Toggles
Product Selection Guide

Toggles						
Series	**7000**	**E**	**ET**	**T**	**GT**	**9000**
Switch Type	Miniature	Miniature	Subminiature	Subminiature	Ultraminiature	Power
Poles/Throws	SPDT, DPDT, 3PDT, 4PDT	SPDT, DPDT, 3PDT	SPST, SPDT, DPDT	SPST, SPDT, DPDT	SPST, SPDT, DPST, DPDT	DPDT
Maximum Current Silver/Gold	5 Amps	7.5 Amps/ 5 Amps	3 Amps/ 2 Amps	3 Amps/ 2 Amps	0.4 VA	10 Amps
Process Sealed		•	•		•	
PCB Mount Options						
Vertical	•	•	•	•	•	•
Right Angle	•	•	•	•	•	
Vertical Right Angle	•	•	•	•	•	•
Surface Mount Options						
Vertical					•	
Right Angle			•		•	
Panel Mount Options						
Rear Mount	•	•		•		•
Termination Options						
PCB Thru-hole	•	•	•	•	•	•
Wire Wrap	•	•	•	•		
Solder Lug	•	•		•		•
Quick Connect	•	•				•
Other Available Options						
Support Brackets	•	•	•	•	•	•
Snap-in Retention	•	•	•			
ESD Protection	•	•	•	•		
Tape & Reel			•		•	
Bushing Options						
10-48				•		
1/4-40	•	•		•		•
15/32	•					•
M6P 0.75 (Metric)	•					
Page No.	F–3	F–17	F–25	F–32	F–38	F–43

7000 Series
Miniature Toggle Switches

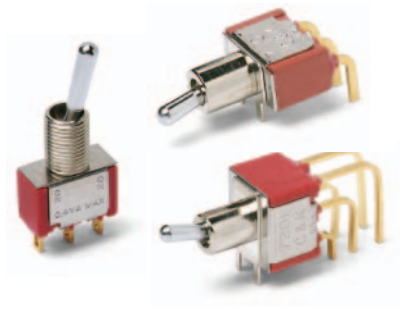
Features/Benefits

- ***Multi-pole and multi-position***
- ***Wide variety of actuator and termination options***
- ***Epoxy terminal-seal compatible with bottom wash cleaning***
- ***RoHS complaint models available***

Models Available

Typical Applications

- ***Telecommunications***
- ***Instrumentation***
- ***Medical equipment***



Specifications

CONTACT RATING: B contact material: 0.4 VA max. @ 20 V AC or DC max. Q contact material: 5 AMPS @ 120 V AC or 28 V DC; 2 AMPS @ 250 V AC. See page G-16 for additional ratings.

ELECTRICAL LIFE: 7X01 and UX1 models: 100,000 make-and-break cycles at full load. All other models: 40,000 cycles.

CONTACT RESISTANCE: Below 10 m Ω typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: 10^9 Ω min.

DIELECTRIC STRENGTH: 1000 Vrms min. @ sea level.

OPERATING TEMPERATURE: –30ºC to 85ºC.

SOLDERABILITY: Per MIL-STD-202F method 208D, or EIA RS-186E method 9 (1 hour steam aging).

For materials see page F-4.

NOTE: Any models supplied with P, S R, Q, B or G contact material are RoHS compliant and compatible.

NOTE: Specifications listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages F–4 thru F–16. For additional options not shown in catalog, consult our Customer Service Center.

Switch Function

7101 SP On-None-On
7103 SP On-Off-On
7105 SP Mom.-Off-Mom.
7107 SP On-Off-Mom.
7108 SP On-None-Mom.
7109 SP None-On-Mom.
7201 DP On-None-On
7203 DP On-Off-On
7205 DP Mom.-Off-Mom.
7207 DP On-Off-Mom.
7208 DP On-None-Mom.
7211 DP On-On-On
7213 DP On-On-Mom.
7215 DP Mom.-On-Mom.
7301 3P On-None-On
7303 3P On-Off-On
7305 3P Mom.-Off-Mom.
7308 3P On-None-Mom.
7401 4P On-None-On
7403 4P On-Off-On
7405 4P Mom.-Off-Mom.
7408 4P On-None-Mom.
7411 4P On-On-On
7413 4P On-On-Mom.
7415 4P Mom.-On-Mom.

Note: UL/CSA models available, see pages F-4 & F-5.

Actuator

M .200" high
P3 Flatted, anti-rotation, .450" high
S .420" high
T .687" high, 15/32 bushing
K2 Locking lever, .704" high
K9 Locking lever, .704" high
K12 Locking lever, .732" high
K19 Locking lever, .732" high
L .840" high
L1 .640" high
L1P Anti-rotation, .640" high
L2 .550" high
L2P Anti-rotation, .550" high
L3 Plastic .940" inch
L40 Lever handle without cap
L41 .531" high lever handle with cap
L42 .838" high lever handle with cap
MP Anti-rotation, .200" high
P1 Flatted, anti-rotation, .840" high
P4 Flatted, anti-rotation, .250" high
SP Anti-rotation, .420" high
T1 .487" high, 15/32 bushing
T1P Anti-rotation, .487" high, 15/32 bushing
T2P Flatted, anti-rotation, .610" high, 15/32 bushing,
TP Anti-rotation, .687" high, 15/32 bushing

Bushing

D .280 high, keyway
H .296 high, flat
Y .350 high, keyway
NONE No bushing choice required
CW Splashproof
D8 .280" high, flat
D9 .280" high, keyway
H3 .315" high, keyway
H4 8mm high, keyway
Y1 .378" high, keyway
Y3 8.9mm high, keyway
Y4 .378" high, flat
Y9 .350" high, keyway

Terminations

A Right angle, PC thru-hole
AV2 Vert. right angle, PC thru-hole
C PC Thru-hole
V3 .460 high, V-bracket
Z Solder lug
A2 Right angle, PC thru-hole
A3 Right angle, PC thru-hole
A4 Right angle, PC thru-hole
AW1 Right angle, extended, PC thru-hole
AW4 Right angle, extended, PC thru-hole
V2 .555" high, V-bracket
V4 .630" high, V-bracket
V6 .460" high, V-bracket
V7 .630" high, V-bracket
V8 .953" high, V-bracket
V9 1.150" high, V-bracket
V21 .555" high, snap-in V-bracket
V31 .460" high, snap-in V-bracket
V41 .630" high, snap-in V-bracket
V71 .630" high, snap-in V-bracket
V81 .953" high, snap-in V-bracket
W .750" long, wire wrap
W1 .964" long, wire wrap
W3 .425" long, wire wrap
W4 1.062" long, wire wrap
W5 1.305" long, wire wrap
Z3 Quick connect

Contact Material

B Gold
P Gold, matte-tin
Q Silver
S Silver, matte-tin
G Gold over silver
R Gold over silver, matte-tin

Seal

E Epoxy
I Epoxy potted base

Actuator Color/Finish

NONE Bright chrome
2 Black
3 Red
S Satin chrome

KXX Actuator Color/Finish

NONE Natural aluminum
2 Black anodized aluminum
3 Red anodized aluminum
7 Blue anodized aluminum

Bushing Finish

NONE Nickel on all bushings (except D8, satin chrome)
2 Black

7000 Series
Miniature Toggle Switches

Materials

CASE: Glass filled nylon 6/6, flame retardant, heat stabilized, or diallyl phthalate (DAP) (UL 94V-0).

ACTUATOR: Brass, chrome plated.

BUSHING: Brass or zinc, nickel plated.

HOUSING: Stainless steel.

SWITCH SUPPORT: Brass or steel, tin plated.

END CONTACTS: B contact material: Copper alloy, with gold plate over nickel plate. Q contact material: Coin silver, silver plated. See page F-15 for additional contact materials.

CENTER CONTACTS & ALL TERMINALS: B contact material: Copper alloy, with gold plate over nickel plate. Q contact material: Copper alloy, silver plated. See above for additional contact materials.

TERMINAL SEAL: Epoxy.

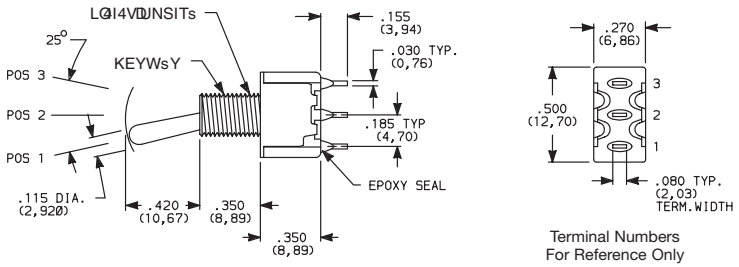
HARDWARE: Nut & Locking Ring: Brass, nickel plated. Lockwasher: Steel, nickel plated.

NOTE: Materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

SWITCH FUNCTION

NO. POLES	MODEL NO.	UL/CSA** MODEL NO.	SWITCH FUNCTION POS. 1	SWITCH FUNCTION POS. 2	SWITCH FUNCTION POS. 3	CONNECTED TERMINALS POS. 1	CONNECTED TERMINALS POS. 2	CONNECTED TERMINALS POS. 3	SCHEMATIC
SP	7101	U11	ON	NONE	ON	2-3	N/A	2-1	
	7103	U13	ON	OFF	ON				
	7105	U15	MOM.	OFF	MOM.	2-3	OPEN	2-1	
	7107	U17	ON	OFF	MOM.				
	7108	U18	ON	NONE	MOM.	2-3	N/A	2-1	
	7109	U19	NONE	ON	MOM.	N/A	2-3	2-1	SPDT

SPDT

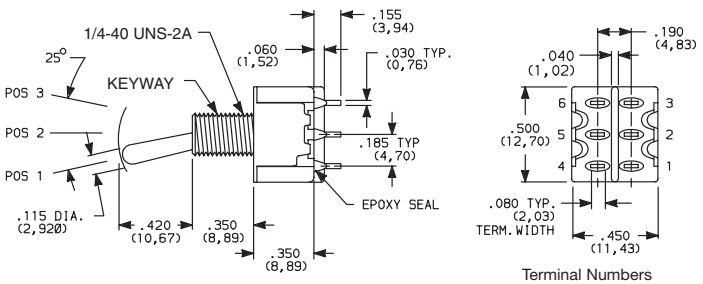


Terminal Numbers For Reference Only

Part number shown: 7101SYZBE

DP	7201	U21	ON	NONE	ON	2-3,5-6	N/A	2-1,5-4	
	7203	U23	ON	OFF	ON				
	7205	U25	MOM.	OFF	MOM.	2-3,5-6	OPEN	2-1,5-4	
	7207	U27	ON	OFF	MOM.				
	7208	U28	ON	NONE	MOM.	2-3,5-6	N/A	2-1,5-4	
	7211 *	U211*	ON	ON	ON				
	7213*	U213*	ON	ON	MOM.	2-3,5-6	2-3,5-4	2-1,5-4	
	7215*	U215*	MOM.	ON	MOM.				DPDT

DPDT



Terminal Numbers For Reference Only

Part number shown: 7201SYZQE

MOM. = Momentary

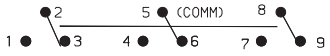
* Wiring for 3-way switch, see Section N.

** U11–U415 model nos. with all options when ordered with G, R, Q or S contact material.

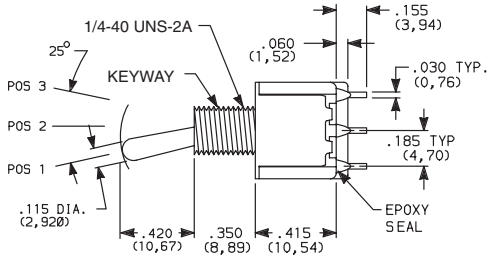
Third Angle Projection

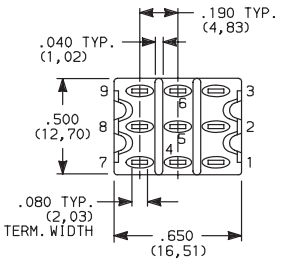
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

SWITCH FUNCTION

NO. POLES	MODEL NO.	UL/CSA** MODEL NO.	SWITCH FUNCTION POS. 1	SWITCH FUNCTION POS. 2	SWITCH FUNCTION POS. 3	CONNECTED TERMINALS POS. 1	CONNECTED TERMINALS POS. 2	CONNECTED TERMINALS POS. 3	SCHEMATIC
3P	7301	U31	ON	NONE	ON	2-3,5-6,8-9	N/A	2-1,5-4,8-7	
	7303	U33	ON	OFF	ON	2-3,5-6,8-9	OPEN	2-1,5-4,8-7	
	7305	U35	MOM.	OFF	MOM.				
	7307	U37	ON	OFF	MOM.				
	7308	U38	ON	NONE	MOM.	2-3,5-6,8-9	N/A	2-1,5-4,8-7	3PDT

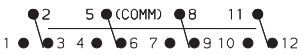
3PDT



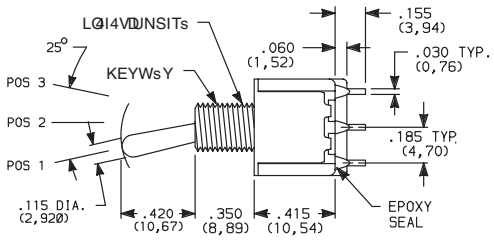


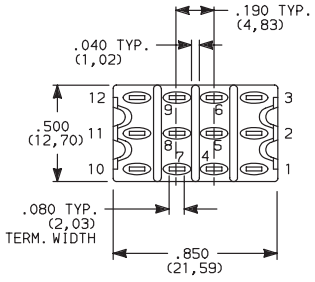
Terminal Numbers For Reference Only

Part number shown: 7301SYZQE

4P	7401	U41	ON	NONE	ON	2-3,5-6,8-9,11-12	N/A	2-1,5-4,8-7,11-10	
	7403	U43	ON	OFF	ON	2-3,5-6,8-9,11-12	OPEN	2-1,5-4,8-7,11-10	
	7405	U45	MOM.	OFF	MOM.				
	7408	U48	ON	NONE	MOM.	2-3,5-6,8-9,11-12	N/A	2-1,5-4,8-7,11-10	
	7411*	U411*	ON	ON	ON	2-3,5-6,8-9,11-12	2-3,5-4,8-9,11-10	2-1,5-4,8-7,11-10	
	7413*	U413*	ON	ON	MOM.				
	7415*	U415*	MOM.	ON	MOM.				4PDT

4PDT





Terminal Numbers For Reference Only

Part number shown: 7401SYZQE

MOM. = Momentary

* Wiring for 3-way switch, see Section N.

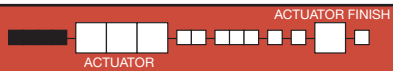
** U11–U415 model nos. with all options when ordered with G, Q, R or S contact material.

Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

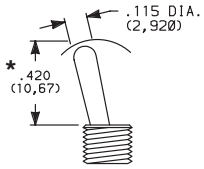
7000 Series
Miniature Toggle Switches

ACTUATOR



S .420" HIGH [1]

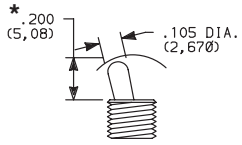
SP ANTIROTATION, .420" HIGH [2,3]



S actuator standard when ordered with C, W-W5, Z & Z3 terminations.
Caps are available separately, see page F-16.

M .200" HIGH [1]

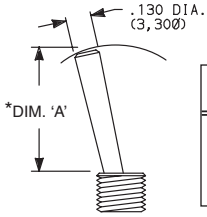
MP ANTIROTATION, .200" HIGH [2,3]



M actuator standard when ordered with all terminations except C, W-W5, Z & Z3.
Caps are available separately, see page F-16.

L, L1, L2 .840", .640", .550" HIGH [1]

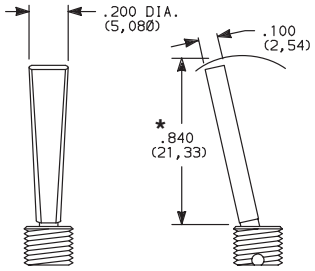
L1P, L2P ANTIROTATION, .840", .640", .550" HIGH [2,3]



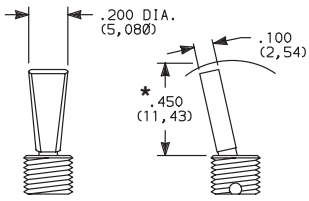
OPTION CODE	DIM 'A'
L	.840 (21,34)
L1, L1P	.640 (16,26)
L2, L2P	.550 (13,97)

Caps are available separately, see page F-16.

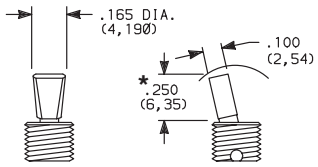
P1 FLATTED WITH ANTIROTATION, .840" HIGH [2,3]



P3 FLATTED WITH ANTIROTATION, .450" HIGH [2,3]



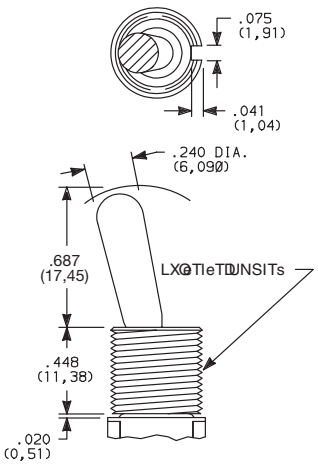
P4 FLATTED WITH ANTIROTATION, .250" HIGH [2,3]



Dress nut part number 709901201 supplied standard with threaded bushing. (Part number 709903201 with metric threaded bushings.)

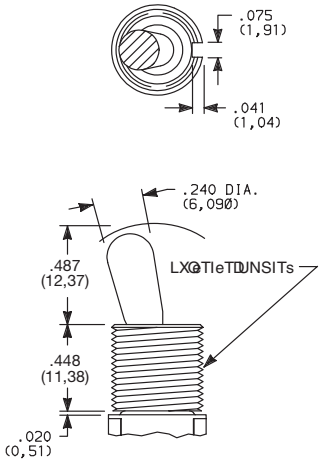
T .687 (17,45) HIGH [1,2]

TP ANTIROTATION, .687 (17,45) HIGH, 15/32 BUSHING [1,2,3]



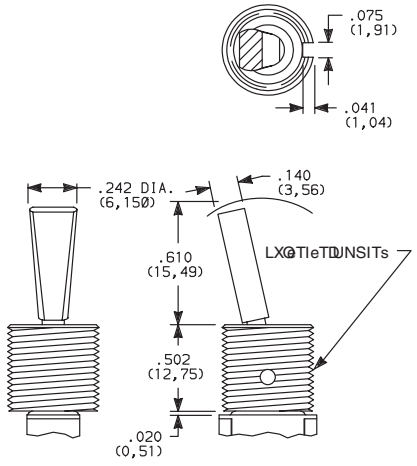
T1 .487 (12,37) HIGH [1,2]

T1P ANTIROTATION, .487 (12,37) HIGH, 15/32 BUSHING [1,2,3]



Bushing option code not required unless CW splashproof bushing ordered. TP & T1P actuators not available with CW splashproof bushing. All TXX actuators not available on single pole models with A-A4, AW1-AW4 terminations.

T2P FLATTED, ANTIROTATION, .610" HIGH, 15/32 BUSHING [1,2,3]



Bushing option code not required. T2P actuator not available with CW splashproof bushing or single pole models with A-A4, AW1-AW4 terminations.

[1] L, L1, L2, M, S & TXX actuators not available with Y1 bushing.

[2] L1P, L2P, MP, P1, P3, P4, SP & TXX actuators not available with D8 & H4 bushing.

[3] Antirotation: Provides anti-'push-in' feature on actuator.

* Add .070 (1,78) for D, D8 & D9 bushings, subtract .020 (0,51) for H3 bushing.

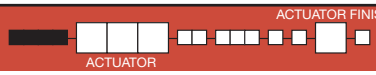
OPTION CODE	ACTUATOR FINISH
NONE	BRIGHT CHROME-With Nickel Plated Bushing
2	BLACK
S	SATIN CHROME

NOTE: Black hardware is supplied when either black actuators or bushings are specified. For additional hardware, see Section N.

Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

ACTUATOR

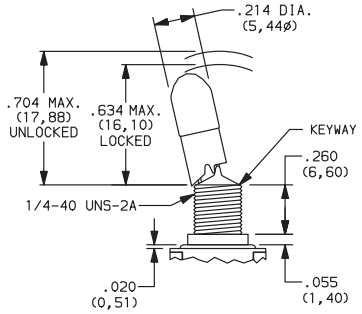


K2 LOCKING LEVER, .704" HIGH (threaded)

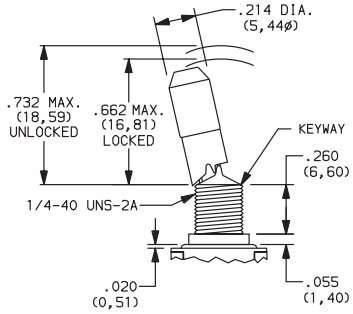
K9 LOCKING LEVER, .704" HIGH (unthreaded)

K12 LOCKING LEVER, .732" HIGH (threaded)

K19 LOCKING LEVER, .732" HIGH (unthreaded)



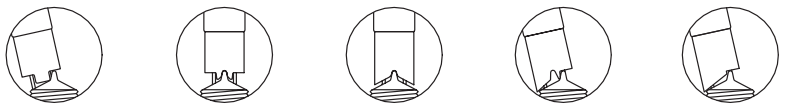
Replaces K, K8



Replaces K1, K18

OPTION CODE	ACTUATOR CAP FINISH
NONE	NATURAL ALUMINUM–With Nickle Plated Bushing
2	BLACK ANODIZED ALUMINUM
3	RED ANODIZED ALUMINUM
7	BLUE ANODIZED ALUMINUM

Locking Positions



–01 Models
2 Position lock

–03 & –11 Models
3 Position lock

–05, –09 & –15 Models
1 Position lock

–07 & –13 Models
2 Position lock

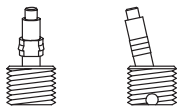
–08 Models
1 Position lock

NOTE: To prevent accidental actuation, toggle must be lifted before being actuated. When released, toggle will lock in place. Overtightening mounting nut may cause actuator to bind.

Locking levers supplied with bushing shown.

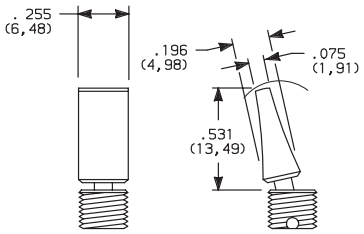
Bushing option code not required unless CW splashproof bushing ordered.

L40 LEVER HANDLE WITHOUT CAP

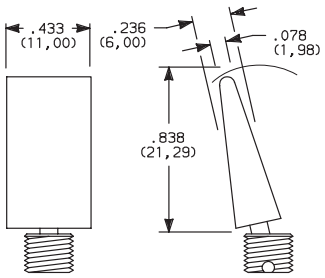


No color choice required

L41 PLASTIC LEVER HANDLE WITH ANTIROTATION AND CAP, P/N 4810

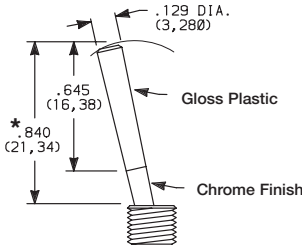


L42 PLASTIC LEVER HANDLE WITH ANTIROTATION AND CAP, P/N 4811



Finish: Matte (L41 & L42).

L3 PLASTIC .940" HIGH



OPTION CODE	PLASTIC ACTUATOR COLORS
NONE	No Actuator Color (L40 option)
2	BLACK
3	RED

* Add .070 (1,78) for D, D8 & D9 bushings, subtract .020 (0,51) for H3 bushing.

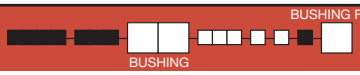
NOTE: Lever handle for L41 & L42 actuators supplied, but not installed. For interchangeability, order L40 actuator option and lever handles separately, see page F-16. L4X actuators not available with H4, Y1, Y4 bushings. Antirotation: Provides anti-'push-in' feature on actuator.

Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

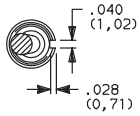
7000 Series
Miniature Toggle Switches

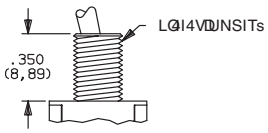
BUSHING



Y .350" HIGH, THREADED, KEYWAY

Y9 .350" HIGH, UNTHREADED, KEYWAY





Y bushing standard with C, W-W5, Z or Z3 terminations.

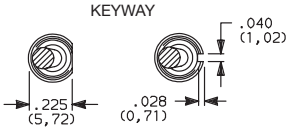
NONE NO BUSHING

No bushing choice required with KXX, TXX actuators. (exception: Specify CW if splashproof bushing desired).

