assembly systems

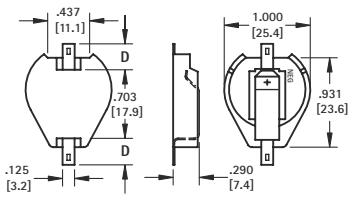
Mounting Detail



MATERIAL:
Contacts: .020 (.50) Spring Steel, Tin-Nickel Plate
Base: PBT, UL Rated 94V-0
Operating Temperature: -60°F to +293°F (-50°C to +145°C)

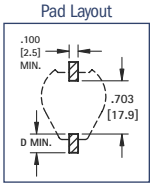
CAT. NO.	H	L	O.D.	NO. OF CELLS	BATTERY REFERENCE
104	.335 (8.5)	1.150 (29.2)	1.000 (25.4)	(1) Cell (Any 23mm)	BR2320, CR2320, CL2325, DL2330, CL2354, CR2335
107	.335 (8.5)	1.219 (31.0)	1.093 (27.8)	(1) Cell (Any 23mm)	
1027	.452 (11.5)	1.219 (31.0)	1.093 (27.8)	(1) 2354 (2) 2320, (2) 2325, (2) 2330	

AVAILABLE ON TAPE AND REEL



Surface Mount

Pad Layout



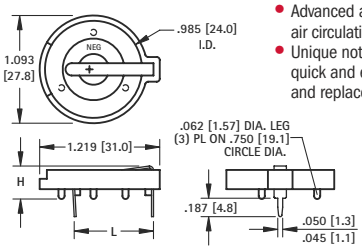
MATERIAL:
Contacts: .015 (.38) Steel
Base: High Temp Nylon 46, UL Rated 94V-0
Operating Temperature: -60°F to +293°F (-50°C to +145°C)

Tin-Nickel Plate		Gold Plate (Flash)			
CAT. NO. BULK	ON TAPE & REEL	CAT. NO. BULK	ON TAPE & REEL	D PAD SIZE	BATTERY REFERENCE
1071	1071TR	1091	1091TR	.156 (4.0)	CR2320, CL2325, DL2330, CR2335
1073	1073TR	1083	1083TR	.278 (7.1)	

Tape & Reel Spec's: 44mm wide; 32mm pitch; 13 inch reel, (200 pieces per reel)
Note: All conductive polystyrene carrier tape meets ANSI/EIA - 481 standard

24mm

Thru Hole Mount

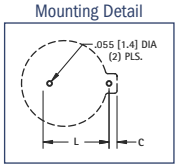


- Advanced air-flow design enhances air circulation around battery
- Unique notched slots assure quick and easy battery insertion and replacement

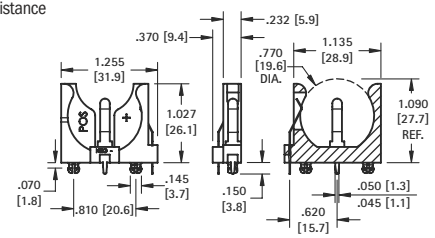
MATERIAL:
Base: PBT, UL Rated 94V-0
Contacts: .020 (.50) Spring Steel, Tin-Nickel Plate
Operating Temperature: -60°F to +293°F (-50°C to +145°C)

CAT. NO.	C	H	L	NO. OF CELLS	BATTERY REFERENCE
105	.064 (1.6)	.335 (8.5)	.805 (20.5)	(1) 2430	CR2430, CL2430, BR2450, CR2477
1025	.074 (1.9)	.452 (11.5)	.805 (20.5)	(1) 2450 (2) 2430	
1025-7	.074 (1.9)	.503 (12.8)	.805 (20.5)	(1) 2477 (2) 2430	

Mounting Detail



- Polarized holder
- Mounts securely for wave soldering
- Reliable spring tension assures low contact resistance

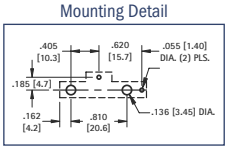


Thru Hole Mount

MATERIAL:
Base: PBT, UL Rated 94V-0
Contacts: .020 (.50) Spring Steel, Tin-Nickel Plate
Operating Temperature: -60°F to +293°F (-50°C to +145°C)

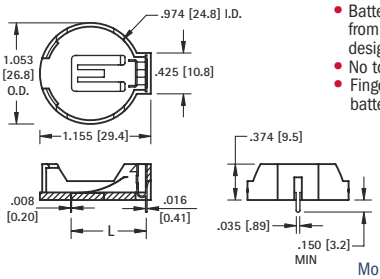
CAT. NO.	BATTERY REFERENCE
1068	(1) CR2450, (1) CL2450

Mounting Detail



24mm TOP Loading

Thru Hole Mount

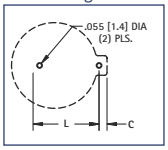


- Battery "Pop-in" from Top for compact designs
- No tools required
- Finger pressure battery release

MATERIAL:
Contacts: Phosphor Bronze, Nickel Plate
Base: High Temp Nylon 46, UL Rated 94V-0
Operating Temperature: -60°F to +293°F (-50°C to +145°C)

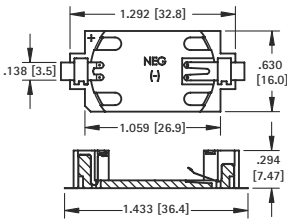
CAT. NO.	L	C	BATTERY REFERENCE
1053	.788 (20.0)	.048 (1.2)	(1) CR2450

Mounting Detail



AVAILABLE ON TAPE AND REEL

- Polarized holder
- Low profile for densely packed PCB's
- Compatible with vacuum and mechanical pick & place systems
- Conductive carrier tape meets ANSA/EIA- 481 standard



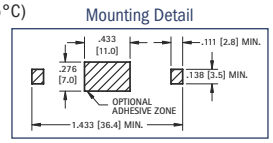
Surface Mount

MATERIAL:
Base: LCP, UL Rated 94V-0
Contacts: .020 (.50) Spring Steel, Tin-Nickel Plate
Operating Temperature: -60°F to +293°F (-50°C to +145°C)

CAT. NO. BULK	ON TAPE & REEL	BATTERY REFERENCE
1052	1052TR	(1) CR2450

Tape & Reel Spec's: 56mm wide; 24mm pitch; 13 inch reel, (250 pieces per reel)

Mounting Detail

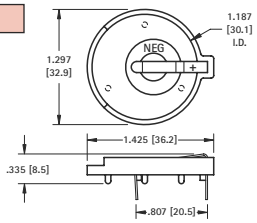


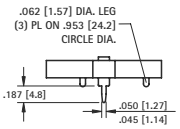
30mm

Thru Hole Mount

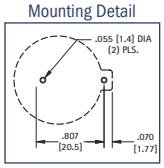
MATERIAL:
Contacts: .020 (.50) Spring Steel, Tin-Nickel Plate
Base: PBT, UL Rated 94V-0
Operating Temperature: -60°F to +293°F (-50°C to +145°C)

CAT. NO.	BATTERY REFERENCE
301	BR3032





Mounting Detail



23mm to 30mm COIN CELL HOLDERS

THRU HOLE (THM) & SURFACE MOUNT (SMT) BUTTON CELL RETAINERS

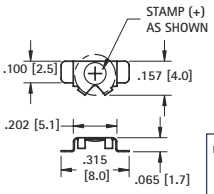
Economical and reliable SMT and THM coin cell retainers specifically designed for miniature electronic applications with limited board space.

- Available in Thru Hole Mount (THM) or Surface Mount (SMT) configurations
- SMT solder tail with "flow-hole" design for increased joint strength
- THM legs maintain relative position during and after soldering
- Ideally suited for High Density packaging
- Reliable spring tension assures low contact resistance
- Retains battery securely to withstand shock and vibration
- Solder tail located outside of retainer body which facilitates visual inspection of the solder joints

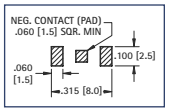
4 mm to 12 mm BUTTON CELL RETAINERS

4.8 mm

AVAILABLE ON TAPE AND REEL



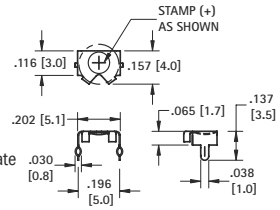
Mounting Detail



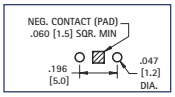
MATERIAL: .006 (.15) Phosphor Bronze, Gold Plate (Flash)

CAT. NO. BULK	ON TAPE & REEL	BATTERY REFERENCE
2994	2994TR	ML414

Tape & Reel Spec's: 16mm wide; 8mm pitch; 13 inch reel (1500 pieces per reel)



Mounting Detail

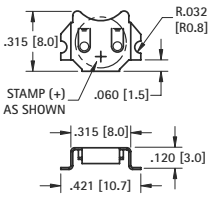


MATERIAL: .006 (.15) Phosphor Bronze, Tin-Nickel Plate

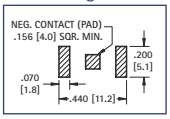
CAT. NO.	BATTERY REFERENCE
2995	ML414

6.8 mm

AVAILABLE ON TAPE AND REEL



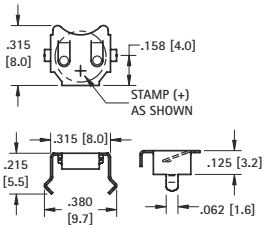
Mounting Detail



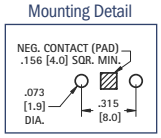
MATERIAL: .010 (.25) Phosphor Bronze

CAT. NO. BULK	ON TAPE & REEL	FINISH	BATTERY REFERENCE
2998	2998TR	Tin-Nickel	MC621, V364, SC621, DR13H, V13AT
3098	3098TR	Matte Tin	

Tape & Reel Spec's: 24mm wide; 12mm pitch; 13 inch reel (1000 pieces per reel)



Mounting Detail

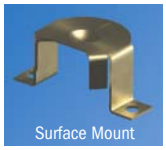


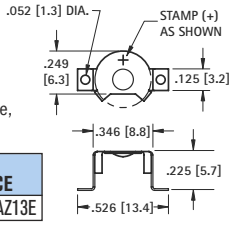
MATERIAL: .010 (.25) Phosphor Bronze, Tin-Nickel Plate

CAT. NO.	BATTERY REFERENCE
2999	MC621, V364, SC621

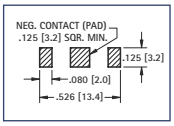
7.9 mm

AVAILABLE ON TAPE AND REEL





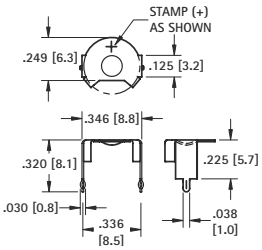
Mounting Detail



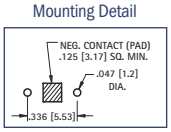
MATERIAL: .010 (.25) Phosphor Bronze, Gold Plate (Flash)

CAT. NO. BULK	ON TAPE & REEL	BATTERY REFERENCE
2988	2988TR	Size 13, DA13, AZ13E

Tape & Reel Spec's: 24mm wide; 12mm pitch; 13 inch reel (800 pieces per reel)



Mounting Detail

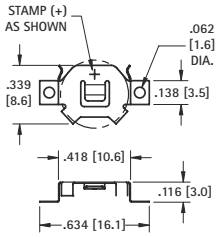


MATERIAL: .010 (.25) Phosphor Bronze, Tin-Nickel Plate

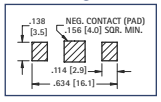
CAT. NO.	BATTERY REFERENCE
2989	Size 13, DA13, AZ13E

9 - 10 mm

AVAILABLE ON TAPE AND REEL



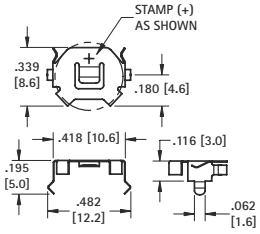
Mounting Detail



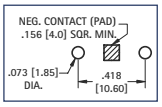
MATERIAL: .006 (.15) Phosphor Bronze, Tin-Nickel Plate

CAT. NO. BULK	ON TAPE & REEL	FINISH	BATTERY REFERENCE
3030	3030TR	Tin-Nickel	CR927, CR1025
3050	3050TR	Matte Tin	

Tape & Reel Spec's: 24mm wide; 12mm pitch; 13 inch reel (1500 pieces per reel)



Mounting Detail

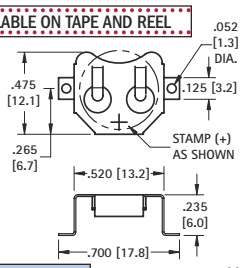


MATERIAL: .006 (.15) Phosphor Bronze, Tin-Nickel Plate

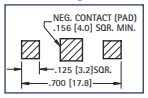
CAT. NO.	BATTERY REFERENCE
3031	CR927, CR1025

11.6 mm

AVAILABLE ON TAPE AND REEL



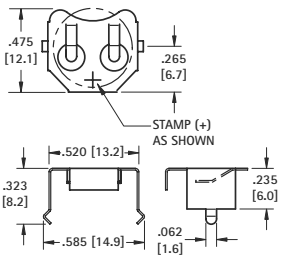
Mounting Detail



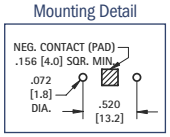
MATERIAL: .010 (.25) Phosphor Bronze

CAT. NO. BULK	ON TAPE & REEL	FINISH	BATTERY REFERENCE
2996	2996TR	Tin-Nickel	SR44, LR44, 357, MS76,
3096	3096TR	Matte Tin	PX76A, G-13, 303, V313

Tape & Reel Spec's: 32mm wide; 16mm pitch; 13 inch reel (600 pieces per reel)



Mounting Detail



MATERIAL: .010 (.25) Phosphor Bronze, Tin-Nickel Plate

CAT. NO.	BATTERY REFERENCE
2997	SR44, LR44, 357, MS76, PX76A, G-13, 303, V313

Tel (718) 956-8900 • Fax (718) 956-9040
(800) 221-5510 • kec@keyelco.com
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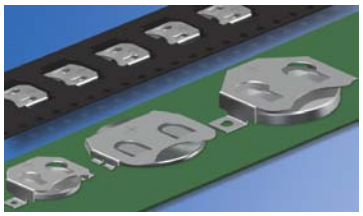
RoHS COMPLIANT ~ ISO 9001 CERTIFIED
www.keyelco.com
31-07 20th Road – Astoria, NY 11105-2017

THRU HOLE (THM) & SURFACE MOUNT (SMT) COIN CELL RETAINERS

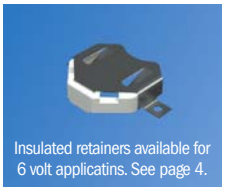


SURFACE MOUNT (SMT)

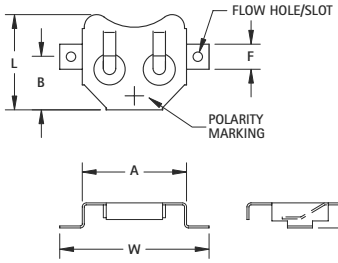
AVAILABLE ON TAPE AND REEL

Battery retainers are suited for high density PCB packaging. Engineered with reliable spring tension, these contacts assure low resistance while firmly securing the battery within the retainer.

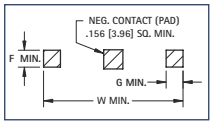
- Compatible with all wave and reflow operations
- Solder tails located outside of retainer body which facilitates visual inspection of the solder joints
- Flow-hole solder tail designed for increased joint strength
- Compatible with most vacuum and mechanical pick & place assembly systems
- Matte Tin Plate for lower soldering temperatures ideal where other temperature sensitive components are being used
- Tin-Nickel plated retainers are ideal for lead free, high temperature soldering applications
- All conductive polystyrene carrier tape meets ANSI/EIA-481 standards



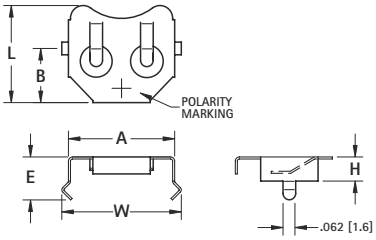
Insulated retainers available for 6 volt applicatins. See page 4.



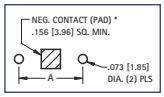
Mounting Detail



SURFACE MOUNT (SMT)



Mounting Detail

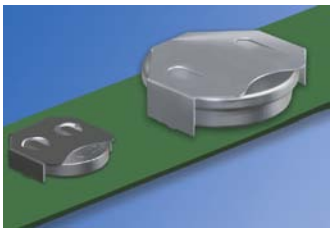


THRU HOLE MOUNT (THM)

MATERIAL: .010 (.25) Phosphor Bronze

TIN-NICKEL PLATE		MATTE TIN PLATE		REFER TO SURFACE MOUNT (SMT) DRAWING									
CAT. NO. BULK	ON TAPE & REEL	CAT. NO. BULK	ON TAPE & REEL	A	B	F	G	H	L	W	CELL DIA.	BATTERY REFERENCE	TAPE & REEL SPEC'S
3000	3000TR	3080	3080TR	.520 (13.2)	.265 (6.7)	.125 (3.2)	.125 (3.2)	.125 (3.2)	.475 (12.1)	.745 (18.9)	12mm	CR1216, BR1220, CL1225	32mm wide; 16mm pitch; 1000/reel
3012	3012TR	3092	3092TR	.664 (16.9)	.344 (8.7)	.125 (3.2)	.125 (3.2)	.156 (4.0)	.594 (15.1)	.914 (23.2)	16mm	BR1612, CR1616, CR1620, DL1632	44mm wide; 24mm pitch; 600/reel
3028	3028TR	3038	3038TR	.831 (21.1)	.298 (7.6)	.200 (5.1)	.050 (1.3)	.067 (1.7)	.618 (15.7)	.911 (23.1)	20mm	BR2012, CR2012, DL2012	44mm wide; 24mm pitch; 1000/reel
3026	3026TR	3078	3078TR	.831 (21.1)	.416 (10.6)	.200 (5.1)	.200 (5.1)	.085 (2.2)	.782 (19.9)	1.210 (30.7)	20mm	BR2016, CR2016, DL2016	44mm wide; 32mm pitch; 750/reel
3034	3034TR	3044	3044TR	.835 (21.2)	.291 (7.4)	.200 (5.1)	.050 (1.3)	.160 (4.1)	.635 (16.1)	0.915 (23.1)	20mm	DL2020, CR2025, CR2032	44mm wide; 24mm pitch; 500/reel
3002	3002TR	3082	3082TR	.831 (21.1)	.416 (10.6)	.200 (5.1)	.200 (5.1)	.156 (4.0)	.782 (19.9)	1.210 (30.7)	20mm	DL2020, CR2025, CR2032	44mm wide; 24mm pitch; 500/reel
3004	3004TR	3084	3084TR	.939 (23.9)	.475 (12.1)	.200 (5.1)	.200 (5.1)	.156 (4.0)	.832 (21.1)	1.339 (34.0)	23mm	BR2320, CL2325, CR2330, DL2335	56mm wide; 32mm pitch; 400/reel
3010	3010TR	3090	3090TR	.939 (23.9)	.475 (12.1)	.200 (5.1)	.200 (5.1)	.240 (6.1)	.819 (20.8)	1.339 (34.0)	23mm	CR2354, DL2354	56mm wide; 32mm pitch; 200/reel
3032	3032TR	3042	3042TR	1.000 (25.4)	.313 (8.0)	.200 (5.1)	.050 (1.3)	.067 (1.7)	.681 (17.3)	1.080 (27.4)	24mm	BR2412, CR2412	44mm wide, 24mm pitch, 1000/reel
3006	3006TR	3086	3086TR	1.000 (25.4)	.506 (12.9)	.200 (5.1)	.200 (5.1)	.156 (4.0)	.918 (23.3)	1.400 (35.6)	24mm	CR2430, DL2430	56mm wide; 32mm pitch; 400/reel
3008	3008TR	3088	3088TR	1.000 (25.4)	.506 (12.9)	.200 (5.1)	.200 (5.1)	.230 (5.8)	.890 (22.6)	1.400 (35.6)	24mm	CR2450, DL2450	56mm wide; 32mm pitch; 200/reel

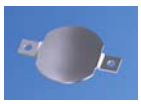
TIN-NICKEL PLATE	REFER TO THRU HOLE MOUNT (THM) DRAWING							
CAT. NO. BULK	A	B	E	H	L	W	CELL DIA.	BATTERY REFERENCE
3001	.520 (13.2)	.265 (6.7)	.210 (5.3)	.118 (3.0)	.475 (12.1)	.585 (14.9)	12mm	BR1216, CR1216, BR1220, CL1220, CR1220, BR1225
3013	.664 (16.9)	.344 (8.7)	.265 (6.7)	.156 (4.0)	.594 (15.1)	.723 (18.4)	16mm	BR1616, CR1612, CR1616, CR1620, CR1632
3029	.831 (21.1)	.298 (7.6)	.176 (4.5)	.067 (1.7)	.618 (15.7)	.890 (22.6)	20mm	BR2012, CR2012, DL2012
3027	.831 (21.1)	.416 (10.6)	.194 (4.9)	.085 (2.2)	.782 (19.9)	.890 (22.6)		BR2016, CR2016, DL2016
3003	.831 (21.1)	.416 (10.6)	.265 (6.7)	.156 (4.0)	.782 (19.9)	.890 (22.6)		BR2016, DL2020, CR2320, CR2025, CR2032
3005	.939 (23.9)	.475 (12.1)	.265 (6.7)	.156 (4.0)	.832 (21.1)	1.004 (25.5)	23mm	BR2320, CL2330, CR2320, BR2325, CR2325, DL2325
3011	.939 (23.9)	.475 (12.1)	.351 (8.9)	.240 (6.1)	.819 (20.8)	1.004 (25.5)		CR2354, DL2354
3033	1.000 (25.4)	.313 (8.0)	.176 (4.5)	.067 (1.7)	.681 (17.3)	1.055 (26.8)	24mm	BR2412, CR2412
3007	1.000 (25.4)	.506 (12.9)	.265 (6.7)	.156 (4.0)	.918 (23.3)	1.055 (26.8)		CR2430, DL2430
3009	1.000 (25.4)	.506 (12.9)	.350 (8.9)	.230 (5.8)	.890 (22.5)	1.059 (26.9)		CR2450, DL2450
3039	1.000 (25.4)	.506 (12.9)	.450 (11.4)	.336 (8.5)	.890 (22.5)	1.059 (26.9)		CR2477, DL2477



THRU HOLE MOUNT (THM)

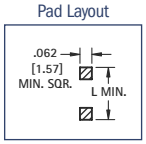
NEGATIVE BATTERY CONTACTS*

AVAILABLE ON TAPE AND REEL

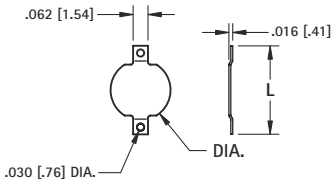


- Assures proper contact

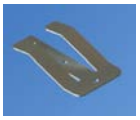
Pad Layout



COMPACT

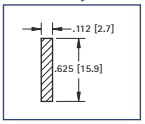


DWG. 1 **MATERIAL:** .008 (.20) Brass

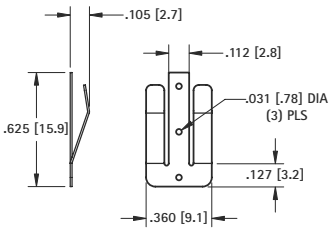


- Assures proper contact

Pad Layout



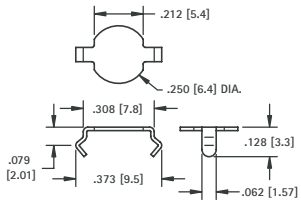
SPRING CONTACT



DWG. 2 **MATERIAL:** .010 (.25) Phosphor Bronze

Thru Hole Mount

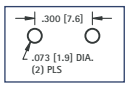
- Snap-In
- Assures proper contact



MATERIAL:
.008 (.20) Phosphor Bronze, Tin-Nickel Plate

CAT. NO. 2990

Mounting Detail



TIN-NICKEL PLATE		MATTE TIN PLATE					
CAT. NO. BULK	ON TAPE & REEL	CAT. NO. BULK	ON TAPE & REEL	DWG.	L	DIA.	TAPE & REEL SPECS
2991	2991TR	2981	2981TR	1	.368 (9.4)	.250 (6.4)	16mm wide, 8mm pitch, 1500/7 reel
2992	2992TR	2982	2982TR	1	.289 (7.4)	.186 (4.7)	16mm wide, 12mm pitch, 1000/7 reel
2993	2993TR	2983	2983TR	2	.625 (15.9)	–	24mm wide, 16mm pitch, 1000/13 reel

***Note:** Cannot be used with Cat. No. 3028, 3029, 3032, 3033.

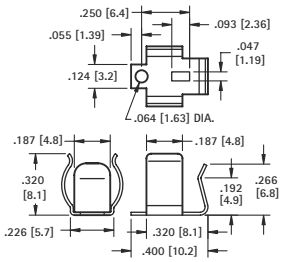
SURFACE MOUNT BATTERY CLIPS/CONTACTS

AVAILABLE ON TAPE AND REEL

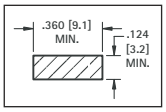
- "Flow-Hole" SMT solder tail design for increased joint strength
- Tin-Nickel plating is ideal for lead free, high temperature soldering
- Matte Tin Plate for lower soldering temperatures ideal where other temperature sensitive components are being used

Refer to page 32 for Battery Contact Layout & Mounting Details

"AAAA" · "A27"



Pad Layout

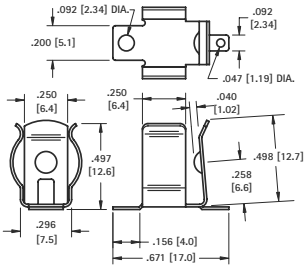


MATERIAL: .010 (.25) Spring Steel

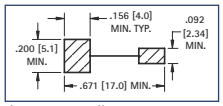
TIN-NICKEL PLATE		MATTE TIN PLATE	
CAT. NO. BULK	ON TAPE & REEL	CAT. NO. BULK	ON TAPE & REEL
50	50TR	550	550TR

Tape & Reel Spec's: 24mm wide; 16mm pitch; 13 inch reel, (500 pieces per reel)

"AAA" · "N" · "A23"



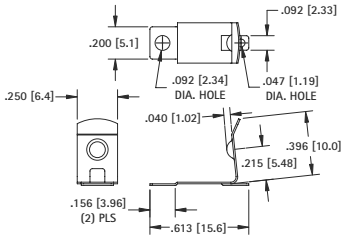
Pad Layout



MATERIAL: .010 (.25) Spring Steel

TIN-NICKEL PLATE		MATTE TIN PLATE	
CAT. NO. BULK	ON TAPE & REEL	CAT. NO. BULK	ON TAPE & REEL
55	55TR	555	555TR

Tape & Reel Spec's: 32mm wide; 16mm pitch; 13 inch reel, (300 pieces per reel)

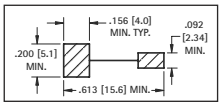


MATERIAL: .010 (.25) Spring Steel

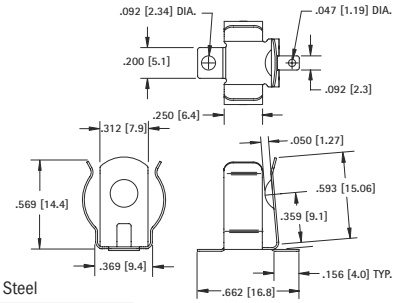
TIN-NICKEL PLATE		MATTE TIN PLATE	
CAT. NO. BULK	ON TAPE & REEL	CAT. NO. BULK	ON TAPE & REEL
56	56TR	556	556TR

Tape & Reel Spec's: 32mm wide; 20mm pitch; 13 inch reel, (250 pieces per reel)

Pad Layout



"AA" · "CR2" · "A"

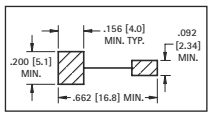


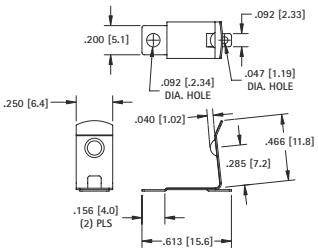
MATERIAL: .012 (.30) Spring Steel

TIN-NICKEL PLATE		MATTE TIN PLATE	
CAT. NO. BULK	ON TAPE & REEL	CAT. NO. BULK	ON TAPE & REEL
53	53TR	553	553TR

Tape & Reel Spec's: 32mm wide; 24mm pitch; 13 inch reel, (150 pieces per reel)

Pad Layout



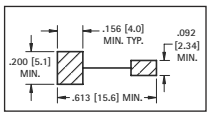


MATERIAL: .010 (.25) Spring Steel

TIN-NICKEL PLATE		MATTE TIN PLATE	
CAT. NO. BULK	ON TAPE & REEL	CAT. NO. BULK	ON TAPE & REEL
57	57TR	557	557TR

Tape & Reel Spec's: 32mm wide; 20mm pitch; 13 inch reel, (250 pieces per reel)

Pad Layout

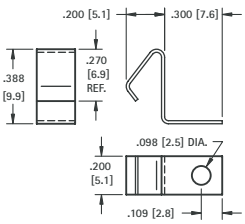


SURFACE MOUNT LEAF-SPRING CONTACTS

AVAILABLE ON TAPE AND REEL

- Economical & reliable contacts are ideal for surface mount applications
- Unique spring tension contacts adjust to variations in battery length
- Reliable spring tension contacts assure low contact resistance
- SMT solder tail with "flow-hole" design for increased joint strength

"AAA" · "AAAA" · "12V" · "N"

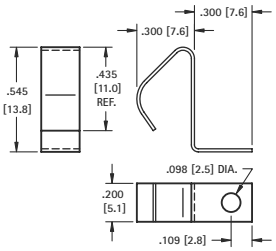


MATERIAL: .010 (.25) Spring Steel

TIN-NICKEL PLATE		MATTE TIN PLATE	
CAT. NO. BULK	ON TAPE & REEL	CAT. NO. BULK	ON TAPE & REEL
5230	5230TR	5330	5330TR

Tape and Reel Spec's: 24mm wide; 12mm pitch; 13 inch reel (400 pieces per reel)

"AA" · "CR2" ·"A" · "9V"



MATERIAL: .010 (.25) Spring Steel

TIN-NICKEL PLATE		MATTE TIN PLATE	
CAT. NO. BULK	ON TAPE & REEL	CAT. NO. BULK	ON TAPE & REEL
5231	5231TR	5331	5331TR

Tape and Reel Spec's: 32mm wide; 16mm pitch; 13 inch reel (250 pieces per reel)

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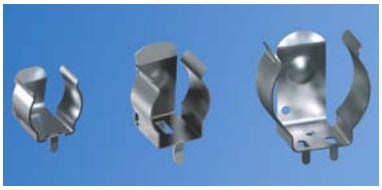
PC BATTERY CLIPS



- Mounts securely to the PC board with advanced "Snap-In" design for thru hole mounting
- Reliable spring tension assures low contact resistance
- Low profile, economical design
- Retains battery securely to withstand shock and vibration
- AAAA, AAA, AA, N, 12V, 2/3A, 17-19mm

Refer to page 33 for Battery Contact Layout & Mounting Details

"AAAA" · "A27"

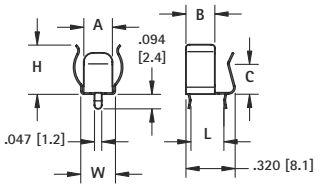


FIG. 1

"AAA" · "N" · "A23" · "AA" · "CR2"

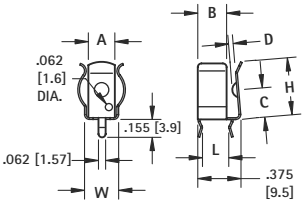
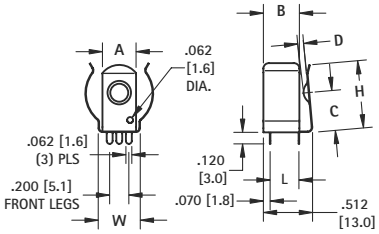


FIG. 2

"A" · 17–19mm*



*17335, 17450, 17500, 17650, 18600, 18650 cells

FIG. 3

MATERIAL: Spring Steel, Tin-Nickel Plate

CAT. NO.	FIG.	BATTERY SIZE	BATTERY DIAMETER	A	B	C	D	H	L	W	MATERIAL THICKNESS
51	1	"AAAA" • "A27"	.300-.350 (7.6-8.9)	.187 (4.8)	.187 (4.8)	.194 (4.9)	–	.320 (8.1)	.214 (5.4)	.226 (5.7)	.010 (.25)
82	2	"AAA" • "N" • "A23"	.375-.460 (9.5-11.7)	.250 (6.4)	.250 (6.4)	.280 (7.1)	.040 (1.0)	.498 (12.7)	.228 (5.8)	.296 (7.5)	.010 (.25)
52	2	"AA" • "CR2"	No Ears	.250 (6.4)	–	.280 (7.1)	.032 (0.8)	.498 (12.7)	.228 (5.8)	.250 (6.4)	.010 (.25)
92	2	"AA" • "CR2"	.531-.665 (13.5-16.9)	.312 (7.9)	.250 (6.4)	.359 (9.1)	.050 (1.3)	.593 (15.1)	.228 (5.8)	.369 (9.4)	.012 (.30)
2915	2	"AA" • "CR2"	.531-.665 (13.5-16.9)	.312 (7.9)	.250 (6.4)	.359 (9.1)	.050 (1.3)	.593 (15.1)	.228 (5.8)	.376 (9.5)	.015 (.38)
54	3	"A" • 17-19mm*	.669-.748 (17.0-19.0)	.350 (8.9)	.375 (9.5)	.385 (9.8)	.062 (1.6)	.653 (16.6)	.300 (7.6)	.438 (11.1)	.012 (.30)

*Battery Reference: 2/3A, 17335, 17450, 17500, 17650, 18500, 18650 cells

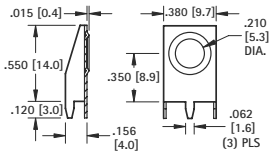
P.C. BUTTON & SPRING CONTACTS

- Space saving design installs directly onto the PC board
- Suitable for .062 (1.57) to .093 (2.36) PC boards
- Reliable spring tension assures low contact resistance
- Ideal for self-contained battery compartments

COIL SPRING

"CR2" · "AA"

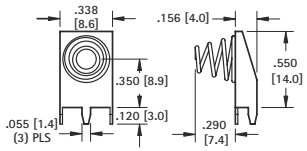
(+) POSITIVE BUTTON



MATERIAL:
Frame: .015 (.38) Steel, Tin-Nickel Plate

CAT. NO. 595

(-) NEGATIVE SPRING

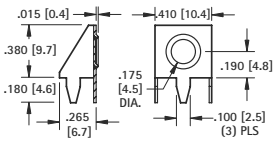


MATERIAL:
Frame: .015 (.38) Steel, Matte Tin Plate

CAT. NO. 628

"AAA" · "AA" · "N" · "A23"

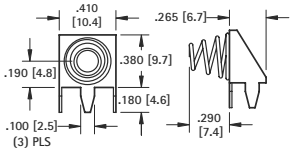
(+) POSITIVE BUTTON



MATERIAL:
Frame: .015 (.38) Steel, Tin-Nickel Plate

CAT. NO. 637

(-) NEGATIVE SPRING



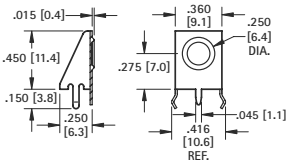
MATERIAL:
Frame: .015 (.38) Steel, Matte Tin Plate

CAT. NO. 629

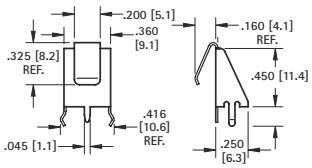
LEAF SPRING

MATERIAL: .012 (.30) Spring Steel, Tin-Nickel Plate

"AA" · "CR2" · "A"



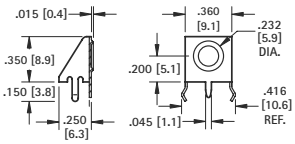
CAT. NO. 596



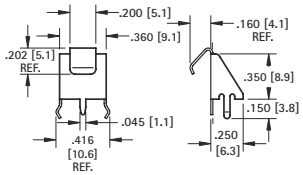
CAT. NO. 590

MATERIAL: .010 (.25) Spring Steel, Tin-Nickel Plate

"AAA" · "N" · "A23"



CAT. NO. 597



CAT. NO. 591

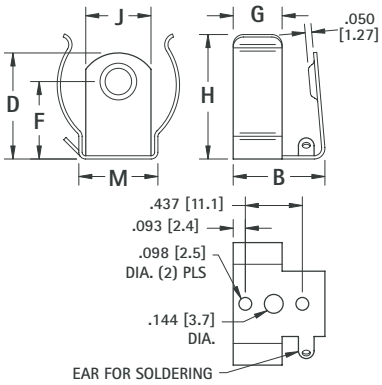
RUGGED STEEL BATTERY CLIPS

"AA" • "C" • "D"

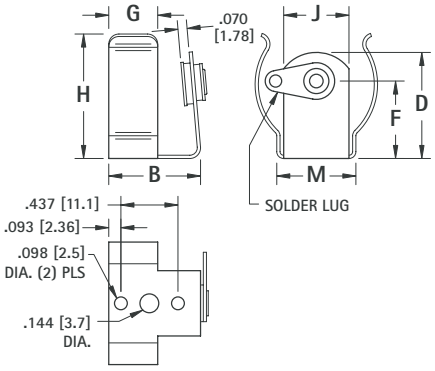
Refer to page 32 for Battery Contact Layout & Mounting Details

SPECIFICATIONS **Clips:** Spring Steel, Nickel Plate **Contact Eyelets:** Brass, Nickel Plate
Insulating Washers: Moisture Proof, Resin Impregnated Fibre **Solder Lugs:** Brass, Tin Plate

- Available with insulated or non-insulated contact. Positive contact grips battery securely.



DWG. 1
Non-Insulated Contact



DWG. 2
Insulated Contact

CAT. NO.	DWG. NO.	B	D	F	G	H	J	M	STEEL THICKNESS	BATTERY DIAMETER MIN. - MAX.	CELL SIZE
86	1	.703 (17.9)	.812 (20.6)	.593 (15.1)	.375 (9.5)	.937 (23.8)	.500 (12.7)	.605 (15.4)	.020 (.51)	.875 to 1.125 (22.2 to 28.6)	"C"
87	2										
88	2	.775 (19.7)	1.075 (27.3)	.750 (19.1)	.437 (11.1)	1.187 (30.1)	.500 (12.7)	.609 (15.5)	.020 (.51)	1.187 to 1.350 (30.1 to 34.3)	"D"
89	1										
99	1	.703 (17.9)	.609 (15.5)	.375 (9.5)	.375 (9.5)	.609 (15.5)	.312 (7.9)	.353 (9.0)	.015 (.39)	.531 to .650 (13.5 to 16.5)	"AA"
100	2										

ECONOMY CONTACTS

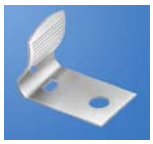
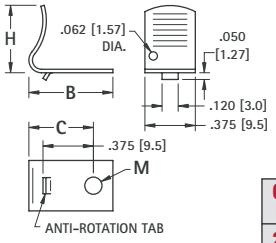


FIG. 1



"AA" • "C" • "D"

Refer to page 32 for Battery Contact Layout & Mounting Details

- Designed for mounting in self-contained, non-metallic battery compartments.
- Reliable spring tension assures low contact resistance.
- Recessed contact holds battery in place.
- All clips have anti-rotation tab.

CAT. NO.	FIG. NO.	B	C	H	M MTG. HOLE	CELL SIZE
206	1	.625 (15.9)	.480 (12.2)	.500 (12.7)	.128 (3.3)	"AA"
207	2	.687 (17.4)	.547 (13.9)	.875 (22.2)	.128 (3.3)	"C"
208	2	.750 (19.1)	.562 (14.3)	1.260 (32.0)	.128 (3.3)	"D"

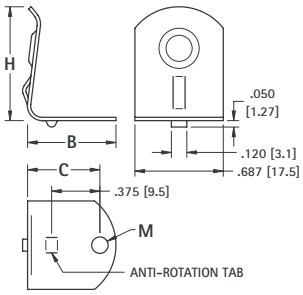


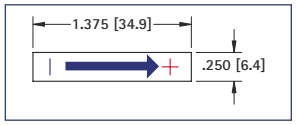
FIG. 2

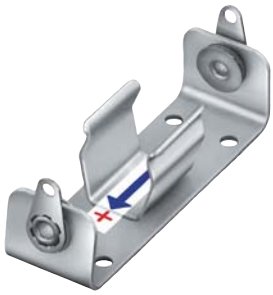
MATERIAL: .016 (.41) Spring Steel, Nickel Plate

POLARITY INDICATING LABEL

- No Gluing or Wetting Needed
- Pressure Sensitive Adhesive Back
- Economical
- Adheres To All Surfaces

Recommended where proper polarity of battery insertion or circuit polarity is to be shown. Labels are two color, (+) positive side red; arrow, (-) negative side blue.



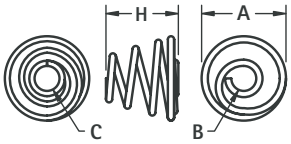


CAT. NO. 58

BATTERY SPRING CONTACTS

"2/3A" • "AA" • "C" • "D"

Easy to assemble with eyelets or rivets. Refer to page 142.



(FRONT) CONTACT (BACK) CONTACT

CAT. NO.	H	A	B	C	MATERIAL	CELL SIZE
211	.290 (7.4)	.335 (8.5)	.100 (2.5)	.140 (3.6)	.025 (.64) Dia. Spring Steel, Nickel Plate	"2/3 A" • "AA"
211-D	.850 (21.6)	.650 (16.5)	.162 (4.1)	.300 (7.6)	.040 (1.0) Dia. Spring Steel, Nickel Plate	"C" • "D"

INSULATED POLARIZING WASHERS

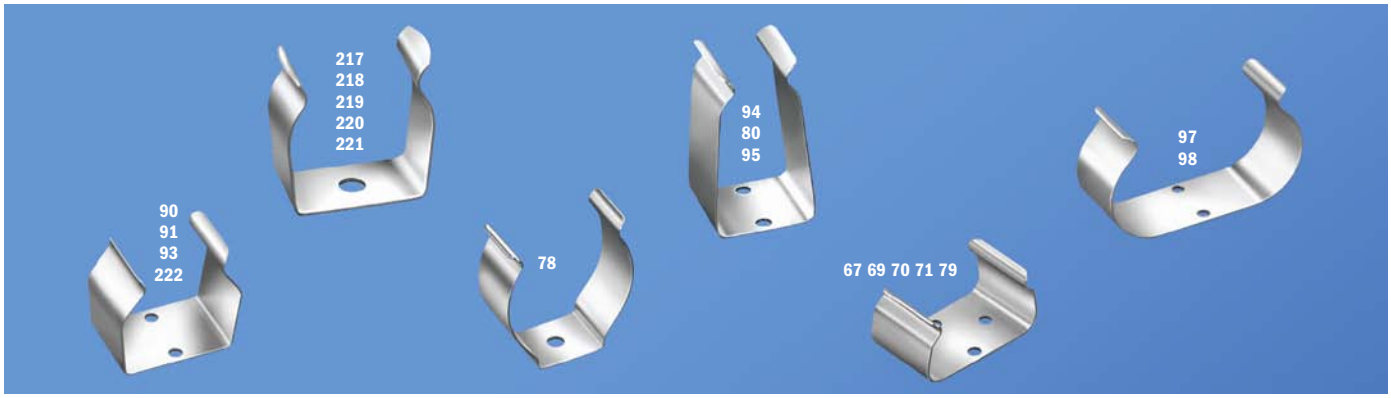
Prevents improper connection of battery which may cause damage to electronic equipment. Washers hold securely when snapped over eyelets. Used on our standardized battery holders. For "AA", "C" & "D" cells.

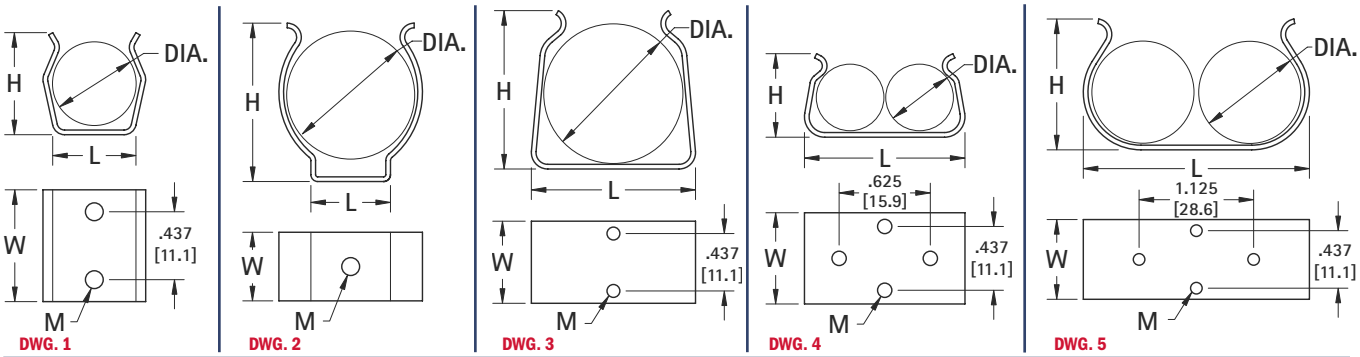
CAT. NO. 59 (RED) **CAT. NO. 60** (BLACK) **MATERIAL:** Molded Polyethylene

Tel (718) 956-8900 • Fax (718) 956-9040
(800) 221-5510 • kec@keyelco.com
KEYSTONE
RoHS COMPLIANT — ISO 9001 CERTIFIED
www.keyelco.com
31-07 20th Road – Astoria, NY 11105-2017

ALUMINUM & STEEL CLIPS

Precision made spring clips are available in a wide range of sizes. These clips will hold round, square and rectangular batteries or components with similar dimensions. Clips are manufactured from Aluminum or Spring Steel.





MATERIAL: **Steel Clips:** Spring Steel, Nickel Plate **Aluminum Clips:** 2024-T3

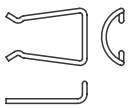
CAT. NO.	DWG. NO.	REF: CELL SIZE/BATTERTY DIA. (SQ.)	H	L	W	M	MATERIAL
		"AAA" CELL					
90	1	.375 to .468 (9.5 to 11.9)	.453 (11.5)	.312 (7.9)	.625 (15.9)	.098 (2.5)	.020 (.51) Alum.
		"AA", "CR2" CELL					
91	1	.531 to .656 (13.5 to 16.7)	.562 (14.3)	.406 (10.3)	.625 (15.9)	.098 (2.5)	.020 (.51) Alum.
69	4		.562 (14.3)	1.125 (28.6)	.625 (15.9)	.098 (2.5)	.015 (.39) Steel
		"C" CELL					
222	1	.875 to 1.125 (22.2 to 28.6)	.921 (23.4)	.937 (23.8)	.625 (15.9)	.098 (2.5)	.020 (.51) Steel
93	1		.921 (23.4)	.937 (23.8)	.625 (15.9)	.098 (2.5)	.020 (.51) Alum.
97*	5		1.125 (28.6)	2.062 (52.4)	.625 (15.9)	.098 (2.5)	.020 (.51) Alum.
		"D" CELL					
94	3	1.187 to 1.375 (30.1 to 34.9)	1.218 (30.9)	1.250 (31.8)	.625 (15.9)	.098 (2.5)	.032 (.81) Alum.
78	2		1.218 (30.9)	.562 (14.3)	.500 (12.7)	.136 (3.5)	.020 (.51) Steel
98	5		1.437 (36.5)	2.656 (67.5)	1.000 (25.4)	.098 (2.5)	.032 (.81) Alum.
		"A", "2/3A" CELL					
70	4	.656 to .690 (16.7 to 17.0)	.740 (18.8)	1.343 (34.1)	.625 (15.9)	.098 (2.5)	.025 (.64) Alum.
		"9" VOLT CELL					
71	3	.593 (15.1) × 1.031 (26.2)	.687 (17.4)	1.031 (26.2)	.625 (15.9)	.098 (2.5)	.015 (.39) Steel
79	4	.650 (16.5) × 1.043 (26.5)	.765 (19.4)	1.050 (26.7)	.625 (15.9)	.098 (2.5)	.015 (.39) Steel
66	3	.689 (17.5) × 1.043 (26.5)	.825 (21.0)	1.069 (27.2)	.625 (15.9)	.098 (2.5)	.015 (.39) Steel
80	3	.650 (16.5) × 1.043 (26.5)	1.187 (30.1)	.675 (17.1)	.625 (15.9)	.098 (2.5)	.015 (.39) Steel
95	3	.650 (16.5) × 1.043 (26.5)	1.125 (28.6)	.656 (16.7)	.625 (15.9)	.098 (2.5)	.020 (.51) Alum.
		"NiCd" CELL					
217	2	1.375 to 1.500 (34.9 to 38.1)	1.430 (36.3)	1.218 (30.9)	.812 (20.6)	.157 (4.0)	.025 (.64) Steel
218	2	1.437 to 1.687 (36.5 to 42.8)	1.531 (38.9)	1.375 (34.9)	.812 (20.6)	.157 (4.0)	.025 (.64) Steel
219	2	2.000 to 2.500 (50.8 to 63.5)	2.156 (54.8)	1.687 (42.8)	.812 (20.6)	.157 (4.0)	.025 (.64) Steel
		"SUB-C" CELL					
221	2	.859 to .890 (21.8 to 22.6)	.906 (23.0)	.828 (21)	.468 (11.9)	.157 (4.0)	.020 (.51) Steel

*ONLY TWO MOUNTING HOLES

BATTERY RETAINER CLIPS

- Prevents battery from loosening in battery holder
- Retainer clip slips on the ears of the battery holder clip

"AA" · "CR2"

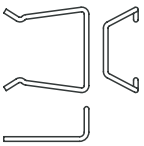


Used with Keystone Battery Clips Cat. No. 91, 92, 95, 99, 100 and 2915.

MATERIAL: Stainless Steel

CAT. NO. 61

"C"

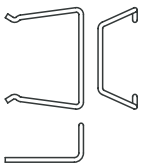


Used with Keystone Battery Clips Cat. No. 86, 87, 93 and 222.

MATERIAL: Spring Steel, Nickel Plate

CAT. NO. 62

"D"



Used with Keystone Battery Clips Cat. No. 88, 89 and 94.

MATERIAL: Spring Steel, Nickel Plate

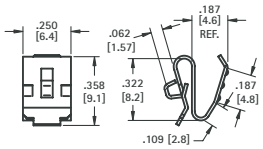
CAT. NO. 63

SNAP-ON CONTACTS

- Economical and reliable contacts are ideal for molded cases with self contained battery compartments
- Solder "ear" to facilitate soldering of wire lead
- Unique spring tension contact adjusts to variations in battery length
- Reliable spring tension contacts assure low contact resistance
- Clips easily onto .060 (1.52) to .070 (1.78) wall
- Sharp barbs securely anchor contact in place

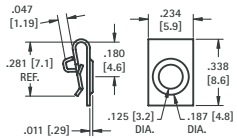
Refer to page 34 for Battery Contact Layout & Mounting Details

"AAA" • "AAAA" • "N" • "12V"



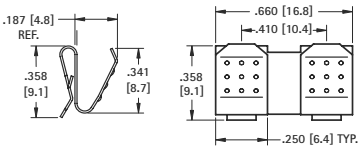
CAT. NO. 204

MATERIAL: .010 (.25) Spring Steel, Nickel Plate



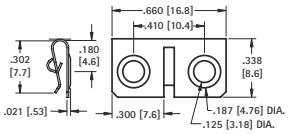
CAT. NO. 238

MATERIAL: .010 (.25) Spring Steel, Nickel Plate



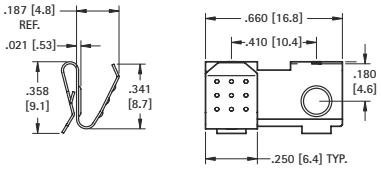
CAT. NO. 202

MATERIAL: .010 (.25) Spring Steel, Nickel Plate



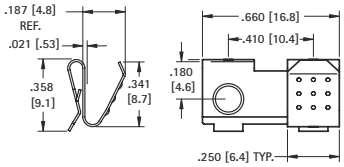
CAT. NO. 294

MATERIAL: .010 (.25) Spring Steel, Nickel Plate



CAT. NO. 295

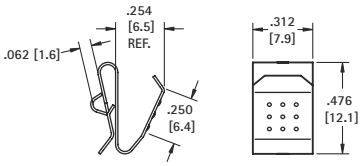
MATERIAL: .010 (.25) Spring Steel, Nickel Plate



CAT. NO. 296

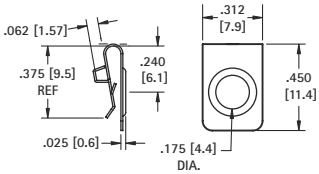
MATERIAL: .010 (.25) Spring Steel, Nickel Plate

"AA" • "CR2" • "A"



CAT. NO. 209

MATERIAL: 012 (.30) Spring Steel, Nickel Plate

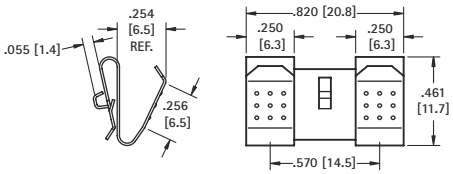


CAT. NO. 228

MATERIAL: 010 (.25) Spring Steel, Nickel Plate

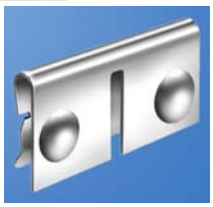
"AA"

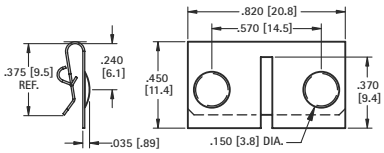
- The (2) two leaf contacts are separate, allowing a divider between the batteries.



CAT. NO. 288

MATERIAL: 012 (.30) Spring Steel, Nickel Plate

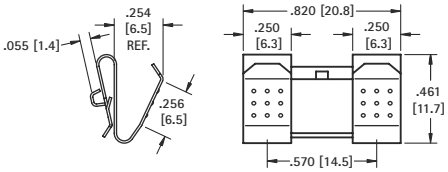




CAT. NO. 292

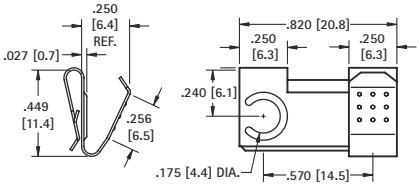
MATERIAL: 010 (.25) Spring Steel, Nickel Plate

- The (2) two leaf contacts are held together by a web. This design offers greater stability.



CAT. NO. 210

MATERIAL: .012 (.30) Spring Steel, Nickel Plate



CAT. NO. 291 Right

CAT. NO. 290 Left (shown)

MATERIAL: 012 (.30) Spring Steel, Nickel Plate

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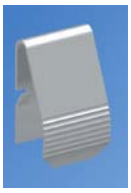
SLIDE-IN MOUNT CONTACTS

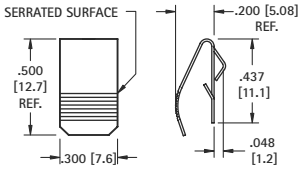
- Economical and reliable contacts are ideal for molded cases with self contained battery compartments
- Solder "ear" to faciltate soldering of wire lead
- Unique spring tension contact adjusts to variations in battery lengths
- Reliable spring tension contacts assure low contact resistance
- Clips easily onto .060 (1.52) to .070 (1.78) wall
- Sharp barbs securely anchor contact

Refer to page 34 for Battery Contact Layout & Mounting Details

"AA" · "CR2" · "A" · "9V"

- Press fit into housing groove.

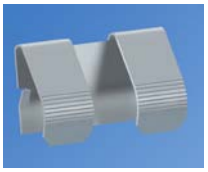


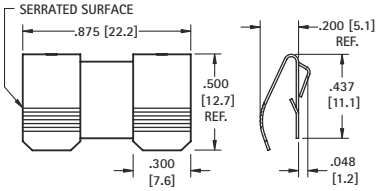


CAT. NO. 5205

MATERIAL: .012 (.30) Spring Steel, Nickel Plate

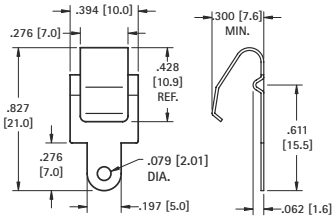
"AA"





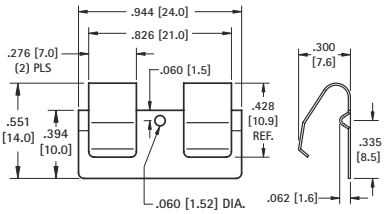
CAT. NO. 5206

MATERIAL: .012 (.30) Spring Steel, Nickel Plate



CAT. NO. 5209

MATERIAL: .012 (.30) Phosphor Bronze, Nickel Plate



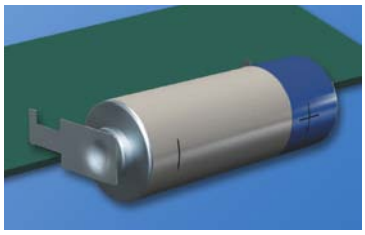
CAT. NO. 5208

MATERIAL: .012 (.30) Phosphor Bronze, Nickel Plate

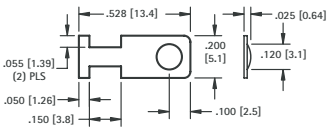
SLIDE-IN P.C. MOUNT CONTACTS

- Economical and reliable contacts
- Designed for direct placement onto PCB, no wire leads required
- Unique spring tension adjusts to variations in battery length
- Reliable spring tension assure low contact resistance and dependable connection
- Symmetrical design allows these contacts to function both as a positive and negative contacts

"AAA" · "AAAA" · "N" · "12V"



- "Off-Board" edge mounting design frees up valuable board space

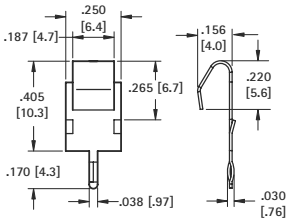


CAT. NO. 230-1

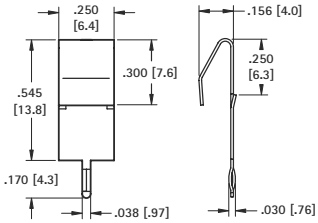
MATERIAL: .008 (.20) Spring Steel, Nickel plate

UNIVERSAL BATTERY SIZES

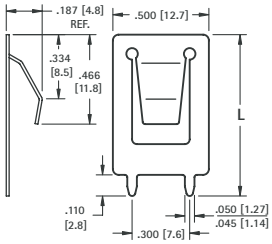
MATERIAL: .012 (.30) Phosphor Bronze, Tin-Nickel plate



CAT. NO. 1021-1



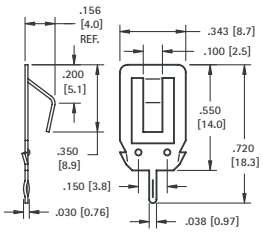
CAT. NO. 1017-1



CAT. NO.	(L) Length
109-2	.840 (21.3)
109-3	1.000 (25.4)

MATERIAL: .012 (.30) Spring Steel, Nickel plate

- Made from corrosion resistant Stainless Steel

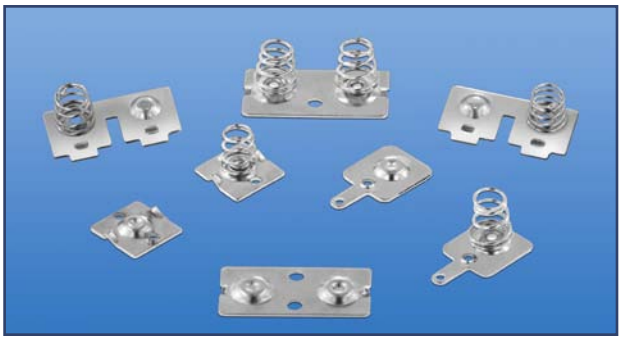


CAT. NO. 108-2

MATERIAL: .012 (.30) Stainless Steel, Tin-Nickel plate

SPRING & BUTTON CONTACTS

- Economical and reliable contacts are ideal for molded cases with self contained battery compartments
- "Solder tab" design for either wire lead or PC mounting
- Unique spring contacts adjust to variations in battery lengths
- Reliable spring contacts assure low contact resistance and a dependable connection
- Space saving, economical, excellent mechanical construction

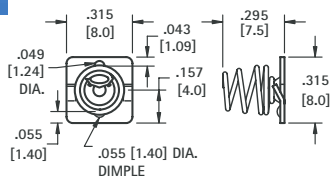


MATERIAL:
Plate: .020 (.51) Steel, Nickel Plate **Spring:** Spring Steel, Nickel Plate

Refer to page 35 for Battery Contact Layout & Mounting Details

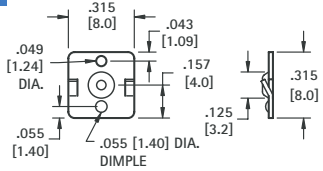
"AAA" · "AAAA" · "N" · "12V"

(-) NEGATIVE SPRING



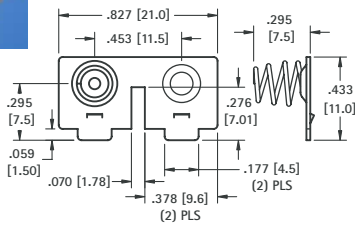
CAT. NO. 5203

(+) POSITIVE BUTTON



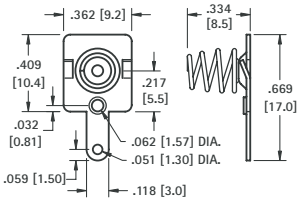
CAT. NO. 5225

DUAL CONTACT (RIGHT)



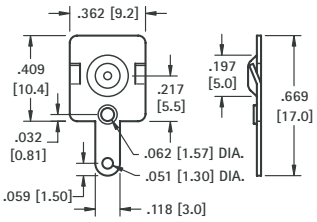
CAT. NO. 5213

(-) NEGATIVE SPRING WITH TAB



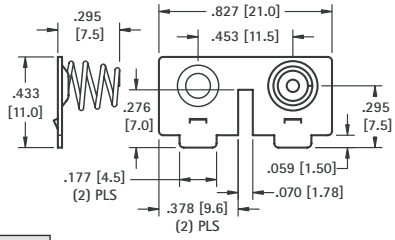
CAT. NO. 5204

(+) POSITIVE BUTTON WITH TAB



CAT. NO. 5226

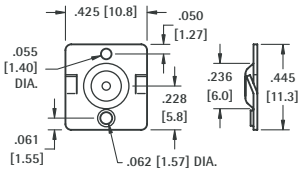
DUAL CONTACT (LEFT)



CAT. NO. 5214

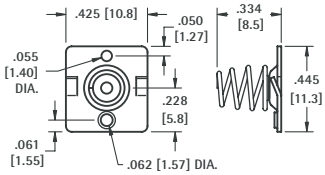
"AA" · "CR2" · "A"

(+) POSITIVE BUTTON



CAT. NO. 5224

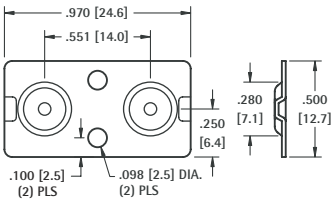
(-) NEGATIVE SPRING



CAT. NO. 5202

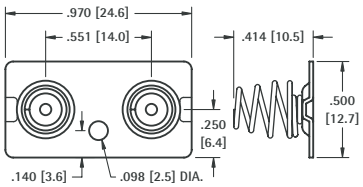
"AA"

DUAL BUTTON CONTACT



CAT. NO. 5227

DUAL SPRING CONTACT



CAT. NO. 5228

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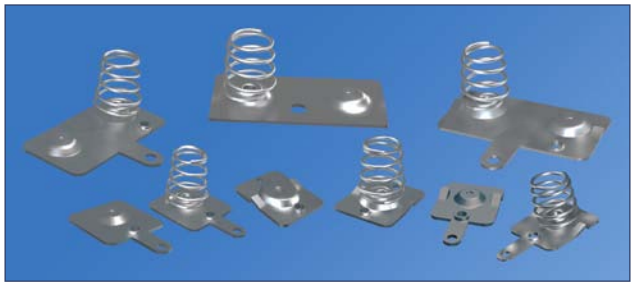
- Economical and reliable contacts are ideal for molded cases with self contained battery compartments
- "Solder tab" design for either wire lead or PC mounting
- Unique spring contacts adjust to variations in battery lengths
- Reliable spring contacts assure low contact resistance and a dependable connection
- Space saving, economical, excellent mechanical construction

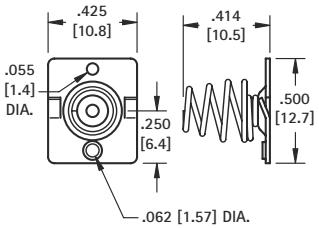


MATERIAL:
Plate: .020 (.51) Steel, Nickel Plate **Spring:** Spring Steel, Nickel Plate

Refer to page 35 for Battery Contact Layout & Mounting Details

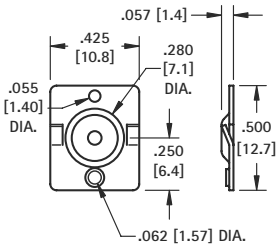
"AA" · "CR2" · "A"

(-) NEGATIVE SPRING



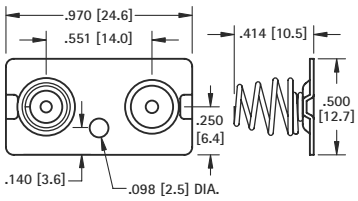
CAT. NO. 5222

(+) POSITIVE BUTTON



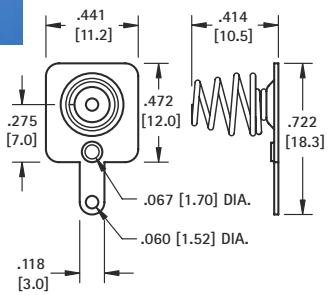
CAT. NO. 5221

DUAL CONTACT ("AA" ONLY)



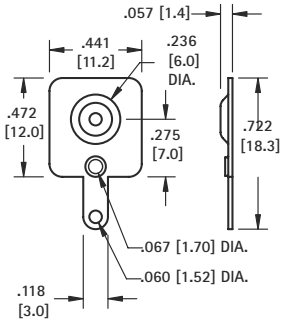
CAT. NO. 5212 Left or Right

(-) NEGATIVE SPRING WITH TAB



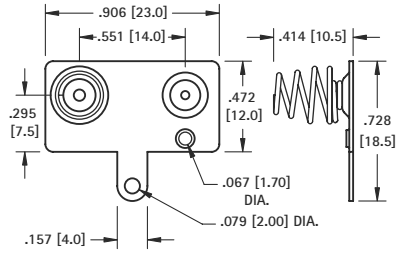
CAT. NO. 5201

(+) POSITIVE BUTTON WITH TAB



CAT. NO. 5223

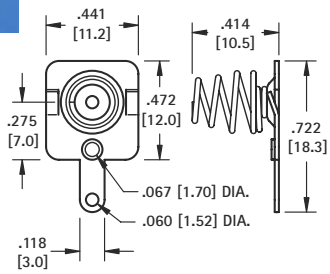
DUAL CONTACT ("AA" ONLY)



CAT. NO. 5210 Left

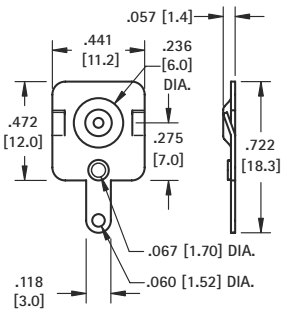
CAT. NO. 5211 Right (Shown)

(-) NEGATIVE SPRING WITH TAB/LANCE



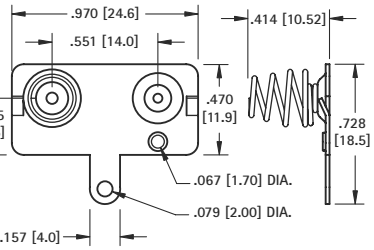
CAT. NO. 5220

(+) POSITIVE BUTTON WITH TAB/LANCE



CAT. NO. 5219

DUAL CONTACT WITH TAB ("AA" ONLY)



CAT. NO. 5218 Left

CAT. NO. 5217 Right (Shown)

SPRING & BUTTON CONTACTS

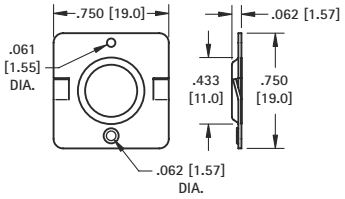
- Economical and reliable contacts are ideal for molded cases with self contained battery compartments
- "Solder tab" design for either wire lead or PC mounting
- Unique spring contacts adjust to variations in battery lengths
- Reliable spring contacts assure low contact resistance and a dependable connection
- Space saving, economical, excellent mechanical construction

MATERIAL:
Plate: .020 (.51) Steel, Nickel Plate **Spring:** Spring Steel, Nickel Plate

Refer to page 35 for Battery Contact Layout & Mounting Details

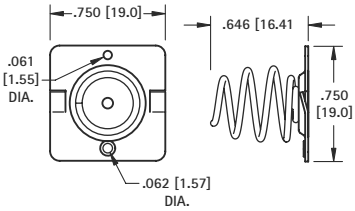
"C" CELL

(+) POSITIVE BUTTON



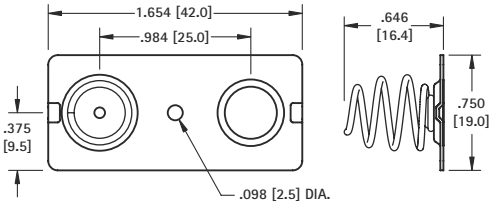
CAT. NO. 5240

(-) NEGATIVE SPRING



CAT. NO. 5241

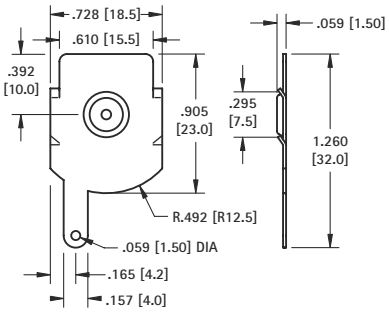
DUAL CONTACT



CAT. NO. 5242

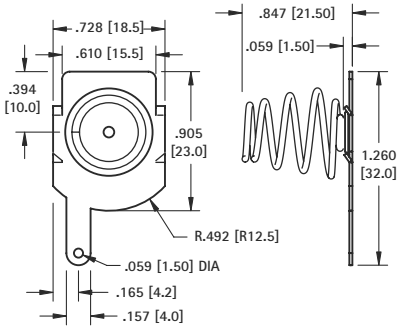
"D" CELL

(+) POSITIVE BUTTON



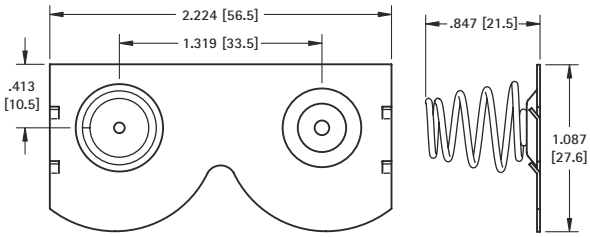
CAT. NO. 5250

(-) NEGATIVE SPRING



CAT. NO. 5251

DUAL CONTACT



CAT. NO. 5253 Left

CAT. NO. 5252 Right (Shown)

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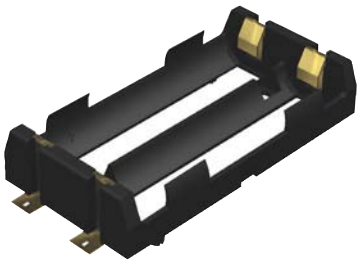
"18650" CELL

NOTE: PC Mount Battery Clip Available See Page 9.



FEATURES

- Low profile surface mount holder for Cylindrical Lithium and alkaline batteries
- UL 94V-0 heat resistant nylon housing well suited for reflow soldering
- Battery installation and removal does not require tools
- Securely holds battery in place
- Polarity clearly marked for orientation
- Accomodates cells with or without built-in PCB protection circuits

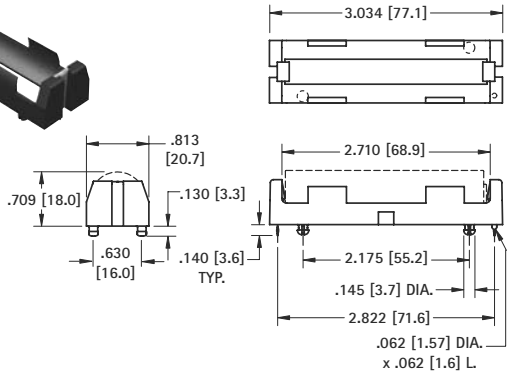
Operating Temp Range:
-60°F to +290°F (-50°C to +145°C)

APPLICATIONS

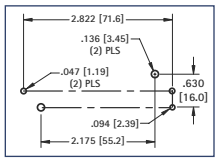
- Computer memory, power backup systems
- Digital readers
- Laptop and touch pad computers
- PLC and industrial controls

THRU HOLE MOUNT

SINGLE CELL



Mounting Detail

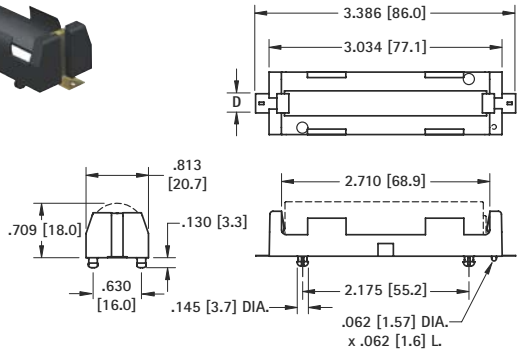


SPECIFICATIONS
Base: High Temp Nylon 46, UL 94V-0
Contacts: .012 (.30) Phosphor Bronze, Tin-Nickel Plate

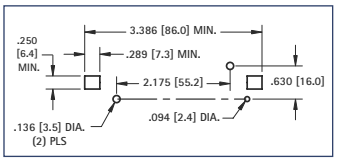
CAT. NO. 1043

SURFACE MOUNT

SINGLE CELL



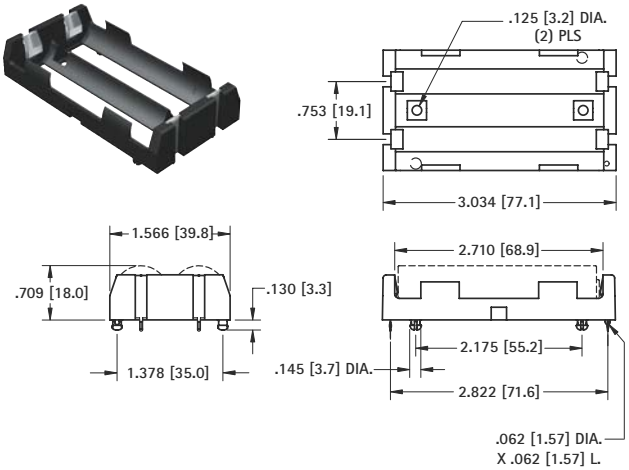
Pad Layout



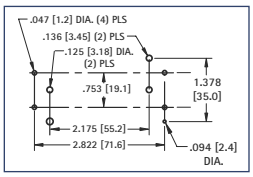
SPECIFICATIONS
Base: High Temp Nylon 46, UL 94V-0
Contacts: .012 (.30) Phosphor Bronze, Gold Plate (Flash)

CAT. NO. 1042

DUAL CELL

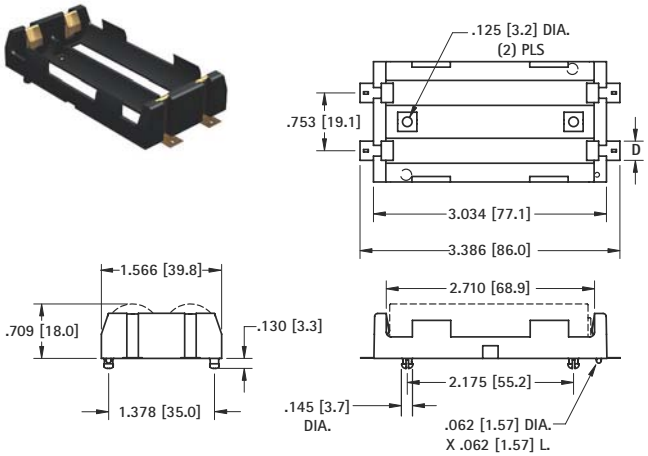


Mounting Detail

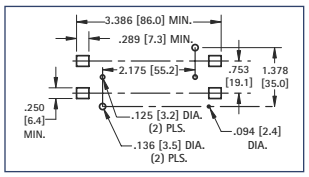


SPECIFICATIONS
Base: High Temp Nylon 46, UL 94V-0
Contacts: .012 (.30) Phosphor Bronze, Tin-Nickel Plate

CAT. NO. 1049



Pad Layout



SPECIFICATIONS
Base: High Temp Nylon 46, UL 94V-0
Contacts: .012 (.30) Phosphor Bronze, Gold Plate (Flash)

CAT. NO. 1048

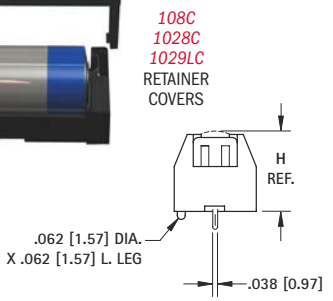
THM LOW PROFILE LITHIUM & ALKALINE CELL HOLDERS

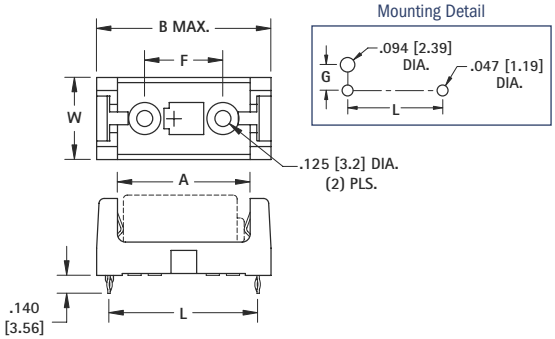
"1/3N" · "AAA" · "1/2AA · "CR2" · "AA" · "2/3A"

FEATURES
- Snap–In PC contact holds firmly in position for wave soldering
- Tin Nickel Plated contacts for excellent solderability and durability
- Polarity clearly marked for orientation
- Snap–on retainer cover (optional) retains battery securely to withstand shock and vibration. Helps protect against shorting. Tamper–proof.

APPLICATIONS
- Computer memory, power backup systems.
- Telecommunications
- Residential, industrial and commercial security systems
- PLC and industrial controls

THM LOW PROFILE

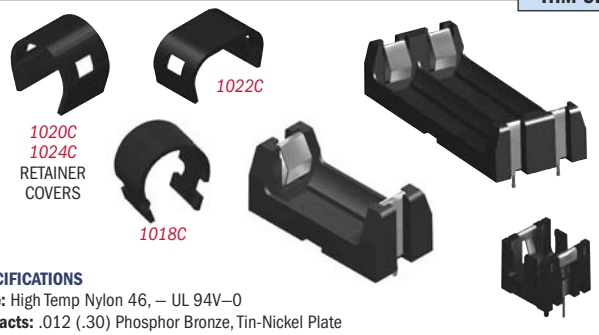




SPECIFICATIONS
Base/Retainer Cover: PBT, UL 94V-0
Contacts: .012 (.30) Stainless Steel, Tin-Nickel Plate
Operating Temp Range: –60°F to +290°F (–50°C to +145°C)

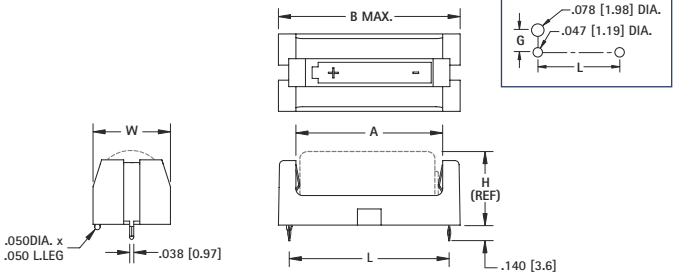
HOLDER CAT. NO.	COVER CAT. NO.	L	W	H (Ref. Dim)	A	B (MAX)	F	G	CELL SIZE	BATTERY CROSS REFERENCE
108	108C	1.160 (29.5)	.640 (16.3)	.633 (16.1)	1.030 (26.2)	1.360 (34.5)	.610 (15.5)	.279 (7.1)	"1/2 AA" "CR2"	**Energizer** 544, CR2, **Duracell** PX28L, CR2, **Kodak** K28A & KS28, CR2, **Panasonic** CR14250, CR2, **Saft** LCP3, **Maxell** 4LR44, CR2, **Sanyo** CR14250SE, CR2
1028	1024C 1028C	2.160 (54.9)	.640 (16.3)	.633 (16.1)	2.040 (51.8)	2.360 (59.9)	1.610 (40.9)	.279 (7.1)	"AA"	**Energizer, Duracell, Panasonic, Sanyo, Varta, Rayovac, Tadiran**
1029	1029C 1029LC	1.500 (38.1)	.720 (18.3)	.712 (18.1)	1.375 (34.9)	1.700 (43.2)	.950 (24.1)	.320 (8.1)	"2/3 A"	**Duracell** DL2/3A, **Kodak** K123L, **Panasonic** CR123A, **Saft** 450SC & VR0450, **Sanyo** CR17335SE

THM ULTRA LOW PROFILE



SPECIFICATIONS
Base: High Temp Nylon 46, – UL 94V–0
Contacts: .012 (.30) Phosphor Bronze, Tin-Nickel Plate
Operating Temp Range: -60°F to +290°F (-50°C to +145°C)

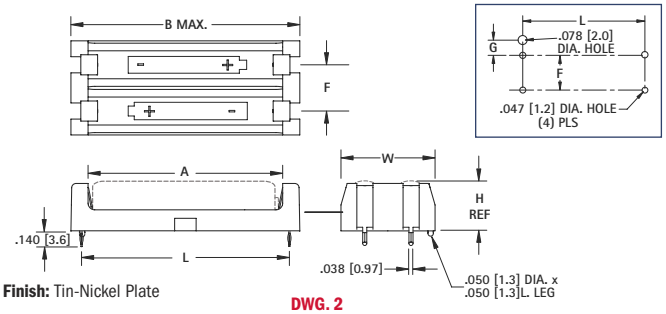
SINGLE



Finish: Tin-Nickel Plate

DWG. 1

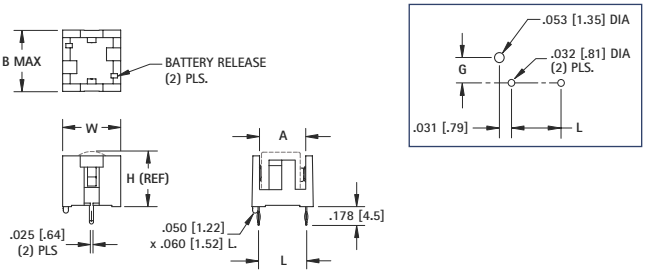
DUAL



Finish: Tin-Nickel Plate

DWG. 2

"1/3N"



Finish: Tin Plate

DWG. 3

HOLDER CAT. NO.	COVER CAT. NO.	DWG NO.	L	W	H (Ref. Dim)	A	B (MAX)	F	G	CELL SIZE	BATTERY CROSS REFERENCE
1015	1024C	1	2.145 (54.5)	.612 (15.5)	.603 (15.3)	2.040 (51.8)	2.359 (59.9)	–	.265 (6.7)	"AA"	**Energizer, Duracell, Panasonic, Sanyo, Varta, Rayovac, Tadiran**
1013	1012C	2	2.145 (54.5)	1.180 (30.0)	.603 (15.3)	2.040 (51.8)	2.359 (59.9)	.568 (14.4)	.265 (6.7)	"AA"	**Energizer, Duracell, Panasonic, Sanyo, Varta, Rayovac, Tadiran**
1021	1020C	1	1.933 (49.1)	.500 (12.7)	.445 (11.3)	1.810 (46.0)	2.140 (54.4)	–	.209 (5.3)	"AAA"	**Energizer, Duracell, Panasonic, Sanyo, Varta, Rayovac, Tadiran**
1023	1022C	2	1.933 (49.1)	.875 (22.2)	.445 (11.3)	1.810 (46.0)	2.140 (54.4)	.430 (10.9)	.182 (4.6)	"AAA"	**Energizer, Duracell, Panasonic, Sanyo, Varta, Rayovac, Tadiran**
1019	1018C	1	1.487 (37.8)	.720 (18.3)	.682 (17.3)	1.365 (42.9)	1.690 (42.9)	–	.319 (8.1)	"2/3 A"	**Duracell** DL2/3A, **Kodak** K123L, **Panasonic** CR123A, **Saft** 450SC & VR0450, **Sanyo** CR17335SE
1017	1024C	1	1.156 (29.4)	.612 (15.5)	.603 (15.3)	1.030 (26.2)	1.360 (34.5)	–	.265 (6.7)	"1/2 AA"	**Energizer** 544, **Duracell** PX28L, **Kodak** K28A & KS28, **Saft** LCP3, **Maxell** 4LR44, **Sanyo** CR14250SE
503	—	3	.450 (11.4)	.540 (13.7)	.506 (12.9)	.430 (10.9)	.570 (14.5)	–	.240 (6.1)	"1/3 N"	**Duracell** DL1/3N, **Sanyo** K58L, **Energizer** CR1/3N

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SMT LOW PROFILE LITHIUM & ALKALINE CELL HOLDERS

"1/3N" · "AAA" · "1/2AA" · "AA" · " 2/3A"

AVAILABLE ON TAPE AND REEL

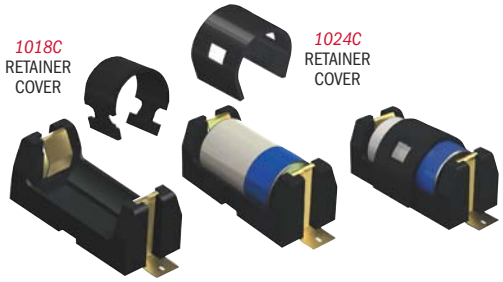
FEATURES

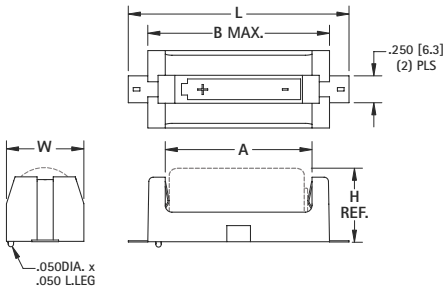
- Low profile surface mount holders for Cylindrical Lithium and Alkaline batteries
- UL 94V-0 Heat resistant Nylon Housings well suited for reflow soldering
- Designed for vacuum pick and place assembly
- Gold-plated Phosphor Bronze contacts assure low contact resistance and are readily solderable
- Ideal for both lead free solder and traditional solder process
- Battery installation and removal does not require tools
- Securely holds battery in place
- Polarity clearly marked for orentation
- Operating temp range: -60°F to +290°F (-50°C to +145°C)

APPLICATIONS

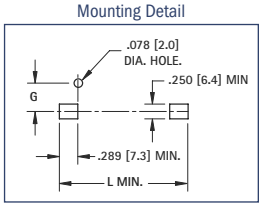
- Computer memory, power backup systems
- Telecommunications
- Residential, industrial and commercial security systems
- PLC and industrial controls

SMT ULTRA LOW PROFILE





Mounting Detail



SPECIFICATIONS

Base: High Temp Nylon 46, UL 94V-0
Contacts: .012 (.30) Phosphor Bronze, Gold Plate (Flash)

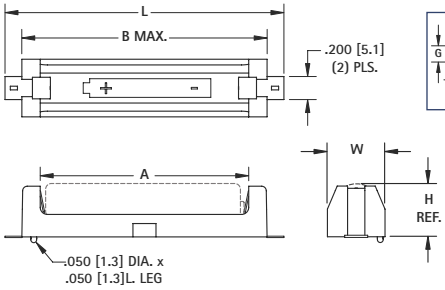
CAT. NO. BULK	ON TAPE & REEL	COVER	L	W	H (REF)	A	B (MAX)	G	CELL SIZE	TAPE & REEL SPECS PACKED ON 13" REEL	BATTERY CROSS REFERENCE
1016	1016TR	1024C	1.723 (43.8)	.612 (15.5)	.603 (15.3)	1.030 (26.2)	1.360 (34.5)	.265 (6.7)	"1/2 AA"	56mm wide, 24mm pitch 125 pcs/reel	**Energizer** 544, **Duracell** PX28L, **Kodak** K28A & KS28, **Panasonic** CR14250, **Saft** LCP3, **Maxell** 4LR44, **Sanyo** CR14250SE
1024	1024TR	1024C	2.711 (68.9)	.612 (15.5)	.603 (15.3)	2.040 (51.8)	2.359 (59.9)	.265 (6.7)	"AA"	88mm wide, 28mm pitch, 100 pcs/reel	**Energizer, Duracell, Panasonic, Sanyo, Varta, Rayovac, Tadiran**
1018	1018TR	1018C	2.053 (52.2)	.720 (18.3)	.682 (17.3)	1.365 (34.7)	1.690 (42.9)	.319 (8.1)	"2/3 A"	72mm wide, 32mm pitch, 100 pcs/reel	**Duracell** DL2/3A, **Kodak** K123L, **Panasonic** CR123A, **Saft** 450SC & VR0450, **Sanyo** CR17335SE

SMT ULTRA LOW PROFILE

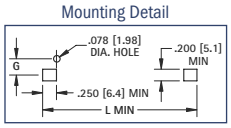
SPECIFICATIONS

Base: High Temp Nylon 46, UL 94V-0
Contacts: .012 (.30) Phosphor Bronze, Gold Plate (Flash)
Operating Temp: -60°F to +290°F (-50°C to +145°C)

SINGLE

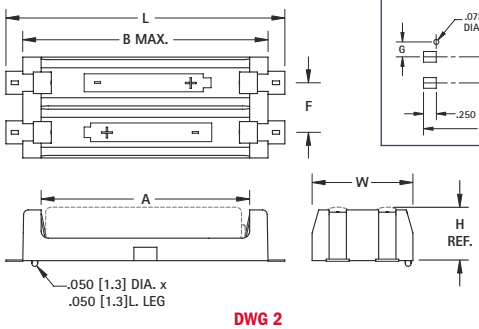


Mounting Detail

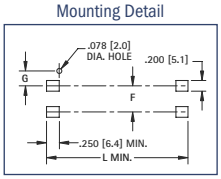


DWG 1

DUAL

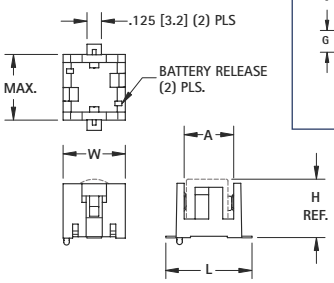


Mounting Detail

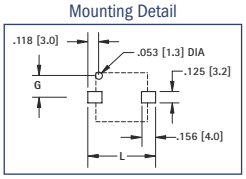


DWG 2

"1/3N"



Mounting Detail



DWG 3

CAT. NO. BULK	ON TAPE & REEL	COVER	DWG NO.	L	W	H (REF)	A	B (MAX)	F	G	CELL SIZE	TAPE AND REEL SPECS PACKED ON 13" REEL	BATTERY CROSS REFERENCE
1020	1020TR	1020C	1	2.421 (61.5)	.500 (12.7)	.445 (11.3)	1.810 (46.0)	2.140 (54.4)	–	.209 (5.3)	"AAA"	88mm Wide, 24mm pitch, 200 pcs/reel	**Energizer, Duracell, Panasonic, Sanyo, Varta, Rayovac, Tadiran**
1022	1022TR	1022C	2	2.421 (61.5)	.875 (22.2)	.445 (11.3)	1.810 (46.0)	2.140 (54.4)	.430 (10.9)	.182 (4.6)	"AAA"	88mm Wide, 32mm pitch, 125 pcs/reel	**Energizer, Duracell, Panasonic, Sanyo, Varta, Rayovac, Tadiran**
1024	1024TR	1024C	1	2.711 (68.9)	.612 (15.5)	.603 (15.3)	2.040 (51.8)	2.359 (59.9)	–	.265 (6.7)	"AA"	88mm wide, 28mm pitch, 100 pcs/reel	**Energizer, Duracell, Panasonic, Sanyo, Varta, Rayovac, Tadiran**
1012	1012TR	1012C	2	2.711 (68.9)	1.180 (30.0)	.603 (15.3)	2.040 (51.8)	2.359 (59.9)	.568 (14.4)	.265 (6.7)	"AA"	88mm Wide, 48mm pitch, 100 pcs/reel	**Energizer, Duracell, Panasonic, Sanyo, Varta, Rayovac, Tadiran**
498	498TR	—	3	.748 (19.0)	.540 (13.7)	.506 (12.9)	.430 (10.9)	.570 (14.5)	–	.240 (6.1)	"1/3 N"	44mm Wide, 24mm pitch, 125 pcs/reel	**Duracell DL1/3N, Sanyo K58L, Energizer CR1/3N**

SMT & THM POLARIZED LITHIUM CELL HOLDERS

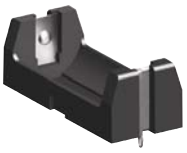
"CR2" - "CR123A"

FEATURES

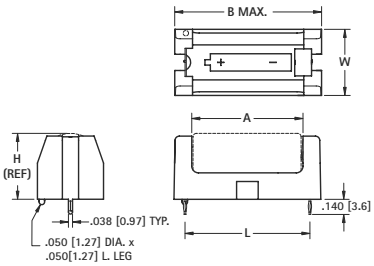
- Low profile surface mount and Thru Hole Mount Holders for Lithium batteries
- UL 94V-0 Heat resistant Nylon Housings well suited for reflow or wave soldering.
- Battery installation and removal does not require tools.
- Securely holds battery in place
- Polarized holder offers circuit protection against improper battery installation

APPLICATIONS

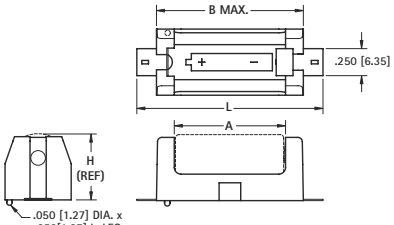
- Computer memory, power backup systems
- Telecommunications
- Residential, industrial security systems
- PLC and industrial controls



Thru-Hole Mount (THM)

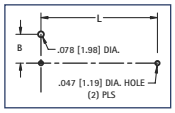


1018C
RETAINER
COVER
FITS ALL
HOLDERS



Surface Mount (SMT)

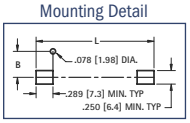
Mounting Detail



SPECIFICATIONS

Base: High Temp Nylon 46, UL Rated 94V-0
Contacts: .012 (1.30) Phosphor Bronze, Gold Plate (Flash) - SMT
.012 (1.30) Phosphor Bronze, Tin-Nickel Plate - THM
Operating temp range: -60°F to 290°F (-50°C to 145°C)

Mounting Detail



CAT. NO.	MOUNTING STYLE	L	W	H (Ref)	A	B (MAX)	G	CELL SIZE
1010	SMT	1.723 (43.8)	.612 (15.5)	.661 (16.8)	1.030 (26.2)	1.360 (34.5)	.265 (6.7)	CR2
1011	THM	1.156 (29.4)						
1050	SMT	2.062 (52.4)	.720 (18.3)	.712 (18.1)	1.365 (34.7)	1.690 (42.9)	.319 (8.1)	CR123A
1051	THM	1.487 (37.8)						

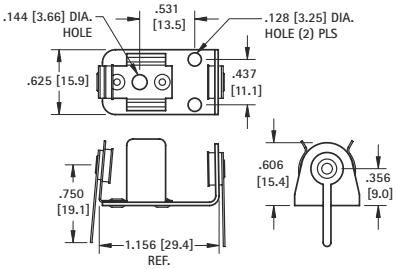
RUGGED STEEL & ALUMINUM LITHIUM CELL HOLDERS

- Sturdily constructed of quality materials
- Contacts made from Brass, Nickel Plate
- Ideal for punishing applications

STEEL HOLDERS "1/2AA"

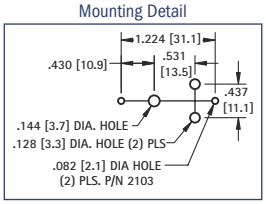
CAT. NO. 2103

CAT. NO.1103



BATTERY CROSS REFERENCE
Energizer: 544, **Duracell:** PX28L, **Kodak:** K28A & KS28, **Panasonic:** CR14250, **Sanyo:** CR14250SE, **Saft:** LCP3, **Maxell:** 4LR44

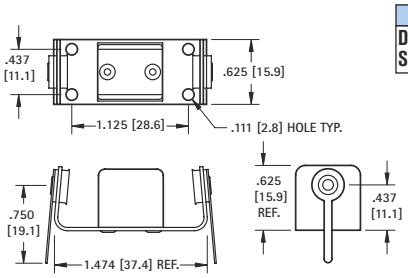
Mounting Detail



ALUMINUM HOLDERS "2/3A"

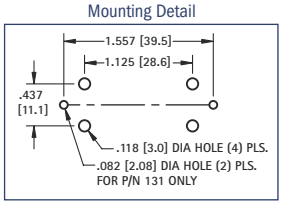
CAT. NO.131

CAT. NO.132



BATTERY CROSS REFERENCE
Duracell: DL2/3A, **Kodak:** K123L, **Sanyo:** CR173335SE, **Saft:** 450SC & VR0450

Mounting Detail



6 VOLT LITHIUM CELL HOLDERS

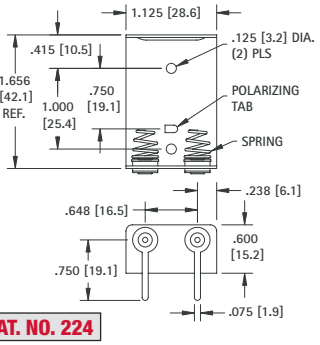
224

223

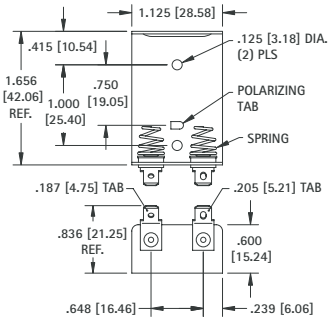
- Polarizing Tab for proper orientation
- Lightweight, ideal for rugged applications
- DL223A or Equivalent Batteries

SPECIFICATIONS

Frame: Aluminum 2024-T3 **Terminals:** Brass, Tin Plate
Spring Contacts: .025 (.64) Dia. Spring Steel, Nickel Plate



CAT. NO. 224



CAT. NO. 223

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ALUMINUM HOLDERS CONNECTED IN SERIES

ELIMINATES WIRING · LABOR SAVING

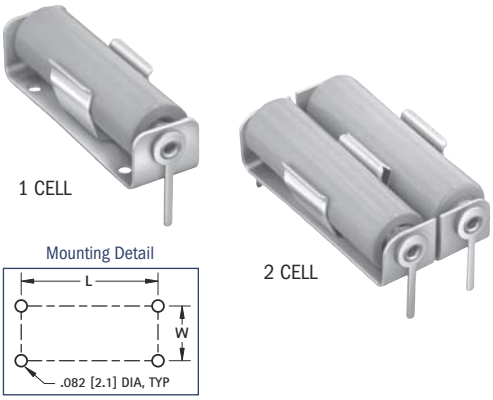
Features pre-connected jumper strap insulated from the Aluminum base. Batteries held in series circuit without need of additional wiring.

