## Product Range

### Pushbutton Switches

- **Tiny Push Buttons:** TP, TSP Series
- **Panel Mount Push Buttons:** MSP, MPA Series
- **Higher Current Push Buttons:** MP Green-, A 60 Series

**Main features:**
- Up to 4 poles
- N/O or C/O contact configuration
- Gold or silver contacts
- Sealed or unsealed versions
- Right angle versions
- Single or dual actuator
- Round or rectangular actuator buttons
- Flush actuator versions
- Snap action versions
- Bushing versions with and without thread
- Hermetically sealed versions
- THT or wire lug terminals
- Panel mounting versions
- Accessories: boot seals, caps, ...

**TSP Series, Tiny, Process Sealed . . . . . .page D3**

**TP Series, Tiny . . . . . .page D6**

**TP_ES Series, Tiny, Process Sealed . . . . . .page D15**

**MSPM Series, Magnetic Reed, Long Life, Hermetically Sealed . . . . . .page D18**





Catalogue No. 8-1773450-9
Issued 09/2008

Dimensions are in mm and inches and are shown for reference purposes only.

Specifications subject to change.

## Product Range (Continued)

**MSPF Series, Front or Rear Mount, 15/32 Bushing** . . . . . .page D20

**MPA103 Series, Panel Mount** . . . . . .page D22

**MSP103 Series, 2.5mm Travel, Panel Mount** . . . . . .page D23

**MPS Series, Snap Action** . . . . . .page D25

**MP / A / E / G Green Series** . . . . . .page D28

**A60 Series** . . . . . .page D33

**Accessories** . . . . . .page D35

**BP Series Boot Seals** . . . . . .page D37

**BP Series Panel Seals** . . . . . .page D39





Catalogue No. 8-1773450-9
Issued 09/2008

Dimensions are in mm and inches and are shown for reference purposes only.
Specifications subject to change.
www.tycoelectronics.com

# TSP Series, Tiny, Process Sealed

## Features

- **Washable process sealed construction (internal "O" ring)**
- **Compact design**

## Typical performance characteristics

Contact configuration . . . . . SPST SPDT
Contact timing . . . . . Break-Before-Make
Contact rating max. . . . . gold 0.4VA @20VAC/DC
Electrical life . . . . . function C: 80,000 cycles
. . . . . function F: 60,000 cycles
Contact resistance, initial . . . . . max.20 mOhms
Insulation resistance . . . . . 1,000 MOhms @ 500VDC
Dielectric strength . . . . . function C: 1,000 Volts rms @ sea level
. . . . . function F: 500 Volts rms @ sea level
Actuator travel . . . . . momentary .035" (0.89)

## Environmental specification

Operating temperature . . . . . -30°C to +85°C
Storage temperature . . . . . -55°C to +85°C
Solder heat resistance . . . . . wave solder capable to 265° C
Seal . . . . . process sealed with internal "O" ring

## Material specifications

Contacts . . . . . copper or brass, gold over nickel finish
Actuator . . . . . thermoplastic
Terminals . . . . . brass with gold over nickel in contact area
. . . . . tin over nickel in solder area
Case . . . . . thermoplastic (LCP)
Spring . . . . . music wire zinc plated
Support bracket . . . . . steel tin plated
Seal . . . . . "O" ring rubber
RoHS Directive 2002/95/EC . . . . . compliant

## Product key

Typical product key: **TSP D 1 1 C G RA 0 04**

**Type**
**TSP** Tiny pushbutton, process sealed

**Bushing**
**D** plain, not threaded

**Actuator**
**blank** length .200 (5.08)
**F** flush

**Number of Poles**
**1** single pole

**Contact rating**
**1** 0.4VA Gold

**Function**
**C** SPST, Off (On)
**F** SPDT, On (On)

**Plating**
**G** Gold

**Terminals**
**PC** printed circuit board
**PCV** printed circuit board, w bracket
**RA** right angle
**VRA** vertical right angle
**WW** wire wrap

**Button Color**
**0** black
**2** red

**Material**
**04** RoHS compliant





Catalogue No. 8-1773450-9
Issued 09/2008

Dimensions are in mm and inches and are shown for reference purposes only.

Specifications subject to change.

## TSP Series, Tiny, Process Sealed (Continued)

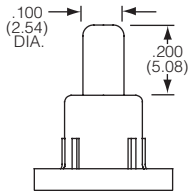


### Actuator

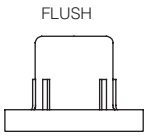
**blank, F**

**standard actuator, flush actuator**

blank,standard actuator




F, flush actuator

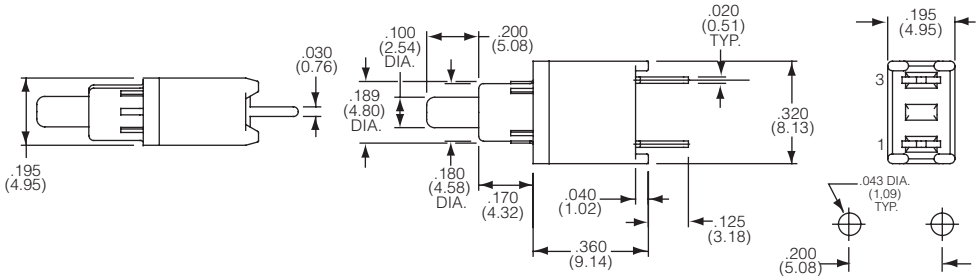



### Terminations

**PC**

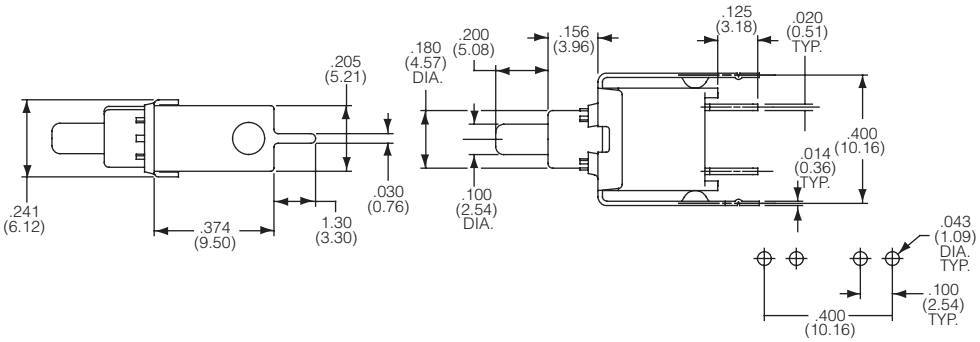
**printed circuit board**

TSPD11CPC004



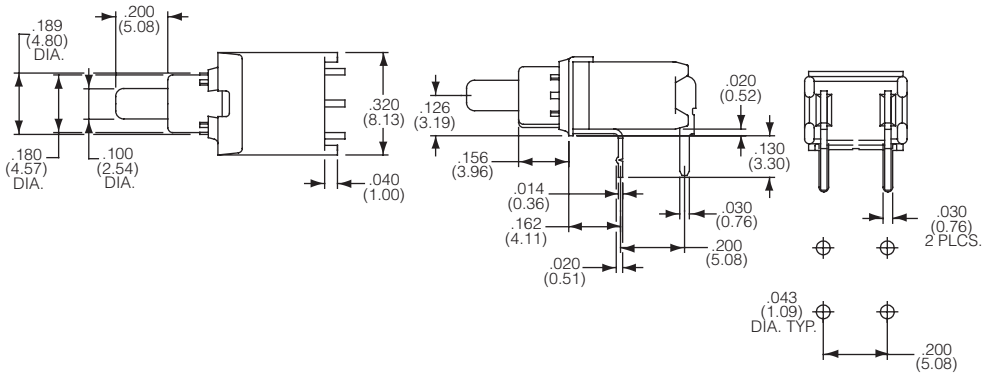

**PCV**

**printed circuit board with vertical bracket**



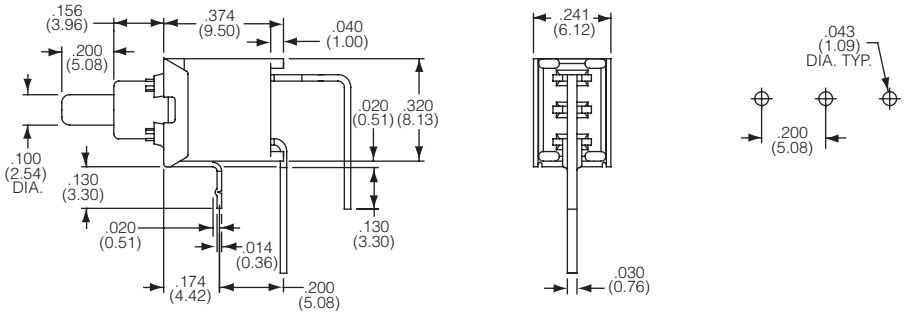

**RA**

**right angle**

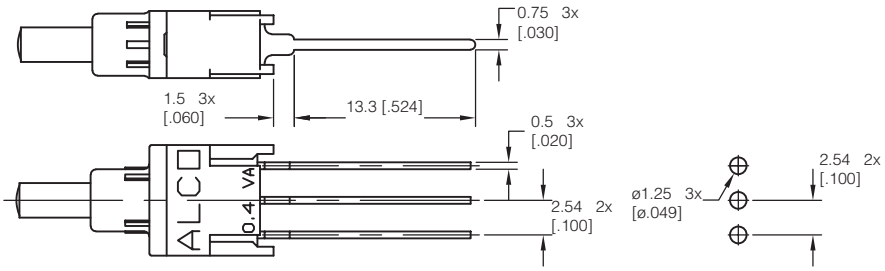


## TSP Series, Tiny, Process Sealed (Continued)

**VRA** **vertical right angle**




**WW** **wire wrap**




| Product key | Bushing | Act. | Poles | Rating | Function | Conn. | Conn. | Plating | Terminals | Btn. | Material | Part Number |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TSPD11CGPC004 | plain, | length | 1 | 0.4VA | Off (On) | Off | 1-3 | Gold | pcb | black | RoHS | 1571990-1 |
| TSPD11CGPC204 | not | .200 | | | | | | | | red | compliant | 1571990-2 |
| TSPD11CGPCV004 | threaded | (5.08) | | | | | | | | black | | 1571990-3 |
| TSPD11CGRA004 | | | | | | | | | right angle | | | 1571990-4 |
| TSPD11CGRA204 | | | | | | | | | | red | | 1571990-5 |
| TSPD11CGVRA004 | | | | | | | | | vertical r.a. | black | | 1-1571990-3 |
| TSPD11CGWW004 | | | | | | | | | wire wrap | | | 1-1571990-4 |
| TSPD11FGPC004 | | | | | On (On) | 1-2 | 2-3 | | pcb | | | 1-1571990-5 |
| TSPD11FGPCV004 | | | | | | | | | pcb w brack. | | | 1-1571990-6 |
| TSPD11FGRA004 | | | | | | | | | right angle | | | 1-1571990-7 |
| TSPD11FGVRA004 | | | | | | | | | vertical r.a. | | | 2-1571990-1 |
| TSPDF11CGPC004 | | flush | | | Off (On) | Off | 1-3 | | pcb | | | 2-1571990-2 |
| TSPDF11CGRA004 | | | | | | | | | right angle | | | 2-1571990-5 |
| TSPDF11CGVRA004 | | | | | | | | | vertical r.a. | | | 2-1571990-7 |
| TSPDF11FGPC004 | | | | | On (On) | 1-2 | 2-3 | | pcb | | | 2-1571990-8 |
| TSPDF11FGRA004 | | | | | | | | | right angle | | | 2-1571990-9 |





Catalogue No. 8-1773450-9
Issued 09/2008

Dimensions are in mm and inches and are shown for reference purposes only.
Specifications subject to change.
www.tycoelectronics.com

# TP Series, Tiny



## Features

- **Compact design**
- **Round or rectangular actuator buttons.**
- **Vertical or right angle versions**

## Typical performance characteristics

Contact configuration . . . . . SPST, SPDT, DPDT
Contact timing . . . . . Break-Before-Make
Contact rating max. . . . . gold: 0.4VA @20VDC or peak AC
. . . . . silver: 1A @ 125VAC or 28 VDC resistive
Electrical life . . . . . 1 pole2 . .2 pole
. . . . . .gold . . . . . 100,000 . .80,000 cycles
. . . . . .silver . . . . 60,000 . . .50,000 cycles
Contact resistance, initial . . . . . max.20 mOhms
Insulation resistance . . . . . 1,000 MOhms @ 500VDC
Dielectric strength . . . . . 1,000 Volts rms @ sea level
Actuation force . . . . . 0.5 to 4N (50-400gf)
Actuator travel . . . . . momentary .030" (.762)

## Environmental specification

Operating temperature . . . . . -30°C to +65°C
Storage temperature . . . . . -30°C to +65°C
Solder heat resistance . . . . . wave solder capable to 265° C

## Material specifications

Contacts . . . . . copper or brass, gold over nickel finish or silver
. . . . . clad with silver over nickel finish
Actuator . . . . . thermoplastic
Terminals . . . . . brass with gold over nickel or silver over nickel
Case . . . . . thermoplastic
Frame and support bracket . . . . . steel with tin over copper finish
RoHS Directive 2002/95/EC . . . . . compliant

## Product key

Typical product key: **TP A 1 1 C G PC 0 04**

**Type**
- **TP** Tiny pushbutton series

**Bushing**
- **blank** square, no bushing
- **A** round, no bushing
- **B** round .188 (4.78) dia. bushing not threaded
- **C** round 10/48 UNS 2B thread
- **D** .250" (6.35) dia. bushing, not threaded
- **F** round 1/4-40 UNS 2B thread

**Actuator**
- **blank** standard
- **F** flush (available with B and C bushings only)

**Number of Poles**
- **1** single pole
- **2** double pole

**Contact rating**
- **1** 0.4VA Gold
- **2** 1.0 A Silver (Silver available only in wire lug and PC termination)

**Function**

| single pole | | double pole | |
|---|---|---|---|
| **C** | single throw, momentary | **M** | single throw, momentary |
| **F** | double throw, momentary | **R** | double throw, momentary |

- **CC** dual function C - 2 x single throw, momentary
- **FF** dual function F - 2 x double throw, momentary

**Plating**
- **G** Gold
- **blank** Silver (Silver available only in wire lug and PC termination)

**Terminals**
- **blank** wire lug
- **PC** printed circuit board
- **RA** right angle
- **VRA** vertical, right angle (available only in single pole)

**Button Color**
- **0** black
- **2** red
- **6** blue

**Material**
- **04** RoHS compliant



Catalogue No. 8-1773450-9
Issued 09/2008

Dimensions are in mm and inches and are shown for reference purposes only.

Specifications subject to change.