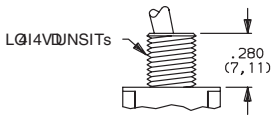
D .280" HIGH, THREADED, KEYWAY

D8 .280" HIGH, UNTHREADED, FLAT [3]

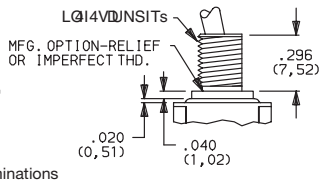
D9 .280" HIGH, UNTHREADED, KEYWAY



D8

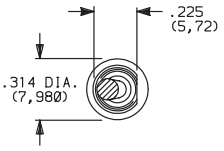


D, D9

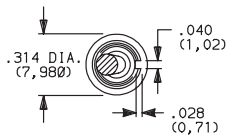


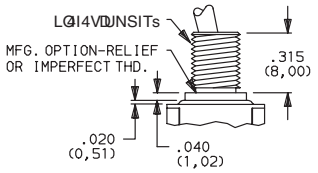
D9 bushing standard with all terminations except C, W-W5, Z or Z3. Add .070 (1,78) to all actuators lengths with D, D8 & D9 bushings.

H .296" HIGH, FLAT THREADED, HIGH TORQUE [1,2]



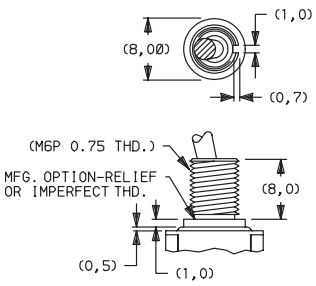
H3 .315" HIGH, KEYWAY THREADED, HIGH TORQUE [1,2]



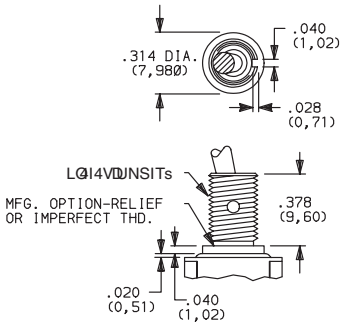


Subtract .020 (0,51) from all actuator lengths for H3 bushing.

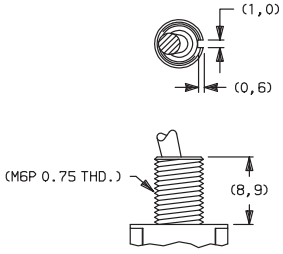
H4 8mm HIGH, KEYWAY, THREADED, METRIC HIGH TORQUE [1,2,3]



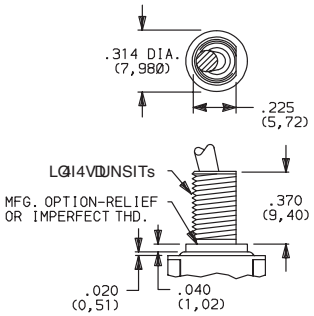
Y1 .378" HIGH, KEYWAY, THREADED, HIGH TORQUE [1,2,4]



Y3 8.9mm HIGH, KEYWAY, THREADED, METRIC

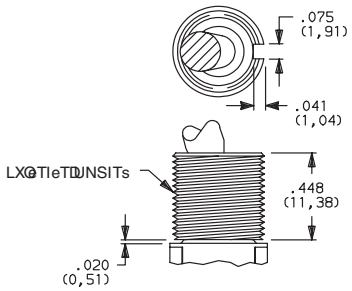


Y4 .378" HIGH, FLAT, THREADED, HIGH TORQUE [1,2,5]



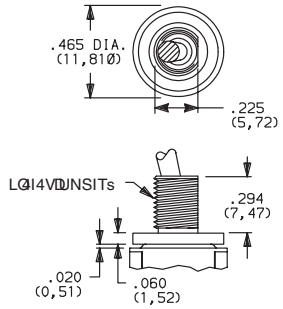
CW THREADED, SPLASHPROOF [1,2]

For PC & PCB actuators



IP67 Degree of protection, totally protected against dust, full-scale voltage protection, temporary immersion. Internal actuator seal standard.
External bushing seal available separately from APM Hexseal, part # MFS-60064.

For actuators other than PC & PCB



IP67 Degree of protection, totally protected against dust, full-scale voltage protection, temporary immersion. Internal actuator seal and external bushing seal washer standard.

OPTION CODE	BUSHING FINISH
NONE	NICKEL on all bushings except 'D8' satin chrome.
2	BLACK

[1] Will withstand 12 in.-lbs. of torque with no distortion.

[2] CW. H, H3, H4, Y1 & Y4 bushings not available on single pole models with A4 terminations.

[3] D8 & H4 bushings available only with L, L1, L2, M & S actuators.

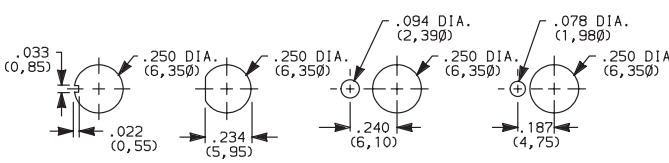
[4] Y1 bushing available only with LXP, MP, PX & SP actuators.

[5] Y4 bushing not available with L4X actuators.

NOTE: Two mounting nuts, locking ring and lockwasher supplied standard with threaded bushings. Black hardware is supplied when either black bushings or actuators are specified. Optional mounting nut and locking ring styles and finishes available, see Section N.

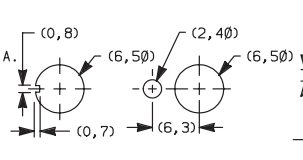
PANEL MOUNTING

LOCKNUT HOUSING



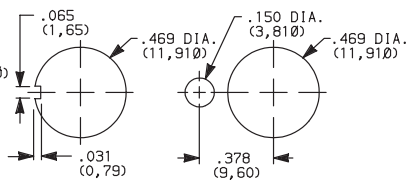
Without Locking Ring | With Standard Locking Ring | With Small Locking Ring

METRIC HOUSING



Without Locking Ring | With Locking Ring

LXE TORNU HOUSING



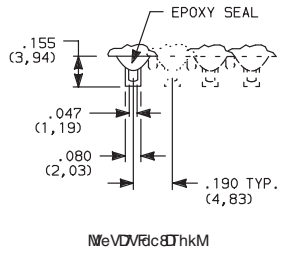
Without Locking Ring | With Standard Locking Ring

Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

TERMINATIONS

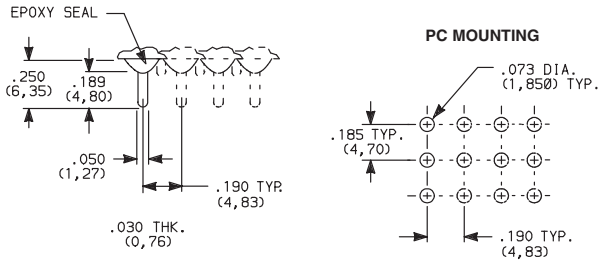
Z SOLDER LUG



SPDT thru 4PDT

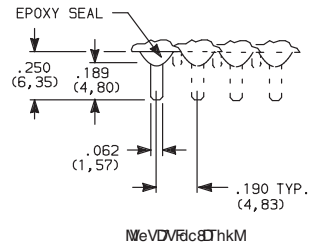
Not available with P, R or S contact materials.

C PC THRU-HOLE



SPDT thru 4PDT

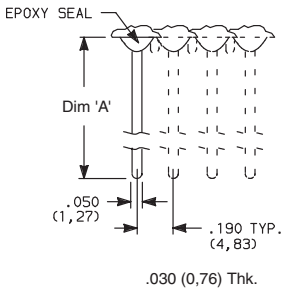
Z3 QUICK CONNECT



SPDT thru 4PDT

Not available with P, R or S contact materials.
Mating quick connector available, order part number 530100000, page F-16.

W, W1, W3, W4, W5 WIRE WRAP

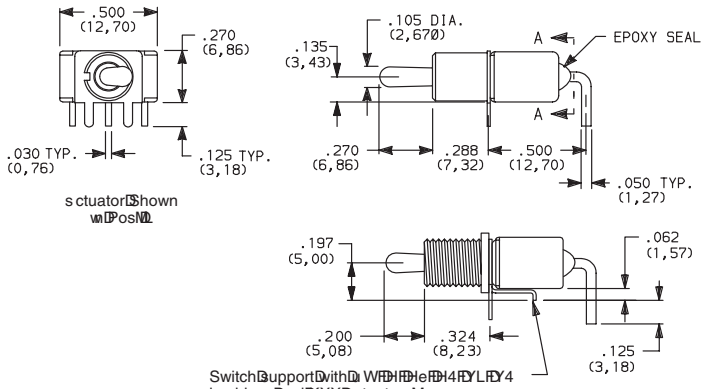


.030 (0,76) Thk.

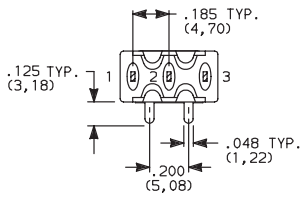
OPTION CODE	DIM 'A'
W	.750 (19,05)
W1	.964 (24,48)
W3	.425 (10,80)
W4	1.062 (26,97)
W5	1.305 (33,15)

SPDT thru 4PDT

A RIGHT ANGLE, PC THRU-HOLE

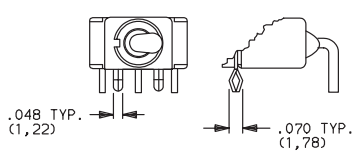


Part No. Shown: 7101MHABE



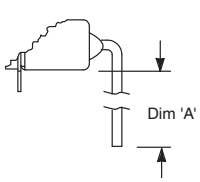
7101MD9ABE
Horizontal Actuation
SPDT

A3 RIGHT ANGLE, SNAP-IN, PC THRU-HOLE

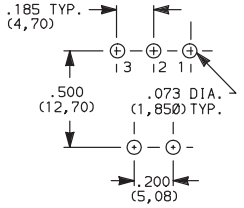


Not available with I seal option.
Terminal bend radii and lead-in manufacturing option.

AW1, AW4 RIGHT ANGLE, EXTENDED, PC THRU-HOLE



OPTION CODE	DIM 'A'
AW1	.72 (18,3)
AW4	.83 (21,1)



Third Angle Projection

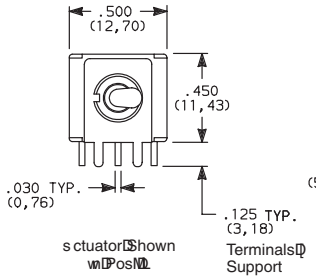
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

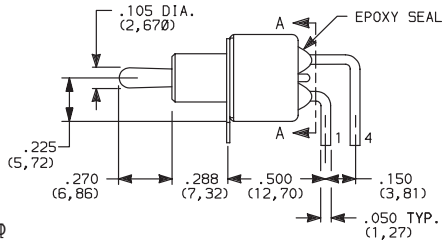
7000 Series
Miniature Toggle Switches

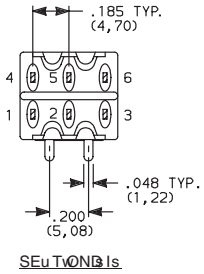
TERMINATIONS

A RIGHT ANGLE, PC THRU-HOLE

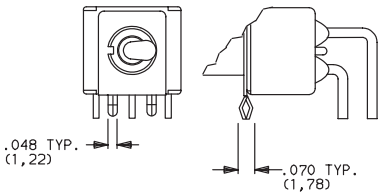
7201MD9ABE
Horizontal Actuation
DPDT



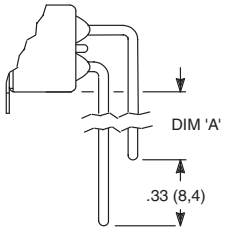




A3 RIGHT ANGLE, SNAP-IN, PC THRU-HOLE

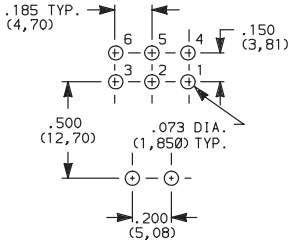


AW1, AW4 RIGHT ANGLE, EXTENDED, PC THRU-HOLE



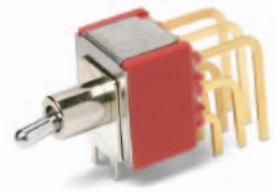
OPTION CODE	DIM 'A'
AW1	.40 (10,2)
AW4	.50 (12,7)

PC MOUNTING

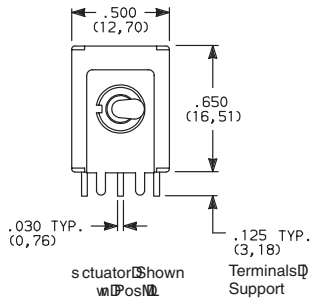


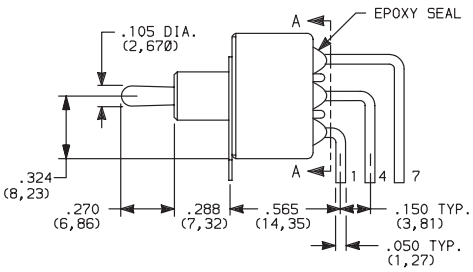
Not available with I seal option.
Terminal bend radii and lead-in manufacturing option.

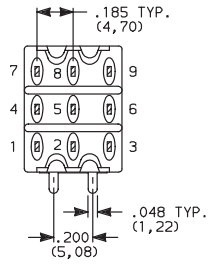
A RIGHT ANGLE, PC THRU-HOLE



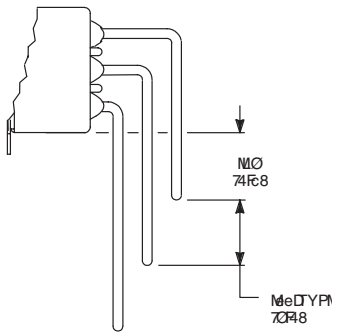
7301MD9ABE
Horizontal Actuation
3PDT



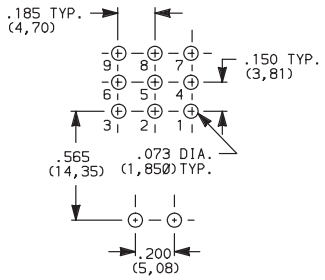




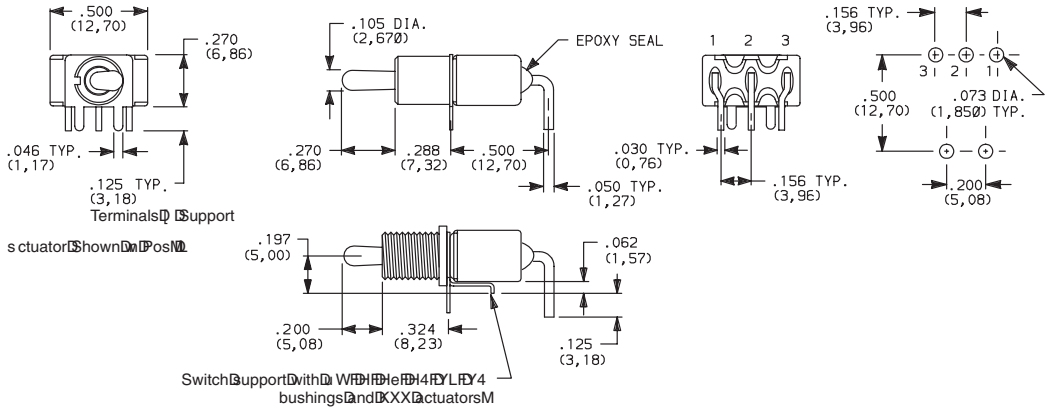
AW4 RIGHT ANGLE, EXTENDED, PC THRU-HOLE

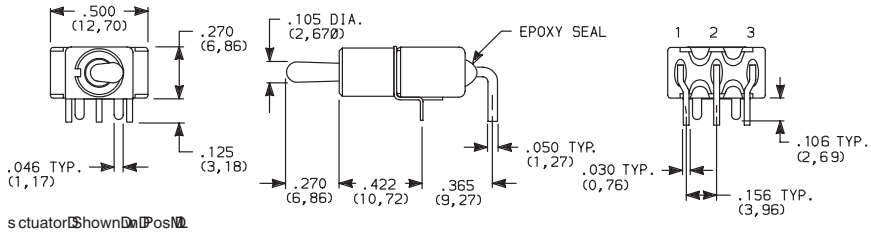


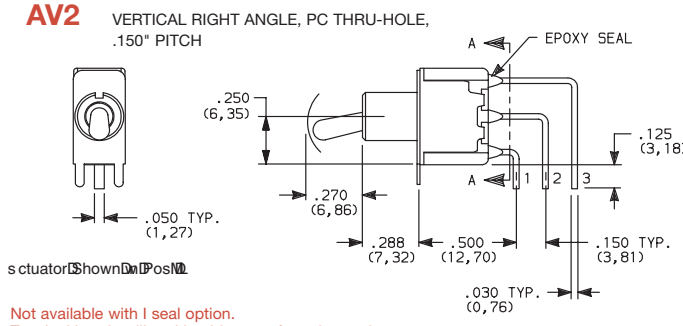
PC MOUNTING

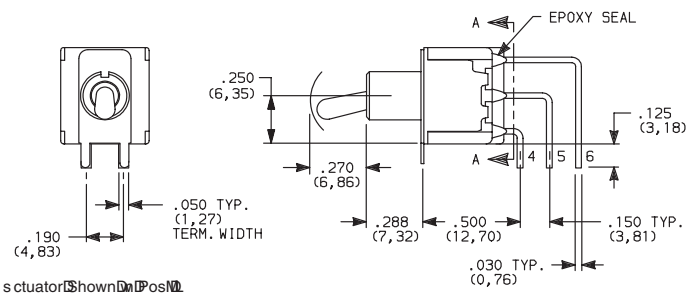


Not available with I seal option.
Terminal bend radii and lead-in manufacturing option.









TERMINATIONS

A2 RIGHT ANGLE, PC THRU-HOLE, .156" PITCH

.500 (12,70)
.270 (6,86)
.046 TYP. (1,17)
.125 TYP. (3,18)
Terminals & Support
Actuator Shown in Pos. 1
.105 DIA. (2,670)
EPOXY SEAL
.270 (6,86)
.288 (7,32)
.500 (12,70)
.050 TYP. (1,27)
.030 TYP. (0,76)
1 2 3
.156 TYP. (3,96)
.197 (5,00)
.062 (1,57)
.200 (5,08)
.324 (8,23)
.125 (3,18)
Switch support with W, H, H3, H4, Y1, Y4 bushings and KXX actuators

PC MOUNTING

.156 TYP. (3,96)
3 2 1
.500 (12,70)
.073 DIA. (1,850) TYP.
.200 (5,08)

7101MHA2BE
Horizontal Actuation
SPDT

Not available with TXX actuators and I seal.
Terminal bend radii and lead-in manufacturing option.

Part No. Shown: 7101MHA2BE

A4 RIGHT ANGLE, PC THRU-HOLE .156" PITCH

.500 (12,70)
.270 (6,86)
.125 (3,18)
.046 TYP. (1,17)
.105 DIA. (2,670)
EPOXY SEAL
.050 TYP. (1,27)
.030 TYP. (0,76)
.270 (6,86)
.422 (10,72)
.365 (9,27)
1 2 3
.106 TYP. (2,69)
.156 TYP. (3,96)
Actuator Shown in Pos. 1

PC MOUNTING

.156 TYP. (3,96)
3 2 1
.365 (9,27)
.073 DIA. (1,850) TYP.
.200 (5,08)

7101MD9A4BE
Horizontal Actuation
SPDT

Not available with KXX & TXX actuators, CW, H, H3, H4, Y1 & Y4 bushings, and I seal. Terminal bend radii and lead-in manufacturing option.

NOTE: The A4 option is available with any contact material and can be UL recognized and CSA certified. The PC pattern must clear switch support legs.

AV2 VERTICAL RIGHT ANGLE, PC THRU-HOLE, .150" PITCH

.250 (6,35)
.050 TYP. (1,27)
Actuator Shown in Pos. 1
A
EPOXY SEAL
.125 (3,18)
A
1 2 3
.270 (6,86)
.288 (7,32)
.500 (12,70)
.150 TYP. (3,81)
.030 TYP. (0,76)
.270 (6,86)
3
2
1
.500 (12,70)
.048 TYP. (1,22)
.200 (5,08)
SECTION A-A

PC MOUNTING

.150 TYP. (3,81)
3
2
1
.500 (12,70)
.073 DIA. (1,850) TYP.
.200 (5,08)

7101MD9AV2BE
Horizontal Actuation
SPDT

Not available with I seal option.
Terminal bend radii and lead-in manufacturing option.

AV2 VERTICAL RIGHT ANGLE, PC THRU-HOLE, .150" PITCH

.250 (6,35)
.050 TYP. (1,27) TERM. WIDTH
.190 (4,83)
Actuator Shown in Pos. 1
A
EPOXY SEAL
.125 (3,18)
A
4 5 6
.270 (6,86)
.288 (7,32)
.500 (12,70)
.150 TYP. (3,81)
.030 TYP. (0,76)
.450 (11,43)
6 5 4
3 2 1
.500 (12,70)
.048 TYP. (1,22)
.200 (5,08)
SECTION A-A

PC MOUNTING

.150 TYP. (3,81)
.190 (4,83)
3 6
2 5
1 4
.500 (12,70)
.073 DIA. (1,850) TYP.
.200 (5,08)

7201MD9AV2BE
Vertical Actuation
DPDT

Not available with I seal option.
Terminal bend radii and lead-in manufacturing option.

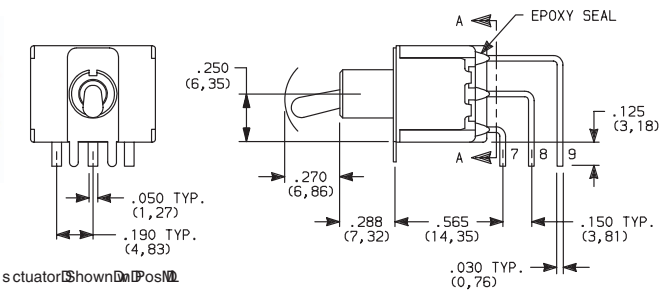
Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

TERMINATIONS

AV2 VERTICAL RIGHT ANGLE, PC THRU-HOLE, .150" PITCH

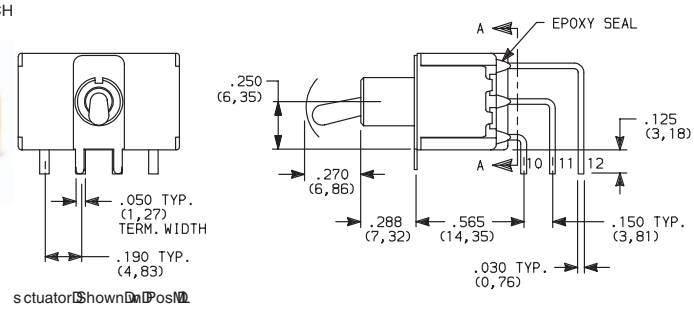
7301MD9AV2BE
Vertical Actuation
3PDT



Not available with I seal option.
Terminal bend radii and lead-in manufacturing option.

AV2 VERTICAL RIGHT ANGLE, PC THRU-HOLE, .150" PITCH

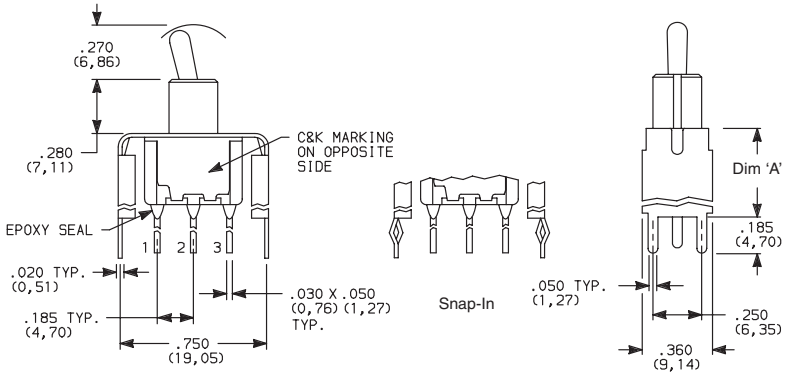
7401MD9AV2BE
Vertical Actuation
4PDT



Not available with I seal option.
Terminal bend radii and lead-in manufacturing option.