CAT. NO.	HOLDS NO. OF CELLS	BATTERY CROSS REFERENCE		
		IEC	ANSI/NEDA	
"AA" CELL		(BATTERY SIZE .531 (13.4) / .565 (14.5) O.D.× 1.906 (48.4) / 1.988 (50.5) L)		
146	2	LR6	15A	Energizer, Duracell, Panasonic, Sanyo, Varta, Rayovac, Tadiran
147	3			
148	4			
"C" CELL		(BATTERY SIZE .875 (22.2) / 1.125(28.6) O.D.× 1.875 (47.6) / 1.969 (50.0) L)		
149	2	LR14	14A	Energizer, Duracell, Panasonic, Sanyo, Varta, Rayovac, Tadiran
150	3			
151	4			
"D" CELL		(BATTERY SIZE 1.187 (30.1) / 1.375 (34.9) O.D.× 2.312 (58.7) / 2.412 (61.3) L)		
152	2	LR20	13A	Energizer, Duracell, Panasonic, Sanyo, Varta, Rayovac, Tadiran
153	3			
158	4			

ALUMINUM HOLDERS WITH PC LUGS

ELIMINATES WIRING · LABOR SAVING

For printed circuitry we have standardized our most popular holders with PC Lugs. Choice of single or multiple holders "AA" assembled with Cat. No. 4002 lug. "C" and "D" assembled with Cat. No. 4003 lug.

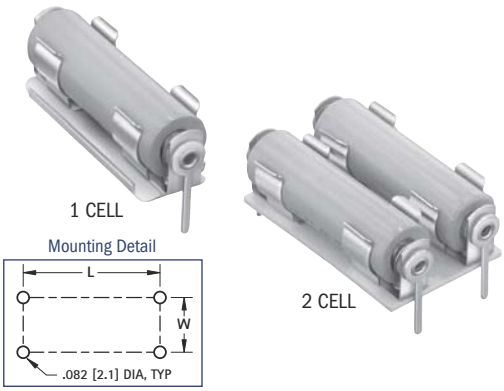


CAT. NO.	HOLDS NO. OF CELLS	MOUNTING HOLE DETAILS		BATTERY CROSS REFERENCE	
		L	W	IEC	ANSI/NEDA
"AA" CELL		(BATTERY SIZE .531 (13.4) / .565 (14.5) O.D.× 1.906 (48.4) / 1.988 (50.5) L)			
2222	1	2.250 (57.2)	–	LR6	15A
2223	2	2.250 (57.2)	.625 (15.9)		
"C" CELL		(BATTERY SIZE .875 (22.2) / 1.125 (28.6) O.D.× 1.875 (47.6) / 1.969 (50.0) L)			
2224	1	2.218 (56.3)	–	LR14	14A
2225	2	2.218 (56.3)	1.000 (25.4)		
"D" CELL		(BATTERY SIZE 1.187 (30.1) / 1.375 (34.9) O.D.× 2.312 (58.7) / 2.412 (61.3) L)			
2226	1	2.687 (68.3)	–	LR20	13A
2227	2	2.687 (68.3)	1.312 (33.3)		

STEEL HOLDERS WITH PC LUGS

ELIMINATES WIRING · LABOR SAVING

For printed circuitry we have standardized our most popular holders with PC Lugs. Choice of single or multiple holders "AA" assembled with Cat. No. 4002 lug. "C" and "D" assembled with Cat. No. 4003 lug.



CAT. NO.	HOLDS NO. OF CELLS	MOUNTING HOLE PATTERN		BATTERY CROSS REFERENCE	
		L	W	IEC	ANSI/NEDA
"AA" CELL		(BATTERY SIZE .531 (13.4) / .565 (14.5) O.D.× 1.906 (48.4) / 1.988 (50.5) L)			
2228	1	2.203 (56.0)	–	LR6	15A
2229	2	2.203 (56.0)	.750 (19.1)		
"C" CELL		(BATTERY SIZE .875 (22.2) / 1.125 (28.6) O.D.× 1.875 (47.6) / 1.969 (50.0) L)			
2230	1	2.343 (59.5)	–	LR14	14A
2231	2	2.343 (59.5)	1.187 (30.2)		
"D" CELL		(BATTERY SIZE 1.187 (30.1) / 1.375 (34.9) O.D.× 2.312 (58.7) / 2.412 (61.3) L)			
2232	1	2.625 (66.7)	–	LR20	13A
2233	2	2.625 (66.7)	1.562 (39.7)		

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RUGGED & LIGHTWEIGHT ALUMINUM BATTERY HOLDERS

Lightweight yet strong, constructed of aircraft grade aluminum. Batteries snap-fit securely into clips.

Contacts: Brass, Nickel Plate
Lugs: Brass, Tin Plate
Frame and Battery Clips: Aluminum
Insulating Washers: Moisture Proof Resin impregated fiber

MODIFICATIONS

We welcome the opportunity to quote on variations of standard items. Use our engineering service for your custom-built holders. Holders with PC and Quick-Fit terminalsavailable on special order.

CAT. NO.	HOLDS NO. OF CELLS	FIG. NO.	BATTERY CROSS REFERENCE IEC	ANSI/NEDA	MANUFACTURERS
"AAA" CELL (BATTERY SIZE .375 (9.5) / .468 (11.9) O.D. × 1.673 (42.5) / 1.752 (44.5) L)					
137	1	1	LR03	24A	Energizer, Duracell, Panasonic, Sanyo, Varta, Rayovac, Tadiran
138	2	3			
169	3	3			
170	4	3			
"AA" CELL (BATTERY SIZE .531 (13.4) / .565 (14.5) O.D. × 1.906 (48.4) / 1.988 (50.5) L)					
139	1	1	LR6	15A	Energizer, Duracell, Panasonic, Sanyo, Varta, Rayovac, Tadiran
140	2	3			
171	3	3			
182	4	3			
189	2	2			
192	4	4			
193	6	4			
"C" CELL (BATTERY SIZE .875 (22.2) / 1.125 (28.6) O.D. × 1.875 (47.6) / 1.969 (50.0) L)					
173	1	1	LR14	14A	Energizer, Duracell, Panasonic, Sanyo, Varta, Rayovac, Tadiran
174	2	3*			
185	2	2			
187	3	3			
196	4	4**			
197	6	4			
"D" CELL (BATTERY SIZE 1.187 (30.1) / 1.375 (34.9) O.D. × 2.312 (58.7) / 2.412 (61.3) L)					
175	1	1	LR20	13A	Energizer, Duracell, Panasonic, Sanyo, Varta, Rayovac, Tadiran
176	2	3*			
186	2	2			
190	3	3			
200	4	4**			
201	6	4			
205	6	4***			
"N" OR "12V" CELL (BATTERY SIZE .375 (9.5) / .468 (11.9) O.D. × 1.110 (28.2) / 1.189 (30.2) L)					
154	1	1	LR1	910A	Energizer, Duracell, Panasonic, Sanyo, Varta, Rayovac, Tadiran
155	2	3			
156	3	3			
LITHIUM "2/3A" OR "CR123" CELL					
132	1	1	CR17345	5018LC	All major manufactures
"9 VOLT" BATTERY					
203P	REF. PAGE 31		6LR61	1604A, 1604LC, 11604 7.2H5	Energizer, Duracell, Panasonic, Sanyo, Varta, Rayovac, Tadiran
1290					
1290-79					
1290-66					

* 1 Single clip holds 2 batteries in place. ** 2 Clips hold 4 batteries in place. ** 3 Clips hold 6 batteries in place.

FIG. 1

1 CELL

FIG. 2

2 CELL

FIG. 3

2 CELL

3 CELL

4 CELL

FIG. 4

4 CELL

6 CELL
CAT. NO. 193
CAT. NO. 197

6 CELL
CAT. NO. 205

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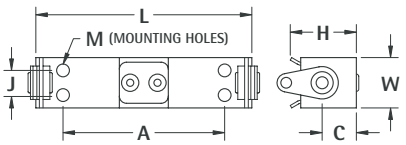
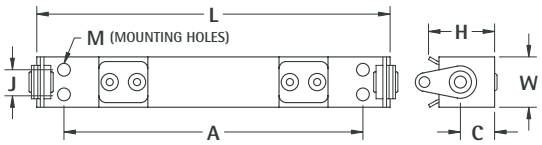
DIMENSIONAL DRAWINGS FOR ALUMINUM BATTERY HOLDERS

MATERIAL SPECIFICATIONS

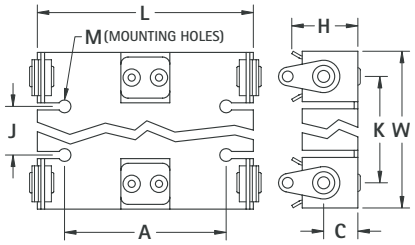
Insulating Washers: Moisture proof, resin impregnated fibre
Terminal Lugs: Brass, Tin Plate
Frame and Clips: Aluminum 2024-T3
Contact Eyelet: Brass, Nickel Plate



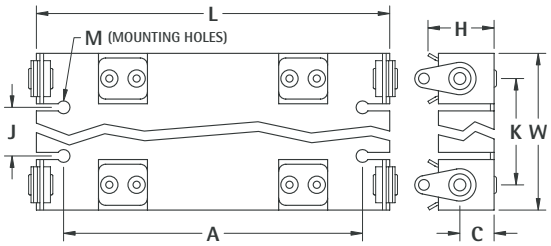
DWG. 1



DWG. 2



DWG. 3



DWG. 4

CAT. NO.	DWG. NO.	W Width Of Base	L Length Of Base	H Height Of Base	C Height to Battery Center Height	K Distance Between Battery Contacts	J Mounting Holes Width	A Mounting Holes Length	M Mounting Holes (Diameter)
"AAA" CELL									
137	1	.437 (11.1)	1.915 (48.6)	.467 (11.9)	.281 (7.1)	–	.250 (6.4)	1.500 (38.1)	.111 (2.8)
138	3	.812 (20.6)	1.915 (48.6)	.467 (11.9)	.281 (7.1)	.437 (11.1)	–	.875 (22.2)	.144 (3.7)
169	3	1.250 (31.8)	1.915 (48.6)	.467 (11.9)	.281 (7.1)	.437 (11.1)	.438 (11.1)	.875 (22.2)	.144 (3.7)
170	3	1.687 (42.8)	1.915 (48.6)	.467 (11.9)	.281 (7.1)	.437 (11.1)	.875 (22.2)	.875 (22.2)	.144 (3.7)
"AA" CELL									
139	1	.625 (15.9)	2.140 (54.4)	.578 (14.7)	.392 (10.0)	–	.406 (10.3)	1.500 (38.1)	.111 (2.8)
140	3	1.125 (28.6)	2.156 (54.8)	.562 (14.3)	.375 (9.5)	.625 (15.9)	–	1.218 (30.9)	.144 (3.7)
171	3	1.750 (44.5)	2.140 (54.4)	.578 (14.7)	.392 (10.0)	.625 (15.9)	.625 (15.9)	1.218 (30.9)	.144 (3.7)
182	3	2.656 (67.5)	2.140 (54.4)	.615 (15.6)	.421 (10.7)	.718 (18.2)	1.437 (36.5)	1.218 (30.9)	.144 (3.7)
189	2	.625 (15.9)	4.110 (104.4)	.593 (15.1)	.406 (10.3)	–	.437 (11.1)	3.000 (76.2)	.128 (3.3)
192	4	1.125 (28.6)	4.093 (104.0)	.593 (15.1)	.406 (10.3)	.625 (15.9)	–	3.093 (78.6)	.144 (3.7)
193	4	1.750 (44.5)	4.093 (104.0)	.593 (15.1)	.406 (10.3)	.625 (15.9)	.625 (15.9)	3.125 (79.4)	.144 (3.7)
"C" CELL									
173	1	.750 (19.1)	2.093 (53.2)	.968 (24.6)	.613 (15.6)	–	.437 (11.1)	1.500 (38.1)	.144 (3.7)
174	3*	1.625 (41.3)	2.093 (53.2)	1.120 (28.4)	.613 (15.6)	1.000 (25.4)	–	1.250 (31.75)	.144 (3.7)
185	2	.750 (19.1)	4.046 (102.8)	.968 (24.6)	.593 (15.1)	–	.500 (12.7)	3.187 (80.9)	.144 (3.7)
187	3	2.840 (72.1)	2.125 (54.0)	.968 (24.6)	.593 (15.1)	1.125 (28.6)	1.125 (28.6)	1.250 (31.8)	.144 (3.7)
196	4**	1.625 (41.3)	4.075 (103.5)	1.120 (28.4)	.593 (15.1)	1.000 (25.4)	–	3.187 (80.9)	.144 (3.7)
197	4	2.875 (73.0)	4.075 (103.5)	.968 (24.6)	.593 (15.1)	1.150 (29.2)	1.000 (25.4)	3.187 (80.9)	.144 (3.7)
"D" CELL									
175	1	1.000 (25.4)	2.562 (65.1)	1.262 (32.1)	.763 (19.4)	–	.750 (19.1)	1.750 (44.5)	.128 (3.3)
176	3*	2.062 (52.4)	2.562 (65.1)	1.468 (37.3)	.741 (18.8)	1.312 (33.3)	–	1.500 (38.1)	.144 (3.7)
186	2	1.000 (25.4)	4.921 (125.0)	1.262 (32.1)	.747 (19.0)	–	.687 (17.4)	4.125 (104.8)	.128 (3.3)
190	3	3.375 (85.7)	2.562 (65.1)	1.262 (32.1)	.775 (19.7)	1.350 (34.3)	1.125 (28.6)	1.937 (49.2)	.144 (3.7)
200	4**	2.062 (52.4)	4.870 (123.7)	1.468 (37.3)	.741 (18.8)	1.312 (33.3)	–	4.375 (111.1)	.144 (3.7)
201	4	3.375 (85.7)	4.920 (125.0)	1.262 (32.1)	.775 (19.7)	1.343 (34.1)	1.125 (28.6)	4.250 (108.0)	.144 (3.7)
205	4***	2.062 (52.4)	7.270 (184.7)	1.468 (37.3)	.741 (18.8)	1.312 (33.3)	–	6.750 (171.5)	.144 (3.7)
"N" OR "12V" CELL									
154	1	.437 (11.1)	1.328 (33.7)	.483 (12.3)	.297 (7.5)	–	.250 (6.4)	.906 (23.0)	.111 (2.8)
155	3	.937 (23.8)	1.347 (34.2)	.483 (12.3)	.297 (7.5)	.500 (12.7)	–	.875 (22.2)	.128 (3.3)
156	3	1.500 (38.1)	1.347 (34.2)	.483 (12.3)	.297 (7.5)	.531 (13.5)	.562 (14.3)	.875 (22.2)	.111 (2.8)
"2/3A" CELL									
132	1	.625 (15.9)	1.474 (37.4)	.625 (15.9)	.437 (11.1)	–	.437 (11.1)	1.125 (28.6)	.111 (2.8)
"9 VOLT" BATTERY									
203-P	1	1.125 (28.6)	2.000 (50.8)	.797 (20.2)	–	–	–	–	–
1290	1	1.125 (28.6)	1.900 (48.3)	.718 (18.2)	–	–	–	–	–
1290-66	1*	1.125 (28.6)	1.900 (48.3)	.857 (21.8)	–	–	–	–	–
1290-79	1	1.125 (28.6)	1.900 (48.3)	.812 (20.6)	–	–	–	–	–

* 1 Single clip holds both batteries in place. ** 2 Clips hold four batteries in place. *** 3 Clips hold six batteries inplace.

DIMENSIONS ARE FOR REFERENCE ONLY

RUGGED STEEL BATTERY HOLDERS

An established design that has gained wide acceptance for commercial and military applications. Batteries are held under constant spring tension assuring low contact resistance. Retainer clips are available to lock batteries in place and prevent shifting or loosening. Refer to page 10. Recommended for use where shock or severe vibration is encountered. Special fabrication for more than four batteries or variations from standard stock parts can be assembled to meet your requirements.

- Ideal for NiCd, Alkaline, NiMH, Carbon, Zinc and Lithium Cells
- Corrosion Resistant, Nickel Plate
- Brass Contacts, Nickel Plate
- Moisture Proof Resin Impregnated, Fibre Insulating Washers

FIG. 1 *STAINLESS STEEL BASE. INSULATOR TUBES SUPPLIED FOR 2-3-4 CELLS (END TO END)*

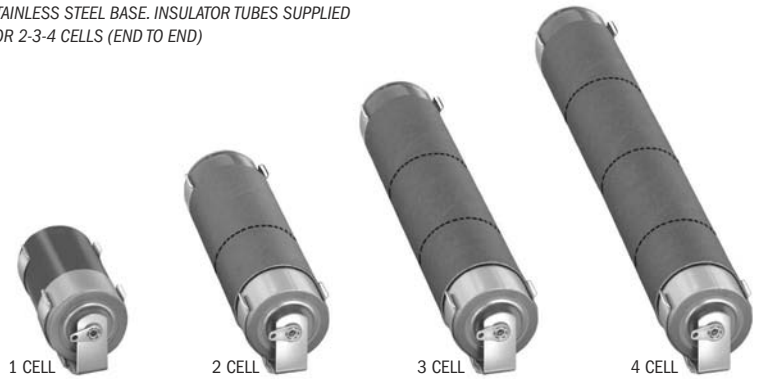


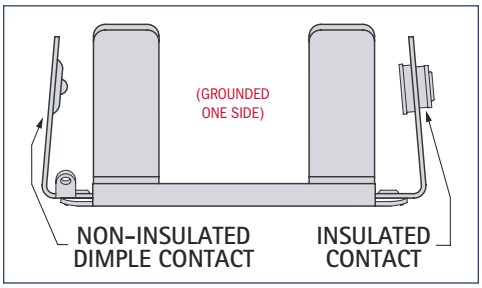
FIG. 2 *STEEL BASE. LITHIUM (SINGLE CELL)*

FIG. 3 *PHENOLIC BASE FOR 2, 3, 4 CELLS (SIDE BY SIDE)*

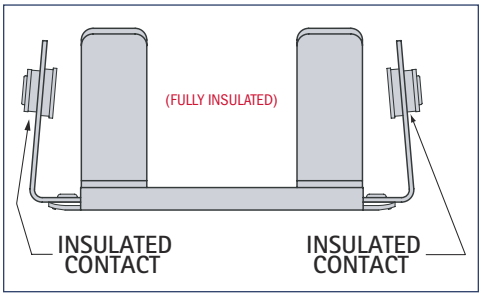
1100 SERIES ONE CONTACT INSULATED CAT. NO.	2100 SERIES ALL CONTACTS INSULATED CAT. NO.	HOLDS NO. OF CELLS	FIG. NO.	BATTERY CROSS REFERENCE IEC	ANSI/NEDA	BATTERY MANUFACTURERS
"AA" CELL				(BATTERY SIZE .531 (13.4) / .565 (14.5) O.D. × 1.906 (48.4) / 1.988 (50.5) L)		
1139	2139	1	1	LR6	15A	Energizer, Duracell, Panasonic, Sanyo, Varta, Rayovac, Tadiran
—	2140*	2	3			
—	2171*	3	3			
—	2182*	4	3			
1189	2189	2	1			
1191	2191	3	1			
1194	2194	4	1			
"C" CELL				(BATTERY SIZE .875 (22.2) / 1.125 (28.6) O.D. × 1.875 (47.6) / 1.969 (50.0) L)		
1173	2173	1	1	LR14	14A	Energizer, Duracell, Panasonic, Sanyo, Varta, Rayovac, Tadiran
—	2174*	2	3			
—	2187*	3	3			
—	2188*	4	3			
1185	2185	2	1			
1195	2195	3	1			
1198	2198	4	1			
"D" CELL				(BATTERY SIZE 1.187 (30.1) / 1.375 (34.9) O.D. × 2.312 (58.7) / 2.412 (61.3) L)		
1175	2175	1	1	LR20	13A	Energizer, Duracell, Panasonic, Sanyo, Varta, Rayovac, Tadiran
—	2176*	2	3			
—	2190*	3	3			
—	2192*	4	3			
1186	2186	2	1			
1199	2199	3	1			
1162	2162	4	1			
"1/2AA" LITHIUM CELL				(BATTERY SIZE .475 (12.1) / .510 (13.0) O.D. × .965 (24.5) / .992 (25.2) L)		
—	1103	1	2	CR11108	1406LC	Energizer 544, Duracell PX28L, Panasonic CR14250

*Clips mounted on .062 (1.57) thick Phenolic board.

1100 SERIES



2100 SERIES



MODIFICATIONS

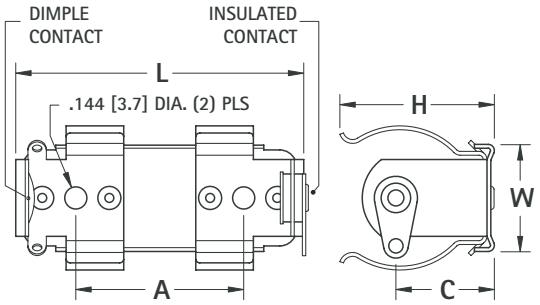
We welcome the opportunity to quote on variations of standard items. Use our engineering service for your custom-built holders. Holders with PC and Quick-Fit terminalsavailable on special order.

Tel (718) 956-8900 • Fax (718) 956-9040
(800) 221-5510 • kec@keyelco.com
KEYSTONE
RoHS COMPLIANT — ISO 9001 CERTIFIED
www.keyelco.com
31-07 20th Road – Astoria, NY 11105-2017

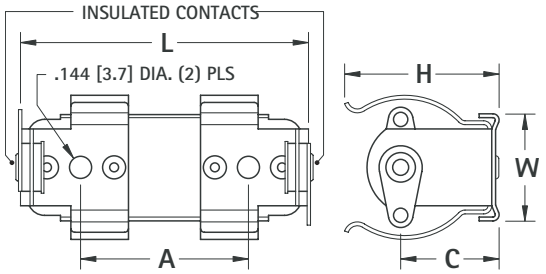
MATERIAL SPECIFICATIONS:

Clips: Spring Steel, Nickel Plate
Contact Eyelets: Brass, Nickel Plate
Insulating Washers: Resin Impregnated Fibre
Solder Lugs: Brass, Tin Plate

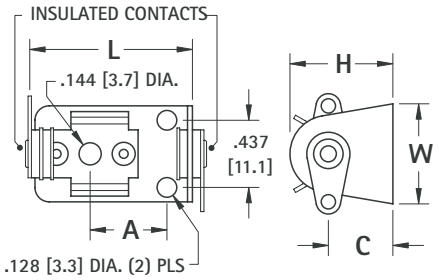
Phenolic Base: Type PBE, Per MIL-P-3115C
Stainless Steel Base: Ribbed, For Added Support
Steel Base: Spring Steel, Nickel Plate



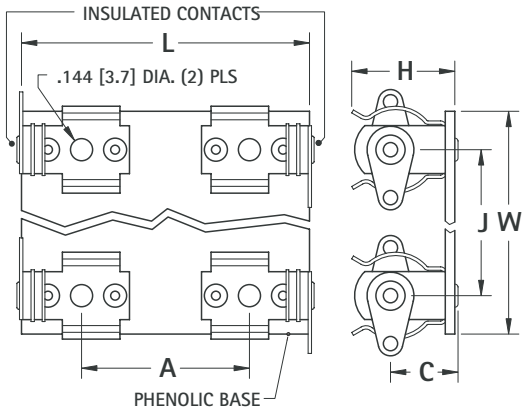
DWG. 1 1100 SERIES STAINLESS STEEL BASE (END-TO-END)



DWG. 1 2100 SERIES STAINLESS STEEL BASE (END-TO-END)



DWG. 2 "1/2AA" LITHIUM STEEL BASE (SINGLE CELL)



DWG. 3 2100 SERIES PHENOLIC BASE (SIDE-BY-SIDE)

1100 SERIES ONE CONTACT INSULATED CAT. NO.	2100 SERIES ALL CONTACTS INSULATED CAT. NO.	HOLDS NO. OF CELLS	DWG. NO.	W Width Of Base	L Length Of Base	H Height Of Holder	C Height to Battery Center	J Mounting Hole Distance	A Mounting Holes CTR To CTR
"AA" CELL									
1139	2139	1	1	.687 (17.4)	2.125 (54.0)	.656 (16.7)	.437 (11.1)	–	1.343 (34.1)
–	2140*	2	3	1.250 (31.8)	2.125 (54.0)	.656 (16.7)	.437 (11.1)	.750 (19.1)	1.343 (34.1)
–	2171*	3	3	2.000 (50.8)	2.125 (54.0)	.656 (16.7)	.437 (11.1)	.750 (19.1)	1.343 (34.1)
–	2182*	4	3	2.750 (69.9)	2.125 (54.0)	.656 (16.7)	.437 (11.1)	.750 (19.1)	1.343 (34.1)
1189	2189	2	1	.687 (17.4)	4.093 (104.0)	.656 (16.7)	.437 (11.1)	–	3.312 (84.1)
1191	2191	3	1	.687 (17.4)	6.030 (153.2)	.656 (16.7)	.437 (11.1)	–	5.250 (133.4)
1194	2194	4	1	.687 (17.4)	8.010 (203.5)	.656 (16.7)	.437 (11.1)	–	7.230 (183.6)
"C" CELL									
1173	2173	1	1	.687 (17.4)	2.125 (54.0)	1.000 (25.4)	.625 (15.9)	–	1.343 (34.1)
–	2174*	2	3	1.750 (44.5)	2.062 (52.4)	1.000 (25.4)	.625 (15.9)	1.187 (30.1)	1.343 (34.1)
–	2187*	3	3	2.937 (74.6)	2.062 (52.4)	1.000 (25.4)	.625 (15.9)	1.187 (30.1)	1.343 (34.1)
–	2188*	4	3	4.125 (104.8)	2.062 (52.4)	1.000 (25.4)	.625 (15.9)	1.187 (30.1)	1.343 (34.1)
1185	2185	2	1	.687 (17.4)	4.093 (104.0)	1.000 (25.4)	.625 (15.9)	–	3.312 (84.1)
1195	2195	3	1	.687 (17.4)	5.937 (150.8)	1.000 (25.4)	.625 (15.9)	–	5.156 (131.0)
1198	2198	4	1	.687 (17.4)	7.906 (200.8)	1.000 (25.4)	.625 (15.9)	–	7.125 (181.0)
"D" CELL									
1175	2175	1	1	.687 (17.4)	2.562 (65.1)	1.281 (32.5)	.796 (20.2)	–	1.625 (41.3)
–	2176*	2	3	2.125 (54.0)	2.562 (65.1)	1.281 (32.5)	.796 (20.2)	1.562 (39.7)	1.625 (41.3)
–	2190*	3	3	3.687 (93.6)	2.562 (65.1)	1.281 (32.5)	.796 (20.2)	1.562 (39.7)	1.625 (41.3)
–	2192*	4	3	5.250 (133.4)	2.562 (65.1)	1.281 (32.5)	.796 (20.2)	1.562 (39.7)	1.625 (41.3)
1186	2186	2	1	.687 (17.4)	4.937 (125.4)	1.281 (32.5)	.796 (20.2)	–	4.000 (101.6)
1199	2199	3	1	.687 (17.4)	7.281 (184.9)	1.281 (32.5)	.796 (20.2)	–	6.343 (161.1)
1162	2162	4	1	.687 (17.4)	9.625 (244.5)	1.281 (32.5)	.796 (20.2)	–	8.687 (220.6)
"1/2AA" LITHIUM CELL									
1103		1	2	.625 (15.9)	1.156 (29.4)	.595 (15.1)	.345 (8.8)	–	.531 (13.5)

*Clips mounted on .062 (1.57) Thick, Phenolic board.

DIMENSIONS ARE FOR REFERENCE ONLY

ECONOMICAL PLASTIC BATTERY HOLDERS

- Economical design, available with PC terminals or wire leads
- Batteries securely held in place to assure a positive connection and maintain a low contact resistance
- Contact springs self-adjust to variations in battery length
- Withstands shock and vibration
- Available with solder lugs or male/female snap fasteners
- For easy removal, available with ribbon
- Holders for multiple batteries are prewired in series.

SPECIFICATIONS

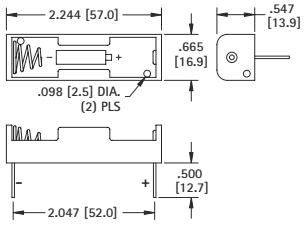
Holder: Polypropylene
Springs: Spring Steel, Nickel Plate
PC Pins: .031 (.79) Brass, Nickel Plate
Wires (Red & Black): #26 AWG, Tinned, .187 (4.8) end strip UL/CSA1007

MODIFICATIONS

We welcome the opportunity to quote on variations of standard items. Use our Engineering services for your custom-built holders. Holders for "C" and "D" cell are available on request.

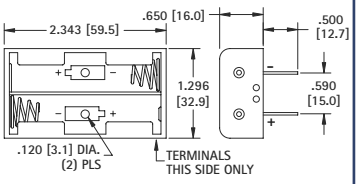
"AA"

One (1) Cell



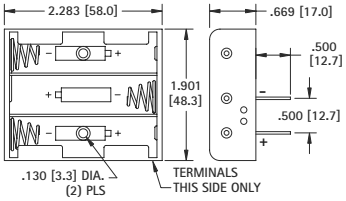
CAT. NO. 2460	PC Mount
CAT. NO. 2460RB	PC Mount w/ribbon
CAT. NO. 2461	Wire Leads - 6.0 (150)

Two (2) Cells - In Series



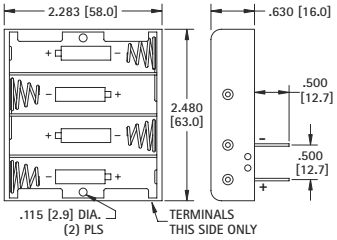
CAT. NO. 2462	PC Mount
CAT. NO. 2462RB	PC Mount w/ribbon
CAT. NO. 2463	Wire Leads - 6.0 (150)

Three (3) Cells - In Series



CAT. NO. 2464	PC Mount
CAT. NO. 2464RB	PC Mount w/ribbon
CAT. NO. 2465	Wire Leads - 6.0 (150)

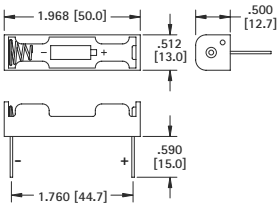
Four (4) Cells - In Series



CAT. NO. 2477	PC Mount
CAT. NO. 2477RB	PC Mount w/ribbon
CAT. NO. 2478	Wire Leads - 6.0 (150)

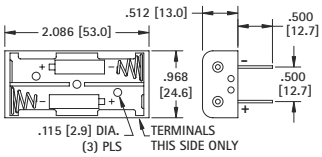
"AAA"

One (1) Cell



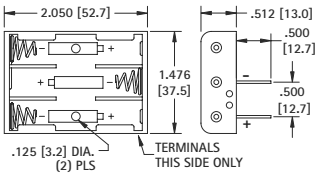
CAT. NO. 2466	PC Mount
CAT. NO. 2466RB	PC Mount w/ribbon
CAT. NO. 2467	Wire Leads - 6.0 (150)

Two (2) Cells - In Series



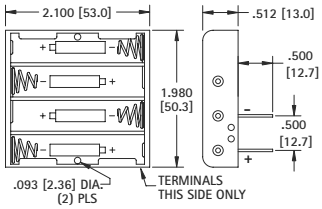
CAT. NO. 2468	PC Mount
CAT. NO. 2468RB	PC Mount w/ribbon
CAT. NO. 2469	Wire Leads - 6.0 (150)

Three (3) "AAA" Cells - In Series



CAT. NO. 2479	PC Mount
CAT. NO. 2479RB	PC Mount w/ribbon
CAT. NO. 2480	Wire Leads - 6.0 (150)

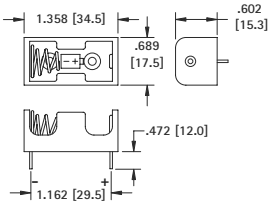
Four (4) Cells - In Series



CAT. NO. 2481	PC Mount
CAT. NO. 2481RB	PC Mount w/ribbon
CAT. NO. 2482	Wire Leads - 6.0 (150)

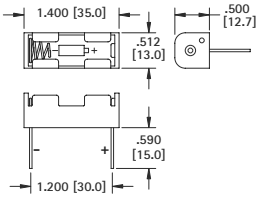
"1/2AA" · "CR2" · "N" · "12V"

"1/2 AA" Cell -or "CR2" Cell



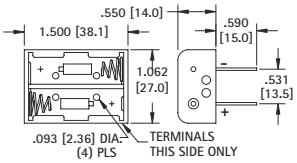
CAT. NO. 2485	PC Mount
CAT. NO. 2485RB	PC Mount w/ribbon
CAT. NO. 2486	Wire Leads - 6.0 (150)

"N" Cell - 1.5V or "12V" Cell



CAT. NO. 2470	PC Mount
CAT. NO. 2470RB	PC Mount w/ribbon
CAT. NO. 2471	Wire Leads - 6.0 (150)

Two (2) "N" or Two (2) "12V" Cells - In Series



CAT. NO. 2472	PC Mount
CAT. NO. 2472RB	PC Mount w/ribbon
CAT. NO. 2473	Wire Leads - 6.0 (150)

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31-07 20th Road – Astoria, NY 11105-2017

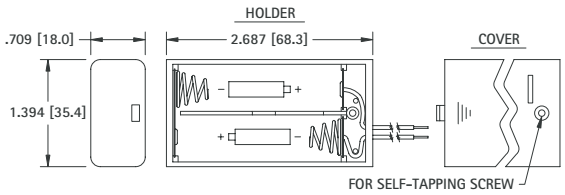
DENSI-PAK® BATTERY HOLDERS

- Supports high density packaging on or off board, positions anywhere for easy access to batteries
- Economical design
- Batteries securely held in place to assure a positive connection and maintain a low contact resistance
- Contact springs self-adjust to variations in battery length
- Snap-on cover protects and secures batteries
- Withstands shock and vibration

SPECIFICATIONS
Holder: ABS
Springs: Spring Steel, Nickel Plate
Wires (Red & Black): 6.0 (150) long, #26 AWG, Tinned, .187 (4.8) end strip UL/CSA1007

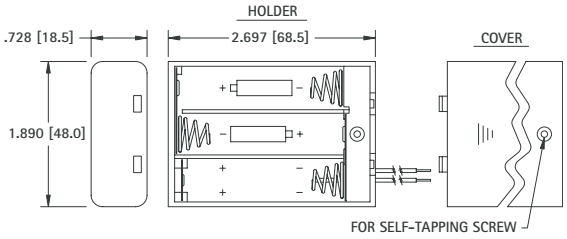
"AA"

Two (2) Cells - 3V



CAT. NO. 2490

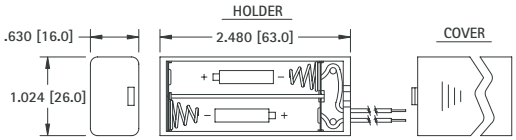
Three (3) Cells - 4.5V



CAT. NO. 2487

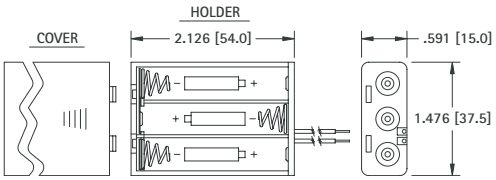
"AAA"

Two (2) Cells - 3V



CAT. NO. 2489

Three (3) Cells - 4.5V



CAT. NO. 2484

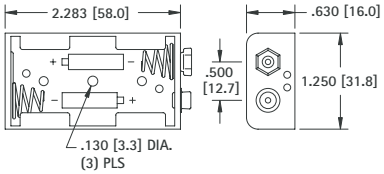
PLASTIC BATTERY HOLDERS WITH SNAP-ON CONNECTORS

- Features separable "snap-on/snap-off" battery connector (9 Volt type) to assure reliable connections
- Economical design, holders available for two, three or four cells. Wired in series to accept connector (9 Volt type)
- Easily disconnect battery holder from your device - no tools required
- Batteries securely held in place to maintain a positive contact and a low contact resistance
- Battery contact springs self adjust to variations in battery length
- Withstands shock and vibration
- Ideally mates with Keystone 9 Volt battery straps and connectors (Refer to pages 28 - 29)

"AA"

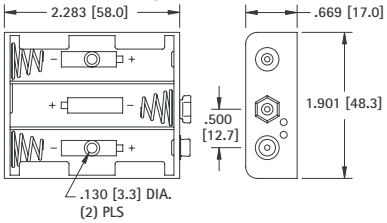
SPECIFICATIONS
Holder: Polypropylene
Male/Female Contacts: Brass, Nickel Plate
Springs: Spring Steel, Nickel Plate

Two Cells - 3V



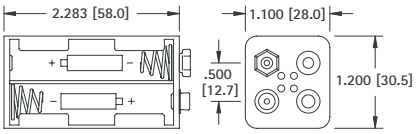
CAT. NO. 2474

Three (3) Cells - 4.5V



CAT. NO. 2475

Four (4) Cells - 6V



CAT. NO. 2476

SHIELDED 9 VOLT BATTERY STRAPS

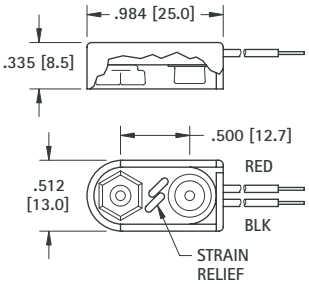
- Insulates and shields 9 Volt battery snap-on connector contacts
- Assures safe secure use, reduces the potential of short circuits and prevents tampering with battery contacts
- Protects circuits, prevents unwanted electrical discharge due to unintended grounding
- Protects battery contacts from dust, dirt, and physical damage
- Ideal for rugged applications, made of high impact molded plastic with integral wire lead strain relief

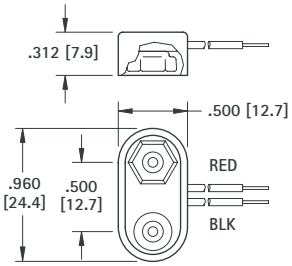
Modifications available with different wire lengths.

84-4
84-6
84-8

SPECIFICATIONS
Base: ABS
Male/Female Contacts: Brass, Nickel Plate
Wires (Red & Black): #26 AWG, Tinned, .187 (4.8) end strip, UL/CSA1007

*Tolerance on lead length +/-.250 (6.4)





81-4
81-6
81-8

I STYLE MOLDED		T STYLE MOLDED
CAT. NO.	*LEAD LENGTH	CAT. NO.
84-4	4.00 (101.6)	81-4
84-6	6.00 (152.4)	81-6
84-8	8.00 (203.2)	81-8

PREMIUM 9 VOLT BATTERY STRAPS

- Fully Assembled • Rigid Assembly • Ideal for rugged applications, made of high impact molded plastic with integral wire lead strain relief

Rigidly constructed. Nickel plate, male and female contacts. Female contacts are spring temper. Accepts numerous insertions to meet U.L. approved standards. Provides excellent mechanical strength and low contact resistance. Wires have tinned copper conductors, PVC insulation and the ends are stripped for easy connection.

Wires are rated to +176°F (+80°C) and 300V and meet UL/CSA #1061/#1007 requirements.

Modifications available with different wire lengths.

SPECIFICATIONS
Contacts: Phosphor Bronze, Nickel Plate
Wire: #26 AWG, 7/34
End Strip: .250 (6.4) Long, Tinned
Base: Polypropylene

*Tolerance on lead length +/-.250 (6.4)

2238
2239
2240

Base Size:
1.062 (27.0) × .512 (13.0)

I STYLE MOLDED		T STYLE MOLDED
CAT. NO.	*LEAD LENGTH	CAT. NO.
2238	4.00 (101.6)	2241
2239	6.00 (152.4)	2242
2240	8.00 (203.2)	2243

2241
2242
2243

Base Size:
1.00 (25.4) × .512 (13.0)

ECONOMY 9 VOLT BATTERY STRAPS

- Fully Assembled • Rigid Assembly

When product cost is of the utmost importance these economy battery straps will suit your needs. Brass contacts, nickel plated with vinyl or ABS covering. Wires have tinned copper conductors, PVC insulation and the ends are stripped for easy connection. Wires meet UL/CSA #1007 requirements.

Modifications available with different wire lengths

SPECIFICATIONS
Contacts: Brass, Nickel Plate
Wire: #26 AWG, 7/34
End Strip: .250 (6.4) Long, Tinned

*Tolerance on lead length +/-.250 (6.4)

232-M
233-M
234-M

Molded ABS Base Size:
.984 (25.0) × .469 (11.9)
(Strain Relief)

235-M
236-M
237-M

Molded ABS Base Size:
.965 (25.0) × .469 (11.9)
(Strain Relief)

232
233
234

Vinyl Base Size:
1.125 (31.8) × .530 (13.5)

I STYLE			T STYLE	
MOLDED	VINYL		MOLDED	VINYL
CAT. NO.	CAT. NO.	*LEAD LENGTH	CAT. NO.	CAT. NO.
232-M	232	4.00 (101.6)	235-M	235
233-M	233	6.00 (152.4)	236-M	236
234-M	234	8.00 (203.2)	237-M	237

235
236
237

Vinyl Base Size:
1.000 (24.5) × .528 (13.4)

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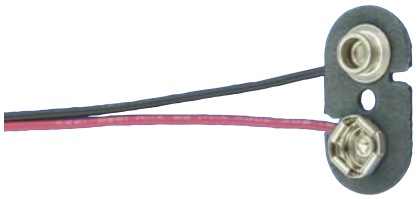
PREMIUM 9 VOLT BATTERY STRAPS

FIBRE BASE

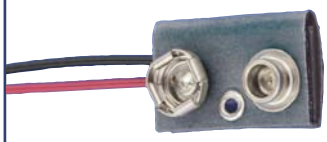


CAT. NO.	*LEAD LENGTH
68	NONE
72-4	4.00 (101.6)
72	7.00 (177.8)
72-8	8.00 (203.2)

Base Size:
1.025 (26.0) × .535 (13.6)
.062 (1.57) thick
Contacts: Steel, Nickel Plate
Wire: #22 AWG, 7/30 Prebond
End Strip: .375 (9.5) Long, Tinned

*Tolerance on lead length +/-.250 (6.4)

FIBRE BASE



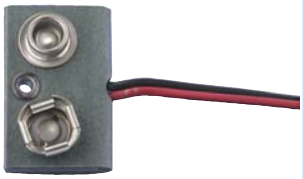
I - STYLE

Cover Size:
.900 (22.9) × .575 (14.6)
Contacts: Steel., Nickel Plate
Wire: #22 AWG, 7/30 Prebond
End Strip: .375 (9.5) Long, Tinned

CAT. NO.	*LEAD LENGTH
83-4	4.00 (101.6)
83	6.50 (165.1)
83-8	8.00 (203.2)

*Tolerance on lead length +/-.250 (6.4)

- Fully Insulated
- Flexible assembly



T - STYLE

Cover Size:
.900 (22.9) × .575 (14.6)
Contacts: Steel., Nickel Plate
Wire: #22 AWG, 7/30 Prebond
End Strip: .375 (9.5) Long, Tinned

CAT. NO.	*LEAD LENGTH
85-4	4.00 (101.6)
85-6	6.50 (165.1)
85-8	8.00 (203.2)

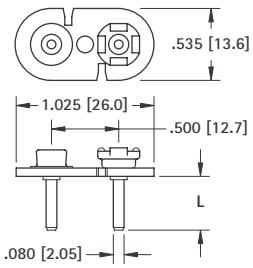
*Tolerance on lead length +/-.250 (6.4)

VERTICAL 9 VOLT PC SNAP-ON CONTACT

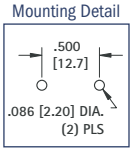
- Space saving, economical
- Excellent mechanical strength
- Low contact resistance
- Durable fibre base
- Wave solderable
- Anti-Wicking Design

SPECIFICATIONS
Base: .062 (1.57) thick Fibre
Contacts: Steel, Nickel Plate
Pins: Brass, Tin Plate

CAT. NO.	L LENGTH
967 (with PC Pins)	.120 (3.0)
968 (with PC Pins)	.400 (10.2)

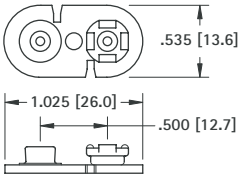


Mounting Detail



9 VOLT SNAP-ON CONTACT

- Cost saving design
- Ideal for custom applications
- Attach your own terminals and wire leads



SPECIFICATIONS
Base: .062 (1.57) thick Fibre
Contacts: Steel, Nickel Plate

CAT. NO. 68 (without PC Pins)

DUAL 9 VOLT BATTERY STRAP

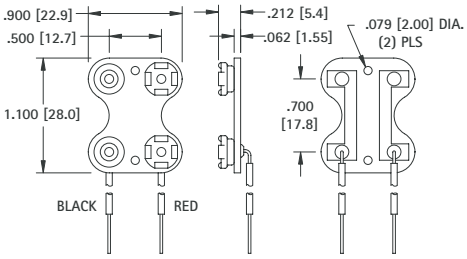
This dual battery strap is pre-wired for connecting two 9 Volt batteries. Base made from fibre material with steel, nickel plated contacts. Wires have tinned copper conductors, PVC insulation and the ends are stripped for easy connection. Wires meet UL/CSA #1061 requirements.

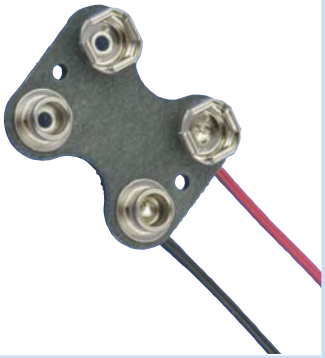
SPECIFICATIONS
Contacts: Steel, Nickel Plate
Wire: #22 AWG, 7/30 Prebond
End Strip: .375 (9.5) Long, Tinned

CAT. NO.	*LEAD LENGTH
227	7.00 (177.8)

*Tolerance on lead length +/-.250 (6.4)

PARALLEL

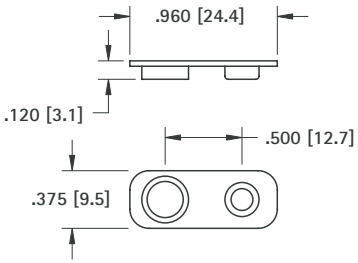




PROTECTIVE BATTERY CAP

- Protects 9 Volt batteries and battery packs when they are not in use
- Snap-fits onto battery contacts
- Both male and female contacts are covered, minimizing physical damage which can occur during battery handling, shipping and storage
- Shields the battery contacts and reduces the potential of a short circuit between battery poles
- Protects sensitive electronic equipment, systems and circuits, cap prevents unwanted electrical discharges
- Protects the battery contacts from damage due to dust, dirt and contamination

MATERIAL:
Impact Resistant Polypropylene, Black

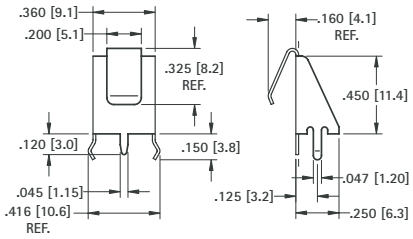


CAT. NO. 96

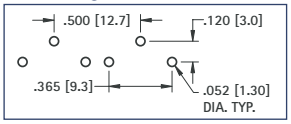
HORIZONTAL 9 VOLT PC LEAF-SPRING CONTACT

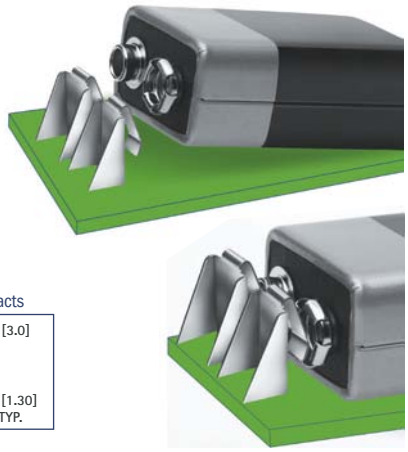
- Ideal "Slide-In" contact for easy installation and removal of 9 Volt batteries
- Space saving design installs directly onto the PC board
- Suitable for .062 (1.57) to .093 (2.36) thick PC boards
- Reliable leaf-spring assures low contact resistance
- Ideal for self-contained battery compartments
- Snap-in mounting legs holds contact secure during wave soldering

MATERIAL: .012 (.30) Spring Steel, Tin-Nickel Plate



Mounting Detail for Two Contacts





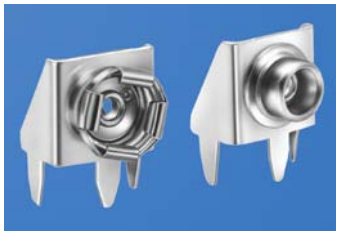
CAT. NO. 590

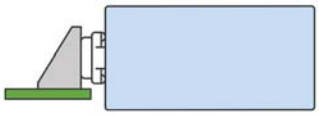
HORIZONTAL 9 VOLT PC SNAP-ON CONTACTS

Mounts Directly to Printed Circuit Board

- Space saving design installs directly onto the PC board
- Suitable for .062 (1.57) to .093 (2.36) thick PC boards
- Ideal for self-contained battery compartments

To Mount Battery "On" PC Board
Use Cat. No. 593 and Cat. No. 594

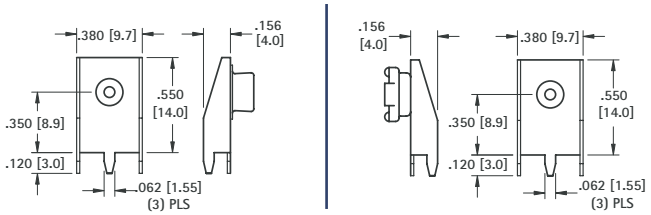




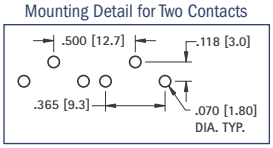
To Mount Battery "Off" PC Board
Use Cat. No. 635 and Cat. No. 636

MATERIAL: Frame: .015 (.38) Steel, Tin Plate; **Contacts:** Steel, Nickel Plate

"Off-Board"



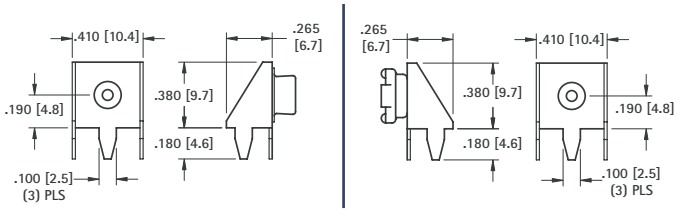
Mounting Detail for Two Contacts



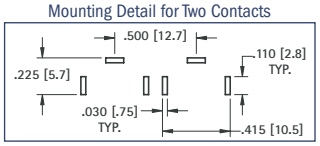
CAT. NO. 593 (Male)

CAT. NO. 594 (Female)

"Off-Board"



Mounting Detail for Two Contacts



CAT. NO. 635 (Male)

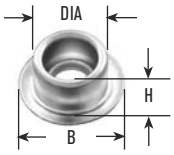
CAT. NO. 636 (Female)

BATTERY SNAP-ONS

For most electronic applications requiring a quick connect and disconnect of circuit. Commonly used with 9 Volt or other batteries designed with snap fasteners. Ideal for temporary or permanent means of connecting without soldering. Can be cascaded together for multiple connections.

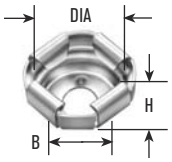
SOCKET OR STUD ONLY

FIG. 1



Stud only

FIG. 2



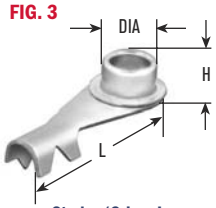
Socket only

CAT. NO.	FIG NO.	DIA	H	B	HOLE	SIZE	MATERIAL
261*	1	.224 (5.7)	.135 (3.4)	.312 (7.9)	.097 (2.5)	Junior*	Steel, Nickel Plate
269*	2	.210 (5.3)	.150 (3.8)	.250 (6.4)	.096 (2.4)		
262	1	.283 (7.2)	.143 (3.6)	.423 (10.7)	.125 (3.2)	Senior	Brass, Nickel Plate
270	2	.261 (6.6)	.145 (3.7)	.312 (7.9)	.125 (3.2)		

*Use Jr. Socket and stud for standard 9 Volt Battery

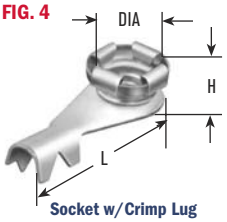
SOCKET OR STUD W/CRIMP LUG

FIG. 3



Stud w/Crimp Lug

FIG. 4



Socket w/Crimp Lug

CAT. NO.	FIG NO.	DIA	H	L	SIZE	MATERIAL
263*	3	.225 (5.7)	.170 (4.3)	.790 (20.1)	Junior	Stud: Steel, Nickel Plate Lug: Brass, Tin Plate
271*	4	.205 (5.2)	.200 (5.1)	.790 (20.1)		
264	3	.283 (7.2)	.185 (4.7)	.840 (21.3)	Senior	Stud: Brass, Nickel Plate Lug: Brass, Tin Plate
272	4	.265 (6.7)	.185 (4.7)	.835 (21.2)		

*Use Jr. Socket and stud for standard 9 Volt Battery

DIMENSIONS ARE FOR REFERENCE ONLY

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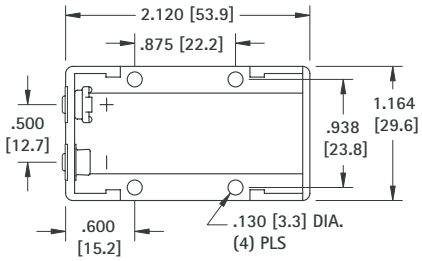
MOLDED 9 VOLT BATTERY HOLDERS

1294

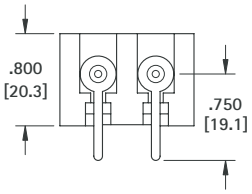
1295

SPECIFICATIONS
Body: Molded from high impact, Glass Filled Nylon
Terminals: Brass, Tin Plate
Contacts: Steel, Nickel Plate

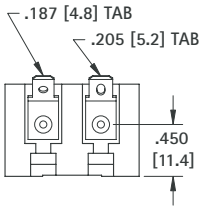


Holds any size, any shape, standard 9 Volt battery. Eliminates need to specify an exact battery brand, size or shape. Ideal for power source or memory back-up use in PLC, telecommunications, data processing, security systems, clocks, radios, toys and appliances.

- Male-female snap-in terminals assure positive contact and proper polarity
- Durable, rugged construction
- Excellent spring retention – holds battery in place
- Withstands severe shock and vibration
- Operating temperature range: -40°F to +266°F (-40°C to +130°C)
- Impervious to most industrial solvents

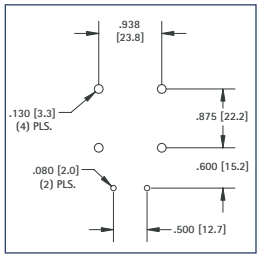


CAT. NO. 1294
PC Terminals



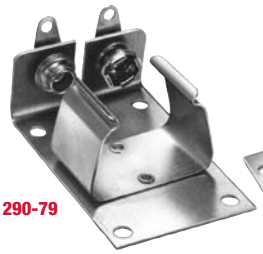
CAT. NO. 1295
Quick-Fit Terminals

Mounting Detail

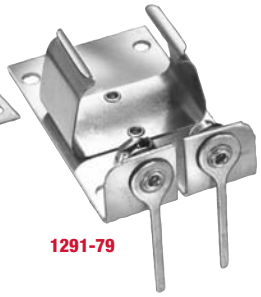


ALUMINUM 9 VOLT BATTERY HOLDERS

For use with standard 9 Volt battery. Battery snaps in place to insure positive contact. Ideal where severe shock and vibration are encountered. Available with standard solder lugs or printed circuit lugs.

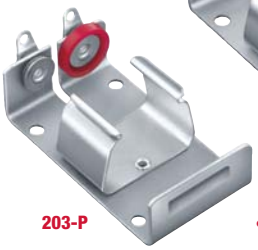


1290-79

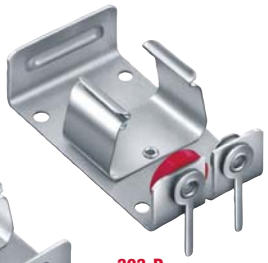


1291-79

SPECIFICATIONS
Frame: Aluminum
Solder Terminals: Brass, Tin Plate
PC Terminals: Brass, Tin Plate
Contacts & Clips: Steel, Nickel Plate
Insulation: Resin Impregnated
Polarizing Washer: Polyethylene

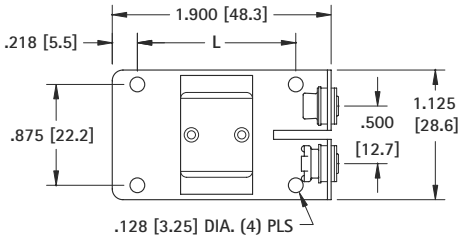


203-P

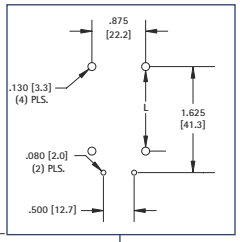


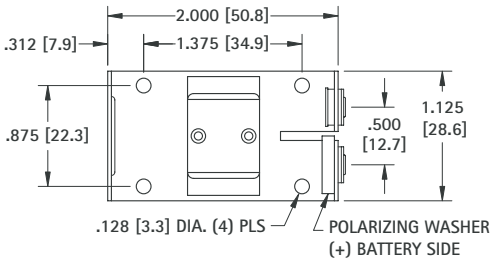
303-P

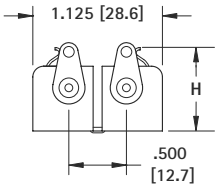
- Slide-in battery for quick installation and replacement
- Polarity clearly marked



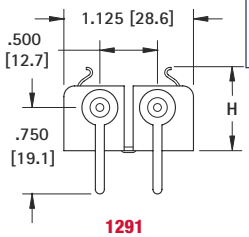
Mounting Detail





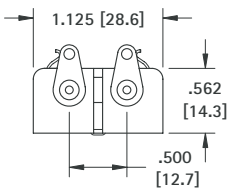


1290

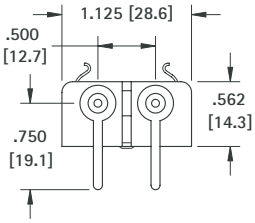


1291

CAT. NO.	CAT. NO.	H	L	BATTERY REFERENCE	DESCRIPTION
1291	1290	.718 (18.2)	1.375 (34.9)	Alkaline	Low Profile
1291-79	1290-79	.812 (20.6)	1.375 (34.9)	Alkaline	Snap Fit
1291-66	1290-66	.857 (21.8)	1.250 (31.8)	Lithium-Ion	Snap Fit



CAT. NO. 203-P
Solder Terminals



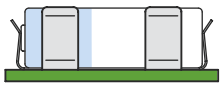
CAT. NO. 303-P
PC Terminals

REFER TO PAGE 8 & 10 FOR PART DIMENSIONS

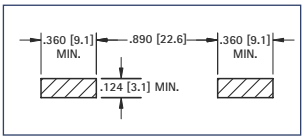
NOTE: ALL MOUNTING DIMENSIONS ARE FOR REFERENCE ONLY. PLEASE VERIFY YOUR BATTERY LAYOUT PRIOR TO FABRICATION.

50
550

CAT. NO.	"L" DIMENSION For "AAAA" 0.33 (8.4) × 1.67 (42.4)	"L" DIMENSION For "A27" 0.300 (7.6) × 10 (28.0)
50	0.89 (22.6)	0.32 (8.1)
550		

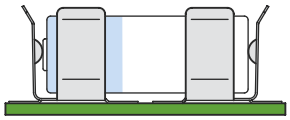


Mounting Detail

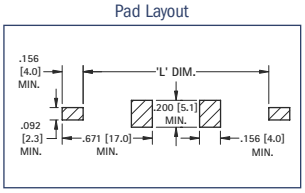


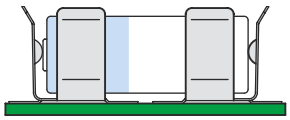
55
555

CAT. NO.	"L" DIMENSION For "AAA" 0.41 (10.4) × 1.75 (44.5)	"L" DIMENSION For "N" 0.45 (11.4) × 1.14 (29.0)	"L" DIMENSION For "A23" 0.40 (10.2) × 1.10 (27.9)
55	1.80(45.7)	1.20 (30.5)	1.15 (29.2)
555			



Pad Layout

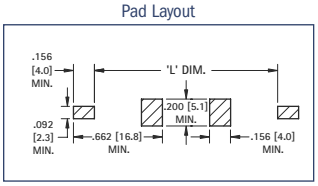




53
553

CAT. NO.	"L" DIMENSION For "AA" 0.56 (14.2) × 1.98 (50.3)	"L" DIMENSION For "2/3 A" 0.67 (17.0) × 1.36 (34.5)	"L" DIMENSION For "CR2" 0.60 (15.2) × 1.05 (26.7)	"L" DIMENSION For "1/2 AA" 0.56 (14.2) × 0.97 (24.6)
53	2.05 (52.1)	1.38 (35.1)	1.04 (26.4)	1.04 (26.4)
553				

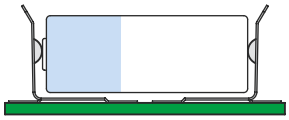
Pad Layout



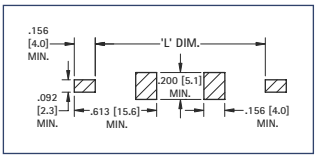
56
556
57
557

CAT. NO.	"L" DIMENSION For "AAA" 0.41 (10.4) × 1.75 (44.5)	"L" DIMENSION For "N" 0.45 (11.4) × 1.14 (29.0)	"L" DIMENSION For "A23" 0.4 (10.2) × 1.10 (27.9)
56	1.7 (43.2)	1.1 (27.9)	1.05 (26.7)
556			

CAT. NO.	"L" DIMENSION For "AA" 0.56 (14.2) × 1.98 (50.3)	"L" DIMENSION For "2/3 A" 0.67 (17.0) × 1.36 (34.5)	"L" DIMENSION For "CR2" 0.60 (15.2) × 1.05 (26.7)	"L" DIMENSION For "1/2 AA" 0.56 (14.2) × 0.97 (24.6)
57	1.90 (48.3)	1.23 (31.2)	0.97 (24.6)	0.89 (22.6)



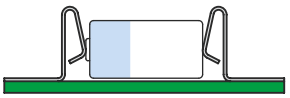
Pad Layout



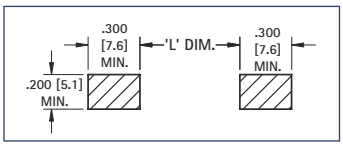
5231
5331
5232
5330

CAT. NO.	"L" DIMENSION For "AA" 0.56 (14.2) × 1.98 (50.3)	"L" DIMENSION For "2/3 A" 0.67 (17.0) × 1.36 (34.5)	"L" DIMENSION For "CR2" 0.60 (15.2) × 1.05 (26.7)	"L" DIMENSION For "1/2 AA" 0.56 (14.2) × 0.97 (24.6)
5231	2.38 (60.5)	1.71 (43.4)	1.53 (24.6)	1.37 (34.8)
5331				

CAT. NO.	"L" DIMENSION For "AAA" 0.41 (10.4) × 1.75 (44.5)	"L" DIMENSION For "N" 0.45 (11.4) × 1.14 (29.0)	"L" DIMENSION For "A23" 0.40 (10.2) × 1.10 (27.9)	"L" DIMENSION For "AAAA" 0.33 (8.4) × 1.67 (42.4)
5230	1.96 (49.8)	1.35 (34.3)	1.31 (33.3)	1.86 (47.2)
5330				



Pad Layout

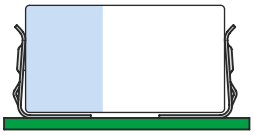


"L" dimensions reflect initial insertion deflection.

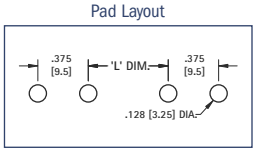
206

207

CAT. NO.	CELL	BATTERY DIM. REFERENCE	"L" DIMENSION
206	For "AA"	0.56 (14.2) × 1.98 (50.3)	1.10 (27.90)
207	For "C"	1.00 (25.4) × 1.97 (50.0)	0.81 (20.60)
208	For "D"	1.30 (33.0) × 2.42 (61.5)	1.25 (31.80)



Pad Layout



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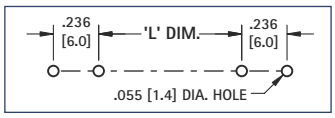
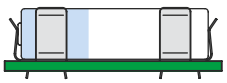
REFER TO PAGE 9 FOR PART DIMENSIONS

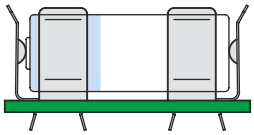
NOTE: ALL MOUNTING DIMENSIONS ARE FOR REFERENCE ONLY. VERIFY YOUR BATTERY LAYOUT PRIOR TO FABRICATION.

Mounting Detail



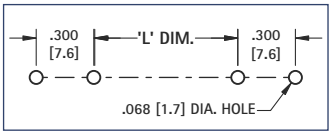
CAT. NO.	"L" DIMENSION For "AAAA" 0.33 (8.4) × 1.67 (42.4)	For "A27" 0.300 (7.6) × 1.10 (28.0
51	1.07 (27.2)	0.50 (12.7)





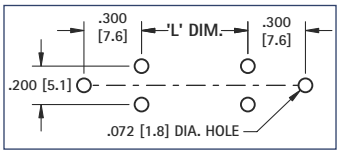
CAT. NO.	"L" DIMENSION For "AAA" 0.41 (10.4) × 1.75 (44.5)	For "N" 0.45 (11.4) × 1.14 (29.0)	For "A23" 0.40 (10.2) × 1.10 (27.9)
82	1.08 (27.4)	0.47 (11.9)	0.43 (10.9)

Mounting Detail

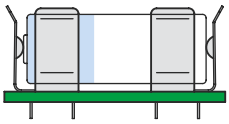


CAT. NO.	"L" DIMENSION For "AA" 0.56 (14.2) × 1.98 (50.3)	For "2/3 A" 0.67 (17.0) × 1.36 (34.5)	For "CR2" 0.60 (15.2) × 1.05 (26.7)	For "1/2 AA" 0.56 (14.2) × 0.97 (24.6)
52	1.32 (33.5)	0.67 (17.0)	0.39 (9.9)	0.31 (7.9)
92	1.32 (33.5)	–	N/A	0.31 (7.9)
2915	1.32 (33.5)	–	N/A	0.31 (7.9)

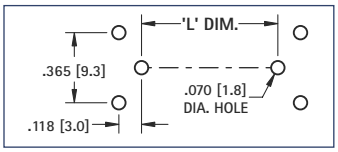
Mounting Detail



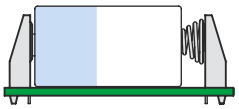
CAT. NO.	"L" DIMENSION For "18650" 0.71 (18.4) × 2.56 (65.0)	For "2/3 A" 0.67 (17.0) × 1.36 (34.5)
54	1.85 (47.0)	0.57 (14.5)



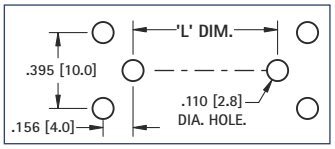
Mounting Detail



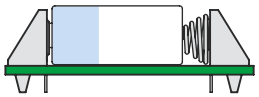
CAT. NO.	"L" DIMENSION For "2/3 A" 0.67 (17.0) × 1.36 (34.5)	For "CR2" 0.60 (15.2) × 1.05(26.7)
595 with 628	1.46 (37.1)	1.18 (30.0)



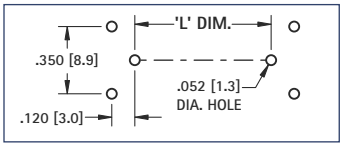
Mounting Detail



CAT. NO.	"L" DIMENSION For "AA" 0.56 (14.2) × 1.98(50.3)	For "AAA" 0.41 (10.4) × 1.75 (44.5)	For "1/2AA" 0.56(14.2) × 0.97(24.6)	For "N" 0.45(11.4) × 1.14(29.0)	For "A23" 0.40 (10.2) × 1.10(27.9)
637 with 629	2.11 (53.9)	1.88 (47.8)	1.10 (27.9)	1.27 (32.3)	1.23 (31.2)



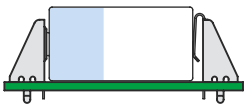
Mounting Detail



"L" dimensions reflect initial insertion deflection.

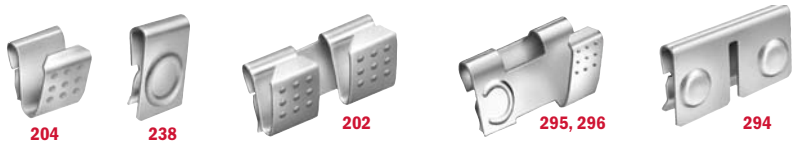
CAT. NO.	"L" DIMENSION For "AA" 0.56(14.2) × 1.98(50.3)	For "2/3 A" 0.67 (17.0) × 1.36(34.5)	For "CR2" 0.60 (15.2) × 1.05(26.7)	For "1/2 AA" 0.56(14.2) × 0.97(24.6)
596 with 590	2.07 (52.6)	N/A	1.14 (29.0)	1.06 (26.9)
590 with 590	2.15 (54.6)	1.50 (38.1)	1.22 (31.0)	1.14 (29.0)

CAT. NO.	"L" DIMENSION For "AAA" 0.41 (10.4) × 1.75 (44.5)	For "N" 0.45 (11.4) × 1.14 (29.0)	For "A23" 0.40 (10.2) × 1.10 (27.9)
597 with 591	1.83 (46.5)	1.22 (31.0)	1.18 (30.0)
591 with 591	1.91 (48.5)	1.30 (33.0)	1.26 (32.0)



REFER TO PAGES 12 & 13 FOR PART DIMENSIONS

NOTE: ALL MOUNTING DIMENSIONS ARE FOR REFERENCE ONLY. PLEASE VERIFY YOUR BATTERY LAYOUT PRIOR TO FABRICATION.



CAT. NO.	FIG. NO.	"L" DIMENSION For "AAA" 0.41 (10.4) × 1.75 (44.5)	For "N" 0.45 (11.4) × 1.14 (29.0)	For "12 V" 0.40 (10.2) × 1.10 (27.9)	For "AAAA" 0.33 (8.4) × 1.67 (42.4)
204 with 238	1	1.87 (47.5)	1.26 (32.0)	1.22 (31.0)	1.79 (45.5)
204,238 with 295, 296	1	1.87 (47.5)	1.26 (32.0)	1.22 (31.0)	1.79 (45.5)
202 with 294	1	1.87 (47.5)	1.26 (32.0)	1.22 (31.0)	1.79 (45.5)
204 with 204	2	1.97 (50.0)	1.36 (34.5)	1.32 (33.5)	1.89 (48.0)
204 with 202	2	1.97 (50.0)	1.36 (34.5)	1.32 (33.5)	1.89 (48.0)

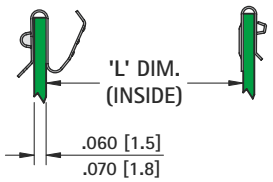


Fig. 1 Spring-Button
"L" dimensions reflect initial insertion deflection.

CAT. NO.	FIG. NO.	"L" DIMENSION For "AA" 0.56 (14.2) × 1.98 (50.3)	For "1/2 AA" 0.56 (14.2) × 0.97 (24.6)	For "CR2" 0.60 (15.2) × 1.05 (26.7)	For "2/3 A" 0.67 (17.0) × 1.36 (34.5)
209 with 228	1	2.13 (54.1)	1.12 (28.4)	12.0 (30.5)	1.46 (37.1)
209, 228 with 290, 291	1	2.13 (54.1)	1.12 (28.4)	N/A	N/A
288, 210 with 292	1	2.13 (54.1)	1.12 (28.4)	N/A	N/A
209 with 209	2	2.27 (57.7)	1.26 (32.0)	1.34 (34.0)	1.60 (40.6)
209 with 288, 210	2	2.27 (57.7)	1.26 (32.0)	N/A	N/A

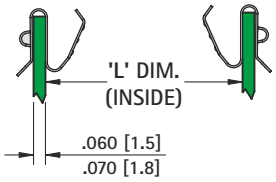
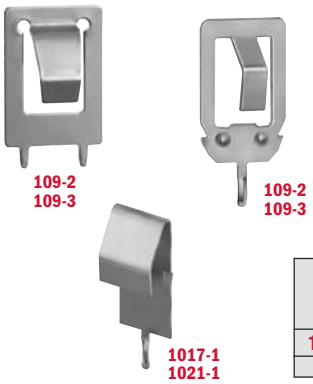
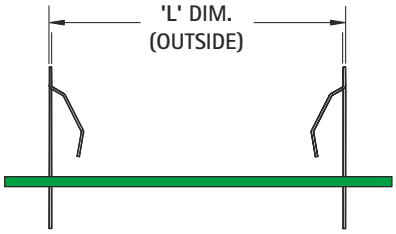


Fig. 2 Spring-Spring
"L" dimensions reflect initial insertion deflection.

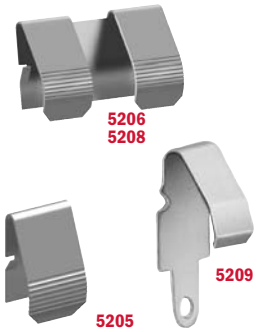


CAT. NO.	"L" DIMENSION For "AA" 0.56 (14.2) × 1.98 (50.3)	For "1/2 AA" 0.56 (14.2) × 0.97 (24.6)	For "CR2" 0.60 (15.2) × 1.05 (26.7)	For "2/3 A" 0.67 (17.0) × 1.36 (34.5)
109-2	2.22 (56.4)	1.21 (30.7)	1.29 (32.8)	1.55 (39.4)
109-3	2.22 (56.4)	1.21 (30.7)	1.29 (32.8)	1.55 (39.4)
1017-1	2.19 (55.6)	1.18 (29.9)	1.26 (32.0)	1.52 (38.6)
108-2	2.22 (56.4)	1.21 (30.7)	1.29 (32.8)	1.55 (39.4)

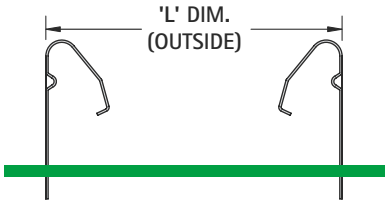
CAT. NO.	"L" DIMENSION For "AAA" 0.41 (10.4) × 1.75 (44.5)	For "N" 0.45 (11.4) × 1.14 (29.0)	For "12 V" 0.40 (10.2) × 1.10 (27.9)	For "AAAA" 0.33 (8.4) × 1.67 (42.4)
1021-1	1.96 (49.8)	1.35 (34.3)	1.31 (33.3)	1.88 (47.8)
108-2	1.99 (50.5)	1.38 (35.0)	1.34 (34.0)	1.91 (48.5)



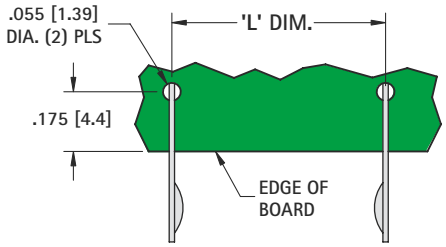
"L" dimensions reflect initial insertion deflection.



CAT. NO.	"L" DIMENSION For "AA" 0.56 (14.2) × 1.98 (50.3)	For "1/2 AA" 0.56 (14.2) × 0.97 (24.6)	For "CR2" 0.60 (15.2) × 1.05 (26.7)	For "2/3 A" 0.67 (17.0) × 1.36 (34.5)
5205	2.28 (57.9)	1.27 (32.3)	1.35 (34.3)	1.61 (40.8)
5205 with 5206	2.28 (57.9)	1.27 (32.3)	N/A	N/A
5209	2.34 (59.4)	1.33 (33.8)	1.41. (35.87)	1.67 (42.4)
5209 with 5208	2.34 (59.4)	1.33 (33.8)	N/A	N/A



"L" dimensions reflect initial insertion deflection.



CAT. NO.	"L" DIMENSION For "AAA" 0.41 (10.4) × 1.75 (44.5)	For "N" 0.45 (11.4) × 1.14 (29.0)	For "12 V" 0.40 (10.2) × 1.10 (27.9)	For "AAAA" 0.33 (8.4) × 1.67 (42.4)
230-1	1.73 (43.9)	1.12 (29.0)	1.08 (27.9)	1.65 (42.4)

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NOTE: ALL MOUNTING DIMENSIONS ARE FOR REFERENCE ONLY. VERIFY YOUR BATTERY LAYOUT PRIOR TO FABRICATION.

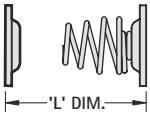

Fig. 1

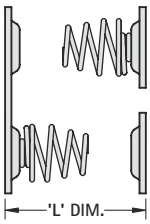

Fig. 2

5203

5225

5204

5226

5213, 5214

CAT. NO.	"L" DIMENSION				
	FIG. NO.	For "AAA" 0.41 (10.4) × 1.75 (44.5)	For "N" 0.45 (11.4) × 1.14 (29.0)	For "12V" 0.40 (10.2) × 1.10 (27.9)	For "AAAA" 0.33 (8.4) × 1.67 (42.4)
5203 with 5225	1	1.95 (49.5)	1.34 (34.0)	1.30 (33.0)	1.87 (47.5)
5204 with 5226	1	1.95 (49.5)	1.34 (34.0)	1.30 (33.0)	1.87 (47.5)
5214, 5213 with 5203, 5225	2	1.95 (49.5)	1.34 (34.0)	1.30 (33.0)	1.87 (47.5)

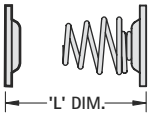

Fig. 1

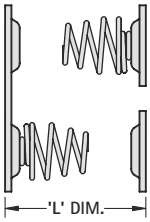

Fig. 2

5201, 5220

5202, 5222

5210, 5211

5212

5219, 5223

5221, 5224

5227

5228

CAT. NO.	"L" DIMENSION			
	FIG. NO.	For "AA" 0.56 (14.2) × 1.98 (50.3)	For "1/2 AA" 0.56 (14.2) × 0.97 (24.6)	For "2/3 A" 0.67 (17.0) × 1.36 (34.5)
5202 with 5224	1	2.23 (56.6)	1.22 (31.0)	1.61 (40.9)
5222 with 5221	1	2.24 (56.9)	1.23 (31.2)	1.62 (41.1)
5201 with 5223	1	2.24 (56.9)	1.23 (31.2)	1.62 (41.1)
5220 with 5219	1	2.24 (56.9)	1.23 (31.2)	1.62 (41.1)
5201, 5223 with 5210, 5211	2	2.24 (56.9)	1.23 (31.2)	N/A
5222, 5221 with 5212	2	2.24 (56.9)	1.23 (31.2)	N/A
5220, 5219 with 5217, 5218	2	2.24 (56.9)	1.23 (31.2)	N/A
5227 with 5228	2	2.24 (56.9)	1.23 (31.2)	N/A

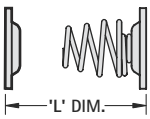

Fig. 1

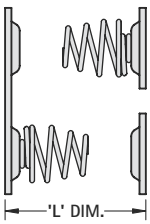

Fig. 2

5240

5241

5242

5250

5251

5252, 5253

CAT. NO.	"L" DIMENSION		
	FIG. NO.	For "C" 0.99 (25.0) × 1.97 (50.0)	For "D" 1.30 (33.0) × 2.24 (56.9)
5240 with 5241	1	2.25 (57.2)	N/A
5250 with 5251	1	N/A	2.75 (69.9)
5240, 5241 with 5242	2	2.25 (57.2)	N/A
5250, 5251 with 5252, 5253	2	N/A	2.75 (69.9)

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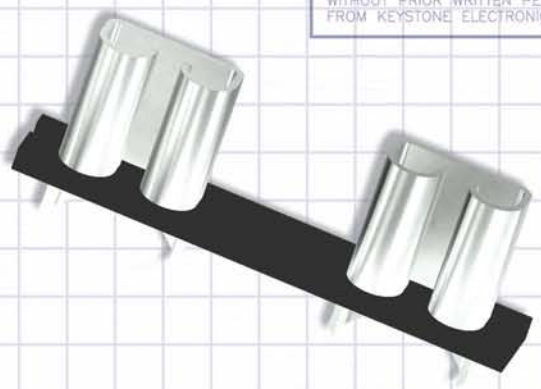

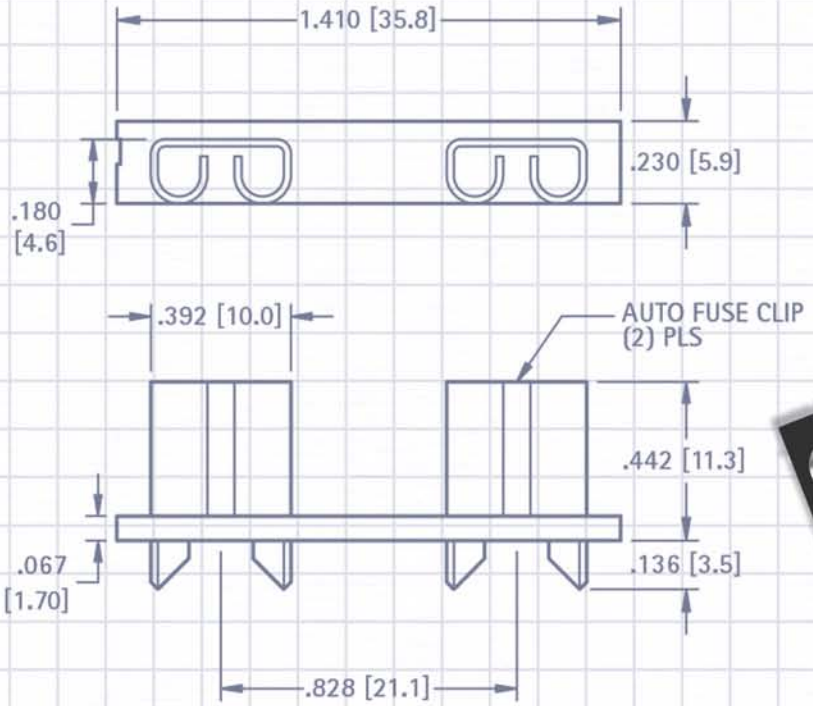

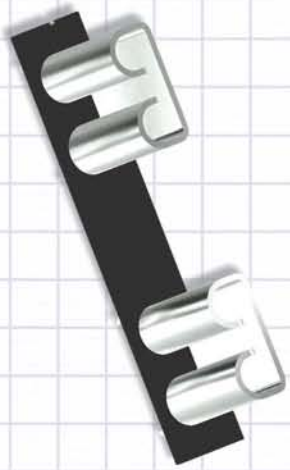

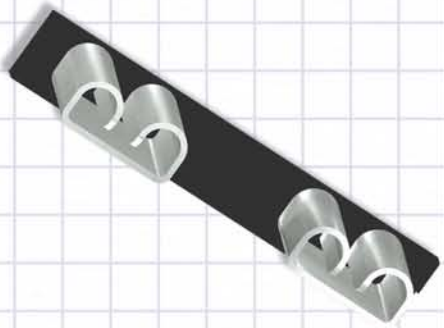

FUSE CLIPS & HOLDERS

Our comprehensive line of fuse clips, contacts and holders are ideally suited for use in today's industrial, electronic and automotive devices. Applications include:

- Delicate microcircuitry
- Consumer Electronics
- Telecom and Datacom devices
- Mini, Standard & Maxi blade Automotive Fuses
- High Shock and Vibration applications
- High Amperage applications
- UL approved devices

Our quality system is ISO 9001:2008 certified. Our products are in compliance with the RoHS and REACH directives. We provide 3D modeling, CAD and other application-engineering support for modifications, special designs or assembly requirements to assist you in choosing the right Keystone product for your application.

DATE	DESCRIPTION	REV.

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AUTOMOTIVE BLADE FUSE CLIP & HOLDERS

- Available for standard, mini and maxi fuse sizes
- Horizontal and vertical mini blade clips and holders for Littelfuse Low Profile Mini 897 series, Mini 297 or 997 series, Bussmann ATM series fuses or equivalents
- Horizontal and vertical standard blade clips and holders for Littelfuse ATO 257 series and Bussmann ATC series fuses or equivalents
- Vertical maxi blade clips and holders for Littelfuse Maxi 297 series and Bussmann MAX series fuses or equivalent.
- Thru hole PC mountable, maintains position during wave soldering
- Holds fuse securely, even after multiple insertions
- Available with orientation legs to assure proper orientation

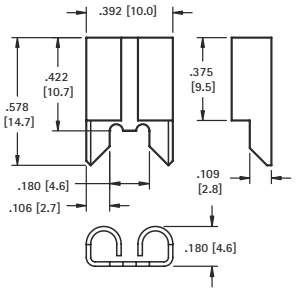
"MAXI" AUTOMOTIVE FUSE CLIP & HOLDER

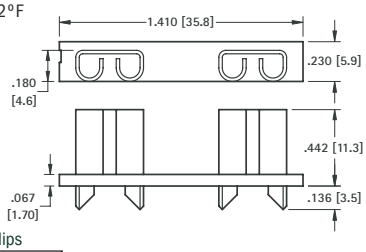
FOR .312 (7.9) × .032 (.80) MAXI BLADE FUSES

For Littelfuse Maxi 297 series/Bussmann Max series or equivalent

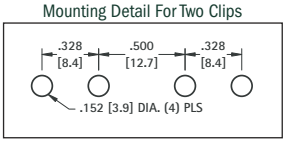
- Thru hole PC mountable, maintains position during wave soldering
- Holder design prevents solder wicking
- Withstands the rigors of shock and vibration
- Holds fuse securely, even after multiple insertions

SPECIFICATIONS
Contacts: .020 (.51) Copper, Tin-Nickel Plate
Insulator: Glass filled Nylon, UL Rated 94V-0
Current Rating: 40 Amps @ 500V AC
Temperature Rating: -58°F to +292°F (-50°C to +145°C)





Mounting Detail For Two Clips



CAT. NO. 3555

CAT. NO. 3555-2

MODULAR AUTOMOTIVE BLADE FUSE HOLDERS

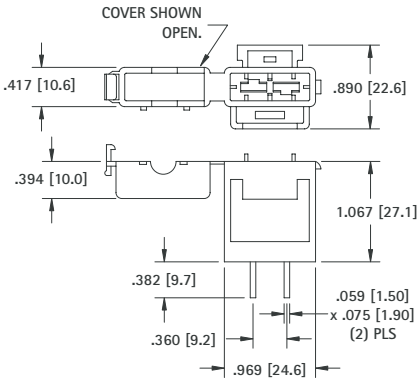
FOR .205 (5.2) × .025 (.64) STANDARD BLADE FUSES

For Littelfuse ATO 257 series/Bussmann ATC series or equivalent

3560 (Shown with two 3560 holders, interlocked)

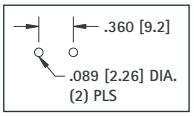
3559 (14 gauge wire lead must be cut and spliced for in-line use)

SPECIFICATIONS
Contacts: Brass, Tin Plate
Body: Nylon
Current Rating: 30 Amps @ 500V AC
Temperature Rating: -58°F to +292°F (-50°C to +145°C)

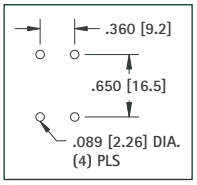


- Designed for standard auto blade fuses
- Fully insulated compact design
- Mounts easily in pre-drilled or punched hole
- Holder has pocket to hold spare fuse
- Safety lever release clip will not open under shock or vibration
- Fuses are installed and removed easily
- May be used individually or easily interlocked for multiple mounting

Mounting Detail



Mounting Detail For Two Holders

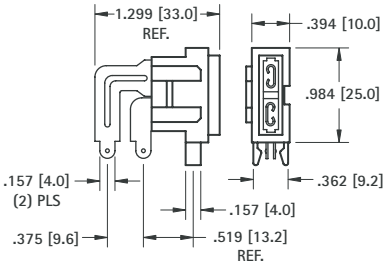


CAT. NO. 3560 (PC Mount)

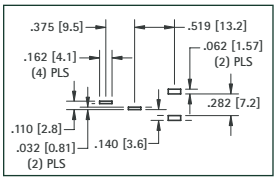
CAT. NO. 3559 (In Line)

SPECIFICATIONS
Contacts: Brass, Tin Plate
Body: Nylon
Current Rating: 30 Amps @ 500V AC
Temperature Rating: -58°F to +292°F (-50°C to +145°C)

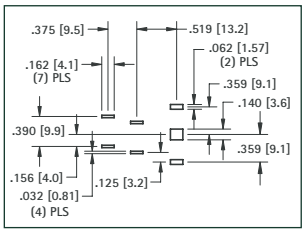
- Fully insulated fuse mount
- Designed for standard auto blade fuses
- Mounts easily in punched hole
- Fuses are installed and removed easily
- May be used individually or easily interlocked for multiple mounting



Mounting Detail



Mounting Detail For Two Holders



CAT. NO. 3558

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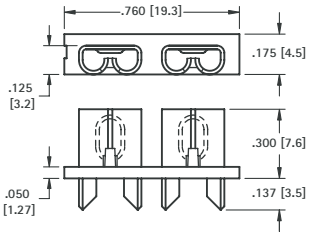
FOR .205 (5.2) × .025 (.64) STANDARD BLADE FUSES

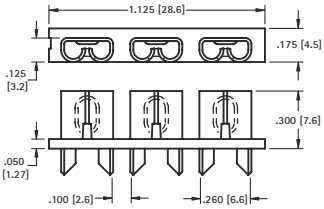
For Littelfuse ATO 257 series/Bussmann ATC series or equivalent

- Holds fuse securely, even after multiple insertions
- Thru hole-mount, maintains position during wave soldering
- Withstands the rigors of shock and vibration
- Holder design prevents solder wicking

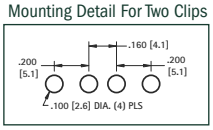
VERTICAL FUSE ENTRY



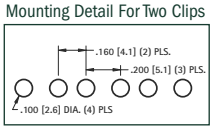
SPECIFICATIONS
Contacts: .016 (.41) Brass, Tin-Nickel Plate
Insulator: Glass filled Nylon, UL Rated 94V-0
Current Rating: 30 Amps @ 500V AC
Temperature Rating: -58°F to +292°F (-50°C to +145°C)



Mounting Detail For Two Clips



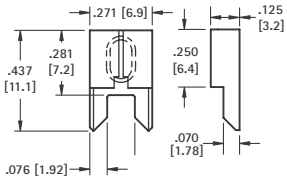
Mounting Detail For Two Clips



CAT. NO. 3522-2

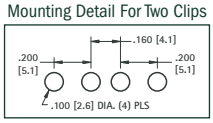
CAT. NO. 3522-3

VERTICAL ENTRY

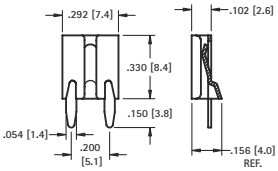


SPECIFICATIONS
Contacts: .016 (.41) Brass
Current Rating: 20 Amps @ 500 VAC

Mounting Detail For Two Clips



LOW INSERTION FORCE



CAT. NO. 3522 Tin-Nickel Plate

CAT. NO. 3573 Matte Tin Plate

2 IN 1 FUSE HOLDER

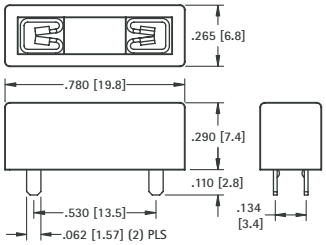
For Littelfuse ATO 257 series/Bussmann ATC series, Littelfuse Low Profile Mini 897 series or equivalents

- Low insertion force
- Fuse holder fully insulates clips to protect fuse from shorting
- Holder assures proper spacing and reduces assembly time
- Thru hole PC mountable, maintains position during wave soldering

UNIVERSAL CLIP

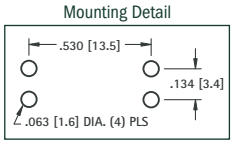
For Littelfuse ATO 257 series/Bussmann ATC series, Littelfuse Mini 297 or 997 series/Bussmann ATM series, Littelfuse Low Profile Mini 897 series or equivalents

- Accepts most Auto-Blade Fuses
- Low insertion force
- Thru hole PC mountable, maintains position during wave soldering

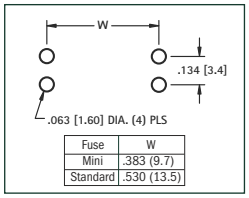


SPECIFICATIONS
Contacts: .016 (.41) Brass, Tin-Nickel Plate
Insulator: Nylon 4/6, UL Rated 94V-0
Current Rating: 20 Amps @ 500V AC
Temperature Rating:
-58°F to +292°F (-50°C to +145°C)

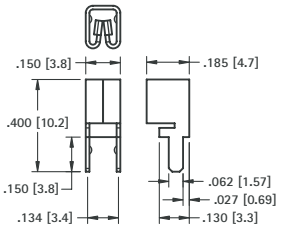
Mounting Detail



Mounting Detail



Fuse	W
Mini	.383 (9.7)
Standard	.530 (13.5)



CAT. NO. 3557-2

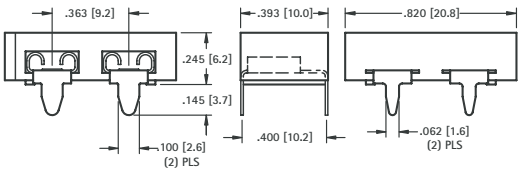
CAT. NO. 3557 - Top Entry

CAT. NO. 3577 - Bottom Entry

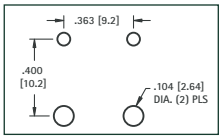
HORIZONTAL FUSE ENTRY

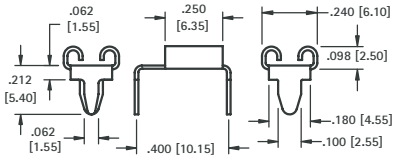
- Designed for low height clearance applications
- Fuse will be inserted parallel to board
- Thru hole mount, maintains position during wave soldering
- Fuse holder fully insulates clips to protect fuse from shorting
- Holder assures proper spacing and reduces assembly time
- Polarized legs assure proper orientation of clips onto board

SPECIFICATIONS
Contacts: .012 (.30) Brass, Nickel Plate
Insulator: Nylon, UL Rated 94V-0
Current Rating: 15 Amps @ 500V AC
Temperature Rating: -58°F to +292°F (-50°C to +145°C)



Mounting Detail For Two Clips





CAT. NO. 3550-2

CAT. NO. 3550

"MINI" AUTOMOTIVE FUSE CLIPS & HOLDERS

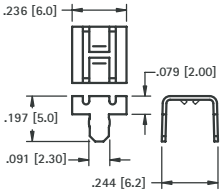
For .110 (2.8) × .032 (.80) MINI BLADE FUSES

For Littelfuse Mini 297 or 997 series/Bussmann ATM series or equivalent

VERTICAL FUSE ENTRY

Thru Hole Mount

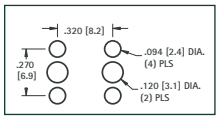
- Low Profile



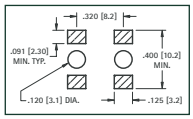
CAT. NO. 3564

MATERIAL:
.016 (.41) Brass, Matte Tin Plate
Current Rating: 15 Amps @ 500V AC

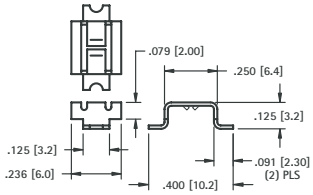
Mounting Detail
For Two Clips



Pad Layout
For Two Clips



AVAILABLE ON TAPE AND REEL



Surface Mount

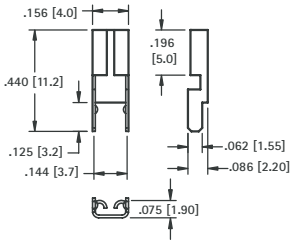
- Low Profile

CAT. NO. 3563 (Bulk)

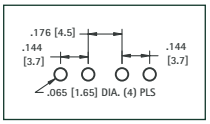
CAT. NO. 3563TR (Tape & Reel)

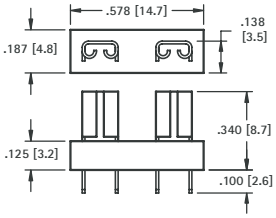
Tape & Reel Spec's: 24mm wide; 12mm pitch; 13 inch reel (1500 pieces per reel)

SPECIFICATIONS
Material: .012 (.30) Brass
Insulator: Glass filled Nylon, UL Rated 94V-0
Current Rating: 15 Amps @ 500V AC
Temperature Rating: -58°F to+292°F (-50°C to+145°C)



Mounting Detail For Two Clips





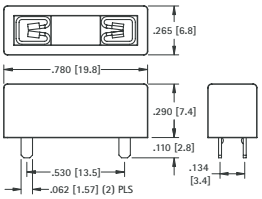
CAT. NO. 3544 Tin-Nickel Plate

CAT. NO. 3544-2 Tin Plate

LOW PROFILE MINI FUSE HOLDER

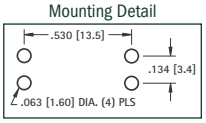
For Littelfuse Low Profile
Mini 897 series or equivalent

- Low insertion force
- Thru hole PC mountable, maintains position during wave soldering
- Fuse holder fully insulates clips to protect fuse from shorting
- Holder assures proper spacing and reduces assembly time



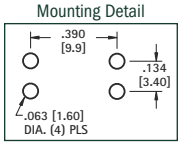
SPECIFICATIONS
Contacts: .016 (.41) Brass, Tin-Nickel Plate
Insulator: Nylon 4/6, UL Rated 94V-0
Current Rating: 20 Amps @ 500V AC
Temperature Rating: -58°F to+292°F (-50°C to+145°C)

Mounting Detail



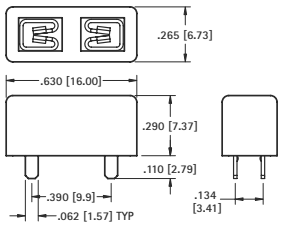
Refer to page 39 for Cat. No. 3557 Clip details

Mounting Detail



MINI FUSE HOLDER

For Littelfuse Mini 297 or
997 series/Bussmann ATM
or equivalents



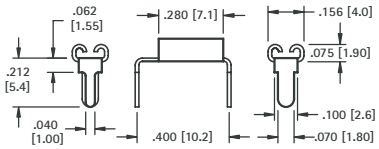
CAT. NO. 3557-2

CAT. NO. 3568

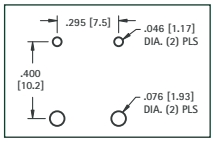
HORIZONTAL FUSE ENTRY

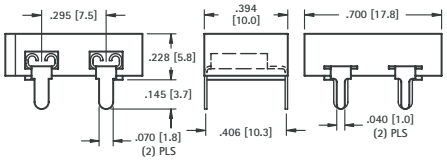
For Littelfuse Mini 297 or 997 series/Bussmann ATM series or equivalent

SPECIFICATIONS
Contacts: .012 (.30) Brass
Insulator: Nylon 6/6, UL Rated 94V-0
Current Rating: 15 Amps @ 500V AC
Temperature Rating: -58°F to+292°F (-50°C to+145°C)



Mounting Detail For Two Clips





CAT. NO. 3549 Nickel Plate

CAT. NO. 3549-2 Tin Plate

Tel (718) 956-8900 • Fax (718) 956-9040
(800) 221-5510 • kec@keyelco.com

KEYSTONE®
RoHS COMPLIANT ~ ISO 9001 CERTIFIED

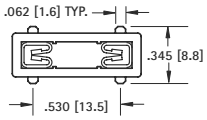
www.keyelco.com
31-07 20th Road – Astoria, NY 11105-2017

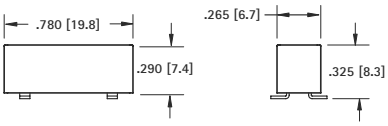
SMT "AUTO" BLADE FUSE HOLDERS

- Compatible with most vacuum and mechanical pick and place assembly systems.
- Fully insulated clips to protect fuses against shorting.
- One piece assembly reduces assembly time
- Withstands shock and vibration.