## TP Series, Tiny (Continued)

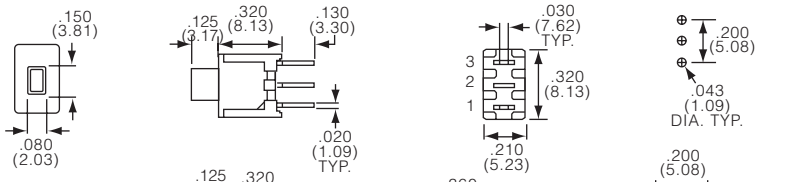
### Bushing

#### blank, square, no bushing

##### printed circuit board

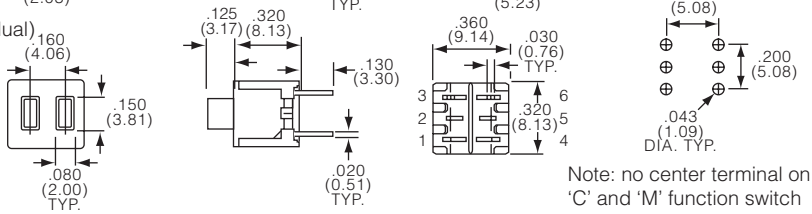
TP11CGPC004

Single pole



TP21CCGPC004

2 x Single pole (dual)

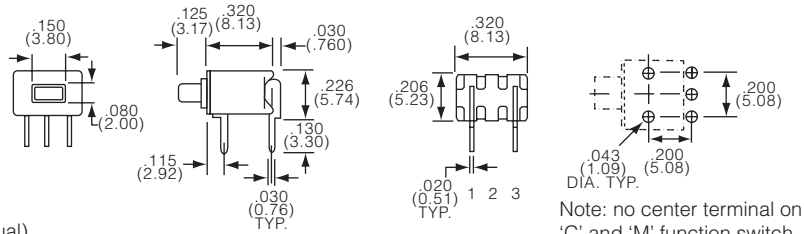



Note: no center terminal on 'C' and 'M' function switch

##### right angle

TP11CGRA004

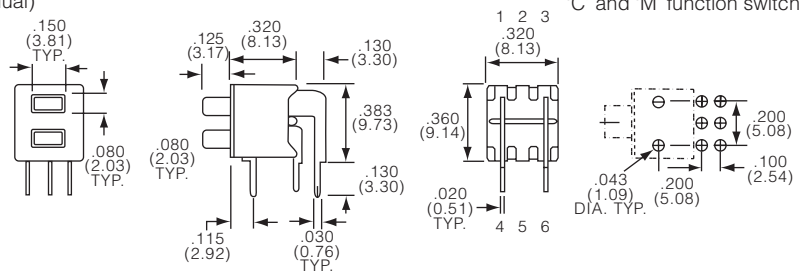
Single pole




Note: no center terminal on 'C' and 'M' function switch

TP21CCGRA004

2 x Single pole (dual)

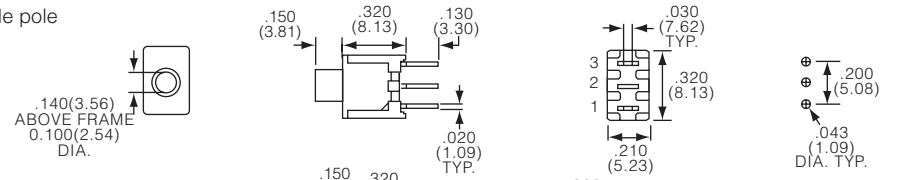



#### A, Round, no bushing

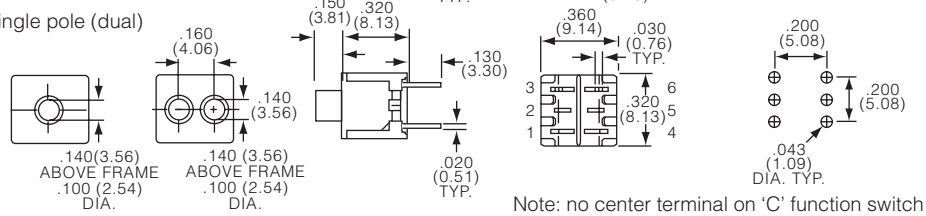
##### printed circuit board

TPA11CGPC004

Single pole




2 x Single pole (dual)




Note: no center terminal on 'C' function switch





Catalogue No. 8-1773450-9
Issued 09/2008

Dimensions are in mm and inches and are shown for reference purposes only.

Specifications subject to change.

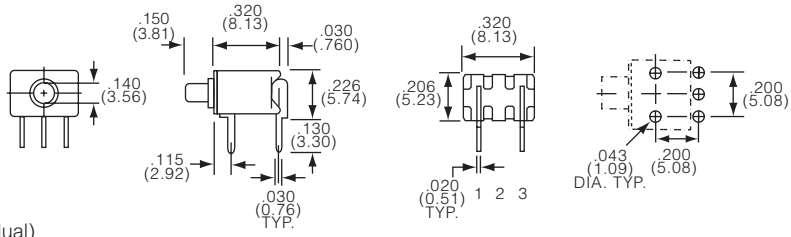
## TP Series, Tiny (Continued)



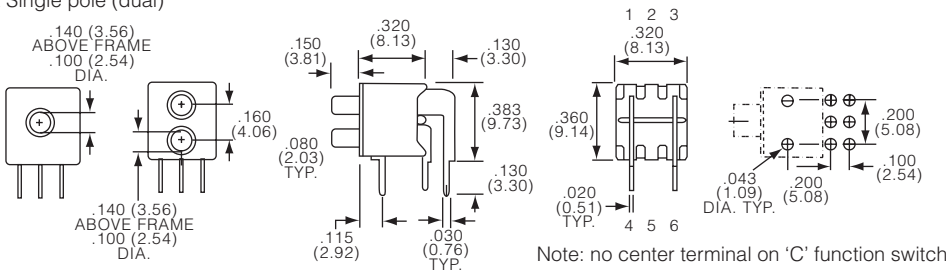
### right angle

TPA11CGRA204

Single pole




2 x Single pole (dual)

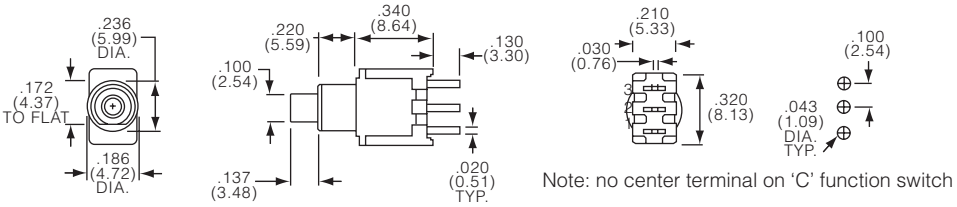



Note: no center terminal on 'C' function switch

### B, Round .188 (4.78) dia. bushing not threaded

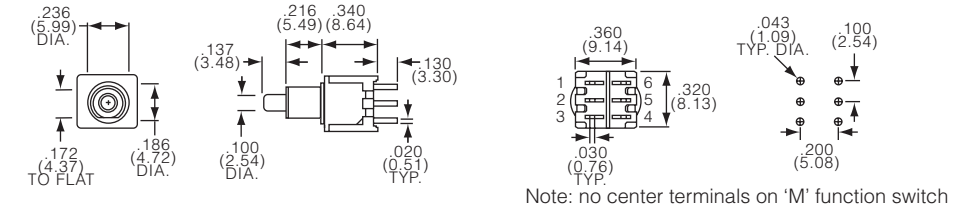
### printed circuit board

TPB11CGPC004




Note: no center terminal on 'C' function switch

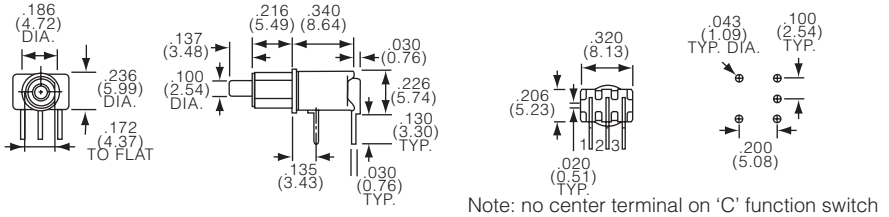
TPB21MGPC004




Note: no center terminals on 'M' function switch

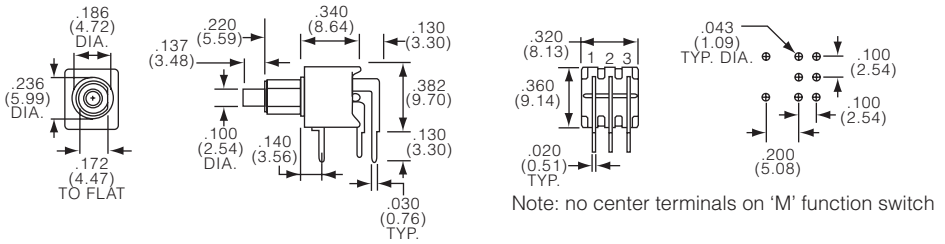
### right angle

TPB11CGRA004




Note: no center terminal on 'C' function switch

TPB21MGRA004




Note: no center terminals on 'M' function switch



Catalogue No. 8-1773450-9
Issued 09/2008

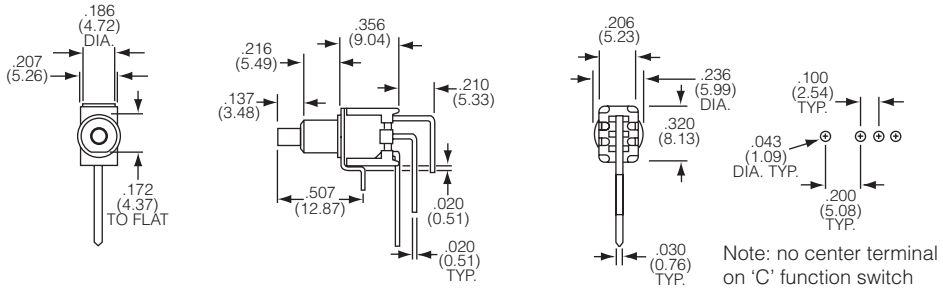
Dimensions are in mm and inches and are shown for reference purposes only.

Specifications subject to change.

## TP Series, Tiny (Continued)

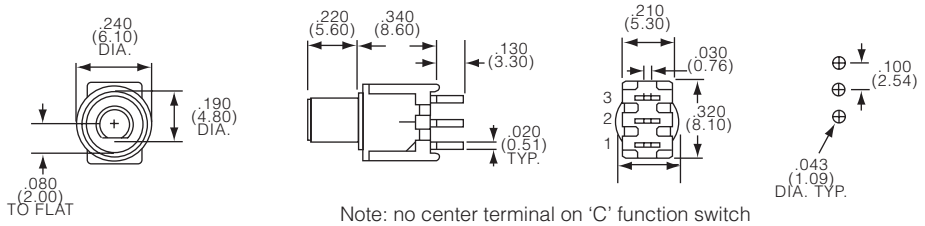
### vertical right angle

TPB11FGVRA004



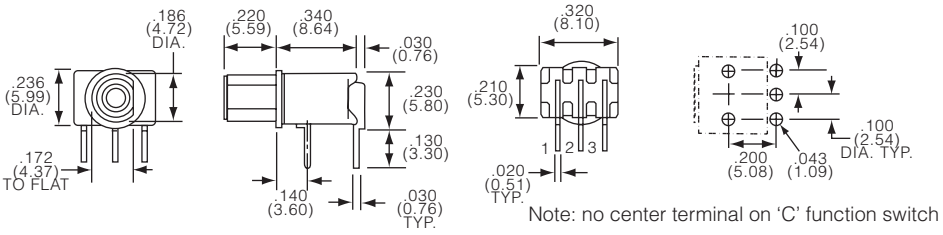

### printed circuit board, flush actuator

TPBF11FGPC004




### right angle, flush actuator

TPBF11CGRA004

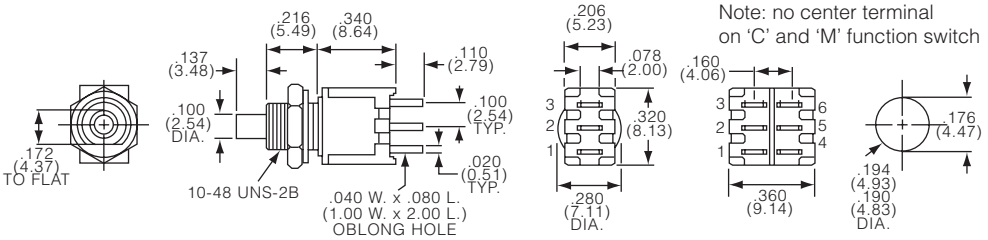



### C, Round 10/48 UNS 2B thread

#### wire lug

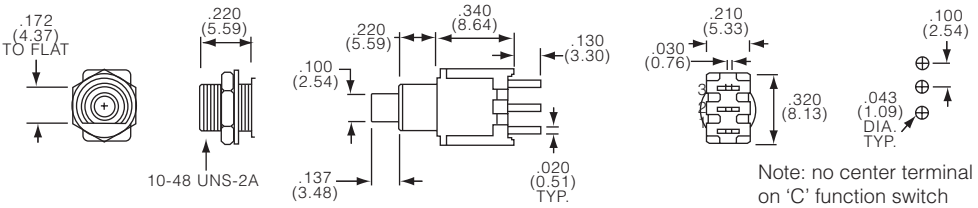
TPC13C

TPC23M




#### printed circuit board

TPC11FGPC







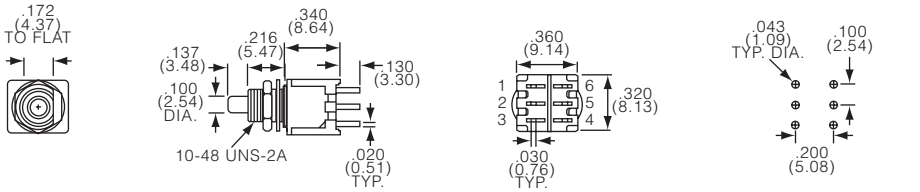

Catalogue No. 8-1773450-9
Issued 09/2008

Dimensions are in mm and inches and are shown for reference purposes only.

Specifications subject to change.

## TP Series, Tiny (Continued)

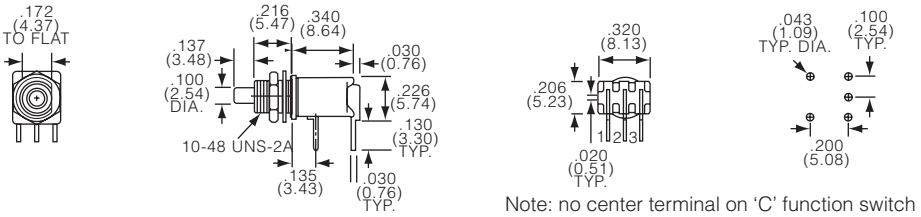
TPC21RGPC




Note: no center terminals on 'M' function switch

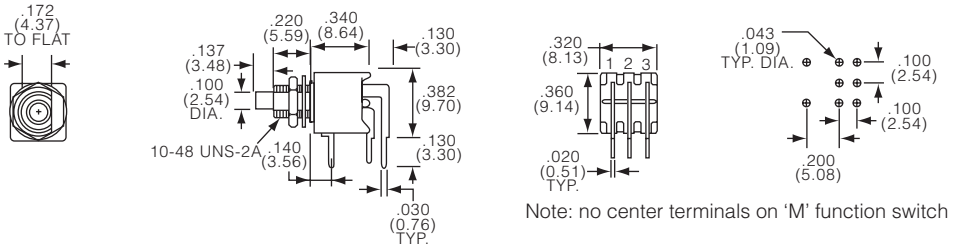
### right angle

TPC11CGRA



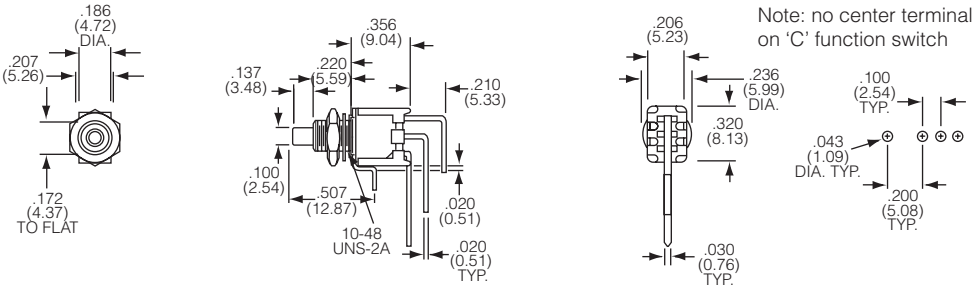

Note: no center terminal on 'C' function switch

TPC21MGRA




Note: no center terminals on 'M' function switch

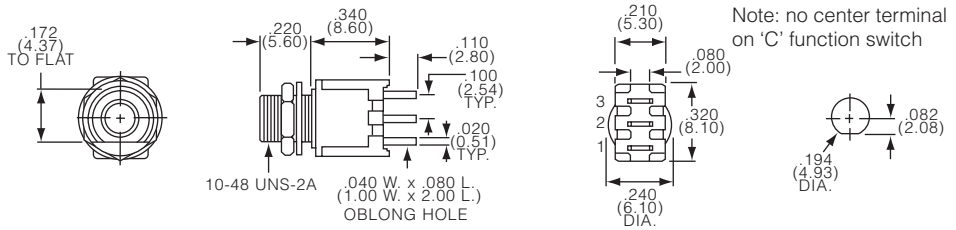
### vertical right angle




Note: no center terminal on 'C' function switch

### wire lug, flush actuator

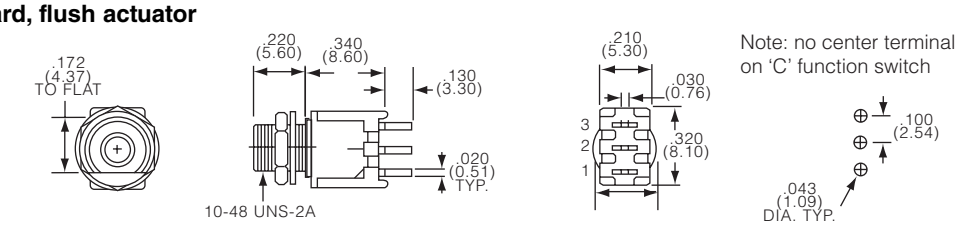
TPCF13C




Note: no center terminal on 'C' function switch

### printed circuit board, flush actuator

TPCF11CGPC




Note: no center terminal on 'C' function switch





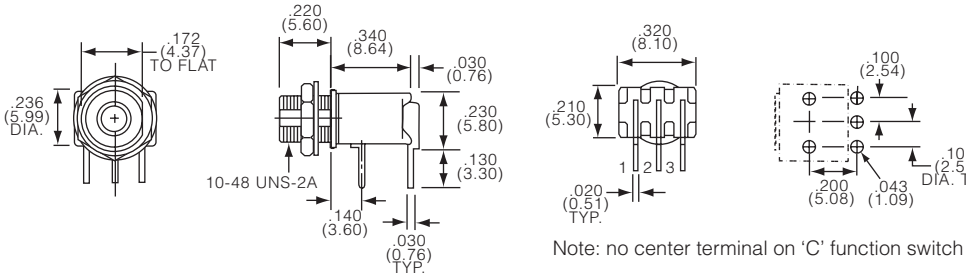
Catalogue No. 8-1773450-9
Issued 09/2008

Dimensions are in mm and inches and are shown for reference purposes only.