V2, V6, V7, V8 VERTICAL MOUNT, V-BRACKET
V21, V71, V81 VERTICAL MOUNT, V-BRACKET, SNAP-IN

7101MD9__BE
SPDT



Actuator Shown In Pos. 1

OPTION CODE	DIM 'A'
V2, V21	.555 (14,10)
V6	.460 (11,68)
V7, V71	.630 (16,00)
V8, V81	.953 (24,21)

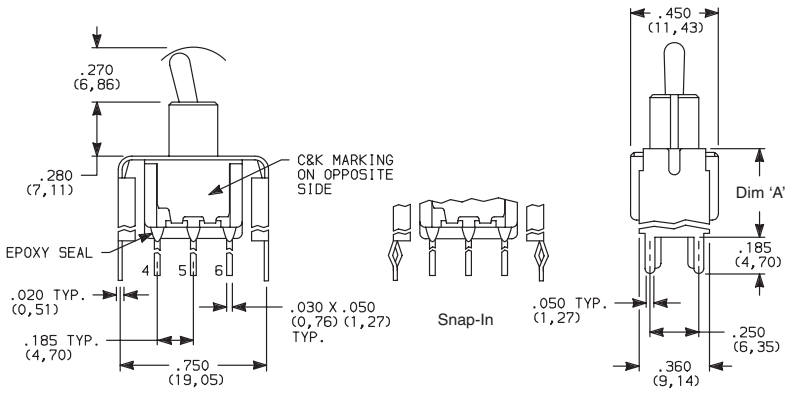
Not available with I seal option.

Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

TERMINATIONS

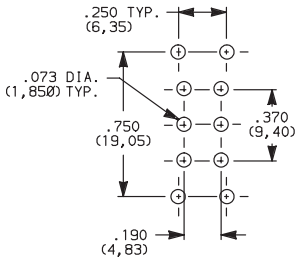
V2, V6, V7, V8 VERTICAL MOUNT, V-BRACKET
V21, V61, V71, V81 VERTICAL MOUNT, V-BRACKET, SNAP-IN



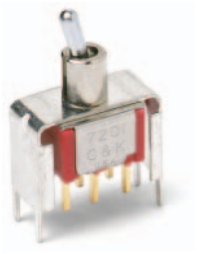
Actuator Shown In Pos. 1

Not available with I seal option.

PC MOUNTING

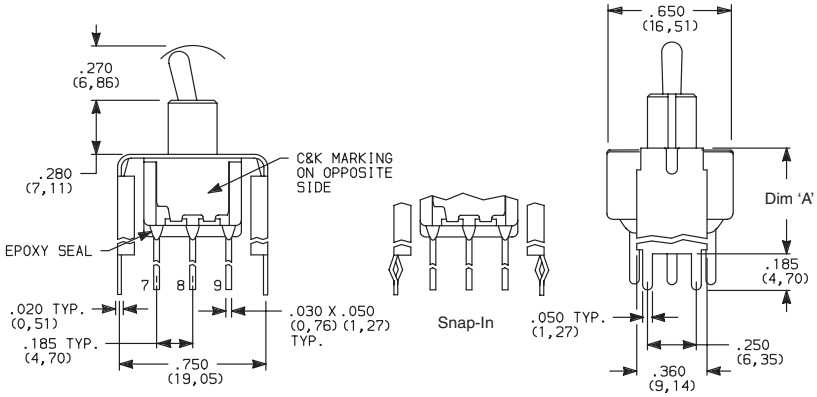


OPTION CODE	DIM 'A'
V2, V21	.555 (14,10)
V6, V61	.460 (11,68)
V7, V71	.630 (16,00)
V8, V81	.953 (24,21)



7201MD9__BE
DPDT

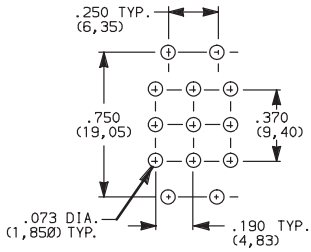
V2, V7, V8 VERTICAL MOUNT, V-BRACKET
V21, V71, V81 VERTICAL MOUNT, V-BRACKET, SNAP-IN



Actuator Shown In Pos. 1

Not available with I seal option.

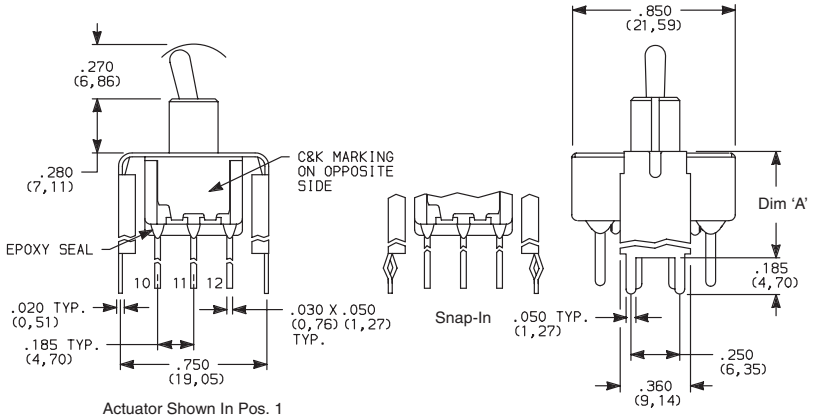
PC MOUNTING



OPTION CODE	DIM 'A'
V2, V21	.555 (14,10)
V7, V71	.630 (16,00)
V8, V81	.953 (24,21)

7301MD9__BE
3PDT

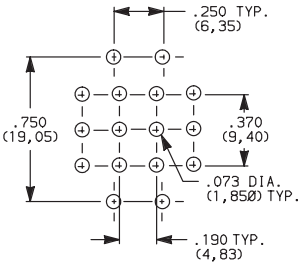
V2, V7, V8 VERTICAL MOUNT, V-BRACKET
V21, V71, V81 VERTICAL MOUNT, V-BRACKET, SNAP-IN



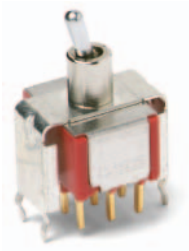
Actuator Shown In Pos. 1

Not available with I seal option.

PC MOUNTING



OPTION CODE	DIM 'A'
V2, V21	.555 (14,10)
V7, V71	.630 (16,00)
V8, V81	.953 (24,21)



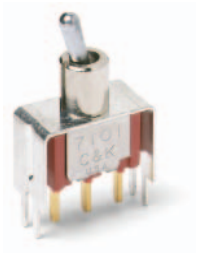
7401MD9__BE
4PDT

Third Angle Projection

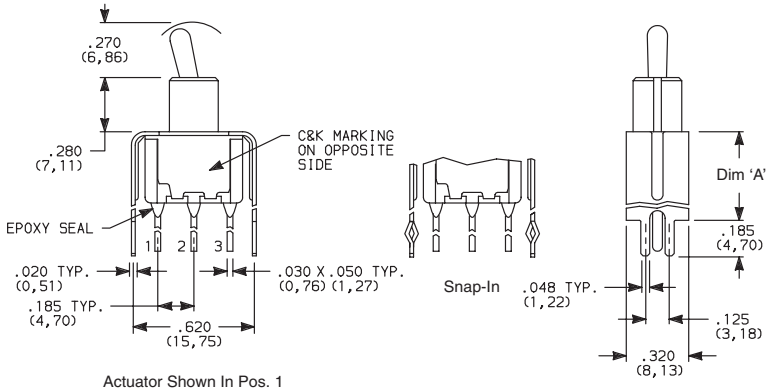
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

TERMINATIONS

V3, V4, V9 VERTICAL MOUNT, V-BRACKET
V31, V41 VERTICAL MOUNT, V-BRACKET, SNAP-IN



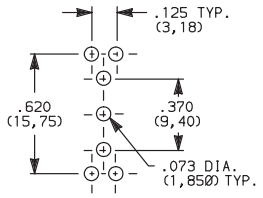
7101MD9__BE
SPDT



Actuator Shown In Pos. 1

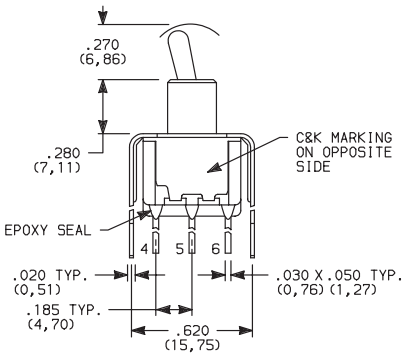
Not available with I seal option.

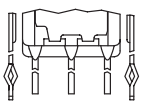
PC MOUNTING

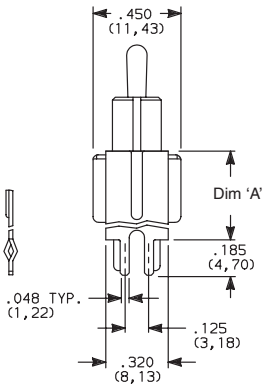


OPTION CODE	DIM 'A'
V3, V31	.460 (11,68)
V4, V41	.630 (16,00)
V9	1.150 (29,21)

V3, V4, V9 VERTICAL MOUNT, V-BRACKET
V31, V41 VERTICAL MOUNT, V-BRACKET, SNAP-IN



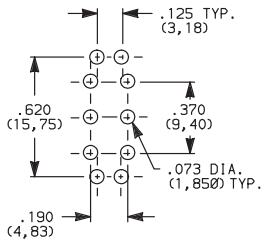




Actuator Shown In Pos. 1

Not available with I seal option.

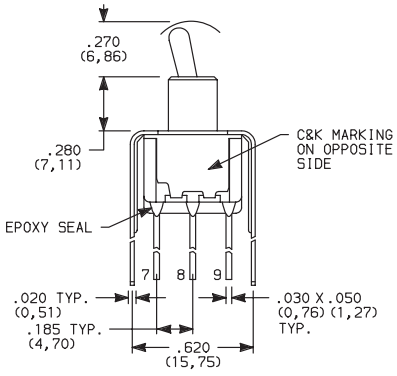
PC MOUNTING

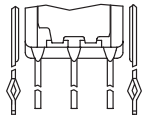


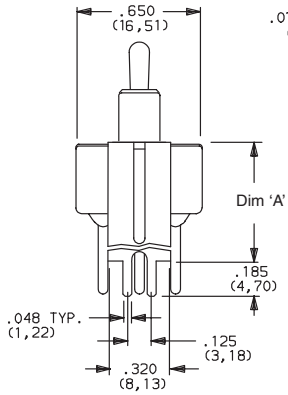
7201MD9__BE
DPDT

OPTION CODE	DIM 'A'
V3, V31	.460 (11,68)
V4, V41	.630 (16,00)
V9	1.150 (29,21)

V4, V9 VERTICAL MOUNT, V-BRACKET
V41 VERTICAL MOUNT, V-BRACKET, SNAP-IN



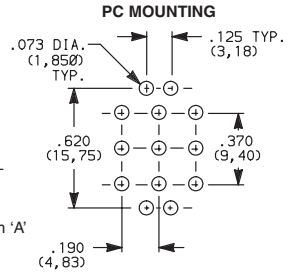




Actuator Shown In Pos. 1

Not available with I seal option.

PC MOUNTING



7301MD9__BE
3PDT

OPTION CODE	DIM 'A'
V4, V41	.630 (16,00)
V9	1.150 (29,21)

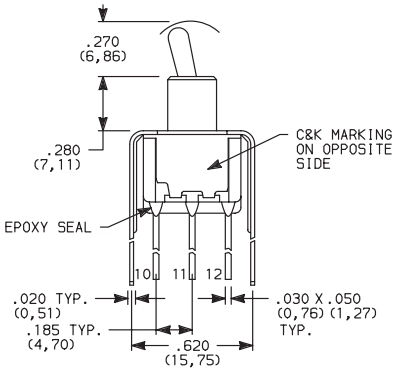
Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

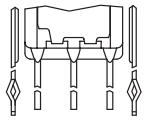
TERMINATIONS

V4, V9 VERTICAL MOUNT, V-BRACKET

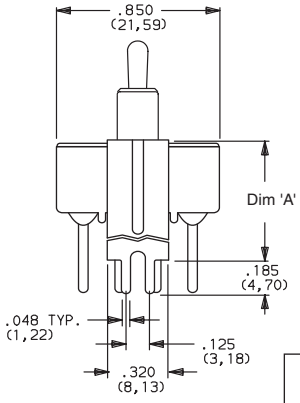
V41 VERTICAL MOUNT, V-BRACKET, SNAP-IN



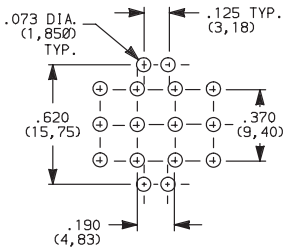
Actuator Shown In Pos. 1

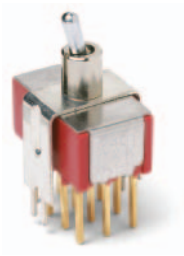


Snap-In



PC MOUNTING





7401MD9__BE
4PDT

OPTION CODE	DIM 'A'
V4, V41	.630 (16,00)
V9	1.150 (29,21)

Not available with I seal option.

CONTACT MATERIAL

OPTION CODE	CONTACT MATERIAL	TERMINAL PLATING	RATINGS	
B	GOLD [1]	GOLD [1]	LOW LEVEL/ DRY CIRCUIT	0.4 VA MAX. @ 20 V AC OR DC MAX.
P		MATTE-TIN [6]		
Q	SILVER [4,5]	SILVER [5]	POWER	5 AMPS @ 120 V AC OR 28 V DC; 2 AMPS @ 250 V AC.
S		MATTE-TIN [6]		
G	GOLD OVER SILVER [2,3]	GOLD [3]	LOW LEVEL/DRY CIRCUIT OR POWER	0.4 VA MAX @ 20 V AC OR DC MAX. OR 5 AMPS @ 120 V AC OR 28 V DC; 2 AMPS @ 250 V AC.
R		MATTE-TIN [6]		

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

[1] CONTACTS & TERMINALS: Copper alloy, with gold plate over nickel plate.

[2] END CONTACTS: Coin silver, with gold plate over nickel plate.

[3] CENTER CONTACTS & ALL TERMINALS: Copper alloy, with gold plate over nickel plate.

[4] END CONTACTS: Coin silver, silver plated.

[5] CENTER CONTACT & ALL TERMINALS: Copper alloy, silver plated.

[6] TERMINALS: Copper alloy, with matte tin alloy nickel plate.

NOTE: Any models supplied with P, S, R, Q, B or G contact material are RoHS compliant.

U11-U415 model numbers with all options when ordered with G, S, R, or Q contact material.

B contact material standard with all terminations except C, Z & Z3.

Q contact material standard with C, Z & Z3 terminations.

P, S & R contact materials not available with Z & Z3 terminations.

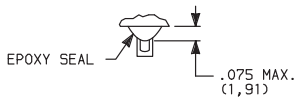
Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

7000 Series
Miniature Toggle Switches

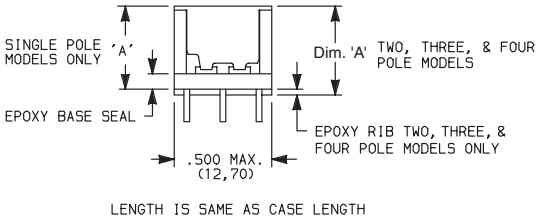
SEAL

E EPOXY SEAL



Compatible with “bottom-wash” PC board cleaning methods.

I EPOXY POTTED BASE

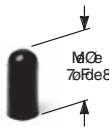


NO. POLES	DIM 'A'
SP	.410 (10,41)
DP	.440 (11,18)
3P	.505 (12,83)
4P	.505 (12,83)

Available with C, W-W5, Z & Z3 terminations only.

AVAILABLE HARDWARE

Cap

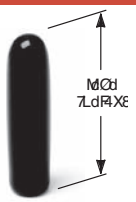


PART NO.

896801000 WHITE
896802000 BLACK
896803000 RED

Material: Polyethylene
Finish: Matte

Cap



PART NO.

763701000 WHITE
763702000 BLACK
763703000 RED

Material: Vinyl
Finish: Matte

Cap

PART NO.

706201000 WHITE
706202000 BLACK
706203000 RED

Material: Vinyl
Finish: Matte

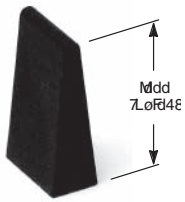
L41 Lever handle

PART NO.

481001000 WHITE
481002263 BLACK
481003000 RED

Material: Nylon
Finish: Matte

L42 Lever handle



PART NO.

481101000 WHITE
481102263 BLACK
481103000 RED

Material: Nylon
Finish: Matte

Fits Z3 Termination female connector

PART NO.

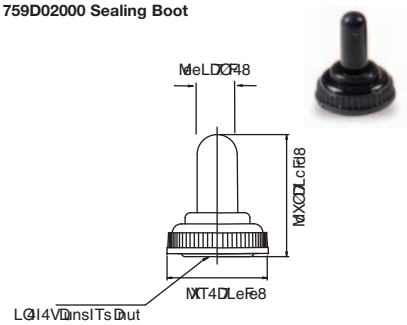
530100000

Available in loose pieces.

NOTE: Additional nuts, locking rings and lockwashers available separately, see Section N.

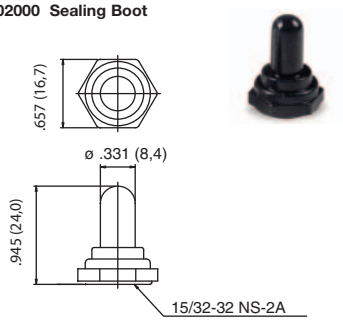
Other colors available, consult Customer Service Center.

759D02000 Sealing Boot



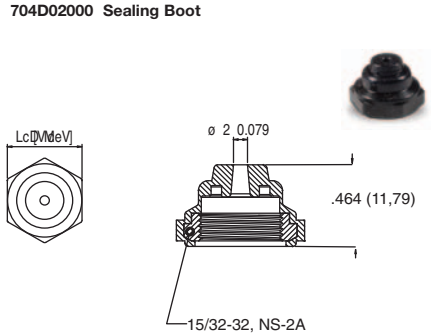
NOTE: For use with S actuator style when combined with D, H, H3, Y, and Y4 bushings

703D02000 Sealing Boot



NOTE: For use with T and TP style actuators. **Can not be used for Switch Functions: 7103, 7203, 7303, 7403, 7107, 7207, 7307, 7407.**

704D02000 Sealing Boot

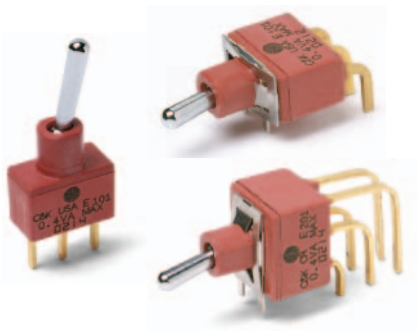


NOTE: For use with T, TP and T2P style actuators. Can not be used for Switch Functions: 7103, 7203, 7303, 7403, 7107, 7207, 7307, and 7407.

Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

E Series
Sealed Miniature Toggle Switches



Features/Benefits

- *Sealed against solder and cleaning process contaminants*
- *UL 94V-0 Nylon case and bushing*
- *Multi-positions*
- *ESD protection available*
- *RoHS compliant models available*

Typical Applications

- *Telecommunications*
- *Instrumentation*
- *Medical equipment*

Models Available

Specifications

CONTACT RATING: B contact material: 0.4 VA max. @ 20 V AC or DC max. Q contact material: E1XX & E2XX MODELS: 7.5 AMPS @ 125 V AC or 28 V DC; 3 AMPS @ 250 V AC. E3XX MODELS: 5 AMPS @ 125 V AC or 28 V DC; 2 AMPS @ 250 V AC. See page F-25 for additional ratings.

ELECTRICAL LIFE: E1XX and E2XX models: 40,000 make-and-break cycles at full load. E3XX models: 30,000 cycles.

CONTACT RESISTANCE: Below 10 mΩ typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: 10^9 Ω min.

ELECTROSTATIC DISCHARGE (ESD) OPTION: F1 conductive bushing only. Dissipates up to 20,000 V DC from actuator to ground.

DIELECTRIC STRENGTH: 1000 Vrms min. @ sea level.

OPERATING TEMPERATURE: –30°C to 85°C.

SOLDERABILITY: Per MIL-STD-202F method 208D, or EIA RS-186E method 9 (1 hour steam aging).

DEGREE OF PROTECTION: IP57; Protection against harmful dust deposit, full-scale voltage protection, temporary immersion.

Materials

CASE & BUSHING: Glass filled nylon 6/6, flame retardant, heat stabilized (UL 94V-0). F1 conductive bushing option is impregnated with carbon fibers.

ACTUATOR: Brass, chrome plated with internal o-ring seal standard.

SWITCH SUPPORT: Brass or steel, matte-tin plated.

SWITCH SUPPORT RETAINER: Stainless steel.

CONTACTS & TERMINALS: B contact material: Copper alloy, with gold plate over nickel plate. Q contact material: Copper alloy, silver plated. See page F-29 for additional contact materials.

TERMINAL SEAL: Epoxy.

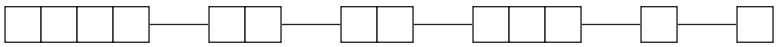
HARDWARE: Nut & Locking ring: Brass, nickel plated. Lockwasher: Steel, nickel plated.

NOTE: Any models supplied with P, S, R, Q, B or G contact material are RoHS compliant and compatible.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages F–18 thru F–24. For additional options not shown in catalog, consult our Customer Service Center. All models are process sealed to withstand machine soldering temperatures and pressure wash cleaning methods.



Switch Function
- **E101** SP, On-None-On
- **E103** SP, On-Off-On
- **E105** SP, Mom.-Off-Mom.
- **E107** SP, On-Off-Mom.
- **E108** SP, On-None-Mom.
- **E201** DP, On-None-On
- **E203** DP, On-Off-On
- **E205** DP, Mom.-Off-Mom.
- **E207** DP, On-Off-Mom.
- **E208** DP, On-None-Mom.
- **E211** DP, On-On-On
- **E213** DP, On-On-Mom.
- **E215** DP, Mom.-On-Mom.
- **E301** 3P, On-None-On

* F1 available with SP and DP versions only, please see page F-19

Actuator
- **M** .300" high
- **S** .500" high
- **L3** Plastic, .940" high

Bushing
- **D1** .250" high
- **F1** Conductive, .250" high*
- **D9** .280" high
- **Y** Threaded, .350" high

Terminations
- **A** Right angle, PC thru-hole
- **AV2** Vertical right angle, PC thru-hole
- **C** PC Thru-hole
- **V3** .460" high, V-bracket
- **Z** Solder lug
- **A3** Right angle, PC thru-hole
- **AV3** Vertical right angle, PC thru-hole
- **V6** .460" high, V-bracket
- **V9** 1.150" high, V-bracket
- **V31** .460" high, snap-in V-bracket
- **V61** .460" high, snap-in V-bracket
- **W** .750" long, wire wrap
- **Z3** Quick connect

Contact Material
- **B** Gold
- **P** Gold, matte-tin
- **Q** Silver
- **S** Silver, matte-tin
- **G** Gold over silver
- **R** Gold over silver, matte-tin

Seal
- **E** Epoxy

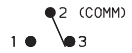
F Toggle

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

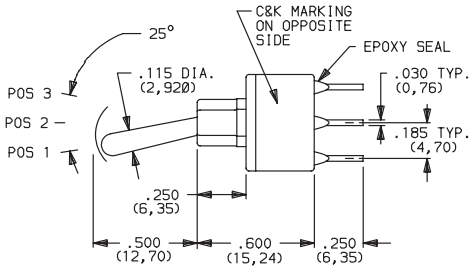
E Series
Sealed Miniature Toggle Switches

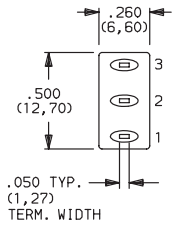
SWITCH FUNCTION

NO. POLES	MODEL NO.	SWITCH FUNCTION POS. 1	SWITCH FUNCTION POS. 2	SWITCH FUNCTION POS. 3	CONNECTED TERMINALS POS. 1	CONNECTED TERMINALS POS. 2	CONNECTED TERMINALS POS. 3	SCHEMATIC
		C&K marking on opposite side			C&K marking on opposite side			
SP	E101	ON	NONE	ON	2-3	N/A	2-1	
	E103	ON	OFF	ON				
	E105	MOM.	OFF	MOM.	2-3	OPEN	2-1	
	E107	ON	OFF	MOM.				
	E108	ON	NONE	MOM.	2-3	N/A	2-1	SPDT



SPDT

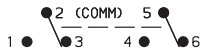




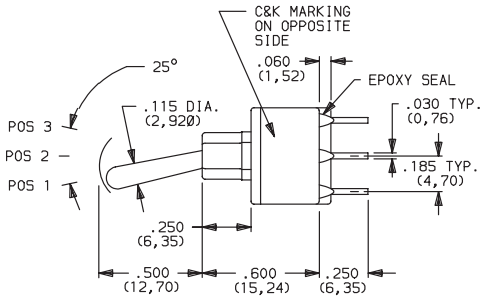
Terminal Numbers For Reference Only

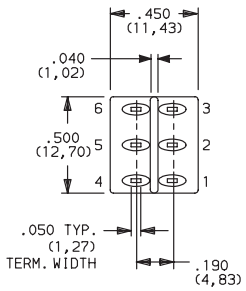
Part number shown: E101SD1CBE

DP	E201	ON	NONE	ON	2-3,5-6	N/A	2-1,5-4	
	E203	ON	OFF	ON				
	E205	MOM.	OFF	MOM.	2-3,5-6	OPEN	2-1,5-4	
	E207	ON	OFF	MOM.				
	E208	ON	NONE	MOM.	2-3,5-6	N/A	2-1,5-4	
	E211 **	ON	ON	ON				
	E213**	ON	ON	MOM.	2-3,5-6	2-3,5-4	2-1,5-4	
	E215**	MOM.	ON	MOM.				DPDT



DPDT





Terminal Numbers For Reference Only

Part number shown: E201SD1CBE

MOM. = Momentary

** Wiring for 3-way switch, see Section N.

All models with all options when ordered with G,R, Q or S contact material except with F1 conductive bushing.