2 in 1 FUSE HOLDER

For Standard: Littelfuse: ATO series/ Bussmann ATC series.
For Low Profile: Littelfuse: 891 series/ Bussmann ATM-LP series

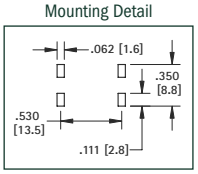




SPECIFICATIONS

Contacts: .016 (.41) Brass, Matte Tin Plate
Insulator: High Temperature Nylon 46, UL 94V-0
Temperature Rating: -58°F to+292°F (-50°C to+145°C)
Current Rating: 20 Amps @ 500V AC

Mounting Detail



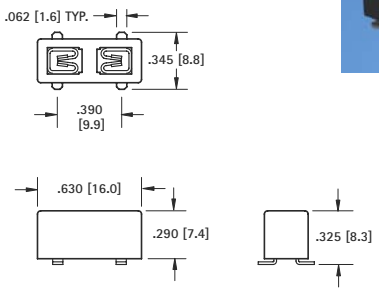
CAT. NO. 3587 (Bulk)

CAT. NO. 3587TR (Tape & Reel)

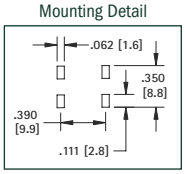
Tape & Reel Spec's: 32mm wide, 16mm pitch, 13 inch reel (500 pieces per reel)

MINI FUSE HOLDER

For Mini: Littelfuse: MIN series/ Bussmann ATM series or equivalent



Mounting Detail



SPECIFICATIONS

Contacts: .016 (.41) Brass, Matte Tin Plate
Insulator: High Temperature Nylon 46, UL 94V-0
Temperature Rating: -58°F to+292°F (-50°C to+145°C)
Current Rating: 20 Amps @ 500V AC

CAT. NO. 3588 (Bulk)

CAT. NO. 3588TR (Tape & Reel)

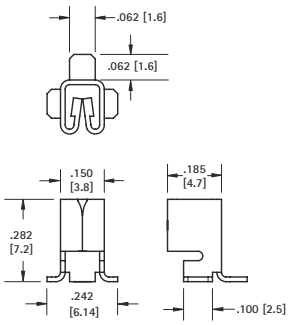
Tape & Reel Spec's: 32mm wide, 16mm pitch, 13 inch reel (500 pieces per reel)

SMT "AUTO" BLADE FUSE CLIPS

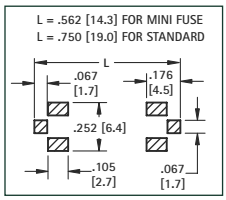
- Compatible with most vacuum and mechanical pick and place assembly systems.
- Accepts standard and mini blade automotive blade fuses.
- Clip with Matte-Tin plate is ideal for low temperature soldering applications, for other temperature sensitive components.
- Clips with Tin-Nickel plate are ideal for lead free, high temperature soldering applications.

VERTICAL ENTRY

For Mini: Littelfuse: MIN series/Bussmann ATM series.
For Standard: Littelfuse: ATO series/Bussmann ATC series.
For Low Profile: Littelfuse: 891 series/Bussmann ATM-LP series



Pad Layout For Two Clips



SPECIFICATIONS

Material: .016 (.41) Brass, Tin-Nickel Plate
Current Rating: 20 Amps @ 500V AC

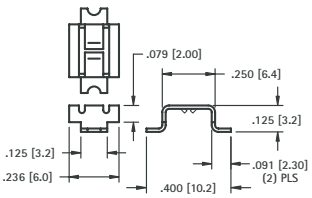
CAT. NO. 3586 (Bulk)

CAT. NO. 3586TR (Tape & Reel)

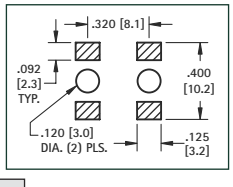
Tape & Reel Spec's:16mm wide, 12mm pitch, 13 inch reel (750 pieces per reel)

VERTICAL ENTRY

For Mini: Littelfuse: MIN series/Bussmann ATM series or equivalent



Pad Layout For Two Clips



SPECIFICATIONS

Material: .016 (.41) Brass, Matte Tin Plate
Current Rating: 15 Amps @ 500V AC

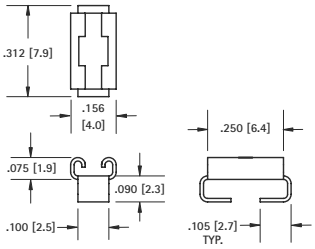
CAT. NO. 3563 (Bulk)

CAT. NO. 3563TR (Tape & Reel)

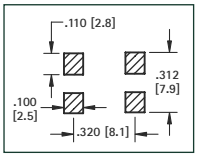
Tape & Reel Spec's:24mm wide, 12mm pitch, 13 inch reel (1500 pieces per reel)

HORIZONTAL ENTRY

For Mini: Littelfuse: MIN series/Bussmann ATM series or equivalent



Mounting Detail For Two Clips



SPECIFICATIONS

Material: .012 (.30) Brass, Tin-Nickel Plate
Current Rating: 15 Amps @ 500V AC

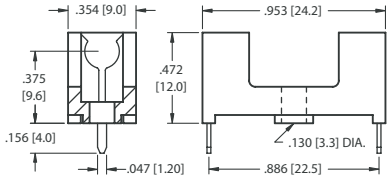
CAT. NO. 3569 (Bulk)

CAT. NO. 3569TR (Tape & Reel)

Tape & Reel Spec's: 24mm wide, 8mm pitch, 13 inch reel (2000 pieces per reel)

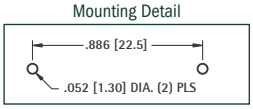
5mm x 20mm FUSE HOLDERS

SLIM LINE



- Optional cover with window protects and insulates fuse
- Flame Retardant

Mounting Detail

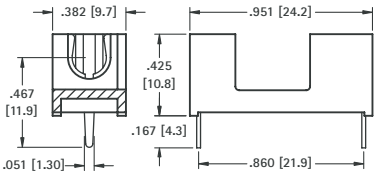


CAT. NO. 4628 - **Holder**

CAT. NO. 4628C - **Cover only** (with window)

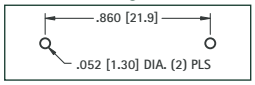
SPECIFICATIONS
Base & Cover: Nylon, UL Rated 94V-0
Clips: Brass, Tin Plate
Rated: 5 Amps @ 250V AC

LOW PROFILE



- Low profile, space saving design
- Optional cover protects and insulates fuse
- Flame Retardant

Mounting Detail

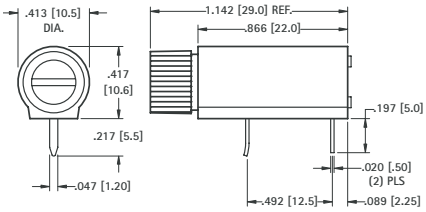


CAT. NO. 4527 - **Holder**

CAT. NO. 4527C - **Cover only**

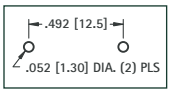
SPECIFICATIONS
Base & Cover: Nylon, UL Rated 94V-0
Clips: Brass, Tin Plate
Rated: 5 Amps @ 250V AC

FULLY INSULATED



- Supplied unassembled
- Shock resistant
- Fuse can be accessed from board edge
- Fuse is completely enclosed, protecting use from shorting and breaking

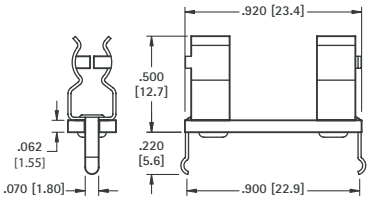
Mounting Detail



CAT. NO. 4525

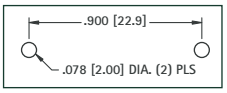
SPECIFICATIONS
Base: PBT
Contacts: Brass, Tin Plate
Rated: 10 Amps @ 250V AC

PC SNAP-IN



- Snap-in design for wave soldering
- Flame Retardant
- Optional cover protects and insulates fuse - Cat. No. 3527C

Mounting Detail

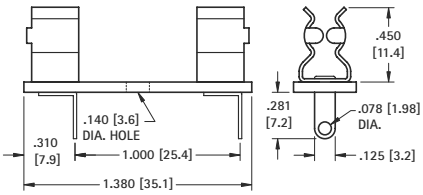


CAT. NO. 3527 - **Holder**

SPECIFICATIONS
Base: .062 (1.57) G-10, UL Rated 94V-0
Clips: Brass, Tin Plate
Rated: 6.3 Amps @ 250V AC

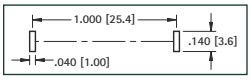
3AG FUSE HOLDERS

TERMINATION LUGS CAN BE USED WITH WIRES OR PC MOUNT



SPECIFICATIONS
Base: .062 (1.57) GPO-3, UL Rated 94V-0
Clips: Brass, Tin Plate
Rated: 15 Amps @ 500VAC

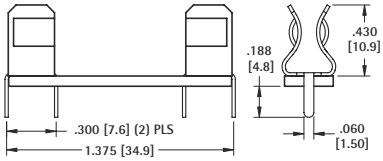
Mounting Detail



CAT. NO. 3526

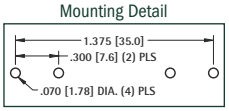
Optional cover available - Cat. No. 4245C

PRESS-FIT, IDEAL FOR WAVE SOLDERING



SPECIFICATIONS
Base: .062 (1.57) GPO-3, UL Rated 94V-0
Clips: Brass, Tin Plate
Rated: 15 Amps @ 500VAC

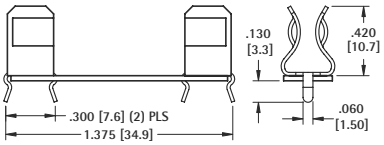
Mounting Detail



CAT. NO. 4245

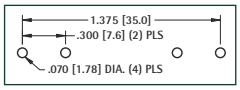
Optional cover available - Cat. No. 4245C

SNAP-IN DESIGN ASSURES STABILITY DURING WAVE SOLDERING



SPECIFICATIONS
Base: .032 (1.57) G-10, UL Rated 94V-0
Clips: Brass, Tin Plate
Rated: 15 Amps @ 500VAC

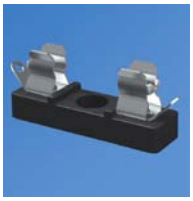
Mounting Detail

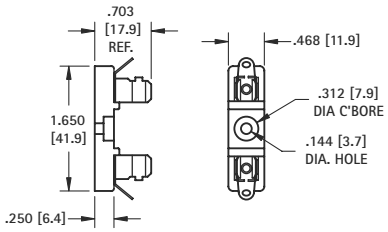


CAT. NO. 4250

Optional cover available - Cat. No. 4245C

MOLDED CASE





SPECIFICATIONS
Base: LCP, UL Rated 94V-0
Clips: .020 (.51) Brass - Nickel Plated
Rated: 15 Amps @ 500 VAC

CAT. NO. 3523

Optional cover available - Cat. No. 4245C

Mounting Hole: .144 (3.7) Dia.

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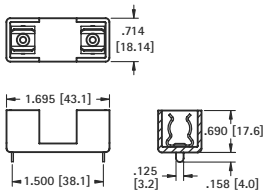
MIDGET, SPF (5AG) FUSE HOLDER

3576 (THM)

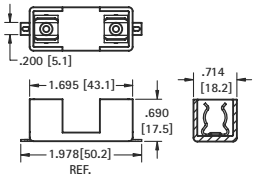
- Designed for SPF (Solar Protection Fuse)
- Optional cover will protect and insulate fuse
- Flame resistant

SPECIFICATIONS

Base & Cover: Nylon, UL Rated 94V-0
Clips: .030 (.76) Brass, Matte Tin Plate
Rated: 30 Amps
Operating Temp. Range: -58°F to +292°F (-50°C to +145°C)

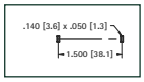


Optional Cover Cat. No. 3576C
fits Cat. No. 3576 & 3574



3574 (SMT)

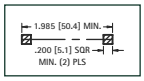
Mounting Detail



CAT. NO. 3576 - Holder
CAT. NO. 3576C - Cover only

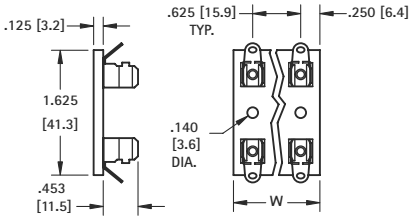
CAT. NO. 3574 - Holder
CAT. NO. 3576C - Cover only

Mounting Detail



3AG FUSE BLOCKS

- Available with fiberglass or phenolic base
- Fuse clips riveted to base for rugged applications



SPECIFICATIONS

Phenolic Base: XP, Black UL Rated 94-HB
Fiberglass Base: GPO-3 UL Rated 94 V-0
Clips: .020 (.51) Brass - Nickel Plated
Rated: 15 Amps @ 500 VAC
Operating Temp. Range: -58°F to +292°F (-50°C to +145°C)

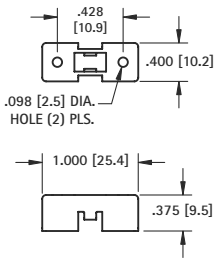
BLACK PHENOLIC CAT. NO.	FIBER-GLASS CAT. NO.	HOLDS NO. OF FUSES	W
3536	3540	1	.500 (12.7)
3537	3541	2	1.125 (28.6)
3538	3542	3	1.750 (44.5)
3539	3543	4	2.375 (60.3)

FUSE COVERS

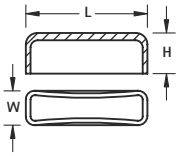
Can be used with clips 3512, 3512P, 3517 and 3518

MATERIAL: ABS, UL Rated 94V-0

CAT. NO.	FUSE SIZE
3517C	5mm × 20mm

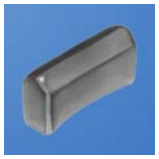


- Made from flame retardant material
- Protects fuse from shorting and minor bumps



MATERIAL: PVC, UL Listed 94V-0

CAT. NO.	FUSE SIZE	L	W	H
3527C	5mm × 20mm	.945 (24.0)	.314 (8.0)	.512 (13.0)
3521C	2AG	.787 (20.0)	.295 (7.5)	.452 (11.5)
4245C	3AG	1.319 (33.5)	.472 (12.0)	.591 (15.0)



Can be used with clips or fuse holders

SUBMINIATURE FUSE HOLDERS

- Reliable spring tension assures low contact resistance
- Fuse holders allow for quick changing of subminiature fuses
- Ideal for high density circuit board applications

SPECIFICATIONS

Base: Thermoplastic, UL Rated 94V-0
Springs: Beryllium Copper, Gold Plate
Pins: Brass, Tin Plate
Current Rating: 5 Amps @ 250V AC

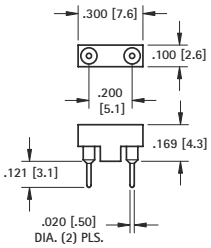
.335 (8.5) × .158 (4.0) FUSE

For Littelfuse 392/395 Type TE5®
Bussmann: PC Series
or equivalent

.335 (8.5) DIA. FUSE

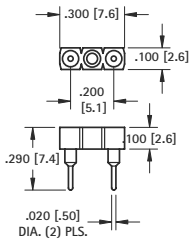
For Littelfuse 370 Type TR5®
Bussmann: BK-EFF series
or equivalent

STURDI-MOUNT



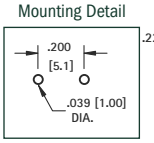
CAT. NO. 3552

LOW PROFILE

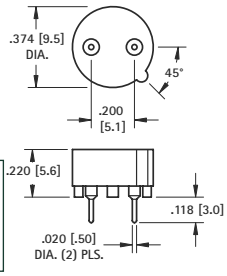


CAT. NO. 3553

Mounting Detail

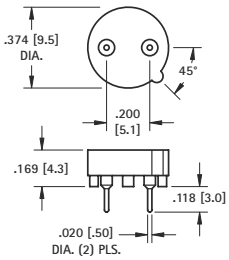


STURDI-MOUNT



CAT. NO. 3556

LOW PROFILE



CAT. NO. 3554

Underwriters Laboratories, Inc. Recognized Component Program — UL File Number E354010

UL file number E354010 has been assigned to Keystone Electronics' fuse clips with end stops. (Refer to pages 44-45) Indicating recognition by Underwriters Laboratories Inc. that they are in compliance with their component program.

- Available for 5mm, 1AG, 2AG, 3AG, 5AG, 7AG & 8AG sizes
- Low profile, space saving
- Low contact resistance
- Withstands shock and vibration
- Rated 6.3 to 30 Amps
- Custom designs and modifications available to your specifications

Refer to pages 46-47 for Fuse Clip Layout and Mounting Details

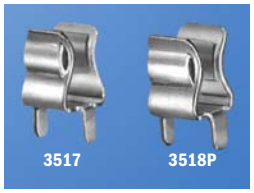
PC THRU MOUNT TYPES

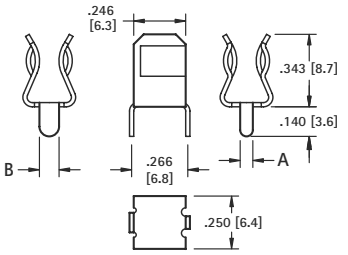
- Snap-fit design enhances assembly and PC retention for wave soldering
- Available with orientation legs to assure proper PC installation
- Available with or without end stops

SURFACE MOUNT & RIVET TYPES

- Available with solder lugs or quick-fit tabs .187 (4.7), .205 (5.2)

5mm PC Clips



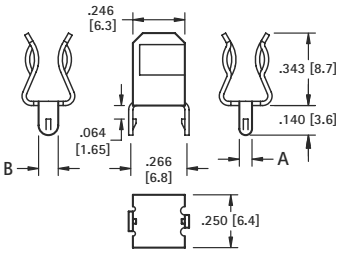


MATERIAL:
.020 (.51) Brass, Tin Plate
Current Rating: 15 Amps

CAT. NO.	A	B
3517	.060 (1.5)	.060 (1.5)
3518P	.060 (1.5)	.093 (2.4)

With or Without Orientation Legs

Optional cover available - Cat. No. 3517C



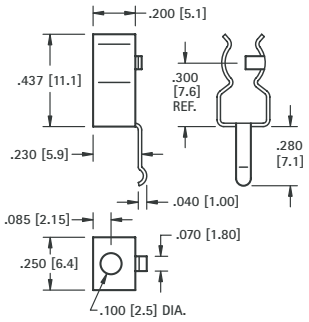
- With snap-in PC legs

MATERIAL:
.020 (.51) Brass, Tin Plate
Current Rating: 15 Amps

CAT. NO.	A	B
3512	.060 (1.5)	.060 (1.5)
3512P	.060 (1.5)	.093 (2.4)

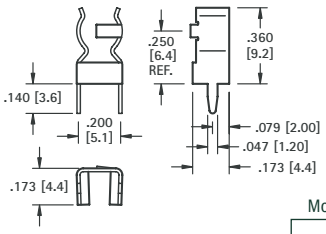
With or Without Orientation Legs

Optional cover available - Cat. No. 3517C

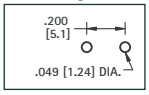


MATERIAL:
.016 (.41) Brass, Tin Plate
Current Rating: 6.3 Amps

CAT. NO. 3520



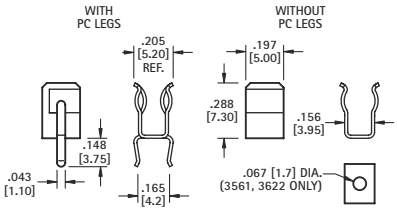
Mounting Detail



MATERIAL:
.016 (.41) Brass, Tin Plate
Current Rating: 15 Amps

CAT. NO. 3519

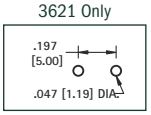
2AG or 5mm



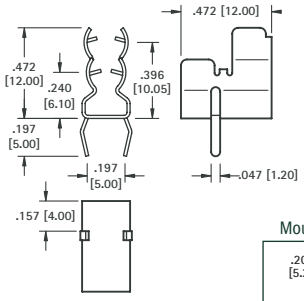
MATERIAL: .016 (.41) Brass, Tin Plate
Current Rating: 15 Amps

CAT. NO.	PC LEGS	END STOP
3521	YES	YES
3621	YES	NO*
3561	NO	YES
3622	NO	NO*

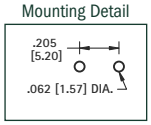
Mounting Detail
Cat. No. 3521 & 3621 Only



5mm/3AG



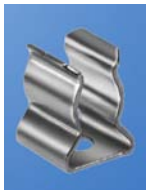
Mounting Detail

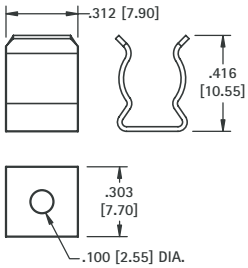


MATERIAL:
.016 (.41) Brass, Tin Plate
Current Rating: 15 Amps

CAT. NO. 3562

4AG (9/32 Dia.)

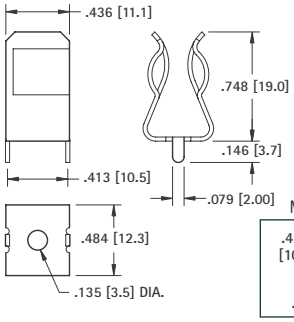




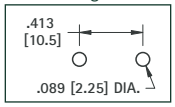
MATERIAL:
.020 (.51) Brass, Nickel Plate
Current Rating: 15 Amps

CAT. NO. 3565 (Without End Stops)*

5AG (13/32 Dia.) - Solar Protection Fuse



Mounting Detail



MATERIAL:
.030 (.76) Brass, Tin Plate
Current Rating: 30 Amps

CAT. NO. 3566

Fuse clips without end stops are not UL recognized

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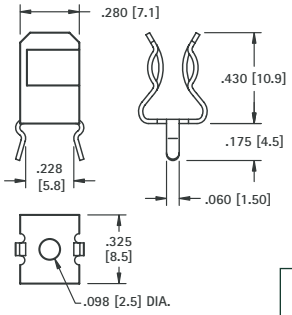
.250 (6.4) DIAMETER FUSE CLIPS

Refer to pages 46-49 for Fuse Clip Layout and Mounting Details

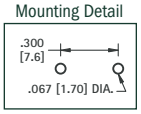
1AG, 3AG, 7AG, 8AG THRU HOLE MOUNT TYPES

WITH SNAP-IN PC LEGS



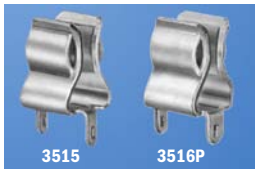
MATERIAL:
.020 (.51) Brass, Tin Plate
Current Rating: 15 Amps

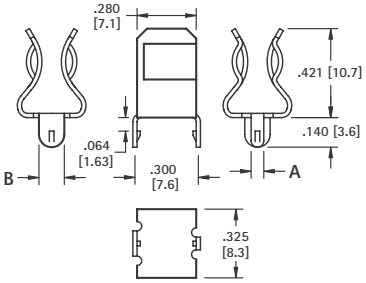
Mounting Detail



CAT. NO. 3513

WITH SNAP-IN PC LEGS



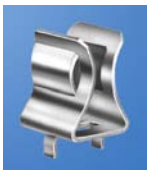


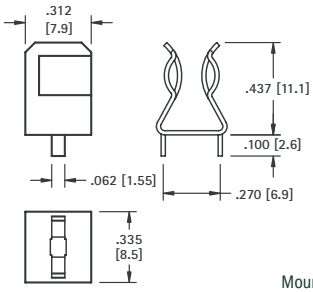
MATERIAL:
.020 (.51) Brass, Tin Plate
Current Rating: 15 Amps

CAT. NO.	A	B
3515	.060 (1.5)	.060 (1.5)
3515P	.060 (1.5)	.093 (2.4)
3516P	.060 (1.5)	.120 (3.0)

With or Without Orientation Legs

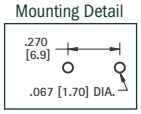
WITH STRAIGHT PC LEGS





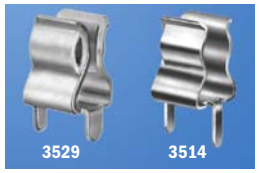
MATERIAL:
.020 (.51) Brass, Tin Plate
Current Rating: 15 Amps

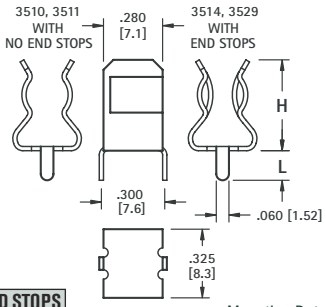
Mounting Detail



CAT. NO. 3530

WITH STRAIGHT PC LEGS

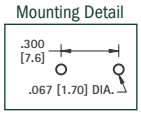




MATERIAL:
.020 (.51) Brass, Tin Plate
Current Rating: 15 Amps

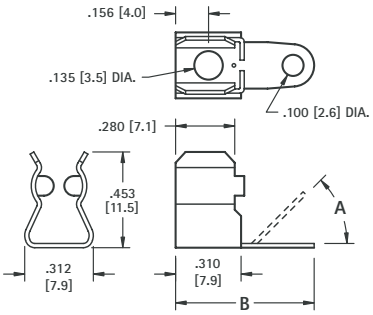
CAT. NO.	H	L	END STOPS
3510	.421 (10.7)	.140 (3.6)	NO*
3529	.421 (10.7)	.140 (3.6)	YES
3511	.430 (10.9)	.250 (6.4)	NO*
3514	.430 (10.9)	.250 (6.4)	YES

Mounting Detail



1AG, 3AG, 7AG, 8AG RIVET & SURFACE MOUNT TYPES

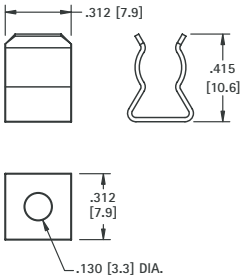
WITH SOLDER LUG



MATERIAL:
.020 (.51) Brass, Nickel Plate
Current Rating: 15 Amps

CAT. NO.	A	B
3533	Flat	.656 (16.7)
3535	45°	.562 (14.3)
3570	–	NO TAB

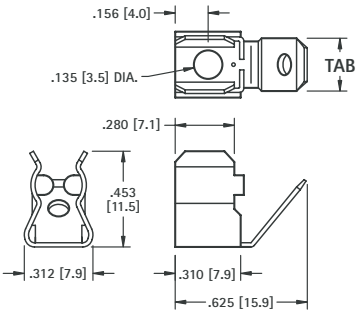
LOW PROFILE



MATERIAL:
.020 (.51) Brass, Nickel Plate
Current Rating: 15 Amps

CAT. NO. 3531 (Without End Stops)*

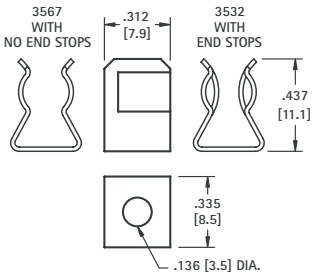
WITH QUICK-FIT TAB



MATERIAL:
.020 (.51) Brass, Nickel Plate
Current Rating: 15 Amps

CAT. NO.	TAB
4246	.187 (4.7)
4247	.205 (5.2)

WITH OR WITHOUT END STOPS



MATERIAL:
.020 (.51) Brass, Nickel Plate
Current Rating: 15 Amps

CAT. NO.	END STOPS
3532	YES
3567	NO*

*Fuse clips without end stops are not UL recognized

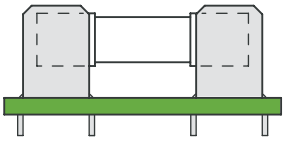
REFER TO PAGE 44 FOR PART DIMENSIONS

NOTE: ALL MOUNTING DIMENSIONS ARE FOR REFERENCE ONLY. PLEASE VERIFY YOUR FUSE LAYOUT PRIOR TO FABRICATION.

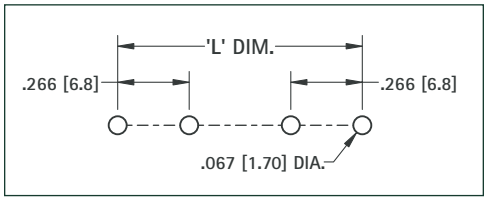
FIGURE 1

3517

CAT. NO. 3517	
FUSE SIZE	L DIM.
5mm × 20mm	.910 (23.1)



Mounting Detail

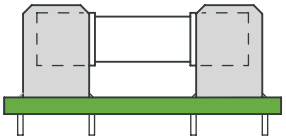


3517

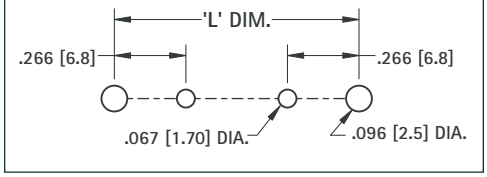
FIGURE 2

3518P

CAT. NO. 3518P	
FUSE SIZE	L DIM.
5mm × 20mm	.910 (23.1)



Mounting Detail

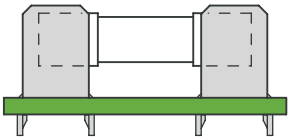


3518P

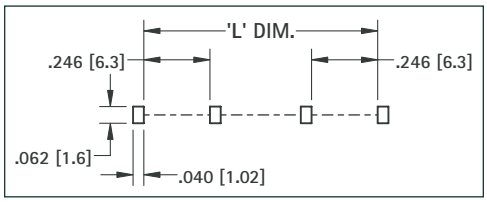
FIGURE 3

3512

CAT. NO. 3512	
FUSE SIZE	L DIM.
5mm × 20mm	.910 (23.1)



Mounting Detail

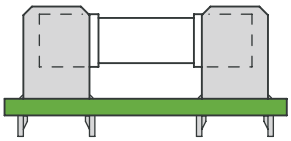


3512

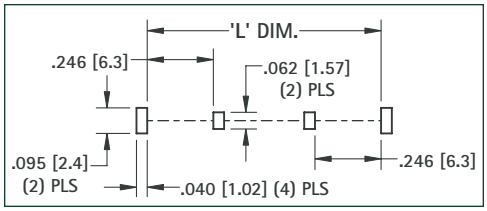
FIGURE 4

3512P

CAT. NO. 3512P	
FUSE SIZE	L DIM.
5mm × 20mm	.910 (23.1)



Mounting Detail

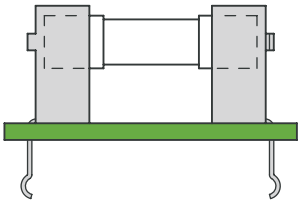


3512P

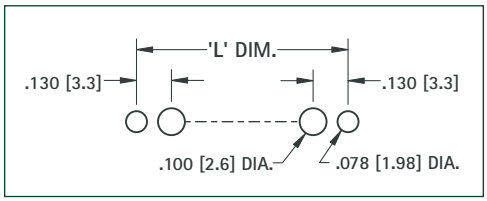
FIGURE 5

3520

CAT. NO. 3520	
FUSE SIZE	L DIM.
5mm × 20mm	.900 (22.9)



Mounting Detail



3520

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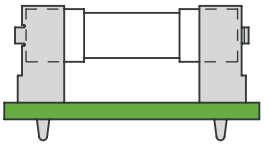
REFER TO PAGE 44 FOR PART DIMENSIONS

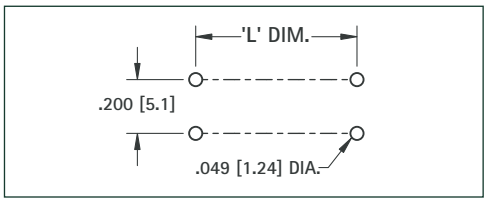
NOTE: ALL MOUNTING DIMENSIONS ARE FOR REFERENCE ONLY. VERIFY YOUR FUSE LAYOUT PRIOR TO FABRICATION.

FIGURE 6

3519



Mounting Detail

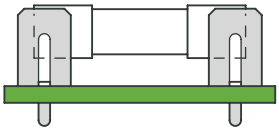


3519

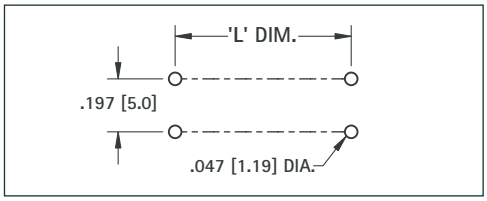
CAT. NO. 3519	
FUSE SIZE	L DIM.
5mm × 20mm	.650 (16.5)

FIGURE 7

3521



Mounting Detail



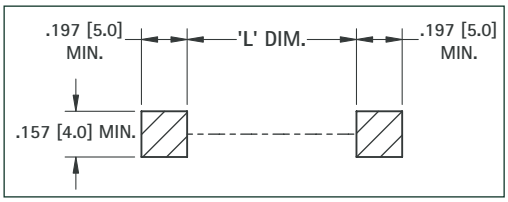
3521

CAT. NO. 3521	
FUSE SIZE	L DIM.
2AG	.514 (13.1)
5mm × 20mm	.710 (18.1)

FIGURE 8

3561

Pad Layout

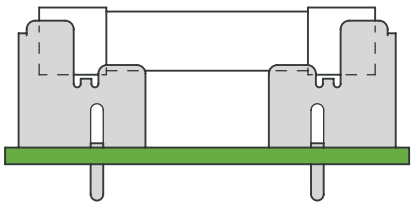


3561

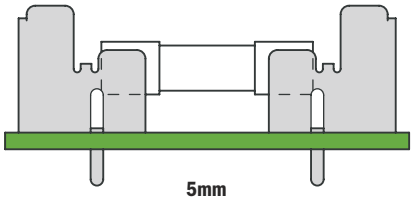
CAT. NO. 3561	
FUSE SIZE	L DIM.
2AG	.354 (9.0)
5mm × 20mm	.500 (12.7)

FIGURE 9

3562

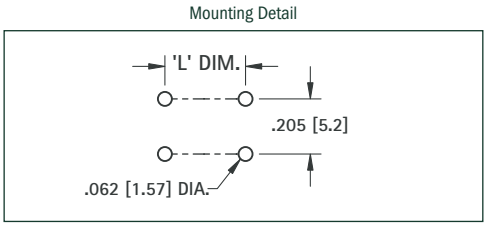


3AG



5mm

Mounting Detail



3562

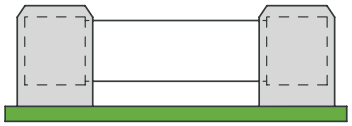
CAT. NO. 3562	
FUSE SIZE	L DIM.
5mm × 20mm	.820 (20.9)
3AG	

REFER TO PAGES 44 & 45 FOR PART DIMENSIONS

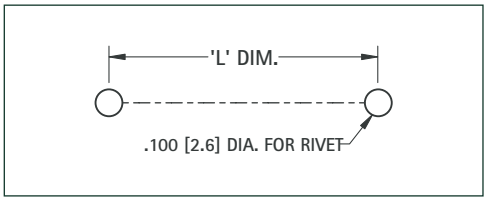
NOTE: ALL MOUNTING DIMENSIONS ARE FOR REFERENCE ONLY. PLEASE VERIFY YOUR FUSE LAYOUT PRIOR TO FABRICATION.

FIGURE 10

3565



Mounting Detail

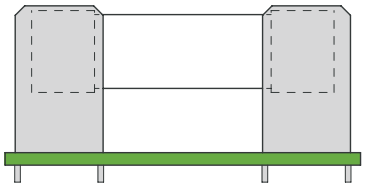


3565

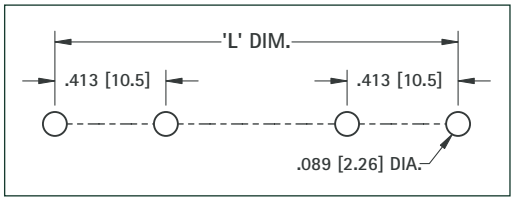
CAT. NO. 3565		
DESIGNATION	FUSE SIZE	L DIM.
4AG	.281 (7.1) × 1.250 (31.8)	1.000 (25.4)

FIGURE 11

3566



Mounting Detail

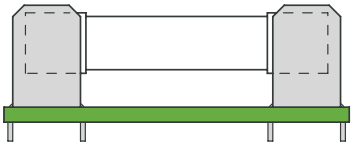


3566

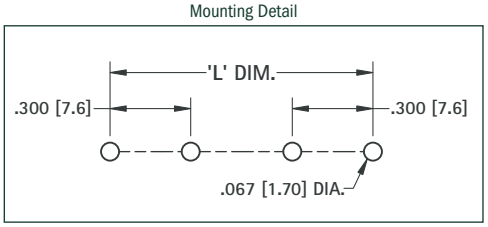
CAT. NO. 3566		
DESIGNATION	FUSE SIZE	L DIM.
SM/SS	.406 (10.3) × 1.375 (34.9)	1.515 (38.5)
5AG	.406 (10.3) × 1.500 (38.1)	1.640 (41.7)

FIGURE 12

3529



Mounting Detail

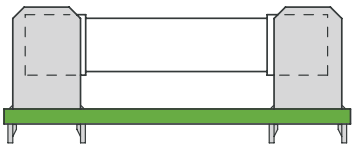


3514

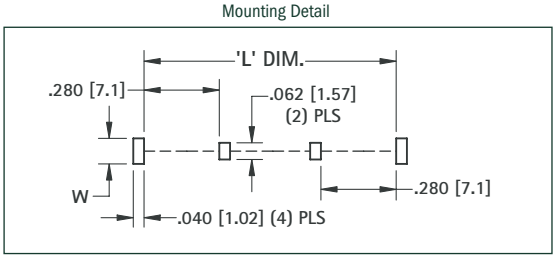
CAT. NO. 3510, 3511, 3513, 3514, 3529		
DESIGNATION	FUSE SIZE	L DIM.
1AG	.250 (6.4) × .625 (15.9)	.750 (19.1)
7AG	.250 (6.4) × .875 (22.2)	1.000 (25.4)
8AG	.250 (6.4) × 1.000 (25.4)	1.125 (28.6)
3AG	.250 (6.4) × 1.250 (31.8)	1.375 (34.9)

FIGURE 13

3516P



Mounting Detail



3515

CAT. NO. 3515, 3515P, 3516P		
DESIGNATION	FUSE SIZE	L DIM.
1AG	.250 (6.4) × .625 (15.9)	.735 (18.7)
7AG	.250 (6.4) × .875 (22.2)	.985 (25.0)
8AG	.250 (6.4) × 1.000 (25.4)	1.100 (28.0)
3AG	.250 (6.4) × 1.250 (31.8)	1.360 (34.6)

ORIENTATION LEGS	
CAT. NO.	W
3515	.062 (1.57)
3515P	.095 (2.4)
3516P	.122 (3.1)

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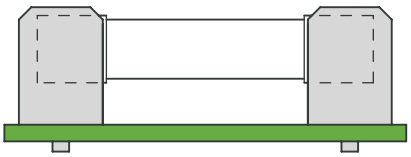
REFER TO PAGE 45 FOR PART DIMENSIONS

NOTE: ALL MOUNTING DIMENSIONS ARE FOR REFERENCE ONLY. VERIFY YOUR FUSE LAYOUT PRIOR TO FABRICATION.

FIGURE 14

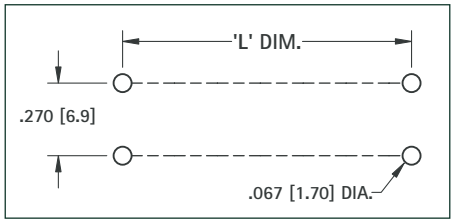
FOR THRU HOLE MOUNT APPLICATIONS

3530



3530

Mounting Detail

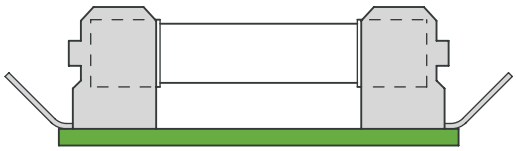


FOR CAT. NO. 3530		
DESIGNATION	FUSE SIZE	L DIM.
1AG	.250 (6.4) × .625 (15.9)	.450 (11.4)
7AG	.250 (6.4) × .875 (22.2)	.700 (17.8)
8AG	.250 (6.4) × 1.000 (25.4)	.825 (21.0)
3AG	.250 (6.4) × 1.250 (31.8)	1.075 (27.3)

FIGURE 15

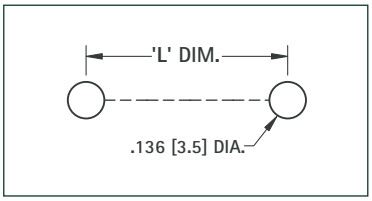
FOR RIVET MOUNT APPLICATIONS

3570



3535

Mounting Detail

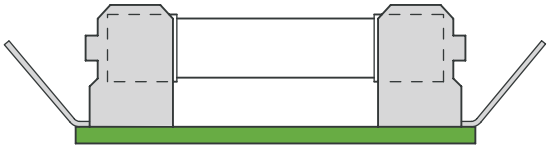


FOR CAT. NO. 3531, 3533, 3535, 3570, 4246, 4247		
DESIGNATION	FUSE SIZE	L DIM.
1AG	.250 (6.4) × .625 (15.9)	.450 (11.4)
7AG	.250 (6.4) × .875 (22.2)	.700 (17.8)
8AG	.250 (6.4) × 1.000 (25.4)	.825 (21.0)
3AG	.250 (6.4) × 1.250 (31.8)	1.075 (27.3)

FIGURE 16

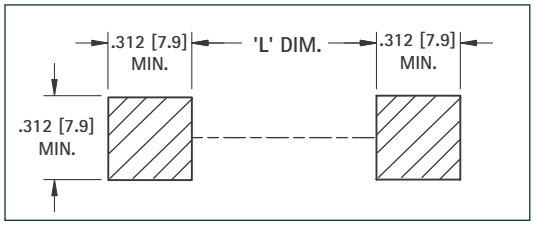
FOR SURFACE MOUNT APPLICATIONS

4247



3533

Pad Layout

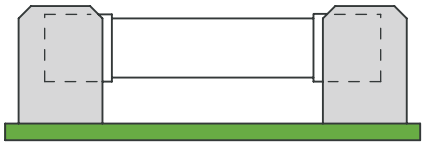


FOR CAT. NO. 3531, 3533, 3535, 3570, 4246, 4247		
DESIGNATION	FUSE SIZE	L DIM.
1AG	.250 (6.4) × .625 (15.9)	.120 (3.0)
7AG	.250 (6.4) × .875 (22.2)	.365 (9.3)
8AG	.250 (6.4) × 1.000 (25.4)	.490 (12.4)
3AG	.250 (6.4) × 1.250 (31.8)	.740 (18.8)

FIGURE 17

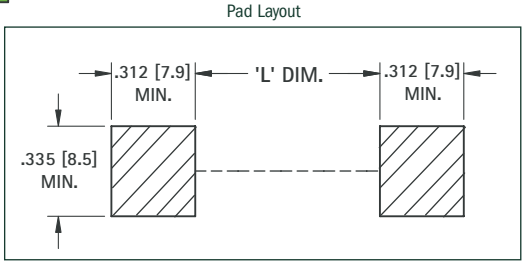
FOR SURFACE MOUNT APPLICATIONS

3532



3567

Pad Layout



FOR CAT. NO. 3532, 3567		
DESIGNATION	FUSE SIZE	L DIM.
1AG	.250 (6.4) × .625 (15.9)	.195 (5.0)
7AG	.250 (6.4) × .875 (22.2)	.445 (11.3)
8AG	.250 (6.4) × 1.000 (25.4)	.570 (14.5)
3AG	.250 (6.4) × 1.250 (31.8)	.820 (20.8)

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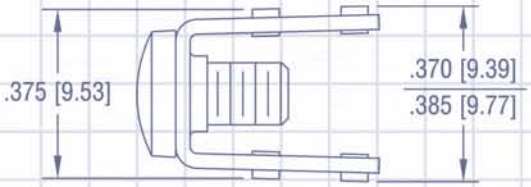
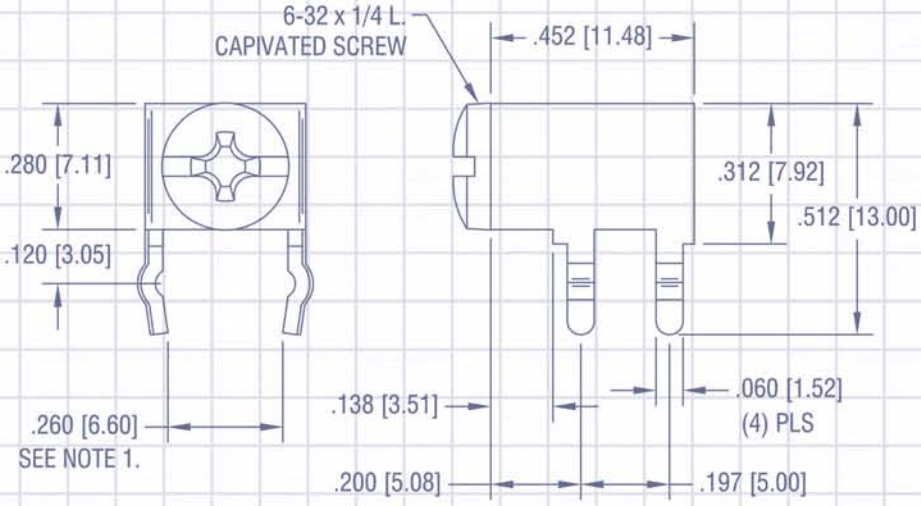




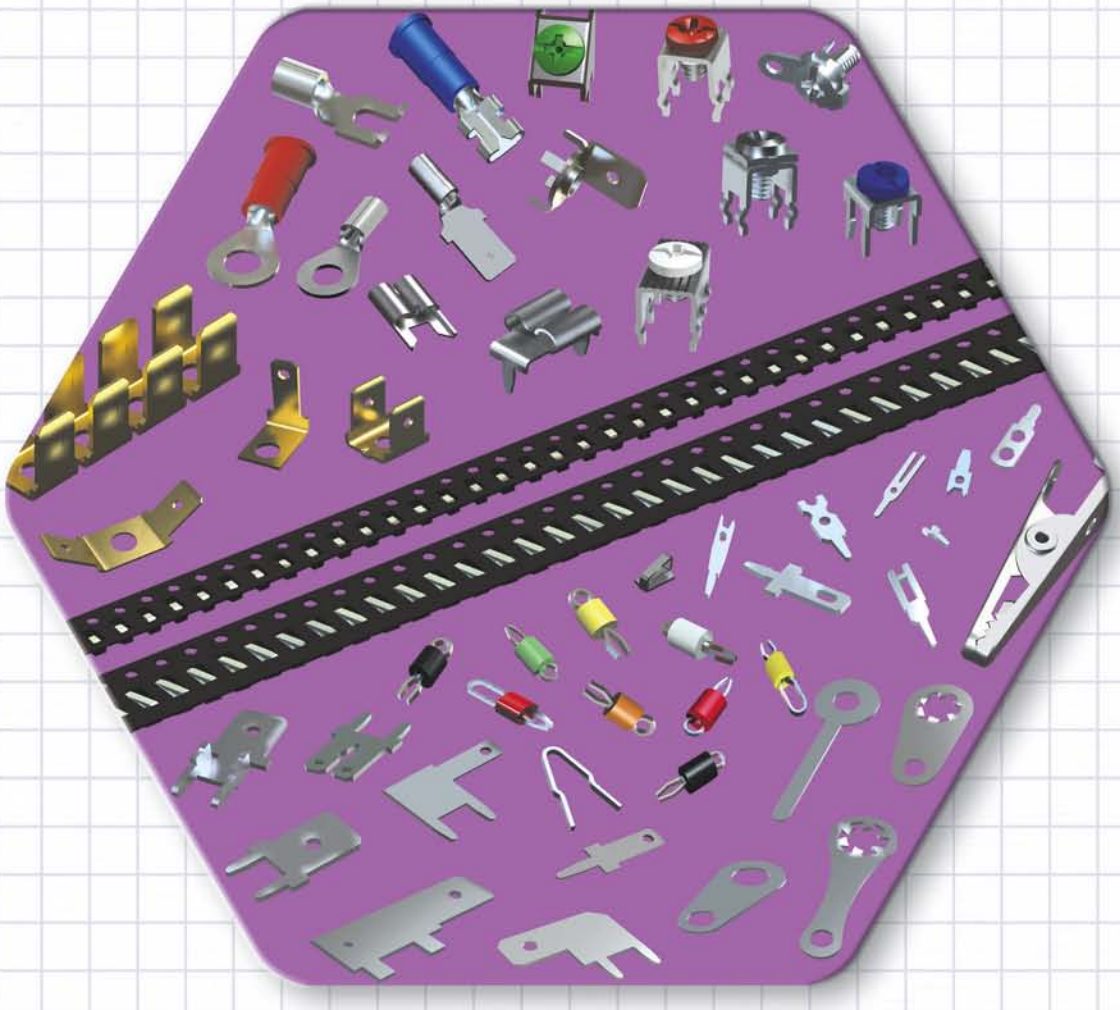
TERMINALS & TEST POINTS

Today's high tech electronics require space saving, low cost methods for connecting and testing circuitry. Our complete line of PC terminals, screw terminals, headers and test points are designed to meet the interconnect and testing challenges for electronic and electrical component termination points. Applications include:

- Multi-Insertion applications
- Replacement for pc screw edge connectors, blocks or strips
- Surface mount and thru-hole PCB designs
- UL approved devices

Our quality system is ISO 9001:2008 certified. Our products are in compliance with the RoHS and REACH directives. We provide 3D modeling, CAD and other application-engineering support for modifications, special designs or assembly requirements to assist you in choosing the right Keystone product for your application.

DATE	DESCRIPTION	REV.



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SOLDER LUGS 58

SOLDERLESS TERMINALS 56-57

TEST POINTS
- Color Coded 60
- THM (Thru Hole Mount) 59-60
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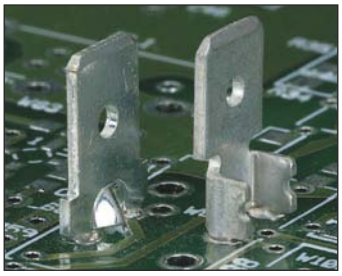
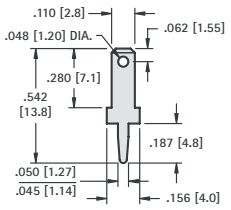


Underwriters Laboratories, Inc. Recognized Component Program — UL File Number E201546

UL file number E201546 has been assigned to Keystone Electronics' "Quick-Fit" terminals (Refer to pages 52-54) indicating recognition by Underwriters Laboratories Inc. that they are in compliance with their component program.

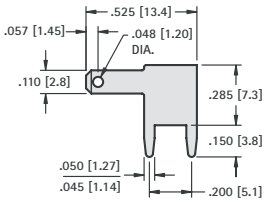
Underwriters Laboratories Inc. component program assures that "Quick-Fit" terminals meet the dimensional and performance requirements of the National Electrical Manufacturers Association specification number NEMA2-1982-(1988) and UL310.

.110 (2.8) TAB



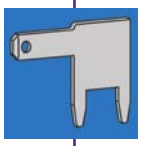
CAT. NO.	MATERIAL	MTG. HOLE
1267	.020 (.50) Brass, Tin Plate	.046 (1.2) Dia.
1211	.032 (.80) Brass, Tin Plate	.052 (1.3) Dia.

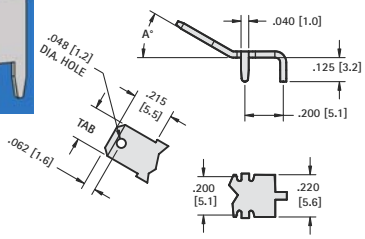
.110 (2.8) TAB

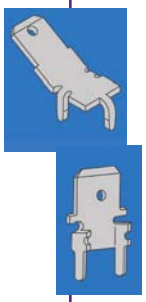


CAT. NO.	MATERIAL	MTG. HOLES
4903	.020 (.50) Brass, Tin Plate	.046 (1.2) Dia.
4906	.032 (.80) Brass, Tin Plate	.052 (1.3) Dia.

.110 (2.8) & .187 (4.8) TAB





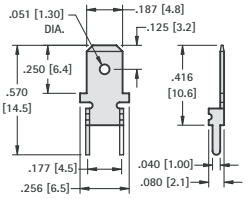


Material: .020 (.50) Brass, Tin Plate
Mtg Holes: .046 (1.2) Dia.

.110 (2.8) TAB CAT. NO.	A ANGLE	.187(4.8) TAB CAT. NO
4915*	0°	4918*
4916*	30°	4919*
4917*	60°	4920*

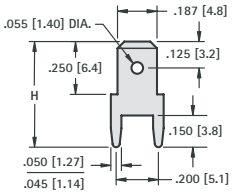
.187 (4.8) TAB

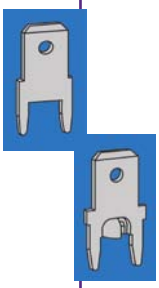
STURDI-MOUNT



CAT. NO.	MATERIAL	MTG. HOLES
4900	.020 (.50) Brass, Tin Plate	.043 (1.1) Dia.

.187 (4.8) TAB



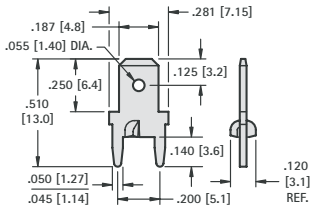


Material: Brass, Tin Plate

CAT. NO.	H	MATL THICK	MTG. HOLES
1285	.500 (12.7)	.020 (.50)	.046 (1.2) Dia.
1212	.500 (12.7)	.032 (.80)	.052 (1.3) Dia.
1216	.860 (21.8)	.032 (.80)	.052 (1.3) Dia.

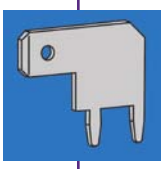
.187 (4.8) TAB

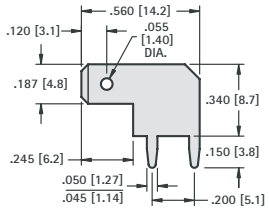
STURDI-MOUNT



CAT. NO.	MATERIAL	MTG. HOLES
1285-ST	.020 (.50) Brass, Tin Plate	.046 (1.2) Dia.
1212-ST	.032 (.80) Brass, Tin Plate	.052 (1.3) Dia.

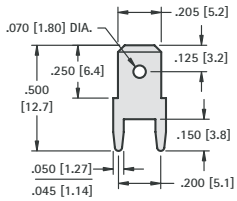
.187 (4.8) TAB

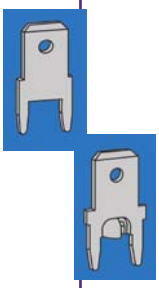




CAT. NO.	MATERIAL	MTG. HOLES
4904	.020 (.50) Brass, Tin Plate	.046 (1.2) Dia.
4907	.032 (.80) Brass, Tin Plate	.052 (1.3) Dia.

.205 (5.2) TAB

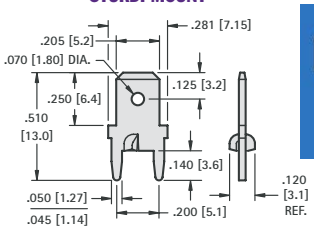


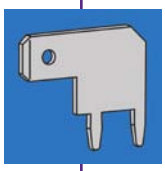


CAT. NO.	MATERIAL	MTG. HOLES
1286	.020 (.50) Brass, Tin Plate	.046 (1.2) Dia.
1213	.032 (.80) Brass, Tin Plate	.052 (1.3) Dia.

.205 (5.2) TAB

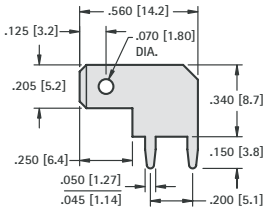
STURDI-MOUNT





CAT. NO.	MATERIAL	MTG. HOLES
1286-ST	.020 (.50) Brass, Tin Plate	.046 (1.2) Dia.
1213-ST	.032 (.80) Brass, Tin Plate	.052 (1.3) Dia.

.205 (5.2) TAB



CAT. NO.	MATERIAL	MTG. HOLES
4905*	.020 (.50) Brass, Tin Plate	.046 (1.2) Dia.
4909*	.032 (.80) Brass, Tin Plate	.052 (1.3) Dia.

* Not UL Recognized

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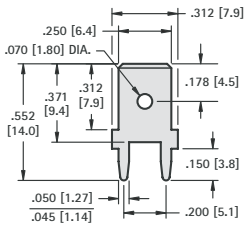
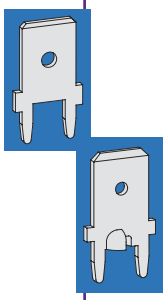
.250 (6.4) TAB

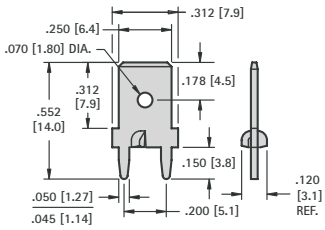


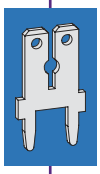


CAT. NO.	MATERIAL	MTG. HOLES
1287	.032 (.80) Brass, Tin Plate	.052 (1.3) Dia.

.250 (6.4) TAB

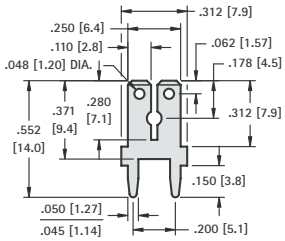
STURDI-MOUNT





CAT. NO.	MATERIAL	MTG. HOLES
1287-ST	.032 (.80) Brass, Tin Plate	.052 (1.3) Dia.

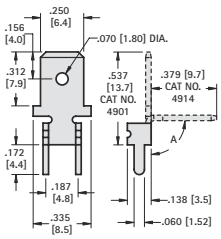
DUAL .110 (2.8)/.250 (6.4) TAB

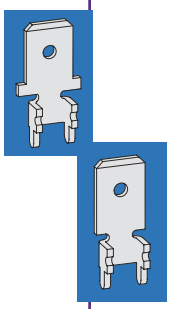


CAT. NO.	MATERIAL	MTG. HOLES
1282	.032 (.80) Brass, Tin Plate	.052 (1.3) Dia.

.250 (6.4) TAB

STURDI-MOUNT



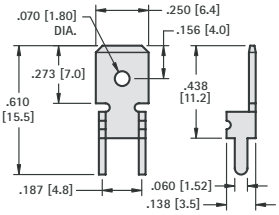


MATERIAL: .032 (.80) Brass, Matte Tin Plate

CAT. NO.	ANGLE A	MTG. HOLES
4901	0°	.067 (1.7) Dia.
4914*	90°	

.250 (6.4) TAB

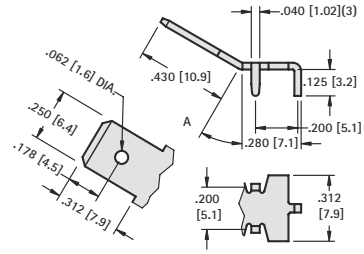
STURDI-MOUNT



CAT. NO.	MATERIAL	MTG. HOLES
4902	.032 (.80) Brass, Tin Plate	.067 (1.7) Dia.

.250 (6.4) TAB

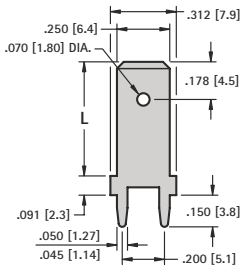
STURDI-MOUNT



MATERIAL: .032 (.80) Brass, Matte Tin Plate

CAT. NO.	ANGLE A	MTG. HOLES
4910	0°	.052 (1.3) Dia.
4908	30°	
4912	60°	

.250 (6.4) TAB

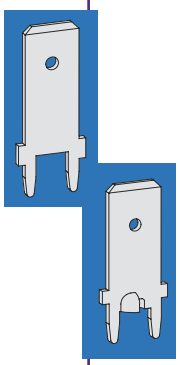


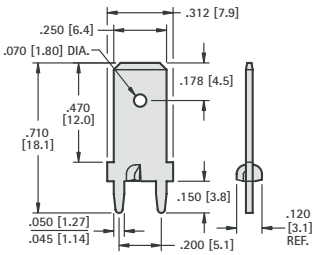
MATERIAL: .032 (.80) Brass, Matte Tin Plate

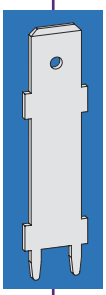
CAT. NO.	"L"	MTG. HOLES
1289	.540 (13.7)	.067 (1.7) Dia.
1292	.710 (18.0)	

.250 (6.4) TAB

STURDI-MOUNT

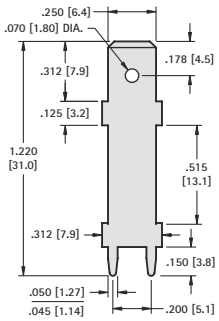






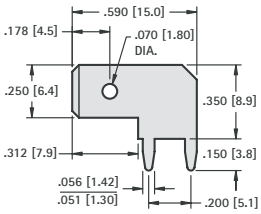
CAT. NO.	MATERIAL	MTG. HOLES
1289-ST	.032 (.80) Brass, Tin Plate	.052 (1.3) Dia.

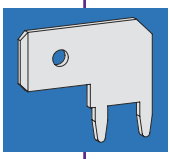
.250 (6.4) TAB



CAT. NO.	MATERIAL	MTG. HOLES
1281	.032 (.80) Brass, Tin Plate	.052 (1.3) Dia.

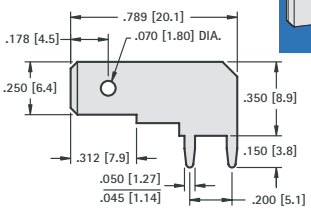
.250 (6.4) TAB

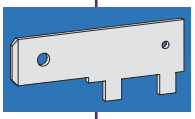




CAT. NO.	MATERIAL	MTG. HOLES
4966	.032 (.80) Brass, Tin Plate	.056 (1.4) Dia.

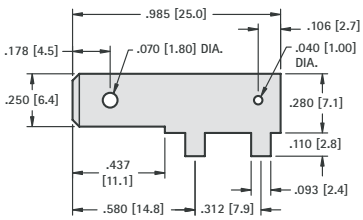
.250 (6.4) TAB





CAT. NO.	MATERIAL	MTG. HOLES
1266	.032 (.80) Brass, Tin Plate	.052 (1.3) Dia.

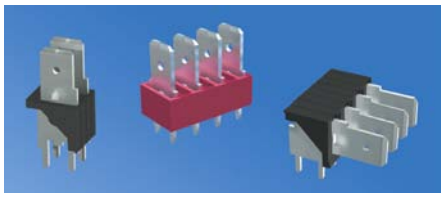
.250 (6.4) TAB



CAT. NO.	MATERIAL	MTG. HOLES
1265*	.032 (.80) Brass, Tin Plate	.106 (2.7) Dia.

* Not UL Recognized

.250 (6.4) "STURDI-MOUNT" PC QUICK-FIT HEADERS



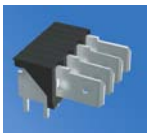
AVAILABLE IN BRASS OR STEEL TABS

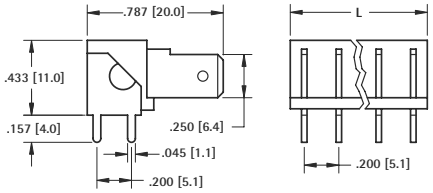
- Ideal for rugged multi-insertion applications
- Pre-assembled header reduces PC assembly costs
- Increases PC board retention strength
- Keeps terminals perpendicular
- Maintains position for wave soldering

SPECIFICATIONS

Material: .032 (.80) Brass or Steel, Tin Plated
Insulator: Thermoplastic, UL Rated 94V-0
Current Rating: 15 Amps @ 500V AC
Temperature Rating: -58°F to +292°F (-50°C to +145°C)

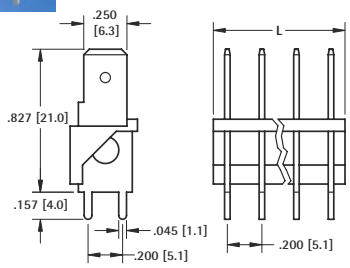
HORIZONTAL





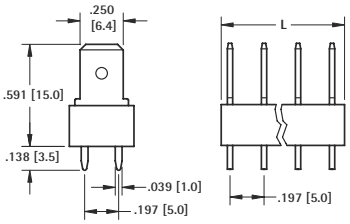
BRASS TABS CAT. NO.	STEEL TABS CAT. NO.	NO. OF TABS	L DIM.
7802	7822	2	.362 (8.2)
7803	7823	3	.562 (14.3)
7804	7824	4	.762 (19.4)
7805	7825	5	.962 (24.4)
7806	7826	6	1.162 (29.5)

VERTICAL



BRASS TABS CAT. NO.	STEEL TABS CAT. NO.	NO. OF TABS	L DIM.
7812	7832	2	.362 (8.2)
7813	7833	3	.562 (14.3)
7814	7834	4	.762 (19.4)
7815	7835	5	.962 (24.4)
7816	7836	6	1.162 (29.5)

LOW PROFILE

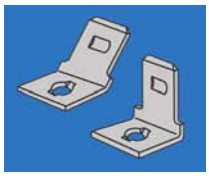


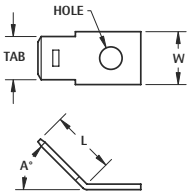
BRASS TABS CAT. NO.	STEEL TABS CAT. NO.	NO. OF TABS	L DIM.
7817	7827	2	.320 (8.1)
7818	7828	3	.517 (13.1)
7819	7829	4	.713 (18.1)
7820	7830	5	.910 (23.1)
7821	7831	6	1.107 (28.1)

RIVET MOUNT QUICK-FIT TERMINALS

- UL recognized bright brass Quick-Fit terminals
- Rivet mount male tab versions meet NEMA 2-E201546 & UL 310 specifications
- Designed for repeated mating cycles
- For tabs 0.110 (2.8mm) to 0.250 (6.4mm)

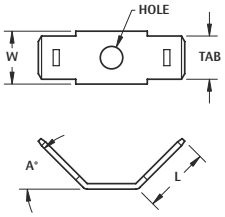
.110 (2.8) - .187(4.8) - .250 (6.4) TABS

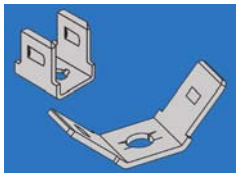




BRIGHT BRASS A = 45° CAT. NO.	BRIGHT BRASS A = 90° CAT. NO.	TAB SIZE	MAT'L THICK	L TAB	W WIDTH	HOLE DIA.	MATTE TIN A = 45° CAT. NO.	MATTE TIN A = 90° CAT. NO.
2004	2002	.110 (2.8)	.020 (.51)	.365 (9.3)	.180 (4.6)	.096 (2.4)	1233	1220
1271	1261	.187 (4.8)	.020 (.51)	.375 (9.5)	.250 (6.4)	.100 (2.5)	1234	1221
1280	1256	.250 (6.4)	.032 (.81)	.406 (10.3)	.306 (7.8)	.130 (3.3)	1235	1222

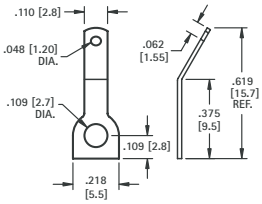
.110 (2.8) - .187 (4.8) - .250 (6.4) TABS





BRIGHT BRASS A = 45° CAT. NO.	BRIGHT BRASS A = 90° CAT. NO.	TAB SIZE	MAT'L THICK	L TAB	W WIDTH	HOLE DIA.	MATTE TIN A = 45° CAT. NO.	MATTE TIN A = 90° CAT. NO.
2005	2003	.110 (2.8)	.020 (.51)	.360 (9.1)	.180 (4.6)	.096 (2.4)	1240	1227
1263	1262	.187 (4.8)	.020 (.51)	.315 (8.0)	.250 (6.4)	.100 (2.5)	1241	1228
1258	1257	.250 (6.4)	.032 (.81)	.400 (10.1)	.306 (7.8)	.130 (3.3)	1242	1229

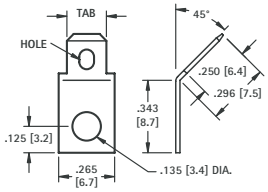
.110 (2.8) TAB



MATERIAL: .020 (.51) Brass, Tin Plate

CAT. NO.	ANGLE
1269	0°
1270	30°

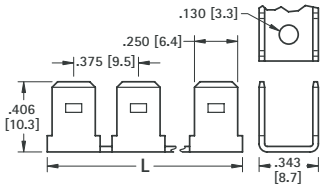
.187 (4.8) - .205 (6.4) TABS



45° TAB **MATERIAL:** .020 (.51) Brass, Tin Plate

CAT. NO.	TAB	HOLE
4005	.205 (5.2)	.132 (3.4) × .070 (1.78) Slot
4095	.187 (4.7)	.078 (1.98) Dia. Hole

MULTIPLE .250 (6.4) TAB



BRIGHT BRASS **MATERIAL:** .032 (81) Bright Brass

CAT NO.	PAIRS	L	TAB SIZE
1005	2	.687 (17.4)	.250 (6.4)
1006	3	1.062 (27.0)	
1007	4	1.441 (36.6)	
1008	5	1.820 (46.2)	

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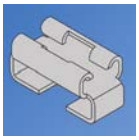
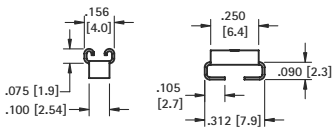


ACCEPTS .110 (2.8) × .032 (.81) TAB

SMT - HORIZONTAL ENTRY



SPECIFICATIONS

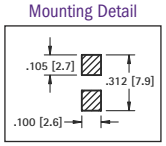
Material: .012 (.30)Brass, Tin-Nickel Plate
Current Rating: 15 Amps @ 500V AC

CAT. NO. 3569* (Bulk)

CAT. NO. 3569TR* (Tape & Reel)

Tape & Reel Spec's: 24mm wide, 8mm pitch, 13 inch reel (2000 pieces per reel)

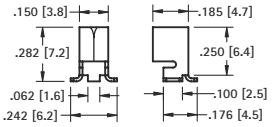
Mounting Detail



ACCEPTS ALL TABS

.110 (2.8) TO .50 (6.4) × .020 (.50) TO .032 (.80)

SMT - VERTICAL OR HORIZONTAL ENTRY



SPECIFICATIONS

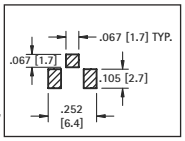
Material: .016 (.40)Brass, Tin-Nickel Plate
Current Rating: 15 Amps @ 500V AC

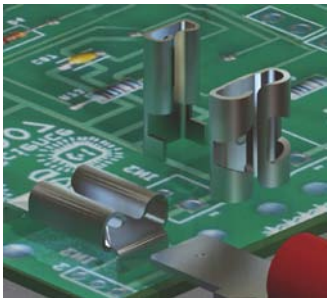
CAT. NO. 3586* (Bulk)

CAT. NO. 3586TR* (Tape & Reel)

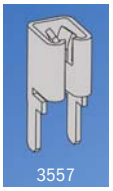
Tape & Reel Spec's: 16mm wide, 12mm pitch, 13 inch reel (750 pieces per reel)

Mounting Detail





Underwriters Laboratories, Inc.
Recognized Component Program
— UL File Number E201546

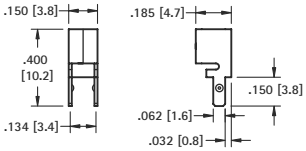

3557

3577

ACCEPTS ALL TABS

.110 (2.8) TO .50 (6.4) × .020 (.50) TO .032 (.80)

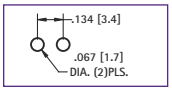
VERTICAL OR HORIZONTAL ENTRY



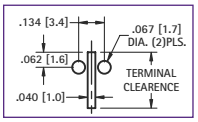
MATERIAL:
.016 (.41) Brass, Tin-Nickel Plate

CAT. NO.	ORIENTATION
3557	top & side entry
3577*	bottom entry

Mounting Detail Cat. No. 3557

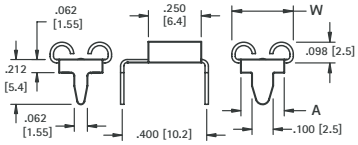


Mounting Detail Cat. No. 3577



ACCEPTS .187 (4.8), .205 (5.2), .250 (6.4) TAB

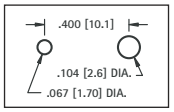
HORIZONTAL ENTRY



MATERIAL: Brass, Tin-Nickel Plate

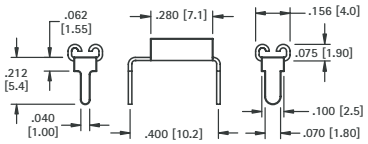
CAT. NO.	ACCEPTS TAB	"W"	"A"	MATL THICK
3571	.187(4.8) × .020(.51)	.222 (5.6)	.162 (4.1)	.012 (.30)
3572*	.187(4.8) × .032(.81)			
3546	.205(5.2) × .020(.51)	.240 (6.1)	.180 (4.6)	.012 (.30)
3550	.205(5.2) × .032(.81)			
3547	.250(6.4) × .032(.81)	.291 (7.4)	.205 (5.2)	.016 (.41)

Mounting Detail



ACCEPTS .110 (2.8) TAB

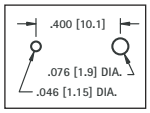
HORIZONTAL ENTRY



MATERIAL:
.012 (.30) Brass, Tin-Nickel Plate

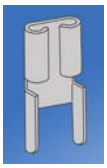
CAT. NO.	ACCEPTS TAB
3545	.110 (2.8)×.020 (.51)
3549	.110 (2.8)×.032 (.81)

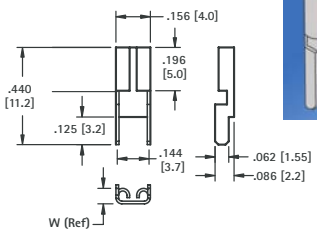
Mounting Detail



ACCEPTS .110 (2.8) TAB

VERTICAL ENTRY

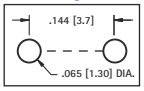




MATERIAL:
.012 (.30) Brass, Tin-Nickel Plate

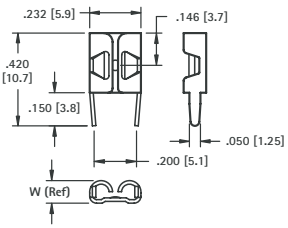
CAT. NO.	ACCEPTS TAB	W
3534	.110(2.8)×.020(.51)	.070 (1.80)
3544	.110(2.8)×.032(.81)	.075 (1.92)

Mounting Detail



ACCEPTS .187 (4.8) TAB

VERTICAL ENTRY

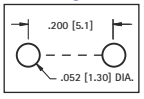


MATERIAL: .016 (.41) Brass, Tin-Nickel Plate

CAT. NO.	ACCEPTS TAB	"W"
3548	.187(4.8)×.020(.51)	.093 (2.36)
3578*	.187(4.8)×.020(.51)	.093 (2.36)
3551	.187(4.8)×.032(.81)	.102 (2.59)

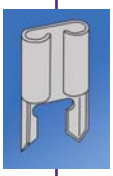
*Low insertion force design

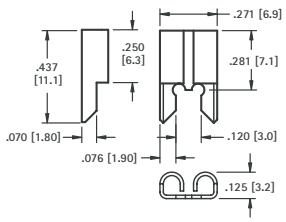
Mounting Detail



ACCEPTS .205 (5.2) TAB

VERTICAL ENTRY

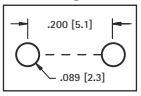




MATERIAL:
.016 (.41) Brass, Tin-Nickel Plate

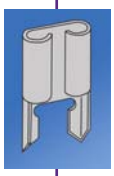
CAT. NO.	ACCEPTS TAB
3525	.205 (5.2)×.020 (.51)
3575*	.205 (5.2)×.032 (.81)

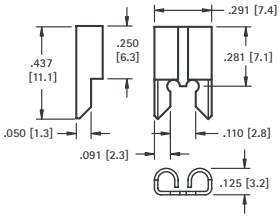
Mounting Detail



ACCEPTS .250 (6.4) TAB

VERTICAL ENTRY

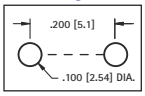




MATERIAL:
.016 (.41) Brass, Tin-Nickel Plate

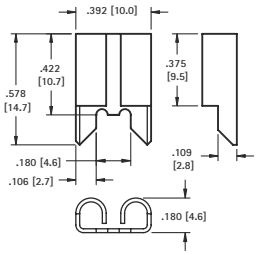
CAT. NO.	ACCEPTS TAB
3528	.250 (6.4)×.032 (.81)

Mounting Detail



ACCEPTS .312 (7.9) TAB

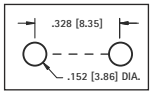
OVER SIZED



MATERIAL:
.020 (.51) Copper, Tin-Nickel Plate

CAT. NO. 3555

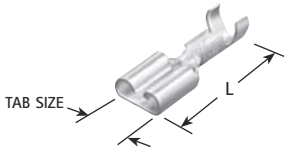
Mounting Detail



* Not UL Recognized

QUICK-FIT FEMALES

FEMALE NON-INSULATED



MATERIAL: Tinned Brass

CAT. NO.	MATES WITH MALE TAB WIDTH × THICK	L	AWG SIZE	MAT'L THICK
1252	.110 (2.8) × .020 (.51)	.640 (16.3)	18-22	.010 (.25)
1264	.187 (4.8) × .020 (.51)	.576 (14.6)	16-22	.013 (.33)
4469	.205 (5.2) × .020 (.51)	.640 (16.3)	16-20	.013 (.33)

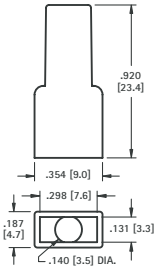
VINYL BOOT

For .250 (6.4) QUICK-FITS

- Easily slips over terminal
- Insulates and protects

Boot and Quick-Fit sold separately

CAT. NO.	BOOT COLOR
4471	CLEAR
4472	RED
4473	BLUE
4474	YELLOW



SOLDERLESS QUICK-FIT TERMINALS

SPECIFICATIONS: Terminals: EPT Copper **Insulation:** Vinyl RoHS (Non-RoHS Compliant)

MALE NON-INSULATED

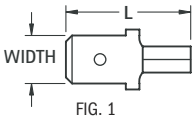


FIG. 1

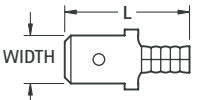
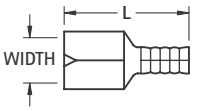
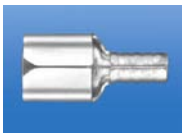


FIG. 2

CAT. NO.	WIRE RANGE (AWG)	FIG.	MALE TAB WIDTH × THICK	L	BARREL LENGTH	BARREL I.D.
8281	22/18	2	.187 (4.8) × .020 (.51)	.64 (16.3)	.24 (6.3)	.080 (2.03)
8282		1	.250 (6.4) × .032 (.81)	.73 (18.5)	.25 (6.4)	.065 (1.65)
8283	16/14	2	.187 (4.8) × .020 (.51)	.64 (16.3)	.24 (6.3)	.080 (2.03)
8284		1	.250 (6.4) × .032 (.81)	.73 (18.5)	.25 (6.4)	.085 (2.16)
8285	12/10	1	.250 (6.4) × .032 (.81)	.75 (19.1)	.25 (6.4)	.150 (3.8)

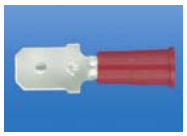
FEMALE NON-INSULATED

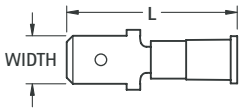




CAT. NO.	WIRE RANGE (AWG)	MATES WITH MALE TAB WIDTH × THICK	L	BARREL .250 (6.4) I.D.
8272	22/18	.187 (4.8) × .020 (.51)	.58 (14.7)	.085 (2.16)
8273		.250 (6.4) × .032 (.81)	.66 (16.8)	.080 (2.03)
8274	16/14	.187 (4.8) × .020 (.51)	.58 (14.7)	.085 (2.16)
8275		.250 (6.4) × .032 (.81)	.66 (16.8)	.080 (2.03)

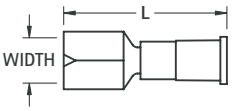
MALE VINYL INSULATED

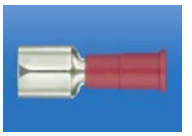




CAT. NO.	WIRE RANGE (AWG)	MALE TAB WIDTH × THICK	L	BARREL LENGTH	BARREL I.D.	MAX INSULATION DIAMETER
8286	22/18 (Red)	.187 (4.8) × .020 (.51)	.85 (21.6)	.24 (6.3)	.080 (2.03)	.145 (3.7)
8287		.250 (6.4) × .032 (.81)	.93 (23.6)	.25 (6.4)	.065 (1.65)	.145 (3.7)
8288	16/14 (Blue)	.187 (4.8) × .020 (.51)	.85 (21.6)	.24 (6.3)	.080 (2.03)	.145 (3.7)
8289		.250 (6.4) × .032 (.81)	.93 (23.6)	.25 (6.4)	.085 (2.16)	.170 (4.3)
8290	12/10 (Yellow)	.250 (6.4) × .032 (.81)	1.05 (26.7)	.25 (6.4)	.150 (3.8)	.250 (6.4)

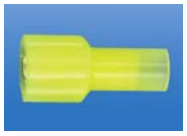
FEMALE VINYL INSULATED

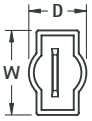


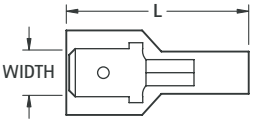


CAT. NO.	WIRE RANGE (AWG)	MATES WITH MALE TAB WIDTH × THICK	L	BARREL .250 (6.4) I.D.	MAX INSULATION DIAMETER
8276	22/18 (Red)	.187 (4.8) × .020 (.51)	.78 (19.8)	.085 (2.16)	.145 (3.7)
8277		.250 (6.4) × .032 (.81)	.87 (22.1)	.080 (2.03)	
8278	16/14 (Blue)	.187 (4.8) × .020 (.51)	.78 (19.8)	.085 (2.16)	.145 (3.7)
8279		.250 (6.4) × .032 (.81)	.87 (22.1)	.080 (2.03)	
8280	12/10 (Yellow)	.250 (6.4) × .032 (.81)	.96 (24.4)	.165 (4.2)	.250 (6.4)

MALE FULLY INSULATED NYLON

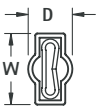


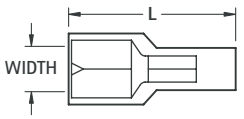


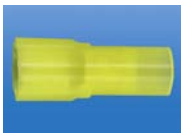


CAT. NO.	WIRE RANGE (AWG)	MALE TAB WIDTH × THICK	L	W	D	BARREL .250 (6.4) LENGTH	BARREL .250 (6.4) I.D.	MAX. INSUL. DIA.
8296	22/18 (Red)	.187 (4.8) × .020 (.51)	.87 (22.1)	.37 (9.4)	.30 (7.6)	.24 (6.3)	.080 (2.03)	.145 (3.7)
8297		.250 (6.4) × .032 (.81)	.95 (24.1)	.44 (11.2)	.30 (7.6)	.25 (6.4)	.065 (1.65)	.145 (3.7)
8298	16/14 (Blue)	.187 (4.8) × .020 (.51)	.87 (22.1)	.37 (9.4)	.30 (7.6)	.24 (6.3)	.080 (2.03)	.170 (4.3)
8299		.250 (6.4) × .032 (.81)	.95 (24.1)	.44 (11.2)	.30 (7.6)	.25 (6.4)	.085 (2.16)	.170 (4.3)
8300	12/10 (Yellow)	.250 (6.4) × .032 (.81)	1.05 (26.7)	.47 (11.9)	.39 (9.9)	.25 (6.4)	.150 (3.8)	.250 (6.4)

FEMALE FULLY INSULATED NYLON







CAT. NO.	WIRE RANGE (AWG)	MATES WITH MALE TAB WIDTH × THICK	L	W	D	BARREL .250 (6.4) I.D.	MAX. INSUL. DIA.
8291	22/18 (Red)	.187 (4.8) × .020 (.51)	.81 (20.6)	.30 (7.6)	.23 (5.8)	.085 (2.16)	.145 (3.7)
8292		.250 (6.4) × .032 (.81)	.87 (22.1)	.37 (9.4)	.23 (5.8)	.080 (2.03)	.145 (3.7)
8293	16/14 (Blue)	.187 (4.8) × .020 (.51)	.81 (20.6)	.30 (7.6)	.23 (5.8)	.085 (2.16)	.145 (3.7)
8294		.250 (6.4) × .032 (.81)	.87 (22.1)	.37 (9.4)	.23 (5.8)	.080 (2.03)	.170 (4.3)
8295	12/10 (Yellow)	.250 (6.4) × .032 (.81)	.99 (25.1)	.39 (9.9)	.32 (8.1)	.165 (4.2)	.250 (6.4)

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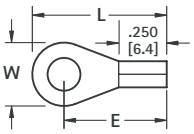
31-07 20th Road – Astoria, NY 11105-2017

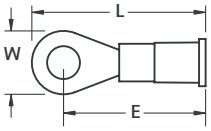
SPECIFICATIONS: **Terminals:** EPT Copper **Insulation:** Vinyl ~~RoHS~~ (Non-RoHS Compliant)

RING TONGUE NON-INSULATED



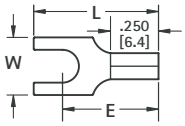
CAT. NO.	WIRE RANGE (AWG)	FOR STUD SIZE	W	L	E	MATL THICK	BARREL I.D.
8200	22/18	6	.25 (6.4)	.60 (15.2)	.47 (11.9)	.030 (.76)	.070 (1.78)
8201		8	.33 (8.4)	.70 (17.8)	.54 (13.7)		
8202		10	.33 (8.4)	.70 (17.8)	.54 (13.7)		
8203	16/14	6	.25 (6.4)	.60 (15.2)	.47 (11.9)	.030 (.76)	.090 (2.29)
8204		8	.33 (8.4)	.70 (17.8)	.54 (13.7)		
8205		10	.33 (8.4)	.70 (17.8)	.54 (13.7)		
8206	12/10	6	.28 (7.1)	.68 (17.3)	.54 (13.7)	.040 (1.02)	.135 (3.4)
8207		8	.38 (9.7)	.73 (18.5)	.54 (13.7)		
8208		10	.38 (9.7)	.73 (18.5)	.54 (13.7)		

RING TONGUE INSULATED



CAT. NO.	WIRE RANGE (AWG)	FOR STUD SIZE	W	L	E	MATL THICK	BARREL .250 (6.4) LONG I.D.	MAX. INSUL. DIA.
8209	22/18 (Red)	6	.25 (6.4)	.80 (20.3)	.67 (17.0)	.030 (.76)	.070 (1.78)	.145 (3.7)
8210		8	.33 (8.4)	.90 (22.9)	.74 (18.8)			
8211		10	.33 (8.4)	.90 (22.9)	.74 (18.8)			
8212	16/14 (Blue)	6	.25 (6.4)	.80 (20.3)	.67 (17.0)	.030 (.76)	.090 (2.29)	.170 (4.3)
8213		8	.33 (8.4)	.90 (22.9)	.74 (18.8)			
8214		10	.33 (8.4)	.90 (22.9)	.74 (18.8)			
8215	12/10 (Yellow)	6	.28 (7.1)	.98 (24.9)	.84 (21.3)	.040 (1.02)	.135 (3.4)	.250 (6.4)
8216		8	.38 (9.7)	1.03 (26.2)	.84 (21.3)			
8217		10	.38 (9.7)	1.03 (26.2)	.84 (21.3)			

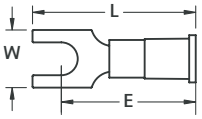
BLOCK SPADE NON-INSULATED



Flanged

CAT. NO.	WIRE RANGE (AWG)	FOR STUD SIZE	W	L	E	MATL THICK	BARREL I.D.	FLANGED CAT. NO.
8218	22/18	6	.30 (7.6)	.65 (16.5)	.50 (12.7)	.030 (.76)	.090 (2.29)	8236
8219		8						8237
8220		10						8238
8221	16/14	6	.30 (7.6)	.65 (16.5)	.50 (12.7)	.030 (.76)	.090 (2.29)	8239
8222		8						8240
8223		10						8241
8224	12/10	6	.32 (8.1)	.73 (18.5)	54 (13.7)	.040 (1.02)	.135 (3.4)	8242
8225		8						8243
8226		10						8244

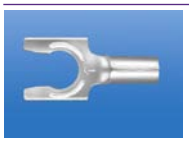
BLOCK SPADE INSULATED

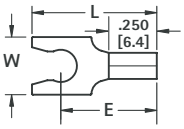


Flanged

CAT. NO.	WIRE RANGE (AWG)	FOR STUD SIZE	W	L	E	MATL THICK	BARREL .250 (6.4) LONG I.D.	MAX. INSUL. DIA.	FLANGED CAT. NO.
8227	22/18 (Red)	6	.30 (7.6)	.85 (21.6)	.70 (17.8)	.030 (.76)	.070 (1.78)	.145 (3.7)	8245
8228		8							8246
8229		10							8247
8230	16/14 (Blue)	6	.30 (7.6)	.85 (21.6)	.70 (17.8)	.030 (.76)	.090 (2.29)	.175 (4.4)	8248
8231		8							8249
8232		10							8250
8233	12/10 (Yellow)	6	.32 (8.1)	1.03 (26.2)	.84 (21.3)	.040 (1.02)	.135 (3.4)	.255 (6.5)	8251
8234		8							8252
8235		10							8253

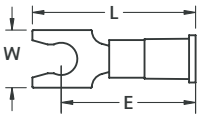
SNAP SPADE NON-INSULATED

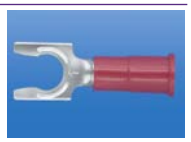




CAT. NO.	WIRE RANGE (AWG)	FOR STUD SIZE	W	L	E	MATL THICK	BARREL I.D.
8254	22/18	6	.25 (6.4)	.68 (17.3)	.50 (12.7)	.030 (.76)	.070 (1.78)
8255		8	.30 (7.6)				
8256		10	.32 (8.1)				
8257	16/14	6	.25 (6.4)	.68 (17.3)	.50 (12.7)	.030 (.76)	.090 (2.29)
8258		8	.30 (7.6)				
8259		10	.32 (8.1)				
8260	12/10	6	.28 (7.3)	.73 (18.5)	.53 (13.6)	.040 (1.02)	.135 (3.4)
8261		8	.32 (8.1)				
8262		10	.32 (8.1)				

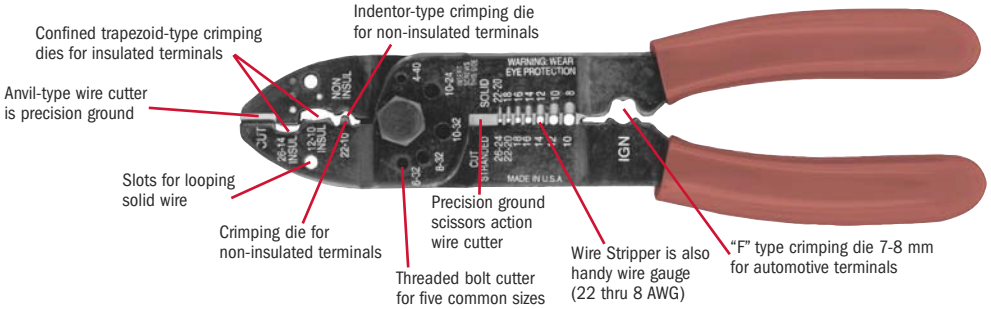
SNAP SPADE INSULATED





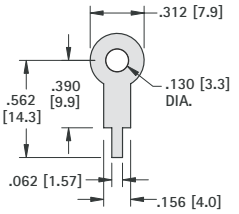
CAT. NO.	WIRE RANGE (AWG)	FOR STUD SIZE	W	L	E	MATL THICK	BARREL .250 (6.4) LONG I.D.	MAX. INSUL. DIA.
8263	22/18 (Red)	6	.25 (6.4)	.88 (22.4)	.70 (17.8)	.030 (.76)	.070 (1.78)	.145 (3.7)
8264		8	.30 (7.6)					
8265		10	.32 (8.1)					
8266	16/14 (Blue)	6	.25 (6.4)	.88 (22.4)	.70 (17.8)	.030 (.76)	.090 (2.29)	.170 (4.3)
8267		8	.30 (7.6)					
8268		10	.32 (8.1)					
8269	12/10 (Yellow)	6	.28 (7.3)	1.03 (26.2)	.83 (21.2)	.040 (1.02)	.135 (3.4)	.250 (6.4)
8270		8	.32 (8.1)					
8271		10	.32 (8.1)					

HAND CRIMP TOOL



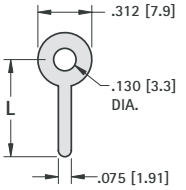
CAT. NO. 1345

PC TERMINAL LUGS



MATERIAL: .016 (.40) Brass, Tin Plate

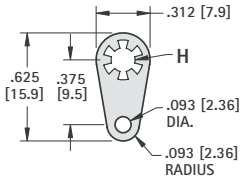
CAT. NO. 680



MATERIAL: .020 (.51) Brass, Tin Plate

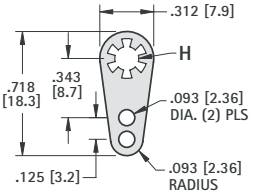
CAT. NO.	L
4000	.500 (12.7)
4001	.562 (14.3)
4002	.750 (19.1)
4003	1.000 (25.4)

LOCKWASHER TERMINAL LUGS



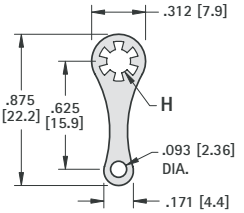
MATERIAL: .018 (.46) Brass, Tin Plate

CAT. NO.	H	STUD SIZE
908	.120 (3.1)	#4
914	.140 (3.6)	#6
915	.171 (4.4)	#8



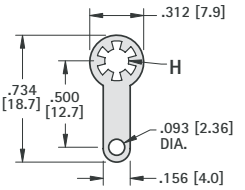
MATERIAL: .018 (.46) Brass, Tin Plate

CAT. NO.	H	STUD SIZE
910	.120 (3.1)	#4
918	.140 (3.6)	#6
906	.171 (4.4)	#8



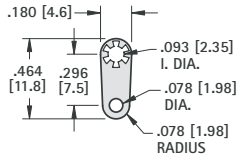
MATERIAL: .018 (.46) Brass, Tin Plate

CAT. NO.	H	STUD SIZE
903	.120 (3.1)	#4
904	.140 (3.6)	#6
905	.171 (4.4)	#8
913	.196 (5.0)	#10



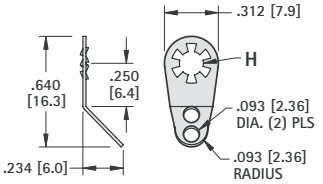
MATERIAL: .018 (.46) Brass, Tin Plate

CAT. NO.	H	STUD SIZE
909	.120 (3.1)	#4
916	.140 (3.6)	#6
917	.171 (4.4)	#8



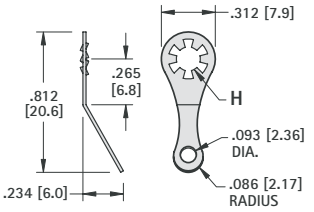
MATERIAL: .013 (.33) Brass, Tin Plate

CAT. NO. 907



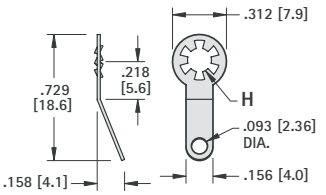
MATERIAL: .018 (.46) Brass, Tin Plate

CAT. NO.	H	STUD SIZE
7311	.120 (3.1)	#4
7312	.140 (3.6)	#6
7313	.171 (4.4)	#8



MATERIAL: .018 (.46) Brass, Tin Plate

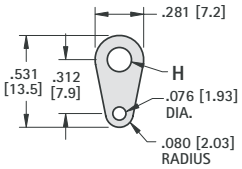
CAT. NO.	H	STUD SIZE
7317	.120 (3.1)	#4
7318	.140 (3.6)	#6
7319	.171 (4.4)	#8
4704	.196 (5.0)	#10



MATERIAL: .018 (.46) Brass, Tin Plate

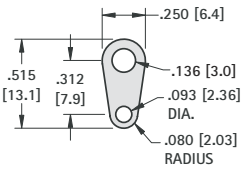
CAT. NO.	H	STUD SIZE
7314	.120 (3.1)	#4
7315	.140 (3.6)	#6
7316	.171 (4.4)	#8

SOLDER TERMINAL LUGS



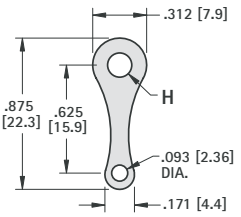
MATERIAL: .015 (.38) Brass, Tin Plate

CAT. NO.	H	STUD SIZE
7328	.120 (3.1)	#4
7329	.140 (3.6)	#6
7330	.171 (4.4)	#8



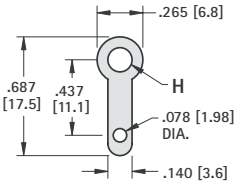
MATERIAL: .016 (.41) Brass, Tin Plate

CAT. NO. 4004



MATERIAL: .020 (.51) Brass, Tin Plate

CAT. NO.	H	STUD SIZE
7331	.120 (3.1)	#4
7332	.140 (3.6)	#6
7333	.171 (4.4)	#8



MATERIAL: .020 (.51) Brass, Tin Plate

CAT. NO.	H	STUD SIZE
7325	.120 (3.1)	#4
7326	.140 (3.6)	#6
7327	.171 (4.4)	#8
7340	.196 (5.0)	#10

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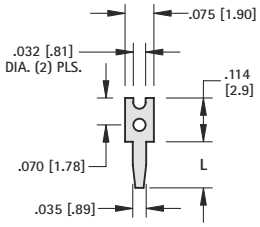
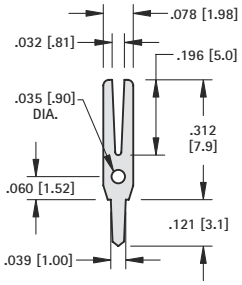
- Provides easy access for production testing and field service troubleshooting
- Positive grip when using J hooks, EZ hooks, grabbers, clips, tips and probes
- Custom test point terminals can be manufactured to your specifications
- Other platings and materials available upon request

MATERIAL: Brass, Tin Plate



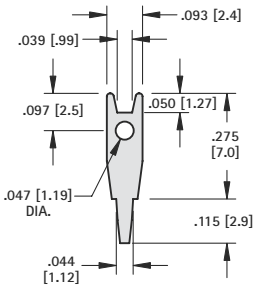
MATERIAL: .025 (.64) Brass

CAT. NO.	L
1030	.120 (3.0)
1031	.156 (4.0)



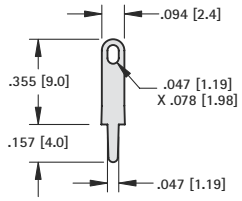
MATERIAL: .016 (.41) Brass

CAT. NO. 1037



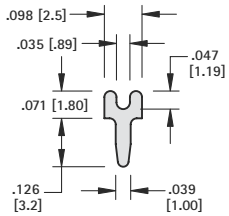
MATERIAL: .025 (.64) Brass

CAT. NO. 1036



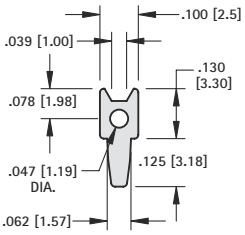
MATERIAL: .020 (.51) Brass

CAT. NO. 4953



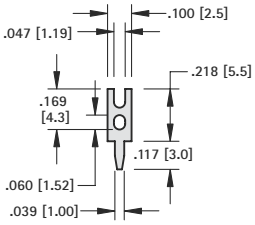
MATERIAL: .025 (.64) Brass

CAT. NO. 4950



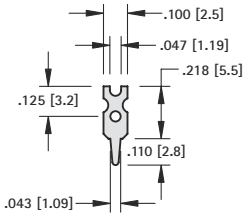
MATERIAL: .024 (.64) Brass

CAT. NO. 1032



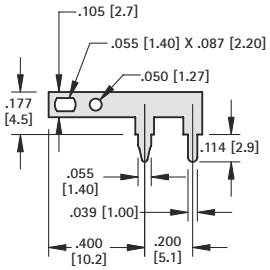
MATERIAL: .020 (.51) Brass

CAT. NO. 1035



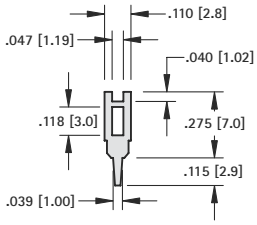
MATERIAL: .025 (.64) Brass

CAT. NO. 1034



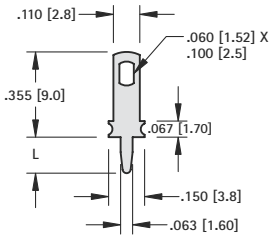
MATERIAL: .025 (.64) Brass

CAT. NO. 1045



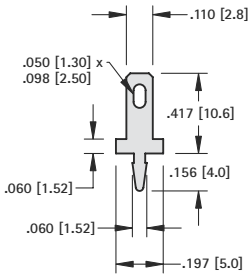
MATERIAL: .025 (.64) Brass

CAT. NO. 1040



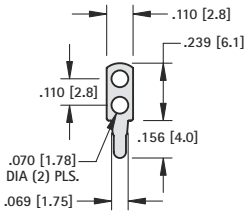
MATERIAL: .032 (.81) Brass

CAT. NO.	L
1041	.275 (7.0)
1046	.150 (3.8)



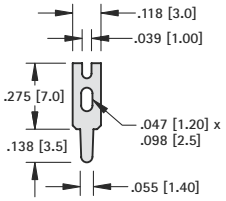
MATERIAL: .020 (.51) Brass

CAT. NO. 1250



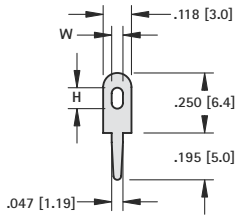
MATERIAL: .020 (.51) Brass

CAT. NO. 1038



MATERIAL: .025 (.64) Brass

CAT. NO. 4951

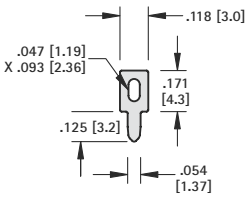


MATERIAL: .025 (.64) Brass

CAT. NO.	W	H
1249	.047 (1.20)	.087 (2.21)
4952	.063 (1.60)	.098 (2.50)

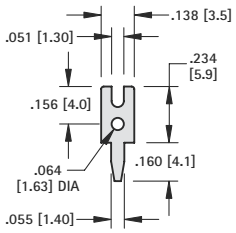
CUSTOM TERMINALS

Custom terminals can be machined to your exact specifications. Standard and special terminals can be staked onto special boards. Please email/fax your design to our Engineering Department.



