

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 Sealedpage D3



TP Series, Tinypage D6



TP_ES Series, Tiny, Process Sealedpage D15



MSPM Series, Magnetic Reed, Long Life, Hermetically Sealedpage D18

Product Range (Continued)



MSPF Series, Front or Rear Mount, 15/32 Bushingpage D20



MPA103 Series, Panel Mountpage D22



MSP103 Series, 2.5mm Travel, Panel Mountpage D23



MPS Series, Snap Actionpage D25



MP / A / E / G Green Seriespage D28



A60 Seriespage D33



Accessoriespage D35



BP Series Boot Sealspage D37



BP Series Panel Sealspage D39

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 | | | RA right angle | | | | | | | |
| | PCV printed circuit board, w bracket | | | VRA vertical right angle | | | | | | | |
| | | | | WW wire wrap | | | | | | | |
| Button Color | 0 black | | 2 red | | | | | | | | |
| Material | 04 RoHS compliant | | | | | | | | | | |

TSP Series, Tiny, Process Sealed (Continued)

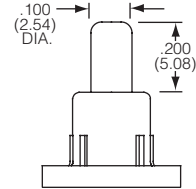
Actuator



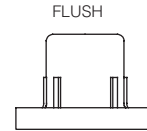
blank, F

standard actuator, flush actuator

blank, standard actuator



F, flush actuator



Terminations

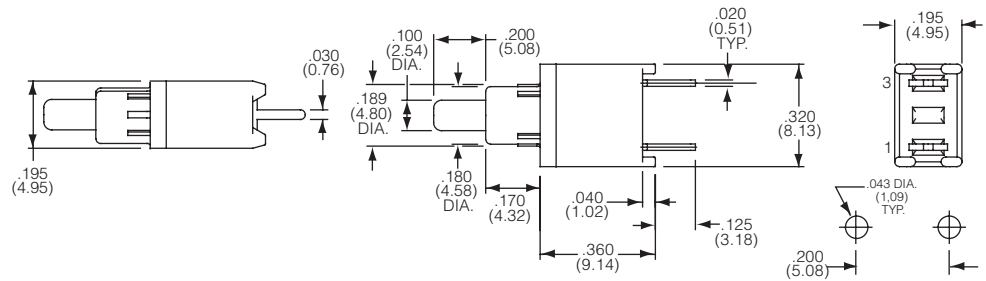


PC