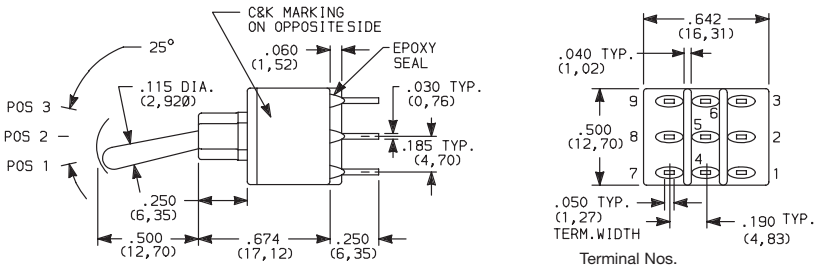
Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

SWITCH FUNCTION

NO. POLES	MODEL NO.	SWITCH FUNCTION POS. 1	SWITCH FUNCTION POS. 2	SWITCH FUNCTION POS. 3	CONNECTED TERMINALS POS. 1	CONNECTED TERMINALS POS. 2	CONNECTED TERMINALS POS. 3	SCHEMATIC
		C&K marking on opposite side			C&K marking on opposite side			
3P	E301	ON	NONE	ON	2-3,5-6,8-9	N/A	2-1,5-4,8-7	3PDT

3PDT



Part number shown: E301SD1CBE

MOM. = Momentary

** Wiring for 3-way switch, see Section N.

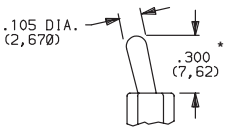
All models with all options when ordered with G, R, Q or S contact material except with F1 conductive bushing.

ACTUATOR

ACTUATOR COLOR

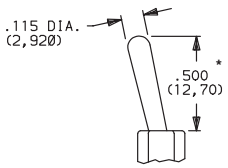
ACTUATOR

M .300" HIGH



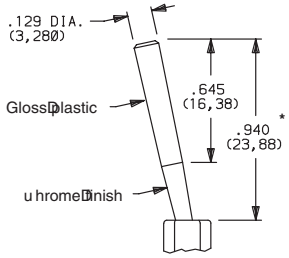
Standard when ordered with
A, A3, AV2, AV3, V2-V61 terminations.
Finish: Chrome.

S .500" HIGH



Standard when ordered with
C, Z, Z3, W & W4 terminations.
Finish: Chrome

L3 PLASTIC, .940" HIGH



OPTION CODE	L3 ACTUATOR COLOR
2	BLACK

Other colors available, consult Customer Service Center. No color choice required for S & M actuators.

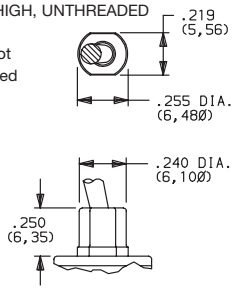
* Actuators shown with standard D1 bushing. Subtract .030 (0,76) for D9 bushing. Subtract .100 (2,54) for Y bushing.

BUSHING

D1 .250" HIGH, UNTHREADED

F1 ESD CONDUCTIVE BUSHING,
.250" HIGH, UNTHREADED

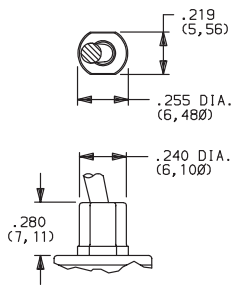
F1 bushing is not
UL/CSA approved



ESD protection depends on proper grounding of switch support bracket. F1 conductive bushing option is impregnated with carbon fibers; dissipates electrostatic discharge (ESD) up to 20,000 V from actuator to ground.

Available with M & S actuator options and A, A3, AV2, AV3, V3-V61 termination options.

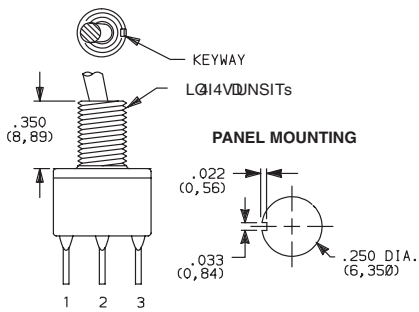
D9 .280" HIGH, UNTHREADED



E3XX models not available with D9 bushing.

NOTE: Internal o-ring actuator seal standard for all bushing options.

Y THREADED, INSULATED, .350" HIGH
WITH KEYWAY



Available only with C, Z, Z3, & W terminations.
Available for 1&2 pole only.
Hardware: One dress nut part number 299D01201, one hex nut part number 540400201 and lockwasher part number 700303202 supplied standard.
Will withstand 4 in.-lbs. of torque with no distortion.

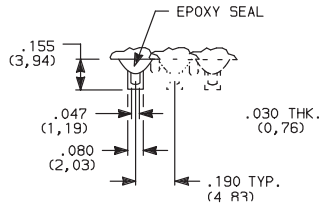
Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

E Series
Sealed Miniature Toggle Switches

TERMINATIONS

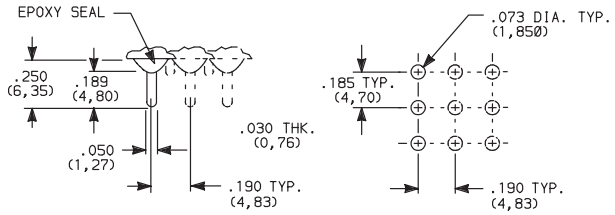
Z SOLDER LUG



SPDT thru 3PDT

Not available with F1 conductive bushing or P, R or S contact material.

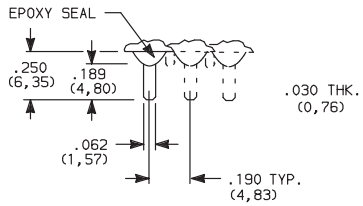
C PC THRU-HOLE



SPDT thru 3PDT

Not available with F1 conductive bushing.

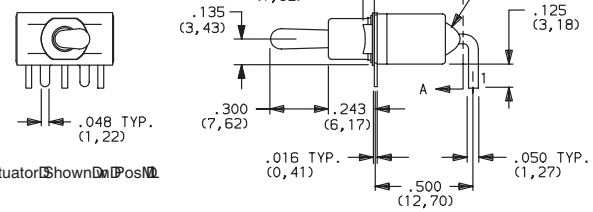
Z3 QUICK CONNECT

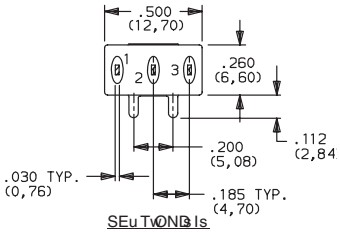


SPDT thru 3PDT

Not available with F1 conductive bushing or P, R or S contact material. Mating quick connector available; order part number 530100000, page F-26.

A RIGHT ANGLE, PC THRU-HOLE

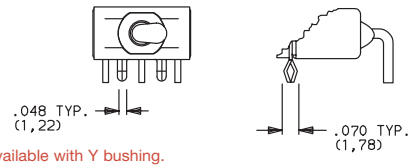




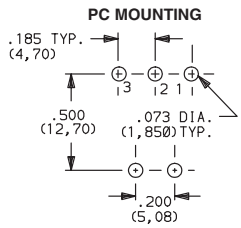
Terminal Nos. For Reference Only

E101MD1ABE
Horizontal Actuation
SPDT

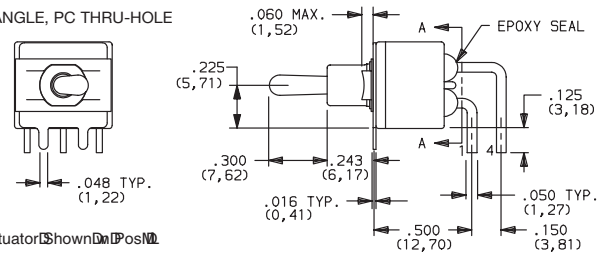
A3 RIGHT ANGLE, SNAP-IN, PC THRU-HOLE

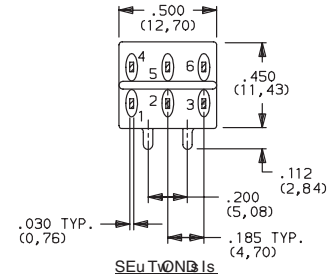


Not available with Y bushing.
Terminal bend radii and lead-in manufacturing option.

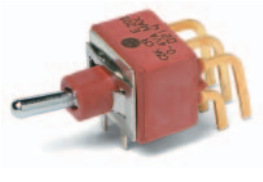


A RIGHT ANGLE, PC THRU-HOLE



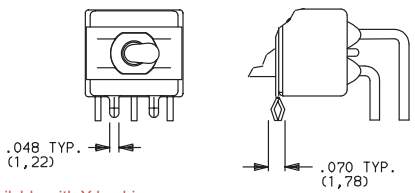


Terminal Nos. For Reference Only

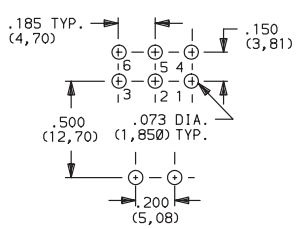


E201MD1ABE
Horizontal Actuation
DPDT

A3 RIGHT ANGLE, SNAP-IN, PC THRU-HOLE



Not available with Y bushing.
Terminal bend radii and lead-in manufacturing option.

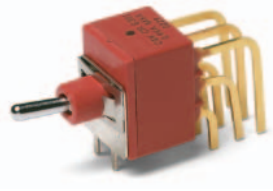


Third Angle Projection

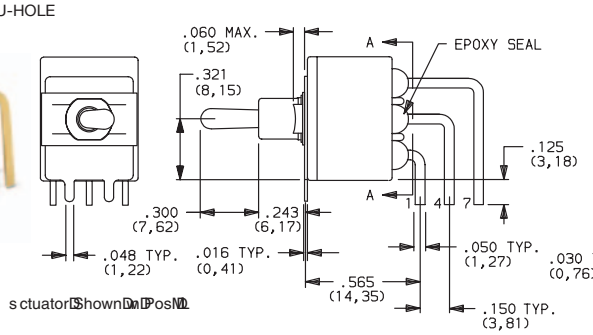
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

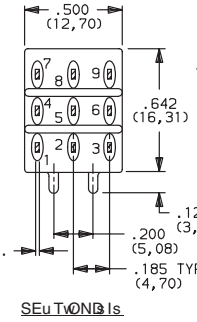
TERMINATIONS

A RIGHT ANGLE, PC THRU-HOLE



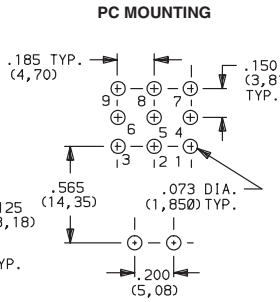
E301MD1ABE
Horizontal Actuation
3PDT





Terminal Nos. For Reference Only

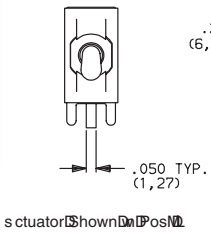
PC MOUNTING

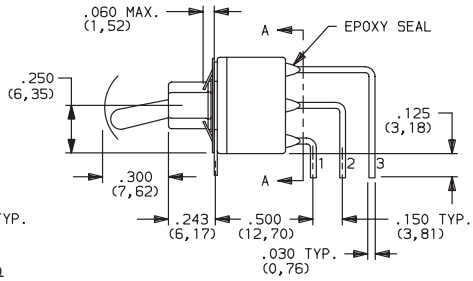


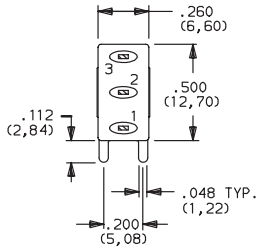
Not available with D9 & Y bushings.
Terminal bend radii and lead-in manufacturing option.

AV2 VERTICAL RIGHT ANGLE, PC THRU-HOLE, .150" PITCH

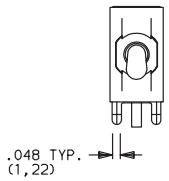
E101MD1AV2BE
Vertical Actuation
SPDT

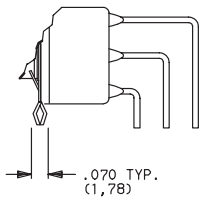




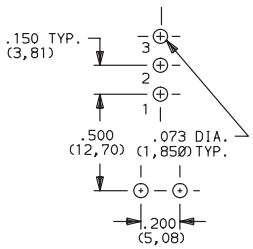


AV3 VERTICAL RIGHT ANGLE, SNAP-IN, PC THRU-HOLE, .150" PITCH





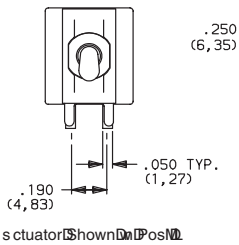
PC MOUNTING

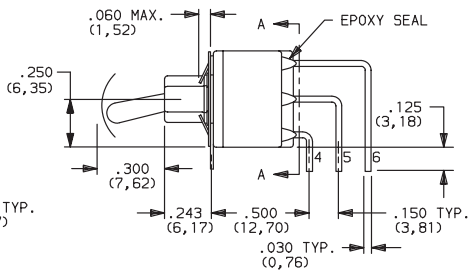


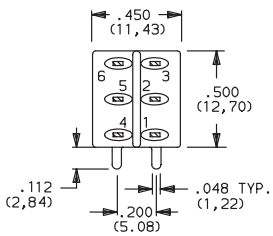
Not available with Y bushing.
Terminal bend radii and lead-in manufacturing option.

AV2 VERTICAL RIGHT ANGLE, PC THRU-HOLE, .150" PITCH

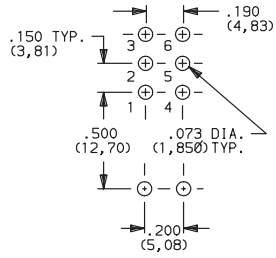
E201MD1AV2BE
Vertical Actuation
DPDT



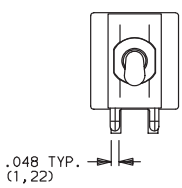


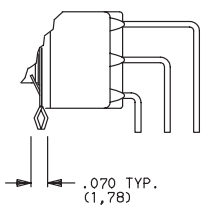


PC MOUNTING



A3 VERTICAL RIGHT ANGLE, SNAP-IN, PC THRU-HOLE, .150" PITCH





Not available with Y bushing.
Terminal bend radii and lead-in manufacturing option.

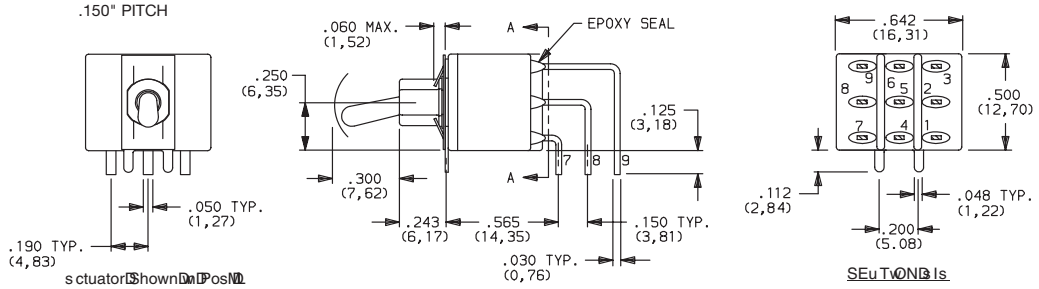
Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

E Series
Sealed Miniature Toggle Switches

TERMINATIONS

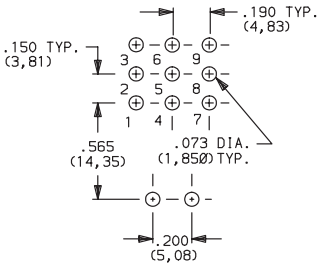
AV2 VERTICAL RIGHT ANGLE, PC THRU-HOLE, .150" PITCH



E301MD1AV2BE
Vertical Actuation
3PDT

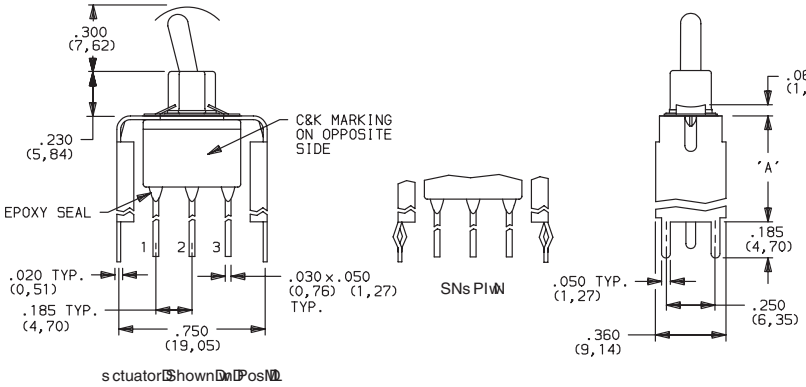
AV3 VERTICAL RIGHT ANGLE, SNAP-IN, PC THRU-HOLE .150" PITCH

PC MOUNTING

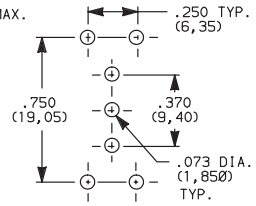


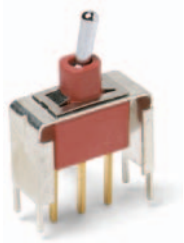
Not available with D9 & Y bushings.
Terminal bend radii and lead-in manufacturing option.

V6 VERTICAL MOUNT, V-BRACKET
V61 VERTICAL MOUNT, V-BRACKET, SNAP-IN



PC MOUNTING



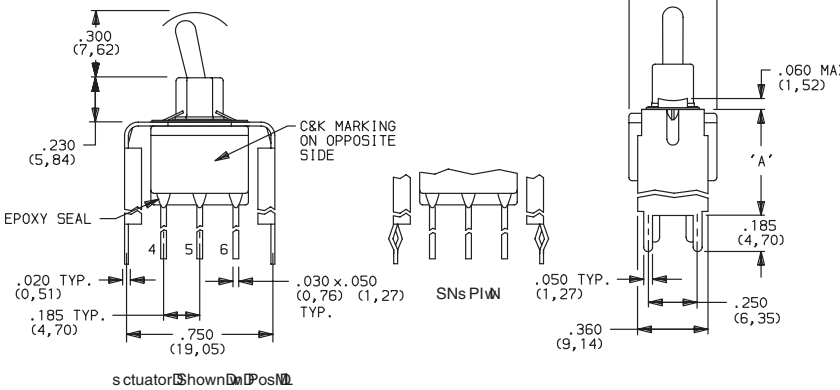


E101MD1__BE
SPDT

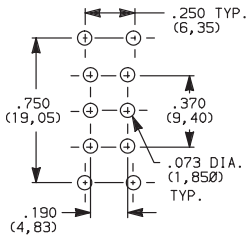
OPTION CODE	DIM 'A'
V6, V61	.460 (11,68)

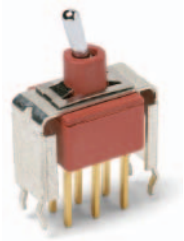
Not available with Y bushing.

V6 VERTICAL MOUNT, V-BRACKET
V61 VERTICAL MOUNT, V-BRACKET, SNAP-IN



PC MOUNTING





E201MD1__BE
DPDT

OPTION CODE	DIM 'A'
V6, V61	.460 (11,68)

Not available with Y bushing.

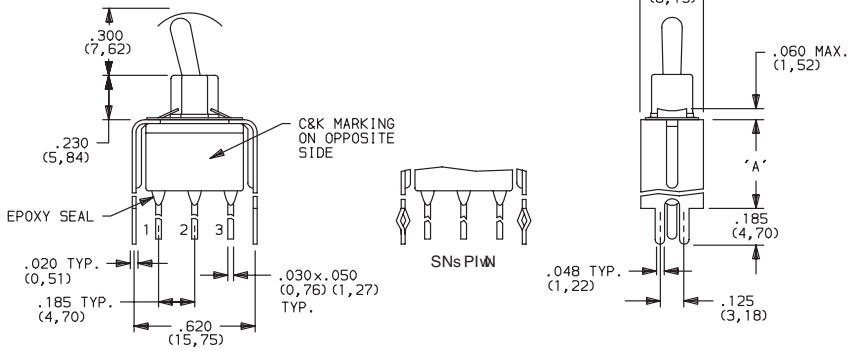
Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

TERMINATIONS

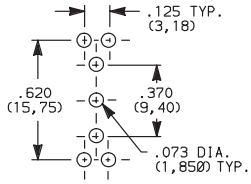
V3, V9 VERTICAL MOUNT, V-BRACKET
V31 VERTICAL MOUNT, V-BRACKET, SNAP-IN

E101MD1__BE
SPDT



Actuator Shown Down Pos 2

PC MOUNTING

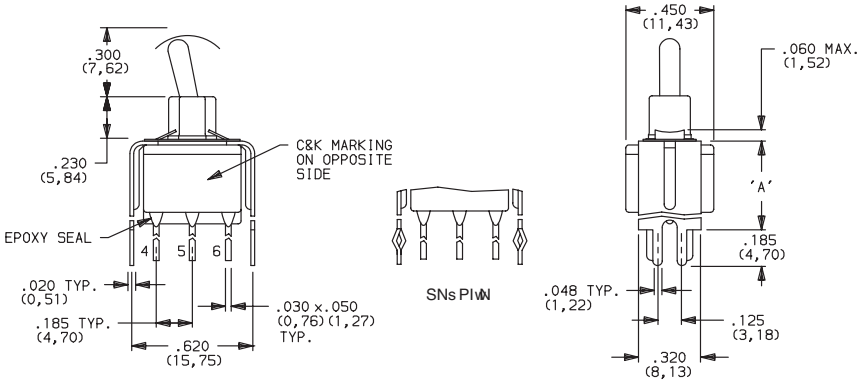


OPTION CODE	DIM 'A'
V3, V31	.460 (11,68)
V9	1.150 (29,21)

Not available with Y bushing.

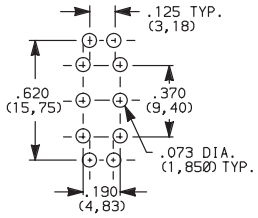
V3, V9 VERTICAL MOUNT, V-BRACKET
V31 VERTICAL MOUNT, V-BRACKET, SNAP-IN

E201MD1__BE
DPDT



Actuator Shown Down Pos 2

PC MOUNTING

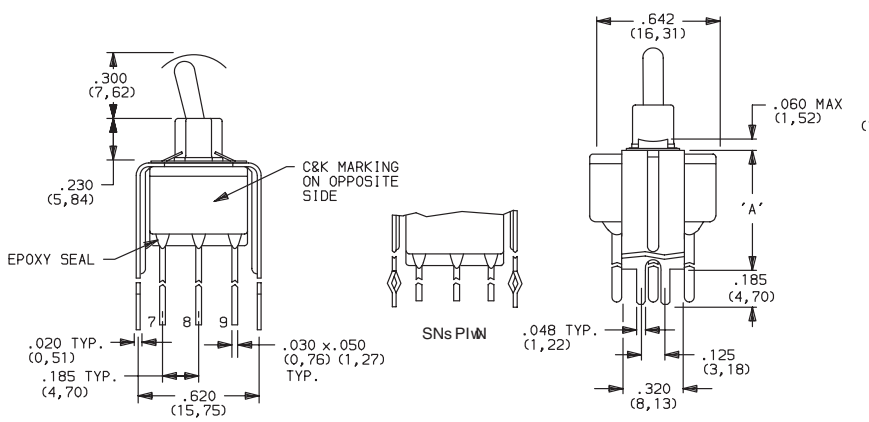


OPTION CODE	DIM 'A'
V3, V31	.460 (11,68)
V9	1.150 (29,21)

Not available with Y bushing.