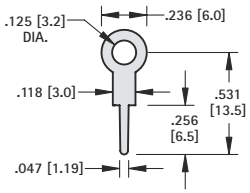
MATERIAL: .025 (.64) Brass

CAT. NO. 1033



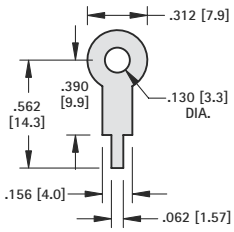
MATERIAL: .025 (.64) Brass

CAT. NO. 1039



MATERIAL: .020 (.51) Brass

CAT. NO. 4954



MATERIAL: .015 (.38) Brass

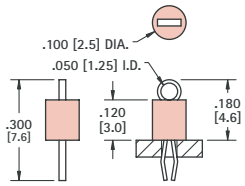
CAT. NO. 680

(THM) THRU HOLE MOUNT TEST POINTS - COLOR KEYED

- Color keyed for visibility and quick identification
- Economical choice for PC test point terminations
- Snap-fit mounting provides positive retention for wave soldering
- Wire form loop for safe, non-slip testing
- Space saving, ultra low and low profile designs
- High profile design for difficult to reach applications
- Suitable for high density packaging on .062 (1.57) and .093 (2.36) PC boards
- Practical replacement for wire-wrap posts and turrets
- Secure grip for J hooks, EZ hooks, grabbers, alligator clips, tips or probes
- High tempurature nylon base ideal for reflow soldering
- Ideal for reliable production testing and field service troubleshooting

COLOR KEYED

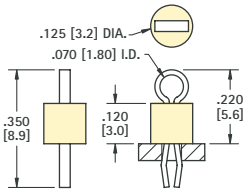
MINIATURE



SPECIFICATIONS
Terminal:
.010 (.25) × .020 (.51) Phosphor Bronze, Silver Plate
Base: Nylon 46, UL Rated 94V-0
Mtg. Hole: .040 (1.0) Diameter

CAT. NO.	BASE COLOR	CAT. NO.	BASE COLOR
5000	RED	5115	BROWN
5001	BLACK	5116	GREEN
5002	WHITE	5117	BLUE
5003	ORANGE	5118	GREY
5004	YELLOW	5119	PURPLE

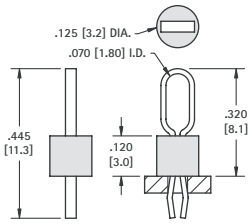
COMPACT



SPECIFICATIONS
Terminal:
.015 (.38) × .032 (.81)Phosphor Bronze, Silver Plate
Base: Nylon 46, UL Rated 94V-0
Mtg. Hole: .063 (1.6) Diameter

CAT. NO.	BASE COLOR	CAT. NO.	BASE COLOR
5005	RED	5120	BROWN
5006	BLACK	5121	GREEN
5007	WHITE	5122	BLUE
5008	ORANGE	5123	GREY
5009	YELLOW	5124	PURPLE

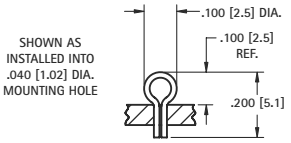
MULTIPURPOSE



SPECIFICATIONS
Terminal:
.015 (.38) × .032 (.81) Phosphor Bronze, Silver Plate
Base: Nylon 46, UL Rated 94V-0
Mtg. Hole: .063 (1.6) Diameter

CAT. NO.	BASE COLOR	CAT. NO.	BASE COLOR
5010	RED	5125	BROWN
5011	BLACK	5126	GREEN
5012	WHITE	5127	BLUE
5013	ORANGE	5128	GREY
5014	YELLOW	5129	PURPLE

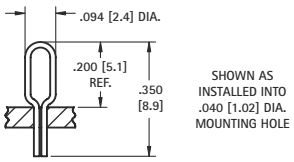
ULTRA LOW PROFILE



MATERIAL: .017 (.43) Dia.
Phosphor Bronze Silver plate
Mtg Hole: .040 (1.0)

CAT. NO. 5021

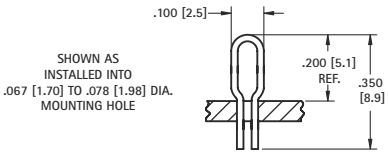
LOW PROFILE



MATERIAL: .016 (.40) × .028 (.71) Phosphor Bronze Silver plate
Mtg Hole: .040 (1.0)

CAT. NO. 5020

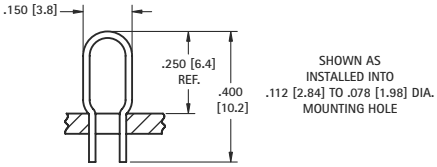
STANDARD



MATERIAL: .020 (.50) Dia.
Phosphor Bronze Silver plate
Mtg Hole: .073 (1.85)

CAT. NO. 5023

LARGE



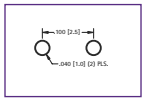
MATERIAL: .020 (.50) Dia.
Phosphor Bronze Silver plate
Mtg Hole: .114 (2.9)

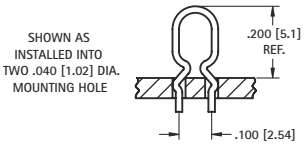
CAT. NO. 5024

JUMPERS

.100 SPACING

Mounting Detail

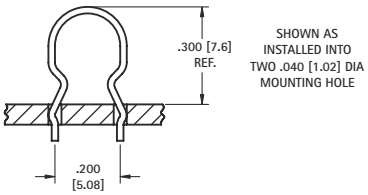




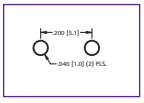
MATERIAL: .020 (.50) Dia.
Phosphor Bronze Silver plate
Mtg Hole: .040 (1.0)

CAT. NO. 5025

.200 SPACING



Mounting Detail



MATERIAL: .016 (.40) × .028 (.71)
Phosphor Bronze Silver plate
Mtg Hole: .040 (1.0)

CAT. NO. 5026

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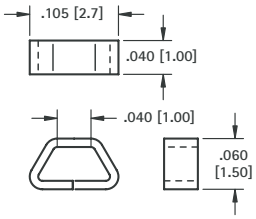
(SMT) SURFACE MOUNT TEST POINTS ON TAPE & REEL

MICRO MINIATURE

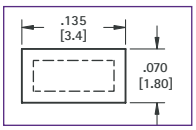
SUPPLIED ON TAPE AND REEL

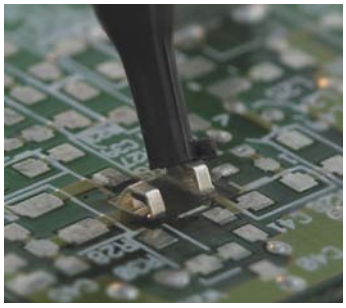
- Manufactured using flat wire to provide a large mounting surface area
- Ideal for use with miniature probes, clips, and hooks
- Efficient, safe, board level testing
- Ultra low profile, ideally suited for advanced surface mount printed circuit board applications
- Designed for long life and durability

SPECIFICATIONS
Contact Material:
.010 (.25) Phosphor Bronze
Contact Finish: Silver Plate
Tape Material: 8mm wide; 4mm pitch; conductive polycarbonate carrier tape meets ANSI/EIA-481 standard



Pad Layout





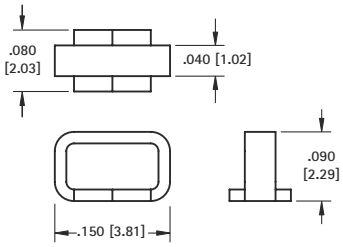
CAT. NO. 5015 - 1000 pieces per reel | **CAT. NO. 5017** - 5000 pieces per reel

MINIATURE

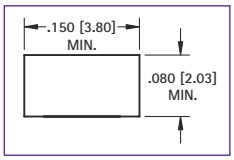
SUPPLIED ON TAPE AND REEL

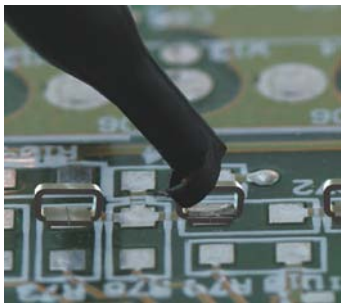
- Ideal for use with most standard probes, clips and hooks
- Efficient, safe, board level testing
- Unique design provides exceptional strength and durability
- Simplifies testing on dense SMT circuit boards

SPECIFICATIONS
Contact Material:
.015 (.38) Phosphor Bronze
Contact Finish: Silver Plate
Tape Material: 12mm wide; 4mm pitch; conductive polycarbonate carrier tape meets ANSI/EIA-481 standard



Pad Layout





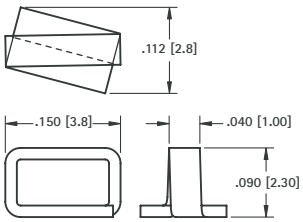
CAT. NO. 5019 - 1000 pieces per reel | **CAT. NO. 5029** - 5000 pieces per reel

COMPACT

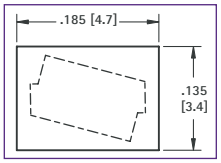
SUPPLIED ON TAPE AND REEL

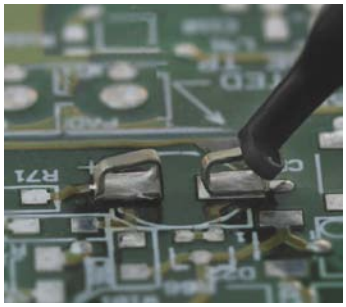
- Ideal for use with standard probes, clips and hooks
- Efficient, safe, board level testing
- Unique design provides exceptional strength and durability
- Simplifies testing on dense SMT circuit boards

SPECIFICATIONS
Contact Material:
.015 (.38) Phosphor Bronze
Contact Finish: Silver Plate
Tape Material: 12mm wide; 4mm pitch; conductive polycarbonate carrier tape meets ANSI/EIA-481 standard



Pad Layout



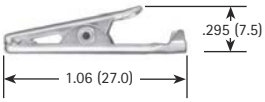


CAT. NO. 5016 - 1000 pieces per reel | **CAT. NO. 5018** - 5000 pieces per reel

ALLIGATOR CLIPS

SMALL CLIP

- Solder Connection with Strain Relief
- Insulated or Non-Insulated



CAT. NO.	INSULATOR COLOR
5033	NONE
5034	RED
5035	BLACK
5036	GREEN
5037	YELLOW

JAW SPREAD
.236 (6.0) max.

MATERIAL:
Clip: Steel, Nickel Plate
Insulator: Vinyl

MEDIUM CLIP

- Solder Connection with Strain Relief
- Insulated or Non-Insulated

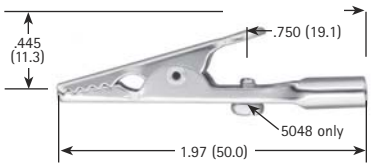
CAT. NO.	INSULATOR COLOR
5038	NONE
5039	RED
5040	BLACK

JAW SPREAD
.236 (6.0) max.

MATERIAL:
Clip: Steel, Nickel Plate
Insulator: Vinyl

LARGE CLIP

- Solder Connection or Screw Connection (Barrel Accepts Wire or Standard Banana Plugs)
- Insulated or Non-Insulated



CAT. NO.	INSULATOR COLOR
5044	NONE
5045	RED
5046	BLACK
5048	SCREW INSTALLED

JAW SPREAD
.315 (8.0) max.

MATERIAL:
Clip: Steel, Nickel Plate
Insulator: Vinyl

PC SCREW TERMINALS

These easy-to-mount, multipurpose screw type terminals are a practical, low-cost alternative to PC screw type edge connectors, barrier blocks, terminal boards and terminal strips. Steadfast and easy to install, will accommodate solid or stranded wire, crimp type terminals or lugs. Multi-placement of these low-profile terminals make them ideally suited for high density packaging. Supplied unassembled or with screw installed and captivated.

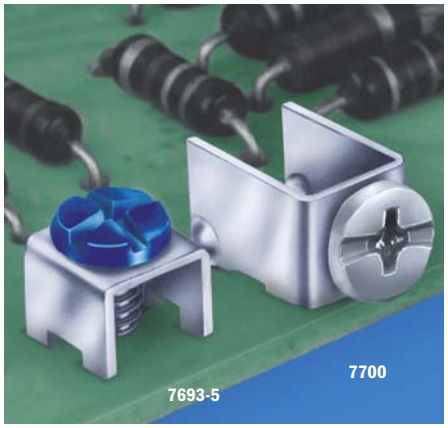
PRINCIPAL FEATURES

- Low profile
- Stable, no-rock design with exclusive anti-rotational feature
- Easily mounts with four legs into pre-drilled or punched holes
- Accepts 14-22 AWG solid or stranded wire, crimp type terminals or lugs
- Ideally suited for high-density packaging
- Available in horizontal or vertical mounting
- Space-saving and time saving
- Easy accessibility for PC board testing
- Binding screw is positioned above board level to avoid wicking during wave soldering
- Terminals are made of Brass with Tin Plate
- Supplied with a combination drive 6-32 binding head screw

COLOR SELECTION:
Select desired screw terminal and add color suffix to the screw terminal Cat. No.

HEAD COLOR	SUFFIX
RED	-2
BLACK	-3
WHITE	-4
BLUE	-5
GREEN	-6
YELLOW	-7
NICKEL	none

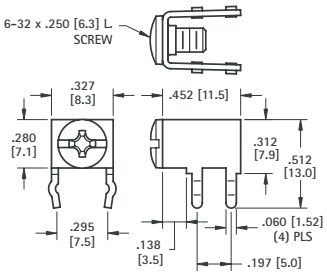
CAT. NO. COLOR SUFFIX
Ex: XXXX -X



HORIZONTAL TYPE

SNAP-IN PC MOUNT

- Color coded screws available (add color screw suffix to Cat. No.)

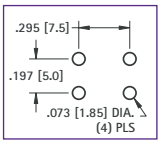


CAT. NO. 7779 (No Screw Supplied)
CAT. NO. 7690 (Screw Supplied Unassembled)
CAT. NO. 7692 (Screw Installed & Captivated)

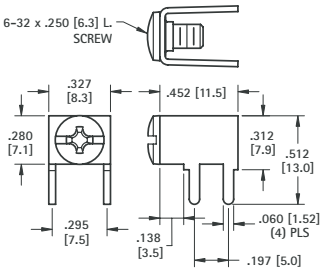
SPECIFICATIONS

Rated: 15 Amps
Terminal:
.032 (.81) Brass, Matte Tin Plate
Binding Head Screw:
Brass, Nickel Plate

Mounting Detail



Color coded screws available (add color screw suffix to Cat. No.)



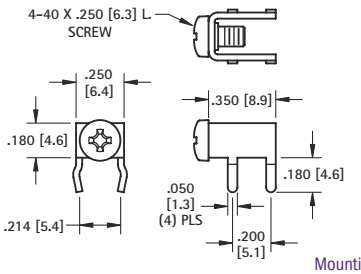
CAT. NO. 7781 (No Screw Supplied)
CAT. NO. 8190 (Screw Supplied Unassembled)
CAT. NO. 7700 (Screw Installed & Captivated)

PC MOUNT

- Color coded screws available (add color screw suffix to Cat. No.)

MINI

SNAP-IN PC MOUNT

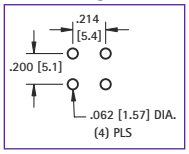


CAT. NO. 7774 (No Screw Supplied)
CAT. NO. 7773 (Screw Supplied Unassembled)

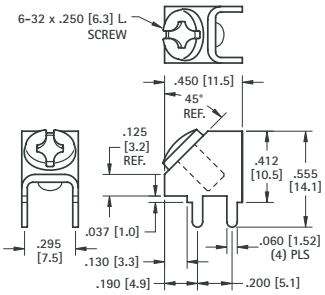
SPECIFICATIONS

Rated: 15 Amps
Terminal:
.032 (.81) Brass, Matte Tin Plate
Binding Head Screw:
Brass, Nickel Plate

Mounting Detail



45°

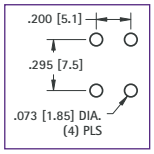


CAT. NO. 7783 (No Screw Supplied)
CAT. NO. 8189 (Screw Supplied Unassembled)
CAT. NO. 7702 (Screw Installed & Captivated)

PC MOUNT

- Color coded screws available (add color screw suffix to Cat. No.)

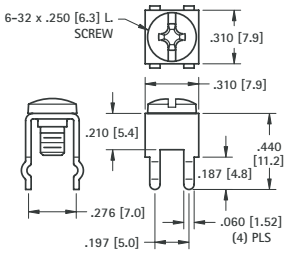
Mounting Detail



VERTICAL TYPE

SNAP-IN PC MOUNT

- Color coded screws available (add color screw suffix to Cat. No.)

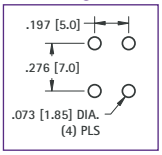


CAT. NO. 7780 (No Screw Supplied)
CAT. NO. 7691 (Screw Supplied Unassembled)
CAT. NO. 7693 (Screw Installed & Captivated)

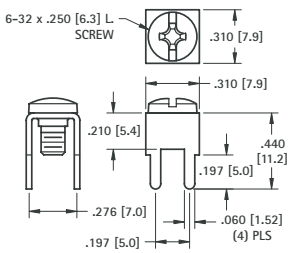
SPECIFICATIONS

Rated: 15 Amps
Terminal:
.032 (.81) Brass, Matte Tin Plate
Binding Head Screw:
Brass, Nickel Plate

Mounting Detail



Color coded screws available (add color screw suffix to Cat. No.)



CAT. NO. 7782 (No Screw Supplied)
CAT. NO. 8191 (Screw Supplied Unassembled)
CAT. NO. 7701 (Screw Installed & Captivated)

PC MOUNT

- Color coded screws available (add color screw suffix to Cat. No.)

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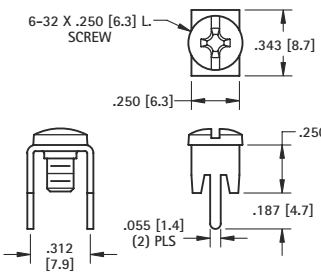
PC SCREW TERMINALS

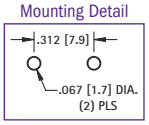
LOW PROFILE VERTICAL TYPE

- Color coded screws available (add color screw suffix to Cat. No.)

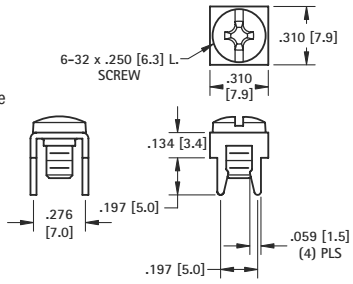


SPECIFICATIONS
Rated: 15 Amps
Terminal: .032 (.81) Brass, Matte Tin Plate
Binding Head Screw: Brass, Nickel Plate

Mounting Detail

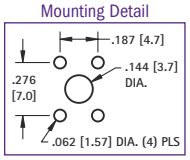


CAT. NO. 7784 (No Screw Supplied)
CAT. NO. 8198 (Screw Supplied Unassembled)
CAT. NO. 7778 (Screw Installed & Captivated)



- Color coded screws available (add color screw suffix to Cat. No.)

Mounting Detail



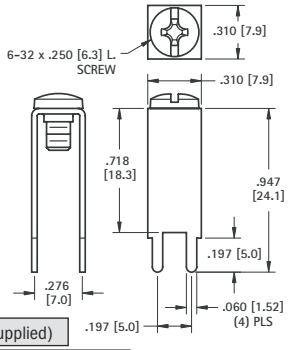
CAT. NO. 7785 (No Screw Supplied)
CAT. NO. 8195 (Screw Supplied Unassembled)
CAT. NO. 7775 (Screw Installed & Captivated)

VERTICAL TYPE

EXTENDED

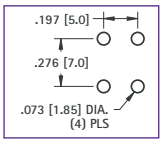
PC MOUNT

- Color coded screws available (add color screw suffix to Cat. No.)



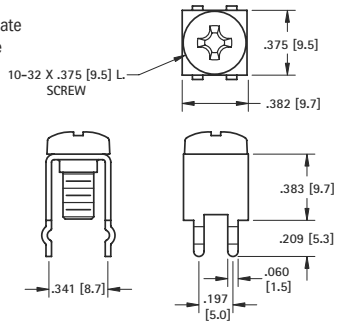
SPECIFICATIONS
Rated: 15 Amps
Terminal: .032 (.81) Brass, Mattte Tin Plate
Binding Head Screw: Brass, Nickel Plate

Mounting Detail

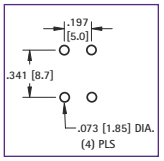


CAT. NO. 7789 (No Screw Supplied)
CAT. NO. 7697 (Screw Installed & Captivated)
CAT. NO. 7699 (Screw Installed & Captivated)

HEAVY DUTY



Mounting Detail

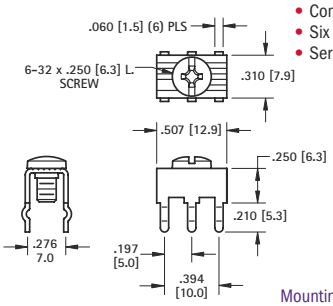


CAT. NO. 7791 (No Screw Supplied)
CAT. NO. 8174 (Screw Supplied Unassembled)

30 AMP - VERTICAL

- Combination drive, binding head screw
- Color coded screws available (add color screw suffix to Cat. No.)

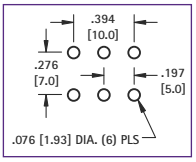
PRINCIPAL FEATURES
- Compact, heavy duty design
- Six snap-in legs for total stability
- Serrated top surface secures connection



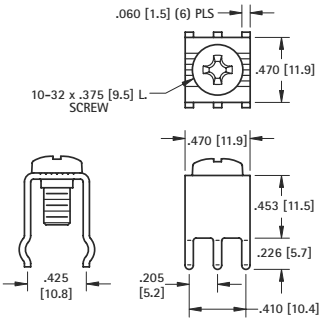
SPECIFICATIONS
Rated: 30 Amps
Terminal: .032 (.81) Brass, Matte Tin Plate
Binding Head Screw: Brass, Nickel Plate

CAT. NO. 7786 (No Screw Supplied)
CAT. NO. 8197 (Screw Supplied Unassembled)
CAT. NO. 8199 (Screw Installed & Captivated)

Mounting Detail



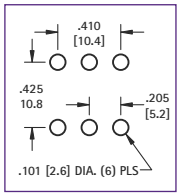
HEAVY DUTY



SPECIFICATIONS
Rated: 30 Amps
Terminal:
.045 (1.14) Brass, Matte Tin Plate
Screw: Stainless Steel

CAT. NO. 7787 (No Screw Supplied)
CAT. NO. 8196 (Screw Supplied Unassembled)

Mounting Detail

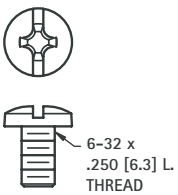


COLOR CODED SCREW TERMINAL SELECTION GUIDE

- Available for screw terminals where noted.

Color Coded Screw Terminals provide:
- Quick identification
- Visibility for field service troubleshooting

SPECIFICATIONS
Combination Binding Head: Standard screw is Brass, Nickel Plate. For painted, color head, add suffix as shown.



COLOR SELECTION:
Select desired screw terminal and add color suffix to the screw terminal Cat. No.

HEAD COLOR	SUFFIX
RED	-2
BLACK	-3
WHITE	-4
BLUE	-5
GREEN	-6
YELLOW	-7
NICKEL	none

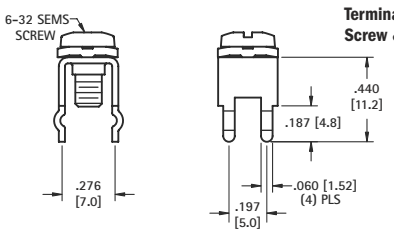
CAT. NO. COLOR SUFFIX
Ex: XXXX -X

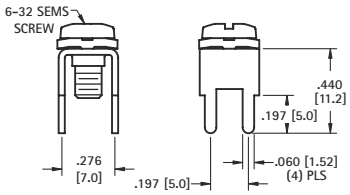
Refer to page 133 for color screws only

15 AMP

SNAP-IN
PC MOUNT

SPECIFICATIONS
Terminal: .032 (.81) Brass, Matte Tin Plate
Screw & Washer: Steel, Nickel Plate





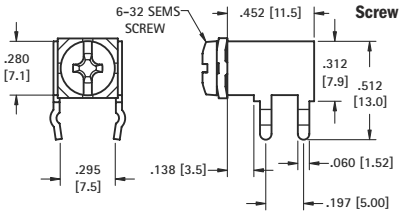
PC MOUNT

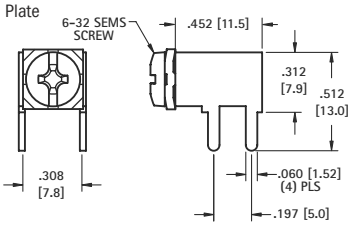
CAT. NO. 7691-SEMS (Screw Supplied Unassembled)
CAT. NO. 7693-SEMS (Screw Installed & Captivated)

CAT. NO. 8191-SEMS (Screw Supplied Unassembled)
CAT. NO. 7701-SEMS (Screw Installed & Captivated)

SNAP-IN
PC MOUNT

SPECIFICATIONS
Terminal: .032 (.81) Brass, Matte Tin Plate
Screw & Washer: Steel, Nickel Plate





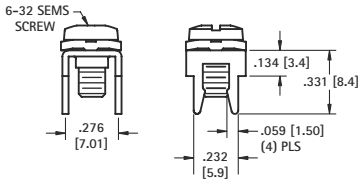
PC MOUNT

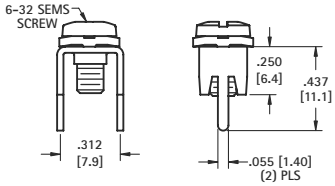
CAT. NO. 7690-SEMS (Screw Supplied Unassembled)
CAT. NO. 7692-SEMS (Screw Installed & Captivated)

CAT. NO. 8190-SEMS (Screw Supplied Unassembled)
CAT. NO. 7700-SEMS (Screw Installed & Captivated)

SNAP-IN
PC MOUNT

SPECIFICATIONS
Terminal: .032 (.81) Brass, Matte Tin Plate
Screw & Washer: Steel, Nickel Plate





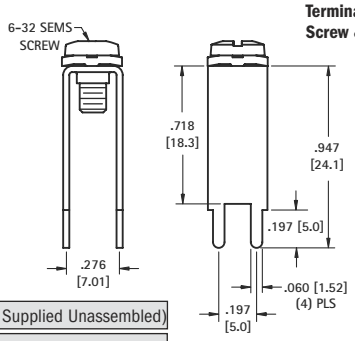
PC MOUNT

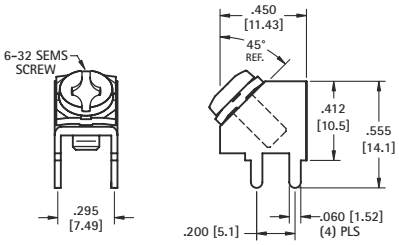
CAT. NO. 8195-SEMS (Screw Supplied Unassembled)
CAT. NO. 7775-SEMS (Screw Installed & Captivated)

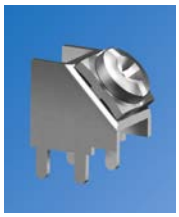
CAT. NO. 8198-SEMS (Screw Supplied Unassembled)
CAT. NO. 7778-SEMS (Screw Installed & Captivated)

PC MOUNT

SPECIFICATIONS
Terminal: .032 (.81) Brass, Matte Tin Plate
Screw & Washer: Steel, Nickel Plate







PC MOUNT

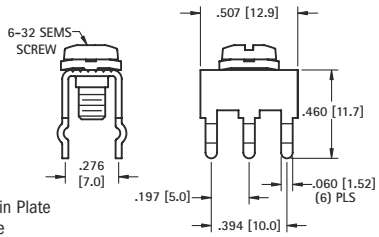
CAT. NO. 7697-SEMS (Screw Supplied Unassembled)
CAT. NO. 7699-SEMS (Screw Installed & Captivated)

CAT. NO. 8189-SEMS (Screw Supplied Unassembled)
CAT. NO. 7702-SEMS (Screw Installed & Captivated)

30 AMP

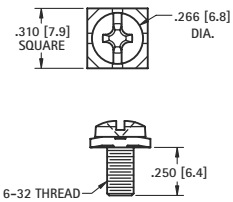
SNAP-IN
PC MOUNT

SPECIFICATIONS
Terminal: .032 (.81) Brass, Matte Tin Plate
Screw & Washer: Steel, Nickel Plate

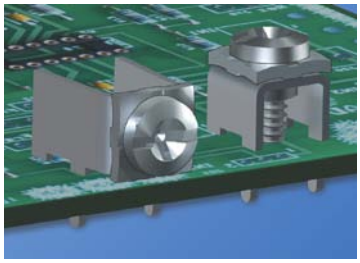


CAT. NO. 8197-SEMS (Screw Supplied Unassembled)
CAT. NO. 8199-SEMS (Screw Installed & Captivated)

SEMS Screw Terminals provide quick and secure attachment of wire leads. SEMS screw has captivated, free spining lock washer, eliminated twisting of wire when tightening lead to terminal. Washer will rise with head of screw when unscrewed.



SPECIFICATIONS
Screw & Washer: Steel, Nickel Plate



CAT. NO. 9920 (SEMS Screw Only)

Tel (718) 956-8900 • Fax (718) 956-9040
(800) 221-5510 • kec@keyelco.com
KEYSTONE
RoHS COMPLIANT ~ ISO 9001 CERTIFIED
www.keyelco.com
31-07 20th Road – Astoria, NY 11105-2017

METRIC PC SCREW TERMINALS

These easy-to-mount, multipurpose screw type terminals are a practical, low-cost alternative to PC screw type edge connectors, barrier blocks, terminal boards and terminal strips. Steadfast and easy to install, will accommodate solid or stranded wire, crimp type terminals or lugs. Multi- placement of these low-profile terminals make them ideally suited for high density packaging. Supplied unassembled or with screw installed and captivated.

PRINCIPAL FEATURES

- Stable, no-rock design with exclusive anti-rotational feature
- Easily mounts with four legs into pre-drilled or punched holes
- Accepts 14-22 AWG solid or stranded wire, crimp type terminals or lugs
- Ideally suited for high-density packaging
- Easy accessibility for PC board testing
- Binding screw is positioned above board level to avoid wicking during wave soldering

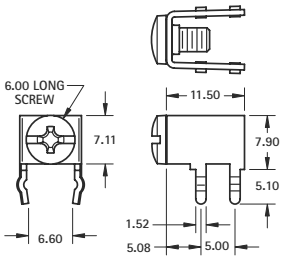
COLOR SELECTION:
Select desired screw terminal and add color suffix to the screw terminal Cat. No.

HEAD COLOR	SUFFIX
RED	-2
BLACK	-3
WHITE	-4
BLUE	-5
GREEN	-6
YELLOW	-7
NICKEL	none

Refer to page 133 for color screws only

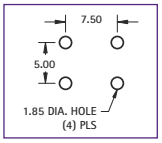
HORIZONTAL TYPE

SNAP-IN PC MOUNT

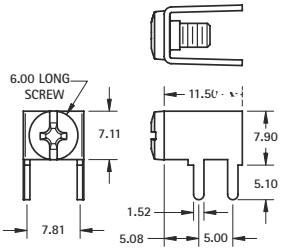


SPECIFICATIONS
Rated: 15 Amps
Terminal: .80 Brass, Matte Tin Plate
Screw: Brass, Nickel Plate

Mounting Detail



Color coded screws available
(add color screw suffix to Cat. No.)



PC MOUNT

M3 THREAD CAT. NO.		M4 THREAD CAT. NO.
7790	No Screw Supplied	7792
7689*	Screw Supplied Unassembled	7793
7695*	Screw Installed & Captivated	7794

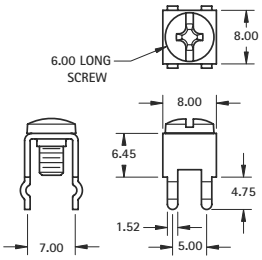
*Available with color Coded Screws

M3 THREAD CAT. NO.		M4 THREAD CAT. NO.
7760	No Screw Supplied	7764
7761*	Screw Supplied Unassembled	7765
7762*	Screw Installed & Captivated	7766

*Available with color Coded Screws

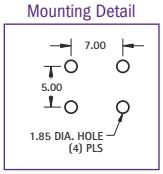
VERTICAL TYPE

SNAP-IN PC MOUNT

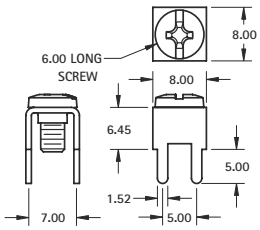


SPECIFICATIONS
Rated: 15 Amps
Terminal: .80 Brass, Matte Tin Plate
Screw: Brass, Nickel Plate

Mounting Detail



Color coded screws available
(add color screw suffix to Cat. No.)



PC MOUNT

M3 THREAD CAT. NO.		M4 THREAD CAT. NO.
7788	No Screw Supplied	7795
7698*	Screw Supplied Unassembled	7796
7696*	Screw Installed & Captivated	7797

*Available with color Coded Screws

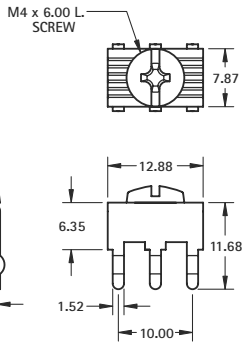
M3 THREAD CAT. NO.		M4 THREAD CAT. NO.
7770	No Screw Supplied	7767
7771*	Screw Supplied Unassembled	7768
7772*	Screw Installed & Captivated	7769

*Available with color Coded Screws

30 AMP - VERTICAL TYPE

M4

SNAP-IN PC MOUNT

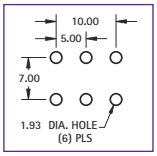


PRINCIPAL FEATURES
- Compact, heavy duty design
- Six snap-in legs for total stability
- Serrated top surface secures connection

SPECIFICATIONS
Rated: 30 Amps
Terminal: .80 Brass, Matte Tin Plate
Screw: Brass, Nickel Plate

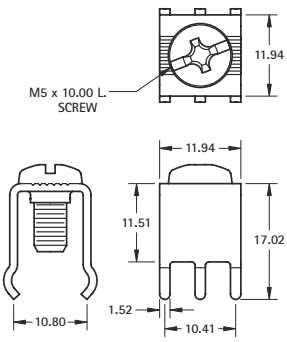
CAT. NO.	
7798	No Screw Supplied
7799	Screw Supplied Unassembled
7800	Screw Installed & Captivated

Mounting Detail



Color coded screws available
(add color screw suffix to Cat. No.)

M5

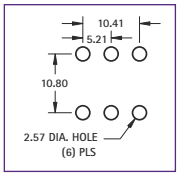


SNAP-IN PC MOUNT

SPECIFICATIONS
Rated: 30 Amps
Terminal: 1.14 Brass, Matte Tin Plate
Screw: Brass, Nickel Plate

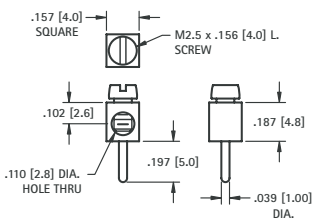
CAT. NO.	
7807	No Screw Supplied
7808	Screw Supplied Unassembled

Mounting Detail



MINI BINDING POSTS

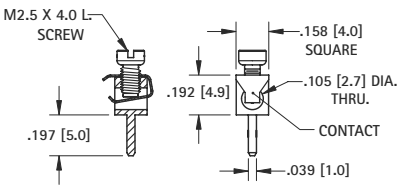
THRU HOLE



SPECIFICATIONS
Terminal: Brass, Tin Plate
Screw: Steel, Zinc Plate
Mounting Hole: .047 (1.2)
Current Rating: 15 AMP

CAT. NO. 8730 (Screw Installed)

WIRE CONTACT



SPECIFICATIONS
Terminal: Brass, Tin Plate
Screw: Steel, Zinc Plate
Contact: Phoshorus Bronze, Tin Plate
Mounting Hole: .047 (1.2)
Current Rating: 15 AMP

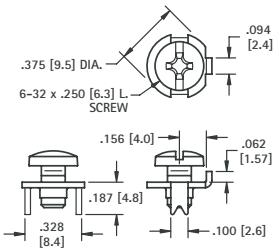
CAT. NO. 8737 (Screw Installed)

LOW PROFILE SCREW TERMINALS

These sturdy, low cost screw terminals, feature an anti-rotation tab for use with spade terminals. They are available with the screw installed and captivated, the screw unassembled or without a screw.

6-32

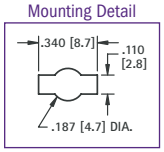
PRINCIPLE FEATURES
- Easy to connect using solid or stranded wire, crimp lugs or terminals
- Anti-rotation tab for use with spade terminals
- Supplied with screw installed and captivated, with screw unassembled, or without screw
- Stainless steel screw will not wick



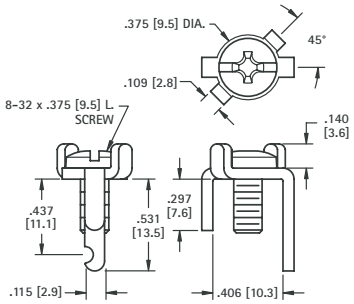
SPECIFICATIONS
Rated: 15 Amps
Terminal: .032 (.81) Brass, Matte Tin Plate
Screw: Combination drive, Stainless Steel

CAT. NO. 1284 (No Screw Supplied)
CAT. NO. 1298 (Screw Supplied Unassembled)
CAT. NO. 1201 (Screw Installed & Captivated)

Mounting Detail



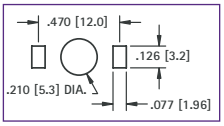
8-32



SPECIFICATIONS
Rated: 15 Amps
Terminal: .064 (1.6) Brass, Matte Tin Plate
Screw: Brass, Nickel Plate

CAT. NO. 1205 (No Screw Supplied)
CAT. NO. 1207 (Screw Supplied Unassembled)
CAT. NO. 1209 (Screw Installed)

Mounting Detail

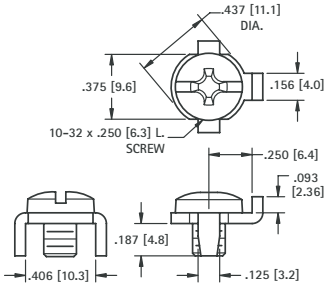


HEAVY DUTY SCREW TERMINALS - 30 AMP

These heavy duty terminals are available with the screw installed or unassembled, and feature easy access to connect solid or stranded wire, crimp type lugs or terminals.

10-32

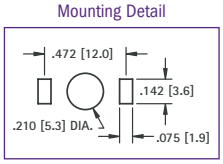
PRINCIPLE FEATURES
- Anti-rotation tab for use with spade terminals
- Below the board notched leg, to facilitate mechanical and solder connections
- Easy to connect using solid or stranded wire, crimp lugs or terminals
- Available with screw installed, unassembled, or without screw



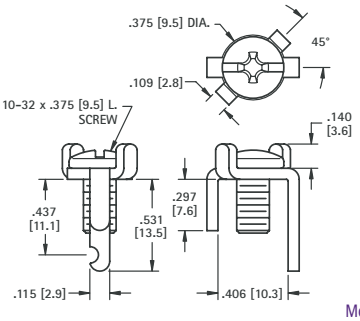
SPECIFICATIONS
Rated: 30 Amps
Terminal: .062 (1.6) Brass, Matte Tin Plate
Screw: Combination drive, Stainless Steel

CAT. NO. 1293 (No Screw Supplied)
CAT. NO. 1299 (Screw Supplied Unassembled)
CAT. NO. 1202 (Screw Installed & Captivated)

Mounting Detail



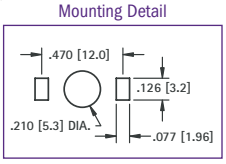
10-32



SPECIFICATIONS
Rated: 30 Amps
Terminal: .064 (1.6) Brass, Matte Tin Plate
Screw: Steel, Nickel Plate

CAT. NO. 1206 (No Screw Supplied)
CAT. NO. 1208 (Screw Supplied Unassembled)
CAT. NO. 1283 (Screw Installed)

Mounting Detail



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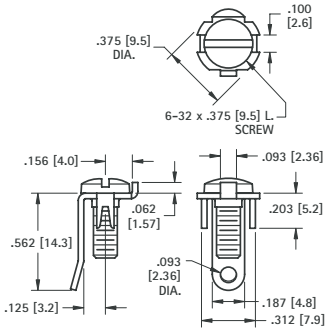
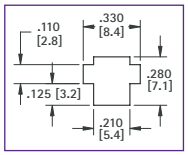
SCREW TERMINALS

OFFSET LEG



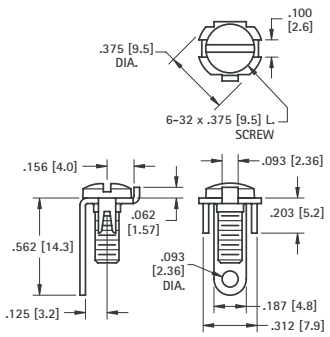
Mounting Detail



SPECIFICATIONS
Terminal: .032 (.81) Steel, Tin Plate
Screw: Steel, Nickel Plate
(Screw Installed & Captivated)
Rated: 15 Amps

CAT. NO. 1248

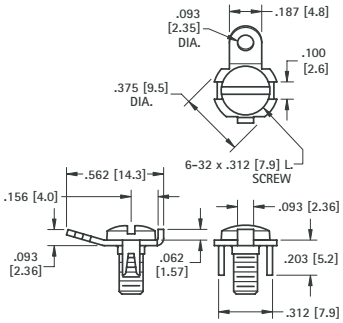
STRAIGHT LEG



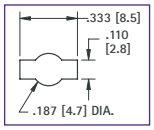
SPECIFICATIONS
Terminal:
.032 (.81) Steel, Tin Plate
Screw: Steel, Nickel Plate (Screw Installed & Captivated)
Rated: 15 Amps

CAT. NO. 1215

SOLDER TAB



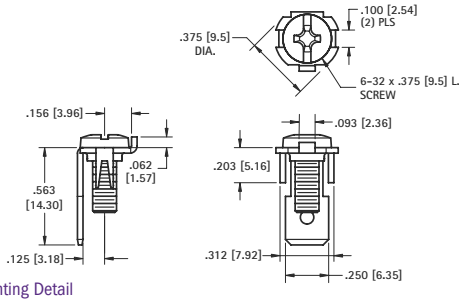
Mounting Detail



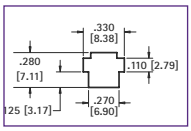
SPECIFICATIONS
Terminal: .032 (.81) Steel,Tin Plate
Screw: Steel, Nickel Plate
(Screw Installed & Captivated)
Rated: 15 Amps

CAT. NO. 1232

QUICK FIT



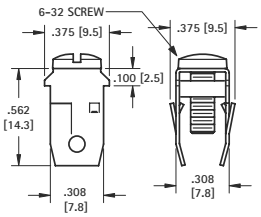
Mounting Detail



SPECIFICATIONS
Terminal: .032 (.81) Brass, Tin Plate
Screw: Steel, Nickel Plate
(Screw Installed & Captivated)
Rated: 15 Amps

CAT. NO. 1217

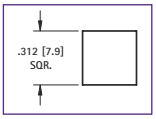
SOLDER



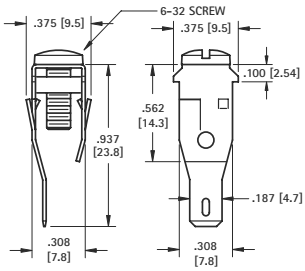
SPECIFICATIONS
Terminal: .020 (.51) Steel, Tin Plate
Screw: Steel, Zinc Plate,
(Screw Installed & Captivated)
Rated: 15 Amps

CAT. NO. 1272

Mounting Detail



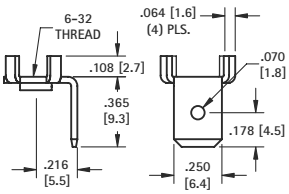
QUICK-FIT



SPECIFICATIONS
Terminal: .020 (.51) Steel, Tin Plate
Screw: Steel, Zinc Plate,
(Screw Installed & Captivated)
Rated: 15 Amps

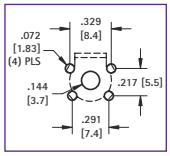
CAT. NO. 1273

QUICK-FIT



Supplied Unassembled

Mounting Detail



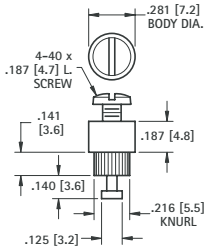
SPECIFICATIONS
Material: .032 (.81) Brass, NIckel Plate
Rated: 15 Amps

CAT. NO. 1247 (No Screw Supplied)
CAT. NO. 1251 (Screw Installed)

BINDING POST TERMINALS (RIVET TYPE)

SPECIFICATIONS **Terminal:** Brass, Tin Plate **Screw:** Steel, Zinc Plate (Screw Supplied Unassembled)

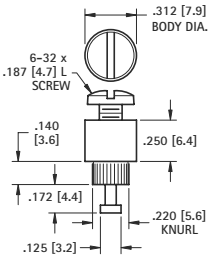
4-40



Mounting Hole: .220 (5.6)

CAT. NO. 1537 FOR .093 (2.38) BOARD

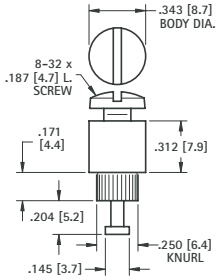
6-32



Mounting Hole: .225 (5.7)

CAT. NO. 1535 FOR .093 (2.38) BOARD

8-32



Mounting Hole: .255 (6.5)

CAT. NO. 1536 FOR .125 (3.2) BOARD

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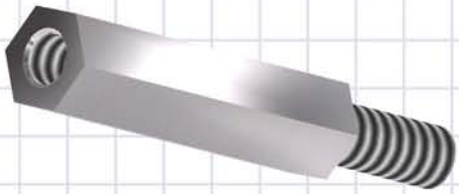
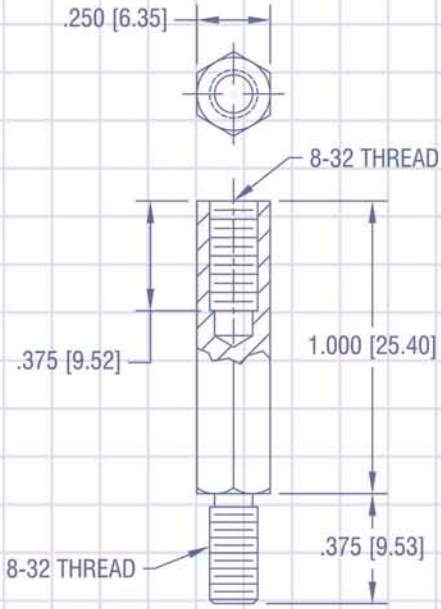
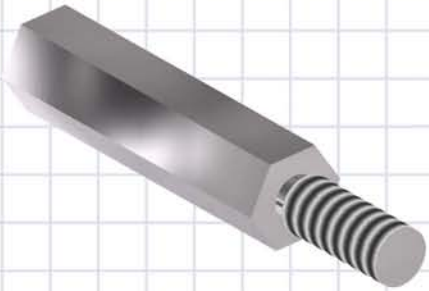






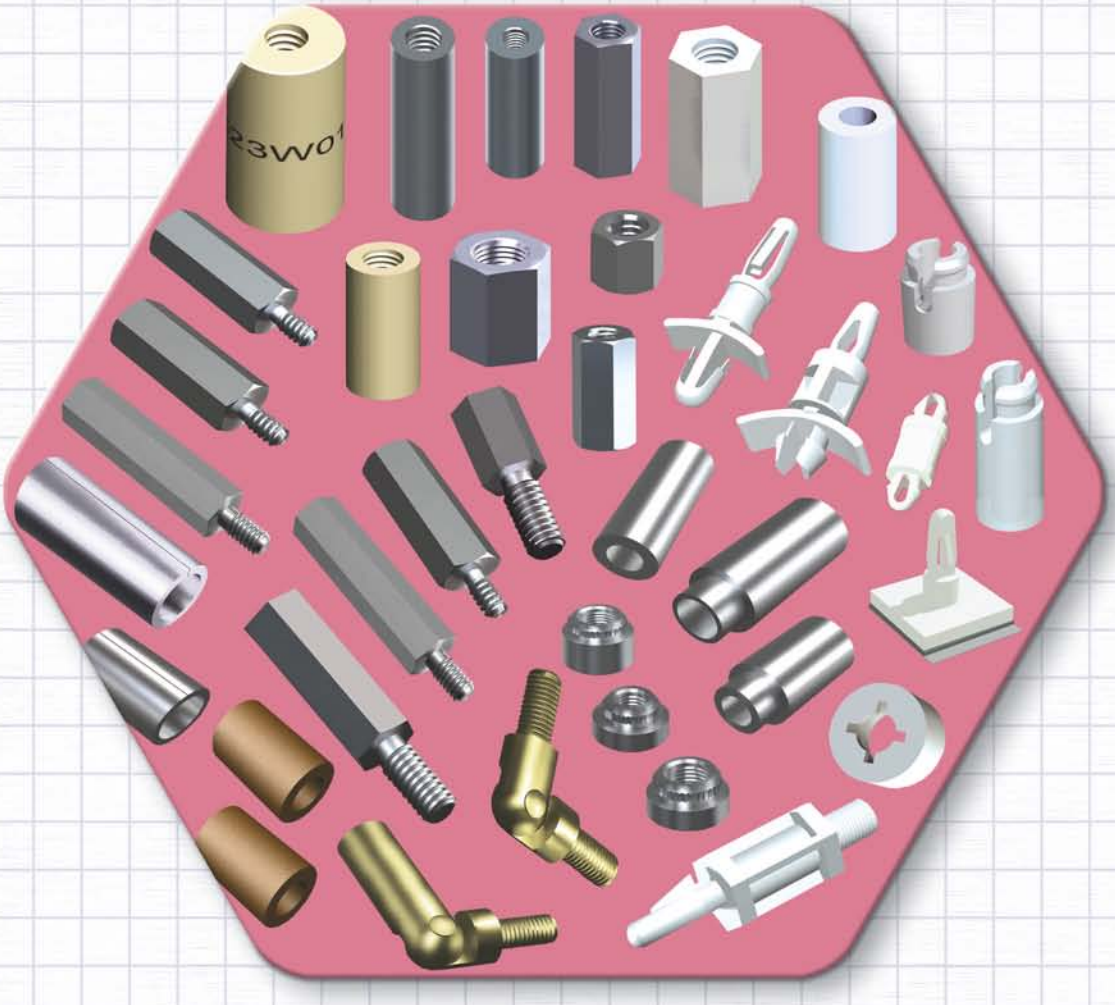
SPACERS & STANDOFFS

Designed for reliability and close tolerance dimensions our diverse selection of spacers and standoffs provide solutions for any design requirements. Available in a wide range of materials and styles, some of the applications include:

- Mechanical support
- Component-to-board mounting requirements
- Board-to-Board PCB mounting
- Board-to-Chassis device mounting
- Eliminate the cost and bulk of backplanes and card cages
- PC/104 & PC/104 plus module mounting
- High Temperature conditions
- Commercial, Military & Industrial environments

Our quality system is ISO 9001:2008 certified. Our products are in compliance with the RoHS and REACH directives. We provide 3D modeling, CAD and other application-engineering support for modifications, special designs or assembly requirements to assist you in choosing the right Keystone product for your application.

DATE	DESCRIPTION	REV.



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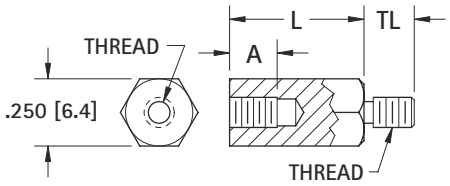


THREAD SIZE	TL EXTERNAL	A INTERNAL
4-40	.187 (4.7)	.250 (6.4)
6-32	.250 (6.4)	.375 (9.5)
8-32	.375 (9.5)	.375 (9.5)

Application Note:
For PC/104 applications use length .600 (15.3) 4-40 Thread

CHOICE OF:		
Stainless: ASTM A581/A582	**Brass:** ASTM-B16 **Plating:** Nickel (QQ-N-290)	**Aluminum:** ASTM B211 **Plating:** Clear Iridite (Mil-C-5541)

4-40 THREAD

L LENGTH	STAINLESS STEEL CAT NO.	BRASS CAT NO.	ALUMINUM CAT NO.
.250 (6.4)***	8712	8713	8714
.375 (9.5)	2087	7200	8400
.500 (12.7)	2088	1944	8401
.600 (15.2)*	5799	8799	6799
.625 (15.9)	2089	1945	8402
.750 (19.1)	2090	1946	8403
.875 (22.2)	2091	7201	8404
1.000 (25.4)	2092	1947	8405
1.125 (28.6)	2093	7202	8406
1.250 (31.8)	2094	1948	8407
1.375 (34.9)	2095	1949	8408
1.500 (38.1)	2096	1950	8409
1.625 (41.3)	2097	7203	8410
1.750 (44.5)	2098	7205	8411
2.000 (50.8)	2099	1951	8412

*PC/104 Standard Length
***Internal Thread .130 (3.3)/.150 (3.8) Deep

6-32 THREAD

L LENGTH	STAINLESS STEEL CAT NO.	BRASS CAT NO.	ALUMINUM CAT NO.
.250 (6.4)***	8715	8716	8717
.375 (9.5)**	2119	7210	8413
.500 (12.7)	2120	1952	8414
.625 (15.9)	2121	1953	8415
.750 (19.1)	2122	1954	8416
.875 (22.2)	2123	7211	8417
1.000 (25.4)	2124	1644	8418
1.125 (28.6)	2125	7212	8419
1.250 (31.8)	2126	1955	8420
1.375 (34.9)	2127	1956	8421
1.500 (38.1)	2128	1645	8422
1.625 (41.3)	2129	7214	8423
1.750 (44.5)	2130	7215	8424
2.000 (50.8)	2131	1646	8425

** Internal Thread .250 (6.4) Deep
*** Internal Thread .130 (3.3)/.150 (3.8) Deep

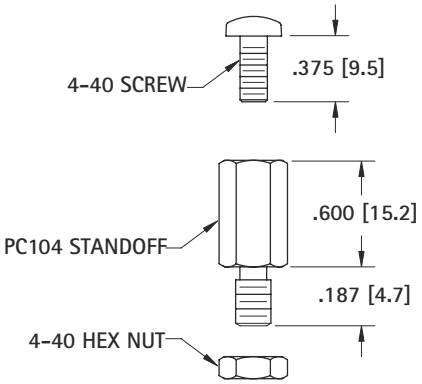
8-32 THREAD

L LENGTH	STAINLESS STEEL CAT NO.	BRASS CAT NO.	ALUMINUM CAT NO.
.250 (6.4)***	8731	8732	8733
.375 (9.5)**	2149	7220	8426
.500 (12.7)	2150	1957	8427
.625 (15.9)	2151	1958	8428
.750 (19.1)	2152	1959	8429
.875 (22.2)	2153	7221	8430
1.000 (25.4)	2154	1960	8431
1.125 (28.6)	2155	7222	8432
1.250 (31.8)	2156	1961	8433
1.375 (34.9)	2157	1962	8434
1.500 (38.1)	2158	1963	8435
1.625 (41.3)	2159	7224	8436
1.750 (44.5)	2160	7225	8437
2.000 (50.8)	2161	1964	8438
2.500 (63.5)	2180	1965	8439
3.000 (76.2)	2181	1966	8440

** Internal Thread .250 (6.4) Deep
*** Internal Thread .130 (3.3)/.150 (3.8) Deep

PC 104 MOUNTING KITS

- Designed to ease the assembly of new modules and multi-board stacks.
- Each kit includes all the hardware that is required to mount a single-board.



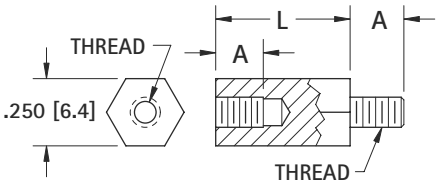
Complete Kit CAT. NO.	Kit Description	Includes Four (4) each: Standoff	Screw	Nut
4799-4	Nylon	4799	9328	9605
5799-4	Stainless Steel	5799	9901	7248-3
6799-4	Aluminum	6799	9301*	9600*
8799-4	Brass	8799	9301*	9600*

* Aluminum and brass kits supplied with steel hardware.

NYLON STANDOFFS

MATERIAL: Nylon 6/6

MALE/FEMALE STANDOFFS



L LENGTH	THREAD SIZE 4-40 CAT. NO.	6-32 CAT. NO.	8-32 CAT. NO.
.250 (6.4)***	4800	4814	4828
.375 (9.5)	4801	4815	4829**
.500 (12.7)	4802	4816	4830
.600 (15.2)*	4799	-	-
.625 (15.9)	4803	4817	4831
.750 (19.1)	4804	4818	4832
.875 (22.2)	4805	4819	4833
1.000 (25.4)	4806	4820	4834
1.125 (28.6)	4807	4821	4835
1.250 (31.8)	4808	4822	4836
1.375 (34.9)	4809	4823	4837
1.500 (38.1)	4810	4824	4838
1.625 (41.3)	4811	4825	4839
1.750 (44.5)	4812	4826	4840
2.000 (50.8)	4813	4827	4841

* PC/104 Standard Length
** Internal Thread .250 (6.4) Deep
*** Internal Thread .130 (3.3)/.150 (3.8) Deep

Application Note:
For PC/104 applications use CAT. NO. 4799

THREAD SIZE	A
4-40	.187 (4.7)
6-32	250 (6.4)
8-32	.375 (9.5)

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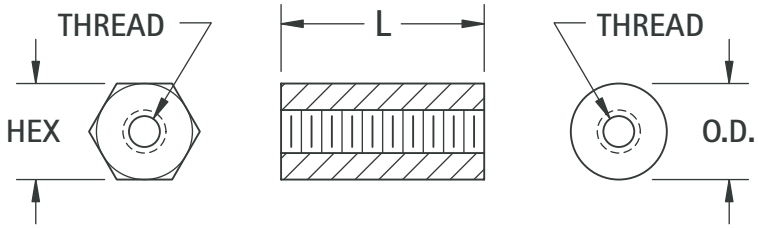
FEMALE THREADED STANDOFFS

HEX



ROUND

CHOICE OF:				
Stainless: ASTM A581/A582	**Brass:** per ASTM-B16 **Plating:** Zinc ASTM B633	**Aluminum:** ASTM B211 **Plating:** Clear Iridite Finish	**Nylon V2:** 6/6 UL Rated 94V-2 **Nylon V0:** 6/6 UL Rated 94V-0	**Phenolic:** PBE Grade Natural Color Phenolic

HEX	HEX						ROUND			O.D.
	NYLON V2 CAT. NO.	NYLON V0 CAT. NO.	STAINLESS CAT. NO.	BRASS CAT. NO.	ALUMINUM CAT. NO.	LENGTH	BRASS CAT. NO.	ALUMINUM CAT. NO.	PHENOLIC CAT. NO.	
2-56 THREAD										
.156 (3.9)	—	—	—	1798A	1797A	.187 (4.7)	1802A	1801A	—	.156 (3.9)
	—	—	—	1798B	1797B	.250 (6.4)	1802B	1801B	—	
	—	—	—	1798C	1797C	.312 (7.9)	1802C	1801C	—	
	—	—	—	1798D	1797D	.375 (9.5)	1802D	1801D	—	
4-40 THREAD										
.187 (4.7)	—	—	—	1450	1891	.250 (6.4)	1547	2025	—	—
	—	—	—	1803	1892	.375 (9.5)	1864	2026	—	.187 (4.7)
	—	—	—	1656	1893	.500 (12.7)	1657	2027	—	
	—	—	—	1804	1894	.625 (15.9)	1865	2028	—	
	—	—	—	1656A	1895	.750 (19.1)	1657A	2029	—	
	—	—	—	1805	1896	.875 (22.2)	1866	2030	—	
	—	—	—	1656B	1897	1.000 (25.4)	1657B	2031	—	
.250 (6.3)	1902A	8440A	1921	1450A	2201	.250 (6.4)	1547A	3478	376	.250 (6.3)
	1902B	8440B	1921A	1450B	2202	.375 (9.5)	1547B	3479	377	
	1902C	8440C	1921B	1450C	2203	.500 (12.7)	1547C	3480	378	
	1902F	8440D	—	1829	1808	.625 (15.9)	1867	1839	—	
	1902D	8440E	1921C	1450D	2204	.750 (19.1)	1547D	3481	379	
	1902G	8440F	—	1830	1809	.875 (22.2)	1876	1846	—	
	1902E	8440G	1921D	1450E	2205	1.000 (25.4)	1547E	3482	380	
	—	—	1921E	1831	2206	1.500 (38.1)	1877	3483	381	
	—	—	1921F	1832	2207	2.000 (50.8)	1878	3484	382	
6-32 THREAD										
.250 (6.3)	1903A	8441A	1922	1451A	2208	.250 (6.4)	1548A	3485	383	.250 (6.3)
	1903B	8441B	1922A	1451B	2209	.375 (9.5)	1548B	3486	384	
	1903C	8441C	1922B	1451C	2210	.500 (12.7)	1548C	3487	385	
	1903F	8441D	—	1451D	1813	.625 (15.9)	1548D	1847	—	
	1903D	8441E	1922C	1451E	2211	.750 (19.1)	1548E	3488	386	
	1903G	8441F	—	1833	1816	.875 (22.2)	1879	1848	—	
	1903E	8441G	1922D	1635	2212	1.000 (25.4)	1548F	3489	387	
	—	—	—	1636	1818	1.250 (31.8)	1881	1853	—	
	—	—	1922E	1637	2213	1.500 (38.1)	1882	3490	388	
	—	—	—	1638	1819	1.750 (44.5)	1883	1855	—	
	—	—	1922F	1639	2214	2.000 (50.8)	1884	3491	389	
	—	—	—	1642	1820	2.250 (57.2)	1885	1856	—	
	—	—	—	1643	1825	2.500 (63.5)	1886	1857	—	
8-32 THREAD										
.250 (6.3)	1904A	8442A	1923	1474A	2215	.250 (6.4)	1692A	3492	390	.250 (6.3)
	1904B	8442B	1923A	1474B	2216	.375 (9.5)	1692B	3493	391	
	1904C	8442C	1923B	1474C	2217	.500 (12.7)	1692C	3494	392	
	1904F	8442D	—	1834	1827	.625 (15.9)	1887	1858	—	
	1904D	8442E	1923C	1474D	2218	.750 (19.1)	1692D	3495	393	
	1904G	8442F	—	1836	1828	.875 (22.2)	1888	1859	—	
	1904E	8442G	1923D	1474E	2219	1.000 (25.4)	1692E	3496	394	
	—	—	1923E	1837	2220	1.500 (38.1)	1889	3497	395	
	—	—	1923F	1838	2221	2.000 (50.8)	1899	3498	396	
10-32 THREAD										
.312 (7.9)	—	—	1475A	1822A	1821A	.375 (9.5)	3499A	3500A	468	.312 (7.9)
	—	—	1475B	1822B	1821B	.500 (12.7)	3499B	3500B	469	
	—	—	1475C	1822C	1821C	.625 (15.9)	3499C	3500C	—	
	—	—	1475D	1822D	1821D	.750 (19.1)	3499D	3500D	470	
	—	—	1475F	1822F	1821F	1.000 (25.4)	3499F	3500F	471	

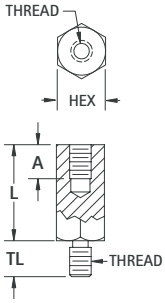
NOTE: All standoffs over 1.000 (25.4) are tapped .375 (9.5) min. both ends, except 4-40 standoffs which are tapped .250 (6.4) min.

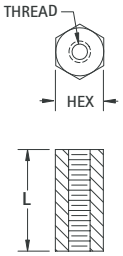
METRIC STANDOFFS

MALE/FEMALE

THREAD SIZE	TL	A
M2.5	4.0	5.0
M3	8.0	8.0
M4	10.0	11.0

FEMALE





CHOICE OF:		
Stainless: ASTM A581/A582	**Brass:** ASTM-B16 **Plating:** Nickel (QQ-N-290)	**Aluminum:** ASTM B211 **Plating:** Clear Iridite (Mil-C-5541)

MALE/FEMALE				FEMALE		
STAINLESS CAT. NO.	BRASS CAT. NO.	ALUMINUM CAT. NO.	L	STAINLESS CAT. NO.	BRASS CAT. NO.	ALUMINUM CAT. NO.
4.5 HEX DIA. (M2.5 THREAD)						
—	—	—	5.0	24460	24380	24420
—	—	—	6.0	24461	24381	24421
—	—	—	8.0	24462	24382	24422
24283	24307	24331	10.0	24463	24383	24423
24284	24308	24332	12.0	24464	24384	24424
24285	24309	24333	15.0	24465	24385	24425
24286	24310	24334	18.0	24466	24386	24426
24287	24311	24335	20.0	24467	24387	24427
24288	24312	24336	25.0	24468	24388	24428
5.0 HEX DIA. (M3 THREAD)						
—	—	—	5.0	24470	24390	24430
—	—	—	6.0	24471	24391	24431
—	—	—	8.0	24472	24392	24432
24289	24313	24337	10.0	24473	24393	24433
24290	24314	24338	12.0	24474	24394	24434
24291	24315	24339	15.0	24475	24395	24435
24292	24316	24340	18.0	24476	24396	24436
24293	24317	24341	20.0	24477	24397	24437
24294	24318	24342	25.0	24478	24398	24438
5.5 HEX DIA. (M3 THREAD)						
—	—	—	5.0	24480	24400	24440
—	—	—	6.0	24481	24401	24441
—	—	—	8.0	24482	24402	24442
24295	24319	24343	10.0	24483	24403	24443
24296	24320	24344	12.0	24484	24404	24444
24297	24321	24345	15.0	24485	24405	24445
24298	24322	24346	18.0	24486	24406	24446
24299	24323	24347	20.0	24487	24407	24447
24300	24324	24348	25.0	24488	24408	24448
6.0 HEX DIA. (M4 THREAD)						
—	—	—	5.0	24490	24410	24450
—	—	—	6.0	24491	24411	24451
—	—	—	8.0	24492	24412	24452
24301**	24325**	24349**	10.0	24493	24413	24453
24302*	24326*	24350*	12.0	24494	24414	24454
24303	24327	24351	15.0	24495	24415	24455
24304	24328	24352	18.0	24496	24416	24456
24305	24329	24353	20.0	24497	24417	24457
24306	24330	24354	25.0	24498	24418	24458

* Internal Thread: 8.0mm deep ** Internal Thread: 6.0mm deep

Note: Female standoffs longer than 19mm may be tapped from both ends

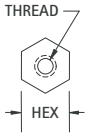
METRIC NYLON STANDOFFS

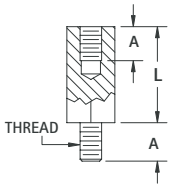
Material: Nylon 6/6, UL Rated 94V-2

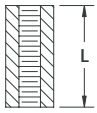
MALE/FEMALE

FEMALE

THREAD SIZE	A
M3	8.0
M4	9.5





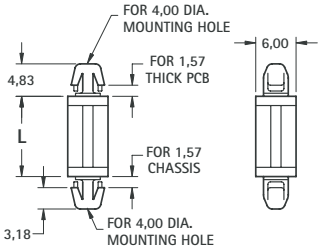


MALE/FEMALE CAT. NO.	L	FEMALE CAT. NO.
5.0 HEX (M3 THREAD)		
—	6.0	25508
—	8.0	25509
25501	10.0	25510
25502	12.0	25511
25503	15.0	25512
25504	18.0	25513
25505	20.0	25514
25506	25.0	25515
6.0 HEX (M4 THREAD)		
—	6.0	25528
—	8.0	25529
25521	10.0	25530
25522	12.0	25531
25523	15.0	25532
25524	18.0	25533
25525	20.0	25534
25526	25.0	25535

Note: Female standoffs longer than 19mm may be tapped from both ends

METRIC NYLON LOCK-IN SUPPORT

- One end locks into chassis, the other end locks into the PC Board.

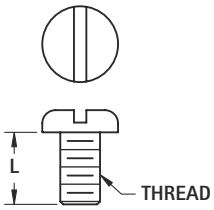


CAT. NO.	L DIM
8843	3.0
8844	4.0
8845	6.0
8846	8.0
8847	10.0
8848	12.0
8849	14.0
8850	16.0
8851	18.0

Material: Nylon 6/6, UL Rated 94V-0

METRIC SCREWS

Choice of: Steel, Zinc Plate • Nylon: 6/6, UL Rated 94V-2



STEEL CAT. NO.	L	NYLON 6/6 CAT. NO.
M2.5 THREAD		
29301	6.00	29331
29304	12.00	29334
29306	16.00	29336
M3 THREAD		
29311	6.00	29341
29314	12.00	29344
29316	16.00	29346
29318	25.00	29348
M4 THREAD		
29321	6.00	29351
29324	12.00	29354
29326	16.00	29356
29328	25.00	29358

See page 132 for metric nuts

Tel (718) 956-8900 • Fax (718) 956-9040
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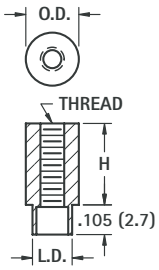
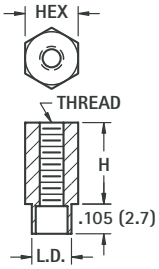
31-07 20th Road – Astoria, NY 11105-2017

SWAGE THREADED STANDOFFS

ROUND



HEX



MATERIAL: Brass, ASTM-B16, Nickel Plate (QQ-N-290)
For .062 (1.52) thick boards

ROUND CAT. NO.	H HEIGHT ABOVE PANEL	L.D. SHANK DIAMETER	HEX CAT NO.
2-56 THREAD × .156 (4.0) O.D.			
1589-2	.125 (3.2)	.125 (3.2)	1731-2
1590-2	.187 (4.7)	.125 (3.2)	1734-2
1591-2	.250 (6.4)	.125 (3.2)	1740-2
1596-2	.375 (9.5)	.125 (3.2)	1743-2
4-40 THREAD × .187 (4.7) O.D.			
2260-2	.125 (3.2)	.139 (3.5)	2270-2
2261-2	.187 (4.7)	.139 (3.5)	2271-2
2262-2	.250 (6.4)	.139 (3.5)	2272-2
2263-2	.375 (9.5)	.139 (3.5)	2273-2
2264-2	.500 (12.7)	.139 (3.5)	2274-2
4-40 THREAD × .250 (6.4) O.D.			
1560A	.125 (3.2)	.187 (4.7)	1653-2
1790-2	.187 (4.7)	.187 (4.7)	1746-2
1650-2	.250 (6.4)	.187 (4.7)	1627-2
1651-2	.375 (9.5)	.187 (4.7)	1628-2
1623-2	.500 (12.7)	.187 (4.7)	1629-2
1624-2	.625 (15.9)	.187 (4.7)	1654-2
1625-2	.750 (19.1)	.187 (4.7)	1655-2
1792-2	.875 (22.2)	.187 (4.7)	1749-2
1652-2	1.000 (25.4)	.187 (4.7)	1630-2
6-32 THREAD × .250 (6.4) O.D.			
1560B	.125 (3.2)	.187 (4.7)	1620-2
1612-2	.187 (4.7)	.187 (4.7)	1752-2
1546	.250 (6.4)	.187 (4.7)	1621-2
1561B	.375 (9.5)	.187 (4.7)	1622-2
1604-2	.500 (12.7)	.187 (4.7)	1758-2
1605-2	.625 (15.9)	.187 (4.7)	1759-2
1608-2	.750 (19.1)	.187 (4.7)	1761-2
1796-2	.875 (22.2)	.187 (4.7)	1775-2
1609-2	1.000 (25.4)	.187 (4.7)	1784-2

FORCE-FIT STANDOFFS

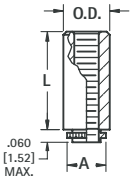
ROUND

A broaching-type fastener/standoff for installation in panels and circuit boards .060 (1.52) and thicker made of plastic and other non-ductile materials. Available threaded or with clearance holes. Easy to install, presses into punched or drilled holes.

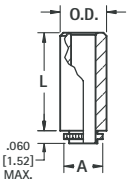
MATERIAL: Stainless Steel per ASTM-A581/A582

MOUNTING HOLES:
.147 (3.7) hole for 2-56
.166 (4.2) hole for 4-40
.213 (5.4) hole for 6-32

TOLERANCE ON MOUNTING HOLES:
+.003/-.000



Threaded



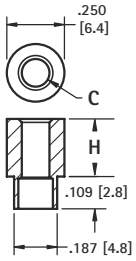
Clear Hole

THREADED				
CAT. NO.	L LENGTH	O.D.	A	THREAD
4860	.065 (1.7)	.219 (5.6)	.165 (4.2)	2-56
4861	065 (1.7)	.219 (5.6)	.184 (4.7)	4-40
4862	.125 (3.2)	.219 (5.6)	.184 (4.7)	
4863	.250 (6.4)	.219 (5.6)	.184 (4.7)	
4864	.375 (9.5)	.219 (5.6)	.184 (4.7)	
4865 *	.500 (12.7)	.219 (5.6)	.184 (4.7)	
4866	.065 (1.7)	.281 (7.1)	.231 (5.9)	6-32
4867	.125 (3.2)	.281 (7.1)	.231 (5.9)	
4868	.250 (6.4)	.281 (7.1)	.231 (5.9)	
4869	.375 (9.5)	.281 (7.1)	.231 (5.9)	
4870 *	.500 (12.7)	.281 (7.1)	.231 (.59)	

*Thread depth .375 (9.5)

CLEAR HOLE				
CAT. NO.	L LENGTH	O.D.	A	HOLE
4850	.065 (1.7)	.219 (5.6)	.184 (4.7)	.116 (2.9) For # 4
4851	.125 (3.2)	.219 (5.6)	.184 (4.7)	
4852	.250 (6.4)	.219 (5.6)	.184 (4.7)	
4853	.375 (9.5)	.219 (5.6)	.184 (4.7)	
4854	.500 (12.7)	.219 (5.6)	.184 (4.7)	
4855	.065 (1.7)	.281 (7.1)	.231 (5.9)	.143 (3.6) For # 6
4856	.125 (3.2)	.281 (7.1)	.231 (5.9)	
4857	.250 (6.4)	.281 (7.1)	.231 (5.9)	
4858	.375 (9.5)	.281 (7.1)	.231 (5.9)	
4859	.500 (12.7)	.281 (7.1)	.231 (5.9)	

SWAGE CLEAR HOLE SPACERS

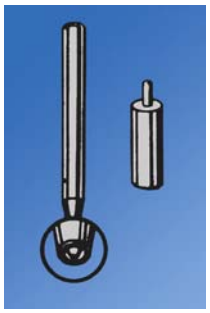


CAT. NO.	H HEIGHT ABOVE PANEL	C HOLE
5058-2	.125 (3.2)	.120 (3.0) For # 4
5060-2	.250 (6.4)	
5061-2	.375 (9.5)	
5062-2	.500 (12.7)	
5059-2	.125 (3.2)	.140 (3.5) For # 6
5063-2	.250 (6.4)	
5064-2	.375 (9.5)	
5065-2	.500 (12.7)	

MATERIAL: Brass, ASTM-B16, Nickel Plate (QQ-N-290)
For .062 (1.52) thick boards

SWAGE STAKING TOOLS

Precision made staking tool kits are made from .250 (6.4) diameter heat treated steel, zinc plated. Each kit includes the correct swage top staking tool anvil to create a professional appearance. These tools may be used with an arbor press or hand tapped.



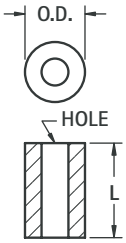
CAT. NO.	STANDOFF DIA.	THREAD	HOLE SIZE
TL-19	.156 (4.0)	2-56	–
TL-22	.187 (4.7)	4-40	–
TL-20	.250 (6.4)	4-40	–
TL-21	.250 (6.4)	6-32	.120 (3.0)

ROUND CLEAR HOLE SPACERS

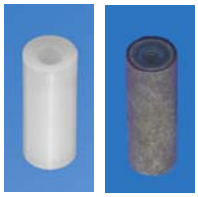
CLEAR HOLE	O.D.	L LENGTH	BRASS CAT. NO.	ALUMINUM CAT. NO.
.120 (3.0) For #4	.250 (6.4)	.125 (3.2)	1909	2036
		.250 (6.4)	1454A	3457
		.375 (9.5)	1454B	3458
		.500 (12.7)	1454C	3459
		.625 (15.9)	1919	2314
		.750 (19.1)	1454D	3460
		.875 (22.2)	1920	3402
		1.000 (25.4)	1454E	3461
		1.500 (38.1)	1924	3462
		2.000 (50.8)	1925	3463
.140 (3.5) For #6	.250 (6.4)	.125 (3.2)	1934	3403
		.250 (6.4)	1457A	3464
		.375 (9.5)	1457B	3465
		.500 (12.7)	1457C	3466
		.625 (15.9)	1935	3429
		.750 (19.1)	1457D	3467
		.875 (22.2)	1936	3438
		1.000 (25.4)	1457E	3468
		1.500 (38.1)	1937	3469
		2.000 (50.8)	1938	3470
.171 (4.3) For #8	.250 (6.4)	.125 (3.2)	1942	4258
		.250 (6.4)	1480	3471
		.375 (9.5)	1481	3472
		.500 (12.7)	1482	3473
		.625 (15.9)	2032	4259
		.750 (19.1)	1483	3474
		.875 (22.2)	2033	4260
		1.000 (25.4)	1484	3475
		1.500 (38.1)	2034	3476
		2.000 (50.8)	2035	3477
.196 (5.0) For #10	.312 (7.9)	.250 (6.4)	1662	4261
		.375 (9.5)	1663	4262
		.500 (12.7)	1664	4263
		.625 (15.9)	1665	4264
		.750 (19.1)	1666	4265
		.875 (22.2)	1667	4266
		1.000 (25.4)	1668	4267
		1.500 (38.1)	1669	4268
		2.000 (50.8)	1672	4269

MATERIAL:
Brass: ASTM-B16, Nickel Plate (QQ-N-290)
Aluminum: ASTM B211, Clear Iridite (MIL-C-5541)
Nylon: Nylon 6/6, UL Rated 94V-2
Phenolic: PBE Grade Natural Color Phenolic

BRASS | ALUMINUM



NYLON | PHENOLIC



NYLON CAT. NO.	PHENOLIC CAT. NO.	L LENGTH	O.D.	CLEAR HOLE
875	—	.125 (3.2)	.250 (6.4)	.120 (3.0) For #4
876	360	.250 (6.4)		
877	361	.375 (9.5)		
878	362	.500 (12.7)		
879	—	.625 (15.9)		
880	363	.750 (19.1)		
881	—	.875 (22.2)		
882	364	1.000 (25.4)		
779	365	1.500 (38.1)		
—	366	2.000 (50.8)		
883	—	.125 (3.2)	.250 (6.4)	.140 (3.5) For #6
884	367	.250 (6.4)		
885	368	.375 (9.5)		
886	369	.500 (12.7)		
887	—	.625 (15.9)		
888	370	.750 (19.1)		
889	—	.875 (22.2)		
890	371	1.000 (25.4)		
789	372	1.500 (38.1)		
—	373	2.000 (50.8)		
891	—	.125 (3.2)	.250 (6.4)	.171 (4.3) For #8
892	1490	.250 (6.4)		
893	1491	.375 (9.5)		
894	1492	.500 (12.7)		
895	—	.625 (15.9)		
896	1493	.750 (19.1)		
897	—	.875 (22.2)		
898	1494	1.000 (25.4)		
799	374	1.500 (38.1)		
—	375	2.000 (50.8)		
790	453	.250 (6.4)	.312 (7.9)	.196 (5.0) For #10
791	454	.375 (9.5)		
792	455	.500 (12.7)		
793	—	.625 (15.9)		
794	456	.750 (19.1)		
795	—	.875 (22.2)		
796	457	1.000 (25.4)		
797	458	1.500 (38.1)		
—	459	2.000 (50.8)		

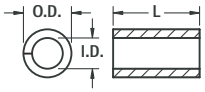
ALUMINUM ECONOMY SPACERS

- Made of flat strip aluminum and rolled on precision equipment.
- Assures maximum bearing surface, square ends.

Aluminum:
5052-H34 per QQ-A-250/8b

SPACER FOR	I.D.	O.D. REF.
# 4	.120 (3.0)	.167 (4.3)
# 6	.148 (3.8)	.193 (4.9)
# 8	.176 (4.5)	.232 (5.9)

- Tight Joint on Outside Diameter

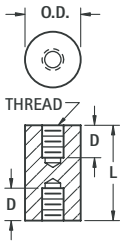


L LENGTH	SCREW CLEARANCE # 4 CAT. NO.	# 6 CAT. NO.	# 8 CAT. NO.
.187 (4.7)	397	—	—
.250 (6.4)	398	405	412
.312 (7.9)	399	406	413
.375 (9.5)	400	407	414
.437 (11.1)	401	408	415
.500 (12.7)	402	409	416
.625 (15.9)	403	410	417

L LENGTH	SCREW CLEARANCE # 4 CAT. NO.	# 6 CAT. NO.	# 8 CAT. NO.
.750 (19.1)	418	425	432
.875 (22.2)	419	426	433
1.000 (25.4)	420	427	434
1.250 (31.8)	421	428	435
1.500 (38.1)	422	429	436
1.750 (44.5)	—	430	437
2.000 (50.8)	—	—	438

CERAMIC STANDOFFS

- Ideal for very high temperature conditions
- Commercial and military types available
- Military types meet MIL-1-010, NL # clearly marked
- Exceptional strength in compression and tension
- Withstands very high voltage without flashover
- Special sizes available upon request



MATERIAL: Grade L5 Ceramic

COMMERCIAL

CAT. NO.	L LENGTH	O.D.	T THREAD	D DEPTH
7710	.250 (6.4)	.250 (6.4)	6-32	THRU
7711	.500 (12.7)	.250 (6.4)	6-32	.156 (4.0)
7712	.375 (9.5)	.375 (9.5)	6-32	.156 (4.0)
7713	.500 (12.7)	.375 (9.5)	6-32	.156 (4.0)
7714	.500 (12.7)	.500 (12.7)	6-32	.140 (3.6)
7715	.750 (19.1)	.500 (12.7)	6-32	.250 (6.4)
7716	1.000 (25.4)	.500 (12.7)	6-32	.375 (9.5)
7717	1.500 (38.1)	.500 (12.7)	6-32	.562 (14.3)
7718	2.500 (63.5)	.500 (12.7)	6-32	.500 (12.7)
7719	2.500 (63.5)	.750 (19.1)	1/4 - 20	.750 (19.1)
7720	4.000 (101.6	.750 (19.1)	1/4 - 20	.750 (19.1)

MILITARY

CAT. NO.	L LENGTH	O.D.	T THREAD	D DEPTH	NL #
7661	.500 (12.7)	.375 (9.5)	6-32	.156 (4.0)	NL523W01-004
7662	.625 (15.9)	.375 (9.5)	6-32	.250 (6.4)	NL523W01-005
7663	.625 (15.9)	.500 (12.7)	8-32	.187 (4.7)	NL523W02-005
7664	.750 (19.1)	.375 (9.5)	6-32	.250 (6.4)	NL523W01-006
7665	.750 (19.1)	.500 (12.7)	8-32	.250 (6.4)	NL523W02-006
7666	1.000 (25.4)	.375 (9.5)	6-32	.375 (9.5)	NL523W01-008
7667	1.000 (25.4)	.500 (12.7)	8-32	.375 (9.5)	NL523W02-008
7668	1.000 (25.4)	.750 (19.1)	10-32	.375 (9.5)	NL523W03-008
7669	1.250 (31.8)	.375 (9.5)	6-32	.375 (9.5)	NL523W01-010
7670	1.250 (31.8)	.500 (12.7)	8-32	.375 (9.5)	NL523W02-010
7671	1.250 (31.8)	1.000 (25.4)	1/4 - 20	.437 (11.1)	NL523W04-010
7672	1.500 (38.1)	.375 (9.5)	6-32	.375 (9.5)	NL523W01-012
7673	1.500 (38.1)	.500 (12.7)	8-32	.375 (9.5)	NL523W02-012
7674	1.500 (38.1)	.750 (19.1)	10-32	.375 (9.5)	NL523W03-012
7675	1.500 (38.1)	1.000 (25.4)	1/4 - 20	.500 (12.7)	NL523W04-012
7676	2.000 (50.8)	.375 (9.5)	6-32	.375 (9.5)	NL523W01-016
7677	2.000 (50.8)	.500 (12.7)	8-32	.375 (9.5)	NL523W02-016
7678	2.000 (50.8)	.750 (19.1)	10-32	.375 (9.5)	NL523W03-016

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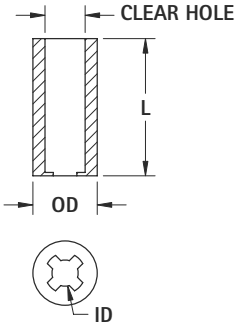
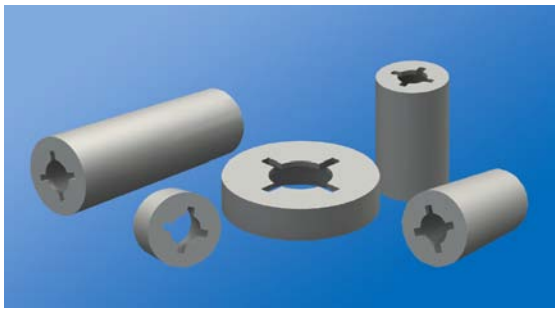
NYLON RETAINING SPACERS

Similar to our standard spacers, but with a specially configured I.D. designed to grip the outside of the screw shank. The spacer slides on the screw easily, but is retained on the screw. For use in applications requiring pre-assembly of the screw and spacer, to reduce final assembly cost.





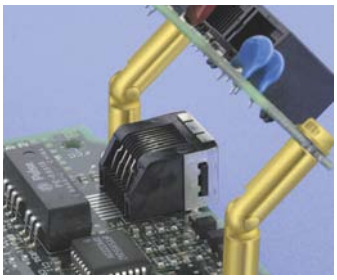
CAT. NO.	.156 (3.9) Clear Hole for #4 Screw		
	LENGTH	O.D.	I.D.
2341	.125 (3.2)	.250 (6.4)	.102 (2.6)
2342	.250 (6.4)		
2343	.375 (9.5)		
2344	.500 (12.7)		
2345	.625 (15.9)		
2346	.750 (19.1)		
2347	.875 (22.2)		
2348	1.00 (25.4)		

CAT. NO.	.198 (5.0) Clear Hole for #6 Screw		
	LENGTH	O.D.	I.D.
2361	.125 (3.2)	.312 (7.9)	.128 (3.3)
2362	.250 (6.4)		
2363	.375 (9.5)		
2364	.500 (12.7)		
2365	.625 (15.9)		
2366	.750 (19.1)		
2367	.875 (22.2)		
2368	1.00 (25.4)		

CAT. NO.	.240 (6.1) Clear Hole for #8 Screw		
	LENGTH	O.D.	I.D.
2381	.125 (3.2)	.375 (9.5)	.152 (3.8)
2382	.250 (6.4)		
2383	.375 (9.5)		
2384	.500 (12.7)		
2385	.625 (15.9)		
2386	.750 (19.1)		
2387	.875 (22.2)		
2388	1.00 (25.4)		

CAT. NO.	.277 (7.0) Clear Hole for #10 Screw		
	LENGTH	O.D.	I.D.
2391	.125 (3.2)	.500 (12.7)	.177 (4.5)
2392	.250 (6.4)		
2393	.375 (9.5)		
2394	.500 (12.7)		
2395	.625 (15.9)		
2396	.750 (19.1)		
2397	.875 (22.2)		
2398	1.00 (25.4)		

HINGED STANDOFFS

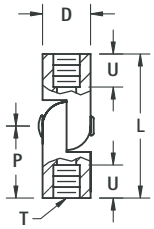


- Applications unlimited
- Time saving
- Space saving
- Interconnect circuits or services without danger of shorting

MATERIAL:
Brass, ASTM-B16. Zinc Plate and Yellow Chromate

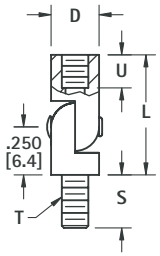
FEMALE/FEMALE

CAT. NO.	L LENGTH	U	P	D DIAMETER	T THREAD
351	.750 (19.1)	.172 (4.4)	.375 (9.5)	.187 (4.7)	4-40
352	1.000 (25.4)	.250 (6.4)	.625 (15.9)		
330	1.250 (31.8)	.250 (6.4)	.625 (15.9)		
353	.750 (19.1)	.172 (4.4)	.375 (9.5)	.250 (6.4)	6-32
354	1.000 (25.4)	.250 (6.4)	.625 (15.9)		
331	1.250 (31.8)	.250 (6.4)	.625 (15.9)		
355	.750 (19.1)	.172 (4.4)	.375 (9.5)	.250 (6.4)	8-32
356	1.000 (25.4)	.250 (6.4)	.625 (15.9)		
332	1.250 (31.8)	.250 (6.4)	.625 (15.9)		



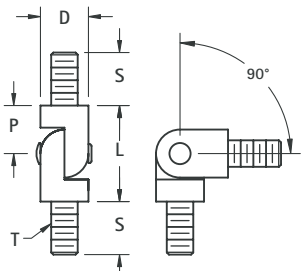
MALE/FEMALE

CAT. NO.	L LENGTH	S	U	D DIAMETER	T THREAD
333	.625 (15.9)	.250 (6.4)	.172 (4.4)	.187 (4.7)	4-40
334	.875 (22.2)	.250 (6.4)	.250 (6.4)		
335	.625 (15.9)	.312 (7.9)	.172 (4.4)	.250 (6.4)	6-32
336	.875 (22.2)	.312 (7.9)	.250 (6.4)		
337	.625 (15.9)	.312 (7.9)	.172 (4.4)	.250 (6.4)	8-32
338	.875 (22.2)	.312 (7.9)	.250 (6.4)		



MALE/MALE

CAT. NO.	L LENGTH	S	P	D DIAMETER	T THREAD
357	.500 (12.2)	.250 (6.4)	.250 (6.4)	.187 (4.7)	4-40
358	.500 (12.2)	.312 (7.9)	.250 (6.4)	.250 (6.4)	6-32
359	.500 (12.2)	.312 (7.9)	.250 (6.4)	.250 (6.4)	8-32



INSULATED PC SPACER/SUPPORTS

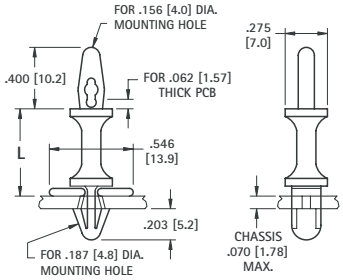
- Board will be electrically insulated, eliminates need for insulating washers
- No tool required for installation
- Easy snap-in assembly
- One pieces design eliminates the need for additional screws and nuts
- Fits snug onto board
- Accommodates varying board thicknesses
- Flame retardant

SLIMLINE TENSION-FIT

.156 (4.0)

.187 (4.8)

- One end permanently attaches to .070 (1.78) max. thick chassis
- Other end tension fits to .062 (1.57) max. thick PC board
- Board is easily releasable for repairs or upgrades
- Low insertion force



CAT. NO.	L LENGTH
1927A	.250 (6.4)
1928A	.375 (9.5)
1929A	.500 (12.7)
1930A	.625 (15.9)
1931A	.750 (19.1)
1932A	.875 (22.2)
1933A	1.000 (25.4)

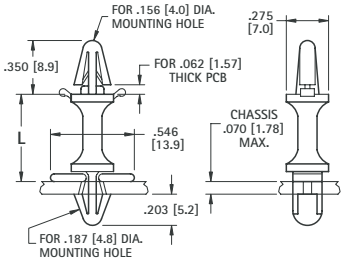
MATERIAL: Nylon 6/6, UL Rated 94V-0

SLIMLINE LOCK-IN

.156 (4.0)

.187 (4.8)

- One end permanently attaches to .070 (1.78) max. thick chassis
- Other end permanently attaches to .062 (1.57) max. thick PC board
- Low insertion force
- Small footprint frees up board space.