printed circuit board

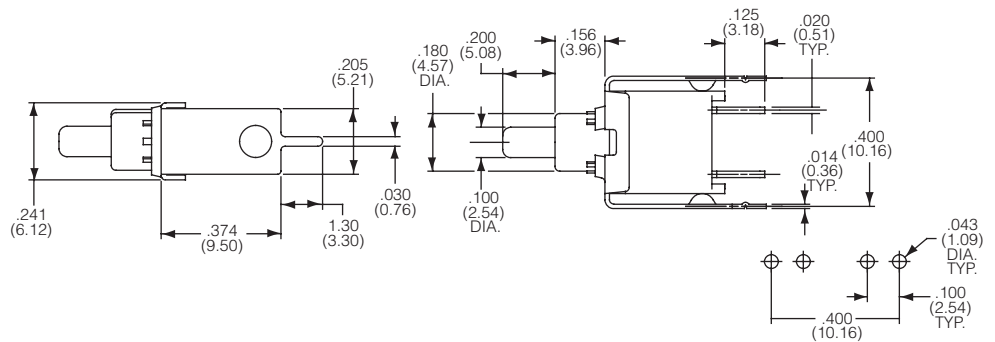


TSPD11CPC004



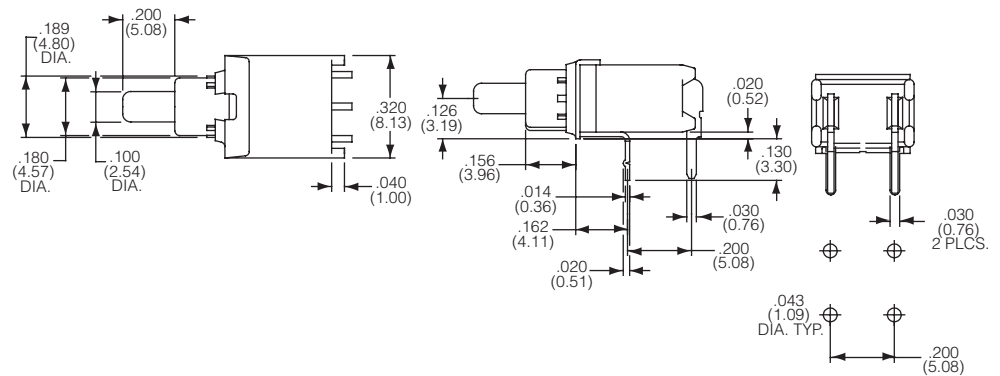
PCV

printed circuit board with vertical bracket



RA

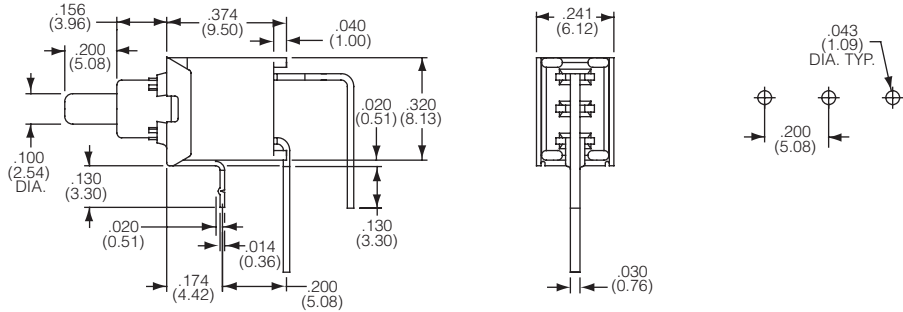
right angle



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 |

TP Series, Tiny

Features

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



Pushbutton Switches

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 | 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 | | | | | | | | | | | |
| C | single throw, momentary | | | | | | | | | | |
| F | double throw, momentary | | | | | | | | | | |
| CC | dual function C - 2 x single throw, momentary | | | | | | | | | | |
| FF | dual function F - 2 x double throw, momentary | | | | | | | | | | |
| double pole | | | | | | | | | | | |
| M | single throw, momentary | | | | | | | | | | |
| R | 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 | | | | | | | | | | |

TP Series, Tiny (Continued)

Bushing

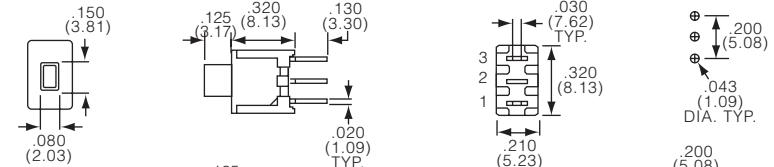


blank, square, no bushing

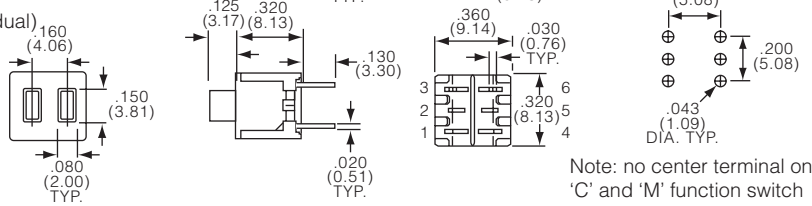
printed circuit board



Single pole



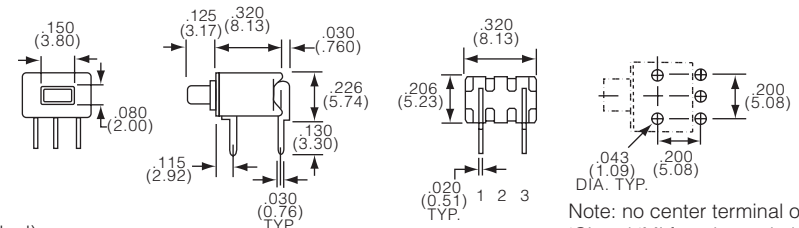
2 x Single pole (dual)