Specifications subject to change.

## TP Series, Tiny (Continued)

### right angle, flush actuator



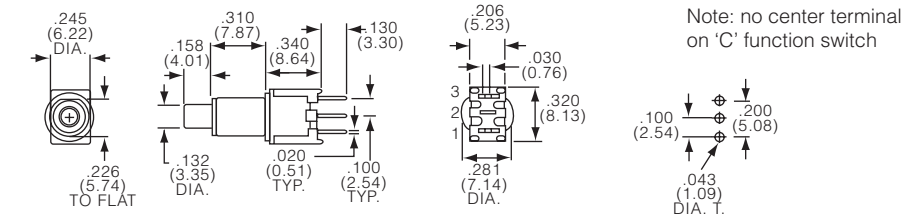

Note: no center terminal on 'C' function switch

---

### D, .250" (6.35) dia. bushing, not threaded

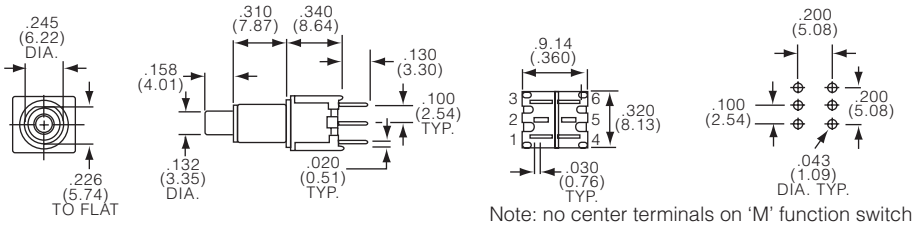
#### printed circuit board

TPD11CGPC




Note: no center terminal on 'C' function switch

TPD21MGPC

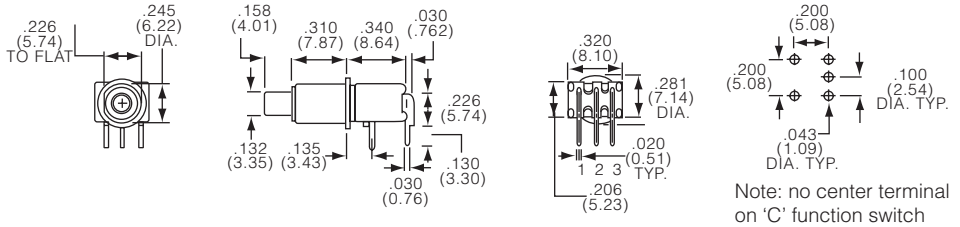



Note: no center terminals on 'M' function switch

---

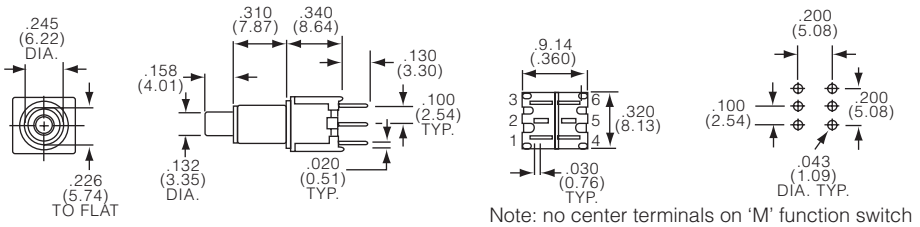
#### right angle

TPD11CGRA




Note: no center terminal on 'C' function switch

TPD21MGPC




Note: no center terminals on 'M' function switch





Catalogue No. 8-1773450-9
Issued 09/2008

Dimensions are in mm and inches and are shown for reference purposes only.

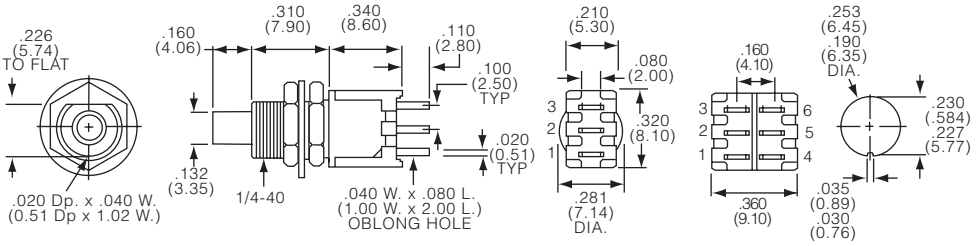
Specifications subject to change.

## TP Series, Tiny (Continued)



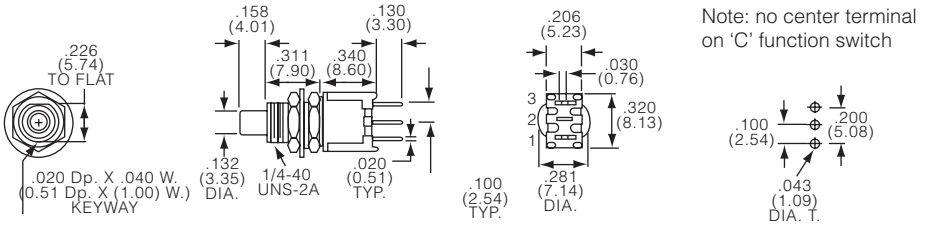
### F, Round 1/4-40 UNS 2B thread

#### wire lug

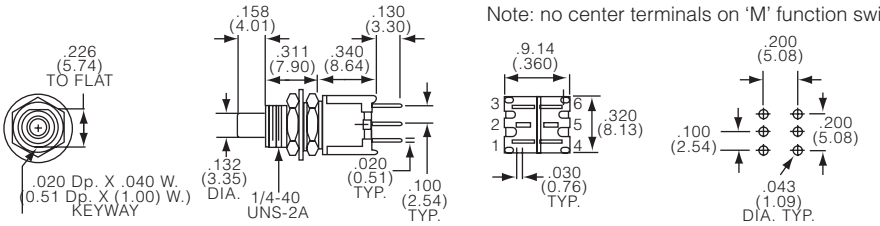



Note: no center terminal on 'C' and 'M' function switch

#### printed circuit board

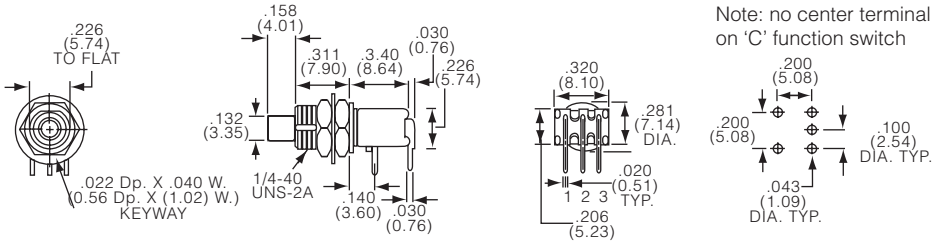



Note: no center terminal on 'C' function switch

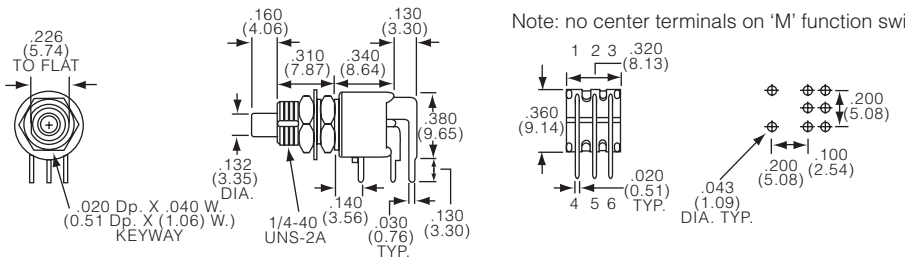



Note: no center terminals on 'M' function switch

#### right angle




Note: no center terminal on 'C' function switch




Note: no center terminals on 'M' function switch

## TP Series, Tiny (Continued)

| Product key | Bushing | Act. | Poles | Rating | Function | | | Plating | Terminals | Btn. | Material | Part Number |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TP11CGPC004 | square | n/a | 1 | 0.4VA | Off-(On) | Off | 1-3 | Gold | pcb | black | RoHS | 1825095-1 |
| TP11CGPC204 | no bushing | | | | | | | | | red | compliant | 1825095-2 |
| TP11CGRA004 | | | | | | | | | right angle | black | | 1825095-3 |
| TP11CGRA204 | | | | | | | | | | red | | 1825095-4 |
| TP11CGRA604 | | | | | | | | | | blue | | 1825095-5 |
| TP11FGPC004 | | | | | On-(On) | 1-2 | 2-3 | | pcb | black | | 1825095-6 |
| TP11FGPC204 | | | | | | | | | | red | | 1825095-7 |
| TP11FGRA004 | | | | | | | | | right angle | black | | 1825095-8 |
| TP11FGRA204 | | | | | | | | | | red | | 1825095-9 |
| TP11FGRA604 | | | | | | | | | | blue | | 1-1825095-0 |
| TP21CCGRA004 | | | 2 (1+1) | | Off-(On) | Off | 1-3 | | | black | | 1-1825095-1 |
| TP21CCGRA204 | | | | | | | | | | red | | 1-1825095-2 |
| TP21FFGRA004 | | | | | On-(On) | 1-2 | 2-3 | | | black | | 1-1825095-3 |
| **TPA11CGPC004** | round | | 1 | | Off-(On) | Off | 1-3 | | pcb | | | **1825096-1** |
| TPA11CGPC204 | no bushing | | | | | | | | | red | | 1825096-2 |
| TPA11CGPC604 | | | | | | | | | | blue | | 1825096-3 |
| **TPA11CGRA004** | | | | | | | | | right angle | black | | **1825096-4** |
| TPA11CGRA204 | | | | | | | | | | red | | 1825096-5 |
| TPA11CGRA604 | | | | | | | | | | blue | | 1825096-6 |
| **TPA11FGPC004** | | | | | On-(On) | 1-2 | 2-3 | | pcb | black | | **1825096-7** |
| TPA11FGPC204 | | | | | | | | | | red | | 1825096-8 |
| TPA11FGPC604 | | | | | | | | | | blue | | 1825096-9 |
| **TPA11FGRA004** | | | | | | | | | right angle | black | | **1-1825096-0** |
| TPA11FGRA204 | | | | | | | | | | red | | 1-1825096-1 |
| TPA11FGRA604 | | | | | | | | | | blue | | 1-1825096-2 |
| TPA21CCGPC004 | | | 2 (1+1) | | Off-(On) | Off | 1-3, 4-6 | | pcb | black | | 1-1825096-3 |
| TPA21CCGRA004 | | | | | | | | | right angle | | | 1-1825096-4 |
| TPA21FFGRA204 | | | | | On-(On) | 1-2, 4-5 | 2-3, 5-6 | | | red | | 1-1825096-5 |
| TPA21MGRA004 | | | 2 | | Off-(On) | Off | 1-3, 4-6 | | | black | | 1-1825096-6 |
| **TPB11CGPC004** | round | std | 1 | | | | 1-3 | | pcb | | | **1825097-1** |
| TPB11CGPC204 | .188 (4.78) | | | | | | | | | red | | 1825097-2 |
| **TPB11CGRA004** | dia | | | | | | | | right angle | black | | **1825097-6** |
| TPB11CGRA204 | bushing, | | | | | | | | | red | | 1825097-4 |
| TPB11CGVRA004 | not | | | | | | | | vertical r.a. | black | | 1825097-8 |
| **TPB11FGPC004** | threaded | | | | On-(On) | 1-2 | 2-3 | | pcb | | | **1825097-9** |
| **TPB11FGRA004** | | | | | | | | | right angle | | | **1-1825097-1** |
| TPB11FGRA204 | | | | | | | | | | red | | 1-1825097-2 |
| TPB11FGRA604 | | | | | | | | | | blue | | 1-1825097-3 |
| TPB11FGVRA004 | | | | | | | | | vertical r.a. | black | | 1-1825097-6 |
| **TPB21MGPC004** | | | 2 | | Off-(On) | Off | 1-3, 4-6 | | pcb | | | **1-1825097-7** |
| TPB21MGPC204 | | | | | | | | | | red | | 1-1825097-8 |
| TPB21MGRA004 | | | | | | | | | right angle | black | | 2-1825097-8 |
| TPB21RGRA004 | | | | | On-(On) | 1-2, 4-5 | 2-3, 5-6 | | | | | 1-1825097-9 |
| TPB21RGRA0EDC04 | | | | | | | | | | | | 1825112-1 |
| TPBF11CGRA004 | | flush | 1 | | Off-(On) | Off | 1-3 | | | | | 2-1825097-1 |
| TPBF11FGRA004 | | | | | On-(On) | 1-2 | 2-3 | | | | | 2-1825097-4 |
| TPBF11FGRA204 | | | | | | | | | | red | | 2-1825097-5 |

Preferred parts in bold print





Catalogue No. 8-1773450-9
Issued 09/2008

Dimensions are in mm and inches and are shown for reference purposes only.
Specifications subject to change.
www.tycoelectronics.com