CAT. NO.	L LENGTH
1927B	.250 (6.4)
1928B	.375 (9.5)
1929B	.500 (12.7)
1930B	.625 (15.9)
1931B	.750 (19.1)
1932B	.875 (22.2)
1933B	1.000 (25.4)

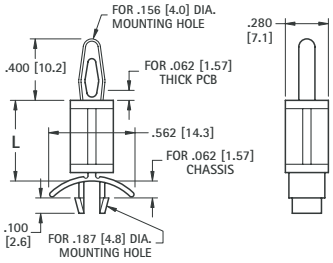
MATERIAL: Nylon 6/6, UL Rated 94V-0

STURDY TENSION-FIT

.156 (4.0)

.187 (4.8)

- One end permanently attaches to .031(.79) -.078 (2.0) thick chassis
- Other end tension fits to .062 (1.57) max thick PC board
- Board is easily releasable for repairs or upgrades
- Sturdy support due to high contact area



CAT. NO.	L LENGTH
8800	.187 (4.7)
8801	.250 (6.4)
8802	.375 (9.5)
8803	.500 (12.7)
8804	.625 (15.9)
8805	.750 (19.1)
8806	.875 (22.2)

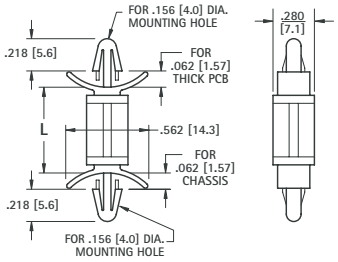
MATERIAL: Nylon 6/6, UL Rated 94V-0

STURDY LOCK-IN

.156 (4.0)

.156 (4.0)

- Both ends permanently attaches to .031 (.79) - .078 (2.0) thick chassis or board
- Sturdy support due to high contact area



CAT. NO.	L LENGTH
8815	.187 (4.7)
8816	.250 (6.4)
8817	.375 (9.5)
8818	.500 (12.7)
8819	.625 (15.9)
8820	.750 (19.1)
8821	.875 (22.2)

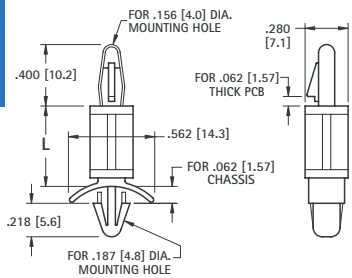
MATERIAL: Nylon 6/6, UL Rated 94V-0

STURDY LOCK-IN RELEASE

.156 (4.0)

.187 (4.8)

- Locks onto .062 (1.57) thick PC board
- Board is positively locked until manually released
- Board is easily releasable for repairs or upgrades
- Sturdy support due to high contact area with chassis



CAT. NO.	L LENGTH
8807	.187 (4.7)
8808	.250 (6.4)
8809	.375 (9.5)
8810	.500 (12.7)
8811	.625 (15.9)
8812	.750 (19.1)
8813	.875 (22.2)
8814	1.000 (25.4)

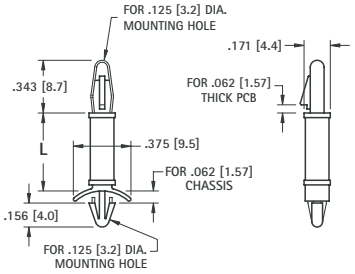
MATERIAL: Nylon 6/6, UL Rated 94V-0

SLIMLINE LOCK-IN RELEASE

.125 (3.2)

.125 (3.2)

- Locks onto .062 (1.57) thick PC board
- Board is positively locked until manually unlocked
- Board is easily releasable for repairs or upgrades
- Compact design uses smaller mounting holes



CAT. NO.	L LENGTH
8871	.187 (4.7)
8872	.250 (6.4)
8873	.375 (9.5)
8874	.500 (12.7)
8875	.625 (15.9)

MATERIAL: Nylon 6/6, UL Rated 94V-0

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INSULATED PC SPACERS/SUPPORTS

• Board will be electrically insulated, eliminates need for insulating washers • Easy snap-in assembly
• No tool required for installation • Designed for .062 (1.57) thick boards

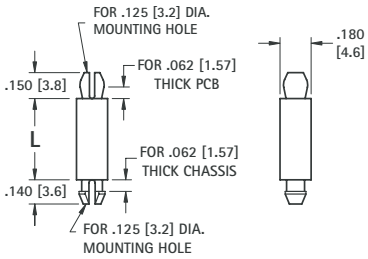
• One piece design eliminates the need for additional screws and nuts • Slim design frees up board space

TENSION-FIT

.125 (3.2)

.125 (3.2)

- One end permanently attaches to chassis
- Other end secures board with tension fit.
- Board easily releasable for repairs or upgrades



CAT. NO.	L LENGTH
8879	.125 (3.2)
8880	.187 (4.7)
8881	.250 (6.4)
8882	.375 (9.5)
8883	.500 (12.7)
8884	.625 (15.9)
8885	.750 (19.1)
8886	.875 (22.2)
8887	1.000 (25.4)

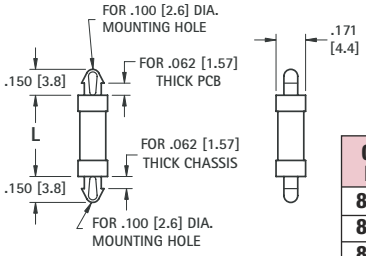
MATERIAL: Nylon 6/6, UL Rated 94V-0

EASY LOCK-IN

.100 (2.6)

.100 (2.6)

- Both ends permanently attach to chassis and board
- Teardrop style mounting end eases assembly
- Low protrusion above board and under chassis



CAT. NO.	L LENGTH
8888	.125 (3.2)
8889	.187 (4.7)
8890	.250 (6.4)
8891	.375 (9.5)
8892	.500 (12.7)
8893	.625 (15.9)

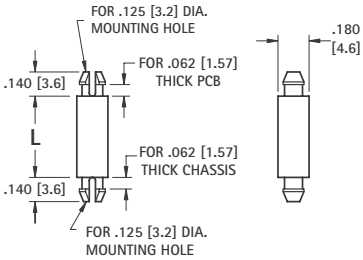
MATERIAL: Nylon 6/6, UL Rated 94V-0

LOCK-IN

.125 (3.2)

.125 (3.2)

- Both ends permanently attach to chassis and board
- Secure mounting end design allows for taller spacing



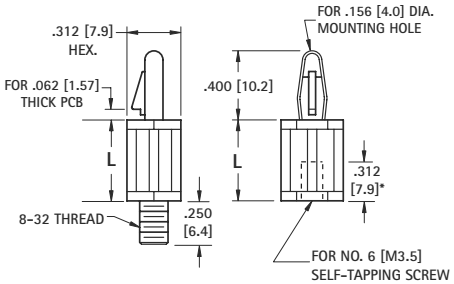
CAT. NO.	L LENGTH
9018	.125 (3.2)
9019	.187 (4.7)
9020	.250 (6.4)
9021	.375 (9.5)
9022	.500 (12.7)
9023	.625 (15.9)
9024	.750 (19.1)
9025	.875 (22.2)
9026	1.000 (25.4)

MATERIAL: Nylon 6/6, UL Rated 94V-0

THREADED

.156 (4.0)

THREAD



- One end attaches to chassis with screw or tapped hole
- Other end snap locks onto .062 (1.6) board
- Board is releasable for easy repair or upgrades

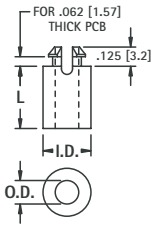
MALE CAT. NO.	L LENGTH	FEMALE CAT. NO.
9048	.250 (6.4)	9041
9049	.375 (9.5)	9042
9050	.500 (12.7)	9043
9051	.625 (15.9)	9044
9052	.750 (19.1)	9045
9053	.875 (22.2)	9046
9054	1.000 (25.4)	9047

MATERIAL: Nylon 6/6, UL Rated 94V-0

THRU HOLE SPACERS

One end locks into panel. Clear hole designs for #4, #6 or #8 screw.

- Base has larger surface area. Will not deform under heavy pre-load.



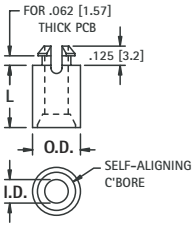
CAT. NO.	L LENGTH	Outside Diameter	Inside Diameter	Mounting Hole	Screw Size
9027	.125 (3.2)	.260 (6.6)	.125 (3.2)	.187 (4.7)	#4
9028	.187 (4.7)				
9029	.250 (6.4)				
9030	.375 (9.5)				
9031	.500 (12.7)				
9032	.625 (15.9)				
9033	.250 (6.4)	.281 (7.1)	.153 (3.9)	.234 (5.9)	#6
9034	.375 (9.5)				
9035	.500 (12.7)				
9036	.625 (15.9)				
9037	.250 (6.4)	.281 (7.1)	.169 (4.3)	.234 (5.9)	#8
9038	.375 (9.5)				
9039	.500 (12.7)				
9040	.625 (15.9)				

MATERIAL: Nylon 6/6, UL Rated 94V-0

STACKING SPACERS

One end locks into panel. Clear hole designs for #4, #6 or #8 screw.

- Spacers can be stacked for multiple level PC board applications
- Self-aligning



CAT. NO.	L LENGTH	Outside Diameter	Inside Diameter	Mounting Hole	Screw Size
8829	.125 (3.2)	.260 (6.6)	.125 (3.2)	.187 (4.7)	#4
8830	.187 (4.7)				
8831	.250 (6.4)				
8832	.375 (9.5)				
8833	.500 (12.7)				
8834	.625 (15.9)				
8835	.250 (6.4)	.312 (7.9)	.153 (3.9)	.234 (5.9)	#6
8836	.375 (9.5)				
8837	.500 (12.7)				
8838	.625 (15.9)				
8839	.250 (6.4)	.312 (7.9)	.169 (4.3)	.234 (5.9)	#8
8840	.375 (9.5)				
8841	.500 (12.7)				
8842	.625 (15.9)				

MATERIAL: Nylon 6/6, UL Rated 94V-0

INSULATED PC SPACERS/SUPPORTS

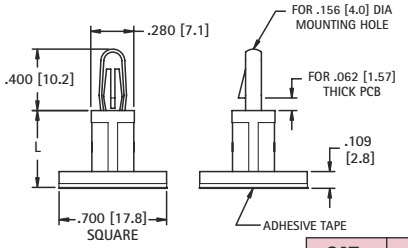
- Board will be electrically insulated, eliminates need for insulating washers
- No tool required for installation • Easy snap-in assembly

ADHESIVE LOCK-IN RELEASE SUPPORTS

- One end attaches to chassis with self adhesive pads
- No drilling to chassis required leaving outside in perfect condition
- Other end snap into .062 (1.57) board
- Board is easily releasable for repair or upgrade

ADHESIVE MOUNT

.156 (4.0)

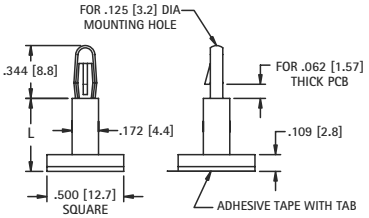


CAT. NO.	L LENGTH
9080	.187 (4.7)
9081	.250 (6.4)
9082	.375 (9.5)
9083	.500 (12.7)
9084	.625 (15.9)

Material: Nylon 6/6, UL Rated 94V-0

ADHESIVE MOUNT SLIMLINE

.125 (3.2)



CAT. NO.	L LENGTH
9070	.187 (4.7)
9071	.250 (6.4)
9072	.375 (9.5)
9073	.500 (12.7)
9074	.625 (15.9)

Material: Nylon 6/6, UL Rated 94V-0

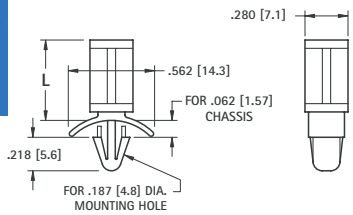
PC SPACER SUPPORTS

- One end locks into chassis • Other end supports the PC Board • Ideal for mid supports of large boards
- Simplifies assembly for multiple support applications • Reduces the amount of holes required in PC board

STURDY SUPPORT

.187 (4.8)

- One end permanently attaches to .062 (1.57) chassis
- Accommodates varying board thicknesses
- Sturdy support due to large contact area



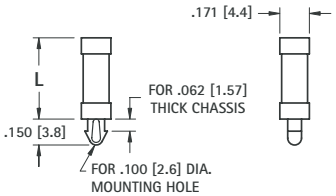
CAT. NO.	L LENGTH
8822	.187 (4.7)
8823	.250 (6.4)
8824	.375 (9.5)
8825	.500 (12.7)
8826	.625 (15.9)
8827	.750 (19.1)
8828	.875 (22.2)

Material: Nylon 6/6, UL Rated 94V-0

SLIMLINE SUPPORT

.100 (2.8)

- One end permanently attaches to .062 (1.57) chassis
- Low protrusion under chassis
- Small diameter frees up space on PC board



CAT. NO.	L LENGTH
9055	.125 (3.2)
9056	.187 (4.7)
9057	.250 (6.4)
9058	.375 (9.5)
9059	.500 (12.7)
9060	.625 (15.9)

Material: Nylon 6/6, UL Rated 94V-0

REVERSE CHASSIS MOUNT SUPPORTS

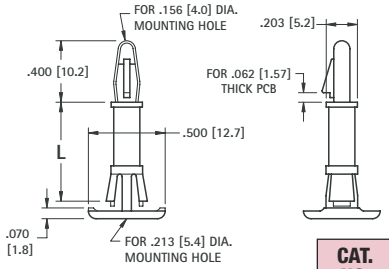
- Permanently attaches to .059 (1.51) - .065 (1.65) thick case from outside
- Provides flat clean cosmetic appearance • Ideal for low clearance applications or for mounting directly to case walls

LOCK-IN RELEASE

.156 (4.0)

.213 (5.4)

- End locks onto .062 (1.57) PC board
- Board is positively locked until manually released
- Board is easily releasable for repairs or upgrades



CAT. NO.	L LENGTH
9061	.250 (6.4)
9062	.375 (9.5)
9063	.500 (12.7)
9064	.625 (15.9)

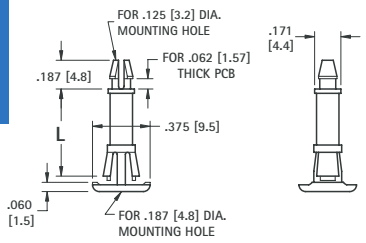
Material: Nylon 6/6, UL Rated 94V-0

SLIMLINE LOCK-IN

.125 (3.2)

.187 (4.8)

- End permanently attaches to .062 (1.57) PC board
- Small footprint frees up PC board space



CAT. NO.	L LENGTH
9065	.250 (6.4)
9066	.375 (9.5)
9067	.500 (12.7)
9068	.625 (15.9)

Material: Nylon 6/6, UL Rated 94V-0

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SPACERS/STANDOFF ORGANIZER KITS

Maintain a neat complete inventory of the most frequently used spacers and standoffs in day-to-day operations. Choice of 14 different kits of the most popular spacers and standoffs. An assortment of various sizes and styles in Brass, Aluminum and Nylon with tapped or thru hole. Supplied with clear draw cabinet labeled for easy identification.

Kits combine the most frequently used spacers or standoffs for stacking and a multi-stacking prototyping.

CLEAR HOLE SPACER KITS

SPACER ASSORTMENT KITS

Assortment of 1500 pieces in .250, .375, .500, .750 and 1.000 lengths, with clearance holes for #4, #6 and #8.

100 pieces of each size. Complete with cabinet.

CAT. NO.	KIT SUPPLIED WITH
SPR-13	Brass Nickel Plated Spacers
SPR-34	Aluminum Spacers with Iridite Finish
SPR-8	Nylon 6/6 Spacers

ENGINEERING DESIGN KITS

Assortment of 400 total spacers: Brass, Aluminum, Nylon, Rolled Aluminum, with lengths of .250, .500, .750 and 1.000.

25 pieces of each size. Complete with cabinet.

CAT. NO.	KIT SUPPLIED WITH
SCR-4	#4 Clear Hole Spacers
SCR-6	#6 Clear Hole Spacers
SCR-8	#8 Clear Hole Spacers

THREADED STANDOFF KITS

HEX STANDOFF KITS

Assortment of 400 total standoffs: Female-Female standoffs and Male–Female standoffs both Aluminum and Nylon, with lengths of .250, .500, .750 and 1.000.

25 pieces of each size. Complete with cabinet and 25 machine screws with matching thread.

CAT. NO.	KIT SUPPLIED WITH
STR-440	4-40 Threaded Standoffs
STR-632	6-32 Threaded Standoffs
STR-832	8-32 Threaded Standoffs

METRIC STANDOFF KITS

Assortment of 425 total pieces. Female-Female standoffs and Male-Female standoffs both aluminum and nylon, with lengths of 10mm, 12mm, 15mm and 20mm.

25 pieces of each size. Complete with cabinet and 25 machine screws with matching threads.

CAT. NO.	KIT SUPPLIED WITH
STR-M3	M3 Threaded Standoffs
STR-M4	M4 Threaded Standoffs

FEMALE-FEMALE STANDOFF KITS

Assortment of 1500 pieces in .250, .375, .500, .750 and 1.000 lengths, with thread sizes of 4-40, 6-32, and 8-32.

100 pieces of each size. Complete with cabinet.

CAT. NO.	KIT SUPPLIED WITH
STR-15	Round Brass Zinc Plated Standoffs
STR-35	Round Aluminum Standoffs with Iridite Finish
STH-14	Hex Brass Zinc Plated Standoffs
STH-22	Hex Aluminum Standoff with Iridite Finish

MALE-FEMALE STANDOFF KITS

Brass kit is an assortment of 750 pieces of .500, .750, 1.000, and 1.500 long standoffs with 4-40, 6-32 and 8-32 thread.

Complete with cabinet.

Stainless kit is an assortment of 250 pieces of .250, .500, .750, and 1.000 long standoffs with 4-40, 6-32 and 8-32 thread.

Complete with cabinet and 25 pieces of each screw size.

CAT. NO.	KIT SUPPLIED WITH
STH-19	Brass-Nickel Plate Standoffs
STH-20	Stainless Steel Standoffs

SELF-RETAINING SPACER ENGINEERING DESIGN KIT

Assortment of 400 total pieces per kit of Self Retaining Round Nylon Spacers. Lengths of .125, .250, .500 and .750

25 pieces of each size/style. Complete with cabinet.

CAT. NO.	KIT SUPPLIED WITH
SCR-10	#4, #6, #8 & #10 Spacers

CIRCUIT BOARD SPACER/SUPPORT ENGINEERING DESIGN KITS

Assortment of 400 total pieces per kit of a variety of Circuit Board Hardware in .125, .250, .375 and .500 lengths in Nylon 6/6 material.

25 pieces of each size/style. Complete with cabinet.

CAT. NO.	KIT SUPPLIED WITH
CBH-1	SlimLine Products – Tension Fit; Lock-In, Easy Lock and Single Sided
CBH-2	Lock-In Products - Tension Fit; Lock-In, Easy Lock and Single Sided
CBH-3	Stacking Products – Thru-Hole and Self Aligning

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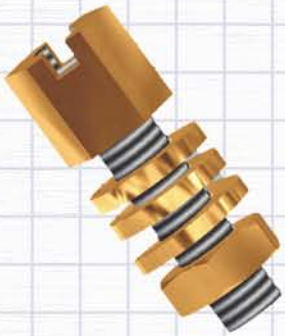
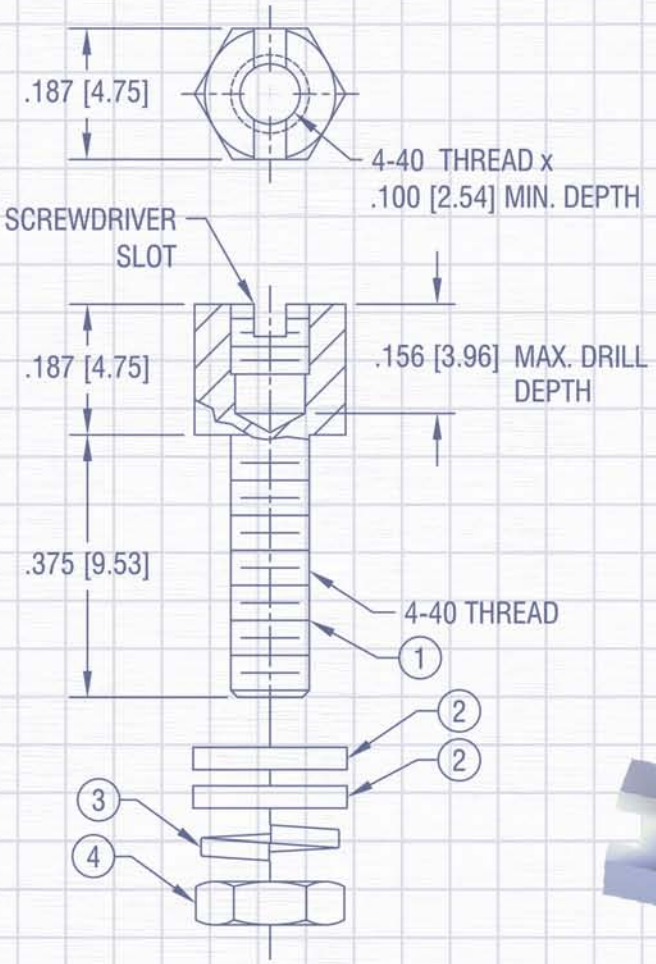




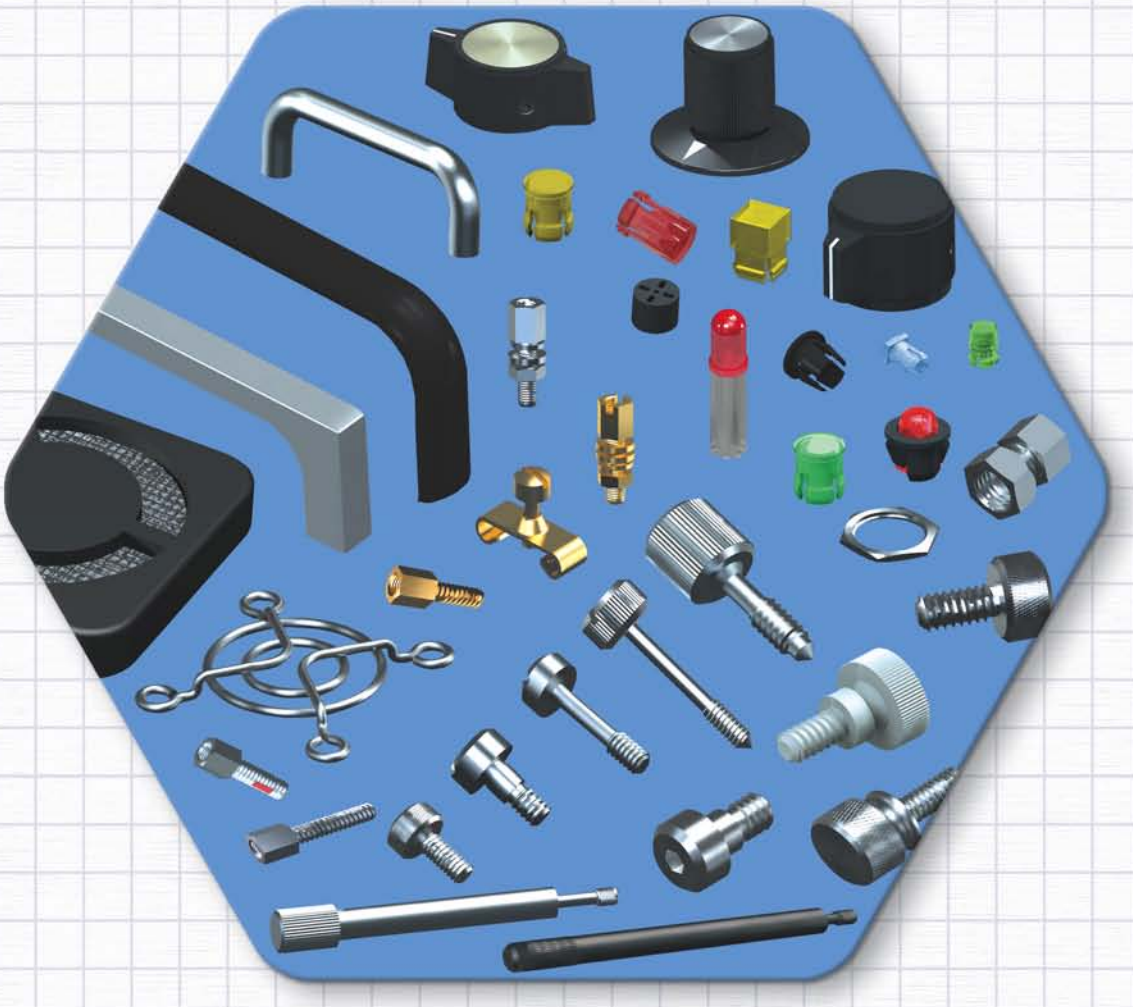
PANEL HARDWARE

Our diverse selection of panel hardware is second to none in the marketplace. Our Handles, Screws, Knobs, Fan Guards and LED lens and mounting spacers provides the right solution for a variety of applications, including:

- Rack Mounted Equipment
- Carrying Cases
- Low Friction Assemblies
- "D" Subminiature connector Hardware
- Instrumentation Panels and Gauges
- Environments where mounting hardware is subject to loss
- For protection from damage or debris
- To dress up chassis access panels, racks or controls

Our quality system is ISO 9001:2008 certified. Our products are in compliance with the RoHS and REACH directives. We provide 3D modeling, CAD and other application-engineering support for modifications, special designs or assembly requirements to assist you in choosing the right Keystone product for your application.

DATE	DESCRIPTION	REV.



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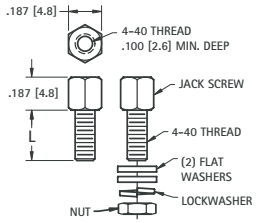
JACK SCREWS

• Equivalent to AMP, CANNON & TRW Jack Screws • "D" subminiature connector mounting screw • Custom lengths available • Hardware supplied unassembled and in bulk

SPECIFICATIONS: YELLOW: Steel, Zinc Plate and Yellow Chromate; **CLEAR:** Steel, Zinc Plate and Clear Chromate; **STAINLESS:** Stainless Steel

STANDARD JACK SCREWS

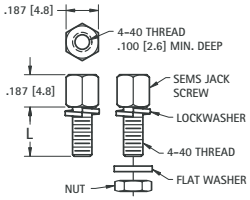


JACK ONLY			L	JACK WITH HARDWARE*		
YELLOW	CLEAR	STAINLESS		YELLOW	CLEAR	STAINLESS
CAT. NO.	CAT. NO.	CAT. NO.	LENGTH	CAT. NO.	CAT. NO.	CAT. NO.
7228	7228-5	7248	.250 (6.4)	7229	7229-5	7249
7230	7230-5	7250	.312 (7.9)	7231	7231-5	7251
7241	7241-5	7252	.375 (9.5)	7242	7242-5	7253
7243	7243-5	7254	.500 (12.7)	7244	7244-5	7255
7232	7232-5	7256	.625 (15.8)	7233	7233-5	7257

*Hardware supplied unassembled in bulk

SEMS JACK SCREWS

• Captivated helical spring lockwasher, simplifies use

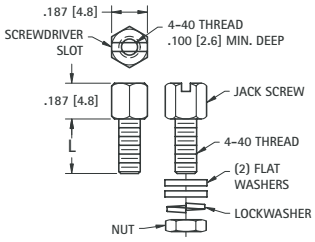


SEMS JACK ONLY		SEMS JACK WITH HARDWARE*
CLEAR	L	CLEAR
CAT. NO.	LENGTH	CAT. NO.
7235	.285 (7.3)	7236
7237	.347 (8.8)	7238
7239	.660 (16.8)	7240

*Hardware supplied unassembled in bulk

SLOTTED JACK SCREWS

• Slot provides ability to install jack with a screwdriver.

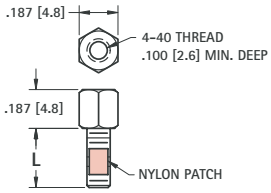


JACK ONLY		L	JACK WITH HARDWARE*	
YELLOW	CLEAR		YELLOW	CLEAR
CAT. NO.	CAT. NO	LENGTH	CAT. NO.	CAT. NO.
7270	7275	.250 (6.3)	7290	7295
7271	7276	.312 (7.9)	7291	7296
7272	7277	.375 (9.5)	7292	7297
7273	7278	.500 (12.7)	7293	7298
7274	7279	.625 (15.8)	7294	7299

*Hardware supplied unassembled in bulk

JACK SCREWS WITH NYLON PATCH

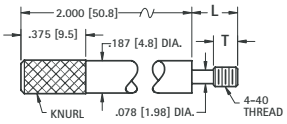
• Nylon patch holds jack firmly in vibration applications.



JACK WITH NYLON PATCH			
YELLOW	CLEAR	STAINLESS	L
CAT. NO.	CAT. NO.	CAT. NO.	LENGTH
7260	7261	7262	.250 (6.4)
7263	7264	7265	.312 (7.9)
7266	7267	7268	.375 (9.5)

TURNABLE JACK SCREWS

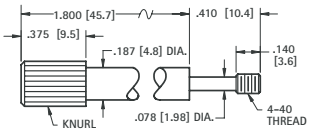
DIRECT ACCESS



MATERIAL: Steel, Black Oxide

WITHOUT SLOT	WITH SLOT	T	L
CAT. NO.	CAT. NO.	DIM.	DIM.
2064	2065	.125 (3.2)	.250 (6.4)
2066	2067	.250 (6.4)	.437 (11.1)

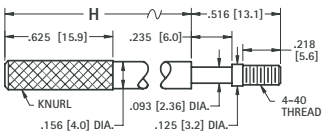
STRAIGHT KNURL



MATERIAL: Steel, Zinc Plate & Clear Chromate

WITHOUT SLOT	WITH SLOT
CAT. NO.	CAT. NO.
2072	2073

SLIM LINE



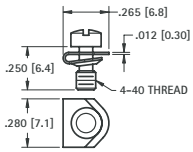
MATERIAL: Steel, Nickel Plate

WITHOUT SLOT	WITH SLOT	H
CAT. NO.	CAT. NO.	DIM.
2068	2069	1.250 (31.8)
2070	2071	1.750 (44.5)

PANEL MOUNTING HARDWARE

"U" CLIP

Supplied Unassembled



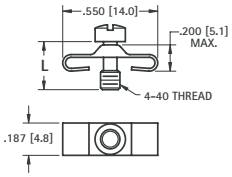
CAT. NO. 2062

MATERIAL:
Clip & Screw: Steel, Zinc Plate & Yellow Chromate

"BOW TIE" RETAINING CLIP

Supplied Unassembled

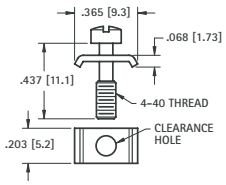
CAT. NO.	L
2060	.250 (6.4)
2061	.281 (7.1)



MATERIAL:
Clip & Screw: Steel, Zinc Plate & Yellow Chromate

SADDLE WASHER

Supplied Unassembled



CAT. NO. 2063

MATERIAL:
Clip & Screw: Steel, Zinc Plate & Yellow Chromate

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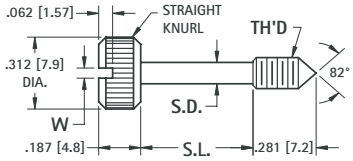
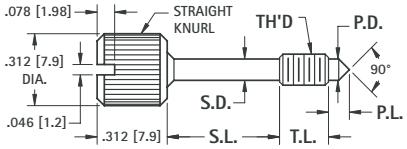
CAPTIVE PANEL SCREWS

MATERIAL: Stainless Steel per ASTM-A581/A-582

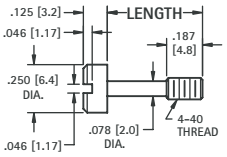




CAT. NO.	THREAD	S.D. ± .005 (.13)	S.L. ± .010 (.25)	W + .015 (+.38)-.000
8700	4-40	.078 (2.0)	.375 (9.5)	.036 (.091)
8701	4-40	.078 (2.0)	.500 (12.7)	.036 (.091)
8702	4-40	.078 (2.0)	.625 (15.9)	.036 (.091)
8703	6-32	.095 (2.41)	.375 (9.5)	.045 (1.14)
8704	6-32	.095 (2.41)	.500 (12.7)	.045 (1.14)
8705	6-32	.095 (2.41)	.625 (15.9)	.045 (1.14)

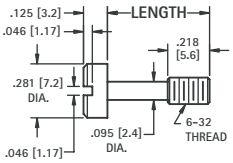
CAT. NO.	THREAD	T.L. ±.015 (.38)	S.D. ±.005 (.13)	S.L. ± .010 (.25)	P.D. +000. -.016 (-.40)	P.L. ± .015 (.38)
8706	4-40	.125 (3.2)	.078 (2.0)	.171 (4.3)	.078 (2.0)	.078 (2.0)
8707	4-40	.125 (3.2)	.078 (2.0)	.296 (7.5)	.078 (2.0)	.078 (2.0)
8708	4-40	.125 (3.2)	.078 (2.0)	.421 (10.7)	.078 (2.0)	.078 (2.0)
8709	6-32	.218 (5.5)	.095 (2.41)	.187 (4.7)	.095 (2.41)	.093 (2.36)
8710	6-32	.218 (5.5)	.095 (2.41)	.312 (7.9)	.095 (2.41)	.093 (2.36)
8711	6-32	.218 (5.5)	.095 (2.41)	.437 (11.1)	.095 (2.41)	.093 (2.36)

4-40



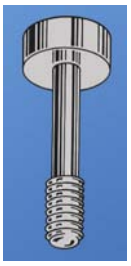
CAT. NO.	LENGTH
2413	.469 (11.9)
2414	.531 (13.4)

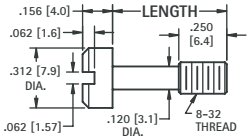
6-32



CAT. NO.	LENGTH
2415	.531 (13.5)
2416	.593 (15.1)
2417	.656 (16.7)

8-32

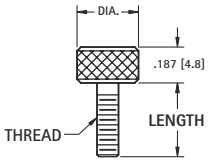




CAT. NO.	LENGTH
2418	.656 (16.7)
2419	.718 (18.2)
2420	.781 (19.8)

THUMB SCREWS

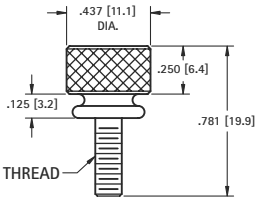
STAINLESS



MATERIAL: Stainless Steel

CAT. NO.	LENGTH	THREAD	DIA
2400	.312 (7.9)	4-40	.312 (7.9)
2401	.375 (9.5)		
2402	.437 (11.1)		
2403	.500 (12.7)		
2404	.312 (7.9)	6-32	.312 (7.9)
2405	.375 (9.5)		
2406	.437 (11.1)		
2407	.500 (12.7)		
2408	.375 (9.5)	8-32	.375 (9.5)
2409	.437 (11.1)		
2410	.500 (12.7)		

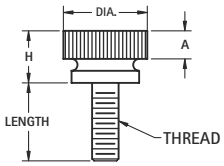
BRASS



MATERIAL: Brass, Nickel Plate

CAT. NO.	THREAD
1708	6-32
1709	8-32
1710	10-32

NYLON



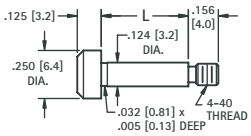
MATERIAL: Nylon 6/6, UL Rated 94V-2

CAT. NO.	LENGTH	THREAD	DIA.	H	A
2500	.250 (6.4)	4-40	.300 (7.6)	.280 (7.1)	.125 (3.2)
2501	.375 (9.5)				
2502	.500 (12.7)				
2503	.250 (6.4)	6-32	.360 (9.1)	.275 (7.0)	.125 (3.2)
2504	.375 (9.5)				
2505	.500 (12.7)				
2506	.250 (6.4)	8-32	.425 (10.8)	.305 (7.7)	.140 (3.6)
2507	.375 (9.5)				
2508	.500 (12.7)				

PRECISION GROUND SHOULDER SCREWS

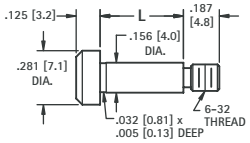
Shoulder ground to +.000/-.001 Dia, +.002 /-.000 Length. **Material:** Stainless Steel, ASTM A581/A582

4-40



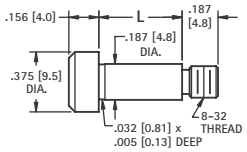
CAT. NO.	LENGTH	CAT. NO.
2421	.125 (3.2)	2441
2422	.250 (6.4)	2442
2423	.375 (9.5)	2443
2424	.500 (12.7)	2444

6-32



CAT. NO.	LENGTH	CAT. NO.
2425	.125 (3.2)	2445
2426	.250 (6.4)	2446
2427	.375 (9.5)	2447
2428	.500 (12.7)	2448

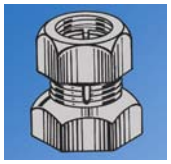
8-32

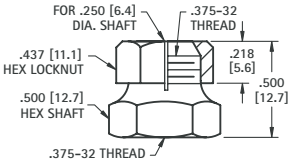


CAT. NO.	LENGTH	CAT. NO.
2431	.125 (3.2)	2451
2432	.250 (6.4)	2452
2433	.375 (9.5)	2453
2434	.500 (12.7)	2454
2435	.625 (15.9)	2455

SHAFT LOCKS

For .250 (6.4) SHAFT

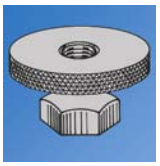


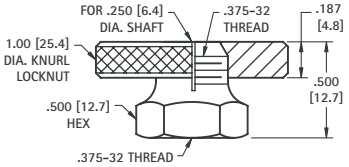


MATERIAL: Brass, Nickel Plate

CAT. NO. 1701

For .250 (6.4) SHAFT

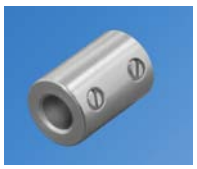




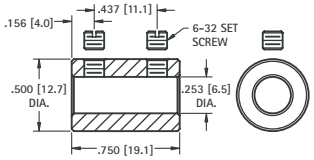
MATERIAL: Brass, Nickel Plate

CAT. NO. 1702

.250 (6.4) SHAFT COUPLING



- Two set screws hold shaft securely

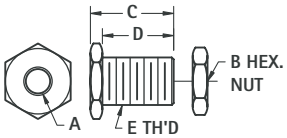


MATERIAL: Brass, Nickel Plate
Set Screws: Steel, Zinc Plate
Supplied unassembled

CAT. NO. 1453

PANEL BEARINGS

STANDARD and MINIATURE

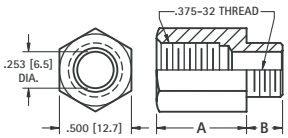


MATERIAL: Brass, Nickel Plate
Supplied unassembled

CAT. NO.	A	B (HEX)	C	D	E THREAD
1705	.253 (6.5)	.437 (11.1)	.500 (12.7)	.437 (11.1)	.375-32 Standard
1706	.128 (3.3)	.343 (8.7)	.437 (11.1)	.375 (9.5)	.250-32 Miniature

VOLUME CONTROL EXTENDERS

For .250 (6.4) volume control shafts having .375-32 threaded bushings.



CAT. NO.	A	B
1464	.625 (15.9)	.250 (6.4)
1465	.625 (15.9)	.375 (9.5)
1466	.687 (17.4)	.500 (12.7)
1467	.750 (19.1)	.250 (6.4)

MATERIAL: Brass, Nickel Plate

PANEL NUTS

For Volume Controls, Switches, Tip Jacks, etc.

CAT. NO.	FOR	THREAD	DIAMETER	THICKNESS
1448	Mounting	1/4 -32	.375 Hex	.093 (2.38)
1449	Mini. Control	1/4 -32	.312 Hex	.078 (1.98)
1456	Vol. Control	3/8 -32	.500 Hex	.093 (2.38)
1458	Switch	15/32 -32	.562 Hex	.078 (1.98)
1459	Switch Ring	15/32-32	.625 Knurled	.062 (1.57)
1472	Filter	15/16 -32	.375 Hex	.093 (2.38)

MATERIAL: Brass,Nickel Plate

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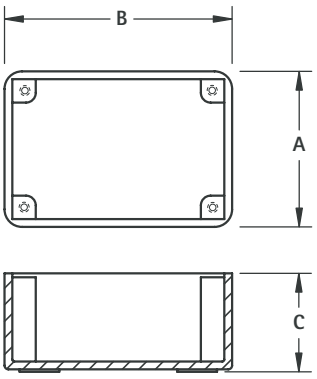
PHENOLIC INSTRUMENT CASES

• Choice of Sizes • Sturdy construction • Flush mounting panels

• Aluminum or Phenolic Panels Available

MATERIALS:
Phenolic Panels: .062 (1.57) Glossy Black Phenolic, MIL-P3115C
Aluminum Panels: .062 (1.57), 5052-H34 per QQ 318 C; Bright finished surface with pressure sensitive protective covering tape



MATERIALS:
Phenolic Cases: .125 (3.2) Wall thickness, Molded Glossy Black Phenolic, MIL-M-14, CFG

- Cases and panels are sold separately
- Covers available in Phenolic or Aluminum
- Covers can be machined to accept dials, switches, displays
- Panel mounting screws available - Refer to page 133
- Sturdy case can be machined for wiring access
- Ideal for prototype or lab use

COVER PANEL	
PHENOLIC PANEL	ALUMINUM PANEL
CAT. NO.	CAT. NO.
2050	2051
2042	2044
2042	2044
2043	2045
2037*	2046
2052*	2053
2038*	2047
2039*	2048

*.093 (2.36)

PHENOLIC CASE				
CAT. NO.	A	B	C	THREAD SIZE AND TYPE
715	2.500 (63.5)	3.500 (88.9)	1.250 (31.8)	4-40 TAPPED
703	2.875 (73.0)	4.000 (101.6)	1.562 (39.7)	4-40 TAPPED
705	2.875 (73.0)	4.000 (101.6)	1.562 (39.7)	USE #4 SELF TAPPING SCREW
704	3.125 (79.4)	5.875 (149.2)	2.250 (57.2)	4-40 TAPPED
700	3.750 (95.3)	6.250 (158.8)	2.000 (50.8)	6-32 BRASS INSERT
716	4.250 (108.0)	5.000 (127.0)	1.750 (44.5)	6-32 BRASS INSERT
701	5.250 (133.4)	6.812 (173.0)	2.312 (58.7)	6-32 BRASS INSERT
702	7.375 (187.3)	8.375 (212.7)	3.000 (76.2)	6-32 BRASS INSERT

INSTRUMENTATION KNOBS

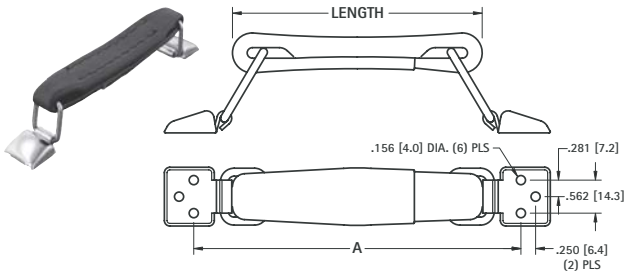
• All knobs supplied with two set screws installed

SPECIFICATIONS
Knob: ABS
Inlay: Spun Aluminum
Insert: Brass, Nickel Plate

CAT. NO.	SHAFT (DIA.)	D (DIA.)	H (HEIGHT)	M (MAX.)	SHAFT ATTACHMENT DETAILS L (LOCATION)	SHAFT ATTACHMENT DETAILS B (DEPTH)	NUT CLEARANCE I.D. (DIA.)	NUT CLEARANCE C (C'BORE DEPTH)
8554	.125 (3.2)	.500 (12.7)	.660 (16.8)	–	.320 (8.1)	.570 (14.5)	.360 (9.1)	.170 (4.3)
8555	.250 (6.4)	.700 (17.8)	.780 (19.8)	–	.360 (9.1)	.680 (17.3)	.500 (12.7)	.180 (4.6)
8556	.250 (6.4)	.920 (23.4)	1.010 (25.7)	–	.460 (11.7)	.910 (23.1)	.640 (16.3)	.330 (8.4)
8557	.250 (6.4)	1.250 (31.8)	.828 (21.0)	–	.400 (10.2)	.700 (17.8)	1.010 (25.7)	.250 (6.4)
8558	.125 (3.2)	.500 (12.7)	.660 (16.8)	.915 (23.4)	.320 (8.1)	.570 (14.5)	.360 (9.1)	.170 (4.3)
8559	.250 (6.4)	.700 (17.8)	.780 (19.8)	1.150 (29.2)	.357 (9.1)	.660 (16.7)	.480 (12.2)	.180 (4.6)
8560	.250 (6.4)	.920 (23.4)	1.010 (25.7)	1.520 (38.6)	.500 (12.7)	.910 (23.1)	.640 (16.3)	.240 (6.1)
8561	.250 (6.4)	1.250 (31.8)	.920 (23.4)	1.860 (47.2)	.470 (11.9)	.800 (20.3)	.780 (19.8)	.350 (8.9)
8567	.125 (3.2)	.500 (12.7)	.500 (12.7)	.610 (15.5)	.160 (4.0)	.405 (10.3)	.410 (10.4)	.030 (0.8)
8568	.250 (6.4)	.700 (17.8)	.625 (15.9)	.820 (20.8)	.210 (5.3)	.480 (12.2)	.468 (11.9)	.030 (0.8)
8569	.250 (6.4)	.920 (23.4)	.780 (19.8)	1.090 (27.7)	.240 (6.1)	.660 (16.8)	.640 (16.3)	.100 (2.5)
8565	.250 (6.4)	700 (17.8)	.630 (16.0)	1.187 (30.2)	.210 (5.3)	.510 (13.0)	.570 (14.5)	.030 (0.8)
8566	.250 (6.4)	.920 (23.4)	.640 (16.3)	1.510 (38.6)	.260 (6.6)	.540 (13.7)	.730 (18.5)	.120 (3.1)

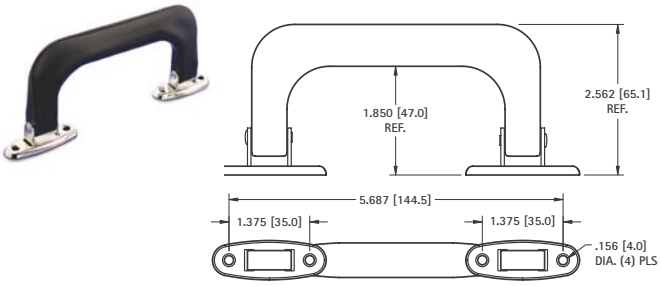
CARRYING HANDLES

This retractable handle is manufactured with black leather-like material and Nickel Plated steel hardware. Handle folds flat when not in use. Mounts with #6 screws (not supplied).



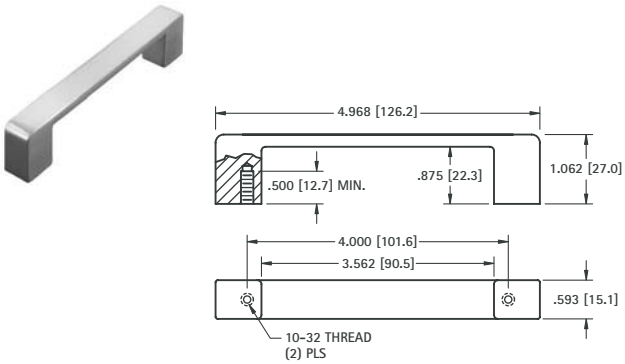
CAT. NO.	LENGTH	A
8351	4.500 (114.3)	6.000 (152.4)
8352	5.500 (139.7)	7.000 (177.8)
8353	6.000 (152.4)	7.500 (190.5)

Folds flat on case when not in use. Mounts with rivets or #6 screws (not supplied).



CAT. NO.	COLOR
8356	BLACK

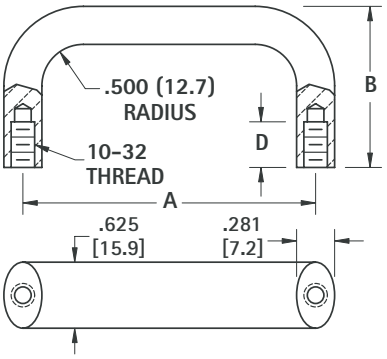
MATERIAL:
Grip: Polypropylene, Black
Post: Steel, Nickel Plate
Pin: Steel, Nickel Plate



CAT. NO. 7196

MATERIAL: Zinc, Satin Brushed, Nickel Plate

OVAL INSTRUMENTATION HANDLES



ALUMINUM CAT. NO.	A MTG. CTRS.	B HEIGHT	D DEPTH
7186	4.000 (101.6)	1.750 (44.5)	.500 (12.7)
544	4.000 (101.6)	2.000 (50.8)	
540	4.500 (114.3)	1.750 (44.5)	
545	4.500 (114.3)	2.000 (50.8)	
541	5.000 (127.0)	1.750 (44.5)	
546	5.000 (127.0)	2.000 (50.8)	
542	5.500 (139.7)	1.750 (44.5)	
547	5.500 (139.7)	2.000 (50.8)	
7187	6.000 (152.4)	1.375 (34.9)	.375 (9.5)
543	6.000 (152.4)	1.750 (44.5)	.500 (12.7)
548	6.000 (152.4)	2.000 (50.8)	
7188	6.437 (163.5)	1.750 (44.5)	

MATERIAL:
Aluminum: QQ-A-200, Alloy 6061-T6, Black Anodized per MIL-A-8625

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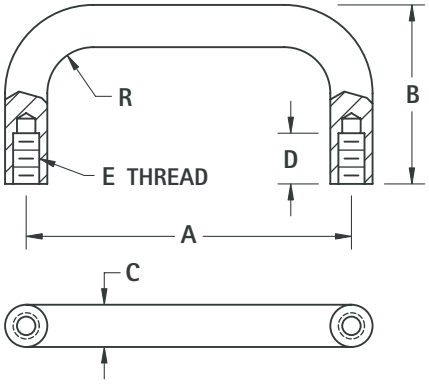
ROUND INSTRUMENTATION HANDLES

CHOICE of BRASS or ALUMINUM



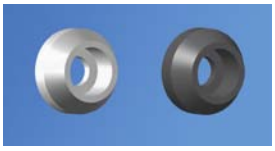
MATERIAL:
Brass: ASTM-B16, Nickel Plate
Aluminum: QQ-A-200, Alloy 6061-T6, Black Anodized per MIL-A-8625

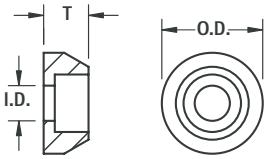
BRASS CAT. NO.	ALUMINUM CAT. NO.	A MTG. CTRS.	B HEIGHT	D DEPTH	E THREAD	R RADIUS	C DIAMETER
7140	7170	1.250 (31.8)	1.000 (25.4)	.375 (9.5)	4-40	.156 (4.0)	.156 (4.0)
7141	7171	2.000 (50.8)	1.000 (25.4)				
7142	7172	3.000 (76.2)	1.000 (25.4)				
9100	9110	1.250 (31.8)	.625 (15.9)	.156 (4.0)	4-40	.187 (4.7)	.187 (4.7)
9101	9111	1.500 (38.1)	.625 (15.9)				
9104	9114	1.500 (38.1)	.750 (19.1)				
9102	9112	1.750 (44.5)	.625 (15.9)				
9105	9115	1.750 (44.5)	.750 (19.1)				
9103	9113	2.000 (50.8)	.625 (15.9)				
9106	9116	1.250 (31.8)	1.000 (25.4)	.250 (6.4)	6-32	.187 (4.7)	.187 (4.7)
9107	9117	1.500 (38.1)	1.000 (25.4)				
9108	9118	2.000 (50.8)	1.000 (25.4)				
9109	9119	3.000 (76.2)	1.000 (25.4)				
7143	7173	3.000 (76.2)	1.500 (38.1)	.562 (14.3)	8-32	.250 (6.4)	.250 (6.4)
485	515	3.000 (76.2)	1.750 (44.5)				
480	510	3.500 (88.9)	1.500 (38.1)				
7144	7174	4.000 (101.6)	1.500 (38.1)				
486	516	4.000 (101.6)	1.750 (44.5)				
481	511	4.500 (114.3)	1.500 (38.1)				
487	517	4.500 (114.3)	1.750 (44.5)				
482	512	5.000 (127.0)	1.500 (38.1)				
488	518	5.000 (127.0)	1.750 (44.5)				
483	513	5.500 (139.7)	1.500 (38.1)				
484	514	6.000 (152.4)	1.500 (38.1)				
489	519	6.000 (152.4)	1.750 (44.5)				
7145	7175	3.000 (76.2)	1.500 (38.1)	.562 (14.3)	10-32	.312 (7.9)	.312 (7.9)
7146	7176	4.000 (101.6)	1.500 (38.1)				
493	523	4.000 (101.6)	1.750 (44.5)				
490	520	4.500 (114.3)	1.500 (38.1)				
494	524	4.500 (114.3)	1.750 (44.5)				
7147	7177	4.562 (115.9)	1.500 (38.1)				
491	521	5.000 (127.0)	1.500 (38.1)				
495	525	5.000 (127.0)	1.750 (44.5)				
492	522	5.500 (139.7)	1.500 (38.1)				
7148	7178	6.000 (152.4)	1.500 (38.1)				
496	526	6.000 (152.4)	1.750 (44.5)				
7149	7179	6.437 (163.5)	1.750 (44.5)				
7150	7180	4.000 (101.6)	1.375 (34.9)	.375 (9.5)	10-32	.375 (9.5)	.375 (9.5)
7151	7181	6.000 (152.4)	1.375 (34.9)				

FERRULES

FERRULES FOR ROUND HANDLES

- To protect and support panel surface



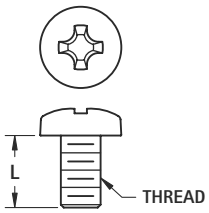


MATERIAL:
Brass: ASTM-B16, Nickel Plate
Aluminum: QQ-A-200, Alloy 6061-T6, Black Anodized per MIL-A-8625

BRASS CAT. NO.	ALUMINUM CAT. NO.	FOR THREAD	FOR DIAMETER	O.D.	I.D.	T
7162	7192	4-40	.156 (4.0)	.250 (6.4)	.120 (3.0)	.125 (3.2)
9120	9122	4-40	.187 (4.7)	.312 (7.9)	.120 (3.0)	.125 (3.2)
9121	9123	6-32	.187 (4.7)	.312 (7.9)	.144 (3.7)	.125 (3.2)
7163	7193	8-32	.250 (6.4)	.375 (9.5)	.170 (4.3)	.187 (4.7)
7164	7194	10-32	.312 (7.9)	.562 (14.3)	.196 (5.0)	.250 (6.4)

HANDLE MOUNTING SCREWS

- Phillips drive pan head machine screws



MATERIAL: Stainless Steel

CAT. NO.	L LENGTH	THREAD	DRIVER SIZE
9900	.250 (6.4)	4-40	1
9901	.375 (9.5)		
9902	.500 (12.7)		
9903	.250 (6.4)	6-32	2
9904	.375 (9.5)		
9905	.500 (12.7)		
9906	.375 (9.5)	8-32	2
9907	.500 (12.7)		
9908	.750 (19.1)		
9909	.375 (9.5)	10-32	2
9910	.500 (12.7)		
9911	.750 (19.1)		

PLASTIC FAN FILTER ASSEMBLY

A unique package consisting of guard, filter media and retainer. The guard and retainer are manufactured with UL Rated 94V-HB material. The filter media is made of polyester foam and aluminum mesh which allows free passage of air (24 CFM) with minimum air resistance and pressure drop. A major feature of this assembly is that when the filter media requires maintenance you simply remove the snap-fit retainer to clean or replace the filter, leaving the guard and fan in place. This assures protection to the fan blades and eliminates damage to the fan or equipment during cleaning.

RETAINER

MATERIAL: Glass filled Nylon 6/6, UL Rated HB

- Snap-fit construction
- Designed for minimum air restriction

MEDIA

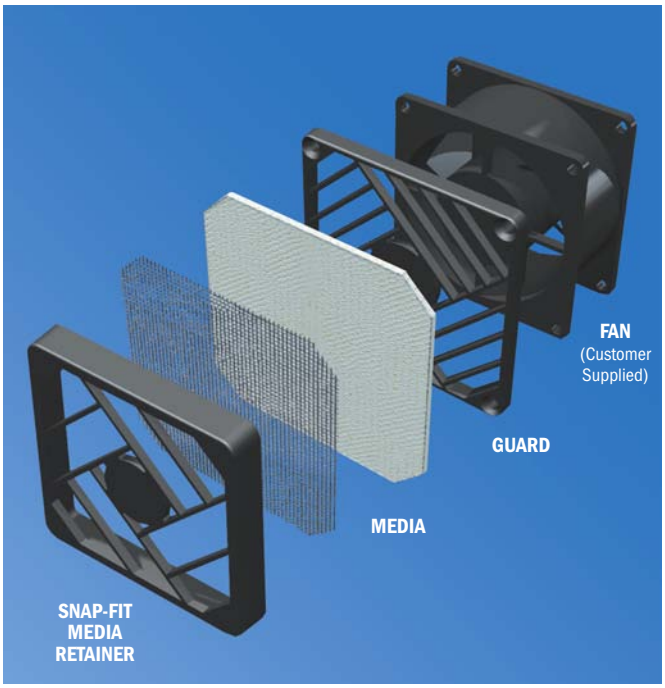
MATERIAL: White Polyester foam and Aluminum screen

- Constructed to allow free passage of air with mimimum resistance and pressure drop (24 CFM)
- Has a high surface-area contact for impingement of dust particles
- Helps reduce external fan noise
- Easily cleaned by vacuuming or washing with mild soap, detergent or cleaning solvent
- Replacement media available

GUARD

MATERIAL: Glass filled Nylon 6/6, UL Rated HB

- .250 (6.4) maximum ring spacing
- Decreased noise level
- Countersunk mounting holes (4)
- Withstands high impact



FAN GUARD & FILTER ASSEMBLIES

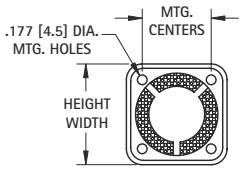


Fig. 1

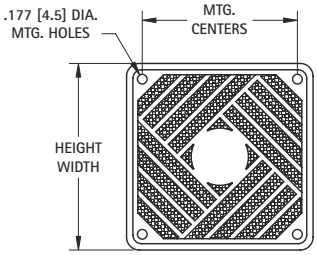


Fig. 2

ASSEMBLY CAT. NO.	FIG. NO.	FOR FAN SIZE	HEIGHT/ WIDTH	THICKNESS	MTG. CENTERS	FILTER MEDIA ONLY CAT. NO.
8443	1	1.50 (40mm)	1.839 (46.7)	.327 (8.3)	1.260 (32.0)	8443-MO
8444	2	2.50 (60mm)	2.559 (65.0)	.488 (12.4)	1.970 (50.0)	8444-MO
8487	2	3.12 (80mm)	3.408 (86.7)	.488 (12.4)	2.840 (72.0)	8487-MO
8488	2	3.62 (92mm)	3.815 (96.9)	.488 (12.4)	3.250 (82.5)	8488-MO
8489	2	4.50 (120mm)	4.961 (126.0)	.496 (12.6)	4.130 (105.0)	8489-MO

FAN GUARDS

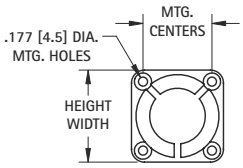


Fig. 3

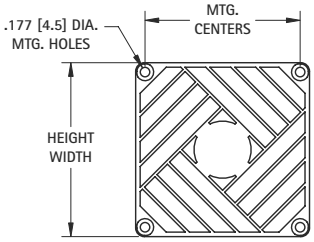


Fig. 4

GUARD CAT. NO.	FIG. NO.	FOR FAN SIZE	HEIGHT/ WIDTH	THICKNESS	MTG. HOLE CENTER SPACING
8445	3	1.50 (40mm)	1.681 (42.7)	.169 (4.3)	1.260 (32.0)
8446	4	2.50 (60mm)	2.378 (60.4)	.236 (6.0)	1.970 (50.0)
8497	4	3.12 (80mm)	3.177 (80.7)	.236 (6.0)	2.840 (72.0)
8498	4	3.62 (92mm)	3.634 (92.3)	.236 (6.0)	3.250 (82.5)
8499	4	4.50 (120mm)	4.741 (120.4)	.244 (6.2)	4.130 (105.0)

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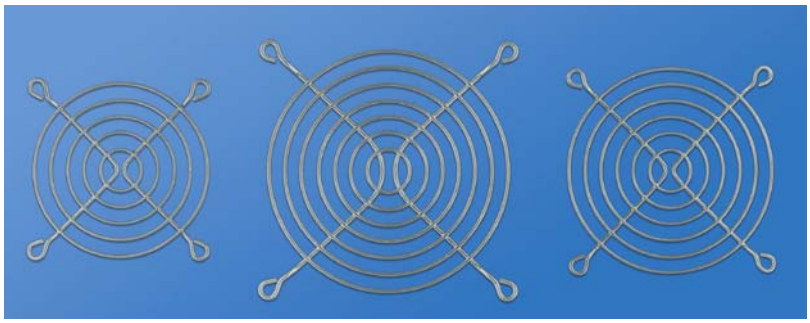
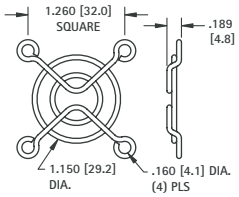
Made of high quality steel wire which combines strength with superior forming. The units offer clean, strong butt welds with minimum flash and have consistent guard diameters to enhance maximum air-flow and venting.

- Available for most popular size fans
- Protects fingers as well as fan blades
- Same mounting hole pattern as standard fans
- Chrome Plate offers a high luster finish



MATERIAL: Steel, Nickel Chrome Plate

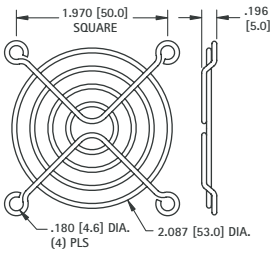
FITS 1.50" (40mm) FANS



CONSTRUCTION
Rings: .063 (1.60) wire diameter
Ribs: .063 (1.60) wire diameter

CAT. NO. 8447

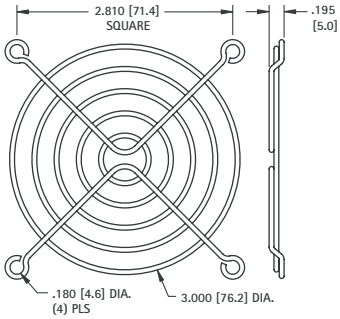
FITS 2.50" (60mm) FANS



CONSTRUCTION
Rings: .063 (1.60) wire diameter
Ribs: .063 (1.60) wire diameter

CAT. NO. 8449

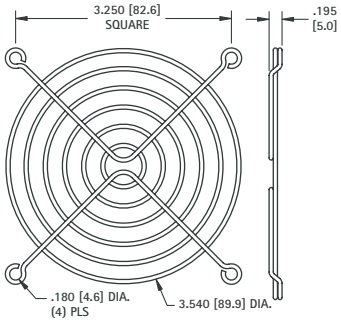
FITS 3.12" (80mm) FANS



CONSTRUCTION
Rings: .063 (1.60) wire diameter
Ribs: .063 (1.60) wire diameter

CAT. NO. 8450

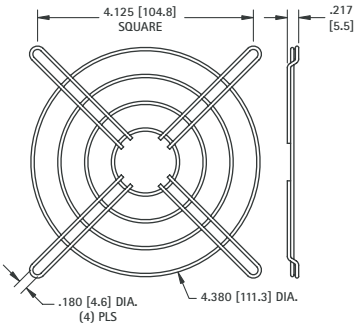
FITS 3.62" (92mm) FANS



CONSTRUCTION
Rings: .063 (1.60) wire diameter
Ribs: .063 (1.60) wire diameter

CAT. NO. 8451

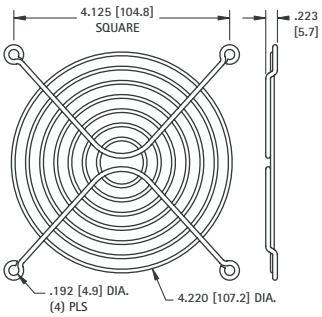
FITS 4.50" (120mm) FANS



CONSTRUCTION
Rings: .063 (1.60) wire diameter
Ribs: .063 (1.60) wire diameter

CAT. NO. 8448

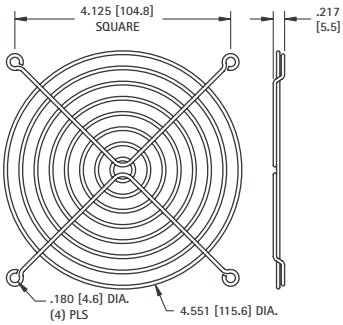
FITS 4.50" (120mm) FANS



CONSTRUCTION
Rings: .071 (1.80) wire diameter
Ribs: .091 (2.31) wire diameter

CAT. NO. 8452

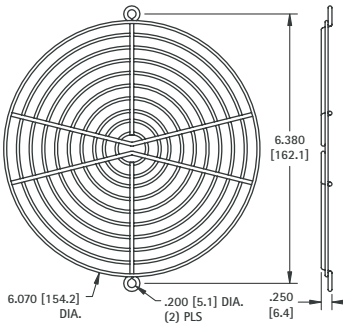
FITS 4.50" (120mm) FANS



CONSTRUCTION
Rings: .071 (1.80) wire diameter
Ribs: .071 (1.80) wire diameter

CAT. NO. 8453

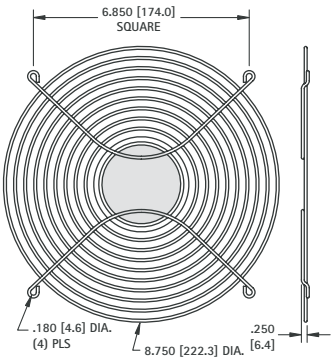
FITS 6.00" (150mm) FANS



CONSTRUCTION
Rings: .071 (1.80) wire diameter
Ribs: .091 (2.31) wire diameter

CAT. NO. 8455

FITS 10.00" (250mm) FANS



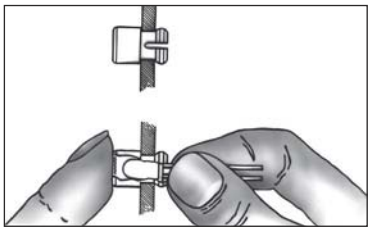
CONSTRUCTION
Rings: .091 (2.31) wire diameter
Ribs: .091 (2.31) wire diameter

CAT. NO. 8457

LED LENS CAPS

Designed for use with T-1 or T-1 3/4 LEDs, these Lens Caps are available in round or square configurations. They snap-mount through the front panel for easy, light-finger pressure, intsallation. The LED is inserted into the cap from behind the panel and held securely in place.

The Lens Cap protects the LED from physical damage while guarding the components from electrostatic discharge (ESD), up to 16KV. More economical than indicator light assemblies, the caps feature striated lines and fresnel rings which permit up to 180 viewing angles with either diffused or non-diffused LED's. They provide exceptionally high contrast and visibility.



MATERIAL: Polycarbonate
Available in Red, Green, Yellow and Clear

ROUND CAPS

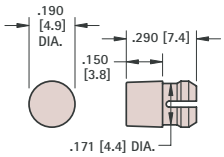


FIG. 1 T-1

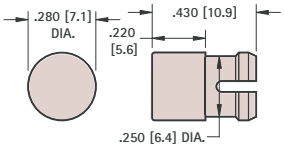


FIG. 2 T-1 3/4

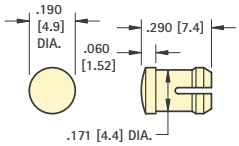


FIG. 3 T-1

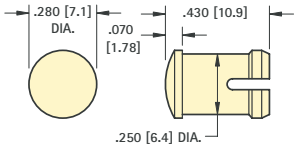


FIG. 4 T-1 3/4

STANDARD HEIGHT

CAT. NO.	COLOR	FIG. NO.	LED SIZE	MTG. HOLE SIZE	MIN. MTG. CENTERS	PANEL THICKNESS
8650	RED	1	T-1	.171 (4.3)	.250 (6.4)	.031 - .062 (.79/1.57)
8651	GREEN					
8652	YELLOW					
8653	CLEAR					
8662	RED	2	T-1 3/4	.250 (6.4)	.375 (9.5)	.062 - .125 (1.57/3.18)
8663	GREEN					
8664	YELLOW					
8665	CLEAR					

LOW PROFILE

CAT. NO.	COLOR	FIG. NO.	LED SIZE	MTG. HOLE SIZE	MIN. MTG. CENTERS	PANEL THICKNESS
8656	RED	3	T-1	.171 (4.3)	.250 (6.4)	.062 - .125 (1.57/3.18)
8657	GREEN					
8658	YELLOW					
8659	CLEAR					
8668	RED	4	T-1 3/4	.250 (6.4)	.375 (9.5)	.031 - .250 (.79/6.4) (See Note)
8669	GREEN					
8670	YELLOW					
8671	CLEAR					

SQUARE CAPS

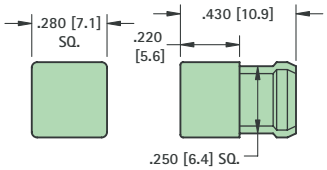


FIG. 5 T-1 3/4

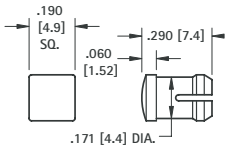


FIG. 6 T-1

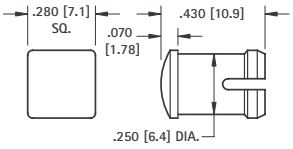


FIG. 7 T-1 3/4

STANDARD HEIGHT

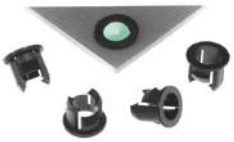
CAT. NO.	COLOR	FIG. NO.	LED SIZE	MTG. HOLE SIZE	MIN. MTG. CENTERS	PANEL THICKNESS
8680	RED	5	T-1 3/4	.250 (6.4) SQUARE	.375 (9.5)	.062 - .125 (1.57/3.18)
8681	GREEN					
8682	YELLOW					
8683	CLEAR					

LOW PROFILE

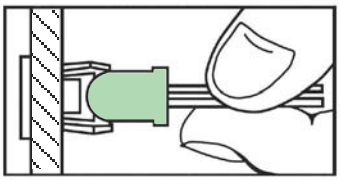
CAT. NO.	COLOR	FIG. NO.	LED SIZE	MTG. HOLE SIZE	MIN. MTG. CENTERS	PANEL THICKNESS
8674	RED	6	T-1	.171 (4.3)	.250 (6.4)	.062 - .125 (1.57/3.18)
8675	GREEN					
8676	YELLOW					
8677	CLEAR					
8686	RED	7	T-1 3/4	.250 (6.4)	.375 (9.5)	.031 - .250 (.79/6.4) (See Note)
8687	GREEN					
8688	YELLOW					
8689	CLEAR					

Note: When mounting T-1 3/4 Low Profile Caps (Fig. 4 or Fig. 7) in panels .125 (3.2) thick or less a spacer must be used. **Spacer CAT. NO. 8692 MATERIAL:** White Nylon .360 (9.1) O.D. × 1/4 I.D. × 1/8 Lg.

"SNAP-IN" T-1 & T-1 3/4 LED HOLDERS

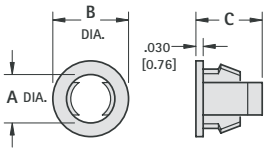


Designed for use with T-1 or T-1 3/4 LED's in .060 (1.52) - .070 (1.78) thick panels. The holder snaps into the front panel with easy, light-finger pressure. The LED snaps into the holder from behind the panel and is held securely in place.



MATERIAL: Nylon 6/6, Black

CAT. NO.	LED SIZE	A	B	C	MTG. HOLE SIZE
8309	T-1	.114 (2.9)	.232 (5.9)	.188 (4.8)	.171 (4.3)
8310	T-1 3/4	.200 (5.0)	.315 (8.0)	.274 (6.9)	.250 (6.4)



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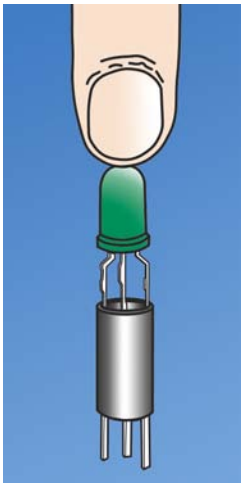
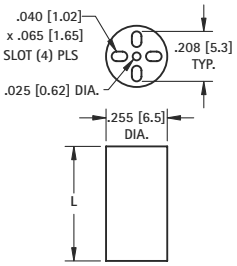
"UNIVERSAL" FOR T-1 & T-1 3/4



- Unique design separates leads and retains Tri-Lead and Bi-Lead components.
- Designed for PC board mounting of Tri-Lead and Bi-Lead T-1 and T-1 3/4 LEDS
- Provides height control, lead retention and stability.
- Also suitable for mounting lamps, resistors, transistors, diodes, capacitors, etc.

MATERIAL: Black PVC, UL Rated 94V-0



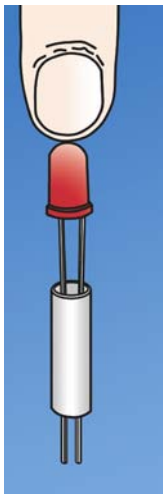
FOR T-1 3/4 and T-1			
CAT. NO.	L LENGTH	CAT. NO.	L LENGTH
8900	.120 (3.0)	8916	.400 (10.2)
8901	.140 (3.6)	8917	.420 (10.7)
8902	.160 (4.1)	8918	.440 (11.2)
8903	.180 (4.6)	8919	.450 (11.4)
8904	.200 (5.1)	8920	.460 (11.7)
8905	.220 (5.6)	8921	.480 (12.2)
8906	.240 (6.1)	8922	.500 (12.7)
8907	.250 (6.4)	8923	.550 (14.0)
8908	.260 (6.6)	8924	.600 (15.2)
8909	.280 (7.1)	8925	.650 (16.5)
8910	.300 (7.6)	8926	.700 (17.8)
8911	.320 (8.1)	8927	.750 (19.1)
8912	.340 (8.6)	8928	.800 (20.3)
8913	.350 (8.9)	8929	.850 (21.6)
8914	.360 (9.1)	8930	.900 (22.9)
8915	.380 (9.7)	8931	.925 (23.5)

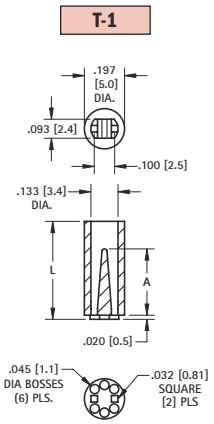
"SELF-ALIGNING" FOR BI-LEAD T-1 & T-1 3/4

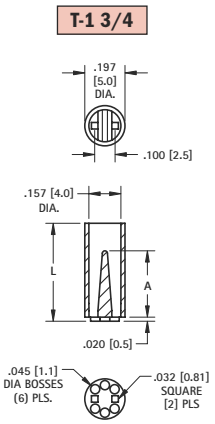
KEY FEATURES

- Positive self-alignment of leads on .100 (.25) centers.
- No special tools required
- This features an internally tapered barrier which guides the leads and eliminates crimping or shorting.
- The bottom bosses serve the dual purpose of heat dissipation and easy post soldering cleanup.

MATERIAL: Natural Nylon, UL Rated 94V-2







T-1 3/4 CAT. NO.	T-1 CAT. NO.	L LENGTH	A REF.
8311	7351	.120 (3.0)	.075 (1.9)
8312	7352	.140 (3.6)	
8313	7353	.160 (4.1)	
8314	7354	.180 (4.6)	
8315	7355	.200 (5.1)	
8316	7356	.220 (5.6)	
8317	7357	.240 (6.1)	.190 (4.8)
8318	7358	.250 (6.4)	
8319	7359	260 (6.6)	
8320	7360	.280 (7.1)	
8321	7361	.300 (7.6)	
8322	7362	.320 (8.1)	.200 (5.1)
8323	7363	.340 (8.6)	
8324	7364	.350 (8.9)	
8325	7365	.360 (9.1)	
8326	7366	.380 (9.7)	.325 (8.3)

T-1 3/4 CAT. NO.	T-1 CAT. NO.	L LENGTH	A REF.
8327	7367	.400 (10.2)	.325 (8.3)
8328	7368	.420 (10.7)	
8329	7369	.440 (11.2)	
8330	7370	.450 (11.4)	
8331	7371	.460 (11.7)	
8332	7372	.480 (12.2)	
8333	7373	.500 (12.7)	.450 (11.4)
8334	7374	.550 (14.0)	
8335	7375	.600 (15.2)	
8336	7376	.650 (16.5)	.575 (14.6)
8337	7377	.700 (17.8)	
8338	7378	.750 (19.1)	.690 (17.5)
8339	7379	.800 (20.3)	
8340	7380	.850 (21.6)	
8341	7381	.900 (22.9)	
8342	7382	.925 (23.5)	

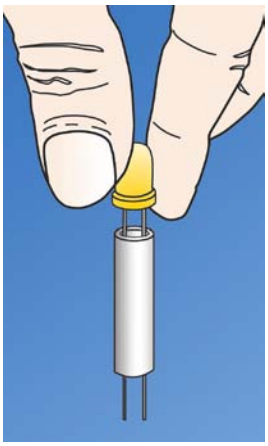
"SELF-RETAINING" FOR T-1

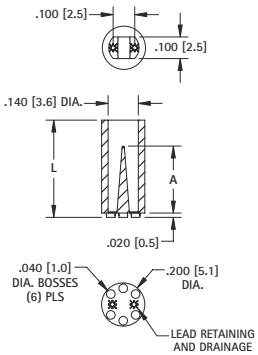
- Features internal retention "teeth" which secure LED leads onto spacers.
- This features an internally tapered barrier which guides the leads and eliminates crimping or shorting.
- The bottom bosses serve the dual purpose of heat dissipation and easy post soldering cleanup.

MATERIAL: Natural Nylon, UL Rated 94V-2

KEY FEATURES

- Internal design eliminates crimping or shorting of leads
- Self alignment of leads on .100 (.25) centers.
- Spacer will stay gripped to LED leads during assembly
- No special tools required





T-1 CAT. NO.	L LENGTH	A REF.
7030	.120 (3.0)	.060 (1.5)
7031	.140 (3.6)	
7032	.160 (4.1)	
7033	.180 (4.6)	
7034	.200 (5.1)	
7035	.220 (5.6)	
7036	.240 (6.1)	
7037	.250 (6.4)	.185 (4.7)
7038	.260 (6.6)	
7039	.280 (7.1)	
7040	.300 (7.6)	
7041	.320 (8.1)	
7042	.340 (8.6)	
7043	.350 (8.9)	
7044	.360 (9.1)	
7045	.380 (9.7)	.310 (7.9)

T-1 CAT. NO.	L LENGTH	A REF.
7046	.400 (10.2)	.310 (7.9)
7047	.420 (10.7)	
7048	.440 (11.2)	
7049	.450 (11.4)	
7050	.460 (11.7)	
7051	.480 (12.2)	
7052	.500 (12.7)	.435 (11.0)
7053	.550 (14.0)	
7054	.600 (15.2)	
7055	.650 (16.5)	.650 (14.2)
7056	.700 (17.8)	
7057	.750 (19.1)	
7058	.800 (20.3)	.690 (17.5)
7059	.850 (21.6)	
7060	.900 (22.9)	
7061	.925 (23.5)	

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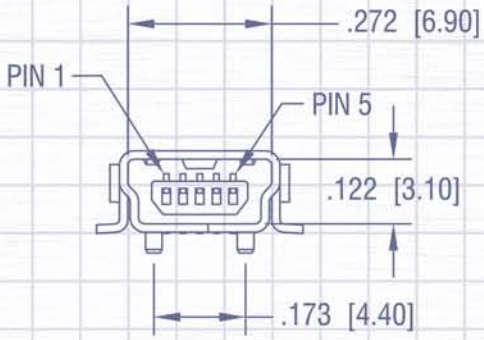

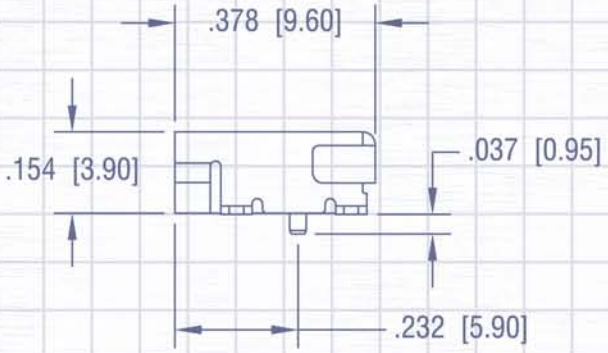

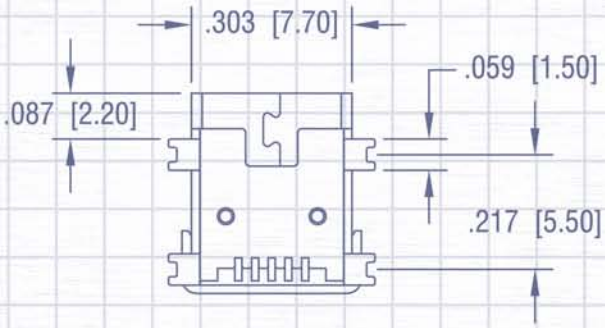

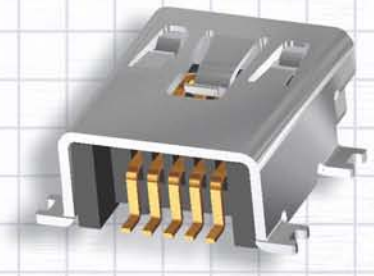

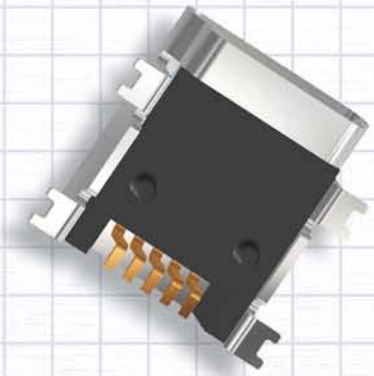

PINS, PLUGS, JACKS & HARDWARE

Our PCB pins & receptacles, solder terminals, tip, test, banana and binding post receptacles & terminals, and USB connectors and sockets offer the most versatility for virtually any device requirements such as:

- Audio Circuitry
- Home theaters
- Electronic test equipment
- Telephone switchboards
- High Speed computer connections
- Telecommunication hook ups
- CATV equipment hook ups

Our quality system is ISO 9001:2008 certified. Our products are in compliance with the RoHS and REACH directives. We provide 3D modeling, CAD and other application-engineering support for modifications, special designs or assembly requirements to assist you in choosing the right Keystone product for your application.

DATE	DESCRIPTION	REV.

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USB 2.0 PLUGS & SOCKETS

SOCKET SPECIFICATIONS:
Shell: Phosphor Bronze
Insulator: Thermoplastic, UL Rated 94V-0
Contacts: Phosphor Bronze
Contact Area: Gold Flash over Nickel
Solder Trails: Tin over Nickel

PLUG SPECIFICATIONS:
Shell: Steel, Nickel Plate
Insulator: Thermoplastic, Rated UL 94V-0
Contact: Bronze, Gold Flash over Nickel

ELECTRICAL CHARACTERISTICS
Rated Voltage: 30V (RMS)
Contact Current Rating: 1 Amp DC max.
Contact Resistance: 15 mΩ max.
Insulation Resistance: 1000 mΩ min.
Dielectric Withstanding Voltage: 750V AC for 1 minute

MECHANICAL CHARACTERISTICS
Operating Temperature: -13°F (-25°C) to +176°F (+80°C)
Durability: 1500 Cycles min.

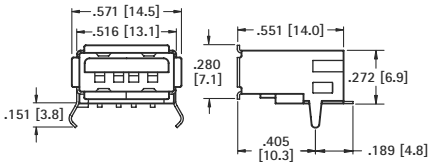
DEVICE APPLICATIONS
Ability to daisy chain more than one input device
- **Mouse/Keyboards**
- **MP3 Players**
- **Printers/Scanners**
- **Digital Cameras/Video**
- **Memory Sticks**
- **PDAs and Cell Phones**

TYPE A SOCKETS

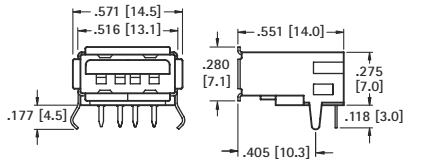
HORIZONTAL

SURFACE MOUNT

THRU HOLE MOUNT

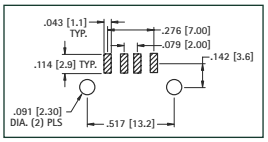


920

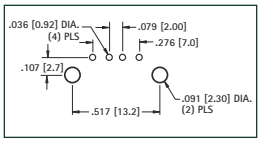


921

Mounting Detail Cat. No. 920

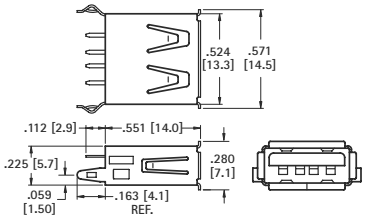


Mounting Detail Cat. No. 921

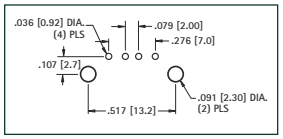


CAT. NO. 920 **CAT. NO. 921**

VERTICAL

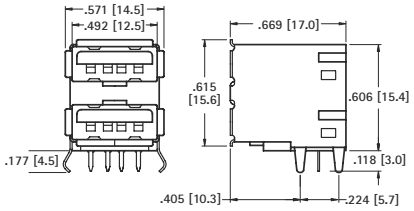


Mounting Detail

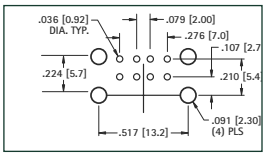


CAT. NO. 923

DUAL STACKING



Mounting Detail

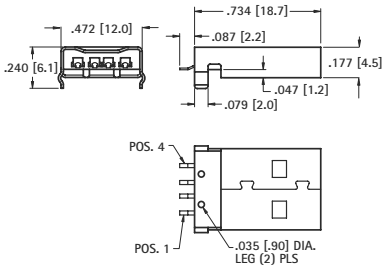


CAT. NO. 922

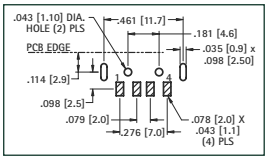
TYPE A PLUGS

FEATURES
- Available for on-board applications such as memory sticks
- Cable clamp style for creating custom cables
- Gold plated contacts for low contact resistance and excellent reliability

SURFACE MOUNT

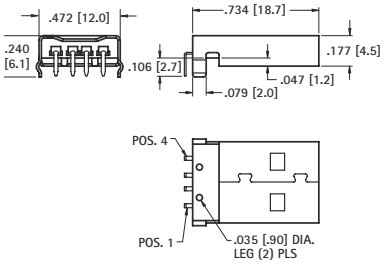


Mounting Detail

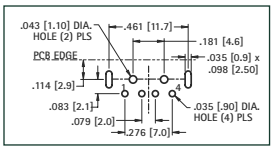


CAT. NO. 931

THRU HOLE MOUNT



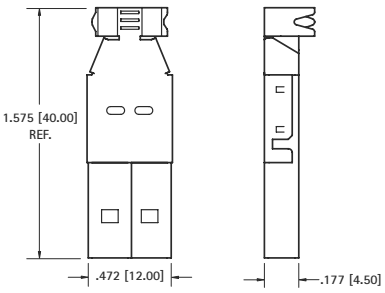
Mounting Detail



CAT. NO. 932

CABLE PLUG

- Supplied unassembled



CAT. NO. 925

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USB 2.0 PLUGS & SOCKETS

SOCKET SPECIFICATIONS:
Shell: Phosphor Bronze
Insulator: Thermoplastic, UL Rated 94V-0
Contacts: Phosphor Bronze
Contact Area: Gold Flash over Nickel
Solder Trails: Tin over Nickel

PLUG SPECIFICATIONS:
Shell: Steel, Nickel Plate
Insulator: Thermoplastic, Rated UL 94V-0
Contact: Bronze, Gold Flash over Nickel

ELECTRICAL CHARACTERISTICS
Rated Voltage: 30V (RMS)
Contact Current Rating: 1 Amp DC max.
Contact Resistance: 15 mΩ max.
Insulation Resistance: 1000 MΩ min.
Dielectric Withstanding Voltage: 750V AC for 1 minute

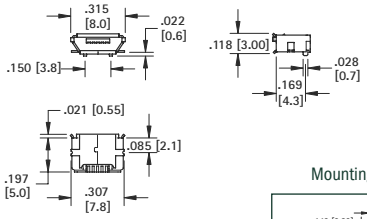
MECHANICAL CHARACTERISTICS
Operating Temperature: -13°F (-25°C) to +176°F (+80°C)
Durability: 1500 Cycles min.

DEVICE APPLICATIONS
Ability to daisy chain more than one input device
- Memory Sticks
- Mouse/Keyboards
- Printers/Scanners/Docking Stations
- MP3/Audio Devices
- Digital Video Cameras & Still Cameras
- Portable Media Players
- Gaming Headsets
- Smart Phones/PDA's

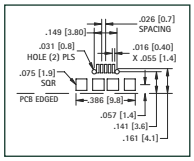
MICRO-USB TYPE B SOCKETS/PLUGS

SURFACE MOUNT SOCKET

- Ideal for Miniature applications



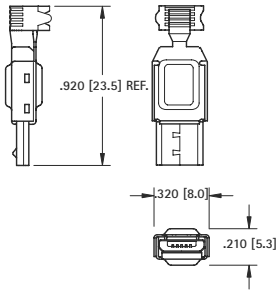
Mounting Detail



CAT. NO. 940 (Bulk)
CAT. NO. 940TR (Tape & Reel)
Tape & Reel Spec's: 24mm wide; 16mm pitch; 13 inch reel (1000 pieces per reel)

CABLE PLUG

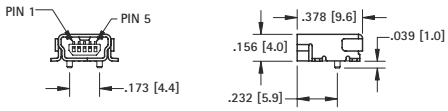
- Supplied unassembled

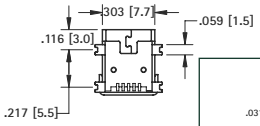


CAT. NO. 941

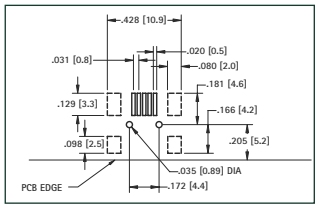
MINI-USB TYPE B SOCKETS/PLUGS

SURFACE MOUNT SOCKET





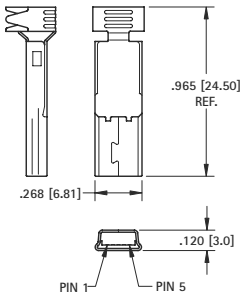
Mounting Detail



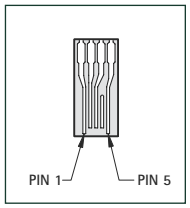
CAT. NO. 934 (Bulk)
CAT. NO. 934TR (Tape & Reel)
Tape & Reel Spec's: 24mm wide; 16mm pitch; 13 inch reel (1000 pieces per reel)

CABLE PLUG

- Supplied unassembled



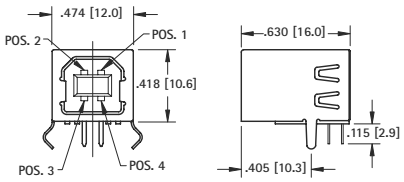
Wiring Detail



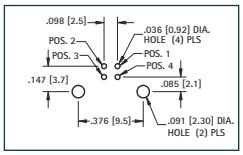
CAT. NO. 935

USB TYPE B SOCKETS/PLUGS

THRU HOLE SOCKET

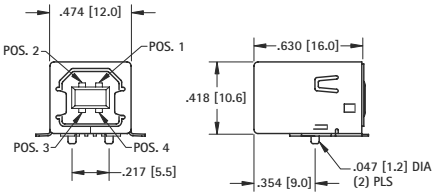


Mounting Detail

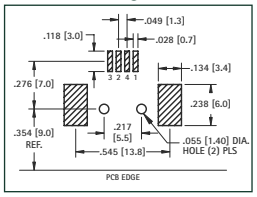


CAT. NO. 924

SURFACE MOUNT SOCKET



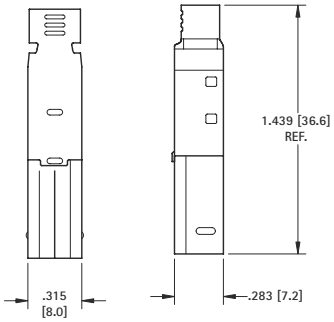
Mounting Detail



CAT. NO. 933

CABLE PLUG

- Supplied unassembled



CAT. NO. 926

USB 3.0 PLUGS & SOCKETS

ELECTRICAL CHARACTERISTICS:
Rated Voltage: 30V (RMS)
Contact Current Rating: 1 Amp DC max.
Contact Resistance: 15 mΩ max.
Insulation Resistance: 1000 MΩ min.
Dielectric Withstanding Voltage: 750V AC for 1 minute

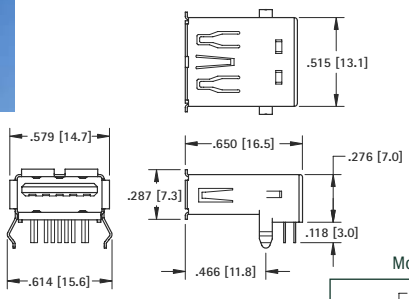
MECHANICAL CHARACTERISTICS:
Operating Temperature: -13°F (-25°C) to +176°F(+80°C)
Durability: 1500 Cycles min.

USB 3.0 DESIGN ADVANTAGES:
Port Expansion: Alleviates restriction of limited COM Ports and available IRQ's
Compatibility: Backward compatible with USB 2.0 devices
Fast Data Transfer: Up to 480 Gbps; 10 times faster than USB 2.0 devices and 200 times faster than serial ports.

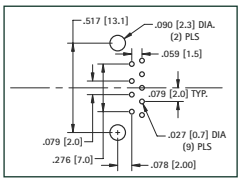
USB 3.0 (SUPER SPEED)DEVICE APPLICATIONS:
- External hard drives
- High resolution web & video cameras
- Digital video cameras & still cameras
- Multi-channel audio interfaces
- External media such as Blu-Ray drives
- High-definition video content
- Multi-gigabyte mobile phones
- Portable media players

USB TYPE A SOCKETS/PLUGS

THRU-HOLE MOUNT SOCKET



Mounting Detail

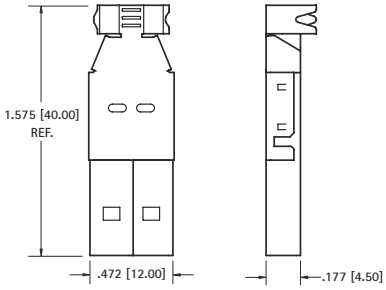


SOCKET SPECIFICATIONS:
Shell: Steel, Nickel Plated
Insulator: Thermoplastic, UL Rated 94V-0
Contacts: Phosphor Bronze, Gold Flash over Nickel

CAT. NO. 945

CABLE PLUG

- Supplied unassembled

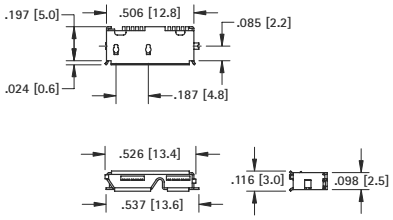


PLUG SPECIFICATIONS:
Shell: Steel, Nickel Plated
Insulator: Thermoplastic, UL Rated 94V-0
Contacts: Phosphor Bronze, Gold Flash over Nickel

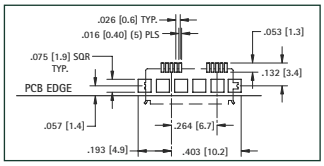
CAT. NO. 947

MICRO-USB TYPE B SOCKETS/PLUGS

SURFACE MOUNT SOCKET



Mounting Detail

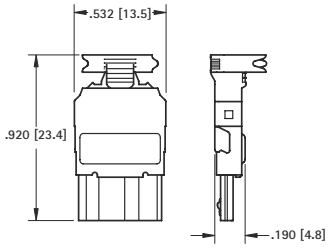


SOCKET SPECIFICATIONS:
Shell: Steel, Nickel Plated
Insulator: Thermoplastic, UL Rated 94V-0
Contacts: Phosphor Bronze, Gold Flash over Nickel

CAT. NO. 955

CABLE PLUG

- Supplied unassembled

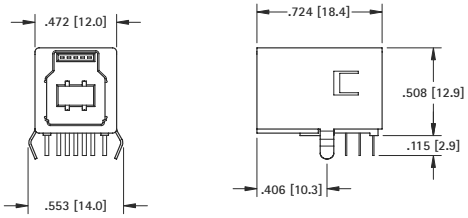


PLUG SPECIFICATIONS:
Shell: Steel, Nickel Plated
Insulator: Thermoplastic, UL Rated 94V-0
Contacts: Phosphor Bronze, Gold Flash over Nickel

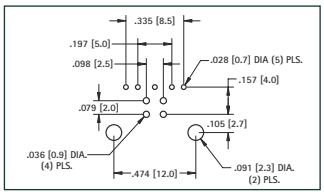
CAT. NO. 957

USB TYPE B SOCKETS/PLUGS

THRU-HOLE MOUNT SOCKET

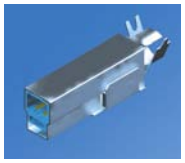


Mounting Detail



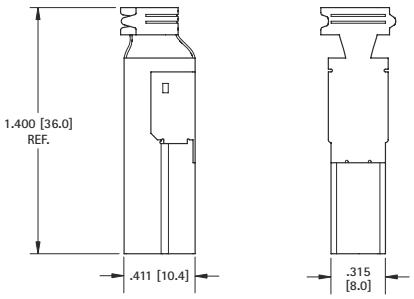
SOCKET SPECIFICATIONS:
Shell: Phosphor Bronze, Nickel Plated
Insulator: Thermoplastic, UL Rated 94V-0
Contacts: Phosphor Bronze, Gold Flash over Nickel
Contact Area: Gold Flash over Nickel
Solder Tails: Tin over Nickel

CAT. NO. 950



CABLE PLUG

- Supplied unassembled



PLUG SPECIFICATIONS:
Shell: Steel, Nickel Plated
Insulator: Thermoplastic, UL Rated 94V-0
Contacts: Phosphor Bronze, Gold Flash over Nickel

CAT. NO. 952

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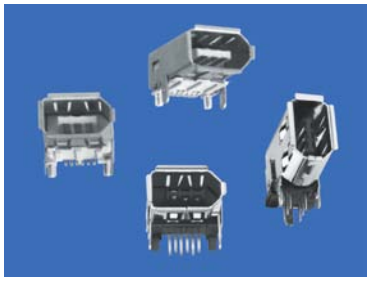
SUPER SPEED SERIAL BUS - FIREWIRE SOCKETS

FEATURES

• Snap-In PC tails hold connector in position for soldering • Gold Plated contacts for low contact resistance and excellent reliability

IEEE 1394



SPECIFICATIONS

Shell: Phosphor Bronze
Insulator: Thermoplastic, Rated UL 94V-0
Contacts: Phosphor Bronze
Plating:
Contact Area: Gold Flash over Nickel
Solder Tails: Tin over Nickel Plate

DESIGN ADVANTAGES

Superfast Data Transfer:
Current speeds of 100Mbps, 200Mbps and 400Mbps, and roadmapped to 1GB to 3.2 GBps per second
Daisy Chaining:
Up to to 63 devices, each one acts as an active repeater on the bus, with a maximum of 16 repeats
Port Expansion:
Alleviates restriction of limited COM Ports and available IRQ's
Wide Bandwidth:
Operates in asynchronous or isochronous data streams. Digital interface designed for high speed applications for PC peripherals, consumer electronics and communications.
Simple Connections:
True Plug and Play, no jumpers, DIP Switches or IRQ's to set
Hot Swapping:
Allows peripherals to be connected or disconnected without turning off computer
Highly Versatile Bus:
One bus can handle a variety of devices operating at different speed classes for true backwards compatibility
Standard Digital Interface:
Allows consumer electronics and computer devices to communicate together on one interface

ELECTRICAL CHARACTERISTICS

Rated Voltage: 30VAC (RMS)
Contact Current Rating: 1 Amp DC max.
Contact Resistance: 15 mΩ
Insulation Resistance: 1000 mΩ min.
Dielectric Withstanding Voltage: 750V AC for 1 minute
Operating Temperature: 32°F (0°C) to +104°F (40°C)
Capacitance: 2pF max.