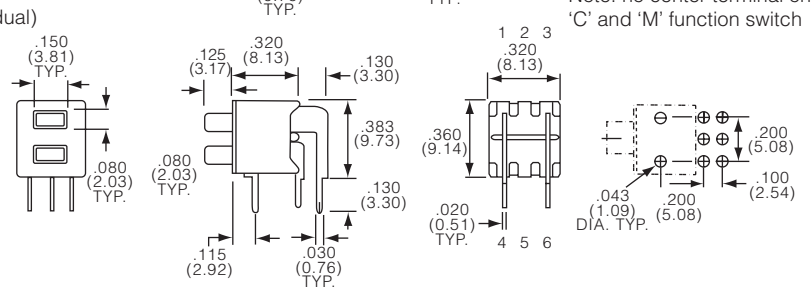
right angle



Single pole



2 x Single pole (dual)

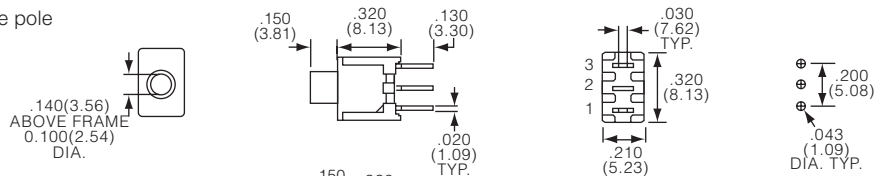


A, Round, no bushing

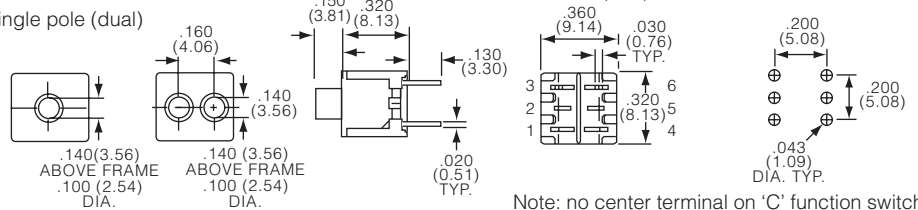
printed circuit board



Single pole



2 x Single pole (dual)



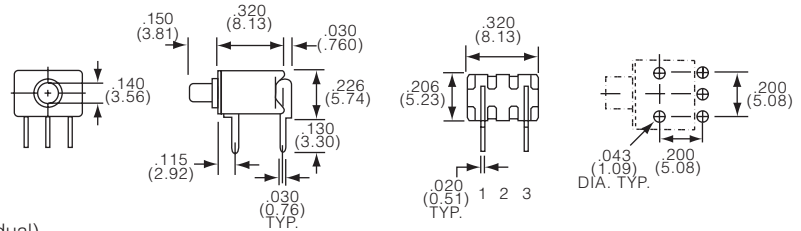
Pushbutton Switches

TP Series, Tiny (Continued)

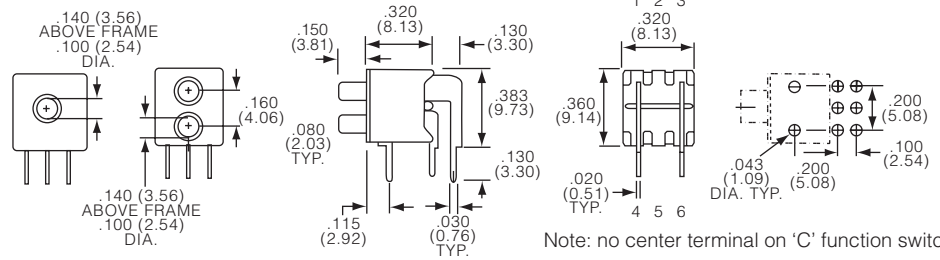
right angle



Single pole



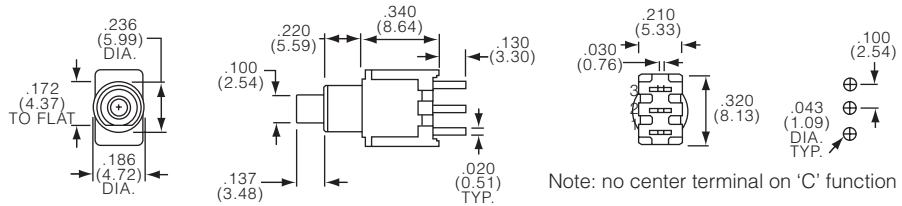
2 x Single pole (dual)