## TP Series, Tiny (Continued)

| Product key | Bushing | Act. | Poles | Rating | Function | | | Plating | Terminals | Btn. | Material | Part Number |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TPC11CGPC004 | round | std | 1 | 0.4VA | Off-(On) | Off | 1-3 | Gold | pcb | black | RoHS | 1825098-1 |
| TPC11CGRA004 | 10/48 | | | | | | | | right angle | | compliant | 1825098-2 |
| TPC11CGRA204 | UNS 2B | | | | | | | | | red | | 1825098-3 |
| TPC11CGVRA004 | thread | | | | | | | | vertical r.a. | black | | 1825098-4 |
| TPC11FGPC004 | | | | | On-(On) | 1-2 | 2-3 | | pcb | | | 1825098-5 |
| TPC11FGRA004 | | | | | | | | | right angle | | | 1825098-6 |
| TPC11FGVRA004 | | | | | | | | | vertical r.a. | | | 1825098-7 |
| TPC11FGVRA204 | | | | | | | | | | red | | 1825098-8 |
| TPC13C004 | | | | 1.0 A | Off-(On) | Off | 1-3 | Silver | wire lug | black | | 1825098-9 |
| TPC13C204 | | | | | | | | | | red | | 1-1825098-0 |
| TPC13CPC004 | | | | | | | | | pcb | black | | 1-1825098-1 |
| TPC13F004 | | | | | On-(On) | 1-2 | 2-3 | | wire lug | | | 1-1825098-2 |
| TPC21MGRA204 | | | 2 | 0.4VA | Off-(On) | Off | 1-3, 4-6 | Gold | right angle | red | | 1-1825098-3 |
| TPC21RGPC004 | | | | | On-(On) | 1-2, 4-5 | 2-3, 5-6 | | pcb | black | | 1-1825098-4 |
| TPC23M004 | | | | 1.0 A | Off-(On) | Off | 1-3, 4-6 | Silver | wire lug | | | 1-1825098-5 |
| TPC23R204 | | | | | On-(On) | 1-2, 4-5 | 2-3, 5-6 | | | red | | 1-1825098-6 |
| TPCF11CGPC004 | | flush | 1 | 0.4VA | Off-(On) | Off | 1-3 | Gold | pcb | black | | 1-1825098-7 |
| TPCF11CGRA004 | | | | | | | | | right angle | | | 1-1825098-8 |
| TPCF11FGRA004 | | | | | On-(On) | 1-2 | 2-3 | | | | | 1-1825098-9 |
| TPCF13C004 | | | | 1.0 A | Off-(On) | Off | 1-3 | Silver | wire lug | | | 2-1825098-0 |
| TPCF13F004 | | | | | On-(On) | 1-2 | 2-3 | | | | | 2-1825098-1 |
| TPD11CGPC004 | .259 (6.35) | n/a | | 0.4VA | Off-(On) | Off | 1-3 | Gold | pcb | | | 1825099-1 |
| TPD11CGPC204 | dia | | | | | | | | | red | | 1825099-2 |
| TPD11CGRA004 | bushing, | | | | | | | | right angle | black | | 1825099-3 |
| TPD11CGRA204 | not | | | | | | | | | red | | 1825099-4 |
| TPD11CGRA604 | threaded | | | | | | | | | blue | | 1825099-5 |
| TPD11FGPC004 | | | | | On-(On) | 1-2 | 2-3 | | pcb | black | | 1825099-6 |
| TPD11FGRA004 | | | | | | | | | right angle | | | 1825099-7 |
| TPD11FGRA204 | | | | | | | | | | red | | 1825099-8 |
| TPD21MGRA004 | | | 2 | | Off-(On) | Off | 1-3, 4-6 | | | black | | 1825099-9 |
| TPD21RGPC004 | | | | | On-(On) | 1-2, 4-5 | 2-3, 5-6 | | pcb | | | 1-1825099-0 |
| TPF11CGPC004 | round | | 1 | | Off-(On) | Off | 1-3 | | | | | 1825100-1 |
| TPF11CGPC204 | 1/4-40 | | | | | | | | | red | | 1825100-2 |
| TPF11CGRA004 | UNS 2B | | | | | | | | right angle | black | | 1825100-4 |
| TPF11CGRA204 | thread | | | | | | | | | red | | 1825100-5 |
| TPF11CGRA604 | | | | | | | | | | blue | | 1825100-6 |
| TPF11FGPC004 | | | | | On-(On) | 1-2 | 2-3 | | pcb | black | | 1825100-7 |
| TPF11FGPC204 | | | | | | | | | | red | | 1825100-8 |
| TPF11FGPC604 | | | | | | | | | | blue | | 1825100-9 |
| TPF11FGRA004 | | | | | | | | | right angle | black | | 1-1825100-1 |
| TPF13C004 | | | | 1.0 A | Off-(On) | Off | 1-3 | Silver | wire lug | | | 1-1825100-2 |
| TPF13C204 | | | | | | | | | | red | | 1-1825100-3 |
| TPF13F204 | | | | | On-(On) | 1-2 | 2-3 | | | | | 1-1825100-4 |
| TPF13F604 | | | | | | | | | | blue | | 1-1825100-5 |
| TPF21MGPC004 | | | 2 | 0.4VA | Off-(On) | Off | 1-3, 4-6 | Gold | pcb | black | | 1-1825100-6 |
| TPF21RGRA004 | | | | | On-(On) | 1-2, 4-5 | 2-3, 5-6 | | right angle | | | 1-1825100-7 |
| TPF23M004 | | | | 1.0 A | Off-(On) | Off | 1-3, 4-6 | Silver | wire lug | | | 1-1825100-8 |

# TP_ES Series, Tiny, Process Sealed

## Features

- **Process and non-process sealed**
- **Compact design**
- **Vertical or right angle versions**

## Typical performance characteristics

Contact configuration . . . . . SPST, SPDT, DPDT
Contact timing . . . . . Break-Before-Make
Contact rating max. . . . . gold: 0.4VA @20VDC or peak AC
. . . . . silve: 1A @ 125VAC or 28 VDC resistive
Electrical life . . . . . 1 pole2 . .2 pole
. . . . . .gold . . . . . 100,000 . .80,000 cycles
. . . . . .silver . . . . 60,000 . . .50,000 cycles
Contact resistance, initial. . . . . max.20 mOhms'
Insulation resistance . . . . . 1,000 MOhms @ 500VDC
Dielectric strength . . . . . 1,000 Volts rms @ sea level
Actuation force . . . . . 0.5 to 4N (50-400gf)
Actuator travel . . . . . momentary .030" (.762)

## Environmental specification

Operating temperature . . . . . -30°C to +65°C
Storage temperature . . . . . -30°C to +65°C
Solder heat resistance . . . . . wave solder capable to 265° C
Seal . . . . . versions with process seal, with disposable cap

## Material specifications

Contacts . . . . . copper or brass, gold over nickel finish or silver
. . . . . clad with silver over nickel finish
Actuator . . . . . thermoplastic
Terminals . . . . . brass with gold over nickel or silver over nickel
Case . . . . . thermoplastic
Frame and support bracket. . . . . steel with tin over copper finish
RoHS Directive 2002/95/EC . . . . . compliant

## Product key

Typical product key: **TP B 1 1 C G RA ES 0 04**

**Type**
**TP** Tiny pushbutton series

**Bushing**
**B** round .188 (4.78) dia. bushing not threaded
**F** round 1/4-40 UNS 2B thread

**Actuator**
**blank** standard
**F** flush (available with B bushings only)

**Number of Poles**
**1** single pole

**Contact rating**
**1** 0.4VA Gold

**Function**
**C** single throw, momentary
**F** double throw, momentary

**Plating**
**G** Gold

**Terminals**
**PC** printed circuit board **RA** right angle (right angle, ES available with B and C bushing only)

**Process Seal**
**ES** process sealed with disposable boot, epoxied double case

**Button Color**
**0** black **2** red **6** blue

**Material**
**04** RoHS compliant





Catalogue No. 8-1773450-9
Issued 09/2008

Dimensions are in mm and inches and are shown for reference purposes only.

Specifications subject to change.

## TP_ES Series, Tiny, Process Sealed (Continued)

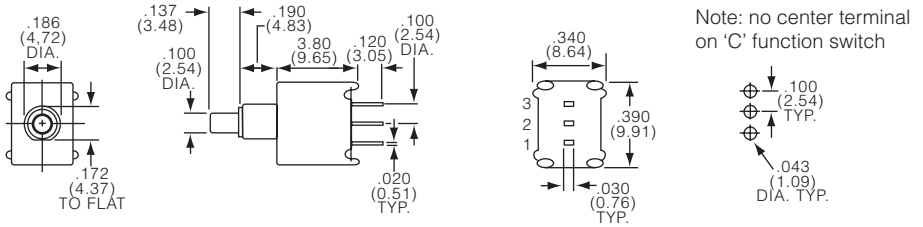


**Bushing**

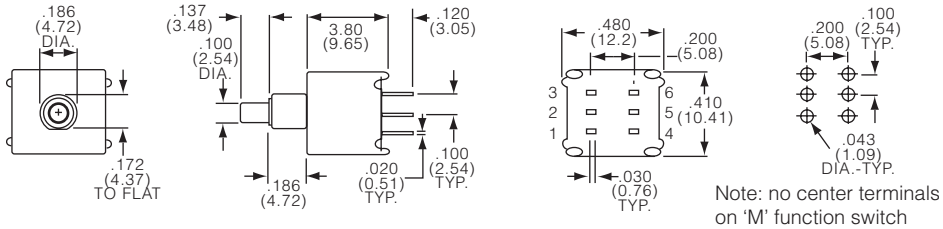
**B, Round .188 (4.78) dia. bushing not threaded**

**printed circuit board**

TPB11CGPCES

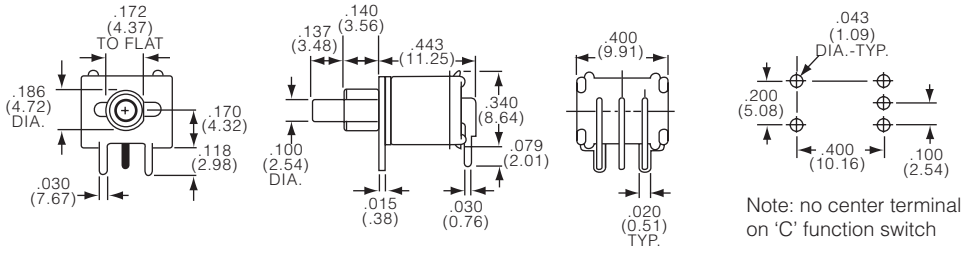


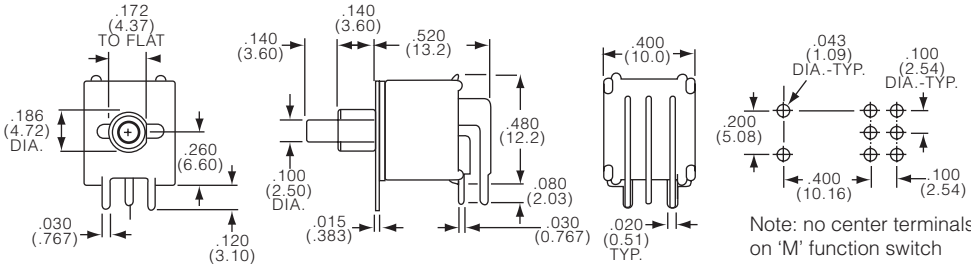
TPB21RGPCES




**right angle**

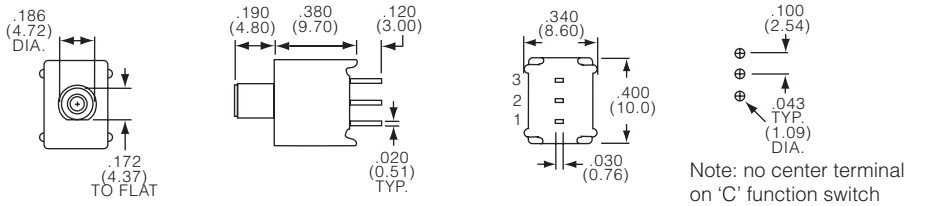
TPB11CGRAES




**printed circuit board, flush actuator**

TPBF11CGPCES





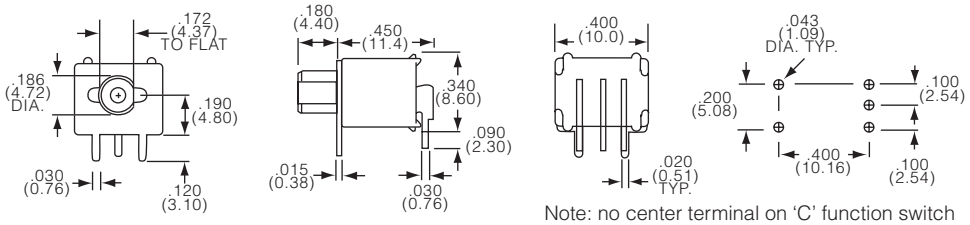

Catalogue No. 8-1773450-9
Issued 09/2008

Dimensions are in mm and inches and are shown for reference purposes only.
Specifications subject to change.
www.tycoelectronics.com

## TP_ES Series, Tiny, Process Sealed (Continued)

### right angle, flush actuator

TPBF11CGRAES

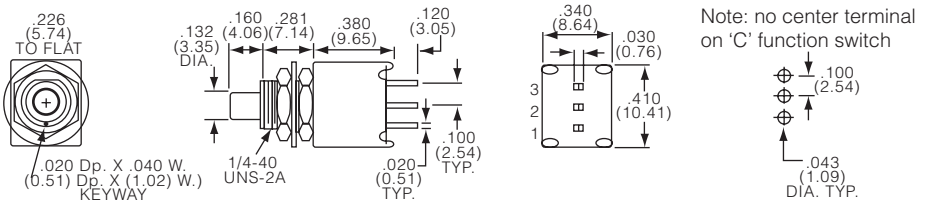



Note: no center terminal on 'C' function switch

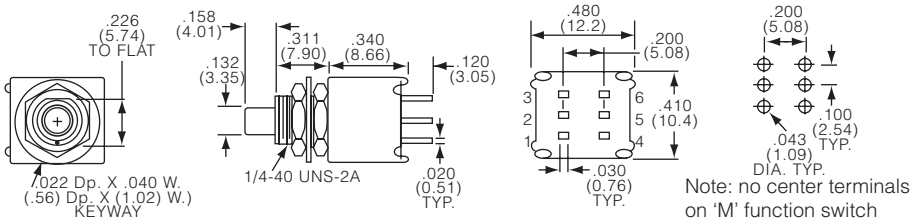
### F, Round 1/4-40 UNS 2B thread

### printed circuit board

TPF11CGPCES



TPF21MGPCES




| Product key | Bushing | Act. | Poles | Rating | Function | | | Plating | Terminals | Btn. | Material | Part Number |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| TPB11CGPCES004 | round | std | 1 | 0.4VA | Off-(On) | Off | 1-3 | Gold | pcb | black | RoHS | 1825097-3 |
| TPB11CGRAES004 | .188 (4.78) | | | | | | | | right angle | | compliant | 1825097-5 |
| TPB11CGRAES204 | dia | | | | | | | | | red | | 1825097-7 |
| TPB11FGPCES204 | bushing, | | | | On-(On) | 1-2 | 2-3 | | pcb | | | 1-1825097-0 |
| TPB11FGRAES004 | not | | | | | | | | right angle | black | | 1-1825097-4 |
| TPB11FGRAES604 | threaded | | | | | | | | | blue | | 1-1825097-5 |
| TPBF11CGPCES004 | | flush | | | Off-(On) | Off | 1-3 | | pcb | black | | 2-1825097-0 |
| TPBF11CGRAES004 | | | | | | | | | right angle | | | 2-1825097-2 |
| TPBF11FGPCES004 | | | | | On-(On) | 1-2 | 2-3 | | pcb | | | 2-1825097-3 |
| TPBF11FGRAES004 | | | | | | | | | right angle | | | 2-1825097-6 |
| TPF11CGPCES004 | 1/4-40 | std | | | Off-(On) | Off | 1-3 | | pcb | | | 1825100-3 |
| TPF11FGPCES004 | UNS 2B | | | | On-(On) | 1-2 | 2-3 | | | | | 1-1825100-0 |





Catalogue No. 8-1773450-9
Issued 09/2008

Dimensions are in mm and inches and are shown for reference purposes only.

Specifications subject to change.

# MSPM Series, Magnetic Reed, Long Life, Hermetically Sealed



## Features

- **Glass to metal hermetic seal**
- **Magnetic return (no springs)**
- **Wire lug or pc terminals**
- **Actuator cap and mounting hardware supplied**

## Typical performance characteristics

Contact configuration . . . . . SPST
Contact timing . . . . . Break-Before-Make
Contact rating max. . . . . 1.0 VA (100 mA max. 100 VDC max.)
Electrical life . . . . . at 0.1 VA: 5,000,000 cycles
. . . . . at 5 VA: 50,000 cycles
Contact resistance, initial . . . . . max. 100 mOhms'
Insulation resistance . . . . . 1,000 MOhms min.
Dielectric strength . . . . . 1,000 Volts rms @ sea level
Actuation force . . . . . tactile "keyboard feel" 1.15 to 2 N (115 to 200 gf.)
. . . . . "breakaway reducing immediately
. . . . . to 0.43 N (43gf.) "follow-through"
Actuator travel . . . . . .078" (2.0 mm)

## Environmental specification

Operating temperature . . . . . -10°C to +80°C
Storage temperature . . . . . -10°C to +80°C
Solder heat resistance . . . . . hand solder
Seal . . . . . glass to metal

## Material specifications

Contacts . . . . . copper alloy gold plated over nickel
Actuator . . . . . polyamide
Terminals . . . . . copper alloy gold plated over nickel
Case . . . . . steel
RoHS Directive 2002/95/EC . . . . . compliant

## Product key

Typical product key: **MSPM 101 B 1 04**

**Type**
**MSPM** Pushbutton, magnetic reed, long life, hermetically sealed

**Version**
**101** standard version

**Action**
**B** normally closed, black button
**C** normally open, red cap

**Button**
**blank** with button soft detent
**S** without button audible detent

**Terminals**
**blank** pin
**0** pin
**2** pin
**1** wire lug

**Material**
**04** RoHS compliant



Catalogue No. 8-1773450-9
Issued 09/2008

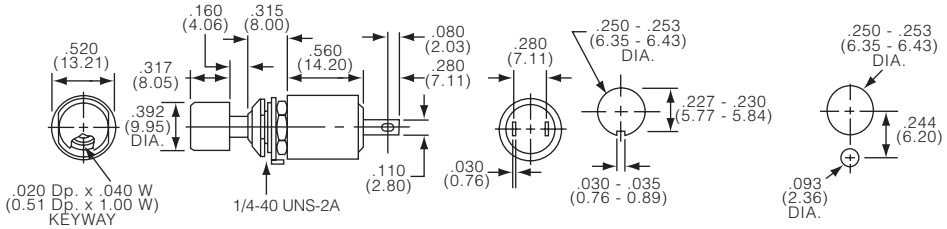
Dimensions are in mm and inches and are shown for reference purposes only.