MECHANICAL CHARACTERISTICS

Durability: >1500 cycles
Mating Force: 35 Newtons min.
Withdrawal Force: 10 Newtons min.

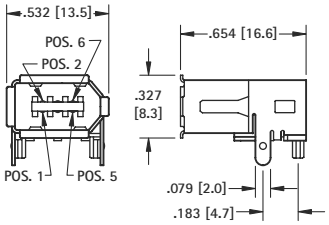
DEVICE APPLICATIONS

- Broadcast TV
- Cable TV
- Digital Camcorders
- Digital Cameras & VCRs
- Computers & Hard Disks
- DVD Players
- Printers & Monitors
- Stereos

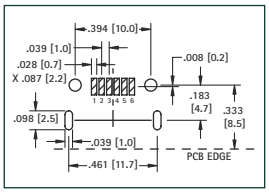
SURFACE MOUNT

HORIZONTAL

SUPPLIED ON TAPE AND REEL



Mounting Detail



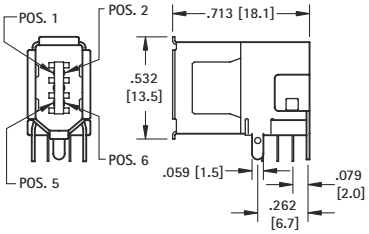
CAT. NO. 927 (Bulk)

CAT. NO. 927TR (Tape & Reel)

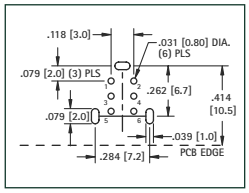
Tape & Reel Spec's: 32mm wide; 24mm pitch; 13 inch reel (200 pieces per reel)

THRU HOLE MOUNT

UP-RIGHT



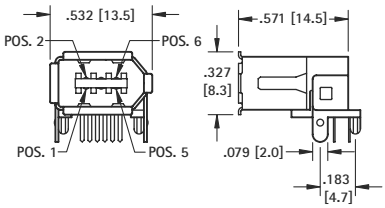
Mounting Detail



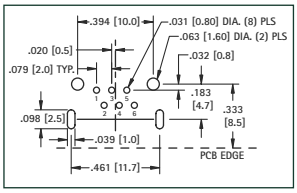
CAT. NO. 930

THRU HOLE MOUNT

HORIZONTAL



Mounting Detail



CAT. NO. 929

FIREWIRE PLUG

FEATURES

• Modular design allows easy and fast assembly of components
• Integrated strain relief - crimps to wire insulation
• Gold Plated contacts for low contact resistance and excellent reliability

IEEE 1394

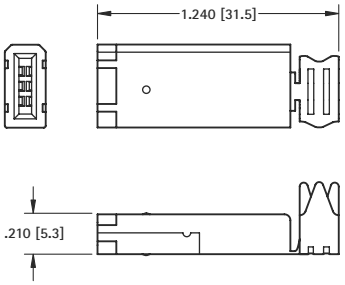
CAT. NO. 928 (Supplied Unassembled)

SPECIFICATIONS

Shell: Phosphor Bronze
Insulator: Thermoplastic, Rated UL 94V-0
Contacts: Phosphor Bronze
Plating:
Contact Area: Gold Flash over Nickel
Solder Tails: Tin over Nickel Plate

ELECTRICAL CHARACTERISTICS

Contact Resistance: 30mΩ max.
Insulation Resistance: 1000 mΩ min.
Withstanding Voltage: 500V ± 50V DC
Operating Temperature: 32°F (0°C) to +104°F (40°C)



MICRO JACKS

- Space saving design for high density packaging
- Beryllium Copper multi-spring contact maintains retention after multiple insertions
- Ideal for mounting transistors, resistors, diodes, IC's and similar miniature components
- Custom micro jacks manufactured to your specifications
- Other platings available upon request

SPECIFICATIONS

Body: Brass, ASTM-B16
Spring: Beryllium Copper (QQ-C-533)

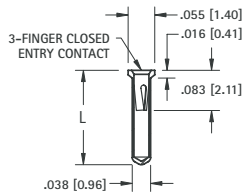
Plating:
Gold: .000010 per MIL-G-45204
RoHS (RoHS Compliant)

Tin/Lead: .000200 to .000300 per MIL-T-10727, Type 1
~~RoHS~~ (Non-RoHS Compliant)

PLATING OPTIONS

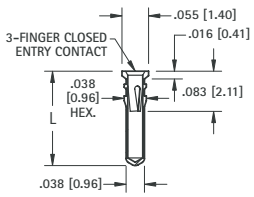
PLATING	BODY	CONTACT SPRING	RoHS
Gold/Gold	Gold	Gold	Compliant
Tin/Tin	Tin/Lead	Tin/Lead	Non-Compliant
Tin/Gold	Tin/Lead	Gold	

.015 (.38) - .021 (.53) PIN - SOLDER MOUNT



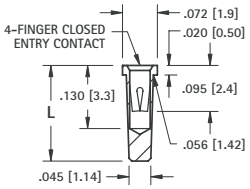
RoHS	NON-RoHS		L	Mtg.
GOLD/GOLD	TIN/TIN	TIN/GOLD		Hole
CAT. NO.	CAT. NO.	CAT. NO.	Length	Dia.
1411-1	1431-1	1420-1	.140 (3.6)	.042
1411-2	1431-2	1420-2	.170 (4.3)	(1.07)

.015 (.38) - .021 (.53) PIN - PRESS FIT



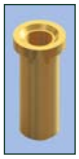
RoHS	NON-RoHS		L	Mtg.
GOLD/GOLD	TIN/TIN	TIN/GOLD		Hole
CAT. NO.	CAT. NO.	CAT. NO.	Length	Dia.
1412-1	1432-1	1468-1	.140 (3.6)	.040
1412-2	1432-2	1468-2	.170 (4.3)	(1.02)
1412-3	1432-3	1468-3	.282 (7.2)	

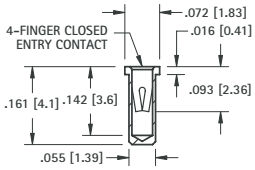
.015 (.38) - .025 (.64) PIN - TAPER-FIT



RoHS	NON-RoHS		L	Mtg.
GOLD/GOLD	TIN/TIN	TIN/GOLD		Hole
CAT. NO.	CAT. NO.	CAT. NO.	Length	Dia.
1415-1	1435-1	1469-1	.160 (4.1)	.055
1415-2	1435-2	1469-2	.190 (4.8)	(1.40)

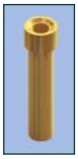
.015 (.38) - .025 (.64) PIN - SOLDER MOUNT

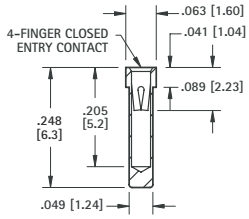




RoHS	NON-RoHS		Mtg.
GOLD/GOLD	TIN/TIN	TIN/GOLD	Hole
CAT. NO.	CAT. NO.	CAT. NO.	Dia.
1413	1433	1470	.059 (1.50)

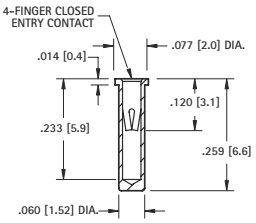
.015 (.38) - .025 (.64) PIN - SOLDER MOUNT





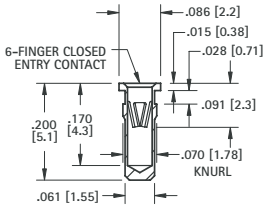
RoHS	NON-RoHS		Mtg.
GOLD/GOLD	TIN/TIN	TIN/GOLD	Hole
CAT. NO.	CAT. NO.	CAT. NO.	Dia.
1603	1606	1607	.052 (1.32)

.022 (.56) - .032 (.81) PIN - SOLDER MOUNT



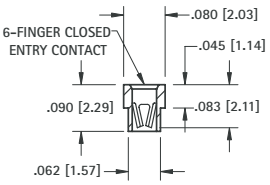
RoHS	NON-RoHS		Mtg.
GOLD/GOLD	TIN/TIN	TIN/GOLD	Hole
CAT. NO.	CAT. NO.	CAT. NO.	Dia.
1693	1694	1695	.063 (1.60)

.022 (.56) - .034 (.86) PIN - PRESS FIT



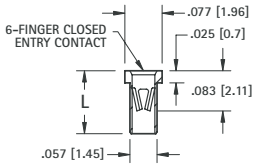
RoHS	NON-RoHS		Mtg.
GOLD/GOLD	TIN/TIN	TIN/GOLD	Hole
CAT. NO.	CAT. NO.	CAT. NO.	Dia.
1416	1436	1471	.067 (1.70)

.022 (.56) - .034 (.86) PIN - SOLDER MOUNT



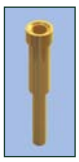
RoHS	NON-RoHS		Mtg.
GOLD/GOLD	TIN/TIN	TIN/GOLD	Hole
CAT. NO.	CAT. NO.	CAT. NO.	Dia.
1658	1659	1673	.065 (1.65)

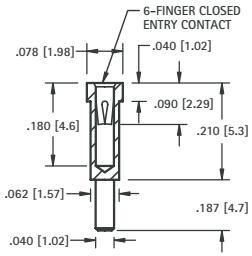
.025 (.64) - .037 (.94) PIN - SOLDER MOUNT



RoHS	NON-RoHS		L	Mtg.
GOLD/GOLD	TIN/TIN	TIN/GOLD		Hole
CAT. NO.	CAT. NO.	CAT. NO.	Length	Dia.
1626-1	1614-1	1619-1	.095 (2.4)	.062
1626-2	1614-2	1619-2	.105 (2.7)	(1.57)
1626-3	1614-3	1619-3	.155 (3.9)	

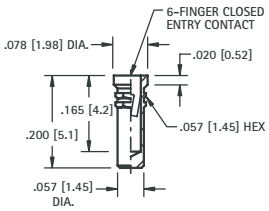
.025 (.64) - .037 (.94) PIN - SOLDER MOUNT





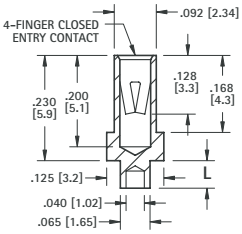
RoHS	NON-RoHS		Mtg.
GOLD/GOLD	TIN/TIN	TIN/GOLD	Hole
CAT. NO.	CAT. NO.	CAT. NO.	Dia.
3590	3591	3592	.065 (1.65)

.025 (.64) - .037 (.94) PIN - PRESS FIT



RoHS	NON-RoHS		Mtg.
GOLD/GOLD	TIN/TIN	TIN/GOLD	Hole
CAT. NO.	CAT. NO.	CAT. NO.	Dia.
1697	1698	1699	.063 (1.60)

.032 (.81) - .046 (1.17) PIN - SWAGE MOUNT



RoHS	NON-RoHS		L	Mtg.
GOLD/GOLD	TIN/TIN	TIN/GOLD		Hole
CAT. NO.	CAT. NO.	CAT. NO.	Length	Dia.
1419-1	1439-1	1478-1	.062 (1.6)	.069
1419-2	1439-2	1478-2	.094 (2.4)	(1.75)

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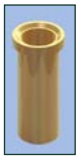
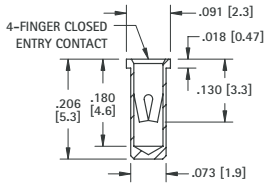
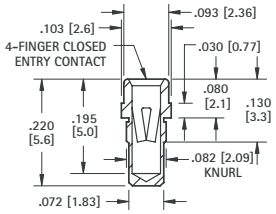
.032 (.81) - .046 (1.17) PIN - SOLDER MOUNT





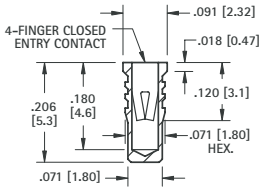
RoHS	NON-RoHS		Mtg.
GOLD/GOLD	TIN/TIN	TIN/GOLD	Hole
CAT. NO.	CAT. NO.	CAT. NO.	Dia.
1417	1437	1479	.076 (1.93)

.032 (.81) - .046 (1.17) PIN - PRESS-FIT



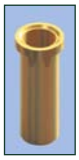
RoHS	NON-RoHS		Mtg.
GOLD/GOLD	TIN/TIN	TIN/GOLD	Hole
CAT. NO.	CAT. NO.	CAT. NO.	Dia.
1443	1446	1473	.078 (1.98)

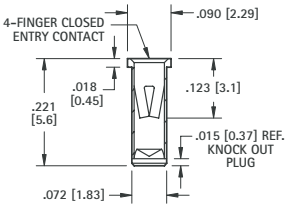
.032 (.81) - .046 (1.17) PIN - PRESS-FIT



RoHS	NON-RoHS		Mtg.
GOLD/GOLD	TIN/TIN	TIN/GOLD	Hole
CAT. NO.	CAT. NO.	CAT. NO.	Dia.
1442	1445	1486	.076 (1.93)

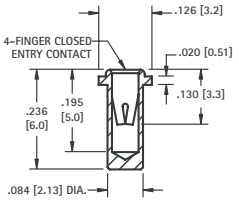
.032 (.81) - .046 (1.17) PIN - SOLDER MOUNT





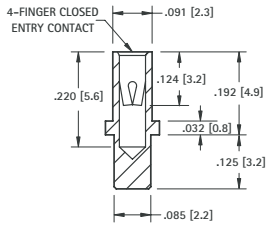
RoHS	NON-RoHS		Mtg.
GOLD/GOLD	TIN/TIN	TIN/GOLD	Hole
CAT. NO.	CAT. NO.	CAT. NO.	Dia.
1441	1444	1488	.076 (1.93)

.032 (.81) - .046 (1.17) PIN - SOLDER MOUNT



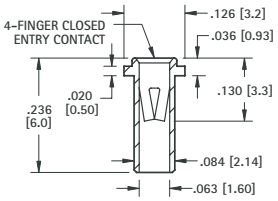
RoHS	NON-RoHS		Mtg.
GOLD/GOLD	TIN/TIN	TIN/GOLD	Hole
CAT. NO.	CAT. NO.	CAT. NO.	Dia.
1674	1675	1676	.087 (2.21)

.032 (.81) - .046 (1.17) PIN - SOLDER MOUNT



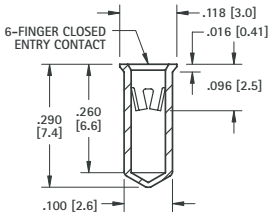
RoHS	NON-RoHS		Mtg.
GOLD/GOLD	TIN/TIN	TIN/GOLD	Hole
CAT. NO.	CAT. NO.	CAT. NO.	Dia.
1677	1678	1679	.089 (2.26)

.032 (.81) - .046 (1.17) PIN - SOLDER MOUNT



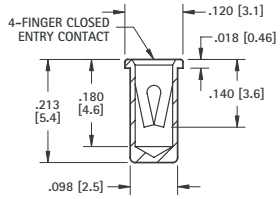
RoHS	NON-RoHS		Mtg.
GOLD/GOLD	TIN/TIN	TIN/GOLD	Hole
CAT. NO.	CAT. NO.	CAT. NO.	Dia.
1414	1434	1496	.089 (2.26)

.040 (1.02) - .050 (1.27) PIN - SOLDER MOUNT



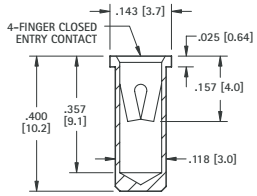
RoHS	NON-RoHS		Mtg.
GOLD/GOLD	TIN/TIN	TIN/GOLD	Hole
CAT. NO.	CAT. NO.	CAT. NO.	Dia.
1418	1438	1497	.104 (2.6)

.048 (1.22) - .064 (1.63) PIN - SOLDER MOUNT



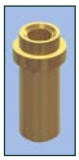
RoHS	NON-RoHS		Mtg.
GOLD/GOLD	TIN/TIN	TIN/GOLD	Hole
CAT. NO.	CAT. NO.	CAT. NO.	Dia.
1682	1683	1684	.102 (2.6)

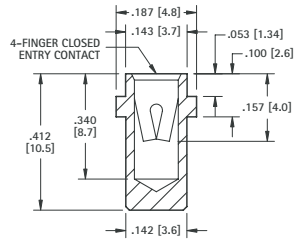
.065 (1.65) - .082 (2.08) PIN - SOLDER MOUNT



RoHS	NON-RoHS		Mtg.
GOLD/GOLD	TIN/TIN	TIN/GOLD	Hole
CAT. NO.	CAT. NO.	CAT. NO.	Dia.
1641A	1641B	1641C	.122 (3.1)

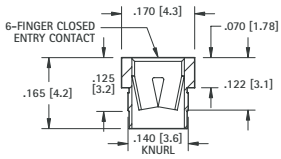
.065 (1.65) - .082 (2.08) PIN - SOLDER MOUNT





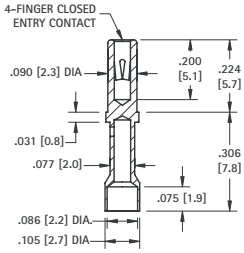
RoHS	NON-RoHS		Mtg.
GOLD/GOLD	TIN/TIN	TIN/GOLD	Hole
CAT. NO.	CAT. NO.	CAT. NO.	Dia.
1687	1688	1689	.146 (3.7)

.084 (2.13) - .102 (2.6) PIN - PRESS-FIT



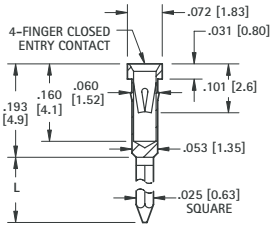
RoHS	NON-RoHS		Mtg.
GOLD/GOLD	TIN/TIN	TIN/GOLD	Hole
CAT. NO.	CAT. NO.	CAT. NO.	Dia.
1640A	1640B	1640C	.138 (3.5)

.032 (.81) - .046 (1.17) PIN - CRIMP BARREL JACK



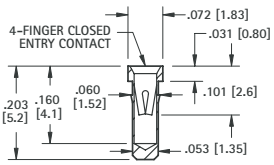
RoHS	NON-RoHS	
GOLD/GOLD	TIN/TIN	TIN/GOLD
CAT. NO.	CAT. NO.	CAT. NO.
3593	3594	3595

IC SOCKET CONTACTS FOR .015 (.38) – .025 (.64) LEADS – PRESS-FIT



RoHS	NON-RoHS			Mtg.
GOLD/GOLD	TIN/TIN	TIN/GOLD	L	Hole
CAT. NO.	CAT. NO.	CAT. NO.	Length	Dia.
3501	3505	3504	.360 (9.2)	.057
3502	3506	3508	.510 (13.0)	(1.45)

IC SOCKET CONTACTS FOR .015 (.38) – .025 (.64) LEADS – PRESS-FIT



RoHS	NON-RoHS		Mtg.
GOLD/GOLD	TIN/TIN	TIN/GOLD	Hole
CAT. NO.	CAT. NO.	CAT. NO.	Dia.
3503	3507	3509	.057 (1.45)

MICRO PINS

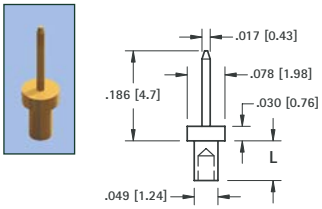
- Precision engineered and manufactured
- Space saving design for high density packaging
- Micro pins are available in .017 (.43) to .080 (2.03) diameters
- Ideal for mating with our standard line of micro jacks
- Available for press-fit, swage or solder mounting
- Custom micro pins manufactured to your specifications
- Other platings available upon request

SPECIFICATIONS

Material: Brass, ASTM-B16
Plating:
Gold: .000010 per MIL-G-45204
Tin: .000200 to .000300 per MIL-T-10727, Type 1
RoHS (RoHS Compliant)

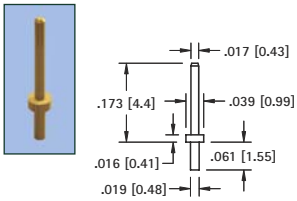
DASH NUMBERS (L Dimension)
-1 for .032 (.81) thick Board
-2 for .062 (1.57) thick Board
-3 for .093 (2.36) thick Board
-4 for .125 (3.2) thick Board
Example: 1967-1 for .032 (.81) thick Board
1967-2 for .062 (1.57) thick Board

.017 (.43) PIN -SWAGE MOUNT



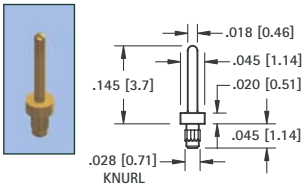
GOLD CAT. NO.	TIN CAT. NO.	L Length	Mtg. Hole Dia.
1967-1	1968-1	.051 (1.3)	.052 (1.32)
1967-2	1968-2	.082 (2.0)	

.017 (.43) PIN - SOLDER MOUNT



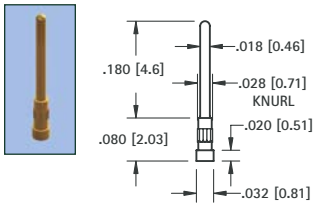
GOLD CAT. NO.	TIN CAT. NO.	Mtg. Hole Dia.
1378-1	1379-1	.022 (.56)

.018 (.46) PIN - PRESS-FIT



GOLD CAT. NO.	TIN CAT. NO.	Mtg. Hole Dia.
1986-1	1987-1	.026 (.66)

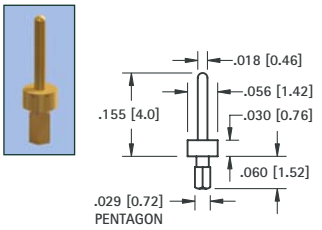
.018 (.46) PIN- PRESS-FIT



MATERIAL: Phosphor Bronze

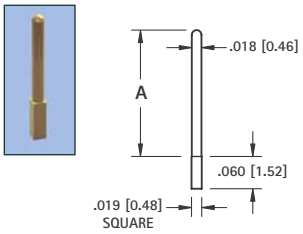
GOLD CAT. NO.	TIN CAT. NO.	Mtg. Hole Dia.
1990-2	1991-2	.026 (.66)

.018 (.46) PIN - PRESS-FIT



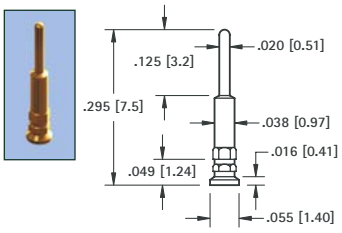
GOLD CAT. NO.	TIN CAT. NO.	Mtg. Hole Dia.
1988-2	1989-2	.026 (.66)

.018 (.46) PIN - PRESS-FIT



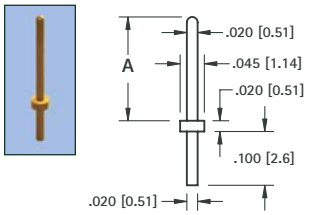
GOLD CAT. NO.	TIN CAT. NO.	A Dim.	Mtg. Hole Dia.
1992-2	1994-2	.243 (6.2)	.022 (.56)
1993-2	1995-2	.140 (3.6)	

.020 (.51) PIN - PRESS-FIT



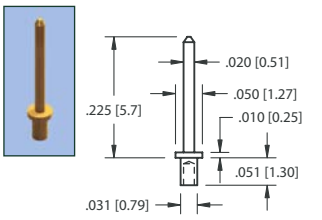
GOLD CAT. NO.	TIN CAT. NO.	Mtg. Hole Dia.
1996-2	1997-2	.040 (1.01)

.020 (.51) PIN - SOLDER MOUNT



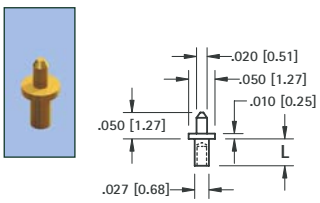
GOLD CAT. NO.	TIN CAT. NO.	A Dim.	Mtg. Hole Dia.
1998-3	2000-3	.250 (6.4)	.024 (.61)
1999-3	2001-3	.425 (10.8)	

.020 (.51) PIN - SWAGE MOUNT



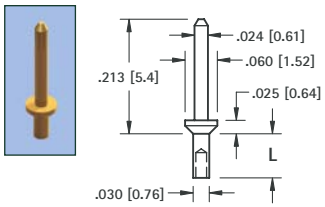
GOLD CAT. NO.	TIN CAT. NO.	Mtg. Hole Dia.
1366-1	1367-1	.035 (.89)

.020 (.51) PIN - SWAGE MOUNT



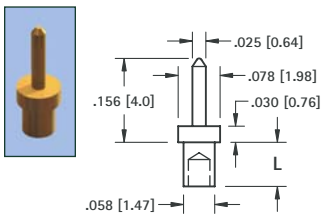
GOLD CAT. NO.	TIN CAT. NO.	L Length	Mtg. Hole Dia.
1372-1	1373-1	.051 (1.3)	.031 (.78)
1372-2	1373-2	.082 (2.1)	

.024 (.61) PIN - SWAGE MOUNT



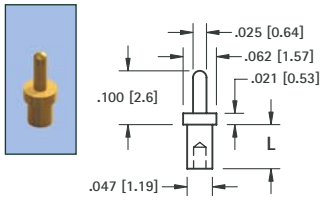
GOLD CAT. NO.	TIN CAT. NO.	L Length	Mtg. Hole Dia.
1406-1	1426-1	.047 (1.2)	.035 (.89)
1406-2	1426-2	.078 (1.9)	

.025 (.64) PIN - SWAGE MOUNT



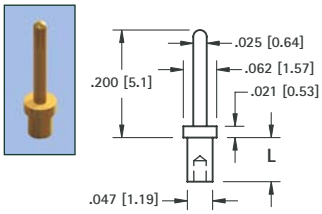
GOLD CAT. NO.	TIN CAT. NO.	L Length	Mtg. Hole Dia.
1408-1	1428-1	.062 (1.6)	.062 (1.57)
1408-2	1428-2	.094 (2.4)	

.025 (.64) PIN - SWAGE MOUNT



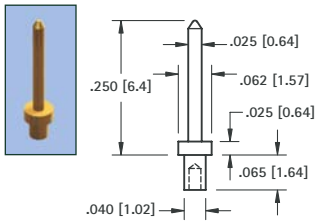
GOLD CAT. NO.	TIN CAT. NO.	L Length	Mtg. Hole Dia.
1404-1	1424-1	.051 (1.3)	.052 (1.32)
1404-2	1424-2	.082 (2.1)	

.025 (.64) PIN - SWAGE MOUNT



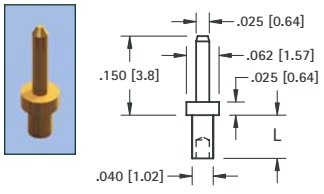
GOLD CAT. NO.	TIN CAT. NO.	L Length	Mtg. Hole Dia.
1407-1	1427-1	.051 (1.3)	.052 (1.32)
1407-2	1427-2	.082 (2.1)	

.025 (.64) PIN - SWAGE MOUNT



GOLD CAT. NO.	TIN CAT. NO.	Mtg. Hole Dia.
1401-1	1421-1	.043 (1.09)

.025 (.64) PIN - SWAGE MOUNT



GOLD CAT. NO.	TIN CAT. NO.	L Length	Mtg. Hole Dia.
1368-1	1369-1	.051 (1.3)	.043 (1.09)
1368-2	1369-2	.082 (2.1)	
1368-3	1369-3	.113 (2.9)	

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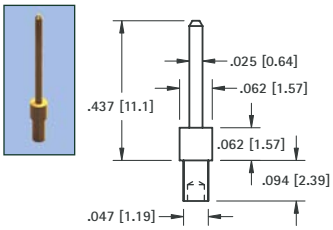
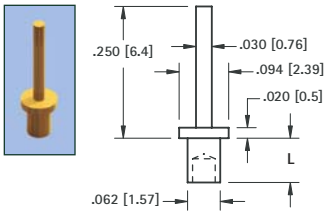
.025 (.64) PIN - SWAGE MOUNT



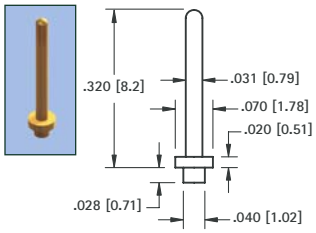
GOLD CAT. NO.	TIN CAT. NO.	Mtg. Hole Dia.
1370-2	1371-2	.052 (1.32)

.030 (.76) PIN - SWAGE MOUNT



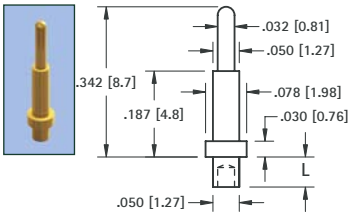
GOLD CAT. NO.	TIN CAT. NO.	L Length	Mtg. Hole Dia.
1374-1	1375-1	.051 (1.3)	.067 (1.70)
1374-2	1375-2	.082 (2.1)	
1374-3	1375-3	.113 (2.9)	

.031 (.79) PIN- SOLDER MOUNT



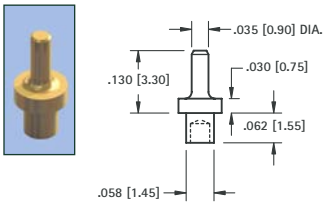
GOLD CAT. NO.	TIN CAT. NO.	Mtg. Hole Dia.
1352-1	1353-1	.043 (1.09)

.032 (.81) PIN- SWAGE MOUNT



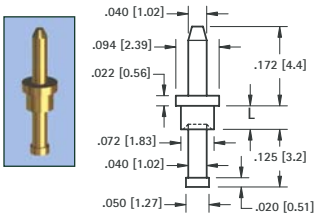
GOLD CAT. NO.	TIN CAT. NO.	L Length	Mtg. Hole Dia.
1354-1	1355-1	.051 (1.3)	.052 (1.32)
1354-2	1355-2	.082 (2.1)	

.035 (.90) PIN- SWAGE MOUNT



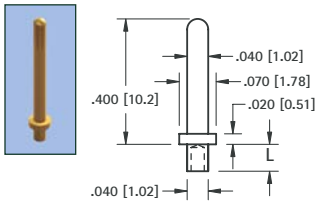
GOLD CAT. NO.	TIN CAT. NO.	Mtg. Hole Dia.
1380-1	1381-1	.062 (1.57)

.040 (1.0) PIN - SWAGE MOUNT



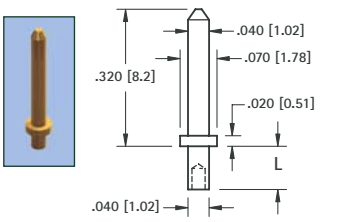
GOLD CAT. NO.	TIN CAT. NO.	L Length	Mtg. Hole Dia.
1356-1	1357-1	.051 (1.3)	.076 (1.93)
1356-2	1357-2	.082 (2.1)	
1356-3	1357-3	.113 (2.9)	

.040 (1.0) PIN - SWAGE MOUNT



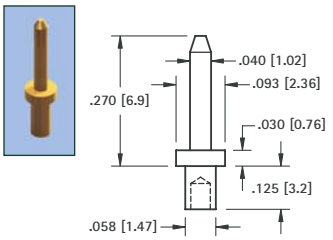
GOLD CAT. NO.	TIN CAT. NO.	L Length	Mtg. Hole Dia.
1358-1	1359-1	.051 (1.3)	.043 (1.09)
1358-2	1359-2	.082 (2.1)	

.040 (1.0) PIN - SWAGE MOUNT



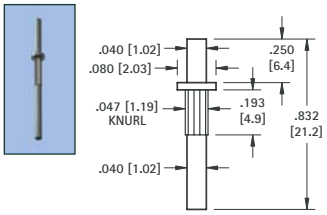
GOLD CAT. NO.	TIN CAT. NO.	L Length	Mtg. Hole Dia.
1405-1	1425-1	.051 (1.3)	.043 (1.09)
1405-2	1425-2	.082 (2.1)	
1405-3	1425-3	.113 (2.9)	

.040 (1.0) PIN - SWAGE MOUNT



GOLD CAT. NO.	TIN CAT. NO.	Mtg. Hole Dia.
1402-3	1422-3	.062 (1.57)

.040 (1.0) KAY PIN - PRESS-FIT

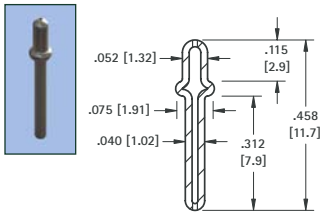


MATERIAL:
Solid Nickel Silver

CAT. NO. 1218

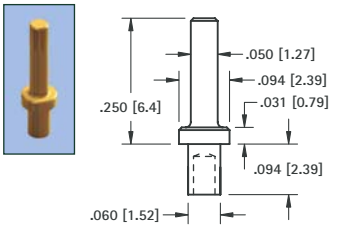
Mtg. Hole .043 (1.09) Dia.

.040 (1.0) HOLLOW PIN - SWAGE MOUNT



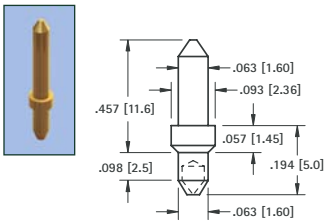
TIN CAT. NO.	Mtg. Hole Dia.
1219	.059 (1.50)

.050 (1.3) PIN - SWAGE MOUNT



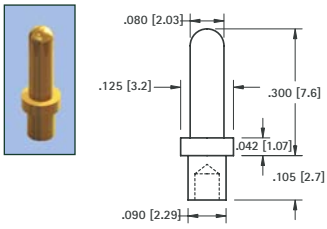
GOLD CAT. NO.	TIN CAT. NO.	Mtg. Hole Dia.
1360-2	1361-2	.064 (1.63)

.063 (1.6) PIN - SWAGE MOUNT



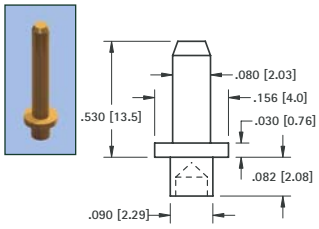
GOLD CAT. NO.	TIN CAT. NO.	Mtg. Hole Dia.
1362-2	1363-2	.067 (1.70)

.080 (2.0) PIN - SWAGE MOUNT



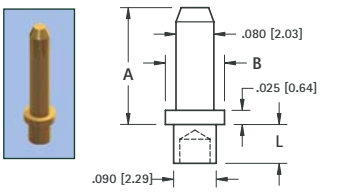
GOLD CAT. NO.	TIN CAT. NO.	Mtg. Hole Dia.
1376-2	1377-2	.094 (2.38)

.080 (2.0) PIN - SWAGE MOUNT



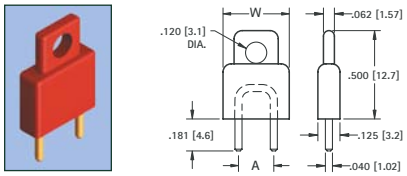
GOLD CAT. NO.	TIN CAT. NO.	Mtg. Hole Dia.
1364-2	1365-2	.094 (2.38)

.080 (2.0) PIN - SWAGE MOUNT



GOLD CAT. NO.	TIN CAT. NO.	A Dim.	B Dia.	L Length
1447-1	1455-1	.335 (8.5)	.156 (4.0)	.051 (1.3)
1447-2	1455-2	.400 (10.2)	.125 (3.2)	.094 (2.4)
1447-3	1455-3	.400 (10.2)	.125 (3.2)	.125 (3.2)
1447-4	1455-4	.400 (10.2)	.125 (3.2)	.156 (4.0)

INSULATED SHORTING PLUG

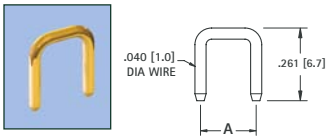


BLUE CAT. NO.	RED CAT. NO.	BLACK CAT. NO.	A Dim.	W Dim.
1460L	1460R	1460B	.200 (5.1)	.375 (9.5)
1461L	1461R	1461B	.250 (6.4)	.375 (9.5)
1462L	1462R	1462B	.400 (10.2)	.620 (15.7)
1463L	1463R	1463B	.500 (12.7)	.620 (15.7)

MATERIAL:
Insulator: Polypropylene
Blue, Red or Black
Pin: Brass, Gold Plate

.040 (1.0) PINS

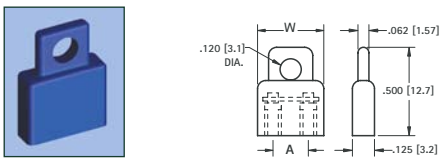
SHORTING PIN



Non-insulated CAT. NO.	A Dim.
1430-1	.200 (5.1)
1430-2	.250 (6.4)
1430-4	.400 (10.2)
1430-5	.500 (12.7)

MATERIAL:
Pin: Brass, Gold Plate

INSULATED SHORTING JACK



- For .040 (1.0) Pins

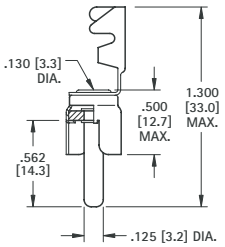
BLUE CAT. NO.	RED CAT. NO.	BLACK CAT. NO.	A Dim.	W Dim.
1487L	1487R	1487B	.200 (5.1)	.375 (9.5)
1400L	1400R	1400B	.400 (10.2)	.620 (15.7)

MATERIAL:
Insulator: Polypropylene
Blue, Red or Black
Spring: Beryllium
Copper, Gold Plate

PHONO PLUGS

• Mates with .125 (3.2) diameter jacks

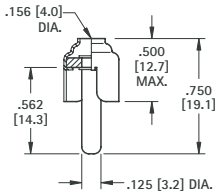
STRAIN RELIEF LUG CRIMPS TO WIRE INSULATION



MATERIAL:
Shell: Steel, Tin Plate
Pin: Brass, Nickel Plate

CAT. NO. 565

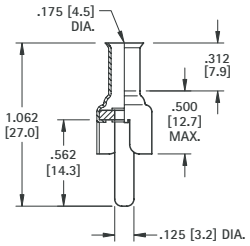
CONVENTIONAL TYPE



MATERIAL:
Shell: Brass, Nickel Plate
Pin: Brass, Nickel Plate

CAT. NO. 561

CRIMP OR SOLDER TYPE EXTRA LONG HANDLE



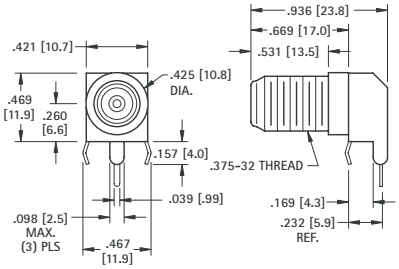
MATERIAL:
Shell: Steel, Tin Plate
Pin: Brass, Nickel Plate

CAT. NO. 567

"F" FEMALE CONNECTOR

SNAP-FIT PC MOUNT

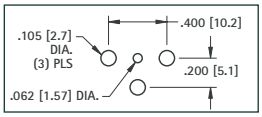
- Low profile
- Snap-fit mounting for positive retention during wave soldering
- Rugged, stable construction facilitates reliable mating
- High reliability, manufactured using Nickel Plated Brass bodies and Tin Plated Phosphor Bronze contacts
- Supplied with washer and nut



MATERIAL:
Shell: Steel, Tin Plate
Body: Brass, Nickel Plate
Contacts: Brass, Tin Plate

CAT. NO. 911

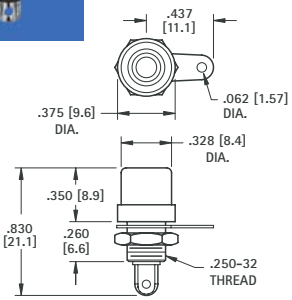
Mounting Detail



PANEL MOUNT PHONO JACKS

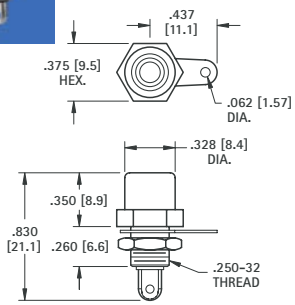
- Mates with .125 (3.12) dia. pin
- Mounts to panel in .296 (7.6) dia. hole
- Color coded for ease of identification
- Complete with nut and solder lug

ROUND BASE



CAT. NO.	INSULATOR COLOR
598	WHITE
580	RED
574	BLACK
599	YELLOW

HEX BASE

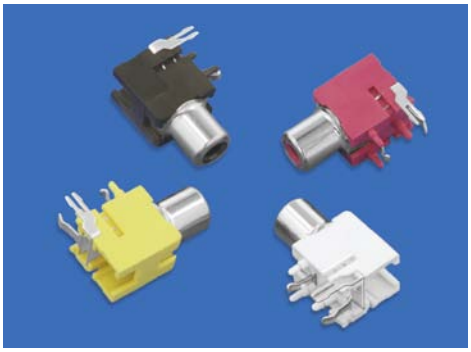


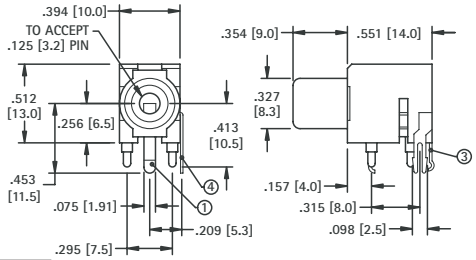
CAT. NO.	INSULATOR COLOR
581	WHITE
582	RED
576	BLACK
583	YELLOW

MATERIAL:
Brass, Nickel Plate

COLOR KEYED - PC PHONO JACKS

•Mates with .125 (3.2) diameter pins • Features a normally closed circuit
•Various colors for circuit identification • Snap-fit mounting for positive retention during wave soldering



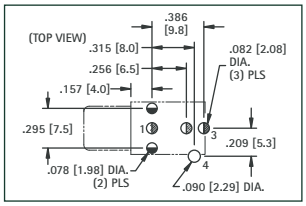


CAT. NO.	INSULATOR COLOR
970	WHITE
971	RED
972	BLACK
973	YELLOW

SPECIFICATIONS
Housing: PBT
Ground Terminal: .020 (.51) Brass, Nickel Plate ①
Spring Contact: .012 (.30) Phosphor Bronze, Silver Plate ③
Shunt Terminal: .016 (.41) thick Brass, Silver Plate ④

SCHEMATIC

Mounting Detail



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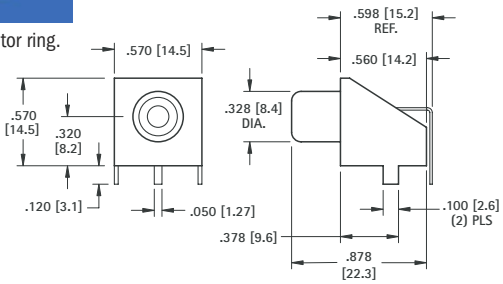
31-07 20th Road – Astoria, NY 11105-2017

90° PC PHONO JACK

Complete one piece jack for insertion into PC board.
Time Saving. No Wiring Required.

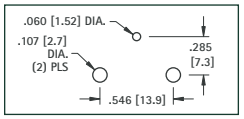
- Black insulator ring.



MATERIAL:
Base: Steel, Tin Plate
Shell: Steel, Nickel Plate
Contact: Brass, Tin Plate

CAT. NO. 902

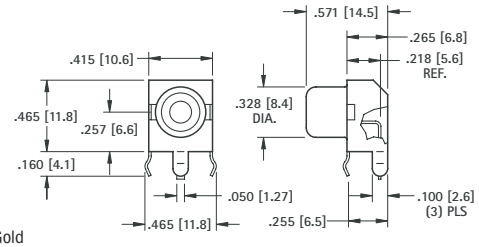
Mounting Detail



SNAP-FIT 90° PC PHONO JACKS

CHOICE OF TIN OR GOLD PLATE

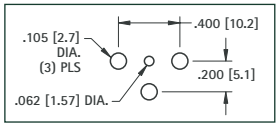
Complete one piece jack for insertion into PC board.
Time Saving. No Wiring Required.
Snap-fits into PC board.



MATERIAL:
Shell: Steel
Contact: Brass
Plating: Tin or Gold

TIN PLATE CAT. NO.	INSULATOR COLOR	GOLD PLATE CAT. NO.
587	WHITE	936
588	RED	937
901	BLACK	900
589	YELLOW	938

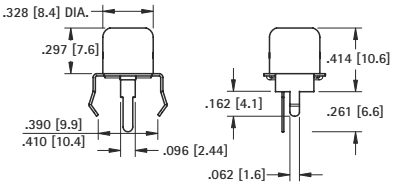
Mounting Detail



SNAP-FIT VERTICAL PC JACK

- Snaps into holes on PC board and firmly held for soldering
- No staking required

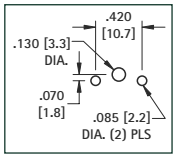
- Red insulator ring



MATERIAL:
Shell: Steel, Tin Plate
Contact: Brass, Tin Plate

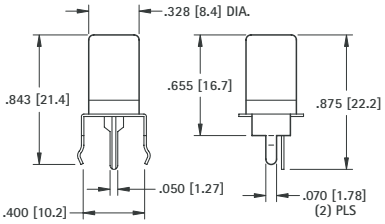
CAT. NO. 572

Mounting Detail



SNAP-FIT VERTICAL PC PHONO JACKS

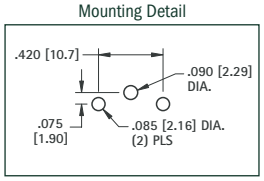
- Extra long, one piece shell to accept plugs with longer pins for greater contact
- Snaps into holes on PC board and firmly held for soldering
- No staking required



CAT. NO.	INSULATOR COLOR
584	WHITE
577	RED
585	BLACK
586	YELLOW

MATERIAL:
Shell: Steel, Nickel Plate
Contact: Brass, Tin Plate

Mounting Detail

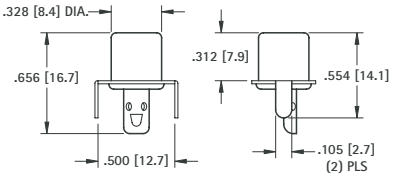


PC PHONO JACKS

VERTICAL

- For applications requiring staking to product

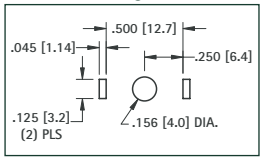
- White insulator ring



MATERIAL:
Shell: Steel, Tin Plate
Contact: Brass, Tin Plate

CAT. NO. 573

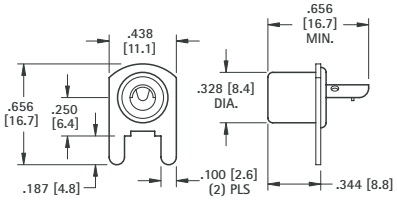
Mounting Detail



HORIZONTAL

- Mounted on bracket ready for insertion into pre-drilled holes
- Solder lug allows remote attachment of signal to PC board

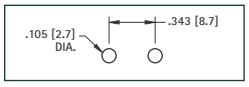
- Red insulator ring



MATERIAL:
Shell: Steel, Tin Plate
Contact: Brass, Tin Plate

CAT. NO. 571

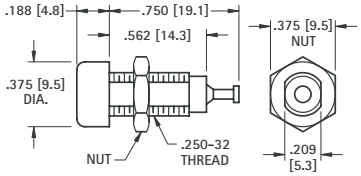
Mounting Detail



FULLY INSULATED DELUXE TIP JACK

ACCEPTS .080 (2.0) TIP WITH CLOSED ENTRY CONTACT

Fully molded body with recessed closed entry design. Assures maximum retention with .010Ω maximum contact resistance. Prevents accidental insertion of larger diameter probes. Current rating: 10 Amps. Breakdown voltage 5700V RMS. Capacitance to metal panel 2.0 pF nominal. Supplied with nut.



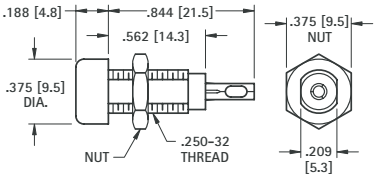
CAT. NO.	COLOR
6030	WHITE
6031	RED
6032	BLACK
6033	GREEN
6034	YELLOW
6035	BLUE

MATERIAL:
Body: Molded Nylon ASTM D4066
Contact: Beryllium Copper, Silver Plate
Terminal: Brass, Tin Plate

FULLY INSULATED STANDARD TIP JACK

ACCEPTS .080 (2.0) TIP

Economical tip jacks with molded Nylon body. Low contact resistance. Formed Phosphor Bronze contact with solder hole for ease in attaching wire. Current rating 10 Amps. Breakdown voltage 5700 VRMS. Capacitance to metal panel 3.8 pF. Supplied with nut.



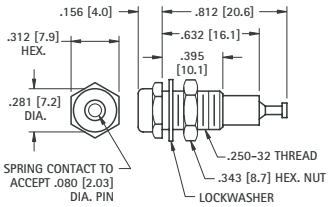
CAT. NO.	COLOR
6018	WHITE
6019	RED
6020	BLACK
6021	GREEN
6022	YELLOW
6023	BLUE

MATERIAL:
Body: Molded Nylon ASTM D4066
Contact: Phosphor Bronze, Tin Plate

METAL-CLAD TIP JACK (MIL)

ACCEPTS .080 (2.0) TIP WITH CLOSED ENTRY CONTACT

High quality tip jack for high reliability industrial applications. Ideal for use where required to withstand severe environmental conditions, temperature, vibration and salt spray. Recessed closed entry contact. Current rating 10 amps. Breakdown voltage: 5700V RMS. Made to MIL-C39024/10. Capacitance to metal panel 2.0 pF. Supplied complete with hardware.



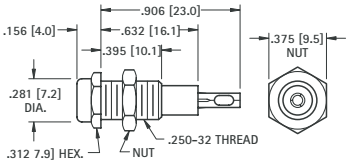
MATERIAL:
Body: Molded Nylon ASTM D4066
Shell & Nut: Brass QQ-B-626, Nickel Plate QQ-N-290
Contact: Beryllium Copper for QQ-C-533. Gold Plate MIL-G-45204

CAT. NO.	COLOR
6012	WHITE
6013	RED
6014	BLACK
6015	GREEN
6016	YELLOW
6017	BLUE

METAL-CLAD TIP JACK (STD)

ACCEPTS .080 (2.0) TIP

Molded Nylon body with metal jacket. Contact is formed from phosphor bronze contact with solder hole for ease in attaching wire. Designed for positive contact, easy insertion and withdrawal. Current rating: 10 Amps. Breakdown voltage 5700V RMS. Capacitance to metal panel 3.8 pF. Supplied with nut.



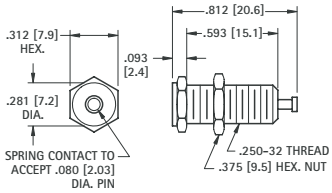
MATERIAL:
Body: Molded Nylon ASTM D4066
Shell: Brass, Nickel Plate
Contact: Phosphor Bronze, Silver Plate

CAT. NO.	COLOR
6024	WHITE
6025	RED
6026	BLACK
6027	GREEN
6028	YELLOW
6029	BLUE

UNINSULATED TIP JACK

ACCEPTS .080 (2.0) TIP

Quality, precision machined tip jack made of brass. Ideal for use on metal panels where grounding is required. Fits panels up to .375 (9.5) Thick. Supplied with nut.



MATERIAL:
Body: Brass, Nickel Plate
Contact: Beryllium Copper
Current Rating: 15 Amps

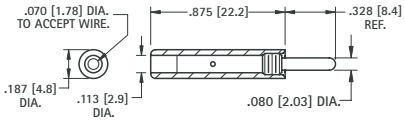
CAT. NO. 6097

SOLDER TIP PLUGS

.080 (2.0) DIAMETER TIP

Designed for miniaturization where space is critical. Solder lead connection. Maximum reliability with minimum contact resistance. Base of tip is recessed to eliminate shock or grounding. Fits all standard jacks.

MATERIAL:
Tip: Brass, Nickel Plate
Handle: Nylon 6/6
Current Rating: 10 Amps.



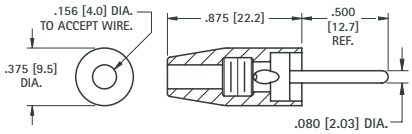
CAT. NO.	COLOR	CAT. NO.	COLOR
6006	WHITE	6009	GREEN
6007	RED	6010	YELLOW
6008	BLACK	6011	BLUE

SOLDERLESS TIP PLUGS

.080 (2.0) DIAMETER TIP

Fully insulated molded nylon sleeve. Maximum reliability with minimum contact resistance. Recessed metal head eliminates possibility of shock or grounding. Designed for solderless connection of up to 16 gauge stranded wire which fits through handle and tip and is secured by screwing handle tight. Fits all standard tip jacks.

MATERIAL:
Tip: Brass, Nickel Plate
Handle: Nylon 6/6
Current Rating: 10 Amps.



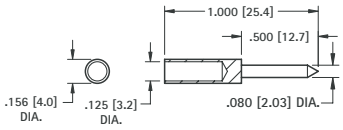
CAT. NO.	COLOR	CAT. NO.	COLOR
6000	WHITE	6003	GREEN
6001	RED	6004	YELLOW
6002	BLACK	6005	BLUE

STANDARD PHONE TIP

.080 (2.0) DIAMETER TIP

Accepts up to 12 gauge wire. Fits all standard tip jacks.

MATERIAL: Brass, Nickel Plate



CAT. NO. 1601

Tel (718) 956-8900 • Fax (718) 956-9040
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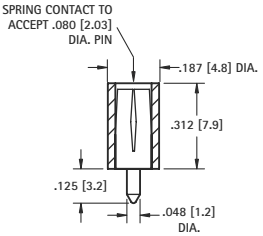
RoHS COMPLIANT ~ ISO 9001 CERTIFIED
www.keyelco.com
31-07 20th Road – Astoria, NY 11105-2017

.080 [2.0] PC TEST JACKS

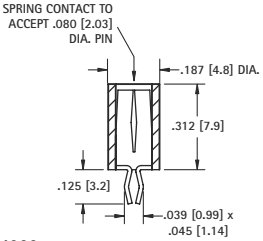
VERTICAL



MATERIAL:
Body: Nylon per ASTM D4066
Contact: Brass, Silver Plate

CAT. NO.	COLOR
6036	WHITE
6037	RED
6038	BLACK
6039	YELLOW
6040	GREEN
6041	BLUE

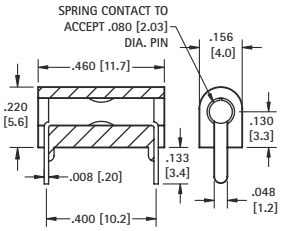
SNAP-FIT VERTICAL



MATERIAL:
Body: Nylon per ASTM D4066
Contact: Beryllium Copper, Silver Plate
Mounting: Snap-fits into .052 (1.32) hole

CAT. NO.	COLOR
6042	WHITE
6043	RED
6044	BLACK
6045	YELLOW
6046	GREEN
6047	BLUE

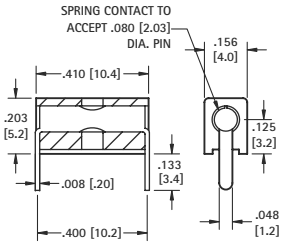
LOW PROFILE HORIZONTAL



GOLD PLATE CAT. NO.	COLOR	SILVER PLATE CAT. NO.
6060	WHITE	6066
6061	RED	6067
6062	BLACK	6068
6063	YELLOW	6069
6064	GREEN	6070
6065	BLUE	6071

MATERIAL:
Body: Nylon per ASTM D4066
Contact: Beryllium Copper, Gold or Silver Plate

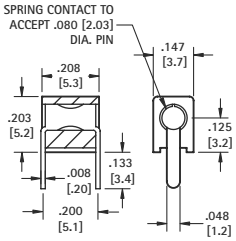
UNIVERSAL HORIZONTAL



CAT. NO.	COLOR
6054	WHITE
6055	RED
6056	BLACK
6057	YELLOW
6058	GREEN
6059	BLUE

MATERIAL:
Body: Nylon per ASTM D4066
Contact: Beryllium Copper, Silver Plate

MINIATURE HORIZONTAL



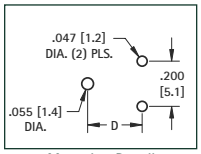
CAT. NO.	COLOR
6048	WHITE
6049	RED
6050	BLACK
6051	YELLOW
6052	GREEN
6053	BLUE

MATERIAL:
Body: Nylon per ASTM D4066
Contact: Beryllium Copper, Silver Plate

HIGH TEMPERATURE PTFE INSULATED TEST POINT JACKS

SPECIFICATIONS
Terminal Jack: Beryllium Copper (QQ-C-533)
*Brass ASTM B16
Plating: Gold per MIL-G-45204, Type II
Operating Tempuature: -60 (-50) to + 500

Bushing:
White PTFE RoHS (RoHS Compliant)
Red or Black PTFE ~~RoHS~~ (Non-RoHS Compliant)



Mounting Detail

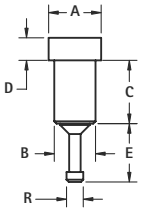


FIG. 1

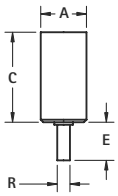


FIG. 2

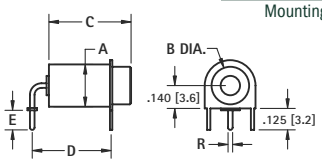


FIG. 3

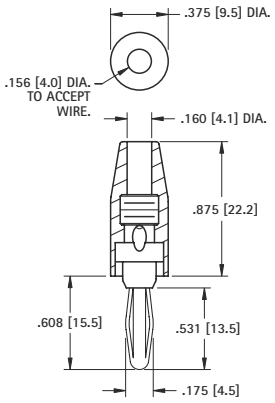
RoHS	NON-RoHS									Accepts	
White	Red	Black								Tip Dia.	Tip
CAT NO.	CAT NO.	CAT NO.	FIG.	A	B	C	D	E	R	± .001 (.03)	Length
11001	11001-R	11001-B	1	.142 (3.6)	.120 (3.0)	.244 (6.2)	.046 (1.2)	.120 (3.0)	.060 (1.5)	.040 (1.0)	.205 (5.2)
11002	11002-R	11002-B	1	.142 (3.6)	.120 (3.0)	.283 (7.2)	.046 (1.2)	.120 (3.0)	.060 (1.5)	.040 (1.0)	.245 (6.2)
11003	11003-R	11003-B	1	.172 (4.4)	.140 (3.6)	.142 (3.6)	.050 (1.3)	.060 (1.5)	.080 (2.0)	.040 (1.0)	.125 (3.2)
11004	11004-R	11004-B	1	.172 (4.4)	.148 (3.8)	.179 (4.5)	.046 (1.2)	.120 (3.0)	.060 (1.5)	.040 (1.0)	.140 (3.6)
11005	11005-R	11005-B	1	.218 (5.5)	.185 (4.7)	.301 (7.6)	.050 (1.3)	.105 (2.7)	.125 (3.2)	.080 (2.0)	.315 (8.0)
11006	11006-R	11006-B	1	.218 (5.5)	.185 (4.7)	.271 (6.9)	.046 (1.2)	.120 (3.0)	.074 (1.9)	.080 (2.0)	.195 (4.9)
11007	11007-R	11007-B	1	.218 (5.5)	.185 (4.7)	.271 (6.9)	.046 (1.2)	.120 (3.0)	.074 (1.9)	.090 (2.3)	.195 (4.9)
11008	11008-R	11008-B	1	.218 (5.5)	.185 (4.7)	.301 (7.6)	.046 (1.2)	.120 (3.0)	.074 (1.9)	.080 (2.0)	.225 (5.7)
11009	11009-R	11009-B	1	.218 (5.5)	.185 (4.7)	.400 (10.2)	.050 (1.3)	.187 (4.8)	.074 (1.9)	.080 (2.0)	.280 (7.1)
11010	11010-R	11010-B	1	.218 (5.5)	.185 (4.7)	.271 (6.9)	.046 (1.2)	.136 (3.5)	.074 (1.9)	.080 (2.0)	.340 (8.6)
11011	11011-R	11011-B	2	.218 (5.5)	–	.430 (10.9)	–	.150 (3.8)	.050 (1.3)	.080 (2.0)	.200 (5.1)
11012*	11012-R*	11012-B*	2	.218 (5.5)	–	.500 (12.7)	–	.150 (3.8)	.050 (1.3)	.080 (2.0)	.280 (7.1)
11013	11013-R	11013-B	3	.218 (5.5)	.187 (4.8)	.689 (17.5)	.500 (12.7)	.125 (3.2)	.050 (1.3)	.080 (2.0)	.500 (12.7)
11014	11014-R	11014-B	3	.218 (5.5)	.187 (4.8)	.378 (9.6)	.400 (10.2)	.125 (3.2)	.050 (1.3)	.080 (2.0)	.250 (6.4)
11015	11015-R	11015-B	3	.218 (5.5)	.187 (4.8)	.378 (9.6)	.400 (10.2)	.187 (4.7)	.035 (.89)	.080 (2.0)	.250 (6.4)
11016	11016-R	11016-B	3	.218 (5.5)	.187 (4.8)	.378 (9.6)	.500 (12.7)	.125 (3.2)	.050 (1.3)	.080 (2.0)	.250 (6.4)

* Terminal Material: Brass ASTM B16

STANDARD SOLDERLESS

SOLDERLESS CONNECTION

.175 (4.5)
Plug

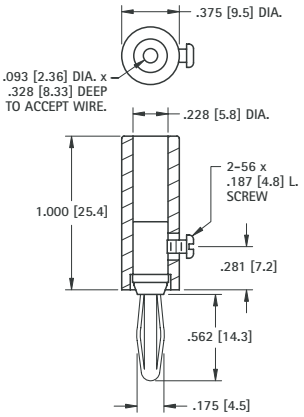


MATERIAL:
Spring: Nickel Silver
Body: Brass, Nickel Plate
Handle: Nylon

CAT. NO.	COLOR
6078	RED
6079	BLACK

SOLDERLESS WITH SET SCREW

.175 (4.5)
Plug

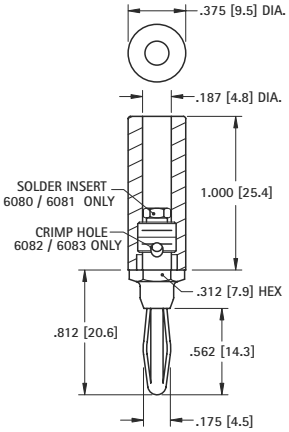


MATERIAL:
Spring: Nickel Silver
Body: Brass, Nickel Plate
Handle: Nylon

CAT. NO.	COLOR
6084	RED
6085	BLACK

SOLDERLESS CONNECTION

.175 (4.5)
Plug



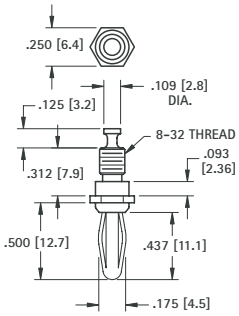
MATERIAL:
Spring: Phosper Bronze
Body: Brass, Nickel Plate
Handle: Nylon

RED CAT. NO.	BLACK CAT. NO.	WIRE CONNECTION
6080	6081	SOLDER
6082	6083	SOLDERLESS

EXTERNAL THREAD

SOLDER LUG

.175 (4.5)
Plug

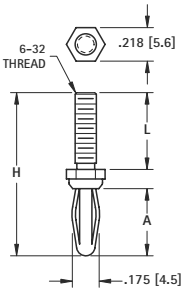


MATERIAL:
Spring: Beryllium Copper
Body: Brass, Nickel Plate

CAT. NO. 652

FOUR LEAF SPRING

.175 (4.5)
Plug

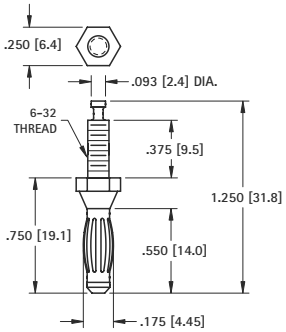


MATERIAL:
Spring: Beryllium Copper (Cat. No. 653)
Spring: Phospor Bronze (Cat. No. 654, 655)
Body: Brass, Nickel Plate

CAT. NO.	H	L	A
653	1.062 (27.0)	.500 (12.7)	.437 (11.1)
654	.937 (24.7)	.188 (4.8)	.550 (14.0)
655	1.250 (31.8)	.500 (12.7)	.550 (14.0)

BARREL SPRING

.175 (4.5)
Plug

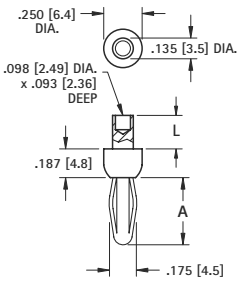


MATERIAL:
Spring: Beryllium Copper
Body: Brass, Nickel Plate

CAT. NO. 657

STANDARD RIVET

.175 (4.5)
Plug

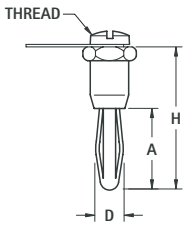


MATERIAL:
Four Leaf Spring: Phosphor Bronze,
*Barrel Spring, Beryllium Copper
Body: Brass, Nickel Plate

CAT. NO.	L	A	SPRING
552-3	.187 (4.7)	.437 (11.1)	4 leaf
658	.187 (4.7)	.550 (14.0)	barrel
552-4	.218 (5.5)	.437 (11.1)	4 leaf

INTERNAL THREAD

Supplied with screw and lug
Unassembled

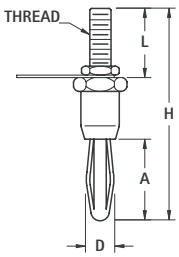


MATERIAL:
Four Leaf Spring: Phosphor Bronze,
*Barrel Spring, Beryllium Copper
Body: Brass, Nickel Plate

CAT. NO.	D	A	H	THREAD	SPRING
6072	.175 (4.4)	.531 (13.5)	.960 (24.4)	6-32	4 leaf
659*	.175 (4.4)	.550 (14.0)	.960 (24.4)	6-32	barrel
6073	.218 (5.5)	.437 (11.1)	1.120 (28.4)	10-32	4 leaf

EXTERNAL THREAD

Supplied with nut and lug
Unassembled



MATERIAL:
Spring: Phosphor Bronze
Body: Brass, Nickel Plate

CAT. NO.	D	A	H	L	THREAD
6074-1	.175 (4.5)	.531 (13.5)	1.125 (28.6)	.375 (9.5)	6-32
6074-2	.175 (4.5)	.531 (13.5)	1.500 (38.1)	.750 (19.1)	6-32
6075	.300 (7.5)	.750 (19.1)	1.750 (44.5)	.625 (15.9)	1/4-28

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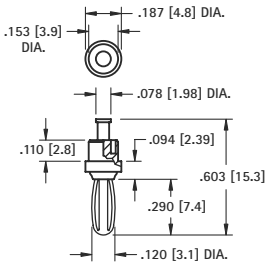
MINIATURE PLUGS

SWAGE MOUNT

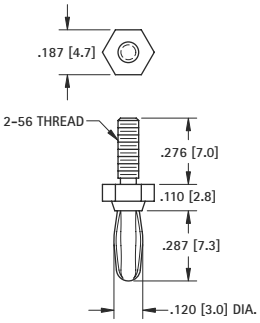
.120 (3.0)
Plug



CAT. NO. 452

MATERIAL:
Spring: Beryllium Copper
Body: Brass, Silver Plate

THREADED

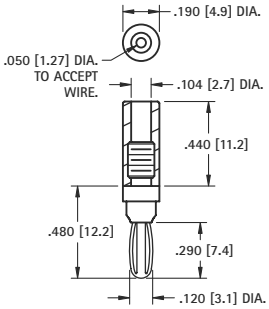


CAT. NO. 450

MATERIAL:
Spring: Beryllium Copper, Nickel Plate
Body: Brass, Silver Plate

SOLDER CONNECTION

.120 (3.0)
Plug



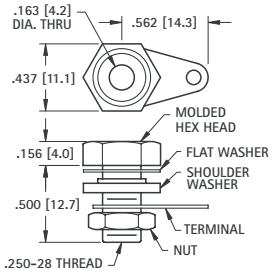
CAT. NO.	COLOR
6076	RED
6077	BLACK
451	NONE

MATERIAL:
Spring: Beryllium Copper, Nickel Plate
Body: Brass, Nickel Plate
Handle: Nylon

BANANA JACKS

INSULATED SOLDER CONNECTION

Accepts
.175 (4.5)
Plug



Supplied with hardware
Unassembled

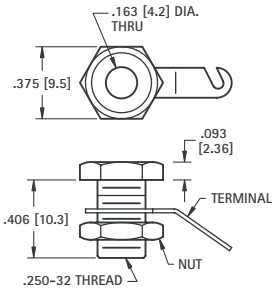
CAT. NO.	HEAD COLOR
6093	RED
6094	BLACK

MATERIAL:
Body: Brass, Nickel Plate
Terminal: Copper, Tinned
Hex Head: Phenolic

NON-INSULATED RECESSED HEAD

Fits panel up to .312 (7.9)

Accepts
.175 (4.5)
Plug



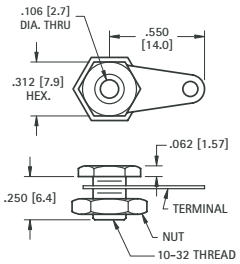
Supplied with nut and lug.
Unassembled

CAT. NO. 6095

MATERIAL:
Current Rating: 15 Amps
Body: Brass, Nickel Plate
Terminal: Brass, Tin Plate

NON-INSULATED MINIATURE JACK

Accepts
.120 (3.0)
Plug



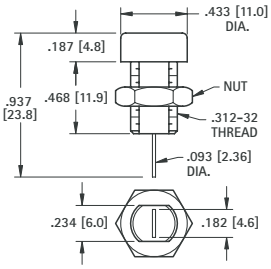
Supplied with lug and nut.
Unassembled

CAT. NO. 6090

MATERIAL:
Body: Brass, Nickel Plate
Terminal: Copper, Tinned

FULLY INSULATED

Accepts
.175 (4.5)
Plug



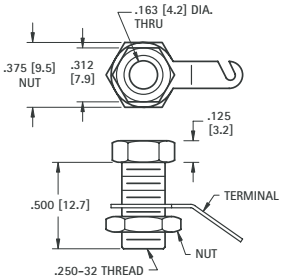
CAT. NO.	COLOR
6091	RED
6092	BLACK

MATERIAL:
Body: Nylon
Contact: Brass, Tin Plate

NON-INSULATED STANDARD HEAD

Fits panel up to .375 (9.6)

Accepts
.175 (4.5)
Plug



Supplied with nut and lug.
Unassembled

CAT. NO. 6096

MATERIAL:
Current Rating: 15 Amps
Body: Brass, Nickel Plate
Terminal: Brass, Tin Plate

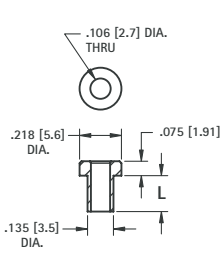
NON-INSULATED

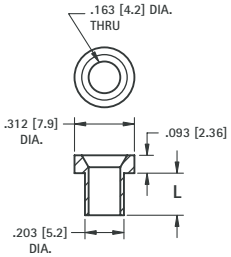
MINIATURE

Accepts
.120 (3.0)
Plug

STANDARD

Accepts
.175 (4.5)
Plug





MATERIAL:
Brass, Tin Plate

CAT. NO.	L
476-2	.125 (3.2)
476-3	.165 (4.2)
476-4	.187 (4.7)

MATERIAL:
Brass, Nickel Plate

CAT. NO.	L
575-4	.218 (5.5)
575-6	.265 (6.7)
575-8	.350 (8.9)

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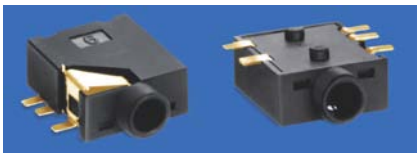
SURFACE MOUNT AUDIO JACKS

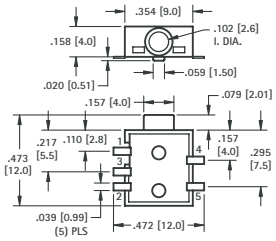
- Mates with 2.5mm and 3.5mm plugs
- Designed for reliable interface with audio equipment including computer speakers, headphones, sound cards, cell phones, etc.
- Models available for mono and stereo applications
- Low profile, surface mount design



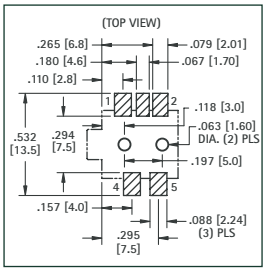
SPECIFICATIONS
Housing: Polyamide, UL Rated 94V-0
Ground Terminal: .012 (.30) Brass, Gold Flash ①
Spring Contacts: .008 (.20) Phosphor Bronze, Gold Flash ② ⑤
Shunt Terminals: .012 (.30) Brass, Gold flash ③ ④

SUPPLIED ON TAPE AND REEL

FOR 2.5 mm PLUGS



Pad Layout



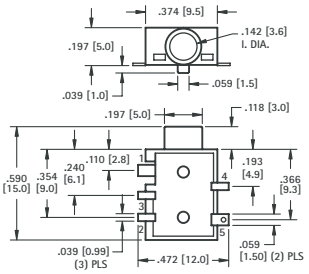
CAT. NO. 980TR (Stereo)
CAT. NO. 982TR (Mono)

Tape Spec's: 24mm wide; 16mm pitch
Reel Spec's: 15 inch reel (1,000 pieces per reel)

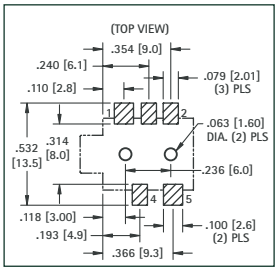
STEREO SCHEMATIC

MONO SCHEMATIC

FOR 3.5 mm PLUGS



Pad Layout



CAT. NO. 981TR (Stereo)
CAT. NO. 983TR (Mono)

Tape Spec's: 24mm wide; 16mm pitch
Reel Spec's: 15 inch reel (800 pieces per reel)

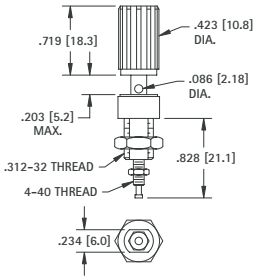
BINDING POSTS

All Keystone binding posts are designed to prevent accidental contact with current carrying parts. They feature a "limited opening" captivated head to insure safety. Ideal for audio circuitry, R.F. circuitry, oscilloscopes, power supplies and various other applications.

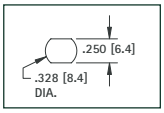
These multi-purpose binding posts feature high current rating, captivated heads and anti-rotation stud mounting.

Note: Binding Posts accept .175" (4.5) Banana Plugs, .080" (2.08) Tip Plugs, Spade Lugs, Alligator Clips, Wires and EZ hooks.

STANDARD BINDING POST



Mounting Detail

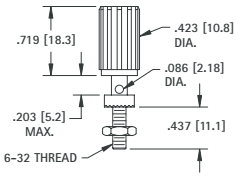


MATERIAL:
Stud: Brass per QQ-B-626
Plating: Silver Plate
Insulation: Nylon
Current Rating: 15 Amps
Stud to Panel Capacitance: 3.3 pF Nominal

For panels up to .281 (7.1) thick

CAT. NO.	COLOR
7004	RED
7005	BLACK

UNINSULATED BINDING POST

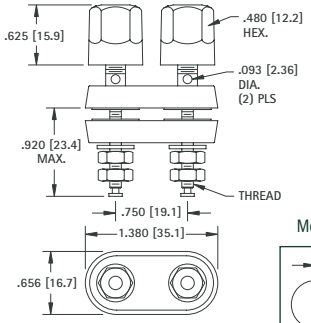


MATERIAL:
Stud: Brass per QQ-B-626
Plating: Nickel Plate
Insulation: Nylon
Current Rating: 15 Amps, 1000V AC Working

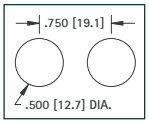
For panels up to .313 (8.0) thick

CAT. NO.	COLOR
7006	RED
7007	BLACK

STANDARD DUAL HEX HEAD



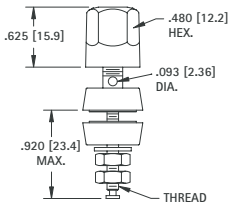
Mounting Detail



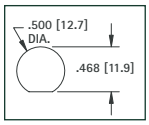
MATERIAL:
Stud: Brass per ASTM B-16.
Insulation: Nylon
Current Rating: 30 Amps, 1000V AC Working

GOLD PLATE		NICKEL PLATE	
CAT. NO.	THREAD	CAT. NO.	THREAD
4108	8-32	7018	8-32
4109	10-32	7019	10-32

STANDARD HEX HEAD



Mounting Detail



MATERIAL:
Stud: Brass per ASTM B-16.
Insulation: Nylon
Current Rating: 30 Amps, 1000V AC Working

GOLD PLATE			NICKEL PLATE		
CAT. NO.	THREAD	COLOR	CAT. NO.	THREAD	COLOR
4096	8-32	RED	4091	8-32	RED
4097	8-32	BLACK	4092	8-32	BLACK
7016	10-32	RED	4093	10-32	RED
7017	10-32	BLACK	4094	10-32	BLACK
7023	10-32	WHITE	4198	10-32	WHITE
7024	10-32	YELLOW	4199	10-32	YELLOW

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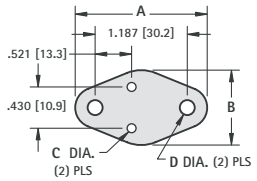
TRANSISTOR INSULATORS

• Rapid Heat Dissipation • High Dielectric Strength • Low Cost

These precision stamped mica insulators provide good thermal conductivity: .009 watts per square inch per degree celsius per inch in thickness. Excellent thermal resistance 1100°F. (593°C) Dielectric constant of 7 at 1000 KHz.

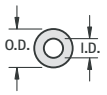
MATERIAL: .003 (.08) ± .001 (.02) Thick Mica

FOR TO-3 CASES



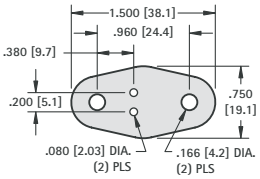
CAT. NO.	A	B	C	D
4651	1.625 (41.3)	1.093 (27.8)	.093 (2.36)	.166 (4.2)
4652	1.560 (39.6)	1.050 (26.7)	.203 (5.15)	.171 (4.4)
4653	1.655 (42.1)	1.063 (27.0)	.166 (4.2)	.166 (4.2)
4636	1.655 (42.1)	1.063 (27.0)	.052 (1.32)	.166 (4.2)
4644	1.655 (42.1)	1.063 (27.0)	.270 (6.9)	.166 (4.2)

FOR THREADED STUD TRANSISTORS

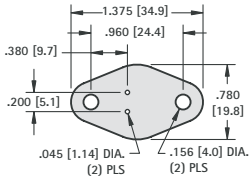


CAT. NO.	ID Inside Dia.	OD Outside Dia.	For Screw Size
4678	.120 (3.1)	.375 (9.5)	4
4679	.144 (3.7)	.375 (9.5)	6
4680	.171 (4.3)	.500 (12.7)	8
4681	.196 (5.0)	.625 (15.9)	10
4682	.260 (6.6)	.750 (19.0)	1/4
4683	.328 (8.3)	.875 (22.2)	5/16

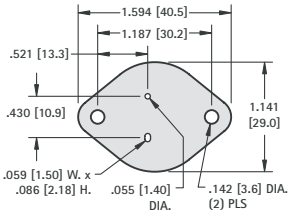
FOR TO-66 CASES



CAT. NO. 4664

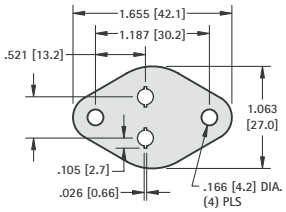


CAT. NO. 4666

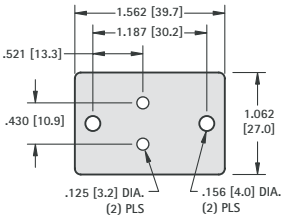


CAT. NO. 4662

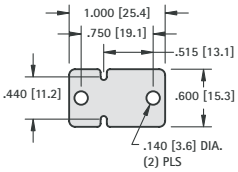
FOR TO-3 CASES



CAT. NO. 4667

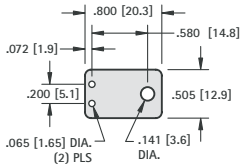


CAT. NO. 4661

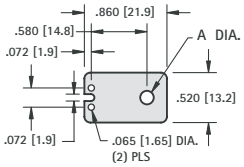


CAT. NO. 4663

FOR PLASTIC CASE



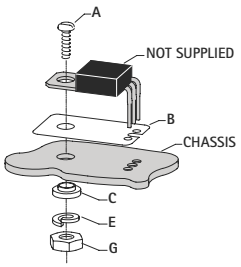
CAT. NO. 4671



CAT. NO.	A
4672	.141 (3.6)
4673	.115 (2.9)

TRANSISTOR MOUNTING KITS

• Complete Kits or Individulal Hardware • Pre-Packaged • Uniform Hardware at Low Cost

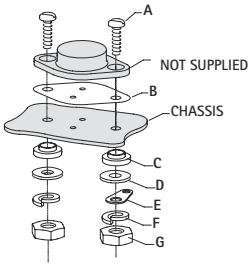


FOR TO-220 CASE

CAT. NO. 4724 Complete Mounting Kit

ITEM	CAT. NO.	DESCRIPTION	QTY.
A	4690	4-40 Screw	1
B	4672	Mica Insulator	1
C	3049	Shoulder Washer	1
E	4693	Lockwasher	1
G	4694	4-40 Nut	1

These pre-packaged universal mounting kits provide all the necessary hardware and insulators required to securely mount the semiconductor to the chassis. Purchase the complete kit consisting of all hardware included in one package. Your choice of individual items available in 100 piece packages. Semiconductors customer supplied.



FOR TO-3 CASE

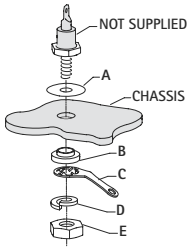
CAT. NO. 4725 Complete Mounting Kit

ITEM	CAT. NO.	DESCRIPTION	QTY.
A	4696	6-32 Screw	2
B	4651	Mica Insulator	1
C	4698	Shoulder Washer	2
D	4699	Metal Washer	2
E	4004	Solder Terminal	1
F	4700	Lockwasher	2
G	4701	6-32 Nut	2

FOR TO-66 CASE

CAT. NO. 4726 Complete Mounting Kit

ITEM	CAT. NO.	DESCRIPTION	QTY.
A	4696	6-32 Screw	2
B	4666	Mica Insulator	1
C	4698	Shoulder Washer	2
D	4699	Metal Washer	2
E	4004	Solder Terminal	1
F	4700	Lockwasher	2
G	4701	6-32 Nut	2



FOR DO-4, TO-59, TO-60, TO-62 CASES

CAT. NO. 4729 Complete Mounting Kit

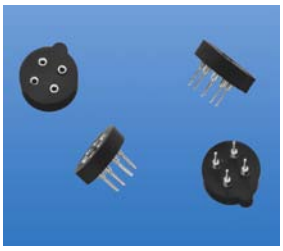
ITEM	CAT. NO.	DESCRIPTION	QTY.
A	4681	Mica Insulator	1
B	4702	Shoulder Washer	1
C	4704	Solder Terminal	1
D	1477	Lockwasher	1
E	4705	10-32 Nut	1

FOR DO-5, TO-48, TO-61 CASES

CAT. NO. 4730 Complete Mounting Kit

ITEM	CAT. NO.	DESCRIPTION	QTY.
A	4682	Mica Insulator	1
B	4711	Shoulder Washer	1
C	4712	Solder Terminal	1
D	1476	Lockwasher	1
E	4713	1/4-28 Nut	1

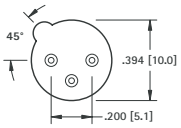
SOCKETS FOR TO-5 & TO-100



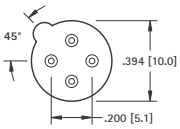
Fully molded compact construction. Speeds transistor assembly. Incorporates ultra high quality, closed entry, sleeve type contacts. Accepts .016 (.41) to .020 (.51) diameter leads or .010 (.25) × .018 (.46) rectangular transistor leads.

MATERIAL:
Insulator: Glass Filled Polyester, UL Rated 94V-0
Contact Pin: Brass, Tin-Lead Plate
RoHS (Non-RoHS Compliant)
Contact Spring: Beryllium Copper, .000030 min. Gold Plate

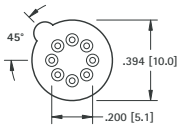
CAT. NO.	FOR	PINS
4590	TO-5	3
4591	TO-5	4
4592	TO-5	8
4593	TO-100	8
4594	TO-100	10



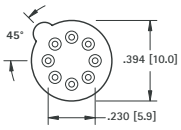
Cat. No. 4590



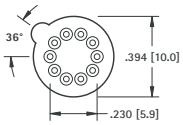
Cat. No. 4591



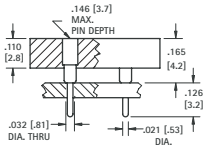
Cat. No. 4592



Cat. No. 4593



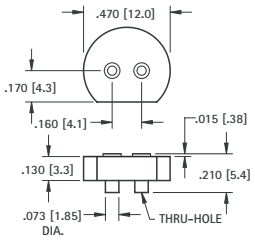
Cat. No. 4594



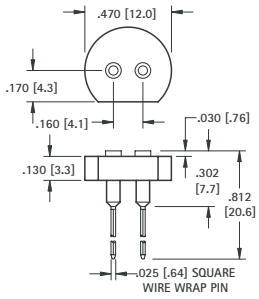
"MINI" HALOGEN LAMP SOCKETS

- Accepts .022 (.032) to .032 (.81) diameter Pins or Leads
- The Wire Wrap Pins can be easily bent to achieve a variety of positions

SPECIFICATIONS
Base: Glass Filled LCP; **Contact:** Beryllium Copper, Gold Plate; **Shell:** Brass, Nickel Plate



CAT. NO. 4595



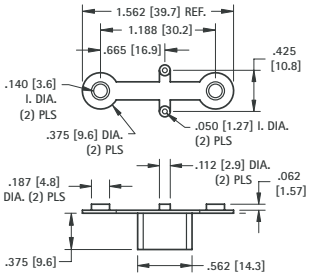
CAT. NO. 4596

POWER TRANSISTOR MOUNTS

Molded barrier insulators functionally replaces up to six pieces of conventional insulation required with previous methods of mounting power transistors. Built-in barrier eliminates need for sleeving of connections.

NOTE: #6-20 mounting screw available **CAT. NO. 4706**

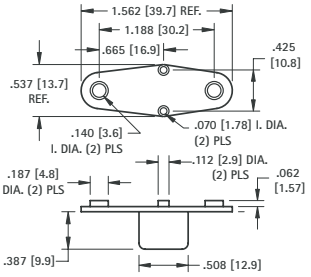
For TO-3 CASES



MATERIAL: Nylon 6/6, UL Rated 94V-2

CAT. NO. 4616

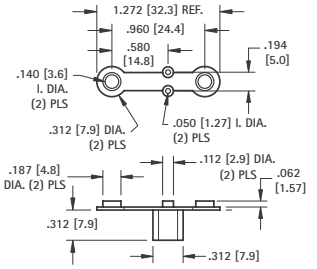
HEAVY DUTY TO-3



MATERIAL: Glass filled Polyester, UL Rated 94V-0

CAT. NO. 4626

For TO-66 CASES

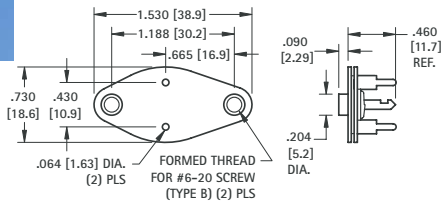


MATERIAL: Nylon 6/6, UL Rated 94V-2

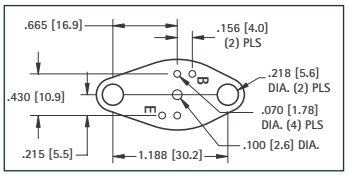
CAT. NO. 4617

TO-3 SOCKET FOR PC BOARDS

Easily assembles onto printed circuit board. Eliminates wiring. Stops on PC terminals provide sufficient spacing between socket and PC board to permit proper assembly of transistor to socket. Can be screwed down tightly to heat sink.



Bottom View Mounting Detail

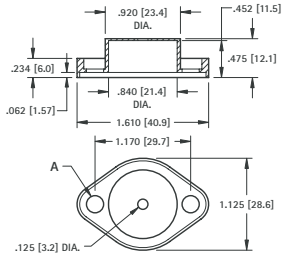


MATERIAL:
Top Plate: Molded Nylon
Base: Phenolic
Contacts: Brass, Tin Plate
Collector Plate: Steel, Tin Plate

CAT. NO. 4600

NYLON TO-3 CASE COVERS

Molded nylon covers easily mount over and insulate the power transistor. Will withstand temperatures to approximately 250°F (107°C).



MATERIAL: Nylon 6/6, UL Rated 94V-2

CAT. NO.	FOR	EYELETS INSTALLED	A
4632	TO-3	NONE	.210 (5.4)
4634	TO-3	TWO	.140 (3.6)

Tel (718) 956-8900 • Fax (718) 956-9040
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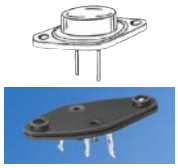
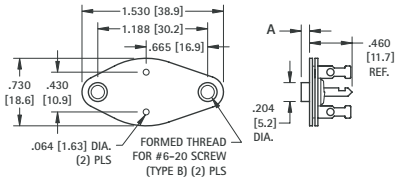
SOCKETS FOR TO-3 CASE



VARIOUS MOLDED BOSS HEIGHTS

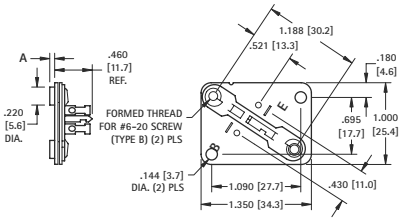
MATERIAL:
Base: Phenolic, Grade PBE, Type XP
Contacts: Brass, Tin Plate
Top Plate: Nylon, ASTM-D4066
Phenolic, Grade PBE, Type XP
(Cat. No. 4606 only)
Collector Plate: Steel, Tin Plate

Socket and transistor are assembled to chassis at same time, using the minimum amount of hardware. Top molded boss ensure the transistor leads will be isolated from the chassis. Various boss heights available to accommodate different chassis thicknesses.



CAT. NO.	A DIM.
4603	.030 (.76)
4602	.045 (1.14)
4601	.090 (2.29)

Socket is installed onto chassis using eyelets or screws. Transistor is installed afterwards. Assembly and repairs are simplified since socket will stay in place without transistor mounted. Top molded boss or added bushing ensure the transistor leads will be isolated from the chassis. Various boss heights available to accommodate standard chassis thicknesses. Use Cat. No. 4606 and nylon bushings for special chassis thicknesses.



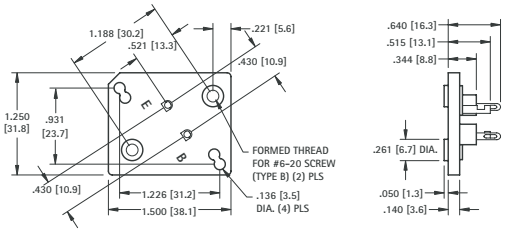
CAT. NO.	A DIM.
4606	NONE
4607	.030 (.76)
4608	.045 (1.14)
4609	.060 (1.52)
4618	.125 (3.2)

FULLY MOLDED TO-3 SOCKET

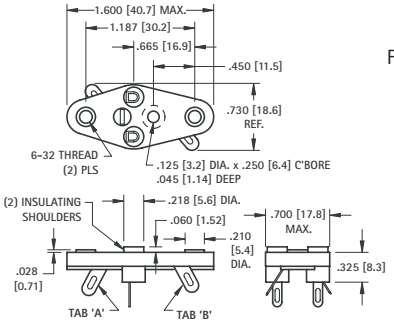
Pre-assembling the socket to the chassis by eyelets or rivets permits the installation of the semiconductor at a later stage in the assembly. The molded top boss eliminates hardware.

CAT. NO. 4620

MATERIAL:
Base: Molded Nylon 6/6
Contacts: Brass, Tin Plate
Collector Plate: Steel, Tin Plate



HEAVY DUTY SOCKET FOR TO-3 CASE



CHOICE OF SINGLE OR DUAL COLLECTOR SOLDER TABS

Features an all-in-one mounting plate and solder tabs, providing complete electrical isolation of the solder tab connections.