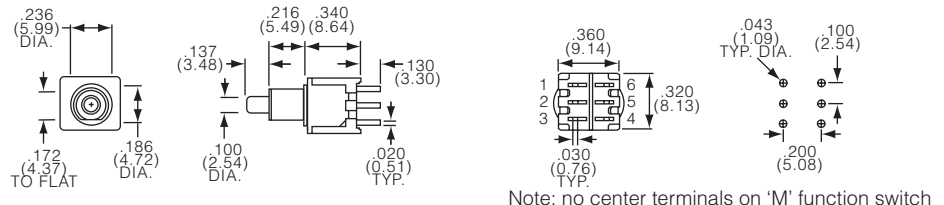
Note: no center terminal on 'C' function switch

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

printed circuit board

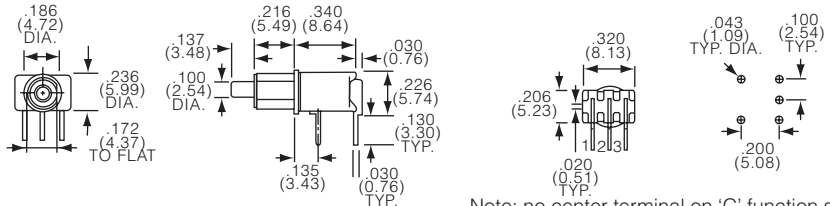


Note: no center terminal on 'C' function switch

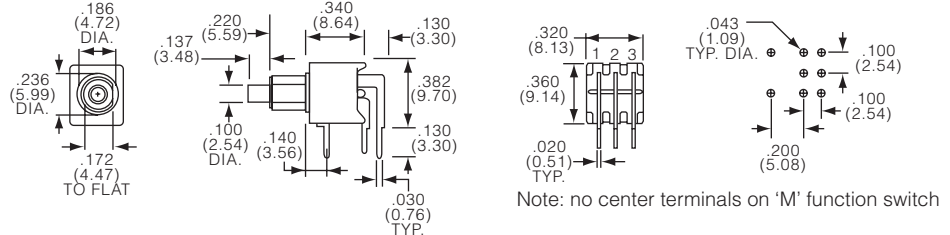


Note: no center terminals on 'M' function switch

right angle



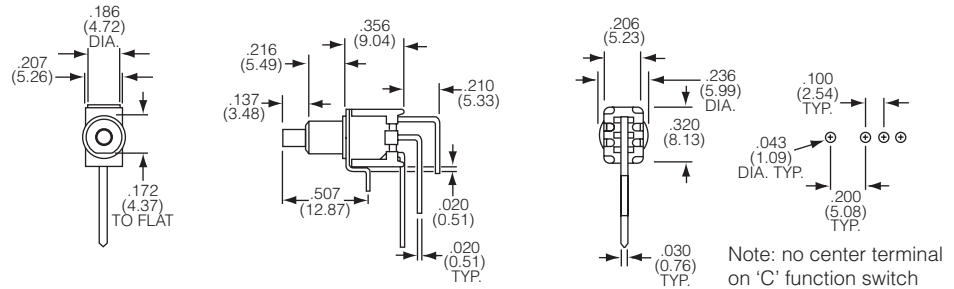
Note: no center terminal on 'C' function switch



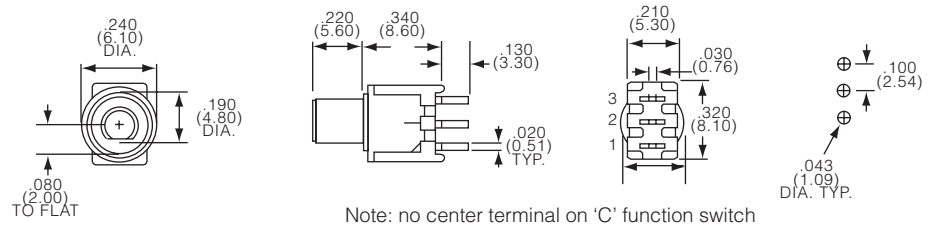
Note: no center terminals on 'M' function switch

TP Series, Tiny (Continued)