Specifications subject to change.

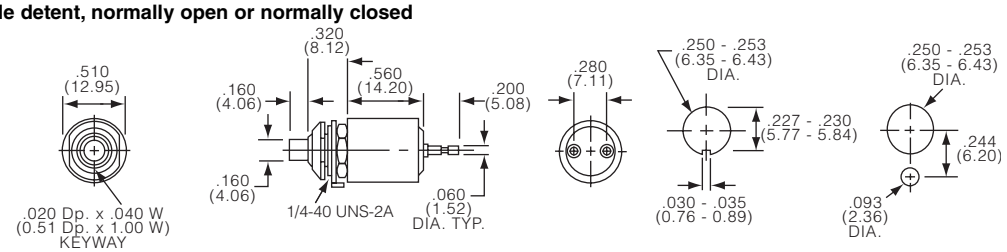
## MSPM Series, Magnetic Reed, Long Life, Hermetically Sealed (Continued)

**Button**

**blank** **with button, soft detent, normally open or normally closed**




**S** **without button, audible detent, normally open or normally closed**




| Product key | Action | Button | Terminals | Material | Part Number |
|---|---|---|---|---|---|
| MSPM101B004 | normally closed | with button | pin | RoHS | 1825538-1 |
| MSPM101B104 | black button | soft detent | wire lug | compliant | 1825538-2 |
| MSPM101C104 | normally open | | | | 1825538-3 |
| MSPM101C204 | red button | | pin | | 1825538-4 |
| MSPM101BS04 | normally closed | without button | | | 1825539-1 |
| MSPM101BS104 | black button | audible detent | wire lug | | 1825539-2 |
| MSPM101CS04 | normally open | | pin | | 1825539-3 |
| MSPM101CS104 | red button | | wire lug | | 1825539-4 |





Catalogue No. 8-1773450-9
Issued 09/2008

Dimensions are in mm and inches and are shown for reference purposes only.

Specifications subject to change.

# MSPF Series, Front or Rear Mount, 15/32 Bushing



## Features

- **Versatile front or rear entry mounting**
- **Relative small depth for 15/32-32 size threaded switch**
- **Decrotive mounting hardware supplied, others available**
- **Various button (actuator) colors**

## Typical performance characteristics

| | |
|---|---|
| Contact configuration | SPST and 2 circuit |
| Contact timing | Break-Before-Make |
| Contact rating max. | 0.5 A @ 125 VAC |
| Electrical life | 10,000 cycles |
| Contact resistance, initial | max.100 mOhms |
| Insulation resistance | 1,000 MOhms min. |
| Dielectric strength | 1,000 Volts rms @ sea level |
| Actuation force | 4.5 N (450 gf.) |
| Actuator travel | .098" (2.5 mm) |

## Environmental specification

| | |
|---|---|
| Operating temperature | -20°C to +80°C |
| Storage temperature | -20°C to +80°C |
| Solder heat resistance | hand solder |
| Seal | epoxy sealed terminals |

## Material specifications

| | |
|---|---|
| Contacts | copper alloy silver plated |
| Actuator (button) | thermoplastic |
| Terminals | copper alloy silver plated |
| Case | thermoset plastic |
| RoHS Directive 2002/95/EC | compliant |

## Product key

Typical product key: **MSPF** **101** **B**

**Type**
- **MSPF** Pushbutton switch, front or rear mount, 15/32-32 bushing

**Version**
- **101** standard version

**Action**
- **B** NC, normally closed, black button
- **C** NO, normally open, red button
- **BC** NO & NC, 2 circuit normally open and normally closed

**Button color** (BC Action only)

| | | | |
|---|---|---|---|
| **0** | black | **6** | blue |
| **2** | red | **9** | white |



Catalogue No. 8-1773450-9
Issued 09/2008

Dimensions are in mm and inches and are shown for reference purposes only.

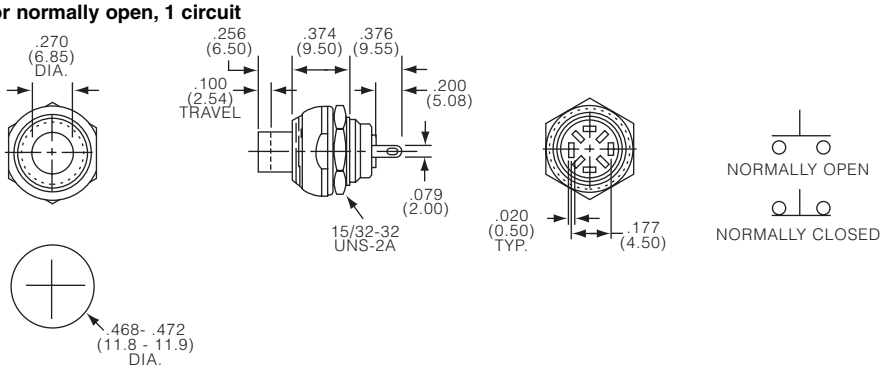
Specifications subject to change.

## MSPF Series, Front or Rear Mount, 15/32 Bushing (Continued)

### Action

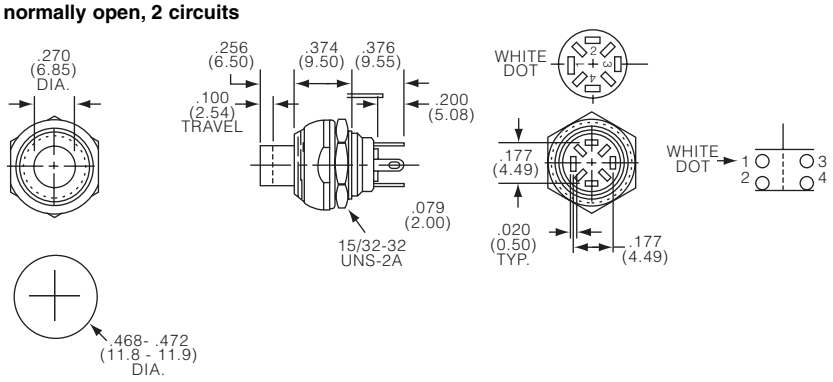
#### Codes B, C normally closed or normally open, 1 circuit

MSPF101B



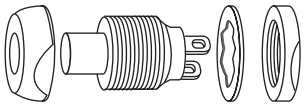

#### Code BC normally closed and normally open, 2 circuits

MSPF101BC




### Mounting

Application note: Illustration shows versatile fromt or rear entry usage with hardware supplied



| Product key | Action | Type | Button color | Terminals | Part Number |
|---|---|---|---|---|---|
| MSPF101B | normally closed | SPST | black | wire lug | 8-1437567-8 |
| MSPF101C | normally open | | red | | 9-1437567-3 |
| MSPF101BC0 | NO/NC | 2 circuit | black | | 8-1437567-9 |
| MSPF101BC2 | | | red | | 9-1437567-0 |
| MSPF101BC6 | | | bluw | | 9-1437567-1 |
| MSPF101BC9 | | | white | | 9-1437567-2 |





Catalogue No. 8-1773450-9
Issued 09/2008

Dimensions are in mm and inches and are shown for reference purposes only.

Specifications subject to change.

# MPA103 Series, Panel Mount



## Features

- **Relatively high current carrying capacity for size of switch**
- **One piece bushing and shoulder designed to reduce tear off**
- **Decorative hardware supplied**

## Typical performance characteristics

Contact configuration . . . . . SPST SPDT
Contact timing . . . . . Break-Before-Make
Contact rating max. . . . . 3A @ 125VAC
Electrical life. . . . . 10,000 cycles
Contact resistance, initial . . . . . 20 mOhms max
Insulation resistance . . . . . 1,000 MOhms min
Dielectric strength . . . . . 1,000 Volts rms @ sea level
Actuator travel . . . . . .098" (2.5mm)
Actuator Force . . . . . SPST: 2.8 N (.283)
. . . . . SPDT: 4.5 N (.453kg)

## Environmental specification

Operating temperature . . . . . -20°C to +70°C
Storage temperature . . . . . -40°C to +80°C
Solder heat resistance . . . . . hand solder 420°C max. 3 seconds max.
. . . . . .

## Material specifications

Contacts . . . . . copper alloy silver clad
Actuator (button) . . . . . phenol resin
Terminals . . . . . copper alloy silver plated
Case . . . . . thermoset plastic
RoHS Directive 2002/95/EC . . . . . compliant

## Product key

Typical product key: **MPA 103 C 04**

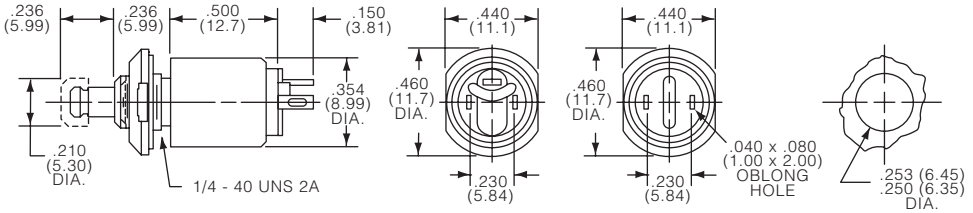
**Type**
**MPA** Sub-Miniature Pushbutton

**Version**
**103** standard

**Action**
**B** Normally Closed, momentary
**C** Normally Open, momentary
**D** Push on/Push off - (tactile)
**F** Momentary - (tactile)

**Material**
**04** RoHS compliant

MPA103C




Black cap supplied. Other colors available, order separately (see accessories pushbuttons).

| Product key | Action | Type | Terminals | Material | Part Number |
|---|---|---|---|---|---|
| MPA103B04 | N/C | SPST | Wire Lug | RoHS | 1825403-1 |
| MPA103C04 | N/O | | | compliant | 1825403-2 |
| MPA103D04 | Push on/Push off | SPDT | | | 1825404-1 |
| MPA103F04 | Momentary | | | | 1825404-2 |



Catalogue No. 8-1773450-9
Issued 09/2008

Dimensions are in mm and inches and are shown for reference purposes only.

Specifications subject to change.

# MSP103 Series, 2.5mm Travel, Panel Mount

## Features

- **MSP series over-travel design (self cleaning contacts) 3A**
- **MSPS butt contact design 0.5 A**
- **One piece bushing and sholder designed to reduce tear off**
- **Mounting hardware supplied, decorative hardware available**

## Typical performance characteristics

Contact configuration . . . . . SPST
Contact timing . . . . . Break-Before-Make
Contact rating max. . . . . MSP: 3 A @ 125 VAC
. . . . . MSPS: 0.5 A @ 125 VAC
Electrical life. . . . . 10,000 cycles
Contact resistance, initial . . . . . 100 mOhms max.
Insulation resistance . . . . . 1,000 mega ohms min.
Dielectric strength . . . . . 1,000 Volts rms @ sea level
Actuator travel. . . . . .098" (2.5 mm)

## Environmental specification

Operating temperature . . . . . -20°C to +80°C
Storage temperature . . . . . -20°C to +80°C
Solder heat resistance . . . . . hand solder 420°C max. 3 seconds max.

## Material specifications

Contacts . . . . . copper alloy silver plated
Actuator (Button) . . . . . thermoplastic
Terminals . . . . . copper alloy silver plated
Case . . . . . MPS: phenol resin, MSPS: thermoset plastic
RoHS Directive 2002/95/EC . . . . . compliant

## Product key

Typical product key: **MSP** **103** **B** **04**

**Type**
- **MSP** Pushbutton switch, 2.5mm travel, panel mount

**Contact**
- **103** 3 A @125 VAC
- **S103** 0.5 A @125 VAC

**Action/button color**
- **B** NC, normally closed, black actuator
- **C** NO, normally open, red actuator (contact version 103 only)
- **C0** NO, normally open, black actuator
- **C2** NO, normally open, red actuator, long bushing

**Material**
- **04** RoHS compliant
- **blank** RoHS compliant





Catalogue No. 8-1773450-9
Issued 09/2008

Dimensions are in mm and inches and are shown for reference purposes only.

Specifications subject to change.

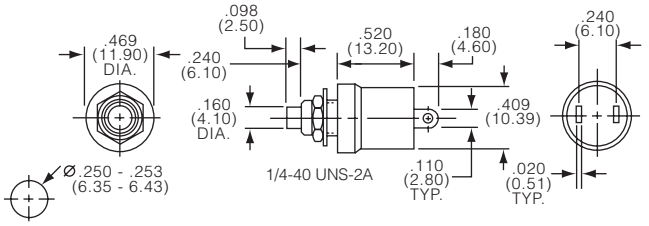
## MSP103 Series, 2.5mm Travel, Panel Mount (Continued)



### Contact

**103** **3 A contact**

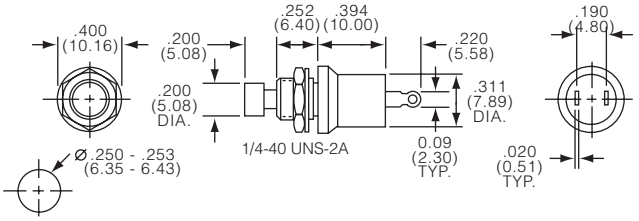
MSP103B




| Contact | Action | Bushing len. |
|---|---|---|
| 103 | B | 6.00mm (.236) |
| | C | 6.00mm (.236) |
| | C0 | 6.00mm (.236) |
| | C2 | 9.50mm (.374) |

**S103** **0.5 A contact**

MSPS103B




| Contact | Action | Bushing len. |
|---|---|---|
| S103 | B | 6.22mm (.245) |
| | C0 | 6.22mm (.245) |
| | C2 | 6.22mm (.245) |

| Product key | Contact | Action | Type | Button color | Terminals | Material | Part Number |
|---|---|---|---|---|---|---|---|
| MSP103B04 | 3 A | N/C | SPST | black | wire lug | RoHS | 1825516-1 |
| MSP103C04 | @125 VAC | N/O | | red | | compliant | 1825516-2 |
| MSP103C004 | | | | black | | | 1825516-3 |
| MSP103C204 | | | | red | | | 1825516-4 |
| MSPS103B | 0.5 A | N/C | | black | | | 1437568-5 |
| MSPS103C0 | @125 VAC | N/O | | | | | 1437568-7 |
| MSPS103C2 | | | | red | | | 1437568-6 |



Catalogue No. 8-1773450-9
Issued 09/2008

Dimensions are in mm and inches and are shown for reference purposes only.

Specifications subject to change.