Rated 5 Amps DC continuous and 15 Amps DC Intermittent

MATERIAL:
Base: Glass Filled Polyester, UL Rated 94V-0
Contacts: Brass, Tin Plate
Collector Plate: Brass, Tin Plate

With transistor lead-in insulating shoulders

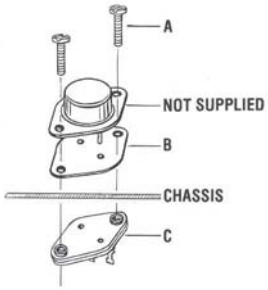
CAT. NO.	WITH TAB
4513	"A" ONLY
4514	"A" & "B"

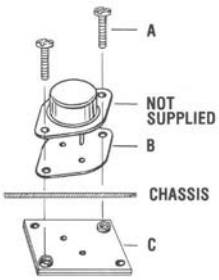
Less transistor lead-in insulating shoulders

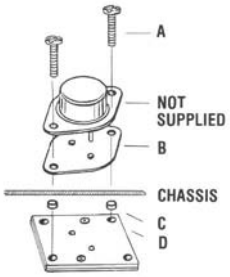
CAT. NO.	WITH TAB
4515	"A" ONLY
4516	"A" & "B"

TO-3 CASE MOUNTING KITS

These socket kits provide everything needed to mount a transistor onto a chassis in one kit. Nylon bushings or boss will insulate transistor leads from chassis. Mica insulator isolates transistor from chassis. Two 6-20 screws included to mount transistor. (Transistor not included)







CAT. NO. 4732 Complete Mounting Kit

ITEM	CAT. NO.	DESCRIPTION	QUANTITY
A	4706	6-20 screws	2
B	4651	Mica Insulator	1
C	4602	Socket	1

CAT. NO. 4733 Complete Mounting Kit

ITEM	CAT. NO.	DESCRIPTION	QUANTITY
A	4706	6-20 screws	2
B	4651	Mica Insulator	1
C	4608	Square Socket	1

CAT. NO. 4734 Complete Mounting Kit

ITEM	CAT. NO.	DESCRIPTION	QUANTITY
A	4706	6-20 screws	2
B	4651	Mica Insulator	1
C	4684	Nylon Bushing	4
D	4606	Square Socket	1

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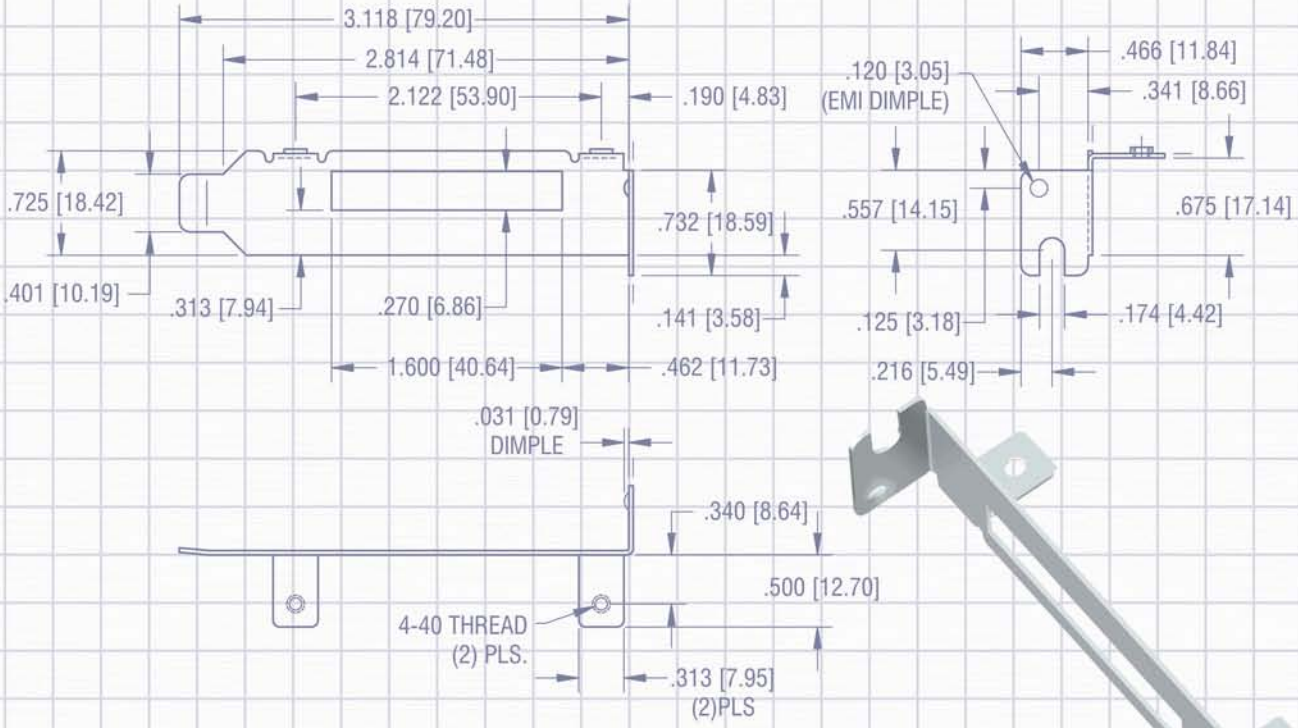
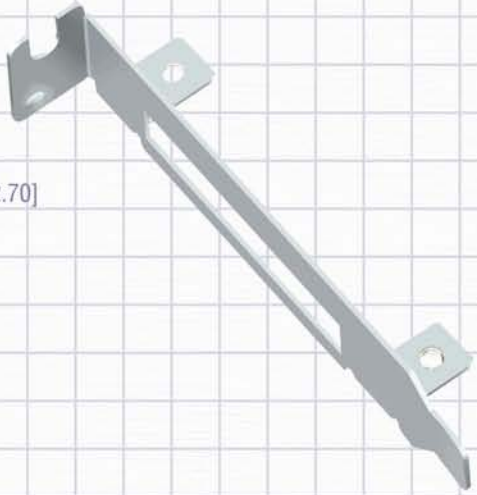




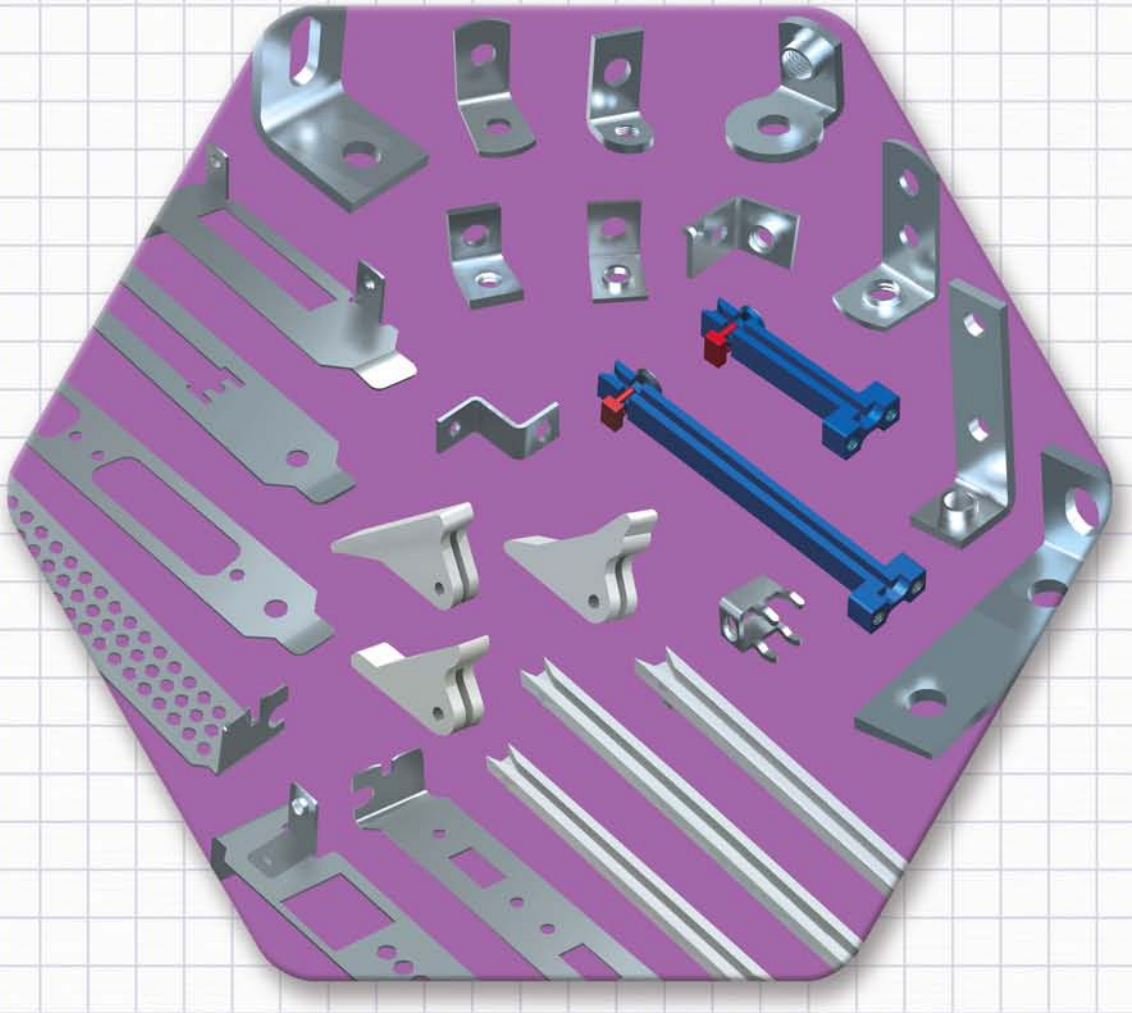
PC BOARD HARDWARE

We offer an assortment of standard blank and cutout computer brackets, PCB support brackets, card edge ejectors and guides to provide the right solution for applications such as:

- Computer Chassis Assembly
- Electronic Peripheral Equipment
- Rack Mounted Equipment
- Printed Circuit Board Mounting
- Printed Circuit Board Supports
- Printed Circuit Board insertion and removal
- To dress up chassis access panels

Our quality system is ISO 9001:2008 certified. Our products are in compliance with the RoHS and REACH directives. We provide 3D modeling, CAD and other application-engineering support for modifications, special designs or assembly requirements to assist you in choosing the right Keystone product for your application..

DATE	DESCRIPTION	REV.



SECTION CONTENTS

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CONTACT PINS..... 123

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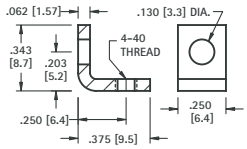
PC BOARD ACCESSORIES

- Board Guides..... 116-117
- Card Ejectors 116
- IC Static Tray Clips 116

PUSH-IN TERMINALS 123

THREADED MOUNTING BRACKETS

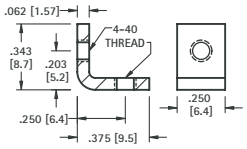
4-40 THREAD



CAT. NO. 612

MATERIAL:
.062 (1.57) Steel, Zinc Plate

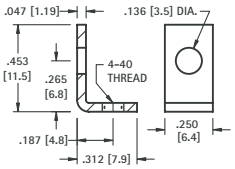
4-40 THREAD



CAT. NO. 621

MATERIAL:
.062 (1.57) Steel, Zinc Plate

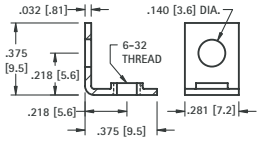
4-40 THREAD



CAT. NO. 616

MATERIAL:
.047 (1.19) Brass, Tin Plate

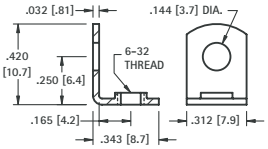
6-32 THREAD



CAT. NO. 634

MATERIAL:
.032 (.81) Brass, Nickel Plate

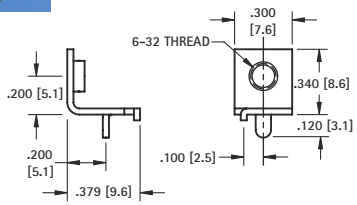
6-32 THREAD



CAT. NO. 614

MATERIAL:
.032 (.81) Brass, Tin Plate

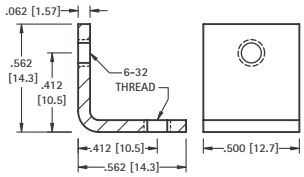
6-32 THREAD



CAT. NO. 632

MATERIAL:
.032 (.81) Brass, Tin Plate

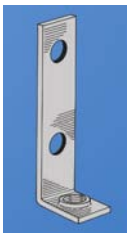
6-32 THREAD

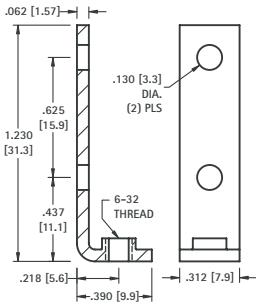


CAT. NO. 4334

MATERIAL:
.062 (1.57) Steel, Nickel Plate

6-32 THREAD

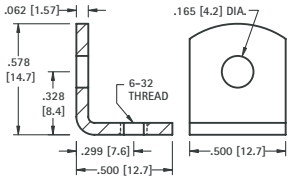




CAT. NO. 708

MATERIAL:
.062 (1.57 Steel, Nickel Plate

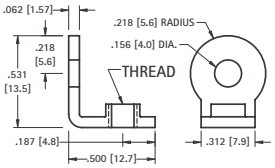
6-32 THREAD



CAT. NO. 617

MATERIAL:
.062 (1.57) Steel, Tin Plate

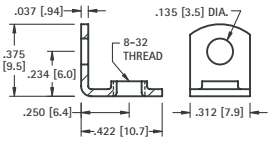
6-32 OR 8-32 THREAD



CAT. NO.	THREAD
4332	6-32
4333	8-32

MATERIAL:
.062 (1.57) Brass, Nickel Plate

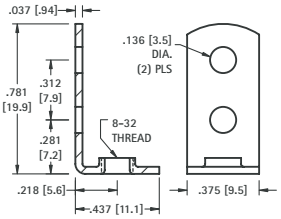
8-32 THREAD



CAT. NO. 611

MATERIAL:
.037 (.94) Brass, Tin Plate

8-32 THREAD



CAT. NO. 631

MATERIAL:
.037 (.94) Steel, Tin Plate

Tel (718) 956-8900 • Fax (718) 956-9040
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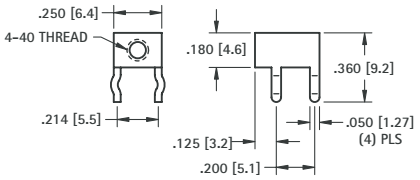
SNAP-IN THREADED PC MOUNT BRACKETS

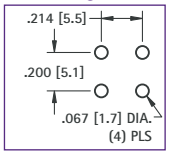
• Snaps in for wave soldering • Reduces assembly time • Easily mount into predrilled or punched holes • Stable no rock design

SNAP-IN PC MOUNT

4-40 THREAD



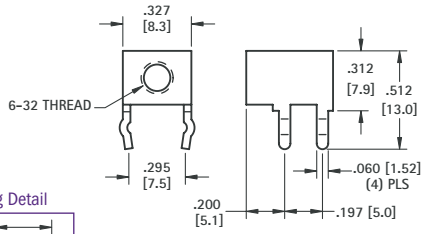
Mounting Detail



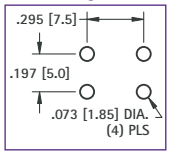
MATERIAL: .032 (.81) Brass, Tin Plate

CAT. NO. 7774

6-32 THREAD



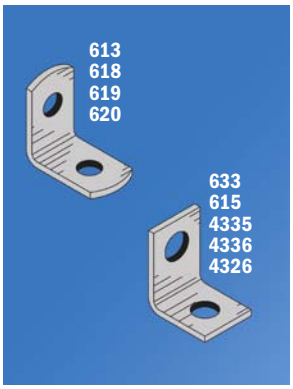
Mounting Detail

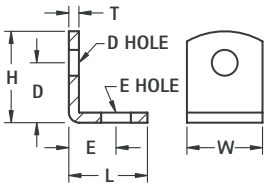


MATERIAL: .032 (.81) Brass, Tin Plate

CAT. NO. 7779

UNIVERSAL CLEAR HOLE BRACKETS





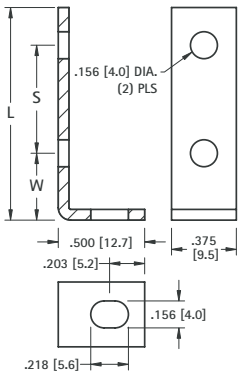
CAT. NO.	H	L	W	D	D HOLE DIAMETER	E	E HOLE DIAMETER	T MATERIAL	FINISH
633	.375 (9.5)	.375 (9.5)	.281 (7.1)	.218 (5.5)	.140 (3.6)	.218 (5.5)	.140 (3.6)	.032 (.81) Brass	Nickel
613	.390 (9.9)	.453 (11.5)	.375 (9.5)	.234 (5.9)	.147 (3.7)	.299 (7.6)	.128 (3.3)	.032 (.81) Brass	Nickel
615	.420 (10.7)	.343 (8.7)	.281 (7.1)	.281 (7.1)	.144 (3.7)	.203 (5.2)	.128 (3.3)	.032 (.81) Brass	Tin
4335	.562 (14.3)	.562 (14.3)	.500 (12.7)	.412 (10.5)	.120 (3.0)	.411 (10.4)	.120 (3.0)	.062 (1.57) Steel	Nickel
4336	.562 (14.3)	.562 (14.3)	.500 (12.7)	.412 (10.5)	.144 (3.7)	.412 (10.5)	.144 (3.7)	.062 (1.57) Steel	Nickel
618	.628 (16.0)	.628 (16.0)	.375 (9.5)	.378 (9.6)	.169 (4.3)	.378 (9.6)	.169 (4.3)	.050 (1.27) Brass	Tin
619	.687 (17.4)	.687 (17.4)	.375 (9.5)	.500 (12.7)	.144 (3.7)	.500 (12.7)	.144 (3.7)	.032 (.81) Steel	Tin
4326	1.013 (25.7)	.487 (12.4)	.312 (7.9)	.816 (20.7)	.140 (3.6)	.332 (8.4)	.140 (3.6)	.050 (1.27) Steel	Nickel
620	1.156 (29.4)	.656 (16.7)	.375 (9.5)	.906 (23.0)	.169 (4.3)	.420 (10.7)	.169 (4.3)	.032 (.81) Steel	Tin

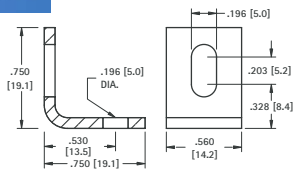
BOARD BRACKETS

Originally designed for our line of standardized terminal boards; these brackets can also be used in other applications. See pages 148-149 for Turret Terminal Boards.

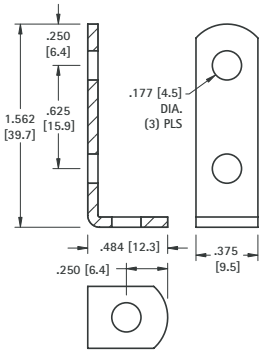
MATERIALS: .062 (1.57) Steel, Nickel Plate

CAT. NO.	W	L	S
1570	.281 (7.1)	1.187 (30.1)	.750 (19.1)
1556	.375 (9.5)	1.625 (41.3)	1.000 (25.4)
1571	.281 (7.1)	1.625 (41.3)	1.187 (30.1)
1567	.375 (9.5)	2.125 (54.0)	1.500 (38.1)
1568	.375 (9.5)	2.625 (66.7)	2.000 (50.8)
1569	.375 (9.5)	3.125 (79.4)	2.500 (63.5)

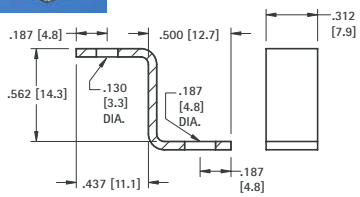




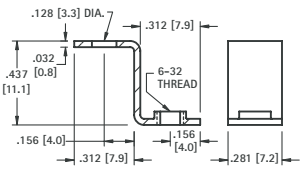
CAT. NO. 4337 **MATERIAL:** .080 (2.03) Aluminum



CAT. NO. 1564 **MATERIAL:** .062 (1.57) Steel, Nickel Plate

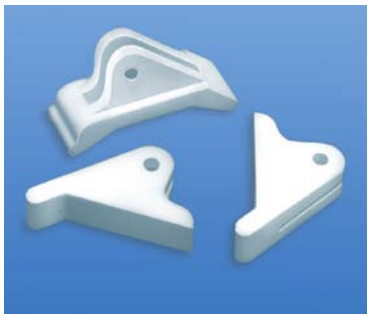


CAT. NO. 4325 **MATERIAL:** .050 (1.27) Steel, Nickel Plate



CAT. NO. 630 **MATERIAL:**.032 (.81) Brass, Tin Plate

LEVER ACTION PC CARD EJECTORS

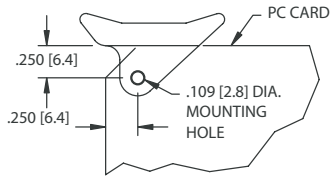


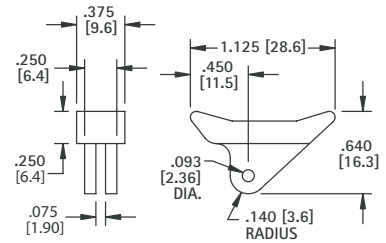
Card ejectors offer a simple and reliable way of installing and ejecting circuit boards. Card ejectors reduce the stress on board connectors by improper removal of board. Ejectors also protect components on board from damage during removal or installation. Ejectors supplied with stainless steel pin to assure quick assembly of ejector to card.

- Designed for .062 (1.57) PC cards.
- Level action ejectors aids card insertion and extraction.
- Supplied complete with stainless steel spring pin.

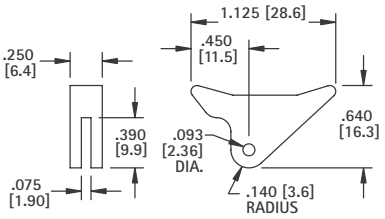
MATERIAL:
White Nylon 6/6, UL Rated 94V-2

CARD MOUNTING DIMENSIONS

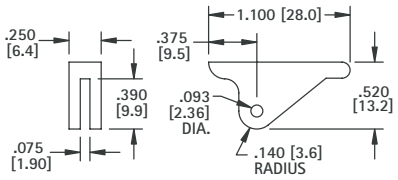




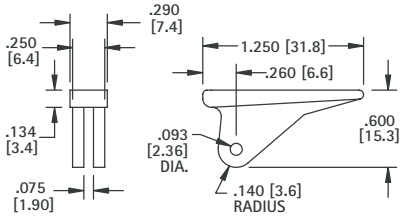
CAT. NO. 8640



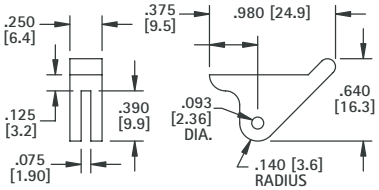
CAT. NO. 8641



CAT. NO. 8642



CAT. NO. 8643

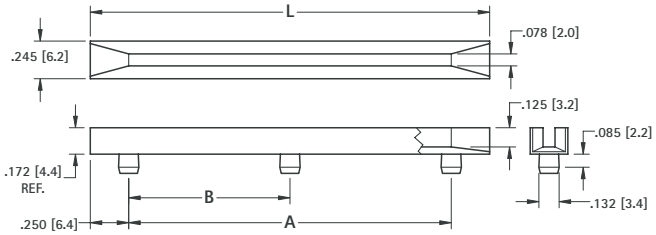


CAT. NO. 8644

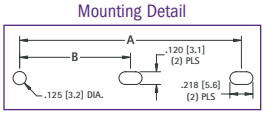
HORIZONTAL TYPE PC BOARD GUIDES

Guides may be used horizontally or vertically and snap into .125 (3.2) diameter holes. Narrow width allows maximum density and optimum airflow. Simple press-fit, secure installation. No special tools required to install.

- Sturdy Nylon construction
- Mounts into chassis with out tools
- Assures proper alignment of board
- Quick and easy installation of board.



Mounting Detail



CAT. NO.	L	A	B
8620	2.5 (63.5)	2.0 (50.8)	–
8621	3.0 (76.2)	2.5 (63.5)	–
8622	3.5 (88.9)	3.0 (76.2)	–
8623	4.0 (101.6)	3.5 (88.9)	–
8624	4.5 (114.3)	4.0 (101.6)	–
8625	5.0 (127.0)	4.5 (114.3)	–
8626	5.5 (139.7)	5.0 (127.0)	–
8627	6.0 (152.4)	5.5 (139.7)	–
8628	6.5 (165.1)	6.0 (152.4)	–
8629	7.0 (177.8)	6.5 (165.1)	–
8630	7.0 (177.8)	6.5 (165.1)	3.25 (82.6)
8631	7.5 (190.5)	7.0 (177.8)	–
8632	7.5 (190.5)	7.0 (177.8)	3.50 (88.9)
8633	8.0 (203.2)	7.5 (190.5)	–
8634	8.0 (203.2)	7.5 (190.5)	3.75 (95.3)
8635	8.5 (215.9)	8.0 (203.2)	–
8636	8.5 (215.9)	8.0 (203.2)	4.00 (101.6)

MATERIAL:
Natural Nylon 6/6, UL Rated 94V-2

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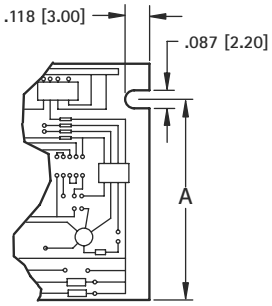
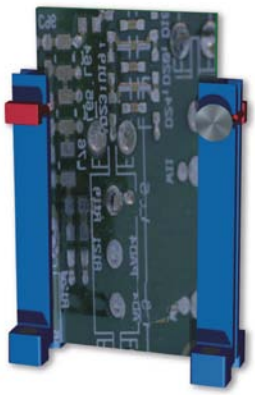
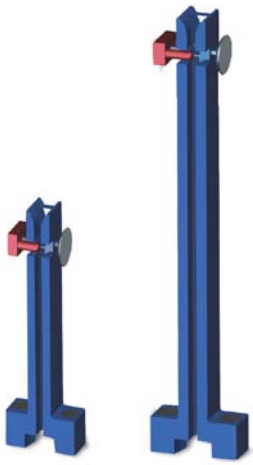
VERTICAL PC BOARD GUIDES

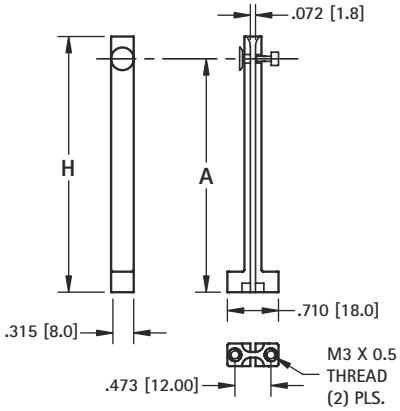
Vertical board guides provide for a quick and easy assembly of circuit boards. Sturdy design assures boards stay square. These guards can be mounted to chassis or directly to a mother board. Mounting holes have brass threaded inserts to assure secure mounting of guide. After bracket is installed, boards are quickly locked into place or released for repair or upgrades. Locking pins at the top of the bracket can be set/released using finger pressure, no tools are required.





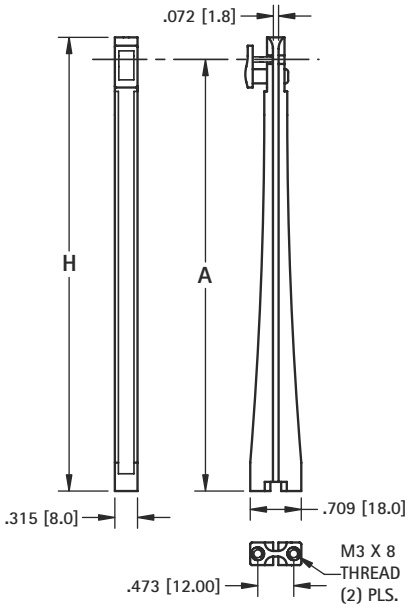
- Brass threaded inserts assure sturdy connection to chassis or mother board.
- Available for circuit boards 1.970" to 6.300" tall.
- Locking pin keeps circuit board locked into place.
- M3 mounting screws available.
- All brackets use same footprint, no redesign of mounting holes required if changing bracket height.

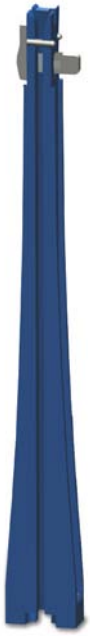




CAT. NO.	H HEIGHT	A LOCK PIN HEIGHT
8645	1.970 (50.0)	1.650 (42.0)
8646	2.560 (65.0)	2.250 (56.5)
8647	3.540 (90.0)	3.200 (81.5)
8648	4.725 (120.0)	4.430 (112.5)

MATERIAL:
Guide: Nylon
Threaded Insert: Brass, Nickel plate



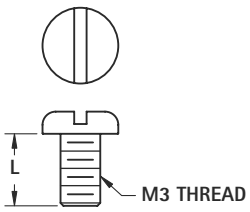


MATERIAL:
Guide: Polystyrene
Threaded Insert: Brass, Nickel plate

CAT. NO.	H HEIGHT	A LOCK PIN HEIGHT
8649	6.300 (160.0)	6.000 (152.0)

M3 MOUNTING SCREW

- Pan head screw
- Available in four lengths to accommodate most board thicknesses
- Flat washer available: P/N 4693



CAT. NO.	L
29311	6.00
29314	12.00
29316	16.00
29318	25.00

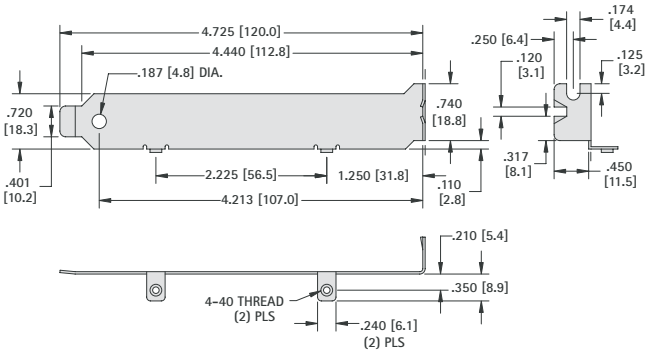
MATERIAL: Steel, Zinc plate

These computer brackets have been designed to accommodate a large variety of board sizes and heights. Available with tabs located properly for ESA/EISA or PCI formats. Blanks can be machined or stamped for prototype or low volume production. All brackets are nickel plated for a clean look and a protective finish. Standard cut-outs can be added to these blanks to suit your specific production needs. See page 118-119 for standard cut-outs and design worksheet.

- Premium quality
- Designed to fit all PC computers height brackets available
- Blanks available for "fillers"
- Fast delivery and cost effective tooling for special designs

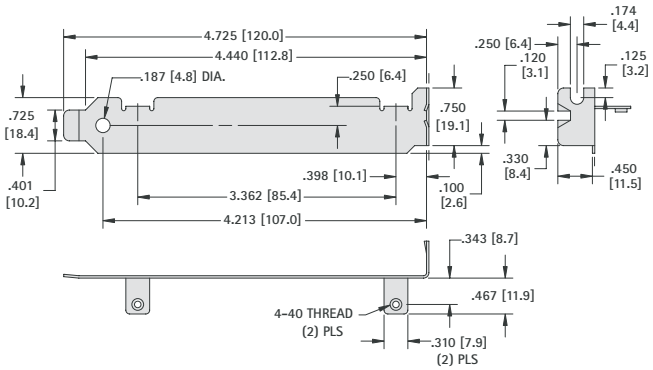
MATERIAL: .032 (.81) Steel, Matte Nickel Plate.

EISA/ISA

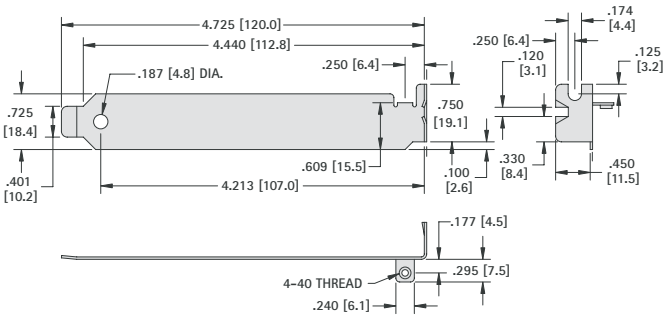


CAT. NO. 9202

PCI

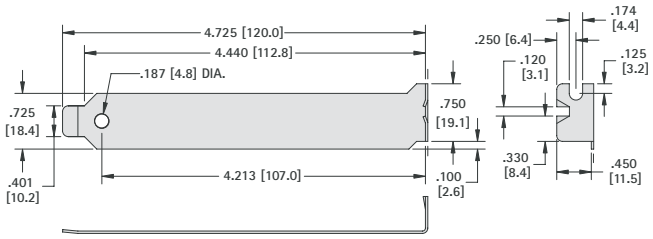


CAT. NO. 9203



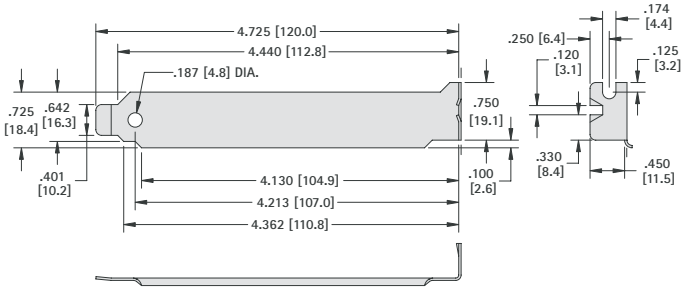
CAT. NO. 9204

EISA/ISA or PCI



CAT. NO. 9200

- Reinforced with rib for extra strength



P/N 9201

CAT. NO. 9201

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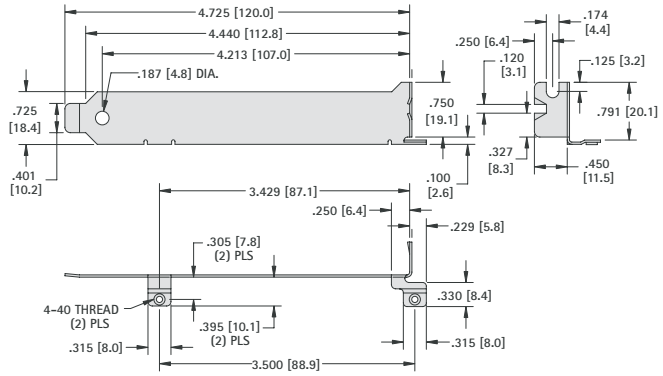
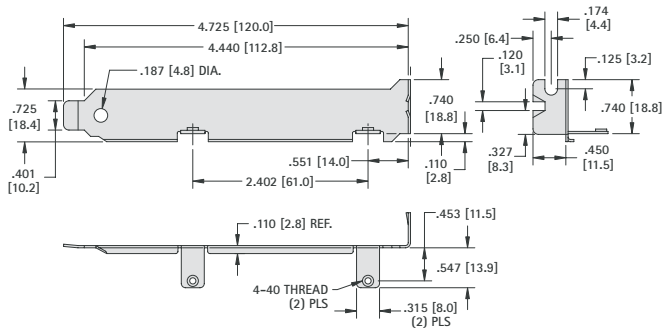
STANDARD BLANK BRACKETS

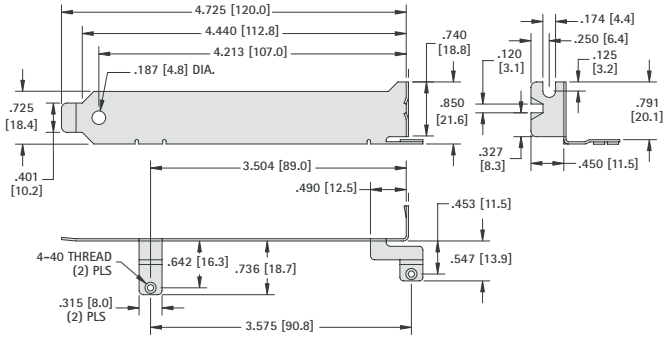
EISA/ISA



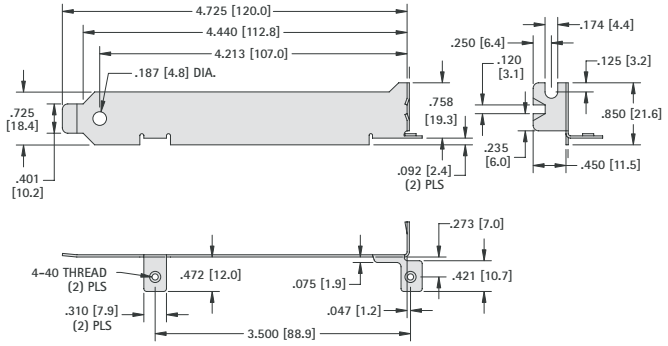
CAT. NO. 9205



CAT. NO. 9206

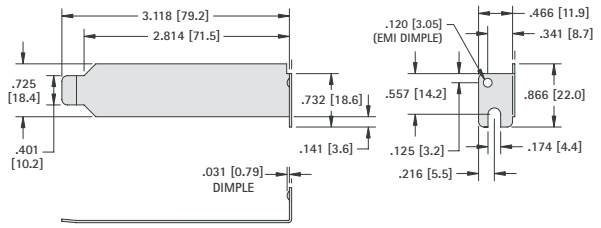


CAT. NO. 9207

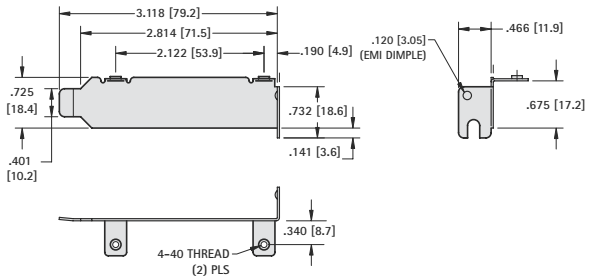


CAT. NO. 9208

LOW PROFILE BLANK BRACKETS



CAT. NO. 9230



CAT. NO. 9231

COMPUTER BRACKETS

STANDARD COMPUTER BRACKETS

D-SUB

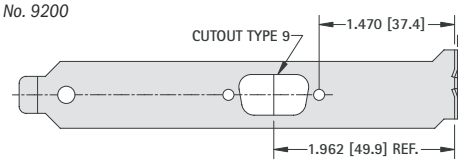
These computer brackets have been designed with a variety of holes and cutouts to connect most peripherals. The brackets shown reflect the most common configurations for most applications. If our standard brackets do not fit your production requirements, we can fabricate a bracket to your exact specifications. Refer to pages 122 - 123 for blank dimensions and page 126 for standard cutout dimensions.

- Peripherals
- Video Cards
- Parallel/Serial Ports
- External Hard Drives
- External CD Drives

9 PIN

For Bracket Dimensions Refer to Cat. No. 9200

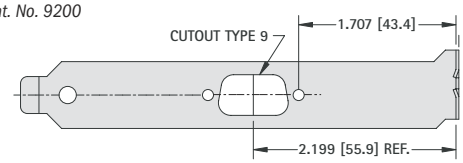
EISA/ISA



CAT. NO. 9200-1

For Bracket Dimensions Refer to Cat. No. 9200

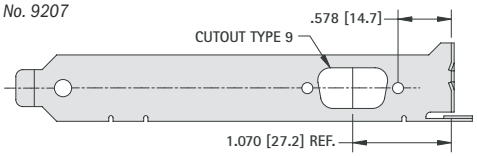
PCI



CAT. NO. 9200-2

For Bracket Dimensions Refer to Cat. No. 9207

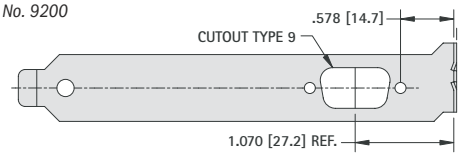
EISA/ISA



CAT. NO. 9207-1

For Bracket Dimensions Refer to Cat. No. 9200

EISA/ISA

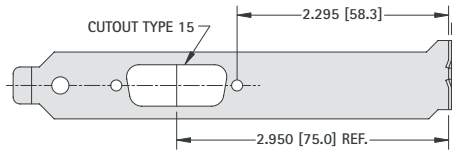


CAT. NO. 9200-16

15 PIN

For Bracket Dimensions Refer to Cat. No. 9200

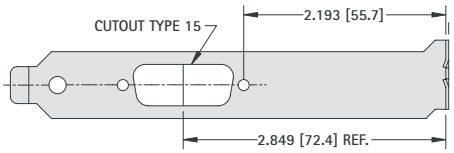
EISA/ISA



CAT. NO. 9200-3

For Bracket Dimensions Refer to Cat. No. 9200

EISA/ISA

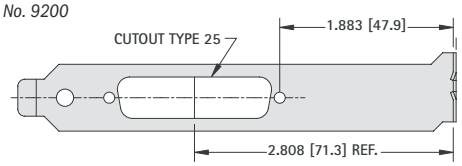


CAT. NO. 9200-11

25 - 37 PIN

For Bracket Dimensions Refer to Cat. No. 9200

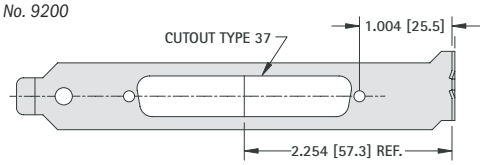
EISA/ISA – 25 PIN



CAT. NO. 9200-4

For Bracket Dimensions Refer to Cat. No. 9200

EISA/ISA – 37 PIN

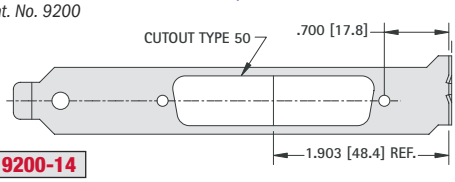


CAT. NO. 9200-5

50 PIN

For Bracket Dimensions Refer to Cat. No. 9200

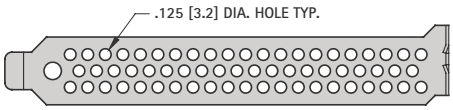
EISA/ISA – 50 PIN



CAT. NO. 9200-14

VENT

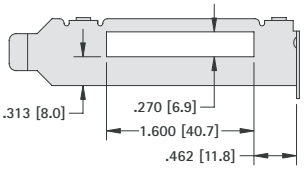
EISA/ISA OR PCI



CAT. NO. 9200-19

LOW PROFILE ACCESS PORT

For Bracket Dimensions Refer to Cat. No. 9231



CAT. NO. 9231-1

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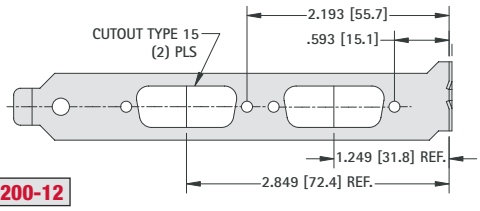
www.keyelco.com
31-07 20th Road – Astoria, NY 11105-2017

MULTIPLE D-SUB

For Bracket Dimensions Refer to Cat. No. 9200

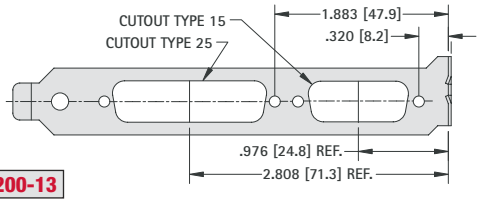
EISA/ISA



CAT. NO. 9200-12

For Bracket Dimensions Refer to Cat. No. 9200

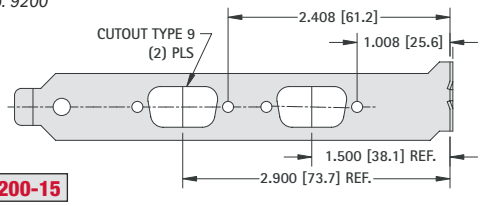
EISA/ISA



CAT. NO. 9200-13

For Bracket Dimensions Refer to Cat. No. 9200

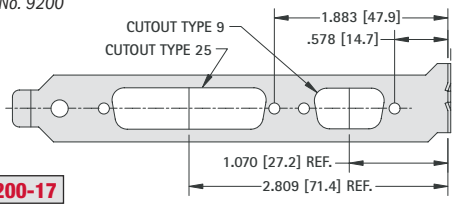
EISA/ISA



CAT. NO. 9200-15

For Bracket Dimensions Refer to Cat. No. 9200

EISA/ISA

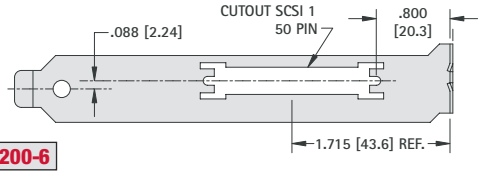


CAT. NO. 9200-17

SCSI

For Bracket Dimensions Refer to Cat. No. 9200

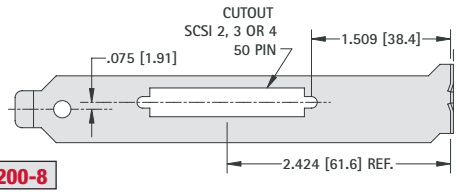
SCSI 1 - 50 PIN



CAT. NO. 9200-6

For Bracket Dimensions Refer to Cat. No. 9200

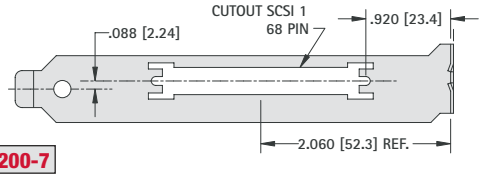
SCSI 2, 3 & 4 - 50 PIN



CAT. NO. 9200-8

For Bracket Dimensions Refer to Cat. No. 9200

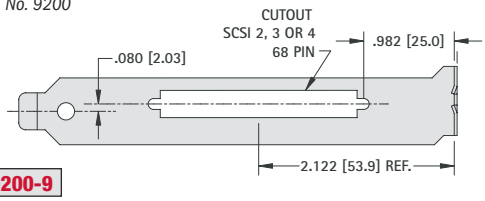
SCSI 1 - 68 PIN



CAT. NO. 9200-7

For Bracket Dimensions Refer to Cat. No. 9200

SCSI 2, 3 & 4 - 68 PIN

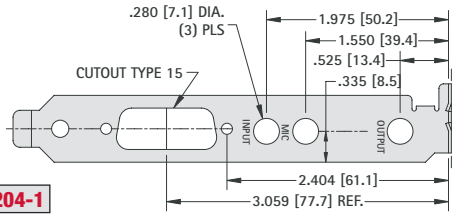


CAT. NO. 9200-9

PERIPHERAL

For Bracket Dimensions Refer to Cat. No. 9204

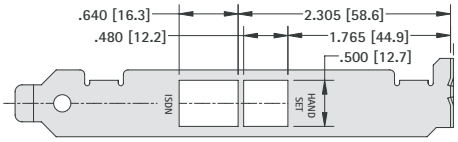
EISA/ISA **SOUND CARDS**



CAT. NO. 9204-1

For Bracket Dimensions Refer to Cat. No. 9203

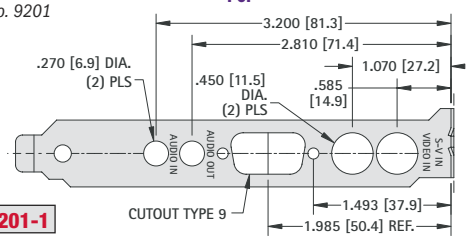
PCI **ISDN/PC FAX**



CAT. NO. 9203-1

For Bracket Dimensions Refer to Cat. No. 9201

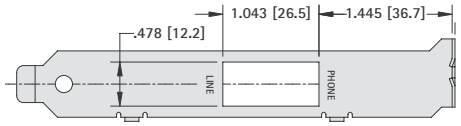
PCI **VIDEO CARDS**



CAT. NO. 9201-1

For Bracket Dimensions Refer to Cat. No. 9202

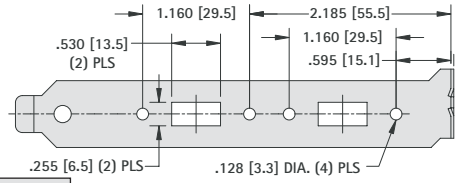
EISA/ISA **FAX - MODEM**



CAT. NO. 9202-1

For Bracket Dimensions Refer to Cat. No. 9200

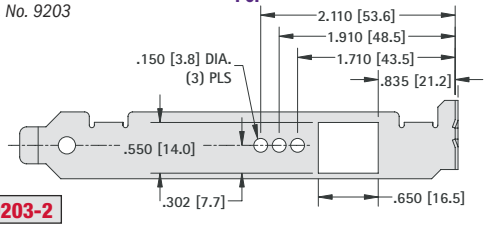
EISA/ISA OR PCI **USB**



CAT. NO. 9200-10

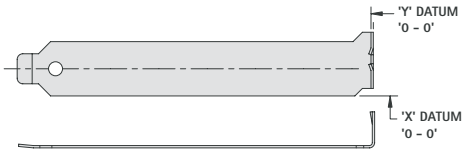
For Bracket Dimensions Refer to Cat. No. 9203

PCI **NETWORK**



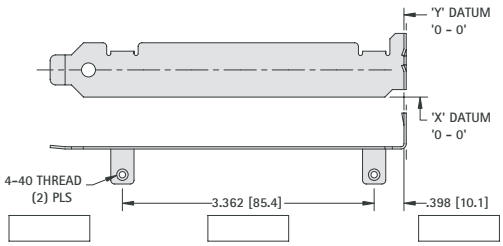
CAT. NO. 9203-2

EISI/ISA or PCI



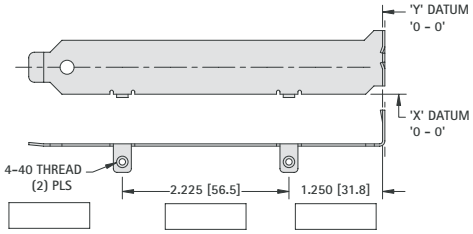
☐ CAT. NO. 9200
☐ CAT. NO. 9201 (Ribbed)
☐ CAT. NO. 9230

PCI with TABS



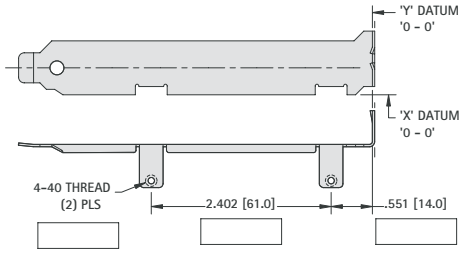
☐ CAT. NO. 9203

EISA/ISA with TABS



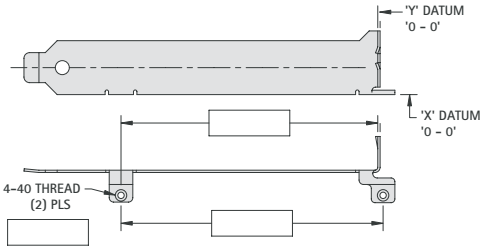
☐ CAT. NO. 9202

EISA/ISA with TABS



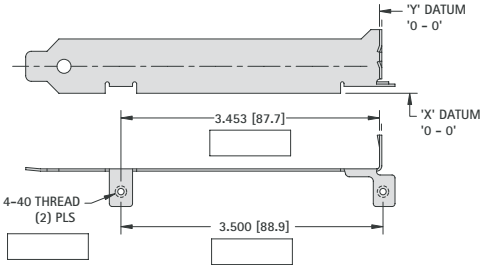
☐ CAT. NO. 9206

EISA/ISA with TABS



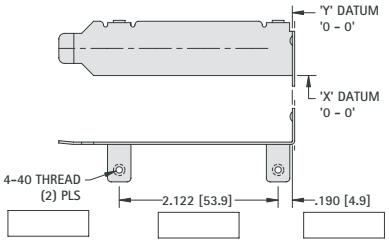
☐ CAT. NO. 9205
☐ CAT. NO. 9207

EISA/ISA with TABS



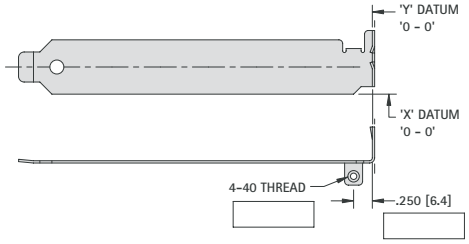
☐ CAT. NO. 9208

LOW PROFILE with TABS



☐ CAT. NO. 9231

PCI with TAB



☐ CAT. NO. 9204

NOTE: *Refer to pages 114 and 115 for overall blank dimensions*

If you do not have your own drawing, please use the worksheet provided.

STEP 1: Select a standard blank configuration PCI or EISA/ISA, with or without tabs.
STEP 2: If you've selected a standard blank with tabs and the tab locations do not meet your requirements, indicate the dimensions in the boxes.
STEP 3: Place your standard panel cutouts (Ex: DB9) on your selected drawing.
STEP 4: Use Datum's X and Y on drawing, to indicate the precise location of the center lines of the cutout(s).
STEP 5: For stamped identification markings indicate the approximate location(s).
STEP 6: Quantities Required:_____
If you have any questions, please contact our application engineers.

Name: _____ Title: _____

Company: _____

Address: _____

_____

Phone: _____ Fax: _____

For prompt quotations fax, mail or e-mail this worksheet.

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MINIATURE TUBULAR TERMINALS

.062 (1.57) – .067 (1.70)
Mounting Holes

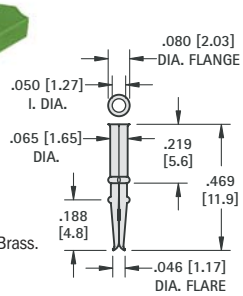
• Quick and Easy to Install • For Production or Prototype
• Postive Locking In-Hole • No Staking Required • Holds .010 (.25) to .050 (1.27) Diameter Wire

These terminals are often used for transistor and Bi-Pin lamp sockets. Terminals snap into place and are firmly held without the need of staking. Wire leads can be inserted from either end.

Terminals 1236 and 1237 have tapered socket spring forming that will hold multiple leads in place. Terminals are pre-tinned for easy soldering.

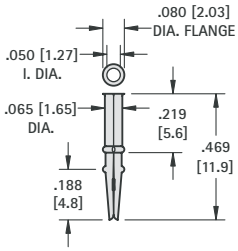
INSERTION TOOL

For Arbor Press: **CAT. NO. TL-11**; For Hand Tool: **CAT. NO. 1214**



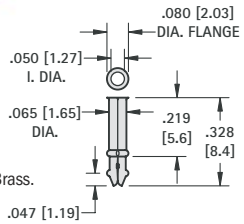
MATERIAL:
.006 (.15) Matte Tin, Brass.
Pre-Tinned

CAT. NO. 1236



MATERIAL:
.006 (.15) Matte Tin, Brass.
Pre-Tinned

CAT. NO. 1237

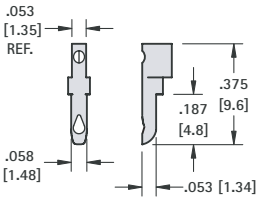


MATERIAL:
.006 (.15) Matte Tin, Brass.
Pre-Tinned

CAT. NO. 1238

"FLEA" CLIP

For subminiature applications where conventional terminals are too large or too costly. Ideal for quick repairs of printed circuitry. Simply insert wire through hole and it is held firmly by spring action assuring continued postive contact.



Mtg. Hole .062 (1.57)

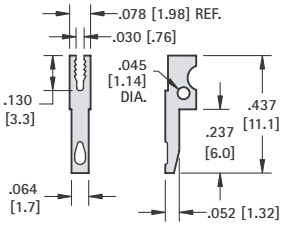
Insertion Tool: **CAT. NO. 1322**

MATERIAL:
.008 (.20) Matte Tin, Beryllium Copper, Tin Plate

CAT. NO. 1500

"IMP" TERMINAL

Excellent for point to point or feed thru wiring. Slot is serrated to grip component leads. Multiple connections are made quick and easy.



Mtg. Hole .062 (1.57)

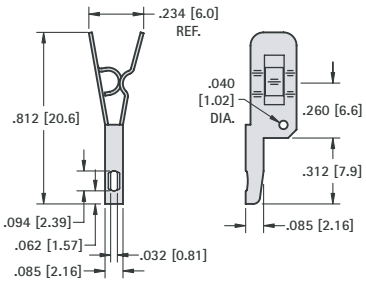
Insertion Tool: **CAT. NO. 1322**

MATERIAL:
.008 (.20) Matte Tin, Beryllium Copper, Tin Plate

CAT. NO. 1499FT

CLAMP TERMINAL

Terminal for production or prototype use. Holds as many as 7 leads without soldering, by spring action.



Mtg. Hole .093 (2.36)

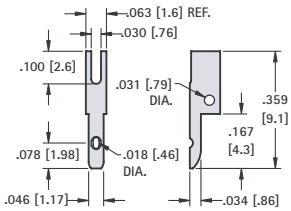
Insertion Tool: **CAT. NO. 1323**

MATERIAL:
.015 (.38) Matte Tin, Spring Steel, Tin Plate

CAT. NO. 1498CP

"MICRO" TERMINAL

Easily press-fit into a .042 (1.07) diameter hole may be flared for permanent installation. Ideally designed for use in circuitry to support components when space is at a premium.



Insertion Tool: **CAT. NO. 1322**

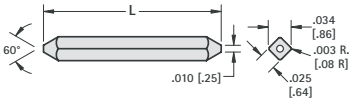
MATERIAL: .008 (.20) Matte Tin, Beryllium Copper, Tin Plate

CAT. NO. 1495

.025 SQUARE WIRE WRAP PINS

Completely burr free straight to within .003 (.08) per inch. Conical ends of square-wire with smooth blend-in radius on corners assures ease of insertion with minimum damage to pre-plated PCB holes.

CAT. NO.	L Length	CAT. NO.	L Length
5070	.400 (10.2)	5077	.642 (16.3)
5071	.440 (11.2)	5078	.675 (17.1)
5072	.515 (13.1)	5079	.720 (18.3)
5073	.535 (13.6)	5080	.850 (21.6)
5074	.600 (15.2)	5081	.916 (23.3)
5075	.615 (15.6)	5082	.995 (25.3)
5076	.625 (15.9)	5083	1.13 (28.7)

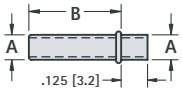


MATERIAL: Phosphor Bronze, Tin Plate

CONTACT PINS (SEAMLESS)

Pins can be staked to .062 (1.57) and .093 (2.36) thick boards.

CAT. NO.	A	B
1223	.093 (2.36)	.293 (7.4)
1224	.093 (2.36)	.357 (9.1)
1226	.093 (2.36)	.437 (11.1)
1200	.125 (3.18)	.379 (9.6)
1210	.125 (3.18)	.566 (14.4)
1230	.156 (3.96)	.379 (9.6)
1231	.156 (3.96)	.566 (14.4)



MATERIAL: Brass, Nickel Plate

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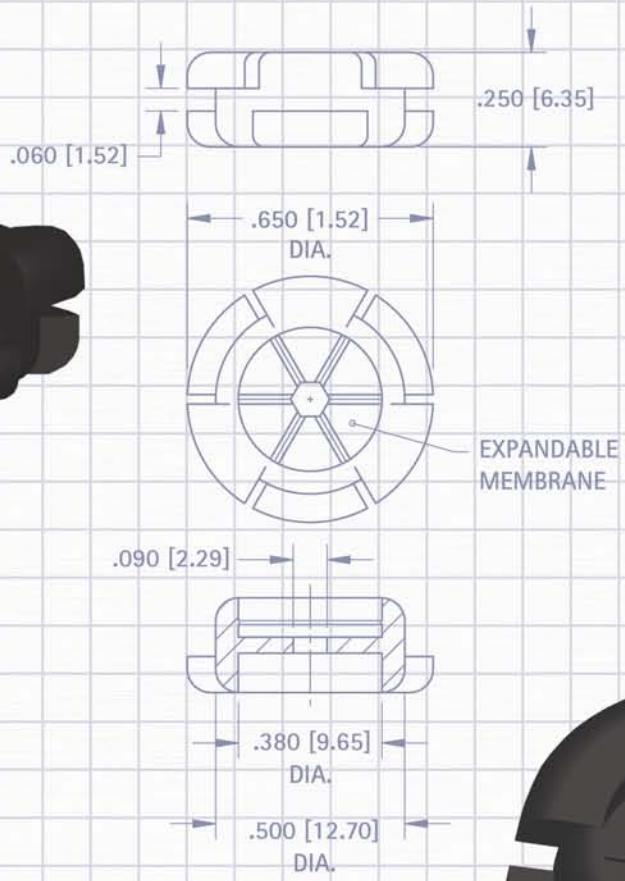

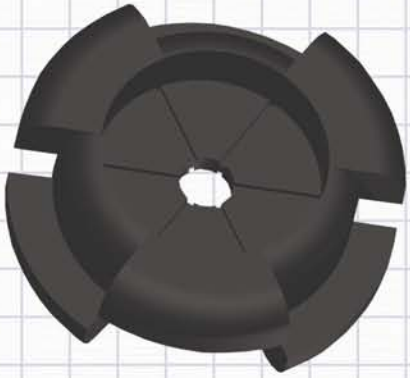

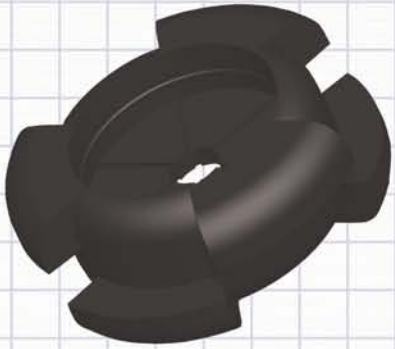

MULTI-PURPOSE HARDWARE

Products such as washers, hole plugs, grommets, bumpers, bushings, clamps, rivets, brackets and ties have can be used in a multitude of environments and applications such as:

- Chassis mounts and holes
- Access panels
- Wiring Outlets
- Electrical insulation
- Mechanical damping
- Cable/Fiber optic routing & securing
- PC board and electronic assemblies

Our quality system is ISO 9001:2008 certified. Our products are in compliance with the RoHS and REACH directives. We provide 3D modeling, CAD and other application-engineering support for modifications, special designs or assembly requirements to assist you in choosing the right Keystone product for your application.

DATE	DESCRIPTION	REV.

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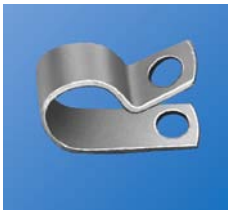
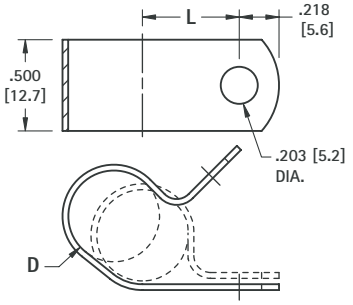
STEEL CABLE CLAMPS

Ideal for securing, grounding and routing cable, wiring, piping, tubing, components and fibre optics.



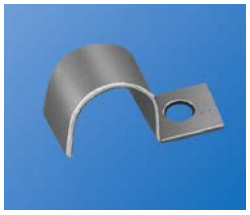


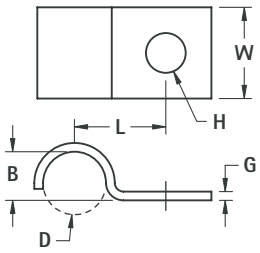
MATERIAL: .032 (.81) Steel, Zinc Plate

CAT. NO.	D FOR DIA.	L CTR TO CTR
8100	.187 (4.7)	.375 (9.5)
8101	.250 (6.4)	.406 (10.3)
8102	.312 (7.9)	.437 (11.1)
8103	.375 (9.5)	.468 (11.9)
8104	.437 (11.1)	.500 (12.7)
8105	.500 (12.7)	.531 (13.5)
8106	.562 (14.4)	.562 (14.3)
8107	.625 (15.9)	.594 (15.1)
8108	.687 (17.4)	.625 (15.9)
8109	.750 (19.0)	.656 (16.7)
8110	.812 (20.6)	.687 (11.4)
8111	.875 (22.2)	.718 (18.2)
8112	.937 (23.8)	.750 (19.1)
8113	1.00 (25.4)	.781 (19.8)

STEEL HALF CLAMPS

Ideal for securing, grounding and routing cable, wiring, piping, tubing, components and fibre optics.



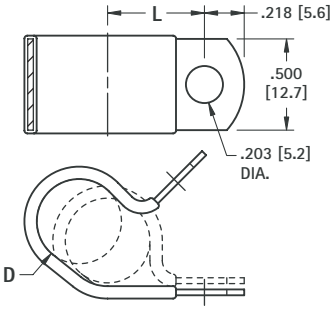


MATERIAL: Steel, Zinc Plate

CAT. NO.	D FOR DIA.	H HOLE DIA.	L CTR TO CTR	B	G THICK	W WIDTH
8140	.125 (3.2)	.218 (5.5)	.437 (11.1)	.125 (3.2)	.032 (.81)	.500 (12.7)
8141	.187 (4.7)	.218 (5.5)	.437 (11.1)	.156 (4.0)		
8142	.250 (6.4)	.218 (5.5)	.437 (11.1)	.187 (4.7)		
8143	.312 (7.9)	.218 (5.5)	.500 (12.7)	.250 (6.4)	.048 (1.22)	.500 (12.7)
8144	.375 (9.5)	.218 (5.5)	.531 (13.5)	.312 (7.9)	.048 (1.22)	.625 (15.9)
8145	.437 (11.1)	.218 (5.5)	.562 (14.3)	.375 (9.5)		
8146	.500 (12.7)	.218 (5.5)	.625 (15.9)	.437 (11.1)	.060 (1.52)	.625 (15.9)
8147	.562 (14.3)	.218 (5.5)	.687 (17.4)	.500 (12.7)		
8148	.625 (15.9)	.218 (5.5)	.750 (19.1)	.562 (14.3)		
8149	.687 (17.4)	.218 (5.5)	.812 (20.6)	.625 (15.9)	.060 (1.52)	.625 (15.9)
8150	.750 (19.1)	.218 (5.5)	.812 (20.6)	.687 (17.4)		
8151	.812 (20.6)	.218 (5.5)	.875 (22.2)	.750 (19.1)		
8152	.875 (22.2)	.281 (7.1)	.937 (23.8)	.812 (20.6)	.060 (1.52)	.750 (19.1)
8153	.937 (23.8)	.281 (7.1)	.968 (24.6)	.812 (20.6)		
8154	1.000 (25.4)	.281 (7.1)	1.000 (25.4)	.937 (23.8)		

INSULATED STEEL CABLE CLAMPS

Ideal for securing, insulating and routing cable, wiring, piping, tubing, components and fibre optics.

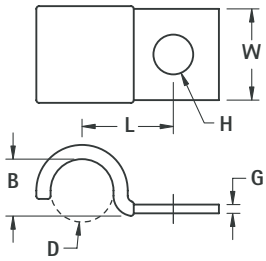


MATERIAL: .032 (.81) Steel, Zinc Plate
Cushion: Black Vinyl

CAT. NO.	D FOR DIA.	L CTR TO CTR
8121	.187 (4.7)	.406 (10.3)
8122	.250 (6.4)	.437 (11.1)
8123	.312 (7.9)	.468 (11.9)
8124	.375 (9.5)	.500 (12.7)
8125	.437 (11.1)	.531 (13.5)
8126	.500 (12.7)	.562 (14.3)
8127	.562 (14.3)	.594 (15.1)
8128	.625 (15.9)	.625 (15.9)
8129	.687 (17.4)	.656 (16.7)
8130	.750 (19.1)	.687 (17.4)
8131	.812 (20.6)	.718 (18.2)
8132	.875 (22.2)	.750 (19.1)
8133	.937 (23.8)	.781 (19.8)
8134	1.000 (25.4)	.812 (20.6)

INSULATED STEEL HALF CLAMPS

Ideal for securing, insulating and routing cable, wiring, piping, tubing, components and fibre optics.



MATERIAL: Steel, Zinc Plate
Cushion: Black Vinyl

CAT. NO.	D FOR DIA.	H HOLE DIA.	L CTR TO CTR	B	G THICK	W WIDTH
8160	.187 (4.7)	.218 (5.5)	.437 (11.1)	.187 (4.7)	.032 (.81)	.500 (12.7)
8161	.250 (6.4)	.218 (5.5)	.500 (12.7)	.250 (6.4)	.048 (1.22)	.500 (12.7)
8162	.312 (7.9)	.218 (5.5)	.531 (13.5)	.312 (7.9)	.048 (1.22)	.625 (15.9)
8163	.375 (9.5)	.218 (5.5)	.562 (14.3)	.375 (9.5)		
8164	.437 (11.1)	.218 (5.5)	.625 (15.9)	.437 (11.1)	.060 (1.52)	.625 (15.9)
8165	.500 (12.7)	.218 (5.5)	.687 (17.4)	.500 (12.7)		
8166	.562 (14.3)	.218 (5.5)	.750 (19.1)	.562 (14.3)		
8167	.625 (15.9)	.218 (5.5)	.812 (20.6)	.625 (15.9)		
8168	.687 (17.4)	.218 (5.5)	.812 (20.6)	.687 (17.4)		
8169	.750 (19.1)	.218 (5.5)	.875 (22.2)	.750 (19.1)		
8170	.812 (20.6)	.281 (7.1)	.937 (23.8)	.812 (20.6)	·060 (1.52)	.750 (19.1)
8171	.875 (22.2)	.281 (7.1)	.968 (24.6)	.812 (20.6)		
8172	.937 (23.8)	.281 (7.1)	1.000 (25.4)	.937 (23.8)		
8173	1.000 (25.4)	.281 (7.1)	1.062 (27.0)	1.000 (25.4)		

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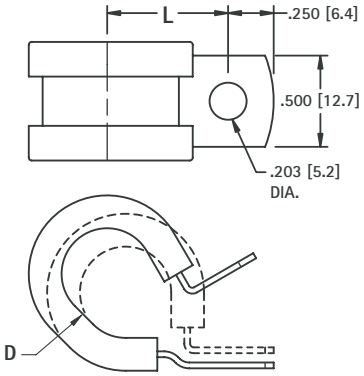
CUSHIONED CABLE CLAMPS

- Ideal for securing in rugged applications
- These cushioned cable clamps secure tightly and protect against shock and vibration

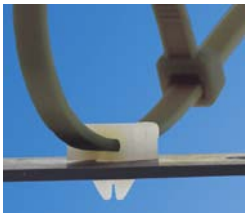


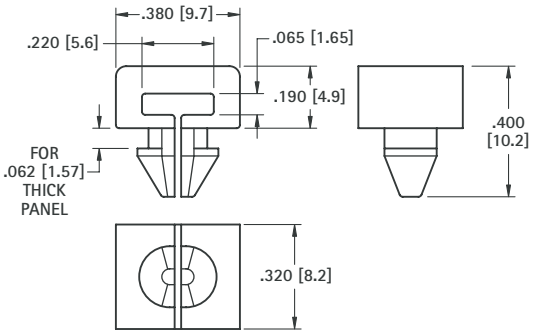
MATERIAL: .032 (0.81) Stainless Steel
Cushion: EPDM Rubber

CAT. NO.	D FOR DIA.	L CTR TO CTR
8090	.250 (6.4)	.711 (18.1)
8091	.375 (9.5)	.500 (12.7)
8092	.500 (12.7)	.562 (14.3)
8093	.625 (15.9)	.718 (18.2)
8094	.750 (19.1)	.781 (19.8)
8095	.875 (22.2)	.843 (21.4)
8096	1.000 (25.4)	.906 (23.0)

CABLE TIE ROUTING CLIP

These clips snap into PC Boards or Panel chassis and are ideal for securing cable wiring, piping, tubing, components and fibre optics when used with cable ties.





Recommended Mtg. Hole .187 (4.8) diameter.

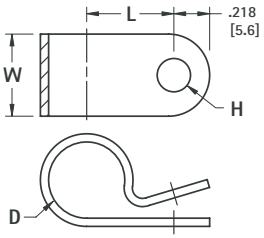
MATERIAL: Nylon 6/6, UL Rated 94V-2

CAT. NO. 8860

NYLON CABLE CLAMPS

Ideal for securing, insulating and routing cable wiring, piping, tubing, components and fibre optics.

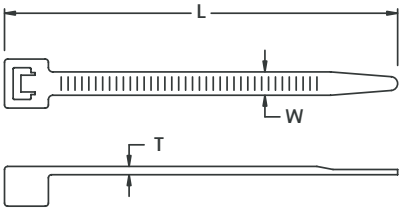
MATERIAL: .050 (1.27) Nylon 6/6, White



CAT. NO.	D FOR DIA.	L CTR TO CTR	W WIDTH	H HOLE
7620	.125 (3.2)	.325 (8.3)	.375 (9.5)	.140 (3.6)
7621	.125 (3.2)	.325 (8.3)	.375 (9.5)	.203 (5.2)
7622	.187 (4.7)	.380 (9.7)	.375 (9.5)	.140 (3.6)
7623	.187 (4.7)	.380 (9.7)	.375 (9.5)	.203 (5.2)
7624	.250 (6.4)	.410 (10.4)	.375 (9.5)	.140 (3.6)
7625	.250 (6.4)	.410 (10.4)	.375 (9.5)	.203 (5.2)
7626	.312 (7.9)	.445 (11.3)	.375 (9.5)	.140 (3.6)
7627	.312 (7.9)	.445 (11.3)	.375 (9.5)	.203 (5.2)
7628	.375 (9.5)	.475 (12.1)	.375 (9.5)	.140 (3.6)
7629	.375 (9.5)	.475 (12.1)	.375 (9.5)	.203 (5.2)
7630	.437 (11.1)	.525 (13.3)	.375 (9.5)	.140 (3.6)
7631	.437 (11.1)	.525 (13.3)	.375 (9.5)	.203 (5.2)
7632	.500 (12.7)	.550 (14.0)	.375 (9.5)	.140 (3.6)
7633	.500 (12.7)	.550 (14.0)	.375 (9.5)	.203 (5.2)
7634	.562 (14.3)	.625 (15.9)	.500 (12.7)	.203 (5.2)
7635	.625 (15.9)	.660 (16.8)	.500 (12.7)	.203 (5.2)
7636	.750 (19.1)	.785 (19.9)	.500 (12.7)	.203 (5.2)
7637	.875 (22.2)	.845 (21.5)	.500 (12.7)	.203 (5.2)
7638	1.000 (25.4)	.910 (23.1)	.500 (12.7)	.203 (5.2)
7639	1.125 (28.6)	.970 (24.6)	.500 (12.7)	.203 (5.2)
7640	1.250 (31.8)	1.060 (26.9)	.500 (12.7)	.203 (5.2)

NYLON CABLE TIES

Popular sizes and strengths to meet common cable tie requirements. Injection molded with one piece construction for strength and reliability. Easily installed by hand. Optional installation tool available, tightens and flush cuts cable tie.

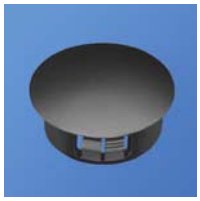


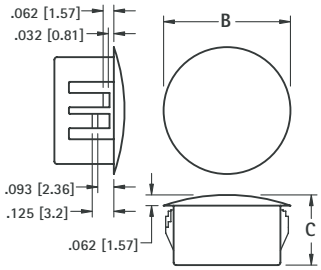
MATERIAL: Natural Nylon 6/6, UL Rated 94V-2

CAT. NO.	TENSILE STRENGTH (Min. Bundle)	FOR BUNDLE DIA. (Max.)	L LENGTH (Approx.)	W WIDTH (Approx.)	T THICKNESS (Approx.)
8865	18 lbs	1.000 (25.4)	4.250 (108.0)	.100 (2.54)	.045 (1.14)
8866	18 lbs	2.000 (50.8)	8.000 (203.2)	.100 (2.54)	.045 (1.14)
8867	40 lbs	1.250 (31.8)	6.000 (152.4)	.140 (3.56)	.050 (1.27)
8868	50 lbs	1.750 (44.5)	7.500 (190.5)	.190 (4.83)	.055 (1.40)
8869	120 lbs	4.000 (101.6)	14.500 (368.3)	.190 (4.83)	.055 (1.40)
8870	Hand Operated Cable Tie Installation Tool for 18lb to 50lb Ties				

NYLON HOLE PLUGS

Closes unused chassis holes quickly and economically. Plugs are abrasion and vibration resistant.



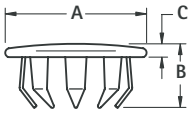


MATERIAL: Nylon 6/6, Matte Finish, Black

CAT. NO.	HOLE DIAMETER	PANEL THICKNESS	B	C
8600	.250 (6.4)	.062 (1.57)	.312 (7.9)	.312 (7.9)
8601	.312 (7.9)	.062 (1.57)	.375 (9.5)	.312 (7.9)
8602	.375 (9.5)	.125 (3.2)	.468 (11.9)	.406 (10.3)
8603	.500 (12.7)	.125 (3.2)	.578 (14.7)	.406 (10.3)
8604	.625 (15.9)	.125 (3.2)	.734 (18.6)	.406 (10.3)
8605	.750 (19.1)	.125 (3.2)	.921 (23.4)	.406 (10.3)
8606	.875 (22.2)	.125 (3.2)	1.015 (25.8)	.453 (11.5)
8607	1.000 (25.4)	.125 (3.2)	1.203 (30.6)	.453 (11.5)
8608	1.125 (28.6)	.125 (3.2)	1.218 (30.9)	.453 (11.5)
8609	1.250 (31.8)	.125 (3.2)	1.375 (34.9)	.453 (11.5)
8610	1.375 (34.9)	.125 (3.2)	1.500 (38.1)	.453 (11.5)
8611	1.500 (38.1)	.125 (3.2)	1.671 (42.4)	.453 (11.5)

STEEL HOLE PLUGS

Excellent spring retention. Plugs will cover chassis holes, wiring outlets, access holes or unused openings.

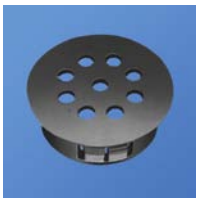


MATERIAL: Steel, Nickel Plate

CAT. NO.	HOLE DIAMETER	PANEL THICKNESS	A	B	C	PRONGS
7600	.250 (6.4)	.031-.062 (.81-1.57)	.406 (10.3)	.234 (5.9)	.062 (1.57)	6
7601	.312 (7.9)	.047-.078 (1.19-1.98)	.437 (11.1)	.250 (6.4).	062 (1.57)	6
7602	.375 (9.5)	.047-.062 (1.19-1.57)	.500 (12.7)	.234 (5.9)	.062 (1.57)	6
7603	.500 (12.7)	.031-.062 (.81-1.57)	.656 (16.7)	.281 (7.1)	.078 (1.98)	8
7604	.625 (15.9)	.062-.093 (1.57-2.36)	.812 (20.6)	.296 (7.5)	.078 (1.98)	8
7605	.750 (19.1)	.062-.093 (1.5 -2.36)	.921 (23.4)	.296 (7.5)	.078 (1.98)	12
7606	.875 (22.2)	.062-.093 (1.57-2.36)	1.062 (27.0)	.296 (7.5)	.062 (1.57)	12
7607	1.000 (25.4)	.062-.156 (1.57-3.9)	1.140 (29.0)	.328 (8.3)	.093 (2.36)	12
7608	1.125 (28.6)	.031-.125 (.79-3.2)	1.312 (33.3)	.343 (8.7)	.093 (2.36)	12
7609	1.250 (31.8)	.062-.093 (1.57-2.36)	1.437 (36.5)	.343 (8.7)	.093 (2.36)	12
7610	1.375 (34.9)	.031-.125 (.79-3.2)	1.562 (39.7)	.406 (10.3)	.078 (1.98)	12
7611	1.500 (38.1)	.031-.062 (.79-1.57)	1.640 (41.7)	.406 (10.3)	.093 (2.36)	12

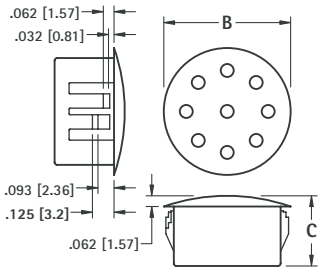
NYLON VENT PLUGS

Used to cover chassis holes while allowing air flow for ventilation.



- Snaps into .032 (.81) to .125 (3.2) thick panels.

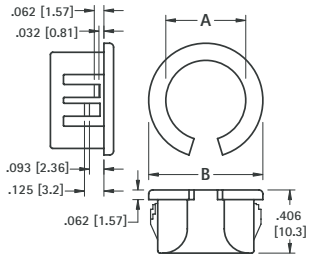
MATERIAL: Nylon 6/6, Matte Finish, Black



CAT. NO.	HOLE DIAMETER	B	C
8612	.875 (22.2)	1.015 (25.8)	.453 (11.5)
8613	1.000 (25.4)	1.218 (30.9)	.453 (11.5)

NYLON SPLIT BUSHINGS

Designed to be assembled into holes that already contain wire or cable. Versatile bushing can be used on all chassis from .032 (.81) to .125 (3.2).

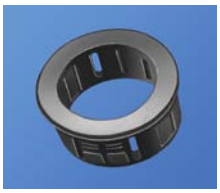


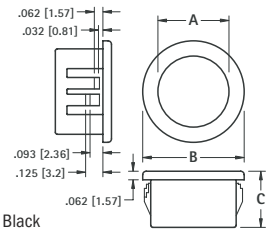
MATERIAL: Nylon 6/6, Black

CAT. NO.	HOLE SIZE REQUIRED	A INSIDE DIAMETER	B HEAD DIAMETER
8490	.375 (9.5)	.265 (6.7)	.421 (10.7)
8491	.500 (12.7)	.312 (7.9)	.562 (14.3)
8492	.562 (14.3)	.390 (9.9)	.640 (16.3)
8493	.625 (15.9)	.453 (11.5)	.687 (17.4)
8494	.750 (19.1)	.546 (13.9)	.796 (20.2)
8495	.875 (22.2)	.671 (17.0)	.921 (23.4)
8496	1.000 (25.4)	.796 (20.2)	1.062 (27.0)

NYLON INSULATING BUSHINGS

Snaps into panel hole to provide protection for wire, cable and tubing from sharp uneven edges.





MATERIAL: Nylon 6/6, Black

CAT. NO.	HOLE SIZE REQUIRED	MAXIMUM CHASSIS THICKNESS	A INSIDE DIAMETER	B HEAD DIAMETER	C OVERALL HEIGHT
8470	.250 (6.4)	.062 (1.57)	.125 (3.2)	.312 (7.9)	.312 (7.9)
8471	.312 (7.9)	.062 (1.57)	.187 (4.7)	.375 (9.5)	.312 (7.9)
8472	.375 (9.5)	.125 (3.2)	.250 (6.4)	.468 (11.9)	.406 (10.3)
8473	.437 (11.1)	.125 (3.2)	.312 (7.9)	.531 (13.5)	.406 (10.3)
8474	.500 (12.7)	.125 (3.2)	.375 (9.5)	.578 (14.7)	.406 (10.3)
8475	.562 (14.3)	.125 (3.2)	.437 (11.1)	.656 (16.7)	.406 (10.3)
8476	.625 (15.9)	.125 (3.2)	.500 (12.7)	.718 (18.2)	.406 (10.3)
8477	.750 (19.1)	.125 (3.2)	.562 (14.3)	.843 (21.4)	.406 (10.3)
8478	.875 (22.2)	.125 (3.2)	.625 (15.9)	.953 (24.2)	.453 (11.5)
8479	1.000 (25.4)	.125 (3.2)	.750 (19.1)	1.125 (28.6)	.453 (11.5)
8480	1.187 (30.1)	.125 (3.2)	.937 (23.8)	1.312 (33.3)	.453 (11.5)
8481	1.250 (31.8)	.125 (3.2)	.937 (23.8)	1.359 (34.5)	.453 (11.5)
8482	1.375 (34.9)	.125 (3.2)	1.000 (25.4)	1.468 (37.3)	.453 (11.5)
8483	1.500 (38.1)	.125 (3.2)	1.062 (27.0)	1.609 (40.9)	.453 (11.5)
8484	1.750 (44.5)	.125 (3.2)	1.375 (34.9)	1.875 (47.6)	.453 (11.5)
8485	2.000 (50.8)	.125 (3.2)	1.625 (41.3)	2.125 (54.0)	.453 (11.5)
8486	2.500 (63.5)	.250 (6.4)	1.968 (50.0)	2.656 (67.5)	.718 (18.2)

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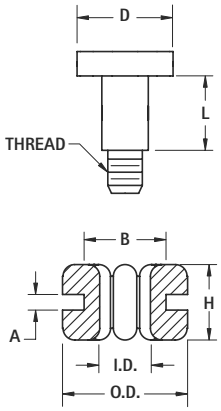
ANTI-VIBRATION GROMMETS

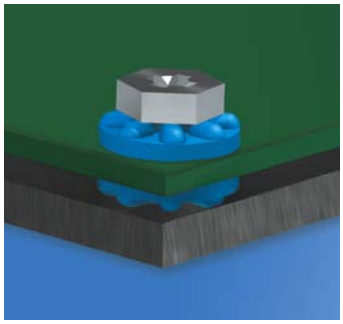
Anti-vibration grommets are designed for noise suppression in office or lab equipment. Additionally, they isolate sensitive instrumentation from unpredictable vibration and shock. The fingers of the grommets provide the flex needed to dampen unwanted noise and vibration. Specially designed shoulder screws are designed to provide the correct spacing.

ROUND HEAD

HEX HEAD

Screw supplied unassembled with isolator



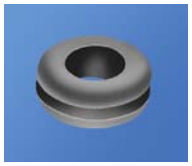


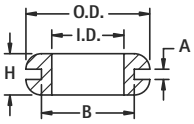
MATERIAL:
Isolator: EPDM Rubber
Shoulder Screw: Steel, Nickel Plate

BLACK CAT. NO.	BLUE CAT. NO.	O.D. OUTSIDE DIAMETER	I.D. INSIDE DIAMETER	H HEIGHT	A PANEL THICK	B MTG. HOLE	SHOULDER SCREW LENGTH (L)	THREAD	D	HEAD
765	766	.379 (9.6)	.154 (3.9)	.228 (5.8)	.063 (1.6)	.250 (6.4)	.189 (4.8)	6-32	.250 (6.4)	Hex
769	770	.377 (9.6)	.161 (4.1)	.298 (7.6)	.125 (3.2)	.250 (6.4)	.252 (6.4)	6-32	.300 (7.6)	Hex
775	776	.551 (14.0)	.191 (4.9)	.319 (8.1)	.063 (1.6)	.375 (9.5)	.318 (8.0)	6-32	.394 (10.0)	Round
767	768	.379 (9.6)	.154 (3.9)	.228 (5.8)	.047 (1.2)	.250 (6.4)	.197 (5.0)	M3	.394 (10.0)	Round
771	772	.411 (11.2)	.181 (4.6)	.209 (5.3)	.031 (0.8)	.315 (8.0)	.197 (5.0)	M3	.394 (10.0)	Round
773	774	.551 (14.0)	.191 (4.9)	.291 (7.4)	.047 (1.2)	.375 (9.5)	.252 (6.4)	M3	.394 (10.0)	Round

RUBBER GROMMETS

Ideal for electrical insulation and mechanical damping.



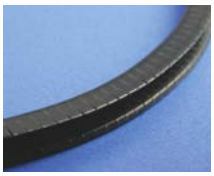


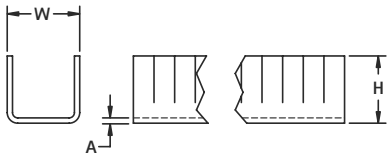
MATERIAL: Rubber, BUNA N

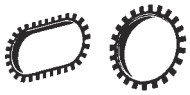
CAT. NO.	I.D. INSIDE DIAMETER	B MTG. HOLE	A PANEL THICKNESS	O.D. OUTSIDE DIAMETER	H HEIGHT
730	.125 (3.2)	.187 (4.7)	.062 (1.57)	.312 (7.9)	.187 (4.7)
733	.125 (3.2)	.250 (6.4)	.062 (1.57)	.343 (8.7)	.187 (4.7)
734	.125 (3.2)	.437 (11.1)	.062 (1.57)	.625 (15.9)	.187 (4.7)
735	.125 (3.2)	.375 (9.5)	.093 (2.36)	.500 (12.7)	.312 (7.9)
736	.187 (4.7)	.312 (7.9)	.062 (1.57)	.437 (11.1)	.218 (5.5)
737	.187 (4.7)	.281 (7.2)	.093 (2.36)	.437 (11.1)	.218 (5.5)
738	.250 (6.4)	.437 (11.1)	.062 (1.57)	.625 (15.9)	.187 (4.7)
739	.250 (6.4)	.375 (9.5)	.062 (1.57)	.562 (14.3)	.250 (6.4)
740	.250 (6.4)	.375 (9.5)	.093 (2.36)	.500 (12.7)	.250 (6.4)
741	.312 (7.9)	.562 (14.3)	.062 (1.57)	.812 (20.6)	.312 (7.9)
742	.312 (7.9)	.437 (11.1)	.062 (1.57)	.625 (15.9)	.281 (7.1)
743	.312 (7.9)	.437 (11.1)	.093 (2.36)	.625 (15.9)	.312 (7.9)
744	.375 (9.5)	.625 (15.9)	.062 (1.57)	.875 (22.2)	.312 (7.9)
745	.375 (9.5)	.500 (12.7)	.062 (1.57)	.625 (15.9)	.250 (6.4)
732	.437 (11.1)	.562 (14.3)	.062 (1.57)	.750 (19.1)	.250 (6.4)
746	.437 (11.1)	.687 (17.4)	.062 (1.57)	.937 (23.8)	.312 (7.9)
747	.500 (12.7)	.812 (20.6)	.062 (1.57)	1.062 (27.0)	.312 (7.9)
748	.500 (12.7)	1.250 (31.8)	.062 (1.57)	1.500 (38.1)	.250 (6.4)
749	.500 (12.7)	.750 (19.1)	.093 (2.36)	.968 (24.6)	.281 (7.1)
750	.562 (14.3)	.812 (20.6)	.062 (1.57)	1.062 (27.0)	.312 (7.9)
752	.625 (15.9)	.875 (22.2)	.062 (1.57)	1.125 (28.6)	.312 (7.9)
753	.625 (15.9)	1.250 (31.8)	.062 (1.57)	1.500 (38.1)	.250 (6.4)
755	.750 (19.1)	1.062 (27.0)	.062 (1.57)	1.375 (34.9)	.375 (9.5)
756	.750 (19.1)	1.437 (36.5)	.062 (1.57)	1.812 (46.0)	.375 (9.5)
757	.875 (22.2)	1.250 (31.8)	.062 (1.57)	1.625 (41.3)	.437 (11.1)

FLEXIBLE GROMMETING

Ideal for maintenance, short-run production, R&D or prototyping. Supplied in 25 ft. rolls. Make your own grommets to fit any size or shape required.





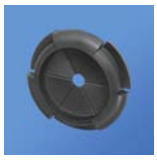


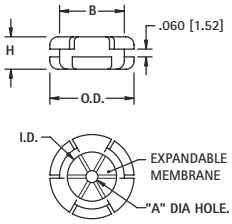
MATERIAL: Nylon 6/6, Black

CAT. NO.	MAX PANEL	W WIDTH	H HEIGHT	A THICK
8615	.052 (1.32)	.139 (3.5)	.190 (4.8)	.028 (0.7)
8616	.085 (2.16)	.182 (4.6)	.200 (5.1)	.040 (1.02)
8617	.125 (3.18)	.232 (5.9)	.220 (5.6)	.040 (1.02)

"UNIVERSAL" RUBBER GROMMET

- Designed to adjust to different cable diameters from .125 (3.2) to .312 (7.9).
- Self-adjusting membrane forms a dust resistant seal.





MATERIAL: Thermoplastic Rubber, Black

CAT. NO.	O.D. OUTSIDE	I.D. INSIDE DIA.	A DIA. HOLE	B MTG HOLE	H HEIGHT
777	.650 (16.32)	.380 (9.7)	.090 (2.3)	.500 (12.7)	.250 (6.4)
778	1.25 (31.8)	.810 (20.6)	.160 (4.0)	1.000 (25.4)	.370 (9.4)

ADHESIVE BUMPERS

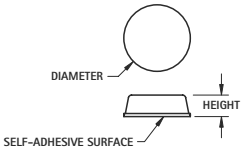
Applies quicky and easily. Prevents nicks, scratches, scuffs, vibration, slippage and noise. Easy peel and stick mounting. Crack resistant. High coefficient of friction. Sold in sheets.

FLAT

780 Series

781 Series

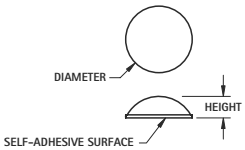
782 Series



MATERIAL: Molded Polyurethane

BLACK CAT. NO.	CLEAR CAT. NO.	DIAMETER	HEIGHT	PARTS/SHEET
780-B	780-C	.375 (9.5)	.125 (3.2)	300
781-B	781-C	.500 (12.7)	.060 (1.5)	200
782-B	782-C	.500 (12.7)	.140 (3.6)	200

DOMED



783 SERIES

784 SERIES

785 SERIES

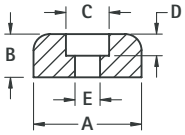
MATERIAL: Molded Polyurethane

BLACK CAT. NO.	CLEAR CAT. NO.	DIAMETER	HEIGHT	PARTS/SHEET
783-B	783-C	.250 (6.4)	.062 (1.6)	578
784-B	784-C	.335 (8.5)	.085 (2.2)	450
785-B	785-C	.440 (11.2)	.200 (5.1)	242

RECESSED BUMPERS

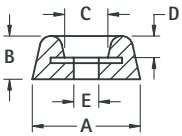
Provides excellent traction and shock absorbing qualities. available with or without Mold-in Washers.

FIG. 1



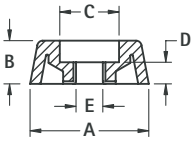
MATERIAL: Rubber, BUNA S (Figs. 1 & 2), EPDN

FIG. 2 Mold-In Washer



MATERIAL: Rubber, BUNA S (Figs. 1 & 2), EPDN

FIG. 3 Mold-In Washer



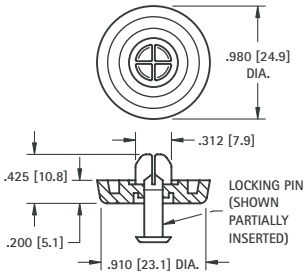
MATERIAL: EPDN Rubber

CAT. NO.	FIG.	A	B	C	D	E	SCREW SIZE
720	1	.500 (12.7)	.250 (6.4)	.250 (6.4)	.187 (4.7)	.125 (3.2)	# 4
721	1	.625 (15.9)	.312 (7.9)	.250 (6.4)	.187 (4.7)	.125 (3.2)	# 4
722	1	.718 (18.2)	.437 (11.1)	.250 (6.4)	.218 (5.5)	.125 (3.2)	# 4
723	2	.937 (23.8)	.375 (9.5)	.375 (9.5)	.218 (5.5)	.187 (4.7)	# 8
724*	3	.687 (17.4)	.250 (6.4)	.343 (8.7)	.125 (3.2)	.155 (3.9)	# 6
725*	3	.875 (22.2)	.312 (7.9)	.406 (10.3)	.187 (4.7)	.187 (4.7)	# 8
726*	3	1.062 (27.0)	.437 (11.1)	.468 (11.9)	.234 (5.9)	.200 (5.1)	# 10
727	3	.562 (14.3)	.375 (9.5)	.218 (5.5)	.187 (4.7)	.115 (2.9)	# 4
728	3	.750 (19.1)	.437 (11.1)	.265 (6.7)	.250 (6.4)	.148 (3.8)	# 6
729	3	.937 (23.8)	.625 (15.9)	.359 (9.1)	.328 (8.3)	.174 (4.4)	# 8

SELF-LOCKING BUMPER FOOT

- A unique easy-to-install self-locking bumper foot
- Two piece assembly, furnished pre-assembled
- Vibration absorbing and skid resistant
- Mounts without screws or tools

Recommended Mounting Hole: .305 (7.8) diameter



MATERIAL:
Foot: Santoprene, Black **Pin:** Polypropylene, Black

CAT. NO. 717

Tel (718) 956-8900 • Fax (718) 956-9040
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RoHS COMPLIANT ~ ISO 9001 CERTIFIED
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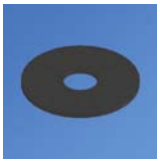
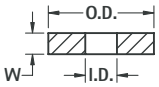
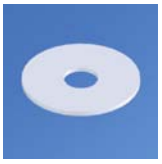
31-07 20th Road – Astoria, NY 11105-2017

FLAT WASHERS – NYLON & FIBRE







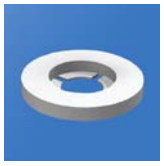
MATERIAL:
Fibre: Commercial Grade per ASTM D710 **Nylon:** Grade 6/6 per ASTM D4066

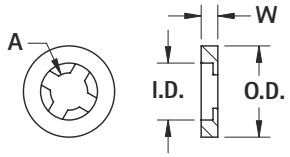
MATERIAL	I.D.	O.D.	W THICKNESS .032 (.81) CAT. NO.	.047 (1.19) CAT. NO.	.062 (1.57) CAT. NO.
FIBRE	.098 (2.49) #2	.187 (4.8)	3111	3148	3366
		.250 (6.4)	3112	3149	3367
		.312 (7.9)	3113	3150	3194
NYLON	.098 (2.49) #2	.187 (4.8)	3114	3151	3356
		.250 (6.4)	3347*	3152	3357*
		.312 (7.9)	3115	3153	3195
FIBRE	.120 (3.05) #4	.250 (6.4)	3116	3154	3368
		.312 (7.9)	348	3155	3196
		.375 (9.5)	3117	3156	3197
NYLON	.120 (3.05) #4	.250 (6.4)	3348	345	3358
		.312 (7.9)	3359	3157	3198
		.375 (9.5)	3118	3158	3200
FIBRE	.140 (3.56) #6	.250 (6.4)	3119	3159	3369
		.312 (7.9)	3120	3160	3370
		.375 (9.5)	3121	3161	3201
NYLON	.140 (3.56) #6	.250 (6.4)	3122	3162	3360
		.312 (7.9)	3349	346	3361
		.375 (9.5)	3123	3163	3202
FIBRE	.171 (4.34) #8	.312 (7.9)	3124	3164	3203
		.375 (9.5)	3125	3165	3372
		.437 (11.1)	3126	3166	3204
NYLON	.171 (4.34) #8	.312 (7.9)	3127	3167	3205
		.375 (9.5)	3350	3168	3363
		.437 (11.1)	3128	3169	3206
FIBRE	.196 (4.98) #10	.312 (7.9)	349	3170	3207
		.375 (9.5)	3129	3171	3208
		.437 (11.1)	3130	3172	3209
		.500 (12.7)	3131	3173	3210
NYLON	.196 (4.98) #10	.312 (7.9)	3364	3174	3211
		.375 (9.5)	3352	3175	3212
		.437 (11.1)	3132	3176	3213
		.500 (12.7)	3133	3177	3214
FIBRE	.260 (6.60) 1/4"	.437 (11.1)	3134	3178	3215
		.500 (12.7)	3135	3179	3373
		.625 (15.9)	3136	3180	3216
		.750 (19.1)	3137	3181	3217
NYLON	.260 (6.60) 1/4"	.437 (11.1)	3138	3182	3218
		.500 (12.7)	3353	3183	3365
		.625 (15.9)	3139	3184	3219
		.750 (19.1)	3140	3185	3220
FIBRE	.385 (9.65) 3/8"	.500 (12.7)	3141	3186	3221
		.625 (15.9)	3142	3187	3222
		.750 (19.1)	3143	3188	3223
		1.000 (25.4)	3144	3189	3224
NYLON	.385 (9.65) 3/8"	.500 (12.7)	3145	3190	3225
		.625 (15.9)	3354	3191	3226
		.750 (19.1)	3146	3192	3227
		1.000 (25.4)	3147	3193	3228

* .090 (2.3) I.D.

NYLON RETAINING WASHERS

Retaining Washers are similar to our standard washers, but with a specially configured ID designed to grip the screw shank. The washer remains attached to the screw, for quick, easy assembly.