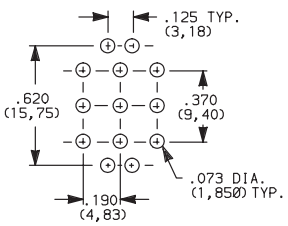
V9 VERTICAL MOUNT, V-BRACKET

E301MD1__BE
3PDT



Actuator Shown Down Pos 2

PC MOUNTING



OPTION CODE	DIM 'A'
V9	1.150 (29,21)

Not available with D9 & Y bushings.

Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

E Series
Sealed Miniature Toggle Switches

CONTACT MATERIAL

OPTION CODE	CONTACT MATERIAL	TERMINAL PLATING	RATINGS	
B P	GOLD [1]	GOLD [1] MATTE-TIN [6]	LOW LEVEL/ DRY CIRCUIT	0.4 VA MAX. @ 20 V AC OR DC MAX.
Q S	SILVER [4,5]	SILVER [5] MATTE-TIN [6]	POWER	E1XX & E2XX MODELS: 7.5 AMPS @ 125 V AC OR 28 V DC; 3 AMPS @ 250 V AC. E3XX MODELS: 5 AMPS @ 125 V AC OR 28 V DC; 2 AMPS @ 250 V AC.
G R	GOLD OVER SILVER [2,3]	GOLD [3] MATTE-TIN [6]	LOW LEVEL/DRY CIRCUIT OR POWER	E1XX AND E2XX MODELS: 0.4 VA MAX @20 V AC OR DC MAX. OR 7.5 AMPS @125 V AC OR 28 V DC; 3 AMPS @ 250 V AC. DC E3XX MODELS: 0.4 VA MAX. @ 20 V AC OR DC MAX. OR 5 AMPS @ 125 V AC OR 28 V DC; 2 AMPS @ 250 V AC.

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

[1] CONTACTS & TERMINALS: Copper alloy, with gold plate over nickel plate.

[2] END CONTACTS: Coin silver, with gold plate over nickel plate.

[3] CENTER CONTACTS & ALL TERMINALS: Copper alloy, with gold plate over nickel plate.

[4] END CONTACTS: Coin silver, silver plated.

[5] CENTER CONTACT & ALL TERMINALS: Copper alloy, with gold flash over silver plate. Or copper alloy, silver plated.

[6] TERMINALS: Copper alloy, with matte-tin over nickel plate.

NOTE: Any models supplied with P, S, R, Q, B or G contact material are RoHS compliant.

All models with all options when ordered with S, R, G, or Q contact material except with F1 conductive bushing.

B contact material standard with all terminations.

P, S & R contact materials not available with Z & Z3 terminations.

Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

ET Series
Sealed Subminiature Toggle Switches

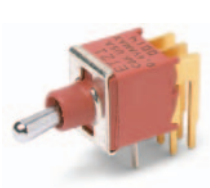
Features/Benefits

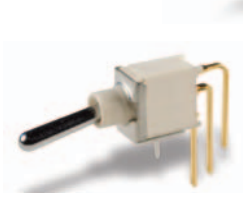
- ***Sealed against solder and cleaning process contaminants***
- ***ESD protection available***
- ***Thru-hole and surface mount models***
- ***Compact size and small footprint save PCB space***
- ***RoHS compliant models available***

Models Available

Typical Applications

- ***Hand-held telecommunications***
- ***Instrumentation***
- ***Medical equipment***





Specifications

CONTACT RATING: B contact material: 0.4 VA max. @ 20 V AC or DC max. See page F-35 for additional ratings.

ELECTRICAL LIFE: ETX1 models: 60,000 make-and-break cycles at full load. All other models: 30,000 cycles.

CONTACT RESISTANCE: Below 20 m Ω typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: 10^9 Ω min.

ELECTROSTATIC DISCHARGE (ESD) RESISTANT OPTION: M3 & S3 insulating actuator only: 9,000 V DC min. @ sea level, actuator to terminals. F1 conductive bushing only: Dissipates up to 20,000 V DC from actuator to ground. M3 & S3 actuator and F1 bushing options are not recommended for use together.

DIELECTRIC STRENGTH: 1000 Vrms min. @ sea level.

OPERATING TEMPERATURE: –30ºC to 85ºC.

SOLDERABILITY: Per MIL-STD-202F method 208D, or EIA RS-186E method 9 (1 hour steam aging).

DEGREE OF PROTECTION: IP57; Protection against harmful dust deposit, full-scale voltage protection, temporary immersion.

PACKAGING: Surface mount switches are shipped in tape and reel packaging, see page F-31 for drawings and reel information.

Materials

CASE & BUSHING: Glass filled nylon 6/6, flame retardant, heat stabilized (UL 94V-0) or glass filled 4/6 nylon, flame retardant, heat stabilized (UL 94V-0). F1 conductive bushing option is impregnated with carbon fibers.

ACTUATOR: M3 & S3 anti-static actuator: Nylon 4/6, black standard (UL 94V-0). All other actuators: Brass, chrome plated. Internal o-ring seal standard with all actuators.

SWITCH SUPPORT: Brass, tin plated.

CONTACTS & TERMINALS: B contact material: Copper alloy, with gold plate over nickel plate. Q contact material: Copper alloy, silver plated. See F-35 for additional contact materials.

TERMINAL SEAL: Epoxy.

NOTE: Any models supplied with Q, B, G, P or R contact material are RoHS compliant and compatible.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages F–26 thru F–31. For additional options not shown in catalog, consult our Customer Service Center. All models are process sealed to withstand machine soldering temperatures and pressure wash cleaning methods.

Switch Function
- ET01 SP, On-None-On
- ET02 SPST, Off-None-On
- ET03 SP, On-Off-On
- ET05 SP, Mom.-Off-Mom.
- ET07 SP, On-Off-Mom.
- ET08 SP, On-None-Mom.
- ET21 DP, On-None-On
- ET23 DP, On-Off-On
- ET24 DP, On-On-On
- ET25 DP, Mom.-Off-Mom.
- ET27 DP, On-Off-Mom.
- ET28 DP, On-None-Mom.

Actuator
- M .240" high
- M3 Plastic, anti-static, .240" high
- S .400" high
- L .320" high
- S1 .540" high

Bushing
- D1 .177" High, Unthreaded
- F1 .177" high, unthreaded, ESD conductive

Terminations
- A Right angle, PC thru-hole
- AV Vertical right angle, PC thru-hole
- C PC Thru-hole
- SA Right angle, surface mount
- SA1 Right angle, surface mount rear-facing
- V3 Vertical mount, V-bracket
- AV3 Vertical right angle, snap-in, PC thru-hole
- V31 Vertical mount, V-bracket, snap-in
- W Wire wrap

Contact Material
- B Gold
- P Gold, matte tin
- Q Silver
- S Silver/matte-tin
- G Gold over silver
- R Gold over silver, matte-tin

Seal
- E Epoxy

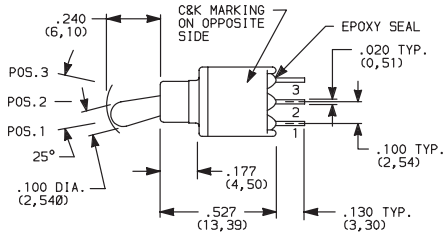
Plastic Actuator Color
- NONE No actuator color
- 2 Black
- 1 White

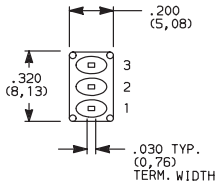
ET Series
Sealed Subminiature Toggle Switches

SWITCH FUNCTION

NO. POLES	MODEL NO.	SWITCH FUNCTION POS. 1	POS. 2	POS. 3	CONNECTED TERMINALS POS. 1	POS. 2	POS. 3	SCHEMATIC
		C&K marking on opposite side			C&K marking on opposite side			
SP	ET01	ON	NONE	ON	2-3	N/A	2-1	
	ET03	ON	OFF	ON	2-3	OPEN	2-1	
	ET05	MOM.	OFF	MOM.				
	ET07	ON	OFF	MOM.				
	ET08	ON	NONE	MOM.	2-3	N/A	2-1	SPDT
	ET02	OFF	NONE	ON	OPEN	N/A	3-1	SPST

SPDT





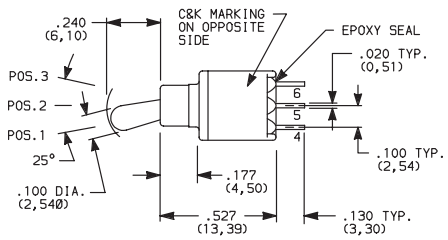
Terminal Nos.
For Reference Only

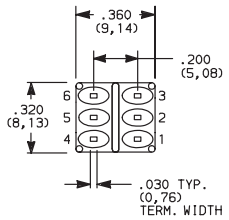
Part number shown: ET01MD1CBE

ET02 Models: Omit terminal 2

DP	ET21	ON	NONE	ON	2-3,5-6	N/A	2-1,5-4	
	ET23	ON	OFF	ON	2-3,5-6	OPEN	2-1,5-4	
	ET25	MOM.	OFF	MOM.				
	ET27	ON	OFF	MOM.				
	ET28	ON	NONE	MOM.	2-3,5-6	N/A	2-1,5-4	
	ET24**	ON	ON	ON	2-3,5-6	2-3,5-4	2-1,5-4	DPDT

DPDT





Terminal Nos.
For Reference Only

Part number shown: ET21MD1CBE

MOM. = Momentary

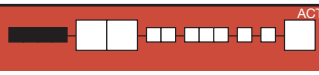
** Wiring for 3-way switch, see Section N.

All models with all options (except M3 actuator) when ordered with G, L, R or Q contact material except with F1 conductive bushing.

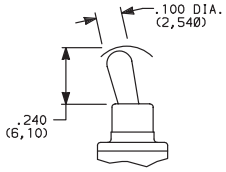
Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

ACTUATOR

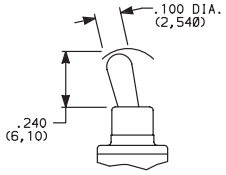


M .240" HIGH



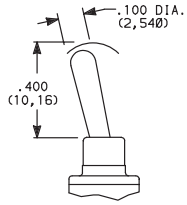
Standard with A, AV, V3 & V31 terminations.

M3 PLASTIC, ANTISTATIC, .240" HIGH



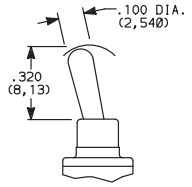
Material: Nylon 4/6 (UL 94V-0), black standard. Static resistance: 9,000 V DC min. @ sea level, actuator to terminals. Not available with F1 conductive bushing option. Not UL approved.

S .400" HIGH

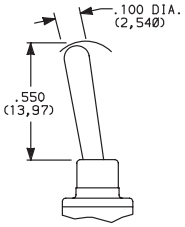


Standard with C or W terminations.

L .320" HIGH



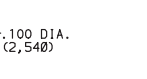
S1 .540" HIGH



OPTION CODE	PLASTIC ACTUATOR COLOR
(NONE)	BLACK (M3 & S3 only)
1	WHITE (M3 & S3 only)

NOTE: All actuators have chrome finish (except M3 & S3).

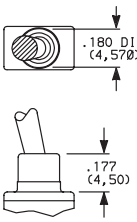
BUSHING



D1 .177" HIGH, UNTHREADED

F1 ESD, CONDUCTIVE BUSHING UNTHREADED, .177" HIGH

F1 bushing is not UL/CSA approved



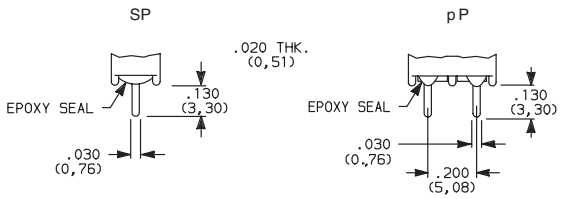
NOTE: ESD protection depends on proper grounding of switch support bracket. F1 conductive bushing option is impregnated with carbon fibers; dissipates electrostatic discharge (ESD) up to 20,000 V from actuator to ground.

Available with all metal actuator options and A, AV, AV3, V3 and V31 termination options only.

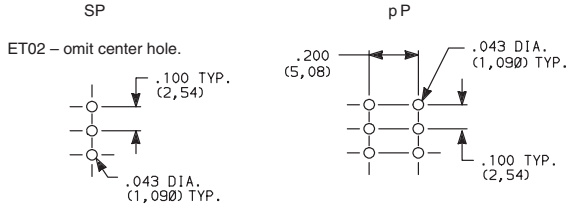
Internal actuator o-ring seal standard.

TERMINATIONS

C PC THRU-HOLE



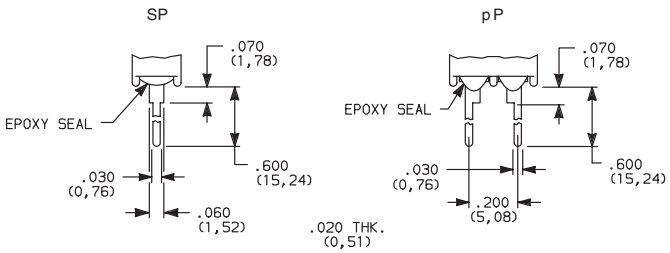
PC MOUNTING



SP and DP

Not available with F1 conductive bushing.

W WIRE WRAP



Not available with F1 conductive bushing.

SP and DP

Third Angle Projection

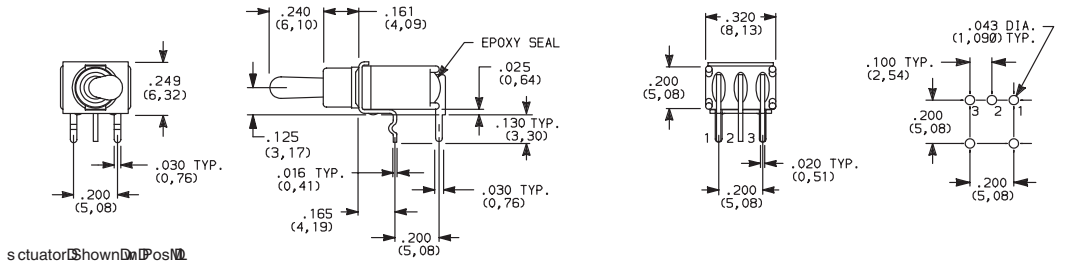
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

ET Series
Sealed Subminiature Toggle Switches

TERMINATIONS

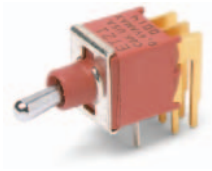
A RIGHT ANGLE, PC THRU-HOLE

ET01MD1ABE
Horizontal Actuation
SPDT

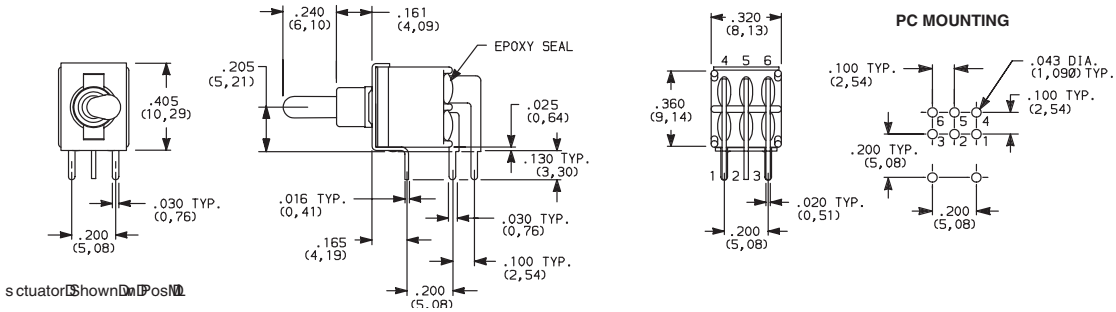


Not available with ET02 model.

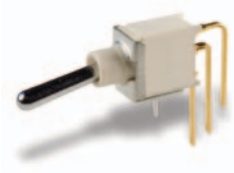
A RIGHT ANGLE, PC THRU-HOLE



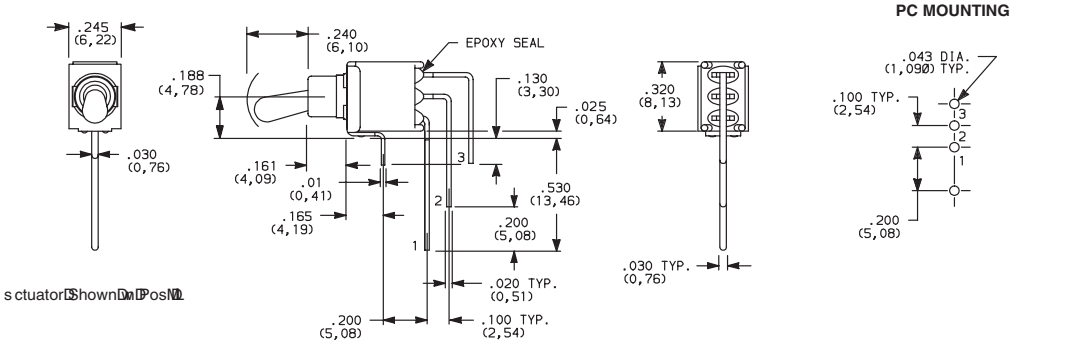
ET21MD1ABE
Horizontal Actuation
DPDT



AV VERTICAL RIGHT ANGLE, PC THRU-HOLE



ET01MD1AVBE
Vertical Actuation
SPDT

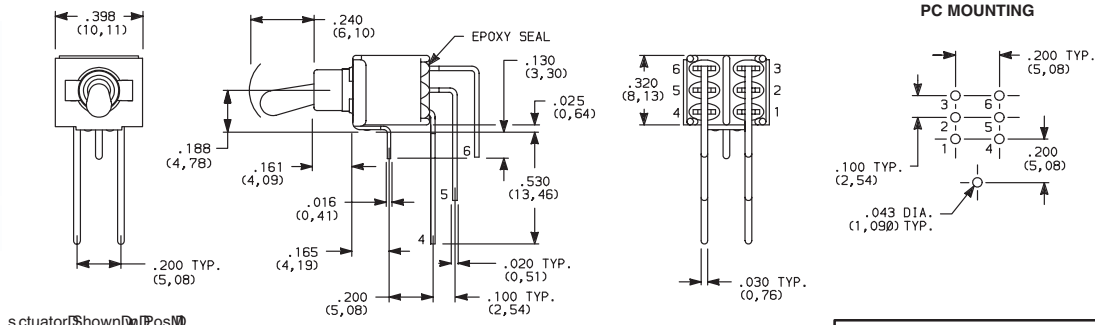


ET02 - omit terminal 2.

NOTE: Terminal bend radii and lead-in manufacturing option.

AV VERTICAL RIGHT ANGLE, PC THRU-HOLE

ET21MD1AVBE
Vertical Actuation
DPDT



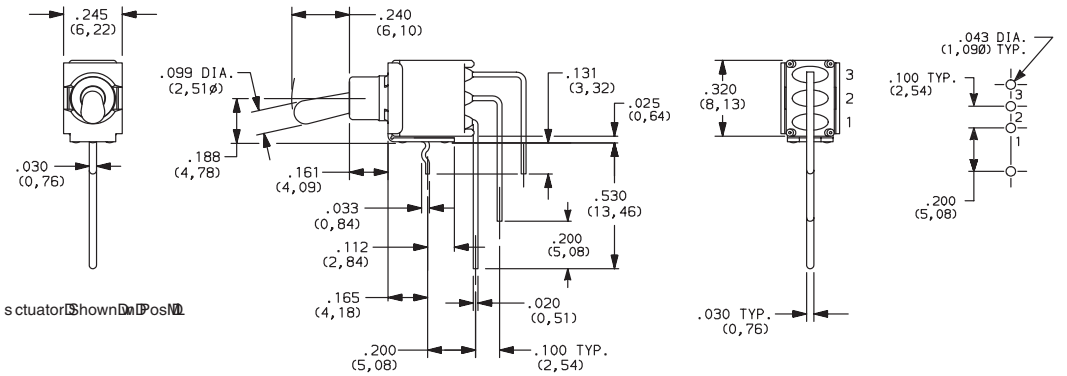
NOTE: Terminal bend radii and lead-in manufacturing option.

Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

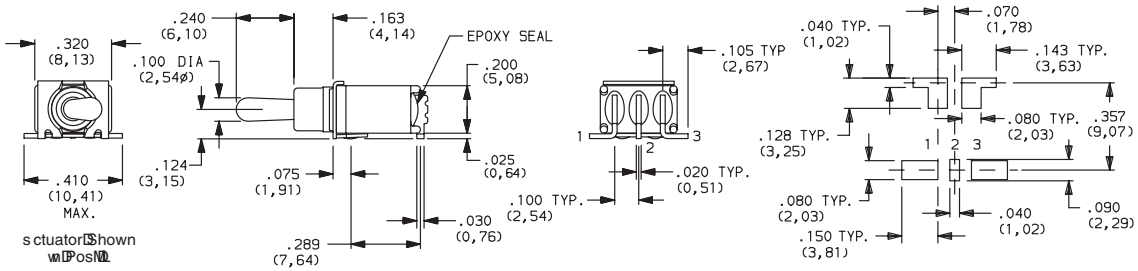
TERMINATIONS

AV3 VERTICAL RIGHT ANGLE, SNAP-IN, PC THRU-HOLE



ET01SD1AV2BE
Vertical Actuation
SPDT

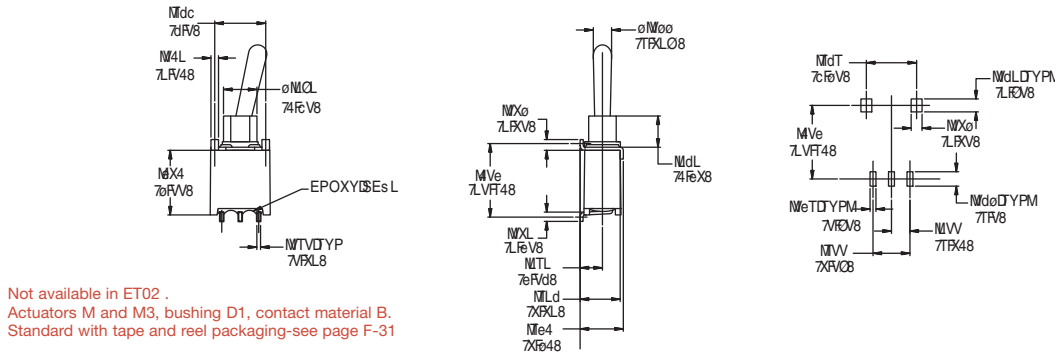
SA RIGHT ANGLE, SURFACE MOUNT



ET01M3D1SAPE
Horizontal Actuation
SPDT Only

Not available with S and S1 actuators. Standard with tape & reel packaging, See page F-31.