# MPS Series, Snap Action

## Features

- **Wire lug or pc terminals**
- **Customer selected actuator cap size and color**
- **Entire series epoxy sealed terminals**
- **Actuator guards, decorative hardware, and silicone boot seals available**

## Typical performance characteristics

Contact configuration . . . . . SPDT, DPDT
Contact timing . . . . . Break-Before-Make
Contact rating max. . . . . 3 A @ 125 VAC
Electrical life. . . . . 50.000 cycles
Contact resistance, initial . . . . . 10 mOhms max.
Insulation resistance . . . . . 1,000 MOhms min.
Dielectric strength . . . . . 1,500 Volts rms @ sea level
Actuation force . . . . . 200-700 gf
Actuator travel . . . . . momentary .04 (1.0mm)
. . . . . push on/off .098 (2.5mm)

## Environmental specification

Operating temperature . . . . . -15°C to +70°C
Storage temperature . . . . . -15°C to +70°C
Solder heat resistance . . . . . wave solder capable to 265°C
. . . . . and hand solder
Seal . . . . . epoxy sealed terminals

## Material specifications

Contacts . . . . . phosphor bronze silver clad
Actuator . . . . . copper alloy nickel plated
Terminals . . . . . copper alloy silver plated
Case . . . . . epoxy resin
Frame. . . . . stainless steel
Support Bracket . . . . . brass tin plated
RoHS Directive 2002/95/EC . . . . . compliant

## Product key

Typical product key: **MPS 1 03 F PC 04**

**Type**
**MPS** Pushbutton Switches, Snap Action, 3Amp

**Poles**
**1** 1 pole
**2** 2 poles

**Contact**
**03** 3 A @125 VAC

**Function**

| | single pole | | double pole |
|---|---|---|---|
| **D** | Push-On/Push-Off | **N** | Push-On/Push-Off |
| **F** | momentary | **R** | momentary |

**Terminals**

| | | | |
|---|---|---|---|
| **blank** | wire lug | **RA** | right angle PC terminal |
| **PC** | printed circuit board | **WW** | wire wrap or extended PC |
| **PCV** | printed citrcuit board, with support | | |

**Material**
**04** RoHS compliant





Catalogue No. 8-1773450-9
Issued 09/2008

Dimensions are in mm and inches and are shown for reference purposes only.

Specifications subject to change.

## MPS Series, Snap Action (Continued)

### Function

| Fct. | Poles | | | | |
|---|---|---|---|---|---|
| D | 1 | On | On | 3-2 | 3-1 |
| F | 1 | On | (On) | 3-2 | 3-1 |
| N | 2 | On | On | 3-2, 6-5 | 3-1, 6-4 |
| R | 2 | On | (On) | 3-2, 6-5 | 3-1, 6-4 |

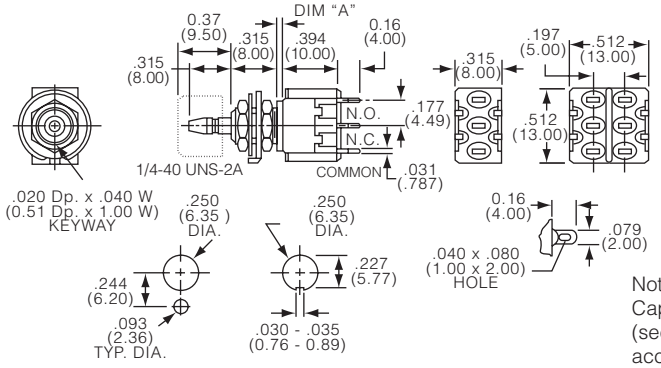
Off indicates a mechanical position with no electrical connection
(On) indicates momentary connection

### Terminals

**blank wire lug**

MPS103F

MPS203R



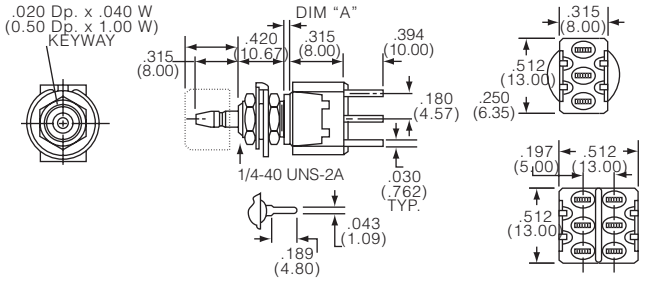

| Fnct | Action | Dim A |
|---|---|---|
| D | 1p, push-On/Off | 2.54 (.100) |
| F | 1p, momentary | 1.016 (.040) |
| N | 2p, push-On/Off | 2.54 (.100) |
| R | 2p, momentary | 1.016 (.040) |

Note: hardware included with switches. Caps not supplied, order separately (see cap model C22 and C23 under accessories)

**PC printed circuit board**

MPS103FPC

MPS203RPC



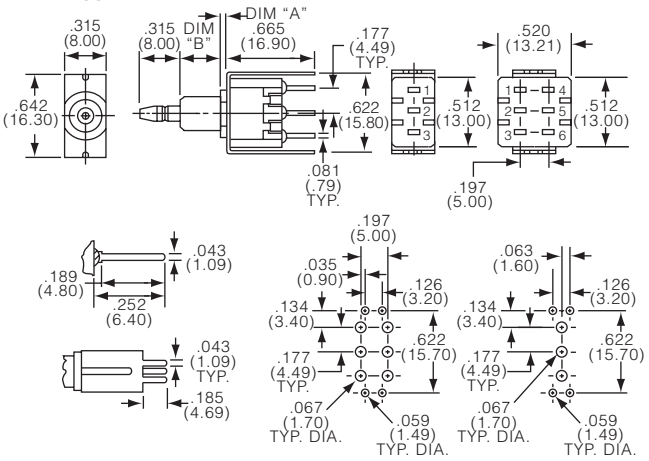

| Fnct | Action | Dim A |
|---|---|---|
| D | 1p, push-On/Off | 2.54 (.100) |
| F | 1p, momentary | 1.016 (.040) |
| N | 2p, push-On/Off | 2.54 (.100) |
| R | 2p, momentary | 1.016 (.040) |

Caps not supplied, order separately (see cap model C22 and C23 under accessories)

**PCV printed circuit board, with support**

MPS103FPCV

MPS203RPCV



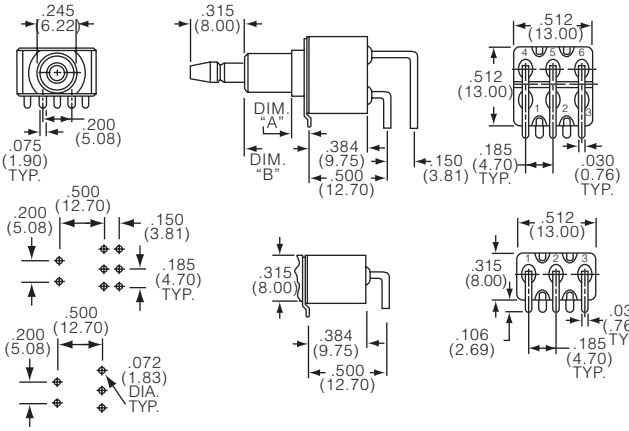

| Fnct | Dim A | Dim B |
|---|---|---|
| D | 2.03 (.080) | 8.00 (.315) |
| F | 1.01 (.040) | 7.49 (.295) |
| R | 1.01 (.040) | 7.49 (.295) |

Caps not supplied, order separately (see cap model C22 and C23 under accessories)

## MPS Series, Snap Action (Continued)

### RA right angle, printed circuit board

MPS103DRA



| Fnct | Dim A | Dim B |
|---|---|---|
| D | 2.54 (.100) | 10.7 (.432) |
| F | 1.52 (.060) | 9.24 (.364) |
| N | 2.54 (.100) | 10.7 (.432) |
| R | 1.52 (.060) | 9.24 (.364) |



MPS203NRA

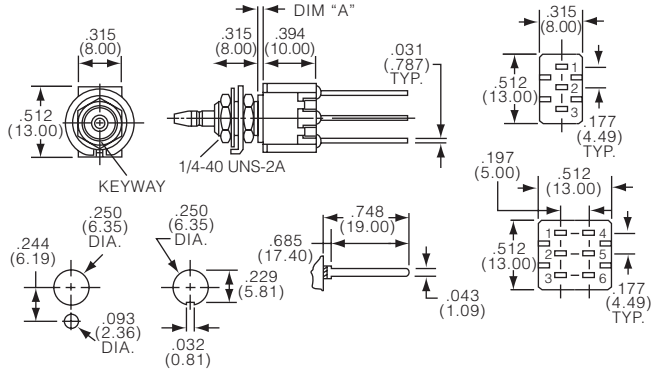


Caps not supplied, order separately (see cap model C22 and C23 under accessories)

### WW wire wrap, extended pcb

MPS103FWW

MPS203RWW



| Fnct | Action | Dim A |
|---|---|---|
| F | 1p, momentary | 1.016 (.040) |
| N | 2p, push-On/Off | 2.54 (.100) |
| R | 2p, momentary | 1.016 (.040) |

Caps not supplied, order separately (see cap model C22 and C23 under accessories)

| Product key | Poles | Contact | Function | Terminals | Material | Part Number |
|---|---|---|---|---|---|---|
| MPS103D04 | single pole | 3 A | Push-On/Push-Off | solder lug | RoHS | 1825092-1 |
| MPS103DPC04 | | @125 VAC | | printed circuit board | compliant | 1825399-1 |
| MPS103DPCV04 | | | | PCB, with support | | 1825401-1 |
| MPS103DRA04 | | | | right angle PCB | | 1825400-1 |
| MPS103F04 | | | momentary | solder lug | | 1825092-2 |
| MPS103FPC04 | | | | printed circuit board | | 1825399-2 |
| MPS103FPCV04 | | | | PCB, with support | | 1825401-2 |
| MPS103FRA04 | | | | right angle PCB | | 1825400-2 |
| MPS103FWW04 | | | | wire wrap | | 1825402-1 |
| MPS203N04 | double pole | | Push-On/Push-Off | solder lug | | 1825092-3 |
| MPS203NPC04 | | | | printed circuit board | | 1825399-3 |
| MPS203NPCV04 | | | | PCB, with support | | 1825401-3 |
| MPS203NRA04 | | | | right angle PCB | | 1825400-3 |
| MPS203R04 | | | momentary | solder lug | | 1825092-4 |
| MPS203RPC04 | | | | printed circuit board | | 1825399-4 |
| MPS203RPCV04 | | | | PCB, with support | | 1825401-4 |
| MPS203RRA04 | | | | right angle PCB | | 1825400-4 |
| MPS203RWW04 | | | | wire wrap | | 1825402-2 |





Catalogue No. 8-1773450-9
Issued 09/2008

Dimensions are in mm and inches and are shown for reference purposes only.

Specifications subject to change.

# MP / A / E / G, Green Series



## Features

- **Wire lug or pC terminals**
- **Customer selected actuator cap size and color on MPA series**
- **MPE series sealed to IP65**
- **Entire series with epoxy sealed terminals**
- **Actuator guards, decorative hardware, and silicone boot seals available**

## Typical performance characteristics

Contact configuration . . . . . SPDT, DPDT, 3PDT, 4PDT
Contact timing . . . . . Break-Before-Make
Contact rating max. . . . . 6 A @ 125 VAC, 3 A @ 250 VAC
Electrical life . . . . . push on/push off: 30,000 cycles
. . . . . momentary: . 20,000 cycles
Contact resistance, initial. . . . . 10 mOhms max.
Insulation resistance . . . . . 1,000 MOhms min.
Dielectric strength. . . . . 1,500 Volts rms @ sea level
Actuation force . . . . . 4 to 20 N (400 to 2000 gf)
Actuator travel . . . . . 3.55 mm

## Environmental specification

Operating temperature . . . . . -20°C to +80°C
Storage temperature . . . . . -40°C to +80°C
Solder heat resistance . . . . . wave solder capable to 265°C
Seal . . . . . mpe switches IP65

## Material specifications

Contacts . . . . . copper alloy silver clad
Actuator . . . . . brass nickel plated
Terminals . . . . . copper alloy gold plated
Case . . . . . alkyd polyester (green)UL94 V-O
Frame. . . . . stainless steel
RoHS Directive 2002/95/EC . . . . . compliant

## Product key

Typical product key: **MP A 1 06 D 04**

**Type**
**MP** Green Series Pushbutton Switches, panel mount

**Bushing style**
**A** 1/4-40 3.4mm actuator
**E** 1/4-40 3.4mm actuator with 'O' rings
**G** 15/32-32 large actuator

**Number of poles**
**1** single pole
**2** double pole
**3** 3 poles
**4** 4 poles

**Rating**
**06** 6 Amp

**Function**
1 & 3 pole / 2 & 4 pole
**D** push-on/push-off
**F** momentary
**N** push-on/push-off
**R** momentary

**Terminals**
**blank** wire lug
**PC** printed circuit board

**Material**
**04** RoHS compliant



Catalogue No. 8-1773450-9
Issued 09/2008

Dimensions are in mm and inches and are shown for reference purposes only.

Specifications subject to change.

## MP / A / E / G, Green Series (Continued)

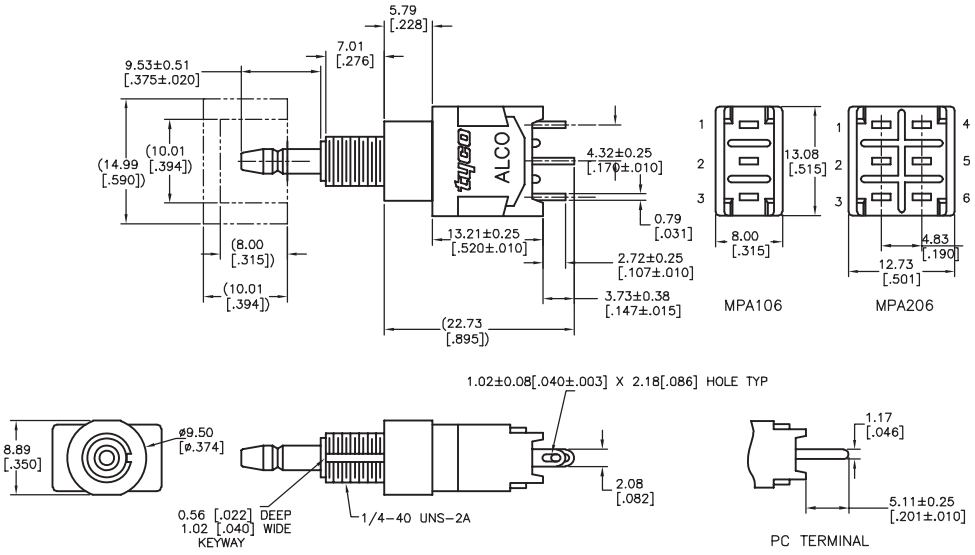


### Bushing style A

#### single & double pole

MPA106D

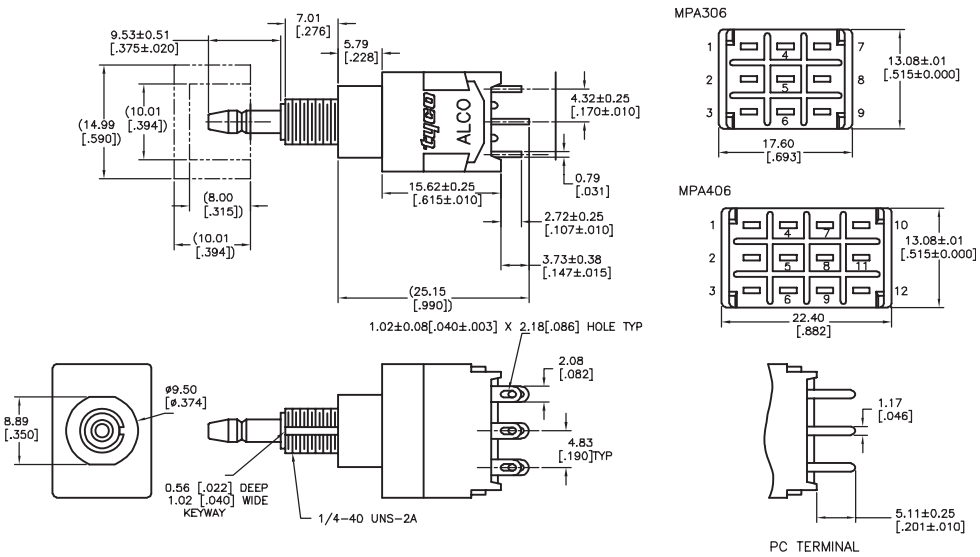
MPA206N



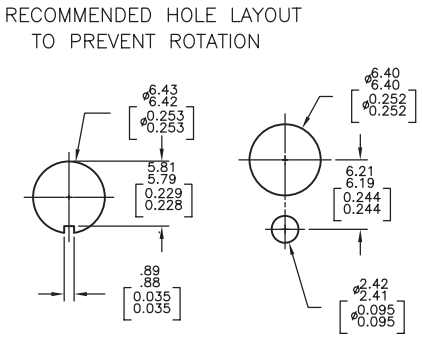

#### 3 & 4 pole

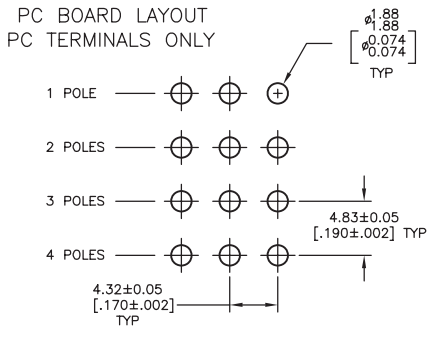
MPA306D

MPA406N




#### mounting






Catalogue No. 8-1773450-9
Issued 09/2008

Dimensions are in mm and inches and are shown for reference purposes only.