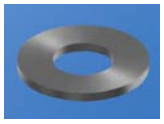


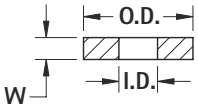


MATERIAL:
Nylon, 6/6 UL Rated 94V-0

HEIGHT (H) .032 (0.81) CAT. NO.	.062 (1.57) CAT. NO.	SCREW SIZE	A	I.D.	O.D.
2244	2284	#2 (M2)	.115 (2.9)	.078 (1.9)	.203 (5.2)
2245	2285	#4	.156 (3.9)	.102 (2.6)	.256 (6.7)
2246	2286	#6 (M3.5)	.198 (5.0)	.128 (3.3)	.328 (8.3)
2247	2287	#8 (M4)	.235 (5.9)	.152 (3.8)	.390 (9.9)
2248	—			.135 (3.4)	.390 (9.9)
2249	—	#10	.227 (7.0)	.177 (4.5)	.453 (11.5)
—	2290				.500 (12.7)
—	2291				.630 (16.0)
2252	2292	#1/4 (M6)	.375 (9.5)	.234 (5.9)	.593 (15.1)
2253	2293	#3/8	.564 (14.3)	.350 (8.9)	.890 (22.6)

STEEL FLAT WASHERS

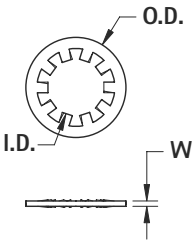




MATERIAL: Steel, Zinc Plate

CAT. NO.	I.D.	O.D.	W	SCREW SIZE
4692	.128 (3.3)	.281 (7.1)	.025 (.63)	#4 (M3)
7235-1	.120 (3.1)	.220 (5.6)	.032 (.81)	
4699	.147 (3.7)	.373 (9.5)	.031 (.80)	#6 (M3.5)
4703	.200 (5.1)	.436 (11.1)	.033 (.84)	#10 (M4)
1719-1	.391 (9.9)	1.500 (38.1)	.094 (2.4)	3/8"

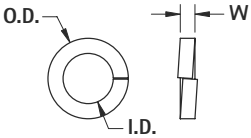
INTERNAL TOOTH WASHERS

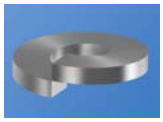


MATERIAL: Phoshor Bronze - Nickel Plate

CAT. NO.	I.D.	O.D.	W	SCREW SIZE
11362-5	.226 (5.7)	.402 (10.2)	.020 (.51)	#12 (M5)
4691	.261 (6.6)	.469 (11.9)	.025 (.63)	1/4" (M6)

STEEL LOCK WASHERS





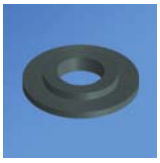
MATERIAL: Steel, Zinc Plate

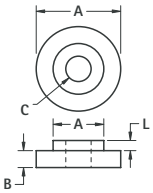
CAT. NO.	I.D.	O.D.	W	SCREW SIZE
4693	.177 (3.0)	.205 (5.2)	.031 (.78)	#4 (M3)
7235-2	.177 (3.0)	.197 (5.0)	.025 (.63)	
4700	.144 (3.7)	.250 (6.4)	.033 (.84)	#6 (M3.5)
1477	.195 (5.0)	.320 (8.1)	.047 (1.2)	#10 (M4)
1476	.256 (6.5)	.479 (12.2)	.074 (1.9)	1/4" (M6)
1485	.321 (8.2)	.586 (14.8)	.078 (2.0)	5/16" (M8)

FIBRE SHOULDER WASHERS

MATERIAL: Fibre, Commercial Grade per ASTM D710

CAT. NO.	L	O.D.	B	I.D.	S.D.	SCREW SIZE
3229	.025 (.64)	.250 (6.4)	.047 (1.2)	.093 (2.4)	.123 (3.1)	#2
3061	.025 (.64)	.250 (6.4)	.047 (1.2)	.093 (2.4)	.156 (4.0)	
344	.015 (.38)	.312 (7.9)	.062 (1.57)	.125 (3.2)	.203 (5.2)	#4
343	.025 (.64)	.312 (7.9)	.062 (1.57)	.125 (3.2)	.203 (5.2)	
3062	.031 (.79)	.250 (6.4)	.031 (.79)	.115 (2.9)	.187 (4.7)	
3230	.031 (.79)	.281 (7.1)	.062 (1.57)	.115 (2.9)	.175 (4.4)	
3231	.031 (.79)	.312 (7.9)	.062 (1.57)	.120 (3.1)	.180 (4.6)	
4698	.031 (.79)	.250 (6.4)	.062 (1.57)	.140 (3.6)	.187 (4.7)	#6
3064	.031 (.79)	.312 (7.9)	.062 (1.57)	.140 (3.6)	.187 (4.7)	
3232	.031 (.79)	.375 (9.5)	.062 (1.57)	.140 (3.6)	.210 (5.3)	
3233	.031 (.79)	.375 (9.5)	.062 (1.57)	.140 (3.6)	.240 (6.1)	
3234	.031 (.79)	.500 (12.7)	.062 (1.57)	.140 (3.6)	.240 (6.1)	
3065	.031 (.79)	.375 (9.5)	.062 (1.57)	.170 (4.3)	.246 (6.2)	#8
3066	.031 (.79)	.417 (10.6)	.062 (1.57)	.170 (4.3)	.210 (5.3)	
3235	.031 (.79)	.312 (7.9)	.062 (1.57)	.170 (4.3)	.218 (5.5)	
3236	.031 (.79)	.375 (9.5)	.062 (1.57)	.170 (4.3)	.215 (5.5)	
3237	.031 (.79)	.500 (12.7)	.062 (1.57)	.170 (4.3)	.240 (6.1)	
4702	.031 (.79)	.375 (9.5)	.062 (1.57)	.194 (4.9)	.308 (7.8)	#10
3238	.031 (.79)	.375 (9.5)	.062 (1.57)	.194 (4.9)	.240 (6.1)	
3239	.031 (.79)	.500 (12.7)	.062 (1.57)	.196 (5.0)	.240 (6.1)	
4711	.031 (.79)	.500 (12.7)	.062 (1.57)	.253 (6.4)	.308 (7.8)	.250-20
3240	.031 (.79)	.625 (15.9)	.062 (1.57)	.265 (6.7)	.359 (9.1)	
3069	.031 (.79)	.625 (15.9)	.062 (1.57)	.385 (9.8)	.498 (12.6)	.375-24
3241	.031 (.79)	.750 (19.1)	.062 (1.57)	.385 (9.8)	.498 (12.6)	



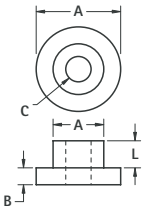


NYLON SHOULDER WASHER/BUSHINGS

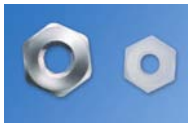
MATERIAL: Nylon 6/6 per ASTM D4066

CAT. NO.	L	O.D.	B	I.D.	S.D.	SCREW SIZE
7680	.025 (.64)	.260 (6.6)	.030 (.76)	.095 (2.4)	.154 (3.9)	#2
3051	.125 (3.2)	.181 (4.6)	.047 (1.2)	.090 (2.3)	.120 (3.1)	
3101	.187 (4.8)	.181 (4.6)	.047 (1.2)	.090 (2.3)	.120 (3.1)	
3052	.250 (6.4)	.181 (4.6)	.047 (1.2)	.090 (2.3)	.120 (3.1)	
3049*	.031 (.79)	.218 (5.5)	.040 (1.0)	.115 (2.9)	.135 (3.4)	#4
7681	.047 (1.2)	.250 (6.4)	.032 (.81)	.115 (2.9)	.185 (4.7)	
3053	.093 (2.4)	.235 (6.0)	.047 (1.2)	.115 (2.9)	.145 (3.7)	
3102	.125 (3.2)	.235 (6.0)	.047 (1.2)	.115 (2.9)	.145 (3.7)	
3103	.187 (4.7)	.235 (6.0)	.047 (1.2)	.115 (2.9)	.145 (3.7)	
340	.250 (6.4)	.235 (6.0)	.047 (1.2)	.115 (2.9)	.145 (3.7)	
7682	.032 (.81)	.385 (9.8)	.062 (1.57)	.145 (3.7)	.240 (6.1)	#6
7683	.032 (.81)	.250 (6.4)	.062 (1.57)	.140 (3.6)	.187 (4.7)	
7684	.032 (.81)	.312 (7.9)	.062 (1.57)	.140 (3.6)	.187 (4.7)	
3054	.125 (3.2)	.290 (7.4)	.047 (1.19)	.140 (3.6)	.170 (4.3)	
3104	.187 (4.7)	.290 (7.4)	.047 (1.19)	.140 (3.6)	.170 (4.3)	
341	.250 (6.4)	.290 (7.4)	.047 (1.19)	.140 (3.6)	.170 (4.3)	
3055	.500 (12.7)	.290 (7.4)	.047 (1.19)	.140 (3.6)	.170 (4.3)	
7685	.032 (.81)	.375 (9.5)	.032 (.81)	.171 (4.3)	.250 (6.4)	#8
3056	.140 (3.6)	.344 (8.7)	.062 (1.57)	.171 (4.3)	.205 (5.2)	
3105	.250 (6.4)	.344 (8.7)	.062 (1.57)	.171 (4.3)	.205 (5.2)	
342	.375 (9.5)	.344 (8.7)	.062 (1.57)	.171 (4.3)	.205 (5.2)	
3106	.500 (12.7)	.344 (8.7)	.062 (1.57)	.171 (4.3)	.205 (5.2)	
7686	.032 (.81)	.375 (9.5)	.062 (1.57)	.196 (5.0)	.308 (7.8)	#10
3107	.093 (2.36)	.438 (11.1)	.062 (1.57)	.200 (5.1)	.260 (6.6)	
3108	.250 (6.4)	.399 (10.1)	.062 (1.57)	.200 (5.1)	.260 (6.6)	
3057	.500 (12.7)	.399 (10.1)	.062 (1.57)	.200 (5.1)	.260 (6.6)	
3058	.750 (19.1)	.399 (10.1)	.062 (1.57)	.200 (5.1)	.260 (6.6)	
7687	.032 (.81)	.437 (11.1)	.032 (.81)	.253 (6.4)	.310 (7.9)	.250-20
7688	.078 (1.98)	.492 (12.7)	.032 (.81)	.260 (6.7)	.312 (7.9)	
3059	.187 (4.7)	.513 (13.0)	.062 (1.57)	.260 (6.7)	.312 (7.9)	
3109	.250 (6.4)	.513 (13.0)	.062 (1.57)	.260 (6.7)	.312 (7.9)	
3110	.375 (9.5)	.513 (13.0)	.062 (1.57)	.260 (6.7)	.312 (7.9)	
3060	.500 (12.7)	.513 (13.0)	.062 (1.57)	.260 (6.7)	.312 (7.9)	

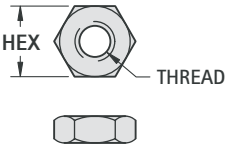
* Black



HEX MACHINE NUTS

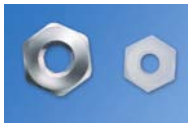


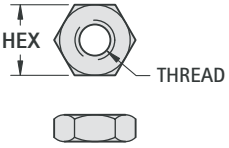
MATERIAL: Nylon 6/6 (RoHS Compliant)
Steel, Zinc Plate (Non-RoHS Compliant)
Note: RoHS Compliant finishes available on special order



STEEL CAT. NO.	NYLON CAT. NO.	HEX	THREAD
4694	—	187 (4.7)	4-40
9600	9605	.250 (6.4)	
4701	—	.250 (6.4)	6-32
9602	9606	.312 (7.9)	
9603	—	.250 (6.4)	8-32
9604	9607	312 (7.9)	
4705	9608	.375 (9.5)	10-32
4713	—	.430 (10.9)	.250-28
4716	—	.500 (12.7)	.312-24

METRIC MACHINE NUTS





MATERIAL: Nylon 6/6 UL Rated 94V-2
Steel, Nickel Plate

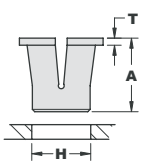
STEEL CAT. NO.	NYLON CAT. NO.	HEX	THREAD
4707	4687	5.00 mm	M2.5
4708	4688	5.50 mm	M3
4709	4689	7.00 mm	M4

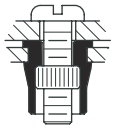
BLIND CAPTIVE NUTS - PRESS FIT

MOUNT CHASSIS, PANELS, HEAT SINKS, SOCKETS

- Easy Assembly
- Dampens Vibration
- Eliminates Insulating Washer
- Hi-Dielectric Strength

A unique reusable fastener made of NYLON which contains a threaded brass nut. Finger pressure or light tap seals it in a pre-drilled hole. The nut is drawn up causing a Nylon bulge behind the workpiece. Screw may be removed or replaced.





Shown Installed
(Screw not supplied)

MATERIAL: Molded Nylon with Brass threaded insert

CAT. NO.	THREAD	H HOLE SIZE REQ'D.	IDEAL SHEET THICKNESS	A	T
4341	4-40	.250 (6.4)	.047 (1.2)	.312 (7.9)	.030 (.76)
4342	6-32	.312 (7.9)	.078 (1.9)	.375 (9.5)	.030 (.76)
4343	8-32	.406 (10.3)	.093 (2.4)	.500 (12.7)	.030 (.76)

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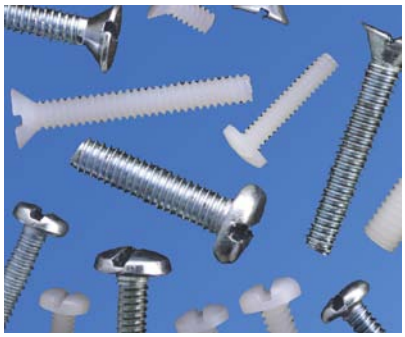
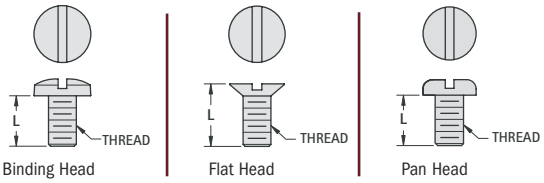
MACHINE SCREWS

Suited for a variety of fastening applications to assure firm, electrical and mechanical connections. Flat Head styles for use where fasteners cannot protrude above mating surfaces. Pan Head style to replace round head type for cosmetic enhancement and smooth surface area uses.

For Metric Hardware Refer to page 55.

MATERIAL: Steel, Zinc Plate (Non-RoHS Compliant)
Note: RoHS Compliant finishes available on special order
Nylon 6/6 (RoHS Compliant)



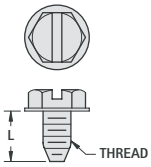


THREAD	LENGTH	BINDING HEAD STEEL CAT. NO.	BINDING HEAD NYLON CAT. NO.	FLAT HEAD STEEL CAT. NO.	FLAT HEAD NYLON CAT. NO.	PAN HEAD STEEL CAT. NO.	PAN HEAD NYLON CAT. NO.
2-56	.250 (6.4)	9455	—	9555	—	9355	—
	.500 (12.7)	9456	—	9556	—	9356	—
	.750 (19.1)	9457	—	9557	—	9357	—
4-40	.250 (6.4)	9400	9427	9500	9527	9300	9327
	.375 (9.5)	9401	9428	9501	9528	9301	9328
	.500 (12.7)	9402	9429	9502	9529	9302	9329
	.625 (15.9)	9403	9430	9503	9530	9303	9330
	.750 (19.1)	9404	9431	9504	9531	9304	9331
	1.000 (25.4)	9405	9432	9505	9532	9305	9332
6-32	.187 (4.7)	9406	9433	9506	9533	9306	9333
	.250 (6.4)	9407	9434	9507	9534	9307	9334
	.375 (9.5)	9408	9435	9508	9535	9308	9335
	.500 (12.7)	9409	9436	9509	9536	9309	9336
	.625 (15.9)	9410	9437	9510	9537	9310	9337
	.750 (19.1)	9411	9438	9511	9538	9311	9338
	1.000 (25.4)	9412	9439	9512	9539	9312	9339
	1.250 (31.8)	9413	9440	9513	9540	9313	9340
	2.000 (50.8)	9414	9441	9514	9541	9314	9341
8-32	.250 (6.4)	9416	9443	9516	9543	9316	9343
	.375 (9.5)	9417	9444	9517	9544	9317	9344
	.500 (12.7)	9418	9445	9518	9545	9318	9345
	.625 (15.9)	9419	9446	9519	9546	9319	9346
	.750 (19.1)	9420	9447	9520	9547	9320	9347
	1.000 (25.4)	9421	9448	9521	9548	9321	9348
	1.250 (31.8)	9422	9449	9522	9549	9322	9349
10-32	.500 (12.7)	9423	9450	9523	9550	9323	9350
	.750 (19.1)	9424	9451	9524	9551	9324	9351
	1.000 (25.4)	9425	9452	9525	9552	9325	9352
	1.500 (38.1)	9426	9453	9526	9553	9326	9353

SELF TAPPING SCREWS

Highly versatile screw, used in wood, fiberglass and metal where machine thread inserts are not furnished.

- Slotted drive, hex head

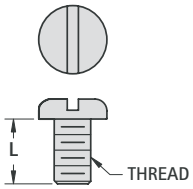


THREAD	LENGTH	CAT. NO.
No. 4	.375 (9.5)	9575
No. 6	.375 (9.5)	9576
	.500 (12.7)	9577
No. 8	.375 (9.5)	9578
	.500 (12.7)	9579
No. 10	.375 (9.5)	9580
	.500 (12.7)	9581

MATERIAL: Steel, Zinc Plate (Non-RoHS Compliant)
Note: RoHS Compliant finishes available on special order

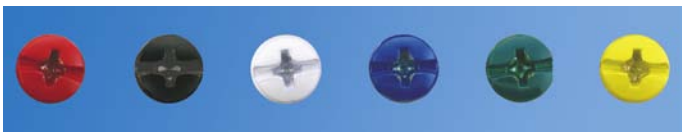
METRIC SCREWS

Choice of: Steel, Zinc Plate • Nylon: 6/6, UL Rated 94V-2

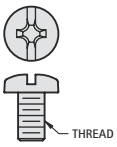


STEEL CAT. NO.	L	NYLON 6/6 CAT. NO.
M2.5 THREAD		
29301	6.00	29331
29304	12.00	29334
29306	16.00	29336
M3 THREAD		
29311	6.00	29341
29314	12.00	29344
29316	16.00	29346
29318	25.00	29348
M4 THREAD		
29321	6.00	29351
29324	12.00	29354
29326	16.00	29356
29328	25.00	29358

BINDING HEAD SCREWS – COLORED HEAD



Ideal for quick identification of screw terminal. Reduces errors in wirng of cables. See pages 62-65 for screw terminals with colored screws installed. Only head is painted, provides reliable electrical contact to terminal.



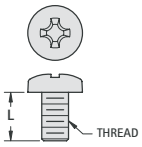
CAT. NO. M3 × 6mm L	HEAD COLOR	CAT. NO. 6-32 × .250 (6.3) L
7689-1	NICKEL	8190-1
9191-2	RED	9190-2
9191-3	BLACK	9190-3
9191-4	WHITE	9190-4
9191-5	BLUE	9190-5
9191-6	GREEN	9190-6
9191-7	YELLOW	9190-7

MATERIAL: Brass, Nickel Plate with Painted Color Head

STAINLESS STEEL PAN HEAD SCREWS

- Phillips drive pan head machine screws

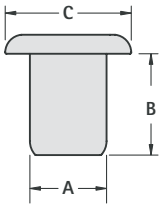
MATERIAL: Stainless Steel



CAT. NO.	L LENGTH	THREAD
9900	.250 (6.4)	4-40
9901	.375 (9.5)	
9902	.500 (12.7)	
9903	.250 (6.4)	6-32
9904	.375 (9.5)	
9905	.500 (12.7)	
9906	.375 (9.5)	8-32
9907	.500 (12.7)	
9908	.750 (19.1)	
9909	.375 (9.5)	10-32
9910	.500 (12.7)	
9911	.750 (19.1)	

WIDE ROLL EYELETS

A choice of the most popular sizes in use for PC board and electronic assembly applications.



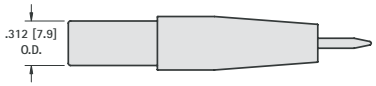
MATERIAL: Brass, Bright Electro Tin, MIL-T-10727. Other platings can be furnished.

CAT. NO.	A OUTSIDE DIAMETER BARREL	B LENGTH UNDER FLANGE	C FLANGE DIAMETER	MTG. HOLE SIZE	STAKING TOOL CAT. NO.
22	.059 (1.49) O.D. / .045 (1.14) I.D.	.062 (1.57)	.105 (2.7)	.062 (1.57) USE DRILL #51	3075
23		.093 (2.36)			
24		.125 (3.18)			
25		.156 (3.96)			
26		.187 (4.75)			
27		.219 (5.56)			
33	.089 (2.26) O.D. / .070 (1.78) I.D.	.093 (2.36)	.150 (3.8)	.093 (2.36) USE DRILL #42	3076
34		.125 (3.18)			
35		.156 (3.96)			
36		.187 (4.75)			
37		.219 (5.56)			
43	.121 (3.07) O.D. / .102 (2.59) I.D.	.093 (2.36)	.200 (5.1)	.125 (3.18) USE DRILL #30	3077
44		.125 (3.18)			
45		.156 (3.96)			
46		.187 (4.75)			
47		.219 (5.56)			
48		.250 (6.35)			
14	.152 (3.86) O.D. / .132 (3.35) I.D.	.125 (3.18)	.245 (6.2)	.156 (3.96) USE DRILL 5/32"	3079
15		.156 (3.96)			
16		.187 (4.75)			
17		.219 (5.56)			

STAKING TOOLS

Set consisting of top and bottom tool. Made from Tool Steel and highly polished.

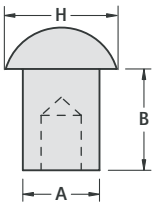
TOP TOOL



BOTTOM TOOL

SEMI-TUBULAR RIVETS

These standardized brass rivets typify the scope and variety of popular rivets that will provide faster and stronger assemblies at lower cost. We suggest you rivet and test a sample before purchasing large quantities for your application.

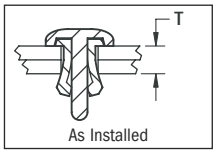


MATERIAL: Brass, Nickel Plate

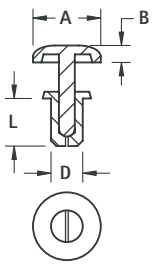
CAT. NO.	B LENGTH UNDER HEAD	A SHANK DIAMETER	H HEAD DIAMETER	MTG. HOLE SIZE
3381	.125 (3.2)	.060 (1.55)	.109 (2.8)	.067(1.70) Dia. USE DRILL #51
3382	.156 (3.9)			
3383	.187 (4.8)			
3384	.156 (3.9)	.087 (2.21)	.147 (3.7)	.093 (2.36) Dia. USE DRILL #42
3385	.187 (4.8)			
3386	.218 (5.5)			
3387	.250 (6.4)			
3388	.156 (3.9)	.120 (3.06)	.218 (5.5)	.128 (3.25) Dia. USE DRILL #30
3389	.187 (4.8)			
3390	.218 (5.5)			
3391	.250 (6.4)			

SNAP RIVETS

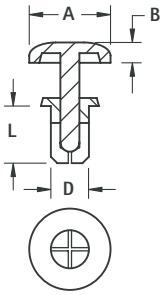
Attach panels and mounting hardware without any tooling. Leaves a clean cosmetic look once installed. Can be installed without access to underside. Removable so assembly can be easily repaired or upgraded.



DWG. 1



DWG. 2



CAT. NO.	DWG.	T PANEL THICKNESS	L RIVET LENGTH	D RIVET DIAMETER	A HEAD DIAMETER	B HEAD HEIGHT	MTG. HOLE SIZE
3440	1	.051/.079 (1.3/2.0)	.130 (3.3)	.076 (1.9)	.165 (4.2)	.047 (1.2)	.083/.087 (2.1/2.2)
3441	1	.083/.110 (2.1/2.8)	.160 (4.0)				
3442	1	.114/.142 (2.9/3.6)	.190 (4.8)				
3443	2	.118/.157 (3.0/4.0)	.220 (5.6)	.138 (3.5)	.252 (6.4)	.063 (1.6)	.142/.146 (3.6/3.7)
3444	2	.146/.181 (3.7/4.6)	.240 (6.1)				
3445	2	.177/.217 (4.5/5.5)	.280 (7.1)				
3446	2	.217/.256 (5.5/6.5)	.310 (7.9)				
3447	2	.177/.217 (4.5/5.5)	.280 (7.1)	.158 (4.0)	.315 (8.0)	.071 (1.8)	.161/.165 (4.1/4.2)
3448	2	.217/.256 (5.5/6.5)	.310 (7.9)				
3449	2	.256/.295 (6.5/7.5)	.350 (9.0)				
3450	2	.295/.335 (7.5/8.5)	.390 (10.0)				

MATERIAL: Nylon 6/6, UL Rated 94V-2, Black

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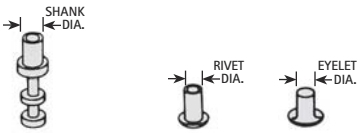
"BASIC" STAKING KIT

This kit provides the basic components needed to stake a majority of our most popular sizes of eyelets, rivets and terminals. The unskilled operator can produce profesional looking assemblies quickly and with minimal training.

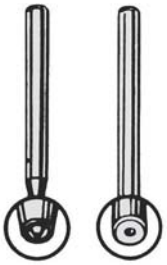


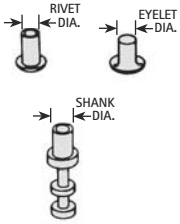
CAT. NO.	CONSISTS OF ONE EACH:
1714 1715	Top Setting Tool
1719	Anvil Holder
1716 1717	Bottom Anvil

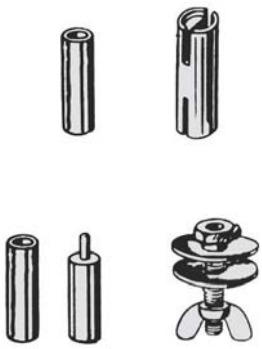
CAT. NO. 1721 COMPLETE KIT

"MASTER" STAKING KIT

This kit provides all of the components needed to stake most terminals, standoffs, eyelets or rivets. This kit also includes sprung receding pins so that eyelets can be prealigned for easy assembly of componets. Kit supplied in convenient plastic case for ease of use.







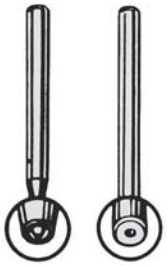
CAT. NO.	CONSISTS OF ONE EACH:
1714 1715 1304 1305 1306 1307 1324	Top Swaging Tool
1719	Anvil Holder
1325	Anvil for 6-32 Standoffs
1326 1716 1717 1722	Anvil for Turret Terminals
1726	Anvil for Fork Turret Terminals
1315	Receding Pin - .045 (1.15) Dia.
1316	Receding Pin - .069 (1.75) Dia.
1321	Return Spring for Receding Pins

CAT. NO. 1713 COMPLETE KIT

INDIVIDUAL TOOLS

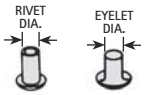
TOP SETTING TOOLS (Swager)

1/4" Diameter Tools

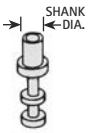


For Single End Terminals, Eyelets or Rivets

CAT. NO.	FOR SHANK DIA.
1714	.062 (1.57) to .098 (2.49)
1715	.110 (2.8) to .125 (3.2)
1328	.130 (3.3) to .140 (3.6)
1324	.180 (4.5) to .190 (4.8)



For Doube End (Feed-Thru)
Hole in tool fits over Pin head and securely stakes the rivet part of terminal.

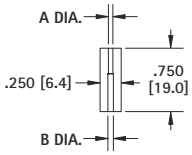


CAT. NO.	FOR PIN ON RIVET END
1304	.051 (1.30) Hole Dia.
1305	.063 (1.60) Hole Dia.
1306	.073 (1.85) Hole Dia.
1307	.086 (1.49) Hole Dia.
1324	.098 (2.49) Hole Dia.

BOTTOM ANVILS

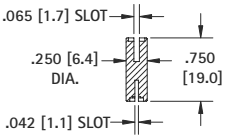
For Single End Terminals or Double End Terminals
Anvils have different size holes in each end therefore will accept 2 sizes of Pins of either Single or Double end Turret type Terminals.

CAT. NO.	A DIA.	B DIA.
1722	.053 (1.35)	.065 (1.65)
1716	.070 (1.78)	.100 (2.54)
1717	.128 (3.25)	.152 (3.86)



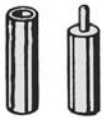
ANVILS FOR FORK TERMINALS

Accepts Diameter of 3/32 to 5/32 at one end and diamter of 3/16 other end .040 (1.0) slot one end and .060 (1.52) slot at other end.



CAT. NO. 1726

ANVILS FOR SWAGE SPACERS



CAT. NO.	BUSHING SIZE
1326	Holds Bushing with 5/32" O.D.
1325	For Bushing with 6-32" Thread
1309	For Bushing with 4-40 Thread

TOOL HOLDERS

Tool holders will hold all .250 (6.4) diameter anvils. May be used with receding pin and return spring to hold eyelets in place during the staking process.

CAT. NO. 1719

"IMPACT" STAKING KIT

All that is required to stake almost all swage components. Just press down and it stakes. Tools provided allow bench top staking with out setting up arbor or drill press. Staking tool can be adjusted to provide heavy to light blows. Receding sprung pins can be assembled into anvil to locate eyelets for easy assembly of components. Kit supplied in convenient plastic case for ease of use.

CAT. NO.	CONSISTS OF ONE EACH:
TOOLS	
1302	Impact Handle
1300	Anvil Tool Holder Base
SWAGING TOOLS	
1312	.040 (1.02) to .072 (1.83)
1313	.078 (1.98) to .093 (2.36)
SWAGING TOOLS FOR DOUBLE ENDED TURRET	
1310	.053 (1.35) Diameter Hole
1311	.062 (1.57) Diameter Hole
ANVIL COMPENTS	
1716 1717 1722	Anvil for Turret Terminals
1726	Anvil for Fork Turret Terminals
1315	Receding Pin - .045 (1.15) Dia.
1316	Receding Pin - .069 (1.75) Dia.
1321	Return Spring for Receding Pins

CAT. NO. 1707 COMPLETE KIT

PTFE INSULATED TERMINALS & PINS

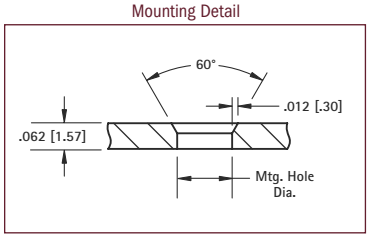
- Space saving design for high density packaging
- Outstanding Electrical, Mechanical, Thermal and Chemical properties
- Provides greater pull-out strength and high torque resistance
- Ideal for high quality terminal and connector applications
- Custom PTFE jacks manufactured to your specifications
- Other platings and bushing colors available upon request

SPECIFICATIONS

Terminal: Brass, Tin Plate

Bushing: White PTFE

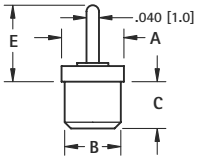
Mounting Detail



PINS

Top Mount

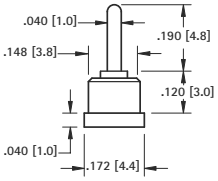
PIN



CAT. NO.	A	B	C	E	Mtg. Hole Dia.
11065	.125 (3.2)	.104 (2.6)	.089 (2.3)	.161 (4.1)	.091 (2.3)
11066	.125 (3.2)	.093 (2.4)	.100 (2.5)	.925 (23.5)	.086 (2.2)
11067	.172 (4.4)	.148 (3.8)	.100 (2.5)	.150 (3.8)	.136 (3.5)
11068	.172 (4.4)	.148 (3.8)	.075 (1.9)	.185 (4.7)	
11069	.172 (4.4)	.148 (3.8)	.050 (1.3)	.260 (6.6)	
11070	.172 (4.4)	.148 (3.8)	.075 (1.9)	.260 (6.6)	
11071	.172 (4.4)	.148 (3.8)	.100 (2.5)	.250 (6.4)	
11072	.172 (4.4)	.148 (3.8)	.160 (4.1)	.250 (6.4)	
11073	.172 (4.4)	.148 (3.8)	.100 (2.5)	.490 (12.4)	
11074	.172 (4.4)	.148 (3.8)	.100 (2.5)	.585 (14.9)	

PIN

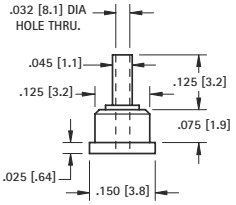
Bottom Mount



CAT. NO. 11075

Mtg. Hole .136 (3.5) Dia.

HOLLOW PIN

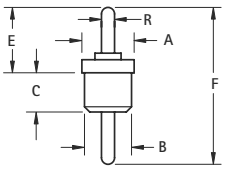


CAT. NO. 11076

Mtg. Hole .113 (2.9) Dia.

PIN-TO-PIN

Feed-Thru



CAT. NO.	A	B	C	E	F	R	Mtg. Hole Dia.
11150	.093 (2.4)	.075 (1.9)	.100 (2.5)	.315 (8.0)	.550 (13.9)	.030 (7.6)	.069 (1.8)
11151	.125 (3.2)	.093 (2.4)	.100 (2.5)	.196 (5.0)	.453 (11.5)	.040 (1.0)	.086 (2.2)
11152	.125 (3.2)	.093 (2.4)	.100 (2.5)	.250 (6.4)	.515 (13.1)	.040 (1.0)	
11153	.125 (3.2)	.093 (2.4)	.100 (2.5)	.250 (6.4)	.443 (11.3)	.040 (1.0)	
11154	.150 (3.8)	.125 (3.2)	.100 (2.5)	.250 (6.4)	.443 (11.3)	.040 (1.0)	.113 (2.9)
11155	.172 (4.4)	.148 (3.8)	.100 (2.5)	.250 (6.4)	.515 (13.1)	.040 (1.0)	.136 (3.5)
11156	.172 (4.4)	.148 (3.8)	.110 (2.8)	.260 (6.6)	.535 (13.6)	.040 (1.0)	
11157	.172 (4.4)	.148 (3.8)	.250 (6.4)	.250 (6.4)	.710 (18.0)	.040 (1.0)	
11158	.172 (4.4)	.148 (3.8)	.250 (6.4)	.303 (7.7)	.719 (18.3)	.040 (1.0)	
11159	.172 (4.4)	.148 (3.8)	.160 (4.1)	.250 (6.4)	.725 (18.4)	.040 (1.0)	
11160	.172 (4.4)	.148 (3.8)	.170 (4.3)	.250 (6.4)	.630 (16.0)	.040 (1.0)	

SOLDER TERMINALS

TURRET

Top Mount

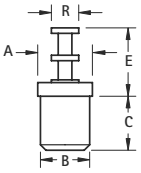


FIG. 1

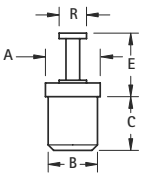


FIG. 2

Bottom Mount

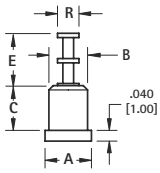


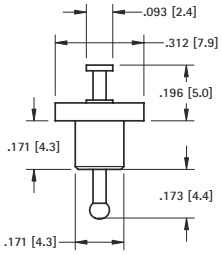
FIG. 3

CAT. NO.	FIG.	A	B	C	E	R	Mtg. Hole Dia.
11300	1	.125 (3.2)	.093 (2.4)	.100 (2.5)	.210 (5.3)	.060 (1.5)	.086 (2.2)
11301	1	.125 (3.2)	.093 (2.4)	.080 (2.0)	.250 (6.4)	.080 (2.0)	.086 (2.2)
11302	1	.125 (3.2)	.093 (2.4)	.100 (2.5)	.250 (6.4)	.080 (2.0)	.086 (2.2)
11303	1	.172 (4.4)	.148 (3.8)	.140 (3.6)	.194 (4.9)	.093 (2.4)	.136 (3.5)
11304	1	.172 (4.4)	.148 (3.8)	.110 (2.8)	.250 (6.4)	.080 (2.0)	.136 (3.5)
11305	1	.172 (4.4)	.148 (3.8)	.125 (3.2)	.303 (7.7)	.080 (2.0)	.136 (3.5)
11306	1	.172 (4.4)	.148 (3.8)	.165 (4.2)	.290 (7.4)	.093 (2.4)	.136 (3.5)
11307	1	.172 (4.4)	.148 (3.8)	.250 (6.4)	.290 (7.4)	.093 (2.4)	.136 (3.5)
11308	1	.172 (4.4)	.148 (3.8)	.165 (4.2)	.437 (11.1)	.093 (2.4)	.136 (3.5)
11320	2	.172 (4.4)	.148 (3.8)	.100 (2.5)	.150 (3.8)	.080 (2.0)	.136 (3.5)
11321	2	.187 (4.8)	.164 (4.2)	.150 (3.8)	.370 (9.4)	.090 (2.3)	.152 (3.9)
11322*	2	.150 (3.8)	.125 (3.2)	.110 (2.8)	.180 (4.6)	.090 (2.3)	.113 (2.9)
11310	2	.125 (3.2)	.093 (2.4)	.100 (2.5)	.170 (4.3)	.060 (1.5)	.086 (2.2)
11311	3	.172 (4.4)	.148 (3.8)	.100 (2.5)	.210 (5.3)	.080 (2.0)	.136 (3.5)
11312	3	.187 (4.8)	.171 (4.3)	.155 (3.9)	.210 (5.3)	.080 (2.0)	.158 (4.0)

*Hollow Turret

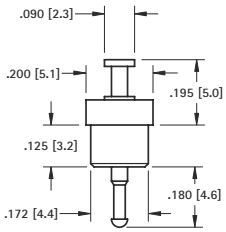
TURRET-TO-TURRET

Feed-Thru



CAT. NO. 11250

Mtg. Hole .158 (4.0) Dia.

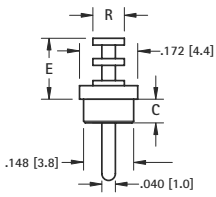


CAT. NO. 11251

Mtg. Hole .158 (4.0) Dia.

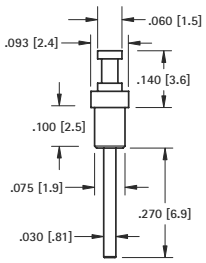
TURRET-TO-PIN

Feed-Thru



CAT. NO.	C	E	R	Mtg. Hole Dia.
11216	.100 (2.5)	.250 (6.4)	.080 (2.0)	.136 (3.5)
11217	.230 (5.8)	.375 (9.5)	.093 (2.4)	

Feed-Thru



CAT. NO. 11218

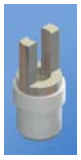
Mtg. Hole .066 (1.7)Dia.

Tel (718) 956-8900 • Fax (718) 956-9040
(800) 221-5510 • kec@keyelco.com
KEYSTONE
RoHS COMPLIANT ~ ISO 9001 CERTIFIED
www.keyelco.com
31-07 20th Road – Astoria, NY 11105-2017

SPLIT-TYPE FORK TURRETS

SPECIFICATIONS
Terminal: Brass, Tin Plate
Bushing: White PTFE

FORK



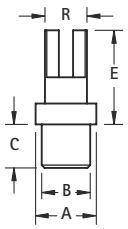


FIG. 1

FORK-TO-TURRET

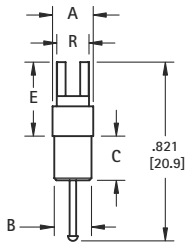
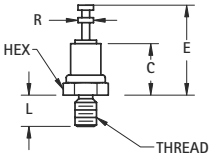


FIG. 2

CAT. NO.	FIG. NO.	A	B	C	E	R	Mtg. Hole Dia.
11100	1	.172 (4.4)	.148 (3.8)	.125 (3.2)	.250 (6.4)	.125 (3.2)	.136 (3.5)
11111	1	.187 (4.8)	.171 (4.3)	.150 (3.8)	.390 (9.9)	.148 (3.8)	.158 (4.0)
11112	1	.187 (4.8)	.171 (4.3)	.150 (3.8)	.453 (11.5)		
11113	1	.187 (4.8)	.171 (4.3)	.150 (3.8)	.328 (8.3)		
11114	1	.187 (4.8)	.171 (4.3)	.150 (3.8)	.390 (9.9)		
11115	1	.187 (4.8)	.171 (4.3)	.150 (3.8)	.453 (11.5)		
11116	2	.187 (4.8)	.171 (4.3)	.212 (5.4)	.390 (9.9)		

THREADED TURRET TERMINALS

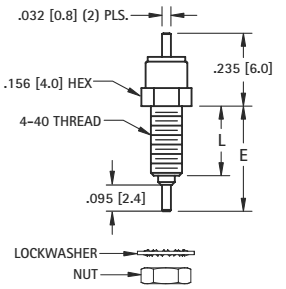
SPECIFICATIONS
Terminal: Brass, Tin Plate
Bushing: White PTFE



CAT. NO.	Thread	Hex	C	E	L	R
11350	2-56	.156 (3.9)	.206 (5.2)	.360 (9.1)	.125 (3.2)	.062 (1.6)
11351	4-40	.250 (6.4)	.270 (6.9)	.510 (12.9)	.250 (6.4)	.094 (2.4)
11352	6-32	.250 (6.4)	.270 (6.9)	.510 (12.9)	.375 (9.5)	.094 (2.4)

THREADED FEED - THRU TERMINALS

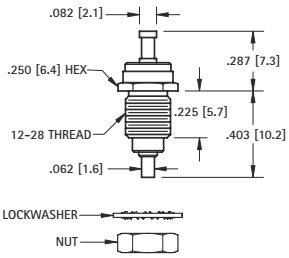
SPECIFICATIONS
Terminal: Brass, Tin Plate
Bushing: White PTFE
Body: Brass, Nickel Plate



CAT. NO.	E	L
11360	.328 (8.3)	.200 (5.1)
11361	.378 (9.6)	.250 (6.4)

Nut and washer supplied unassembled

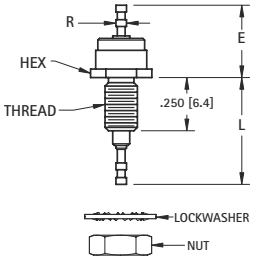
SPECIFICATIONS
Terminal: Brass, Tin Plate
Bushing: White PTFE
Body: Brass, Nickel Plate



CAT. NO. 11362

Nut and washer supplied unassembled

SPECIFICATIONS
Terminal: Brass, Tin Plate
Bushing: White PTFE
Body: Brass, Nickel Plate



Nut and washer supplied unassembled

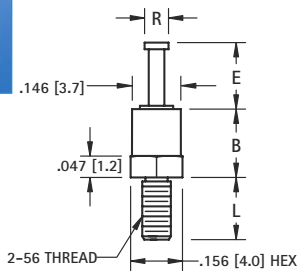
CAT. NO.	Thread	Hex	E	L	R
11363	10-32	.312 (7.9)	.425 (10.8)	.565 (14.3)	.062 (1.6)
11364	6-32	.188 (4.8)	.368 (9.3)	.510 (12.9)	.040 (1.0)

MOLDED DIALLYL PHTHALATE INSULATED THREADED TERMINALS

MATERIAL:
Terminal: Brass, Tin Plate
Insulator: Blue Molded Diallyl Phthalate, SDGF
Base: Brass, Tin Plate

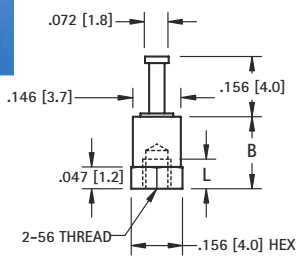
Properties:
- High Dielectric Breakdown
- Continuous Use Temperature up to 350°F (176 °C)
- UL 94 V-0 Rated
- Other platings and insulator colors available upon request

SINGLE TURRET TO MALE THREAD



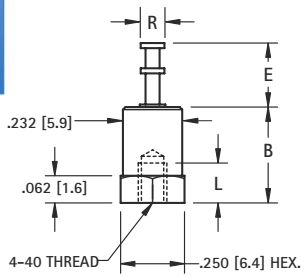
CAT. NO.	B	E	L	R
11500	.235 (6.0)	.156 (4.0)	.125 (3.2)	.072 (1.8)
11501	.235 (6.0)	.218 (5.5)	.125 (3.2)	.072 (1.8)
11502	.235 (6.0)	.218 (5.5)	.187 (4.8)	.072 (1.8)

SINGLE TURRET TO FEMALE THREAD



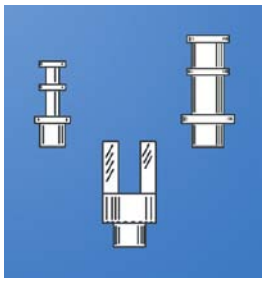
CAT. NO.	L	B
11510	.078 (2.0)	.235 (5.9)
11511	.117 (3.0)	.391 (9.9)

DOUBLE TURRET TO FEMALE THREAD



CAT. NO.	B	E	L	R
11512	.375 (9.5)	.219 (5.6)	.156 (4.0)	.093 (2.4)
11513	.594 (15.1)	.344 (8.7)	.219 (5.6)	.140 (3.6)

TURRET TERMINALS



STYLES

- **Single, double and triple turrets**
- **Double-ended** (feed-thru)
- **Split-type** (fork)
- **Tubular** (hollow)
- Swage and thread mounting types available
- Bright Tin plated for extended shelf life and excellent solderability
- Wide variety of sizes to suit space and wire size requirements

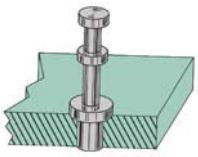
ORDERING INFORMATION

Keystone standardized terminals are available for various board thicknesses.
To specify a terminal, select the "CAT. NO." and "DASHED NUMBER" that corresponds with the board thickness to be used.

DASH NUMBERS (Board Thicknesses)

-1 for .032 (.81) thick Board
-2 for .062 (1.57) thick Board
-3 for .093 (2.36) thick Board
-4 for .125 (3.2) thick Board

Example: 1503-1 for .032 (.81) thick Board
1503-2 for .062 (1.57) thick Board



SPECIFICATIONS

MATERIAL: Brass - Per ASTM-B16, Bright Electro-Tin per MIL-T-10727 Type 1.
Other platings available upon request.

SPECIAL TERMINALS

Custom terminals can be manufactured to your specifications. Complete facilities available to meet your production requirements. Quotations on special terminals furnished promptly upon receipt of sample, sketch or print.

CUSTOM BUILT TERMINAL BOARDS

We are specialists in the assembly of terminals, eyelets, clips and special hardware. Quotations on special terminal boards furnished promptly upon receipt of sample, sketch or print. Assembly service using customer supplied materials also available. (Refer to pages 130-132 for standard terminal boards.)

STAKING TOOLS

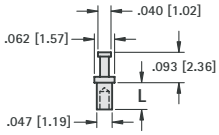
For easy mounting of terminals to insulators and PC boards. Standard and "special order" staking tools are available. Cat. No. **"TL"** designates a tool consisting of a TOP STAKING PUNCH and a BOTTOM ANVIL. Manufactured from steel with zinc plate. Punch and anvil are precision machined and hardened to insure long life. Refer to page 135.

CUSTOM BUILT STAKING TOOLS

Custom prototype and production staking tools can be furnished for Single-End, Double-End, Fork Terminals, Extruded Lugs, Eyelets, Rivets, etc. Contact our Engineering Department for details.

SINGLE, DOUBLE & TRIPLE TURRET

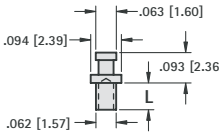
1528



Staking Tool 1528-TL

CAT. NO.	L
1528-1	.051 (1.30)
1528-2	.082 (2.08)
1528-3	.113 (2.8)
1528-4	.145 (3.6)

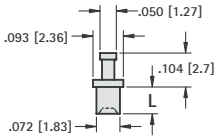
1508



Staking Tool No. TL-1

CAT. NO.	L
1508-1	.053 (1.35)
1508-2	.084 (2.13)
1508-3	.115 (2.9)
1508-4	.147 (3.7)

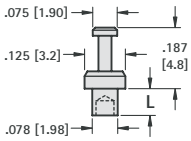
1572



Staking Tool No.TL-1

CAT. NO.	L
1572-1	.051 (1.30)
1572-2	.082 (2.08)
1572-3	.113 (2.8)
1572-4	.145 (3.6)

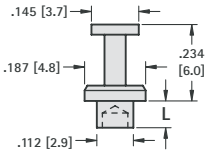
1520



Staking Tool No. TL-2

CAT. NO.	L
1520-1	.078 (1.98)
1520-2	.109 (2.8)
1520-3	.141 (3.5)
1520-4	.172 (4.4)

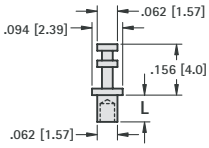
1532



Staking Tool No. TL-8

CAT. NO.	L
1532-1	.078 (1.98)
1532-2	.109 (2.8)
1532-3	.141 (3.5)
1532-4	.172 (4.4)

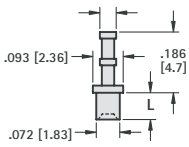
1593



Staking Tool No. TL-1

CAT. NO.	L
1593-1	.054 (1.37)
1593-2	.084 (2.13)
1593-3	.115 (2.9)
1593-4	.147 (3.7)

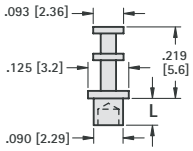
1573



Staking Tool No. TL-1

CAT. NO.	L
1573-1	.051 (1.30)
1573-2	.082 (2.08)
1573-3	.113 (2.8)
1573-4	.145 (3.6)

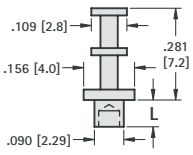
1502



Staking Tool No. TL-2

CAT. NO.	L
1502-1	.078 (1.98)
1502-2	.109 (2.8)
1502-3	.141 (3.5)
1502-4	.172 (4.4)

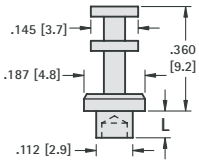
1514



Staking Tool No. TL-5

CAT. NO.	L
1514-1	.078 (1.98)
1514-2	.109 (2.8)
1514-3	.141 (3.5)
1514-4	.172 (4.4)

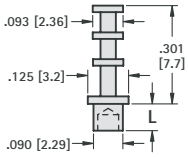
1503



Staking Tool No. TL-8

CAT. NO.	L
1503-1	.078 (1.98)
1503-2	.109 (2.8)
1503-3	.141 (3.5)
1503-4	.172 (4.4)

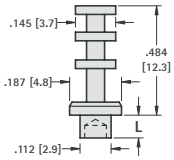
1598



Staking Tool No. TL-2

CAT. NO.	L
1598-1	.062 (1.57)
1598-2	.094 (2.39)
1598-3	.125 (3.2)
1598-4	.156 (3.9)

1527

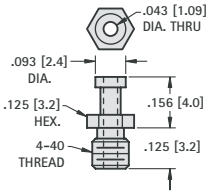


Staking Tool No. TL-8

CAT. NO.	L
1527-1	.078 (1.98)
1527-2	.109 (2.8)
1527-3	.141 (3.5)
1527-4	.172 (4.4)

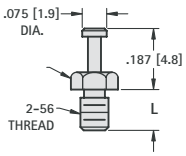
THREADED TURRETS

1563



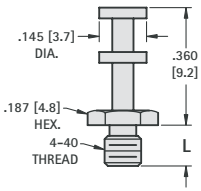
CAT. NO. 1563

1595



CAT. NO.	L
1595-1	.093 (2.36)
1595-2	.125 (3.2)
1595-3	.188 (4.8)

1587



CAT. NO.	L
1587-1	.125 (3.2)
1587-2	.188 (4.8)

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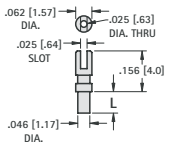
SPLIT-TYPE (FORK) TURRETS

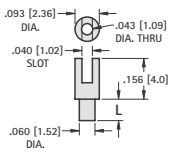
1515



Staking Tool 1515-TL

CAT. NO.	L
1515-1	.058 (1.47)
1515-2	.089 (2.26)
1515-3	.120 (3.1)
1515-4	.150 (3.8)

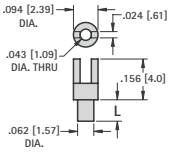
1533



Staking Tool Special Order

CAT. NO.	L
1533-2	.084 (2.13)
1533-3	.115 (2.9)
1533-4	.147 (3.7)

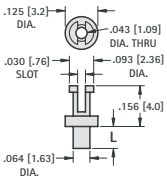
1526



Staking Tool No. TL-3

CAT. NO.	L
1526-1	.054 (1.37)
1526-2	.084 (2.13)
1526-3	.115 (2.9)
1526-4	.147 (3.7)

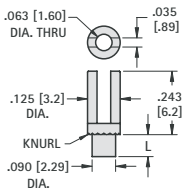
1592



Staking Tool No. TL-2

CAT. NO.	L
1592-1	.051 (1.30)
1592-2	.082 (2.08)
1592-3	.113 (2.8)
1592-4	.145 (3.6)

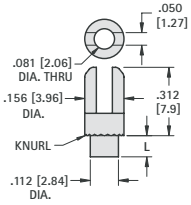
1511



Staking Tool No. TL-3

CAT. NO.	L
1511-2	.109 (2.8)
1511-3	.141 (3.5)
1511-4	.172 (4.4)

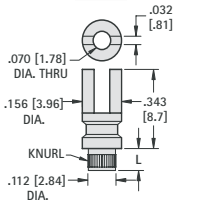
1510



Staking Tool No. TL-9

CAT. NO.	L
1510-2	.109 (2.8)
1510-3	.141 (3.5)
1510-4	.172 (4.4)

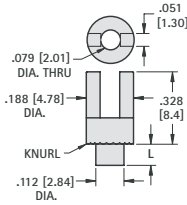
1525



Staking Tool No. TL-9

CAT. NO.	L
1525-2	.109 (2.8)
1525-3	.141 (3.5)
1525-4	.172 (4.4)

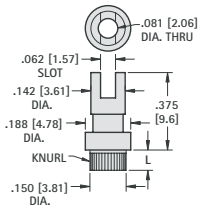
1507



Staking Tool No. TL-9

CAT. NO.	L
1507-2	.109 (2.8)
1507-3	.141 (3.5)
1507-4	.172 (4.4)

1557



Staking Tool Special Order

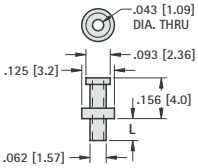
CAT. NO.	L
1557-2	.109 (2.8)
1557-3	.141 (3.5)
1557-4	.172 (4.4)

SPECIAL TURRET TERMINALS

Custom turret terminals can be machined to your exact specifications. Standard and special terminals can be staked onto special boards. Please email/fax your design to our Engineering Department.

TUBULAR TURRETS

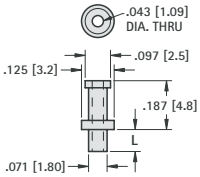
1562



Staking Tool No. TL-2

CAT. NO.	L
1562-1	.054 (1.37)
1562-2	.084 (2.13)
1562-3	.115 (2.9)
1562-4	.147 (3.7)

1559

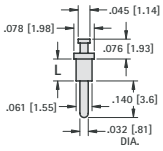


Staking Tool No. TL-2

CAT. NO.	L
1559-1	.062 (1.57)
1559-2	.094 (2.39)
1559-3	.125 (3.2)
1559-4	.156 (3.9)

DOUBLE-ENDED TURRETS

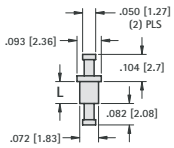
1633



Staking Tool Special Order

CAT. NO.	L
1633-1	.051 (1.30)
1633-2	.082 (2.08)
1633-3	.113 (2.8)
1633-4	.145 (3.6)

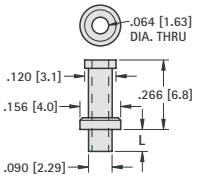
1574



Staking Tool No. TL-4

CAT. NO.	L
1574-1	.051 (1.30)
1574-2	.082 (2.08)
1574-3	.113 (2.8)
1574-4	.145 (3.6)

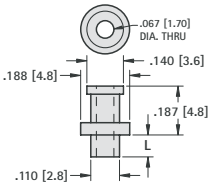
1540



Staking Tool No. TL-5

CAT. NO.	L
1540-2	.107 (2.7)
1540-3	.141 (3.5)
1540-4	.172 (4.4)

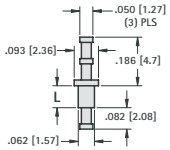
1519



Staking Tool No. TL-8

CAT. NO.	L
1519-1	.078 (1.98)
1519-2	.109 (2.8)
1519-3	.141 (3.5)
1519-4	.172 (4.4)

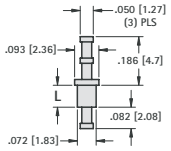
1613



Staking Tool No. TL-4

CAT. NO.	L
1613-1	.051 (1.30)
1613-2	.082 (2.08)
1613-3	.113 (2.8)
1613-4	.145 (3.6)

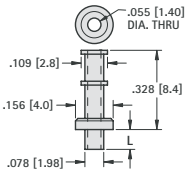
1575



Staking Tool No. TL-4

CAT. NO.	L
1575-1	.051 (1.30)
1575-2	.082 (2.08)
1575-3	.113 (2.8)
1575-4	.145 (3.6)

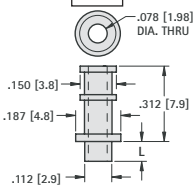
1582



Staking Tool No. TL-5

CAT. NO.	L
1582-1	.075 (1.91)
1582-2	.105 (2.7)
1582-3	.135 (3.4)
1582-4	.165 (4.2)

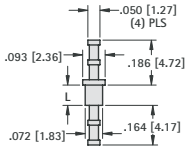
1509



Staking Tool No. TL-8

CAT. NO.	L
1509-1	.078 (1.98)
1509-2	.109 (2.8)
1509-3	.141 (3.5)
1509-4	.172 (4.4)

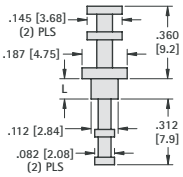
1583



Staking Tool No. TL-4

CAT. NO.	L
1583-1	.051 (1.30)
1583-2	.082 (2.08)
1583-3	.113 (2.8)
1583-4	.145 (3.6)

1545



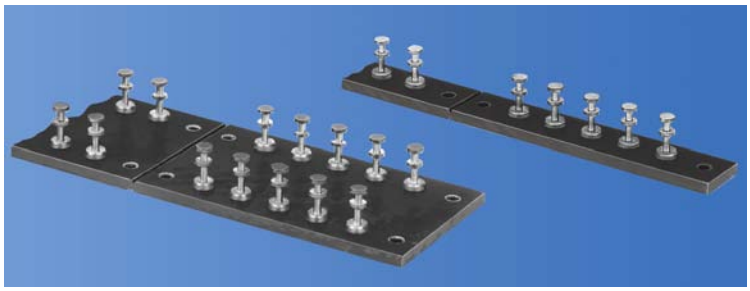
Staking Tool No. TL-12

CAT. NO.	L
1545-2	.105 (2.7)
1545-3	.135 (3.4)
1545-4	.165 (4.2)

SCORED TURRET TERMINAL BOARDS

Cut your production cost by eliminating the tooling and setup charge usually applied to non-standardized boards. Terminals are securely staked and tinned for easy soldering.

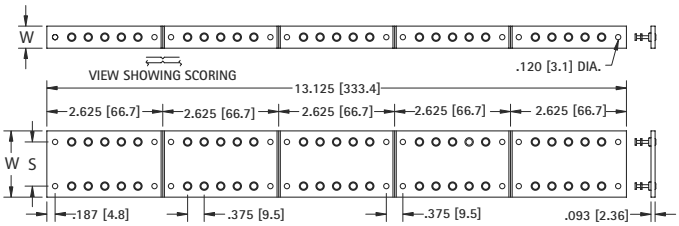
MATERIAL: Choice of either PBE or GEE.
PBE: Paper base electrical, MIL-1-24768/20, Type XP natural, Temp. 250°F (121°C) max.
GEE: Glass epoxy, MIL-I-24768/27, Type G-10, Temp. 300°F (155°C) max.
Terminals: Brass, ASTM-B16, Tin Plate, MIL-T-10727. Other platings can be furnished.



MODIFICATIONS

Boards can be modified with other materials or terminals of your choice. Marking can also be added. Quotations upon request.

STANDARD TURRET TERMINAL BOARDS

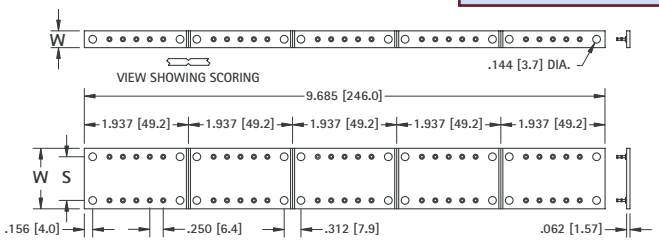


Choice of 4 Types of Terminals

- Five sections **SCORED** for easy separation.
- Mounting holes in each section.

W	S	NO. OF TERMS	MATERIAL	1503 CAT. NO.	Hole thru 1509 CAT. NO.	Hole thru 1507 CAT. NO.	1545 CAT. NO.
.500 (12.7)	Single Row	25	PBE	15031	15091	15071	15041
			GEE	15231	15291	15271	15241
1.500 (38.1)	1.000 (25.4)	50	PBE	15032	15092	15072	15042
			GEE	15232	15292	15272	15242
1.500 (38.1)	1.187 (30.1)	50	PBE	15036	15096	15076	15046
			GEE	15236	15296	15276	15246
2.000 (50.8)	1.500 (38.1)	50	PBE	15033	15093	15073	15043
			GEE	15233	15293	15273	15243
2.500 (63.5)	2.000 (50.8)	50	PBE	15034	15094	15074	15044
			GEE	15234	15294	15274	15244
3.000 (76.2)	2.500 (63.5)	50	PBE	15035	15095	15075	15045
			GEE	15235	15295	15275	15245

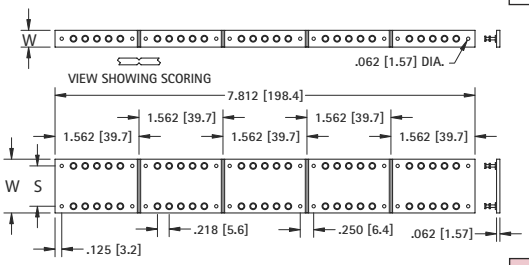
MINIATURE TURRET TERMINAL BOARDS



Choice of 6 Types of Terminals

- Five sections **SCORED** for easy separation.
- Mounting holes in each section.

W	S	NO. OF TERMS	MATERIAL	1572 CAT. NO.	1573 CAT. NO.	1574 CAT. NO.	1575 CAT. NO.	1583 CAT. NO.	1559 CAT. NO.
.312 (7.9)	Single Row	25	PBE	15047	15057	15067	15077	15087	15097
			GEE	15247	15257	15267	15277	15287	15297
.875 (22.2)	.562 (14.3)	50	PBE	15048	15058	15068	15078	15088	15098
			GEE	15248	15258	15268	15278	15288	15298
1.125 (28.6)	.812 (20.6)	50	PBE	15049	15059	15069	15079	15089	15099
			GEE	15249	15259	15269	15279	15289	15299



Choice of 5 Types of Terminals

- Five sections **SCORED** for easy separation.
- Mounting holes in each section.

W	S	NO. OF TERMS	MATERIAL	1502 CAT. NO.	1562 CAT. NO.	1526 CAT. NO.	1512 CAT. NO.	1533 CAT. NO.
.312 (7.9)	Single Row	25	PBE	15021	15023	15025	15063	15053
			GEE	15221	15223	15225	15263	15253
.875 (22.2)	.500 (12.7)	50	PBE	15028	15029	15026	15064	15054
			GEE	15228	15229	15226	15264	15254
1.000 (25.4)	.750 (19.1)	50	PBE	15022	15024	15030	15065	15056
			GEE	15222	15224	15230	15265	15256

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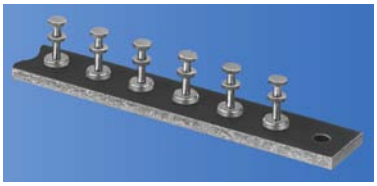
MINIATURE TURRET TERMINAL BOARDS

MATERIAL: Choice of either PBE or GEE.
PBE: Paper base electrical, MIL-1-24768/20. Type XP natural, Temp. 250°F (121°C) max.
GEE: Glass Epoxy, MIL-I-24768/27, Type G-10, Temp. 300°F (155°C). max.
Terminals: Brass, ASTM-B16. Tin Plate, MIL-T-10727. Other platings can be furnished.

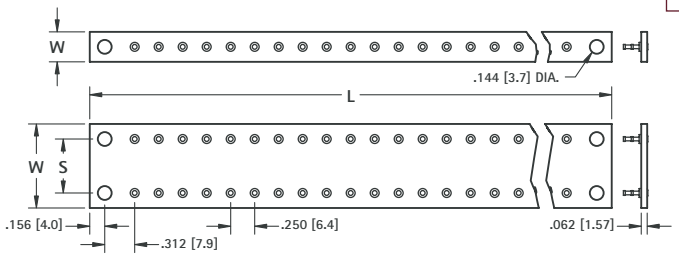
MODIFICATIONS

Boards can be modified with other materials or terminals of your choice. Marking can also be added. Quotations upon request.

DOUBLE TURRET TERMINAL



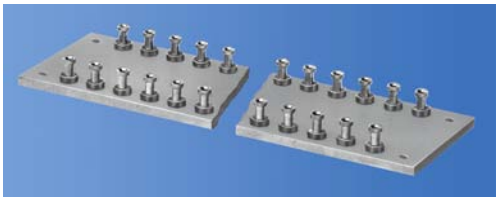
1573



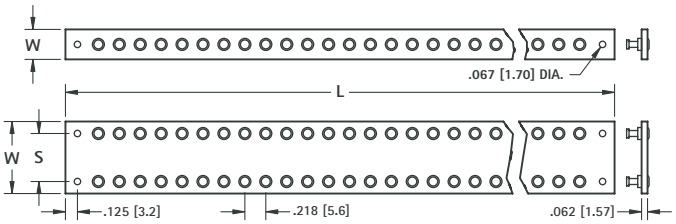
W	S	L	NO. OF TERMS EACH SIDE	MATERIAL PBE CAT. NO.	MATERIAL GEE CAT. NO.
.312 (7.9)	Single Row	1.937 (49.2)	5	15431	15531
		3.687 (93.6)	12	15432	15532
		5.437 (138.1)	19	15433	15533
		7.187 (182.5)	26	15434	15534
		8.937 (227.0)	33	15435	15535
.875 (22.2)	.562 (14.3)	1.937 (49.2)	5	15436	15536
		3.687 (93.6)	12	15437	15537
		5.437 (138.1)	19	15438	15538
		7.187 (182.5)	26	15439	15539
		8.937 (227.0)	33	15440	15540
1.125 (28.6)	.812 (20.6)	1.937 (49.2)	5	15441	15541
		3.687 (93.6)	12	15442	15542
		5.437 (138.1)	19	15443	15543
		7.187 (182.5)	26	15444	15544
		8.937 (227.0)	33	15445	15545

Terminals are staked in all except end mounting holes.

THRU HOLE TERMINAL



1562



W	S	L	NO. OF TERMS EACH SIDE	MATERIAL PBE CAT. NO.	MATERIAL GEE CAT. NO.
.312 (7.9)	Single Row	1.562 (39.7)	5	15401	15501
		3.093 (78.6)	12	15402	15502
		4.625 (117.5)	19	15403	15503
		6.156 (156.4)	26	15404	15504
		7.687 (195.2)	33	15405	15505
.750 (19.1)	.500 (12.7)	1.562 (39.7)	5	15406	15506
		3.093 (78.6)	12	15407	15507
		4.625 (117.5)	19	15408	15508
		6.156 (156.4)	26	15409	15509
		7.687 (195.2)	33	15410	15510
1.000 (25.4)	.750 (19.1)	1.562 (39.7)	5	15411	15511
		3.093 (78.6)	12	15412	15512
		4.625 (117.5)	19	15413	15513
		6.156 (156.4)	26	15414	15514
		7.687 (195.2)	33	15415	15515

Terminals are staked in all except end mounting holes.

MILITARY TERMINAL BOARDS

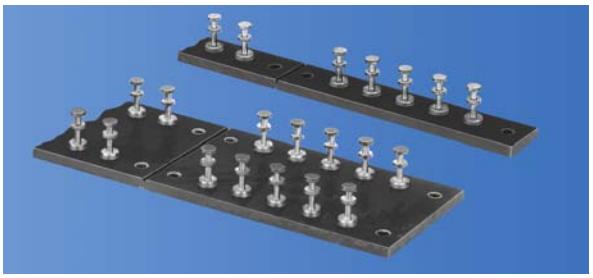
Terminal boards are manufactured as per Military specifications MS27249.

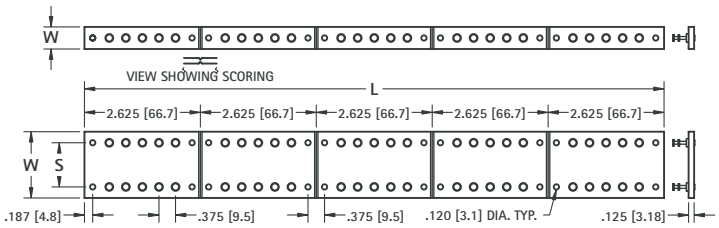
SPECIFICATIONS

Board Material: MIL-I-24768/27 TYPE GEE or TYPE GEB. MIL-1-24768/3 .125 (3.2)
Terminal: SE12XC09 PER MIL-T-55155 Tin/Lead Plated (Non-RoHS Compliant)

- Five sections **SCORED** for easy separation.
- Mounting holes in each section.

1503



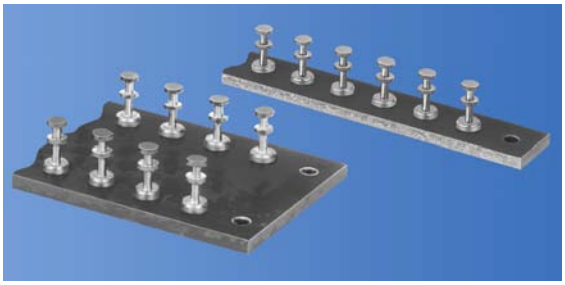


W	S	L	NO. OF TERMS EACH SIDE	MATERIAL GEB CAT. NO.	MATERIAL GEE CAT. NO.
.500 (12.7)	Single Row	2.625 (66.7)	5	MS27249-1B1	MS27249-1E1
		5.250 (133.4)	10	MS27249-1B2	MS27249-1E2
		7.875 (200.0)	15	MS27249-1B3	MS27249-1E3
		10.500 (266.7)	20	MS27249-1B4	MS27249-1E4
		13.125 (333.4)	25	MS27249-1B5	MS27249-1E5
1.500 (38.1)	1.000 (25.4)	2.625 (66.7)	5	MS27249-2B1	MS27249-2E1
		5.250 (133.4)	10	MS27249-2B2	MS27249-2E2
		7.875 (200.0)	15	MS27249-2B3	MS27249-2E3
		10.500 (266.7)	20	MS27249-2B4	MS27249-2E4
		13.125 (333.4)	25	MS27249-2B5	MS27249-2E5
2.000 (50.8)	1.500 (38.1)	2.625 (66.7)	5	MS27249-3B1	MS27249-3E1
		5.250 (133.4)	10	MS27249-3B2	MS27249-3E2
		7.875 (200.0)	15	MS27249-3B3	MS27249-3E3
		10.500 (266.7)	20	MS27249-3B4	MS27249-3E4
		13.125 (333.4)	25	MS27249-3B5	MS27249-3E5
2.500 (63.5)	2.000 (50.8)	2.625 (66.7)	5	MS27249-4B1	MS27249-4E1
		5.250 (133.4)	10	MS27249-4B2	MS27249-4E2
		7.875 (200.0)	15	MS27249-4B3	MS27249-4E3
		10.500 (266.7)	20	MS27249-4B4	MS27249-4E4
		13.125 (333.4)	25	MS27249-4B5	MS27249-4E5
3.000 (76.2)	2.500 (63.5)	2.625 (66.7)	5	MS27249-5B1	MS27249-5E1
		5.250 (133.4)	10	MS27249-5B2	MS27249-5E2
		7.875 (200.0)	15	MS27249-5B3	MS27249-5E3
		10.500 (266.7)	20	MS27249-5B4	MS27249-5E4
		13.125 (333.4)	25	MS27249-5B5	MS27249-5E5

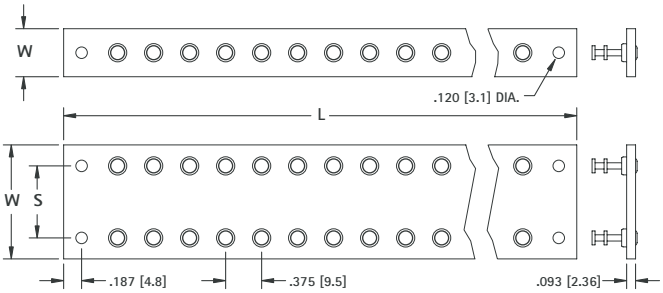
TURRET TERMINAL BOARDS

• Save Tooling • Economical • Complete Range of Sizes

Ready-Made Terminal Boards: Low cost, meets commercial and military specifications. Produced in large quantities, making it possible to eliminate tooling and setup charges usually applied to non-standard boards.



1503



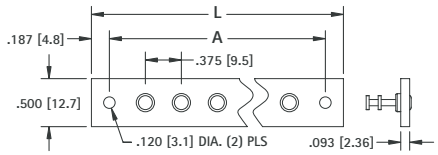
BOARDS ON THIS PAGE ARE NOT SCORED

W	S	L	NO. OF TERMS EACH SIDE	MATERIAL PBE CAT. NO.	MATERIAL GEE CAT. NO.
.500 [12.7]	Single Row	2.625 (66.7)	5	15101	15301
		5.250 (133.4)	12	15102	15302
		7.875 (200.0)	19	15103	15303
		10.500 (266.7)	26	15104	15304
		13.125 (333.4)	33	15105	15305
1.188 (30.2)	.750 (19.1)	2.625 (66.7)	5	15106	15306
		5.250 (133.4)	12	15107	15307
		7.875 (200.0)	19	15108	15308
		10.50 (266.7)	26	15109	15309
		13.125 (333.4)	33	15110	15310
1.500 (38.1)	1.000 (25.4)	2.625 (66.7)	5	15111	15311
		5.250 (133.4)	12	15112	15312
		7.875 (200.0)	19	15113	15313
		10.500 (266.7)	26	15114	15314
		13.125 (333.4)	33	15115	15315
2.000 (50.8)	1.500 (38.1)	2.625 (66.7)	5	15116	15316
		5.250 (133.4)	12	15117	15317
		7.875 (200.0)	19	15118	15318
		10.500 (266.7)	26	15119	15319
		13.125 (333.4)	33	15120	15320
2.500 (63.5)	2.000 (50.8)	2.625 (66.7)	5	15121	15321
		5.250 (133.4)	12	15122	15322
		7.875 (200.0)	19	15123	15323
		10.500 (266.7)	26	15124	15324
		13.125 (333.4)	33	15125	15325
3.000 (76.2)	2.500 (63.5)	2.625 (66.7)	5	15126	15326
		5.250 (133.4)	12	15127	15327
		7.875 (200.0)	19	15128	15328
		10.500 (266.7)	26	15129	15329
		13.125 (333.4)	33	15130	15330

MATERIAL: Choice of either PBE or GEE.
PBE: Paper base electrical,MIL-1-24768/20, Type XP natural, Temp. 250°F (121°C) max.
GEE: Glass epoxy, MIL-I-24768/27, Type G-10, Temp. 300°F (155°C) max.
Terminals: Brass, ASTM-B16. Tin Plate, MIL-T-10727. Other plating can be furnished.

MODIFICATIONS

Boards can be modified with other materials or terminals of your choice. Marking can also be added. Quotations upon request.



Terminals are staked in all holes except end mounting holes.

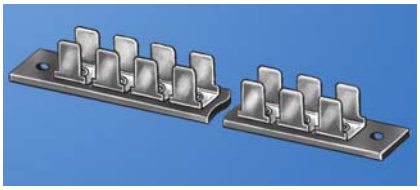
MATERIAL: PBE
PBE: Paper base electrical, FED. LP-513, Type XP natural, Temp. 250°F (121°C) max.
Terminals: Brass, ASTM-B16. Tin Plate, MIL-T-10727. Other plating can be furnished.

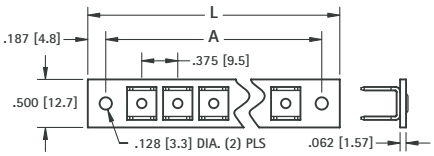
L	A	NO. OF TERMS	1503 CAT. NO.	Hole thru 1509 CAT. NO.	1545 CAT. NO.	Hole thru 1507 CAT. NO.
1.125 (28.6)	.750 (19.1)	1	603-1	609-1	604-1	607-1
1.500 (38.1)	1.125 (28.6)	2	603-2	609-2	604-2	607-2
1.875 (47.6)	1.500 (38.1)	3	603-3	609-3	604-3	607-3
2.250 (57.2)	1.875 (47.6)	4	603-4	609-4	604-4	607-4
2.625 (66.7)	2.250 (57.2)	5	603-5	609-5	604-5	607-5
3.000 (76.2)	2.625 (66.7)	6	603-6	609-6	604-6	607-6
3.375 (85.7)	3.000 (76.2)	7	603-7	609-7	604-7	607-7
3.750 (95.3)	3.375 (85.7)	8	603-8	609-8	604-8	607-8
4.125 (104.8)	3.750 (95.3)	9	603-9	609-9	604-9	607-9
4.500 (114.3)	4.125 (104.8)	10	603-10	609-10	604-10	607-10

QUICK-FIT TERMINAL STRIPS

MATERIAL: Fiberglass - NEMA GRADE GPO-3. A glass polyester rated for continuous operation at 300°F (155°C) .062 (1.57)
Backing Strips: .031 (.79) fibre with mounting holes drilled only
Terminals: Brass

CAT. NO. 1257 .032 (.81) Bright Brass
Other platings available on special order





L LENGTH	A MTG. CENTERS	NO. TERM. EACH SIDE	.250 (6.4) TABS CAT. NO.	BACKING INSULATOR .031 (.79) FIBER BACKING STRIP CAT. NO.
1.500 (38.1)	1.125 (28.6)	2	4116	4401
2.250 (57.2)	1.875 (47.6)	4	4117	4402
3.000 (76.2)	2.625 (66.7)	6	4118	4403
3.750 (95.3)	3.375 (85.7)	8	4119	4404
4.500 (114.3)	4.125 (104.8)	10	4120	4405

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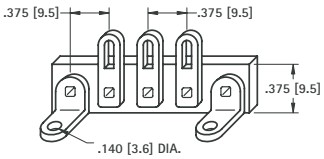
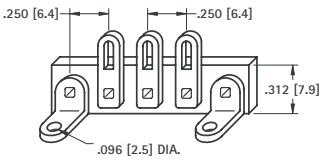
TERMINAL STRIPS (STANDARD & MINIATURE)

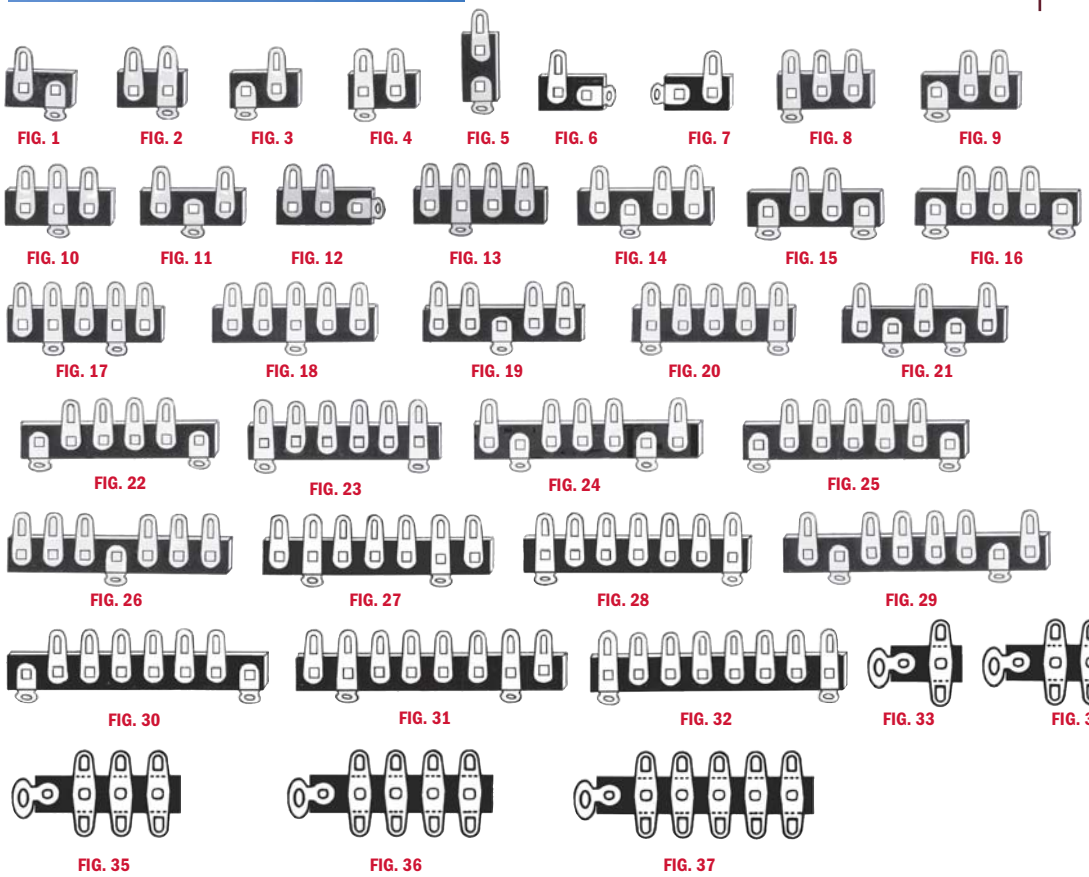
Tin plated lugs and brackets. Bakelite XP .062 (1.57) thick. In addition to the strips shown, we manufacture many other varieties in any configuration and materials required. Send samples or sketch for prompt quotation.

STANDARD



MINIATURE





STANDARD CAT. NO.	FIG NO.	MINIATURE CAT. NO.
800	1	837
801	2	838
802	3	839
803	4	840
804	5	841
805	6	842
806	7	843
807	8	844
808	9	845
809	10	846
810	11	847
811	12	848
812	13	849
813	14	850
814	15	851
815	16	852
816	17	853
817	18	854
818	19	855
819	20	856
820	21	857
821	22	858
822	23	859
823	24	860
824	25	861
825	26	862
826	27	863
827	28	864
828	29	865
829	30	866
830	31	867
831	32	868
832	33	—
833	34	—
834	35	—
835	36	—
836	37	—

BINDING POST STRIPS

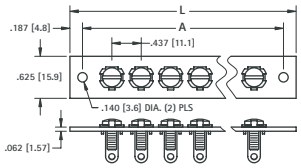
MATERIAL SPECIFICATIONS FOR ALL BINDING POST STRIPS

FIBERGLASS: Reinforced Polyester NEMA Graded GPO-3 rated for 300˚F. (155˚ C).

GEE: Glass, Epoxy, MIL-I-24768/27 Type G-10. Temp. 300˚F. (155˚C).

PBE: Paper base electrical, FED. LP-513 Type XP natural, Temp 250˚F. max. (121˚C).

STANDARD

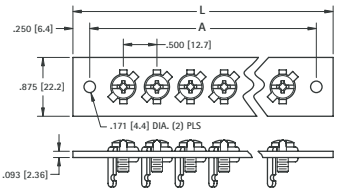


XP PHENOLIC CAT. NO.	GLASS EPOXY CAT. NO.	FIBER-GLASS CAT. NO.	L LENGTH	A MTG. CENTERS	NO. OF TERM
4187	4177	4167	1.250 (31.8)	.875 (22.2)	1
4188	4178	4168	1.687 (42.8)	1.312 (33.3)	2
4189	4179	4169	2.125 (54.0)	1.750 (44.5)	3
4190	4180	4170	2.562 (65.1)	2.187 (55.5)	4
4191	4181	4171	3.000 (76.2)	2.625 (66.7)	5
4192	4182	4172	3.437 (87.3)	3.062 (77.8)	6
4193	4183	4173	3.875 (98.4)	3.500 (88.9)	7
4194	4184	4174	4.312 (109.5)	3.937 (100.0)	8
4195	4185	4175	4.750 (120.7)	4.375 (111.1)	9
4196	4186	4176	5.187 (131.7)	4.812 (122.2)	10

Terminals supplied on these strips

CAT. NO. 1248

HEAVY DUTY



GLASS EPOXY CAT. NO.	FIBER-GLASS CAT. NO.	L LENGTH	A MTG. CENTERS	NO. OF TERM
4147	4157	1.50 (38.1)	1.00 (25.4)	1
4148	4158	2.00 (50.8)	1.50 (38.1)	2
4149	4159	2.50 (63.5)	2.00 (50.8)	3
4150	4160	3.00 (76.2)	2.50 (63.5)	4
4151	4161	3.50 (88.9)	3.00 (76.2)	5
4152	4162	4.00 (101.6)	3.50 (88.9)	6
4153	4163	4.50 (114.3)	4.00 (101.6)	7
4154	4164	5.00 (127.0)	4.50 (114.3)	8
4155	4165	5.50 (139.7)	5.00 (127.0)	9
4156	4166	6.00 (152.4)	5.50 (139.7)	10

Terminals supplied on these strips

CAT. NO. 1209

CONVERSION CHART

MILLIMETERS • DECIMALS • FRACTIONS

mm	Decimals	Fractions
0.1	.0039	
0.2	.0079	
0.3	.0118	
0.397	.0156	1/64
0.4	.0157	
0.5	.0197	
0.6	.0236	
0.7	.0276	
0.794	.0313	1/32
0.8	.0315	
0.9	.0354	
1.0	.0394	
1.1	.0433	
1.191	.0469	3/64
1.2	.0472	
1.3	.0512	
1.4	.0551	
1.5	.0591	
1.588	.0625	1/16
1.6	.0630	
1.7	.0669	
1.8	.0709	
1.9	.0748	
1.984	.0781	5/64
2.0	.0787	
2.1	.0827	
2.2	.0866	
2.3	.0906	
2.381	.0938	3/32
2.4	.0945	
2.5	.0984	
2.6	.1024	
2.7	.1063	
2.778	.1094	7/64
2.8	.1102	
2.9	.1142	
3.0	.1181	
3.1	.1220	
3.175	.1250	1/8
3.2	.1260	
3.3	.1299	
3.4	.1339	
3.5	.1378	
3.572	.1406	9/64
3.6	.1417	
3.7	.1457	
3.8	.1496	
3.9	.1535	
3.969	.1563	5/32
4.0	.1575	
4.1	.1614	
4.2	.1654	
4.3	.1693	
4.366	.1719	11/64
4.4	.1732	
4.5	.1772	
4.6	.1811	
4.7	.1850	
4.763	.1875	3/16
4.8	.1890	
4.9	.1929	
5.0	.1969	
5.1	.2008	
5.159	.2031	13/64

mm	Decimals	Fractions
5.2	.2047	
5.3	.2087	
5.4	.2126	
5.5	.2165	
5.556	.2188	7/32
5.6	.2205	
5.7	.2244	
5.8	.2283	
5.9	.2323	
5.953	.2344	15/64
6.0	.2362	
6.1	.2402	
6.2	.2441	
6.3	.2480	
6.350	.2500	1/4
6.4	.2520	
6.5	.2559	
6.6	.2598	
6.7	.2638	
6.747	.2656	17/64
6.8	.2677	
6.9	.2717	
7.0	.2756	
7.1	.2795	
7.144	.2813	9/32
7.2	.2835	
7.3	.2874	
7.4	.2913	
7.5	.2953	
7.541	.2969	19/64
7.6	.2992	
7.7	.3031	
7.8	.3071	
7.9	.3110	
7.938	.3125	5/16
8.0	.3150	
8.1	.3189	
8.2	.3228	
8.3	.3268	
8.334	.3281	21/64
8.4	.3307	
8.5	.3346	
8.6	.3386	
8.7	.3425	
8.731	.3438	11/32
8.8	.3465	
8.9	.3504	
9.0	.3543	
9.1	.3583	
9.128	.3594	23/64
9.2	.3622	
9.3	.3661	
9.4	.3701	
9.5	.3740	
9.525	.3750	3/8
9.6	.3780	
9.7	.3819	
9.8	.3858	
9.9	.3898	
9.922	.3906	25/64
10.0	.3937	
10.1	.3976	
10.2	.4016	
10.3	.4055	

mm	Decimals	Fractions
10.319	.4063	13/32
10.4	.4094	
10.5	.4134	
10.6	.4173	
10.7	.4213	
10.716	.4219	27/64
10.8	.4252	
10.9	.4291	
11.0	.4331	
11.1	.4370	
11.113	.4375	7/16
11.2	.4409	
11.3	.4449	
11.4	.4488	
11.5	.4528	
11.509	.4531	29/64
11.6	.4567	
11.7	.4606	
11.8	.4646	
11.9	.4685	
11.906	.4688	15/32
12.0	.4724	
12.1	.4764	
12.2	.4803	
12.3	.4843	
12.303	.4844	31/64
12.4	.4882	
12.5	.4921	
12.6	.4961	
12.700	.5000	1/2
12.8	.5039	
12.9	.5079	
13.0	.5118	
13.097	.5156	33/64
13.1	.5157	
13.2	.5197	
13.3	.5236	
13.4	.5276	
13.494	.5313	17/32
13.5	.5315	
13.6	.5354	
13.7	.5394	
13.8	.5433	
13.891	.5469	35/64
13.9	.5472	
14.0	.5512	
14.1	.5551	
14.2	.5591	
14.288	.5625	9/16
14.3	.5630	
14.4	.5669	
14.5	.5709	
14.6	.5748	
14.684	.5781	37/64
14.7	.5787	
14.8	.5827	
14.9	.5866	
15.0	.5906	
15.081	.5938	19/32
15.1	.5945	
15.2	.5984	
15.3	.6024	
15.4	.6063	
15.478	.6094	39/64

mm	Decimals	Fractions
15.5	.6102	
15.6	.6142	
15.7	.6181	
15.8	.6220	
15.875	.6250	5/8
15.9	.6260	
16.0	.6299	
16.1	.6339	
16.2	.6378	
16.272	.6406	41/64
16.3	.6417	
16.4	.6457	
16.5	.6496	
16.6	.6535	
16.669	.6563	21/32
16.7	.6575	
16.8	.6614	
16.9	.6654	
17.0	.6693	
17.066	.6719	43/64
17.1	.6732	
17.2	.6772	
17.3	.6811	
17.4	.6850	
17.463	.6875	11/16
17.5	.6890	
17.6	.6929	
17.7	.6968	
17.8	.7008	
17.859	.7031	45/64
17.9	.7047	
18.0	.7087	
18.1	.7126	
18.2	.7165	
18.256	.7188	23/32
18.3	.7205	
18.4	.7244	
18.5	.7283	
18.6	.7323	
18.653	.7344	47/64
18.7	.7362	
18.8	.7402	
18.9	.7441	
19.0	.7480	
19.050	.7500	3/4
19.1	.7520	
19.2	.7559	
19.3	.7598	
19.4	.7638	
19.447	.7656	49/64
19.5	.7677	
19.6	.7717	
19.7	.7756	
19.8	.7795	
19.844	.7813	25/32
19.9	.7835	
20.0	.7874	
20.1	.7913	
20.2	.7953	
20.241	.7969	51/64
20.3	.7992	
20.4	.8031	
20.5	.8071	
20.6	.8110	

mm	Decimals	Fractions
20.638	.8125	13/16
20.7	.8150	
20.8	.8189	
20.9	.8228	
21.0	.8268	
21.034	.8281	53/64
21.1	.8307	
21.2	.8346	
21.3	.8386	
21.4	.8425	
21.431	.8438	27/32
21.5	.8465	
21.6	.8504	
21.7	.8543	
21.8	.8583	
21.828	.8594	55/64
21.9	.8622	
22.0	.8661	
22.1	.8701	
22.2	.8740	
22.225	.8750	7/8
22.3	.8780	
22.4	.8819	
22.5	.8858	
22.6	.8898	
22.622	.8906	57/64
22.7	.8937	
22.8	.8976	
22.9	.9016	
23.0	.9055	
23.019	.9063	29/32
23.1	.9094	
23.2	.9134	
23.3	.9173	
23.4	.9213	
23.416	.9219	59/64
23.5	.9252	
23.6	.9291	
23.7	.9331	
23.8	.9370	
23.813	.9375	15/16
23.9	.9409	
24.0	.9449	
24.1	.9488	
24.2	.9528	
24.209	.9531	61/64
24.3	.9567	
24.4	.9606	
24.5	.9646	
24.6	.9685	
24.606	.9688	31/32
24.7	.9724	
24.8	.9764	
24.9	.9803	
25.0	.9843	
25.003	.9844	63/64
25.1	.9882	
25.2	.9921	
25.3	.9961	
25.400	1.0000	1

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DRILL SIZE DIAMETER TABLE

Diameter	Drill Size	Diameter	Drill Size	Diameter	Drill Size	Diameter	Drill Size
.0135	80	.0935	42	.2031	13/64	.4040	Y
.0145	79	.0938	3/32	.2040	6	.4062	13/32
.0156	1/64	.0960	41	.2055	5	.4130	Z
.0160	78	.0980	40	.2090	4	.4219	27/64
.0180	77	.0995	39	.2130	3	.4375	7/16
.0200	76	.1015	38	.2188	7/32	.4531	29/64
.0210	75	.1040	37	.2210	2	.4688	15/32
.0225	74	.1065	36	.2280	1	.4844	31/64
.0240	73	.1094	7/64	.2340	A	.5000	1/2
.0250	72	.1100	35	.2344	15/64	.5156	33/64
.0260	71	.1110	34	.2380	B	.5312	17/32
.0280	70	.1130	33	.2420	C	.5469	35/64
.0292	69	.1160	32	.2460	D	.5625	9/16
.0310	68	.1200	31	.2500	1/4	.5781	37/64
.0312	1/32	.1250	1/8	.2500	E	.5938	19/32
.0320	67	.1285	30	.2570	F	.6094	39/64
.0330	66	.1360	29	.2610	G	.6250	5/8
.0350	65	.1405	28	.2656	17/64	.6406	41/64
.0360	64	.1406	9/64	.2660	H	.6562	21/32
.0370	63	.1440	27	.2720	I	.6719	43/64
.0380	62	.1470	26	.2770	J	.6875	11/16
.0390	61	.1495	25	.2810	K	.7031	45/64
.0400	60	.1520	24	.2812	9/32	.7188	23/32
.0410	59	.1540	23	.2900	L	.7344	47/64
.0420	58	.1562	5/32	.2950	M	.7500	3/4
.0430	57	.1570	22	.2969	19/64	.7656	49/64
.0465	56	.1590	21	.3020	N	.7812	25/32
.0469	3/64	.1610	20	.3125	5/16	.7969	51/64
.0520	55	.1660	19	.3160	O	.8120	13/16
.0550	54	.1695	18	.3230	P	.8281	53/64
.0595	53	.1719	11/64	.3281	21/64	.8438	27/32
.0625	1/16	.1730	17	.3320	Q	.8594	55/64
.0635	52	.1770	16	.3390	R	.8750	7/8
.0670	51	.1800	15	.3438	11/32	.8906	57/64
.0700	50	.1820	14	.3480	S	.9062	29/32
.0730	49	.1850	13	.3580	T	.9219	59/64
.0760	48	.1875	3/16	.3594	23/64	.9375	15/16
.0781	5/64	.1890	12	.3680	U	.9531	61/64
.0785	47	.1910	11	.3750	3/8	.9688	31/32
.0810	46	.1935	10	.3770	V	.9844	63/64
.0820	45	.1960	9	.3860	W	1.0000	1/1
.0860	44	.1990	8	.3906	25/64		
.0890	43	.2010	7	.3970	X		

SCREW/STUD CLEARANCE HOLE TABLE

Screw/Stud Size	Screw/Stud Dia. Max.	Recommended Clearance Hole Dia.
0	.060	.067
1	.073	.078
2	.086	.093
3	.099	.105
4	.112	.120
5	.125	.130
6	.138	.144
8	.164	.169
10	.190	.196
12	.216	.220
14	.242	.250
1/4	.250	.257

QUALITY ASSURANCE

Keystone's quality system is certified to ISO 9001:2000 by DNV Certification, Inc. under the RAB and RvA accreditations. Our Quality Assurance Program is in accordance with these requirements and applies to all standard and custom interconnect components and electronic hardware.

It is Keystone's Quality Policy to continuously improve its products to better satisfy the needs of its customers and to deliver quality products, every time and on time.

QUALITY ASSURANCE

- Baty Gage Master Comparator
- Thread, Plug and Ring Gauges
- Granite Surface Plates
- Dial Indicators
- Plating Thickness Tester
- Ames Precision Hardness Tester
- Gauge Blocks and Pin Gauges
- Micrometers and Verniers
- Depth and Height Gauges
- **ISO 9001:2008 Certified**

DNV

DNV BUSINESS ASSURANCE

MANAGEMENT SYSTEM CERTIFICATE

Certificate No. CERT-8053-2004-AQ-HOU-ANAB

This is to certify that

Keystone Electronics Corporation

at

31-07 20th Road, Astoria, NY 11105 USA

Additional Location:

Site Name	Site Address	Site City, State, Zip	Site Main Activities
Keystone Electronics Corporation	19-36 38th Street	Astoria, NY 11105 USA	Stamping Operation

has been found to conform to the Management System Standard:

ISO 9001:2008

This Certificate is valid for the following product or service ranges:

The manufacture of interconnect components and hardware.

Initial Certification date: February 18, 1996

Place and date: Houston, Texas, March 09, 2013

This Certificate is valid until: March 09, 2016

for the Accredited Unit: DET NORSKE VERITAS CERTIFICATION INC., HOUSTON TEXAS

ANAB ACCREDITED

The audit has been performed under the supervision of

Anthony V Como
Lead Auditor

John Stefan
Management Representative

Lack of fulfillment of conditions as set out in the Certification Agreement may render this Certificate invalid.

ACCREDITED UNIT: DET NORSKE VERITAS CERTIFICATION, INC 1400 RAVELLO DRIVE, 77449, KATY, TX, USA, TEL: 281-396-1000, WWW.DNVCERT.COM

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1402	101
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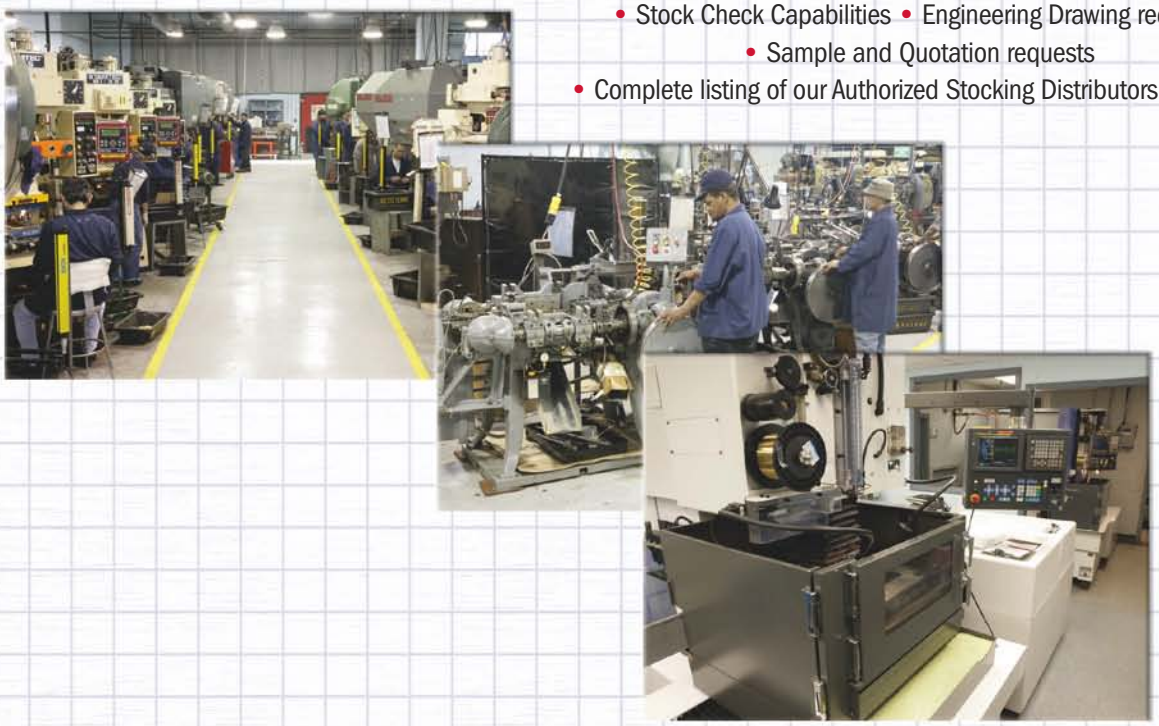

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