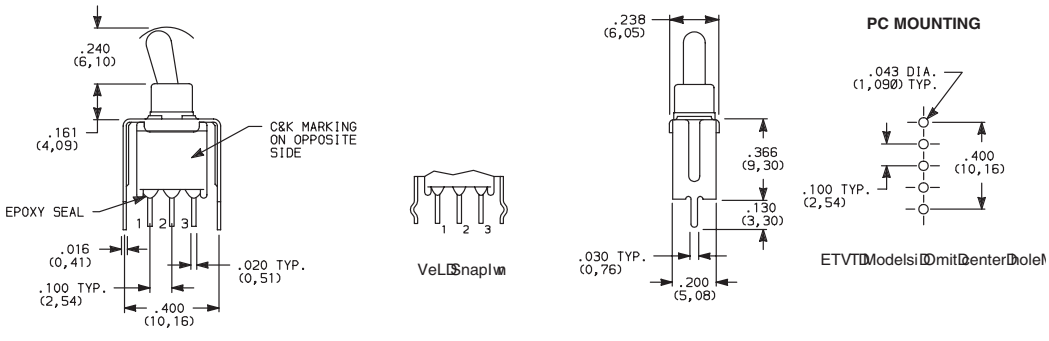
SA1 RIGHT ANGLE, SURFACE MOUNT



Not available in ET02 .
Actuators M and M3, bushing D1, contact material B.
Standard with tape and reel packaging-see page F-31

ET01M3D1SA1BE
Horizontal Actuation
SPDT Only

V3 VERTICAL MOUNT, V-BRACKET
V31 VERTICAL MOUNT, V-BRACKET, SNAP-IN



ET01MD1V3BE
SPDT

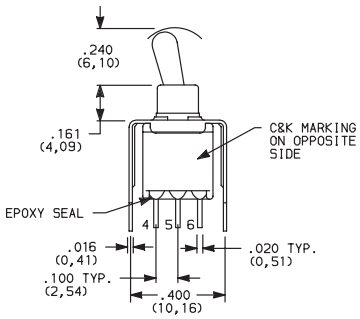
Third Angle Projection

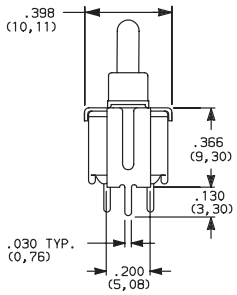
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

ET Series
Sealed Subminiature Toggle Switches

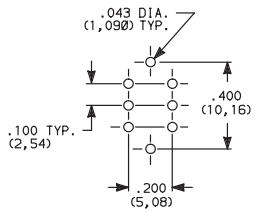
TERMINATIONS

V3 VERTICAL MOUNT, V-BRACKET





PC MOUNTING



ET21MD1V3BE
DPDT

CONTACT MATERIAL

OPTION CODE	CONTACT MATERIAL	TERMINAL PLATING	RATINGS	
B	GOLD [1]	GOLD [1]	LOW LEVEL/DRY CIRCUIT	0.4 VA MAX. @ 20 V AC OR DC MAX.
P		MATTE-TIN [6]		
Q	SILVER [4,5]	SILVER [5]	POWER	ETX1 MODELS: 3 AMPS @ 120 V AC OR 28 V DC ALL OTHER MODELS: 2 AMPS @ 120 V AC OR 28 V DC
S		MATTE-TIN [6]		
G	GOLD OVER SILVER [2,3]	GOLD [3]	LOW LEVEL/DRY CIRCUIT OR POWER	ETX1 MODELS: 0.4 VA MAX. @ 20 V AC OR DC MAX. OR 3 AMPS @ 120 V AC OR 28 V DC ALL OTHER MODELS: 0.4 VA MAX. @ 20 V AC OR DC MAX. OR 2 AMPS @ 120 V AC OR 28 V DC
R		MATTE-TIN [6]		

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

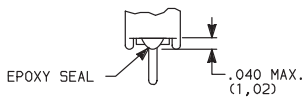
[1] CONTACTS & TERMINALS: Copper alloy, with gold plate over nickel plate.
[2] END CONTACTS: Coin silver, with gold plate over nickel plate.
[3] CENTER CONTACTS & ALL TERMINALS: Copper alloy, with gold plate over nickel plate.
[4] END CONTACTS: Coin silver, silver plated.
[5] CENTER CONTACT & ALL TERMINALS: Copper alloy, silver plated.
[6] TERMINALS: Copper alloy, with matte tin over nickel plate.

NOTE: Any models supplied with Q, B , G, P or R contact material are RoHS compliant.

All models with all options (except M3 actuator) when ordered with G, L, R or Q contact material except with F1 conductive bushing.

SEAL

E EPOXY SEAL



AVAILABLE HARDWARE

Cap

PART NO.

706201000 WHITE
706202000 BLACK
706203000 RED

Material: Vinyl
Finish: Matte

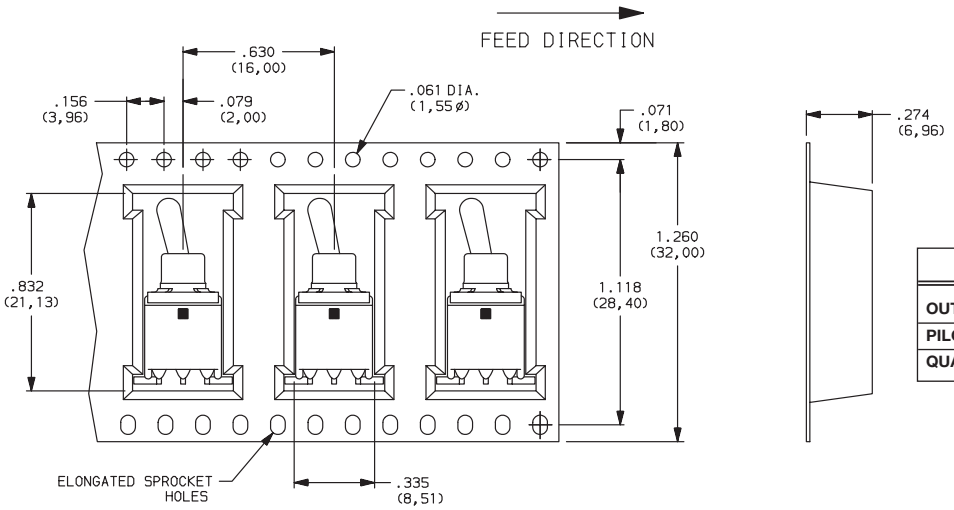
NOTE: Other colors available, consult Customer Service Center.

Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

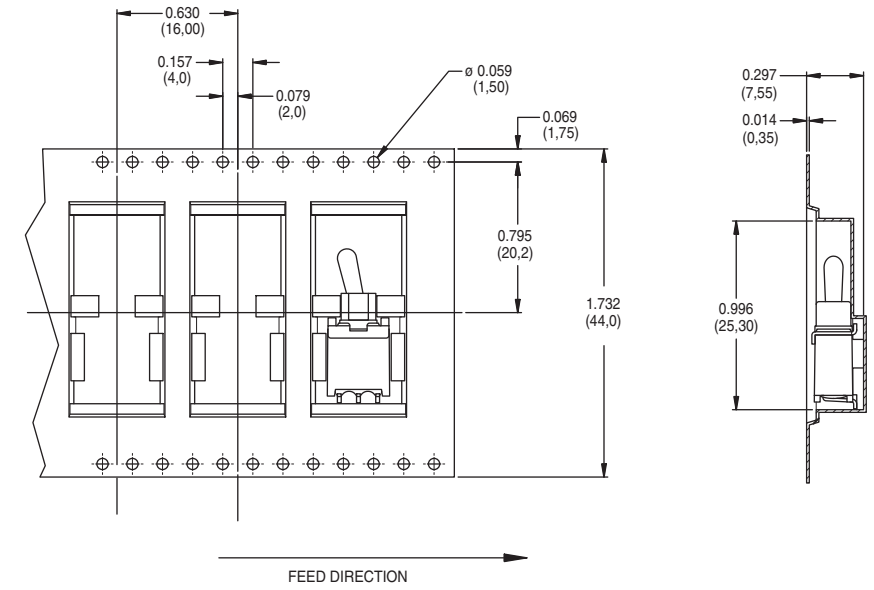
TAPE & REEL

For part number ET01M3D1SAKE



REEL INFORMATION	
OUTSIDE DIAMETER	13.00 (330,0)
PILOT HOLE	.512 (13,0)
QUANTITY PER REEL	600

For part number ET01M3D1SA1BE



REEL INFORMATION	
OUTSIDE DIAMETER	13.00 (330,0)
PILOT HOLE	.795 (20,20)
QUANTITY PER REEL	500

Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

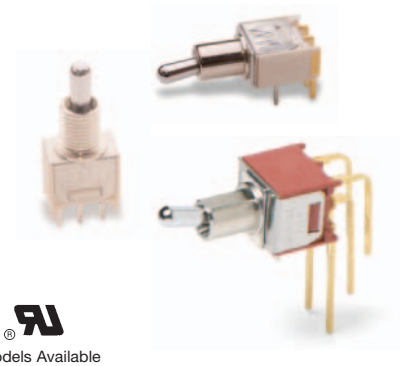
T Series
Subminiature Toggle Switches

Features/Benefits

- ***Compact size—small footprint***
- ***Single and double pole models***
- ***PC and panel mount options available***
- ***RoHS compliant models available***

Typical Applications

- ***Hand-held telecommunications***
- ***Instrumentation***
- ***Medical equipment***



Models Available

Specifications

CONTACT RATING: B contact material: 0.4 VA max. @ 20 V AC or DC max. Q contact material (TX01 models): 3 AMPS @ 120 V AC or 28 V DC. All other models: 2 AMPS @ 120 V AC or 28 V DC. See page F-42 for additional ratings.

ELECTRICAL LIFE: TX01 models: 60,000 make-and-break cycles at full load. All other models: 30,000 cycles.

CONTACT RESISTANCE: Below 20 m Ω typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: 10^9 Ω min.

DIELECTRIC STRENGTH: 1000 Vrms min. @ sea level.

OPERATING TEMPERATURE: –30ºC to 85ºC.

SOLDERABILITY: Per MIL-STD-202F method 208D, or EIA RS-186E method 9 (1 hour steam aging).

NOTE: Any models supplied with P, R, Q, B or G contact material are RoHS compliant and compatible.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Materials

CASE: Glass filled nylon 6/6, flame retardant, heat stabilized or diallyl phthalate (DAP), (UL 94V-0) or glass filled nylon 4/6, flame retardant, heat stabilized.

ACTUATOR: Brass, chrome plated.

BUSHING: Brass, nickel plated.

HOUSING: Stainless steel.

SWITCH SUPPORT: Brass, matte-tin plated.

END CONTACTS: B contact material: Copper alloy, with gold plate over nickel plate. Q contact material: Coin silver, silver plated. See above for additional contact materials.

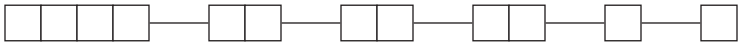
CENTER CONTACTS & TERMINALS: B contact material: Copper alloy, with gold plate over nickel plate. Q contact material: Copper alloy, silver plated. See page F-42 for additional contact materials.

TERMINAL SEAL: Epoxy.

HARDWARE: Nut & Locking Ring: Brass, nickel plated. Lockwasher: Steel, nickel plated. Additional hardware available separately, see Section N.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages F-33 thru F-37. For additional options not shown in catalog, consult Customer Service Center. All models have epoxy terminal seal and are compatible with all “bottom-wash” PCB cleaning methods.



Switch Function
- **T101** SPDT On-None-On
- **T102** SPDT Off-None-On
- **T103** SPDT On-Off-On
- **T105** SPDT Mom.-Off-Mom.
- **T107** SPDT On-Off-Mom.
- **T108** SPDT On-None-Mom.
- **T201** DPDT On-None-On
- **T203** DPDT On-Off-On
- **T205** DPDT Mom.-Off-Mom.
- **T207** DPDT On-Off-Mom.
- **T208** DPDT On-None-Mom.
- **T211** DPDT On-On-On.

Actuator
- **P3** Flatted, anti-rotation, .490" high
- **S** .370" high
- **K** Locking lever, round tip
- **L1** .620" high
- **M1** .220" high
- **S1** .410" high
- **M** .210" high
- **L** .290" high

Bushing
- **H** .220" high, threaded, flat
- **H9** .220" high, unthreaded, flat
- **CF** Splashproof, .310" high, threaded, flat
- **D9** .260" high, unthreaded, keyway
- **T** .310" high, threaded, flat
- **T9** .310" high, unthreaded, flat
- **TD** .260" high, threaded, keyway
- **TK** .310" high, threaded, keyway
- **Y** .220" high, threaded, keyway
- **Y9** .220" high, unthreaded, keyway

Terminations
- **A** Right angle, PC thru-hole
- **AV** Vertical right angle, PC thru-hole
- **C** PC Thru-hole
- **V3** Vertical mount V-bracket
- **Z** Solder lug
- **W** Wire wrap

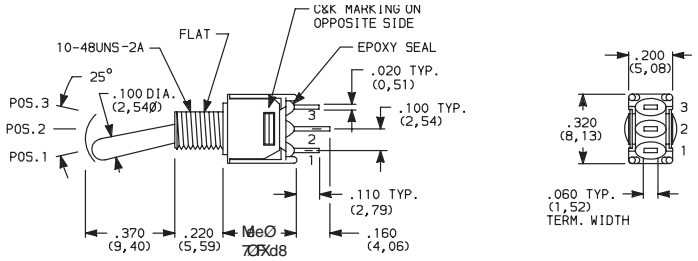
Contact Material
- **B** Gold
- **P** Gold, matte tin
- **Q** Silver
- **G** Gold over silver
- **R** Gold over silver, matte-tin

Seal
- **E** Epoxy

SWITCH FUNCTION

NO. POLES	MODEL NO.	SWITCH FUNCTION POS. 1	SWITCH FUNCTION POS. 2	SWITCH FUNCTION POS. 3	CONNECTED TERMINALS POS. 1	CONNECTED TERMINALS POS. 2	CONNECTED TERMINALS POS. 3	SCHEMATIC
		C&K marking on opposite side			C&K marking on opposite side			
SP	T101	ON	NONE	ON	2-3	N/A	2-1	
	T103	ON	OFF	ON	2-3	OPEN	2-1	
	T105	MOM.	OFF	MOM.				
	T107	ON	OFF	MOM.				
	T108	ON	NONE	MOM.	2-3	NA	2-1	SPDT
	T102	OFF	NONE	ON	OPEN	N/A	3-1	SPST

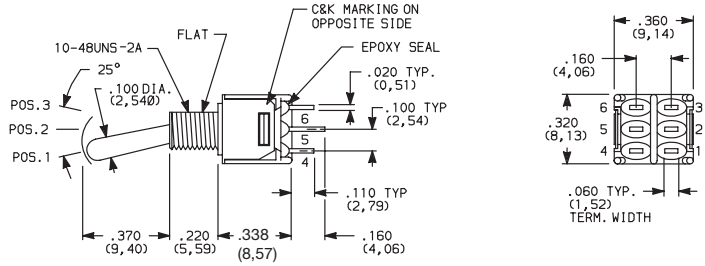
SPDT



Part number shown: T101SHZQE

NO. POLES	MODEL NO.	SWITCH FUNCTION POS. 1	SWITCH FUNCTION POS. 2	SWITCH FUNCTION POS. 3	CONNECTED TERMINALS POS. 1	CONNECTED TERMINALS POS. 2	CONNECTED TERMINALS POS. 3	SCHEMATIC
		C&K marking on opposite side			C&K marking on opposite side			
DP	T201	ON	NONE	ON	2-3,5-6	N/A	2-1,5-4	
	T203	ON	OFF	ON	2-3,5-6	OPEN	2-1,5-4	
	T205	MOM.	OFF	MOM.				
	T208	ON	NONE	MOM.	2-3,5-6	N/A	2-1,5-4	
	T211*	ON	ON	ON.	2-3,5-6	2-3,5-4	2-1,5-4	DPDT

DPDT



Part number shown: T201SHZQE

Terminal Nos.
For Reference Only

MOM. = Momentary

All models with all options when ordered with G, L, R or Q contact material.

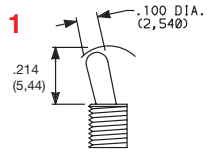
Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

T Series
Subminiature Toggle Switches

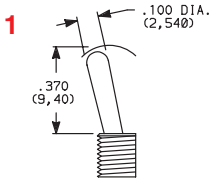
ACTUATOR

M .210" HIGH



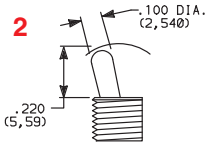
Standard with A, AV or V3 terminations.

S .370" HIGH

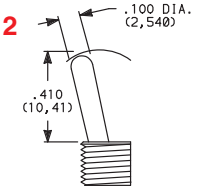


Standard with Z, C or W terminations.

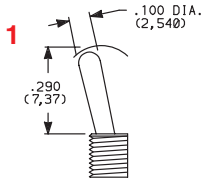
M1 .220" HIGH
(with "T" bushing)



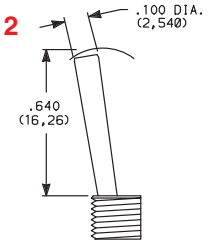
S1 .410" HIGH
(with "T" bushing)



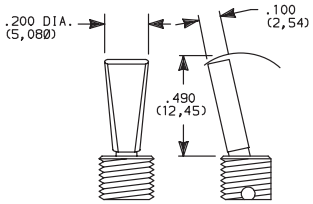
L .290" HIGH



L1 .620" HIGH



P3 ANTI-ROTATION, FLATTED,
.450" HIGH



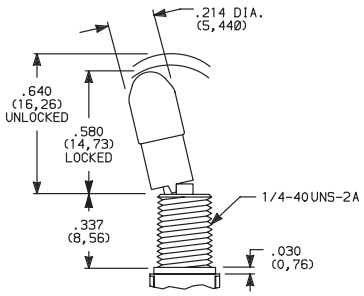
Available with T & T9 bushings only.
Dress nut part number 709901201
supplied standard with threaded bushing.

[1] Actuator shown with standard H bushing. Subtract .040 (1,02) for TD and D9 bushings, subtract .090 (2,29) for T, T9, TK, K9 & CF bushings.

[2] Actuators shown with T, T9, TK & CF bushings, add .050 (1,27) for TD and D9 bushings, add .090 (2,29) for H, H9, Y & Y9 bushings.

All actuators have chrome finish (except K).

K LOCKING LEVER



Not available with CF bushing option.

Bushing option code not required. Not available with TX05 & TX07 models.

Locking Positions

–01 & –02 Models
2 Position lock

–03 & –11 Models
3 Position lock

–08 Models
1 Position lock

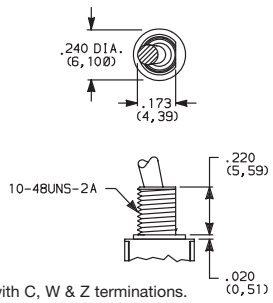
K actuators have natural aluminum finish.

Keyway on right side. To prevent accidental actuation, toggles must be lifted before being actuated. When released, toggles again lock in place. Overtightening mounting nut may cause actuator to bind.

BUSHING

H .220" HIGH THREADED, FLAT

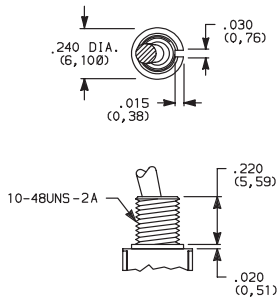
H9 .220" HIGH UNTHREADED, FLAT



H standard with C, W & Z terminations.
H9 standard with A, AV & V3 terminations.

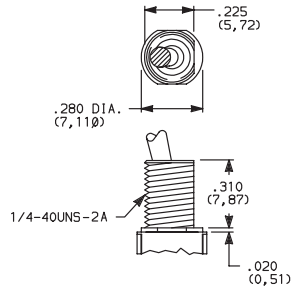
Y .220" HIGH THREADED, KEYWAY

Y9 .220" HIGH UNTHREADED, KEYWAY



T .310" HIGH THREADED, FLAT

T9 .310" HIGH UNTHREADED, FLAT

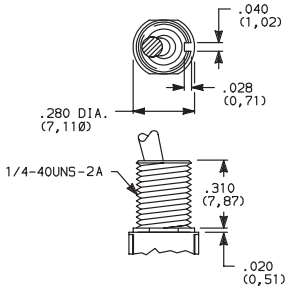


Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

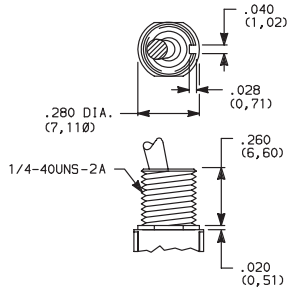
BUSHING

TK .310" HIGH THREADED, KEYWAY

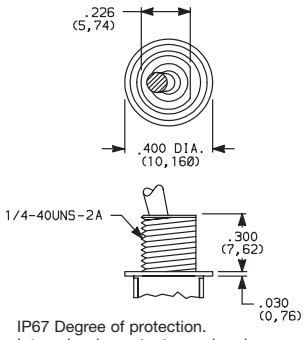


TD .260" HIGH THREADED, KEYWAY

D9 .260" HIGH UNTHREADED, KEYWAY



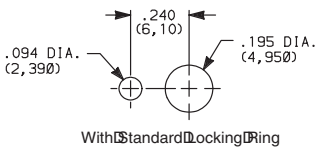
CF SPLASHPROOF, .310" HIGH THREADED, FLAT



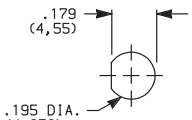
IP67 Degree of protection.
Internal o-ring actuator seal and external bushing seal washer standard.

Not available with K locking lever option.

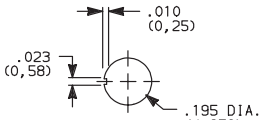
LOW BUSHING



With Standard Locking Ring

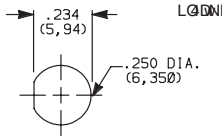


Without Locking Ring

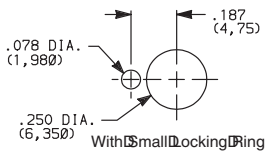


Without Locking Ring

PANEL MOUNTING

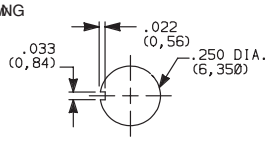


Without Locking Ring

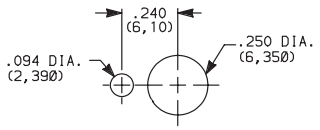


With Small Locking Ring

LOW BUSHING



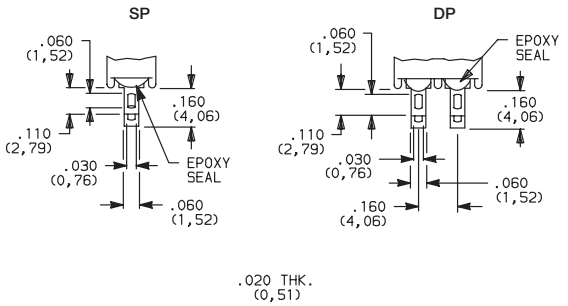
Without Locking Ring



With Standard Locking Ring

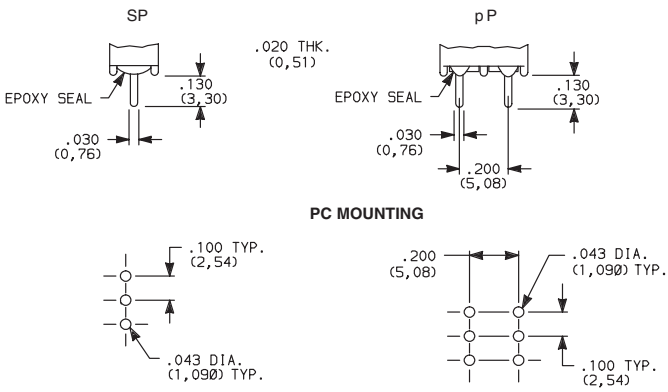
TERMINATIONS

Z SOLDER LUG



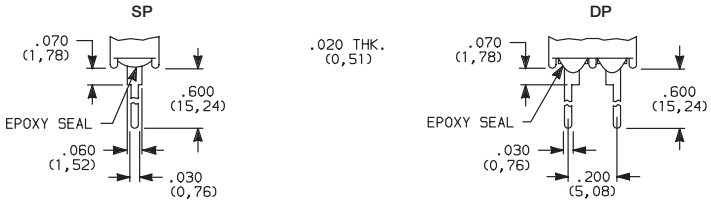
Not available with P or R contact materials.

C PC THRU-HOLE



T102 – omit center hole.

W WIRE WRAP



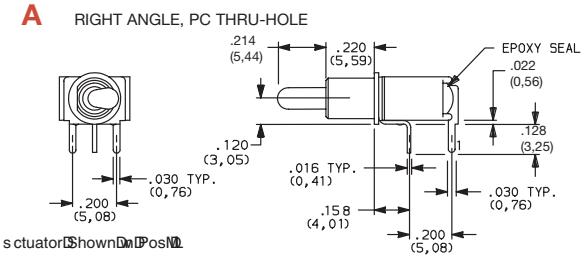
Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

T Series
Subminiature Toggle Switches

TERMINATIONS

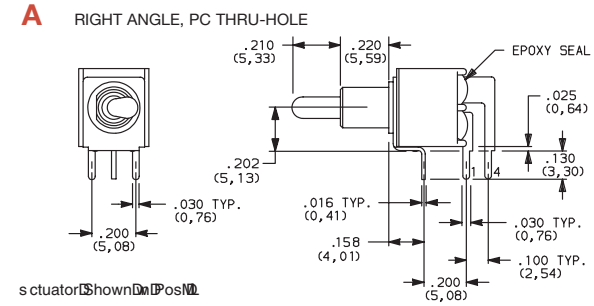
A RIGHT ANGLE, PC THRU-HOLE

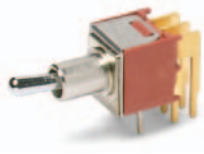


T101MH9ABE
Horizontal Actuation
SPDT

Not available with T102 model.