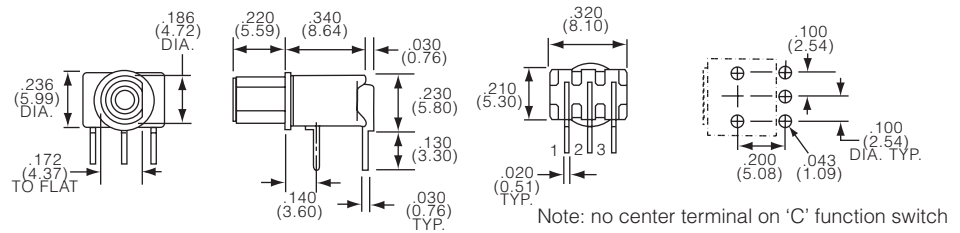
vertical right angle



printed circuit board, flush actuator

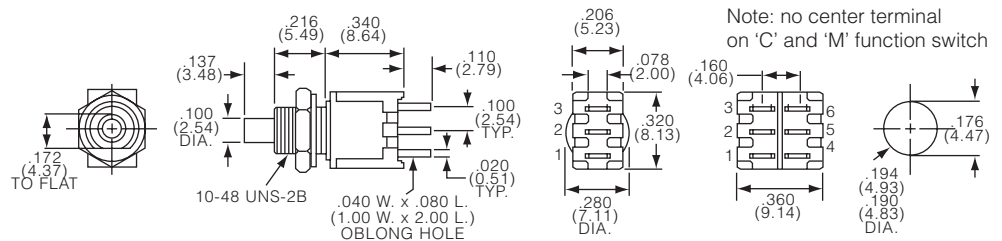


right angle, flush actuator

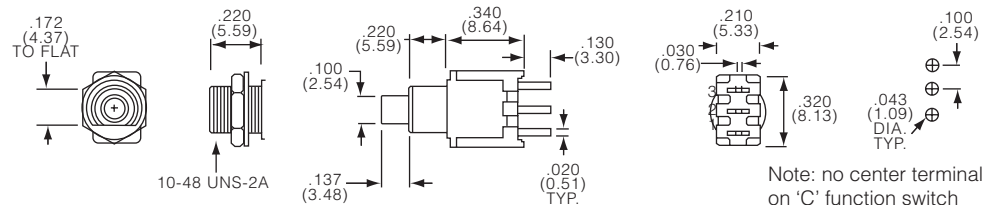


C, Round 10/48 UNS 2B thread

wire lug

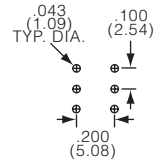
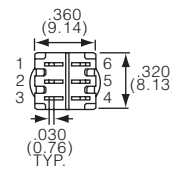
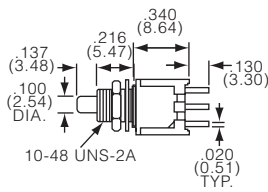


printed circuit board



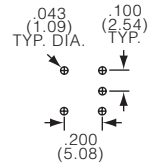
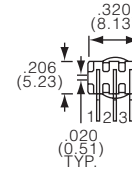
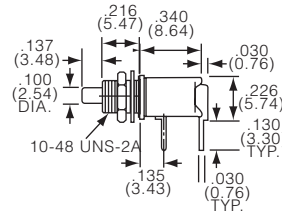
Pushbutton Switches

TP Series, Tiny (Continued)

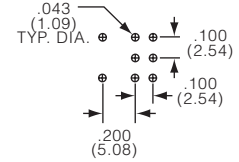
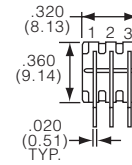
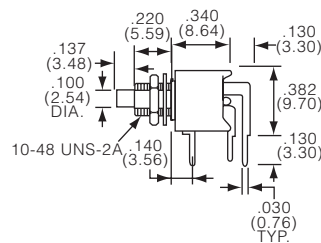


Note: no center terminals on 'M' function switch

right angle

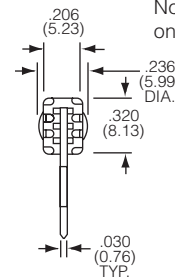
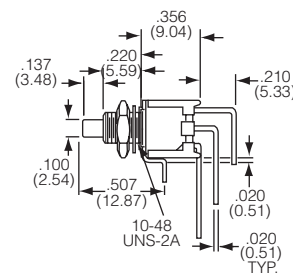
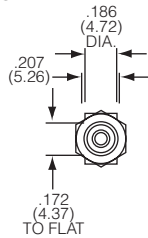