Specifications subject to change.

## MP / A / E / G, Green Series (Continued)

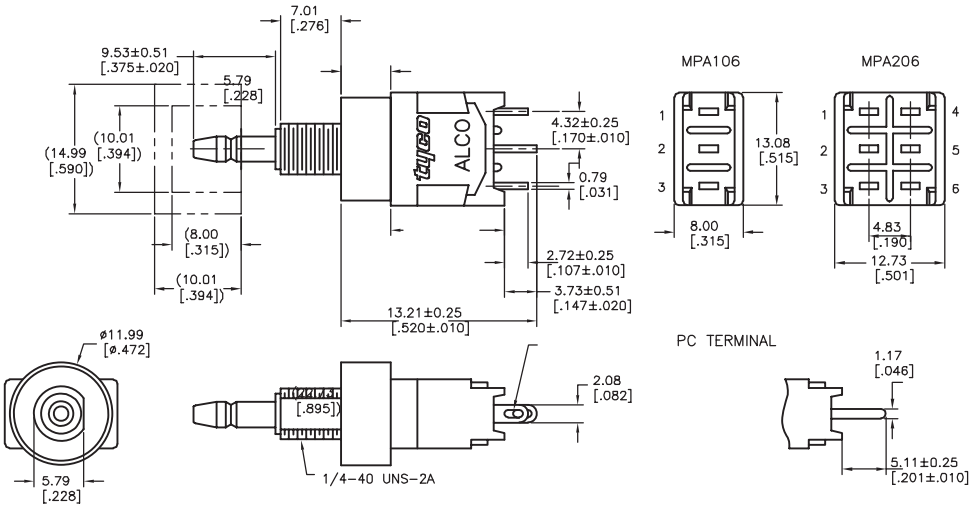


### Bushing style E

#### single & double pole

MPE106D

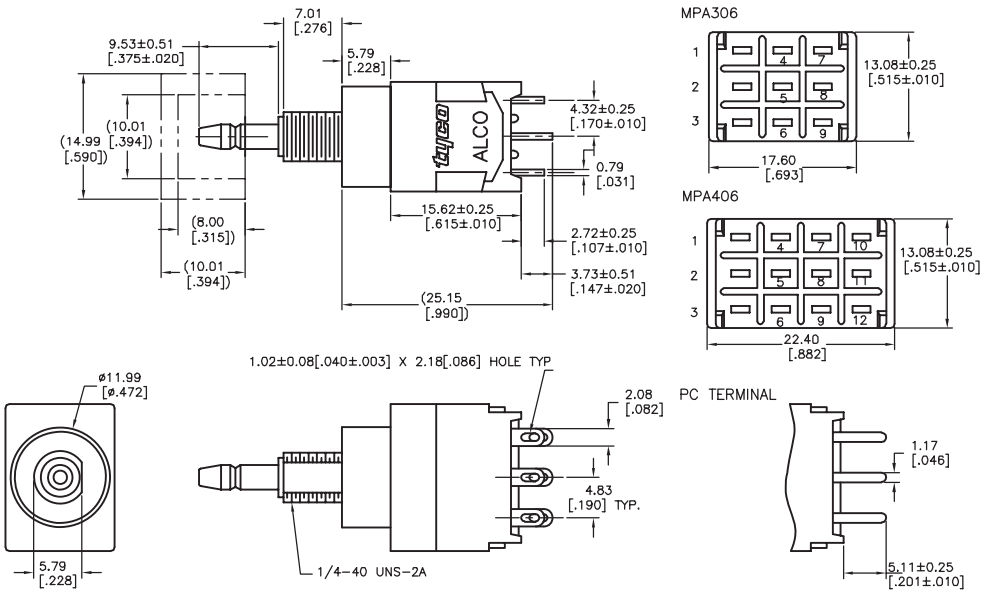
MPE206N



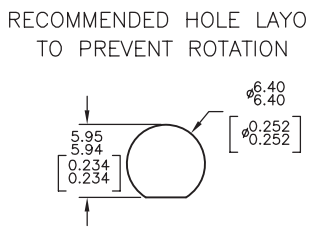

#### 3 & 4 pole

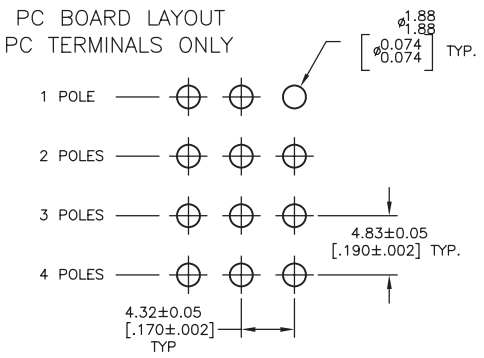
MPE306F

MPE406N




#### mounting






Catalogue No. 8-1773450-9
Issued 09/2008

Dimensions are in mm and inches and are shown for reference purposes only.
Specifications subject to change.
www.tycoelectronics.com

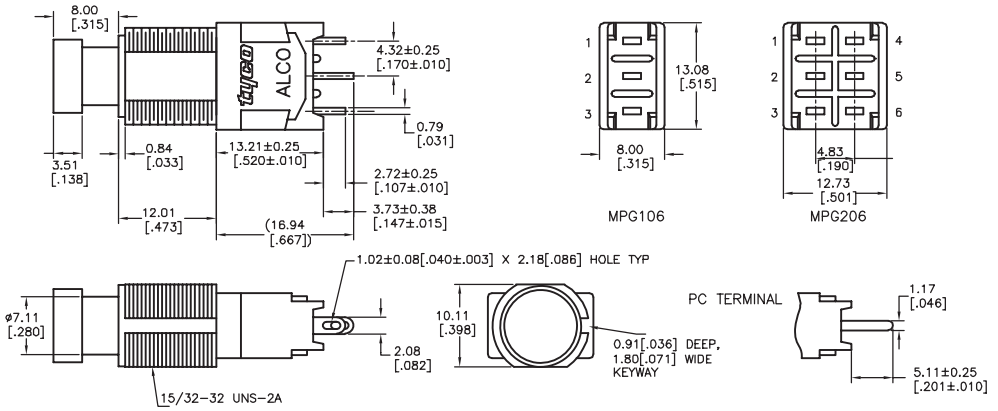
## MP / A / E / G, Green Series (Continued)

### Bushing style G

#### single & double pole

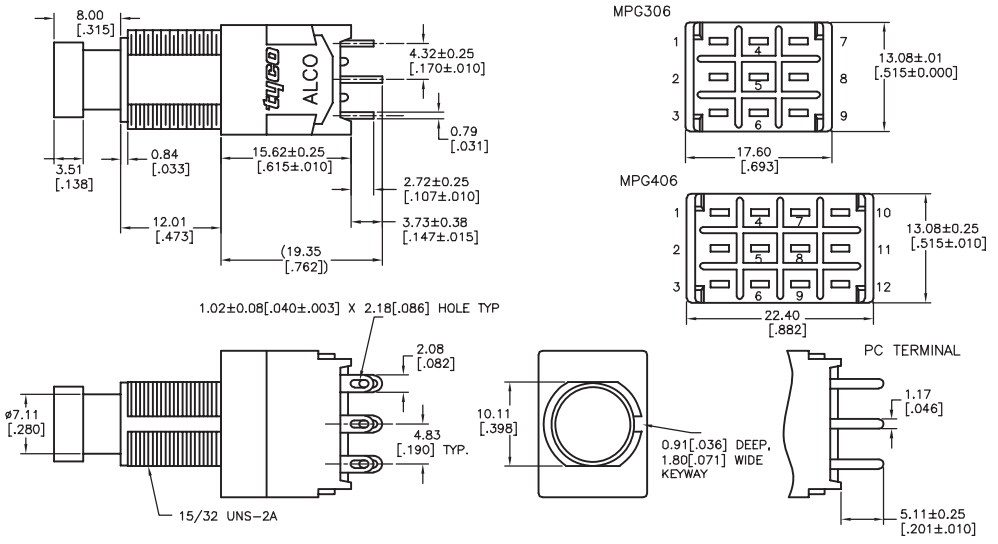
MPG106D

MPG206NPC



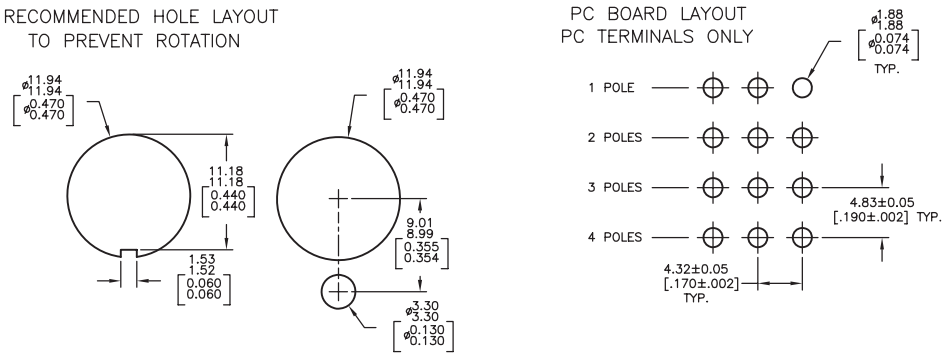

#### 3 & 4 pole

MPG306D




MPG406N

#### mounting



## MP / A / E / G, Green Series (Continued)

### Function

| Fct. | Poles | | | | |
|---|---|---|---|---|---|
| D | 1 | On | On | 2-1 | 2-3 |
| F | 1 | On | (On) | 2-1 | 2-3 |
| N | 2 | On | On | 2-1, 5-4 | 2-3, 5-6 |
| R | 2 | On | (On) | 2-1, 5-4 | 2-3, 5-6 |
| D | 3 | On | On | 2-1, 5-4, 8-7 | 2-3, 5-6, 8-9 |
| F | 3 | On | (On) | 2-1, 5-4, 8-7 | 2-3, 5-6, 8-9 |
| N | 4 | On | On | 2-1,5-4,8-7,11-10 | 2-3,5-6,8-9,11-12 |
| R | 4 | On | (On) | 2-1,5-4,8-7,11-10 | 2-3,5-6,8-9,11-12 |

Off indicates a mechanical position with no electrical connection
(On) indicates momentary connection



| Product key | Bushing | No. of poles | Rating | Function | Terminals | Material | Part Number |
|---|---|---|---|---|---|---|---|
| **MPA106D04** | 1/4-40 | single pole | 6 Amps | push-on/push-off | wire lug | RoHS | **1825040-1** |
| **MPA106F04** | 3.4mm | | | momentary | | compliant | **1825040-2** |
| **MPA106DPC04** | actuator | | | push-on/push-off | pcb | | **1825040-3** |
| **MPA106FPC04** | | | | momentary | | | **1825040-4** |
| **MPA206N04** | | double pole | | push-on/push-off | wire lug | | **1825040-5** |
| **MPA206NPC04** | | | | | pcb | | **1825040-6** |
| **MPA206R04** | | | | momentary | wire lug | | **1825040-7** |
| **MPA206RPC04** | | | | | pcb | | **1825040-8** |
| **MPA306D04** | | 3 poles | | push-on/push-off | wire lug | | **1825040-9** |
| **MPA306F04** | | | | momentary | | | **1-1825040-0** |
| **MPA406N04** | | 4 poles | | push-on/push-off | | | **1-1825040-1** |
| **MPA406R04** | | | | momentary | | | **1-1825040-2** |
| **MPE106D04** | 1/4-40 | single pole | | push-on/push-off | | | **1825041-1** |
| **MPE106F04** | 3.4mm | | | momentary | | | **1825041-2** |
| **MPE206N04** | actuator | double pole | | push-on/push-off | | | **1825041-3** |
| **MPE206R04** | with 'O' ring | | | momentary | | | **1825041-4** |
| **MPE306D04** | | 3 poles | | push-on/push-off | | | **1825041-5** |
| **MPE306F04** | | | | momentary | | | **1825041-6** |
| **MPE406N04** | | 4 poles | | push-on/push-off | | | **1825041-7** |
| **MPE406R04** | | | | momentary | | | **1825041-8** |
| **MPG106D04** | 15/32-32 | single pole | | push-on/push-off | | | **1825042-1** |
| MPG106DPC04 | large | | | push-on/push-off | pcb | | 1825042-2 |
| **MPG106F04** | actuator | | | momentary | wire lug | | **1825042-3** |
| MPG106FPC04 | | | | | pcb | | 1825042-4 |
| **MPG206N04** | | double pole | | push-on/push-off | wire lug | | **1825042-5** |
| **MPG206NPC04** | | | | | pcb | | **1825042-6** |
| **MPG206R04** | | | | momentary | wire lug | | **1825042-7** |
| **MPG206RPC04** | | | | | pcb | | **1825042-8** |
| **MPG306D04** | | 3 poles | | push-on/push-off | wire lug | | **1825042-9** |
| **MPG306F04** | | | | momentary | | | **1-1825042-0** |
| **MPG406N04** | | 4 poles | | push-on/push-off | | | **1-1825042-1** |
| **MPG406R04** | | | | momentary | | | **1-1825042-2** |

Preferred parts in bold print



Catalogue No. 8-1773450-9
Issued 09/2008

Dimensions are in mm and inches and are shown for reference purposes only.
Specifications subject to change.
www.tycoelectronics.com

# A60 Series, THT

## Features

- **Approved construction**
- **2 different actuator lengths**
- **2 Change-over contacts**
- **Versions with sealed base available**

## Typical performance characteristics

| | |
|---|---|
| Contact configuration | DPDT |
| Contact timing | Break-before-Make timing |
| Contact rating max | 0,5 A @ 60 V AC/DC |
| Electrical life | >10,000 cycles (200 mA @ 15 VAC) |
| Mechanical life | 20,000 cycles |
| Contact resistance | max 40 mOhm |
| Insulation resistance | min. 10,000 MOhm |
| Dielectric strength | 500 VAC |
| Actuator travel | momentary 3.3 mm |

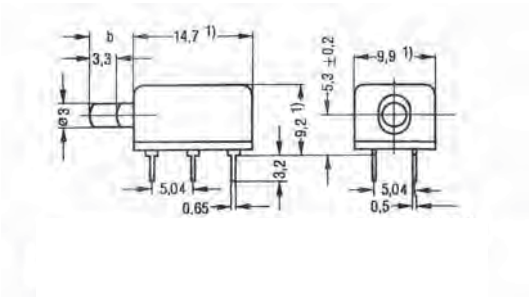
## Environmental specification

| | |
|---|---|
| Operating temperature | -25°C to +85°C |
| Storage temperature | -25°C to +85°C |
| Solder heat resistance | 265°C/ 10s wave |

## Material specifications

| | |
|---|---|
| Base | pc-gf |
| Cover | psu |
| Contacts | copper alloy gold finish |
| Terminals | copper alloy tin finish |
| actuator | pom |
| RoHS compliance | compliant |

## Dimensions




dimension b = 5.4 mm or 9.4 mm



Catalogue No. 8-1773450-9
Issued 09/2008

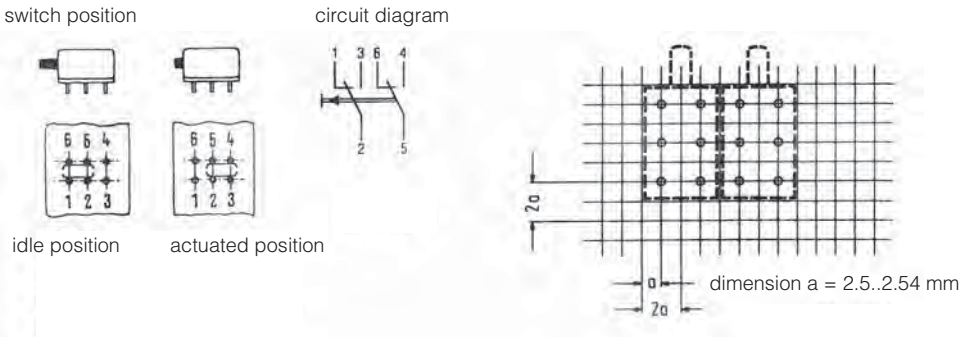
Dimensions are in mm and inches and are shown for reference purposes only.