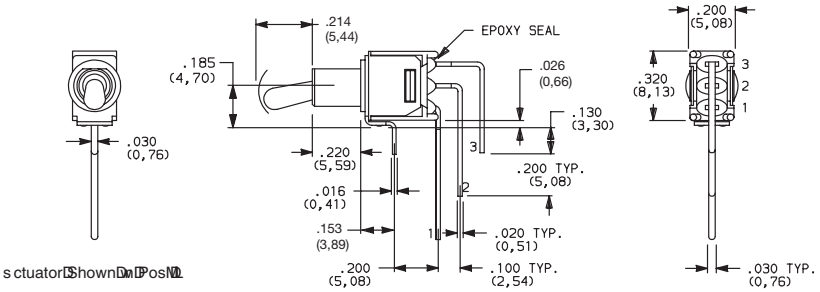
A RIGHT ANGLE, PC THRU-HOLE

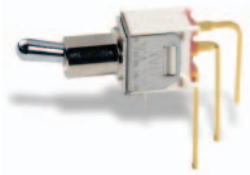




T201MH9ABE
Horizontal Actuation
DPDT

AV VERTICAL RIGHT ANGLE, PC THRU-HOLE

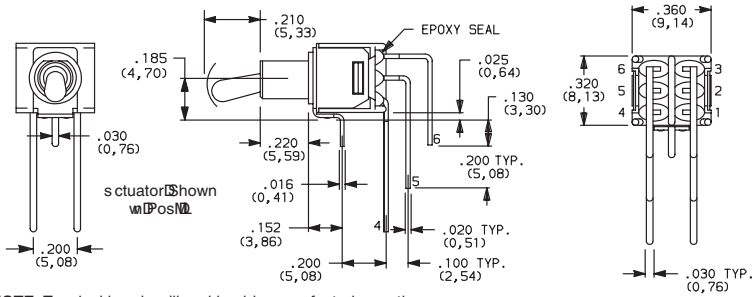




T101MH9AVBE
Vertical Actuation
SPDT

NOTE: Terminal bend radii and lead-in manufacturing option.

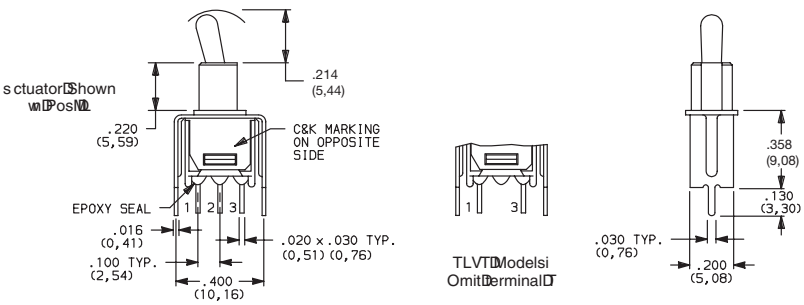
AV VERTICAL RIGHT ANGLE, PC THRU-HOLE



T201MH9AVBE
Vertical Actuation
DPDT

NOTE: Terminal bend radii and lead-in manufacturing option.

V3 VERTICAL MOUNT, V-BRACKET



T101MH9V3BE
SPDT

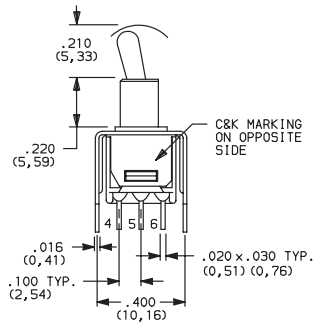
Third Angle Projection

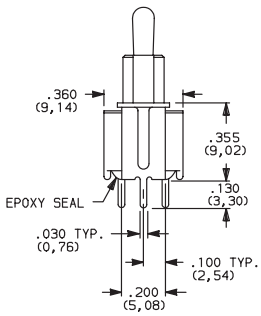
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

TERMINATIONS

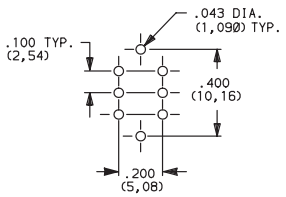
V3 VERTICAL MOUNT, V-BRACKET

T201MH9V3BE
DPDT





PC MOUNTING



CONTACT MATERIAL

OPTION CODE	CONTACT MATERIAL	TERMINAL PLATING	RATINGS	
B	GOLD [1]	GOLD [1]	LOW LEVEL/ DRY CIRCUIT	0.4 VA MAX. @ 20 V AC OR DC MAX.
P		MATTE-TIN [6]		
Q	SILVER [4,5]	SILVER [5]	POWER	TX01 MODELS: 3 AMPS @ 120 V AC OR 28 V DC. ALL OTHER MODELS: 2 AMPS @ 120 V AC OR 28 V DC.
G	GOLD OVER SILVER [2,3]	GOLD [3]	LOW LEVEL/DRY CIRCUIT OR POWER	TX01 MODELS: 0.4 VA MAX @ 20 V AC OR DC MAX. OR 3 AMPS @ 120 V AC OR 28 V DC. ALL OTHER MODELS: 0.4 VA MAX @ 20 V AC OR DC MAX. OR 2 AMPS @ 120 V AC OR 28 V DC.
R		MATTE-TIN [6]		

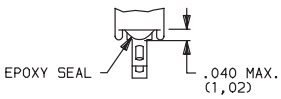
* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

[1] CONTACTS & TERMINALS: Copper alloy, with gold plate over nickel plate.
[2] END CONTACTS: Coin silver, with gold plate over nickel plate.
[3] CENTER CONTACTS & ALL TERMINALS: Copper alloy, with gold plate over nickel plate.
[4] END CONTACTS: Coin silver, silver plated.
[5] CENTER CONTACT & ALL TERMINALS: Copper alloy, silver plated.
[6] TERMINALS: Copper alloy, with matte-tin over nickel plate.

All models with all options when ordered with R, G, or Q contact material.
B contact material standard with A, AV, V3 & W terminations.
Q contact material standard with C & Z terminations.

SEAL

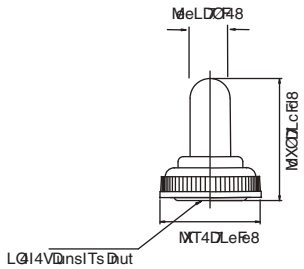
E EPOXY SEAL



AVAILABLE HARDWARE

759D02000 SEALING BOOT

* Note: For use with S1 actuator style when combined with T, TK, and CF bushings.



Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

GT Series
Sealed Ultraminiature Toggle Switches

Features/Benefits

- ***Sealed against solder and cleaning process contaminants***
- ***Ultraminiature size, smallest footprint available***
- ***Thru-hole and surface mount models***
- ***High temperature materials (UL 94V-0)***
- ***RoHS compliant and compatible***

Typical Applications

- ***Hand-held telecommunications***
- ***Small instrumentation***

Specifications

CONTACT RATING: 0.4 VA max. @ 20 V AC or DC max.

MECHANICAL & ELECTRICAL LIFE: 40,000 make-and-break cycles at full load.

CONTACT RESISTANCE: Below 50 m Ω typ. initial @ 2-4 V DC, 100 mA.

INSULATION RESISTANCE: 10^9 Ω min.

DIELECTRIC STRENGTH: 500 Vrms min. @ sea level.

OPERATING TEMPERATURE: –30ºC to 85ºC.

SOLDERABILITY: Per MIL-STD-202F method 208D, or EIA RS-186E method 9 (1 hour steam aging).

PACKAGING: Surface mount switches shipped in anti-static tape and reel packaging per EIA 481-3, see page F-42 for drawings and reel information. Tape and cover strip are conductive for use near statically sensitive components, consult Customer Service Center.

Materials

HOUSING AND BASE: Glass filled nylon 4/6, flame retardant, heat stabilized (UL 94V-0).

ACTUATOR: Glass filled nylon 4/6, flame retardant, heat stabilized (UL 94V-0), with standard internal o-ring seal.

SWITCH SUPPORT: Brass, tin plated.

MOVABLE CONTACTS: Copper alloy, with gold plate over nickel plate.

STATIONARY CONTACTS: Copper alloy, with gold plate over nickel plate.

TERMINALS: Gold.

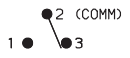
TERMINAL SEAL: Epoxy. All terminals insert molded.

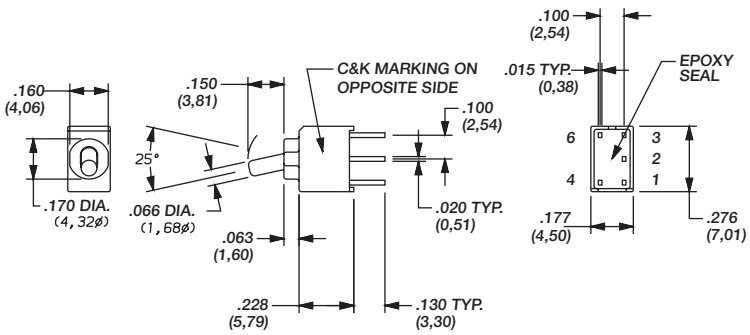
NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

How To Order

Complete part numbers for GT Series Sealed Ultraminiature Toggle Switches are shown on pages F–38 thru F–42.

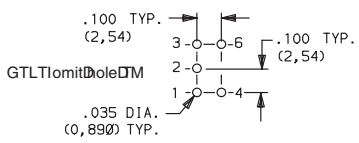
GT11MCBE
SPDT

PART NUMBER	SWITCH FUNCTION POS.1	POS. 2	POS. 3
GT11MCBE	ON	NONE	ON
GT13MCBE	ON	OFF	ON
Conn. Terms.	2-3	OPEN	2-1
Schematic			
SPDT	Note: Pins 4 and 6 not connected		
GT12MCBE	OFF	NONE	ON
Conn. Terms.	OPEN	N/A	3-1
Schematic			
SPST	Note: Pins 4 and 6 not connected		



ACTUATOR SHOWN IN POS. 1

PC MOUNTING

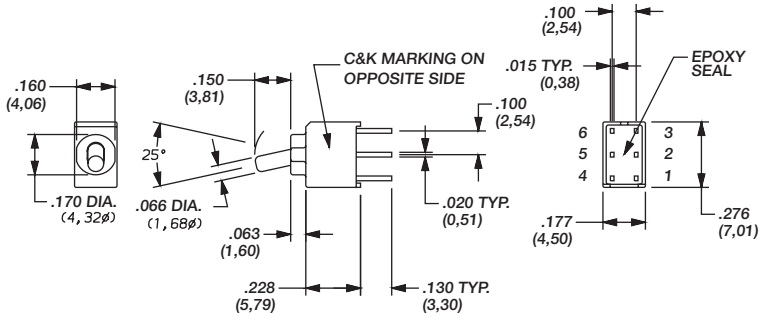


TERMINAL NOS. FOR REFERENCE ONLY

GT12 MODEL
TERMINALS 1,3,4 & 6 ONLY

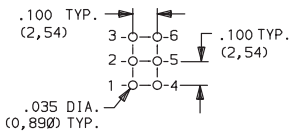
F
Toggle

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



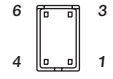
ACTUATOR SHOWN IN POS. 1

PC MOUNTING

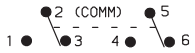


GTTTIomitDoleDTD DXM

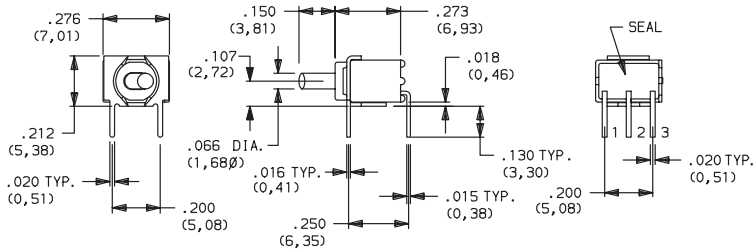
TERMINAL NOS. FOR REFERENCE ONLY



GT22 MODEL
TERMINALS 1,3,4 & 6 ONLY

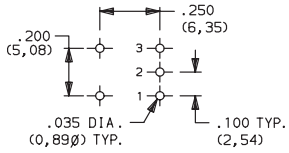
PART NUMBER	SWITCH FUNCTION POS.1	POS. 2	POS. 3
GT21MCBE GT23MCBE	ON ON	NONE OFF	ON ON
Conn. Terms.	2-3, 5-6	OPEN	2-1, 5-4
Schematic DPDT			
GT22MCBE	OFF	NONE	ON
Conn. Terms.	OPEN	N/A	3-1
Schematic DPST			

GT21MCBE
DPDT

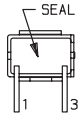


sctuatorDShown
wnDPosND

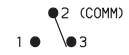
PC MOUNTING



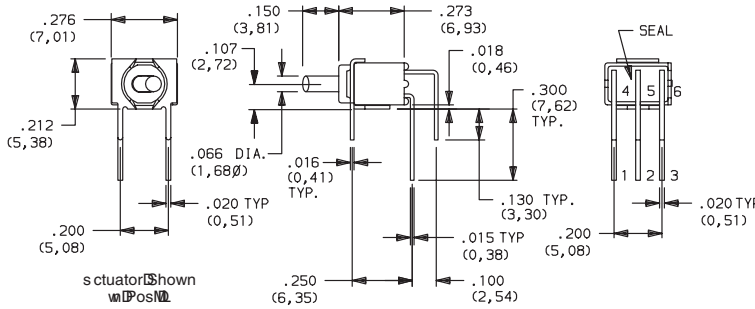
GTLTIomitDoleDTM



GTLTDModels

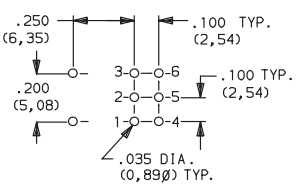
PART NUMBER	SWITCH FUNCTION POS.1	POS. 2	POS. 3
GT11MABE GT13MABE	ON ON	NONE OFF	ON ON
Conn. Terms.	2-3	OPEN	2-1
Schematic SPDT			
GT12MABE	OFF	NONE	ON
Conn. Terms.	OPEN	N/A	3-1
Schematic SPST			

GT11MABE
Horizontal
Actuation
SPDT

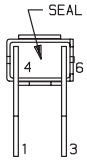


sctuatorDShown
wnDPosND

PC MOUNTING



GTTTIomitDoleDTD DXM



GTTTDModels

PART NUMBER	SWITCH FUNCTION POS.1	POS. 2	POS. 3
GT21MABE GT23MABE	ON ON	NONE OFF	ON ON
Conn. Terms.	2-3, 5-6	OPEN	2-1, 5-4
Schematic DPDT			
GT22MABE	OFF	NONE	ON
Conn. Terms.	OPEN	N/A	3-1, 6-4
Schematic DPST			

GT21MABE
Horizontal
Actuation
DPDT

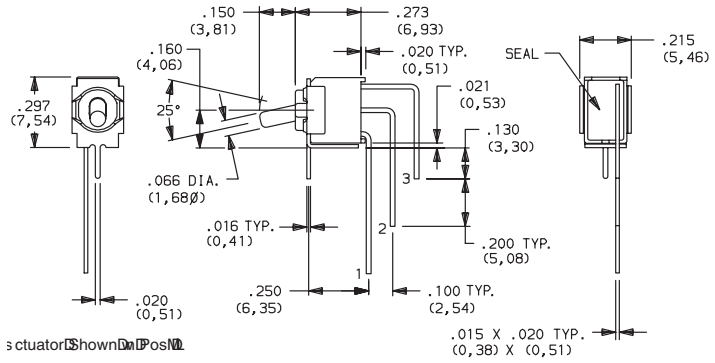
Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

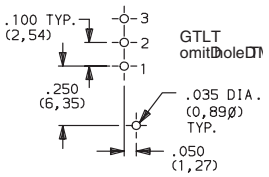
GT Series
Sealed Ultraminiature Toggle Switches

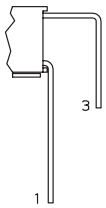
GT11MAVBE
Vertical
Actuation
SPDT

PART NUMBER	SWITCH FUNCTION POS.1	POS. 2	POS. 3
GT11MAVBE	ON	NONE	ON
GT13MAVBE	ON	OFF	ON
Conn. Terms.	2-3	OPEN	2-1
Schematic			
SPDT			
GT12MAVBE	OFF	NONE	ON
Conn. Terms.	OPEN	N/A	3-1
Schematic			
SPST			

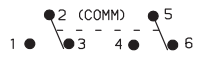
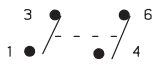


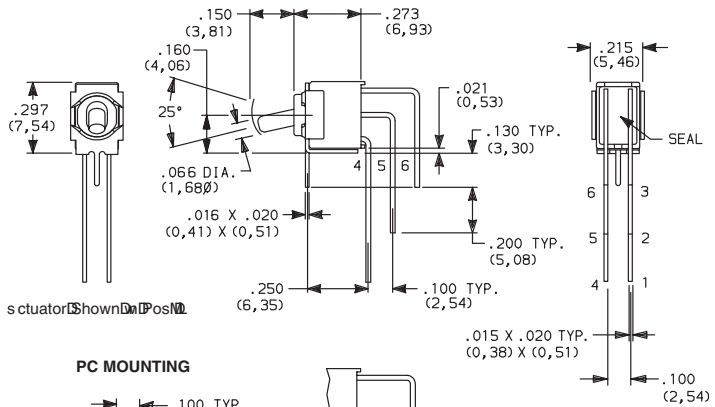
PC MOUNTING



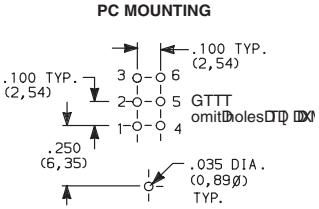


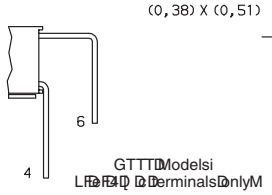
GT21MAVBE
Vertical
Actuation
DPDT

PART NUMBER	SWITCH FUNCTION POS.1	POS. 2	POS. 3
GT21MAVBE	ON	NONE	ON
GT23MAVBE	ON	OFF	ON
Conn. Terms.	2-3, 5-6	OPEN	2-1, 5-4
Schematic			
DPDT			
GT22MAVBE	OFF	NONE	ON
Conn. Terms.	OPEN	N/A	3-1, 6-4
Schematic			
DPST			



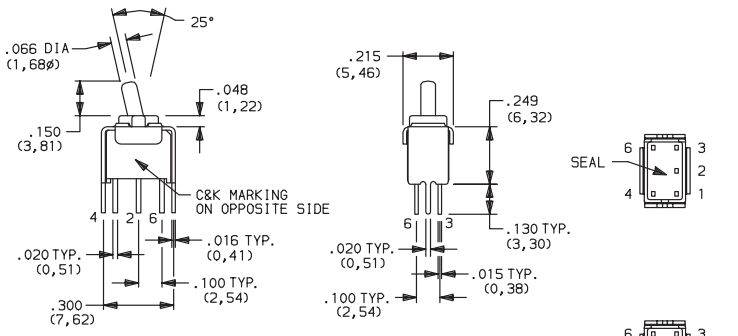
PC MOUNTING



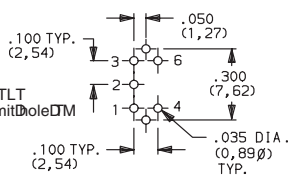


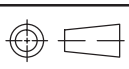
GT11MV3BE
SPDT

PART NUMBER	SWITCH FUNCTION POS.1	POS. 2	POS. 3
GT11MV3BE	ON	NONE	ON
GT13MV3BE	ON	OFF	ON
Conn. Terms.	2-3	OPEN	2-1
Schematic			
SPDT	Note: Pins 4 and 6 not connected		
GT12MV3BE	OFF	NONE	ON
Conn. Terms.	OPEN	N/A	3-1
Schematic			
SPST	Note: Pins 4 and 6 not connected		



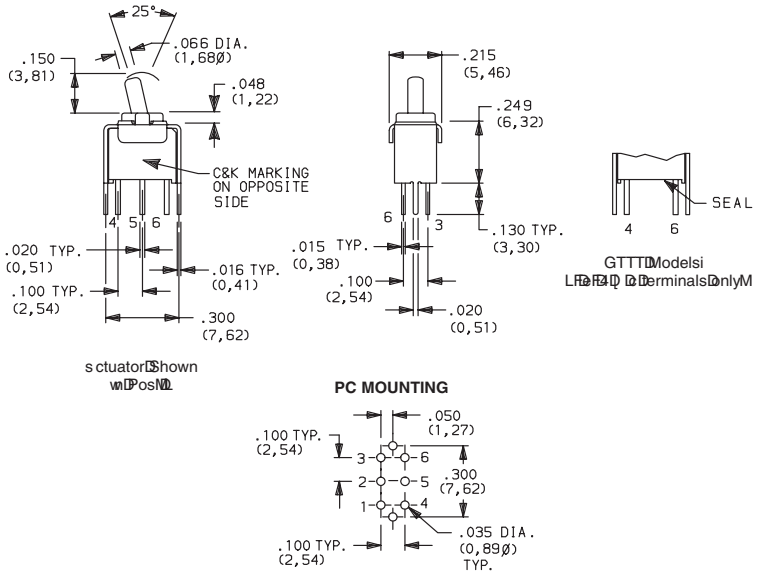
PC MOUNTING





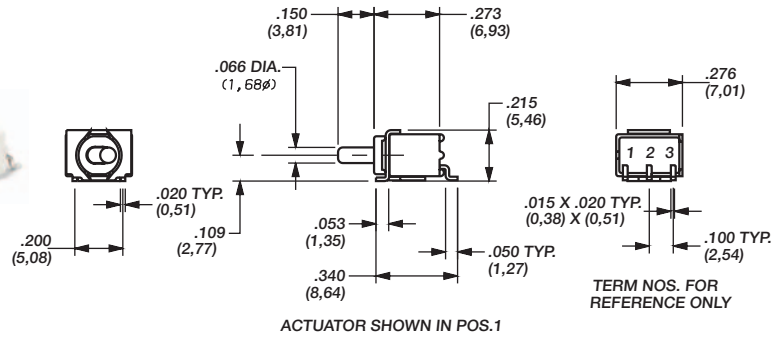
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

GT21MV3BE
DPDT



PART NUMBER	SWITCH FUNCTION POS.1	POS. 2	POS. 3
GT21MV3BE	ON	NONE	ON
GT23MV3BE	ON	OFF	ON
Conn. Terms.	2-3, 5-6	OPEN	2-1, 5-4
Schematic DPDT			
GT22MV3BE	OFF	NONE	ON
Conn. Terms.	OPEN	N/A	3-1, 6-4
Schematic DPST			

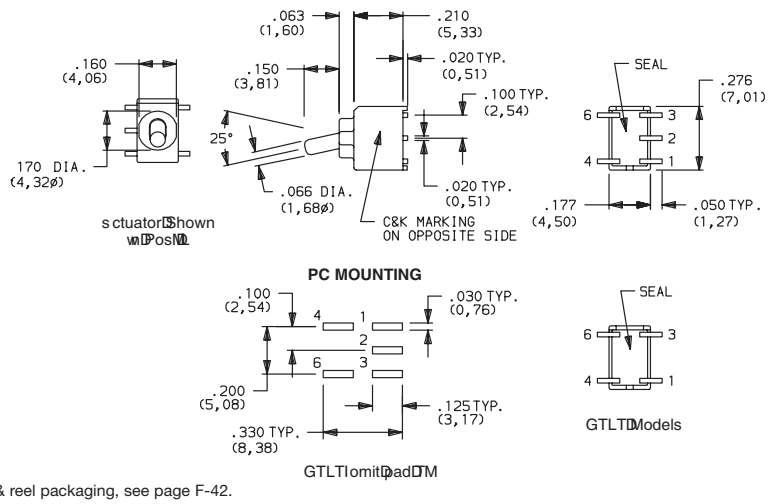
GT11MSABE
Horizontal
Actuation
SPDT



PART NUMBER	SWITCH FUNCTION POS.1	POS. 2	POS. 3
GT11MSABETR	ON	NONE	ON
GT13MSABETR	ON	OFF	ON
Conn. Terms.	2-3	OPEN	2-1
Schematic SPDT			
GT12MSABETR	OFF	NONE	ON
Conn. Terms.	OPEN	N/A	3-1
Schematic SPST			

Standard with tape & reel packaging, see page F-42.

GT11MSCBE
SPDT



PART NUMBER	SWITCH FUNCTION POS.1	POS. 2	POS. 3
GT11MSCBETR	ON	NONE	ON
GT13MSCBETR	ON	OFF	ON
Conn. Terms.	2-3	OPEN	2-1
Schematic SPDT	Note: Pins 4 and 6 not connected		
GT12MSCBETR	OFF	NONE	ON
Conn. Terms.	OPEN	N/A	3-1
Schematic SPST	Note: Pins 4 and 6 not connected		

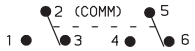
Standard with tape & reel packaging, see page F-42.