Specifications subject to change.

## A60 Series, THT (Continued)



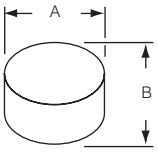
### Function, Mounting




| Product key | Actuator | Sealed base | Material | Part Number |
|---|---|---|---|---|
| C42315A60A3 | standard | no | RoHS | 1393683-1 |
| C42315A60A4 | long | no | compliant | 1393683-2 |
| C42315A60A13 | standard | yes | | 1393683-3 |
| C42315A60A14 | long | yes | | 1393683-4 |

# Accessories

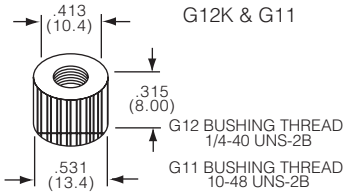
## Caps



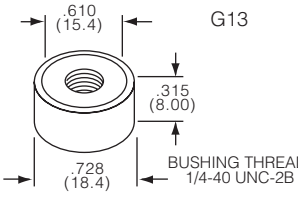

| Product key | for | Color | Diam A | Length B | Material | Part Number |
|---|---|---|---|---|---|---|
| C50 | MPA3 | black | 4.95 (.195) | 3.05 (.120) | RoHS | 6-1437627-2 |
| C52 | | red | | | compliant | 6-1437627-3 |
| C55 | | green | | | | 6-1437627-5 |
| C59 | | white | | | | 6-1437627-6 |
| C80 | | black | 7.87 (.310) | 4.06 (.160) | | 6-1437627-7 |
| C82 | | red | | | | 6-1437627-8 |
| C85 | | green | | | | 6-1437627-9 |
| C89 | | white | | | | 7-1437627-0 |
| C9004 | MPG | black | 9.00 (.354) | 3.47 (.137) | | 1825070-1 |
| C9204 | | red | | | | 1825070-2 |
| C9604 | | orange | | | | 1825070-3 |
| C9904 | | yellow | | | | 1825070-4 |
| C22004 | MPS/MSPM | black | 10.2 (.402) | 8.00 (.315) | | 1825068-1 |
| C22204 | MPE/MPA6 | red | | | | 1825068-2 |
| C22304 | | orange | | | | 1825068-3 |
| C22404 | | yellow | | | | 1825068-4 |
| C22504 | | green | | | | 1825068-5 |
| C22604 | | blue | | | | 1825068-6 |
| C22904 | | white | | | | 1825068-7 |
| C23004 | | black | 15.2 (.600) | 10.0 (.394) | | 1825069-1 |
| C23204 | | red | | | | 1825069-2 |
| C23304 | | orange | | | | 1825069-3 |
| C23404 | | yellow | | | | 1825069-4 |
| C23504 | | green | | | | 1825069-5 |
| C23604 | | blue | | | | 1825069-6 |
| C23904 | | white | | | | 1825069-7 |

## Guards

G12K



G13




| Product key | Thread | Color | Texture | Material | Part Number |
|---|---|---|---|---|---|
| G11A | 10-48 | natural Aluminum | smooth | RoHS | 7-1437627-6 |
| G11B | | black Aluminum | | compliant | 7-1437627-7 |
| G11C | | chrome brass | | | 7-1437627-8 |
| G11KA | | natural Aluminum | straight knurl | | 7-1437627-9 |
| G11KB | | black Aluminum | | | 8-1437627-0 |
| G12A | 1/4-40 | natural Aluminum | smooth | | 8-1437627-1 |
| G12B | | black Aluminum | | | 8-1437627-2 |
| G12C | | chrome brass | | | 8-1437627-3 |
| G12KA | | natural Aluminum | straight knurl | | 8-1437627-4 |
| G12KB | | black Aluminum | | | 8-1437627-5 |
| G12KC | | chrome brass | | | 8-1437627-6 |
| G13A | | natural Aluminum | smooth | | 8-1437627-7 |
| G13B | | black Aluminum | | | 8-1437627-8 |
| G13C | | chrome brass | | | 8-1437627-9 |
| G13KA | | natural Aluminum | straight knurl | | 9-1437627-0 |
| G13KB | | black Aluminum | | | 9-1437627-1 |
| G13KC | | chrome brass | | | 9-1437627-2 |
| G15 | 15/32-32 | | smooth | | 9-1437627-3 |





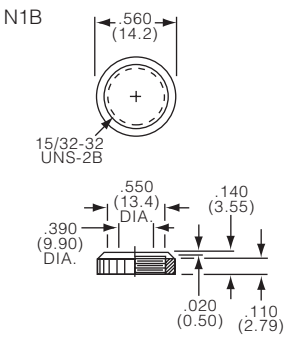
Catalogue No. 8-1773450-9
Issued 09/2008

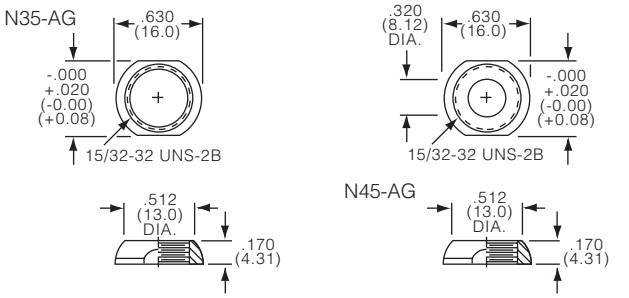
Dimensions are in mm and inches and are shown for reference purposes only.

Specifications subject to change.

## Accessories (Continued)

### Decorative Hardware




| Product key | Thread | Material | Part Number |
|---|---|---|---|
| N1B04 | 15/32-32 | RoHS | 1825622-2 |
| N3504 | | compliant | 1825621-2 |
| N4504 | | | 1825623-3 |

# BP Series Boot Seals

## Features

- **One piece design, nut over molded "bonded" to silicone boot element**
- **Silicone rubber eliminates cure dates**
- **Protects against moisture, oil, dirt, dust, most solvents, and some acids**

## Environmental specification

Operating temperature . . . . . -65°C to 265°C

## Material specifications

Boot material . . . . . silicone rubber
Threaded nut material, and finish. . . . . brass nut, black oxide finish
RoHS Directive 2002/95/EC . . . . . compliant

## Product key

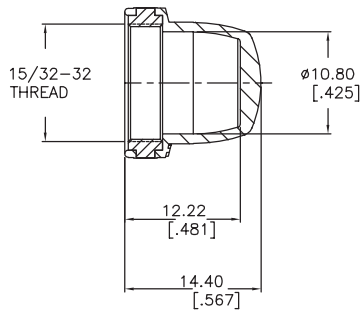
Typical product key: **BP 1532 0 04**

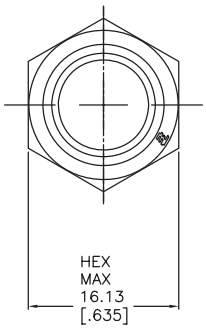
| | | | | | |
|---|---|---|---|---|---|
| **Type** | | | | | |
| **BP** | Pushbutton boot seals | | | | |
| **Nut thread** | | | | | |
| **1048** | 10-48 UNS 2-B | | | | |
| **A1440** | 1/4-40 UNS 2-B | | | | |
| **1440** | 1/4-40 UNS 2-B | | | | |
| **1532** | 15/32-32 UNS 2-B | | | | |
| **2010** | 1/4-40 UNS 2B with knurl | | | | |
| **Color** | | | | | |
| **0** | black | **2** | red | **8** | gray |
| **Material** | | | | | |
| **04** | RoHS compliant | | | | |

## Nut thread

### 1048 10-48 UNS 2-B, suited for MSPF and MPG series switches

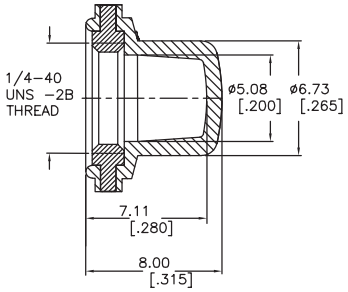
BP1048004

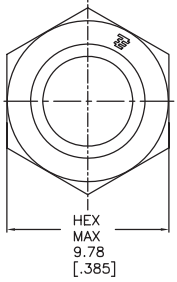



### A1440 1/4-40 UNS 2-B, suited for MSPMBS,MSPMCS,MSP3,MPA3,TP series switches

BPA1440004








Catalogue No. 8-1773450-9
Issued 09/2008

Dimensions are in mm and inches and are shown for reference purposes only.

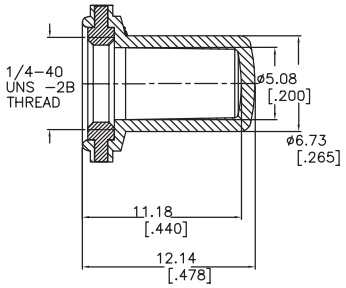
Specifications subject to change.

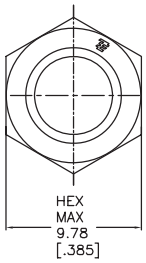
## BP Series Boot Seals (Continued)



**1440 1/4-40 UNS 2-B, suited for MSPM,MPA3,MPS and TP series switches**

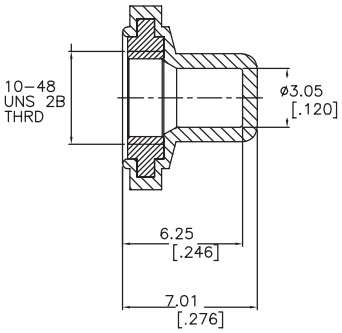
BP1440004

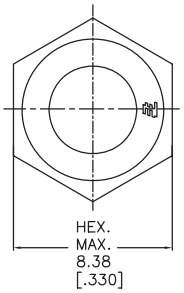



**1532 15/32-32 UNS 2-B, suited for TP series switches**

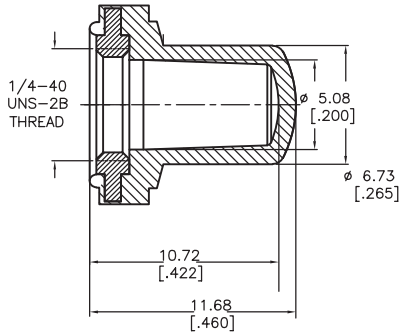
BP1532004

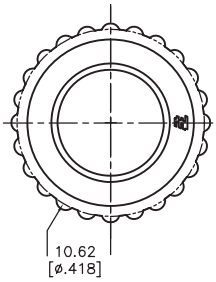



**2010 1/4-40 UNS 2B with knurl, suited for MSPM,MSP3,MPA3, and TP series switches**

BP201004




| Product key | Used on switch type | Nut thread | Color | Material | Part Number |
|---|---|---|---|---|---|
| **15/32-32 Pushbutton Boot Seals** | | | | | |
| BP1532004 | MSPF and MPG series | 15/32-32 | black | RoHS | 1825603-1 |
| BP1532204 | | | red | compliant | 1825603-2 |
| BP1532804 | | | gray | | 1825603-3 |
| **1/4-40 Pushbutton Boot Seals** | | | | | |
| BPA1440004 | MSPMBS,MSPMCS,MSP3,MPA3,TP series | 1/4-40 | black | RoHS | 1825604-1 |
| BPA1440204 | | | red | compliant | 1825604-2 |
| BPA1440804 | | | gray | | 1825604-3 |
| BP1440004 | MSPM,MPA3,MPS and TP series | | black | | 1825610-1 |
| BP1440204 | | | red | | 1825610-2 |
| BP1440804 | | | gray | | 1825610-3 |
| **10-48 Pushbutton Boot Seals** | | | | | |
| BP1048004 | TP series | 10-48 | black | RoHS | 1825615-1 |
| BP1048204 | | | red | compliant | 1825615-2 |
| **1/4-40 Knurled Pushbutton Boot Seal** | | | | | |
| BP201004 | MSPM,MSP3,MPA3, and TP series | 1/4-40 | black | RoHS compl. | 1825617-2 |



Catalogue No. 8-1773450-9
Issued 09/2008

Dimensions are in mm and inches and are shown for reference purposes only.

Specifications subject to change.

# BP Series Panel Seal

## Features

- **Unique design allows 1/4-40 threaded switch on almost any panel thickness**
- **Fits in a 15/32" (11.9mm) or 1/2" (12.7mm) diameter panel hole.**
- **Multiple cap colors avalable**

## Material specifications

Cap material . . . . . silicone rubber
Housing material . . . . . ABS thermoplastic black
Jam nut, spacer material & finish . . . . . brass nickel plated
RoHS Directive 2002/95/EC . . . . . compliant

## Product key

Typical product key: **BP M 1532 0 04**

**Type**
**BP** Pushbutton switch panel seal

**Switch series**
**M** MPA Series
**T** TP & TP_ES Tiny Series

**Nut thread**
**1532** 15/32-32 UNS 2-A

**Color**
**0** black **2** red **8** gray

**Material**
**04** RoHS compliant





Catalogue No. 8-1773450-9
Issued 09/2008

Dimensions are in mm and inches and are shown for reference purposes only.

Specifications subject to change.

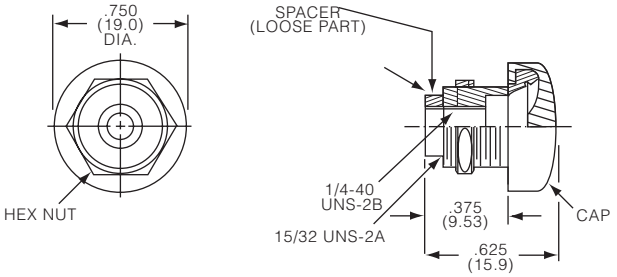
## BP Series Panel Seal (Continued)



**Switch series**

### BPM BPM Series panel seal, suited for MPA series switches

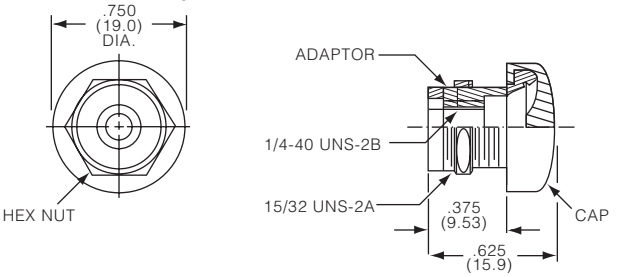
BPM1532004




For use with Miniature Pushbutton
The BPM seal adaptor accommodates all Tyco MPA Series of pushbutton switches utilizing the 1/4-40 threaded bushing.

### BPT BPT Series panel seal, suited for TP Tiny series switches

BPT1532804




For use with Tiny Series TPF Pushbutton
The BPT seal adaptor accommodates all Tyco TPF Series Tiny Pushbutton switches utilizing the 1/4-40 threading bushing.

| Product key | Used on switch type | Color | Material | Part Number |
|---|---|---|---|---|
| BPM1532004 | MPA series | black | RoHS | 1825618-1 |
| BPM1532204 | | red | compliant | 1825618-2 |
| BPM1532804 | | gray | | 1825618-3 |
| BPT1532004 | TP Tiny series | black | | 1825599-3 |
| BPT1532204 | | red | | 1825599-1 |
| BPT1532804 | | gray | | 1825599-2 |



Catalogue No. 8-1773450-9
Issued 09/2008

Dimensions are in mm and inches and are shown for reference purposes only.

Specifications 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**

**Вы можете приобрести в компании MosChip.**

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

http://moschip.ru/get-element

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

**Офис по работе с юридическими лицами:**

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: info@moschip.ru

Skype отдела продаж:
moschip.ru
moschip.ru_4
moschip.ru_6
moschip.ru_9