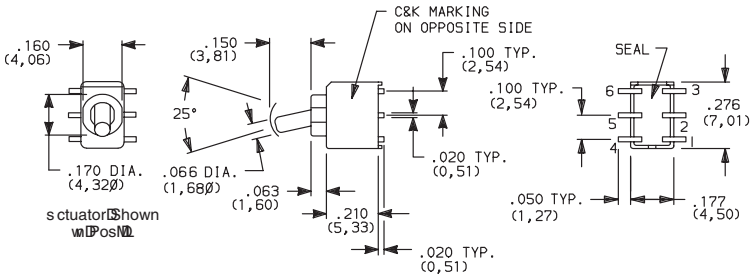
Third Angle Projection

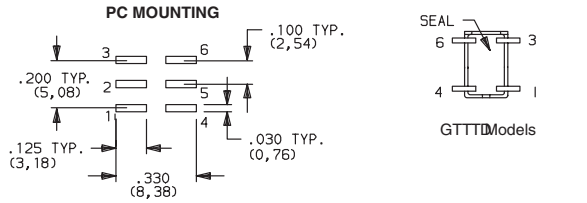
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

GT Series
Sealed Ultraminiature Toggle Switches

GT21MSCBE
DPDT

PART NUMBER	SWITCH FUNCTION POS.1	POS. 2	POS. 3
GT21MSCBETR	ON	NONE	ON
GT23MSCBETR	ON	OFF	ON
Conn. Terms.	2-3, 5-6	OPEN	2-1, 5-4
Schematic DPDT			
GT22MSCBETR	OFF	NONE	ON
Conn. Terms.	OPEN	N/A	3-1, 6-4
Schematic DPST			

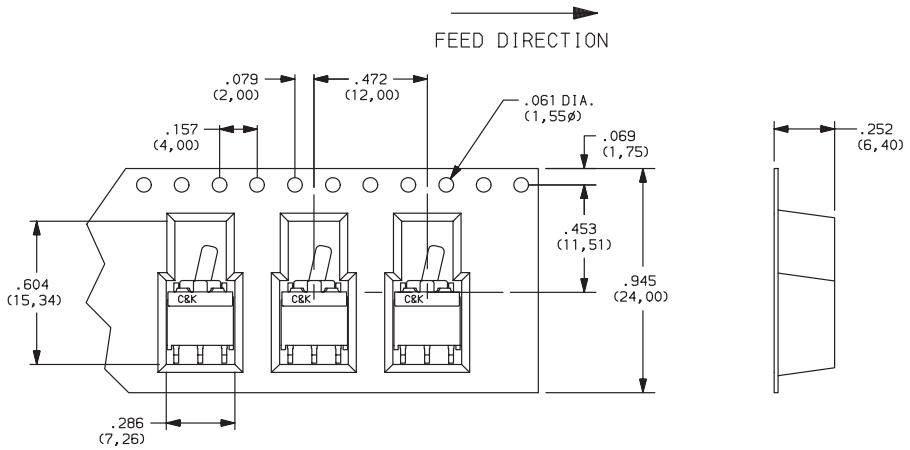




Standard with tape & reel packaging

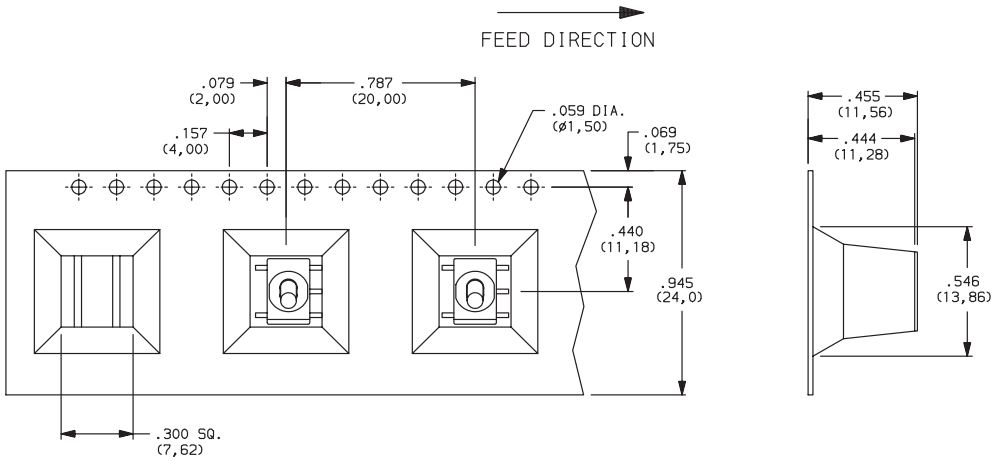
TAPE & REEL

For part numbers GT11MSABE, GT12MSABE, GT13MSABE



REEL INFORMATION	
OUTSIDE DIAMETER	13.00 (330,0)
PILOT HOLE	.512 (13,0)
QUANTITY PER REEL	600

For part numbers GT11MSCBE, GT12MSCBE, GT13MSCBE, GT21MSCBE, GT22MSCBE, GT23MSCBE,



REEL INFORMATION	
OUTSIDE DIAMETER	13.00 (330,0)
PILOT HOLE	.512 (13,0)
QUANTITY PER REEL	200

Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

9000 Series
Power Toggle Switches

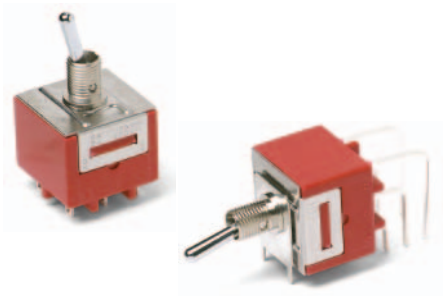
Features/Benefits

- ***Power ratings up to 10 AMPS***
- ***Double pole models***
- ***Locking lever options available***
- ***Wide variety of actuator styles***
- ***RoHS compliant and compatible***

Models Available

Typical Applications

- ***Shut-off switch***
- ***Small equipment***



Specifications

CONTACT RATING: 9201 Model: 6 AMPS @ 120 V AC or 28 V DC; 3 AMPS @ 250 V AC. 9221 Model: 10 AMPS @ 125 V AC or 28 V DC; 5 AMPS @ 250 V AC.

ELECTRICAL LIFE: 25,000 make-and-break cycles at full load.

CONTACT RESISTANCE: Below 10 m Ω typ. initial @ 2-4 V DC, 100 mA.

INSULATION RESISTANCE: 10^9 Ω min.

DIELECTRIC STRENGTH: 2,500 Vrms min. @ sea level.

OPERATING TEMPERATURE: –30°C to 85°C.

SOLDERABILITY: Per MIL-STD-202F method 208D, or EIA RS-186E method 9 (1 hour steam aging).

NOTE: Any models supplied with Q contact material are RoHS compliant and compatible.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Materials

CASE: Diallyl phthalate (DAP) (UL 94V-0).

ACTUATOR: Brass, chrome plated.

BUSHING: Brass or zinc, nickel plated.

HOUSING: Stainless steel.

SWITCH SUPPORT: Brass or steel, matte-tin plated.

END CONTACTS: 9201 Model: Coin silver, silver plated. 9221 Model: Silver cadmium oxide.

CENTER CONTACTS: Copper alloy, silver plated

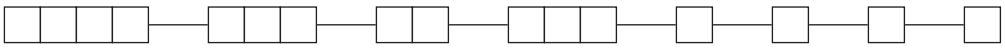
ALL TERMINALS: 9201 Model: Copper alloy, silver plated. 9221 Model: Copper alloy, matte-tin plated.

TERMINAL SEAL: Epoxy.

HARDWARE: Nut & Locking ring: Brass, nickel plated. Lockwasher: Steel, nickel plated.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages F-43 thru F-47. For additional options not shown in catalog, consult Customer Service Center.



Switch Function
9201 DPDT, On-On, 6 Amps
9221 DPDT, On-On, 10 Amps

Actuator
S Antirotation, .410" high
K Locking lever, .650" high
K1 Locking lever, .680" high
L43 Lever handle with cap
P3 Flatted, anti-rotation, .450" high
T .687" high, 15/32 bushing
T1 .460" high, 15/32 bushing

Bushing
H3 .296" high, keyway
CW Splashproof
H .296" high, flat

Terminations
Z Solder lug
Z4 Quick connect (9221 only)
AV2 Vert. right angle, PC thru-hole (9201 only)
C PC Thru-hole

Contact Material
Q Silver

Seal
E Epoxy
D No epoxy

Actuator Color/Finish
NONE Bright chrome
2 Black

Bushing Finish
NONE Nickel
2 Black

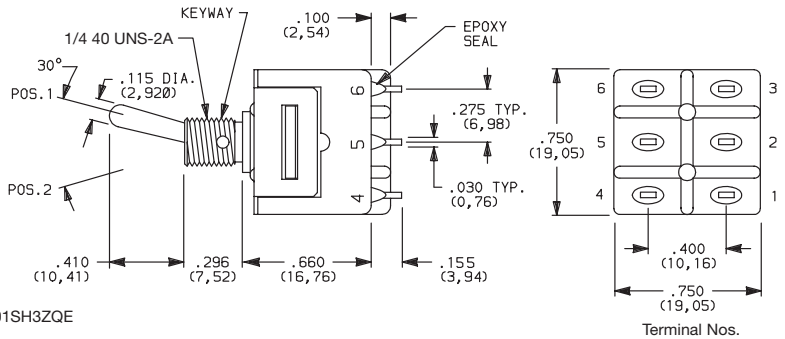
KXX Actuator Color/Finish
NONE Natural aluminum
2 Black anodized aluminum

9000 Series
Power Toggle Switches

SWITCH FUNCTION

NO. POLES	MODEL NO.	RATING*	SWITCH FUNCTION POS. 1 KEYWAY	SWITCH FUNCTION POS. 2 KEYWAY	CONNECTED TERMINALS POS. 1 KEYWAY	CONNECTED TERMINALS POS. 2 KEYWAY	SCHEMATIC
DP	9201	6 AMPS	ON	ON	2-3,5-6	2-1,5-4	DPDT 2 (COMM) 5 / 1 3 4 6
	9221	10 AMPS	ON	ON			

DPDT



Part number shown: 9201SH3ZQE

* See CONTACT MATERIAL, page F-47, for complete ratings.

All 9000 Series models meet international dimensional and electrical requirements.

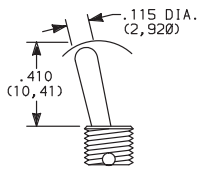
9221 model must be ordered with Z4 terminations and D seal option.

ACTUATOR

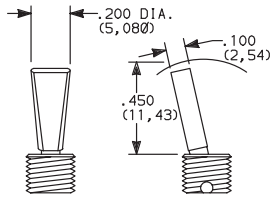
ACTUATOR FINISH

ACTUATOR

S ANTIROTATION, .410" HIGH



P3 FLATTED, ANTIROTATION, .450" HIGH



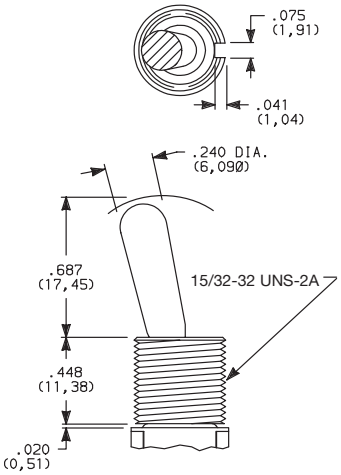
OPTION CODE	ACTUATOR FINISH
NONE	NATURAL ALUMINUM—With Nickel Plated Bushing
2	BLACK

NOTE: Black hardware is supplied when either black actuators or bushings are specified. All hardware is available separately, see Section N.

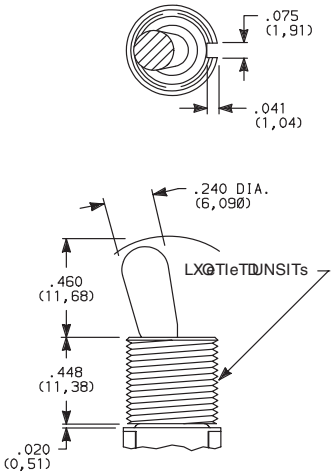
Antirotation is standard on all actuators, provides 'anti-push-in' feature on actuator.

Dress nut part number: 709901201 supplied standard with P3 actuator.

T .687" HIGH, 15/32 BUSHING



T1 .460" HIGH, 15/32 BUSHING



OPTION CODE	ACTUATOR FINISH
NONE	BRIGHT CHROME—With Nickel Plated Bushing
2	BLACK

NOTE: Bushing option code not required for T & T1 actuators unless CW splashproof bushing ordered.

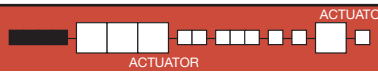
Black hardware is supplied when either black actuators or bushings are specified. All hardware is available separately, see Section N.

Antirotation is standard on all actuators except T & T1, provides 'anti-push-in' feature on actuator.

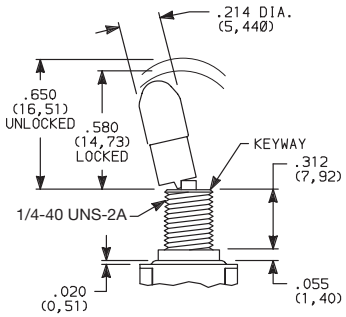
Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

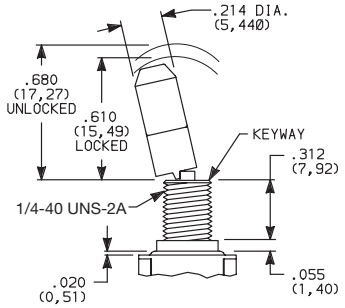
ACTUATOR



K LOCKING LEVER, .650" HIGH, THREADED



K1 LOCKING LEVER, .680" HIGH, THREADED



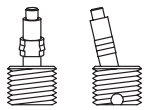
Locking Positions

T Position Lock

NOTE: To prevent accidental actuation, toggles must be lifted before being actuated. When released, toggles again lock in place. Bushing option code not required. Overtightening mounting nut may cause actuator to bind.

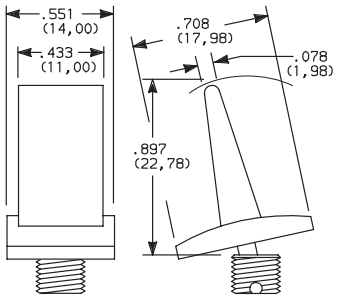
OPTION CODE	ACTUATOR CAP FINISH
NONE	NATURAL ALUMINUM–With Nickle Plated Bushing
2	BLACK ANODIZED ALUMINUM

L40 LEVER HANDLE WITHOUT CAP



No color choice required.

L43 PLASTIC LEVER HANDLE WITH ANTIROTATION AND CAP, P/N 4812



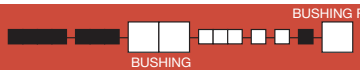
Finish: Matte

OPTION CODE	ACTUATOR CAP COLOR
2	BLACK
NONE	No Actuator Color (L40 option)

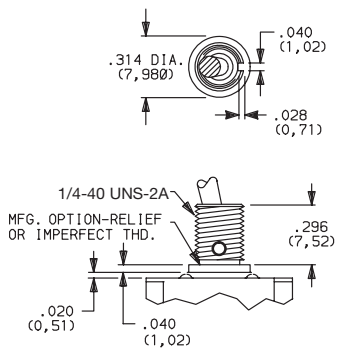
Other colors available, consult Customer Service Center.

NOTE: Lever handle actuator L43 supplied, but not installed. For interchangeability, order L40 actuator option and order lever handles separately, see page F-47. Antirotation is standard on all actuators, provides 'anti-push-in' feature.

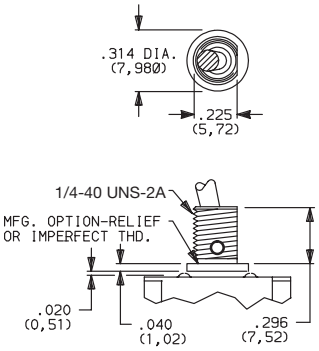
BUSHING



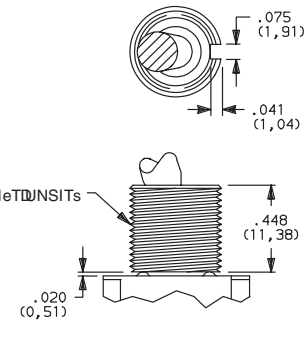
H3 .296" HIGH, THREADED, KEYWAY



H .296" HIGH, THREADED, FLAT



CW SPLASHPROOF, 15/32 BUSHING



OPTION CODE	BUSHING FINISH
NONE	NICKEL
2	BLACK

Will withstand 12 in./lbs. of torque with no distortion.

For T & T1 actuators only.

NOTE: Two mounting nuts, locking ring and lockwasher supplied standard with threaded bushings. Black hardware is supplied when either black bushings or actuators are specified. Optional mounting nut and locking ring styles and finishes available, see Section N.

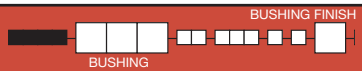
Internal actuator seal standard. External bushing seal available separately from APM Hexseal, part # MFS-60064.

Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

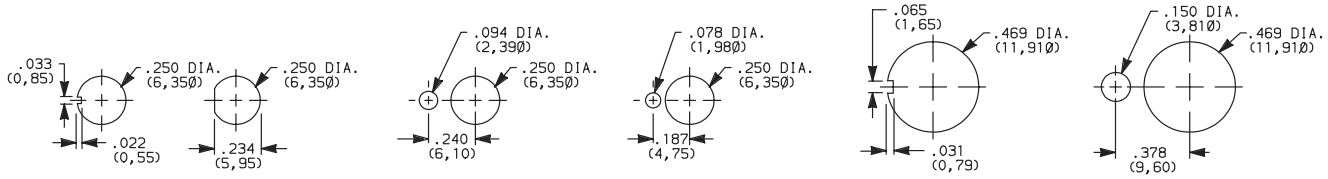
9000 Series
Power Toggle Switches

BUSHING



PANEL MOUNTING

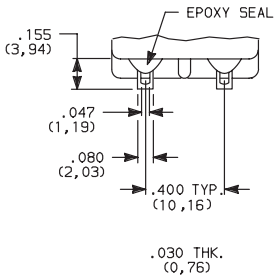
1/4-40 UNS-2A | 15/32-32 UNS-2A



Without Locking Ring | With Standard Locking Ring | With Small Locking Ring | Without Locking Ring | With Standard Locking Ring

TERMINATIONS

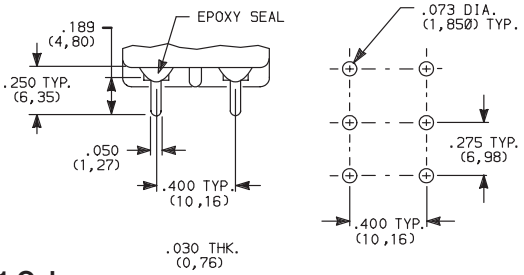
Z SOLDER LUG



9201 Only

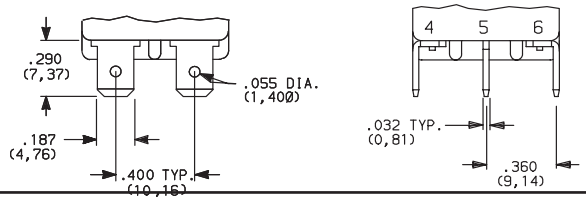
C PC THRU-HOLE

PC MOUNTING



9201 Only

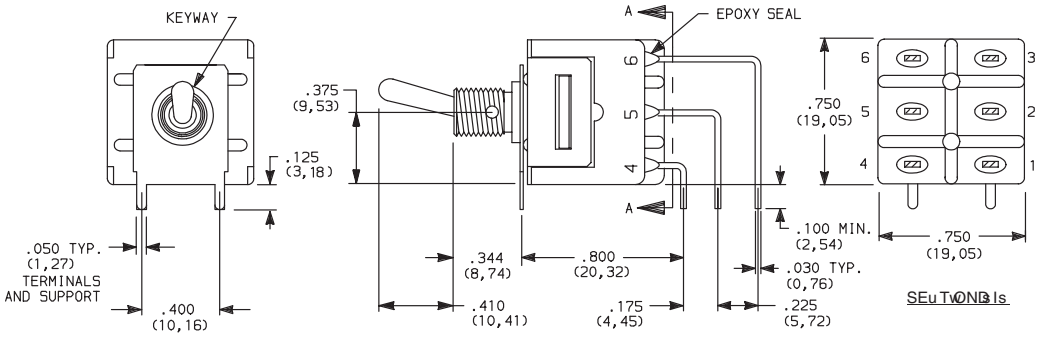
Z4 .187" QUICK CONNECT



9221 Only

NOTE: Only termination available with 9221 model. Must be ordered with D seal option. Mates with standard .187 Nema female connector.

AV2 VERTICAL RIGHT ANGLE, PC THRU-HOLE

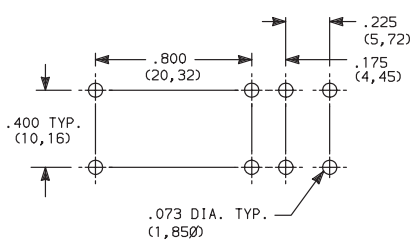


Actuator Shown in Pos. 3

9201SH3AV2QE
Vertical Actuation
DPDT

Terminal Nos.
For Reference Only

PC MOUNTING



9201 Only

NOTE: Terminal bend radii and lead-in manufacturing option. Terminal spacing greater than 3mm at all points.

Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

CONTACT MATERIAL

OPTION CODE	MODEL	CONTACT MATERIAL	TERMINAL PLATING	RATINGS	
Q	9201	SILVER [1,2]	SILVER OR TIN [2,5]	POWER	6 AMPS @120 V AC OR 28 V DC; 3 AMPS @ 250 V AC.
	9221	SILVER CADMIUM OXIDE [3,4,6]	TIN [5]		10 AMPS @125 V AC OR 28 V DC; 5 AMPS @ 250 V AC.

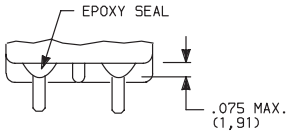
* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

[1] END CONTACTS: Coin silver, silver plated.
[2] CENTER CONTACTS & ALL TERMINALS: Copper alloy, silver plated.
[3] END CONTACTS: Silver cadmium oxide.
[4] CENTER CONTACTS: Copper alloy, silver plated.
[5] Z4 TERMINALS ONLY: Copper alloy, matte-tin plated.
[6] Cadmium in electrical switch contacts is exempt from RoHS.

NOTE: Any models supplied with Q contact material are RoHS compliant.
All 9000 Series models meet international dimensional and electrical requirements.
9221 model must be ordered with Z4 terminations and D seal option.

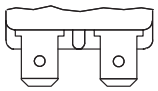
SEAL

E EPOXY SEAL



Not available with 9221 model or Z4 terminations.

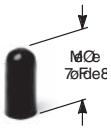
D NO EPOXY SEAL



Must be ordered with 9221 model and Z4 termination.

AVAILABLE HARDWARE

Cap
Compatible with S actuator



PART NO.
896801000 WHITE
896802000 BLACK
896803000 RED

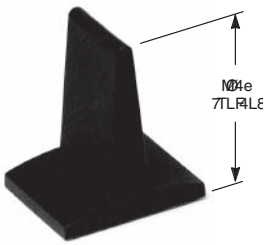
Material: Polyethylene
Finish: Matte

Cap
Compatible with S actuator

PART NO.
706201000 WHITE
706202000 BLACK
706203000 RED

Material: Vinyl
Finish: Matte

L43 Actuator



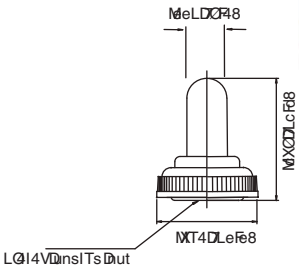
PART NO.
481202000 BLACK
481203000 RED

Material: Nylon
Finish: Matte

NOTE: Additional nuts, locking rings and lockwashers available separately, see Section N.

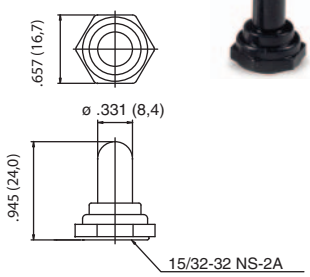
Other colors available, consult Customer Service Center.

759D02000 Sealing Boot



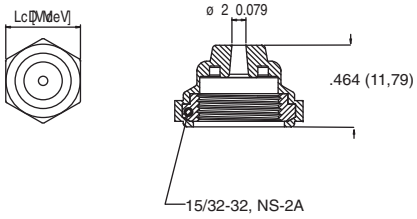
NOTE: For use with S actuator style when combined with H3 and H bushings

703D02000 Sealing Boot



NOTE: For use with T style actuator

704D02000 Sealing Boot



NOTE: For use with T style actuator

Third Angle Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

Общество с ограниченной ответственностью «МосЧип» ИНН 7719860671 / КПП 771901001
Адрес: 105318, г.Москва, ул.Щербаковская д.3, офис 1107

Данный компонент на территории Российской Федерации

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http://moschip.ru/get-element

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