Note: no center terminal on 'C' function switch

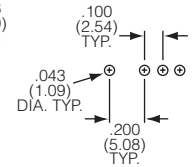


Note: no center terminals on 'M' function switch

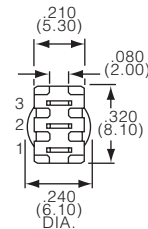
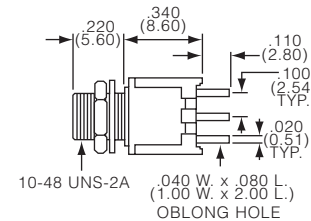
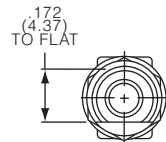
vertical right angle



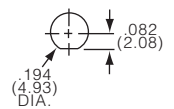
Note: no center terminal on 'C' function switch



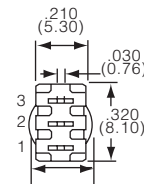
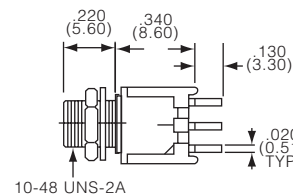
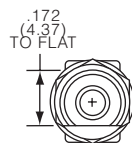
wire lug, flush actuator



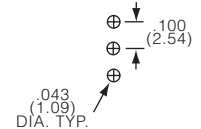
Note: no center terminal on 'C' function switch



printed circuit board, flush actuator

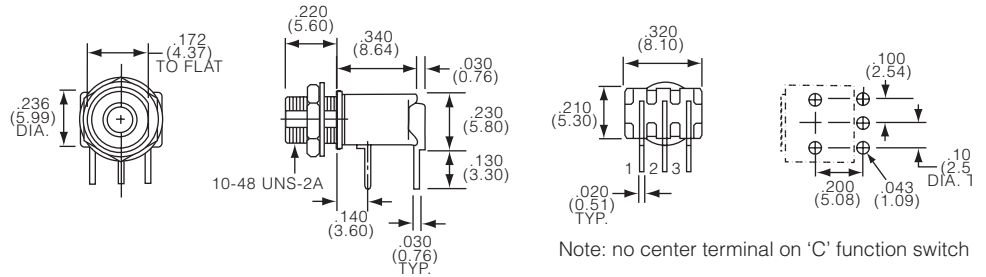


Note: no center terminal on 'C' function switch



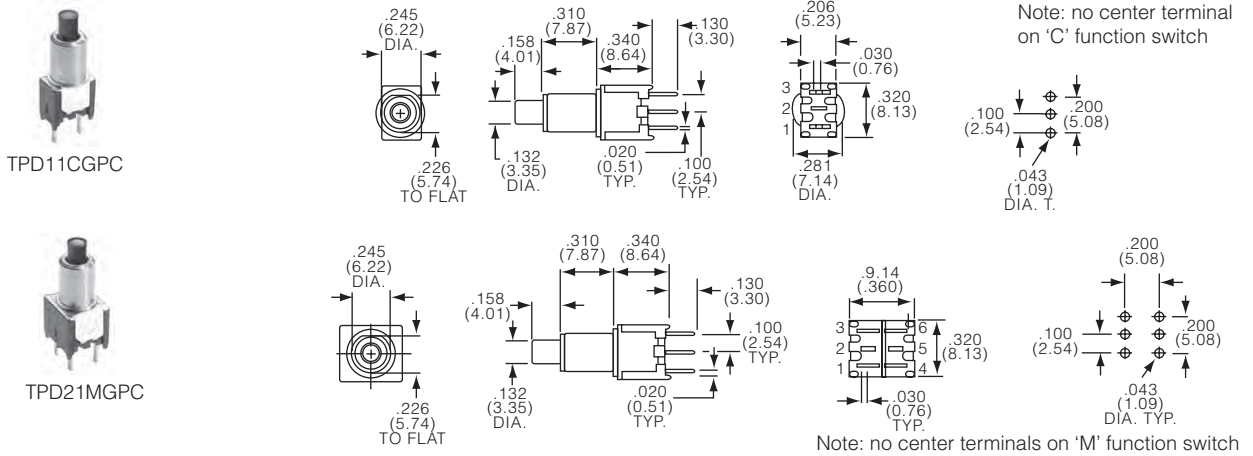
TP Series, Tiny (Continued)

right angle, flush actuator

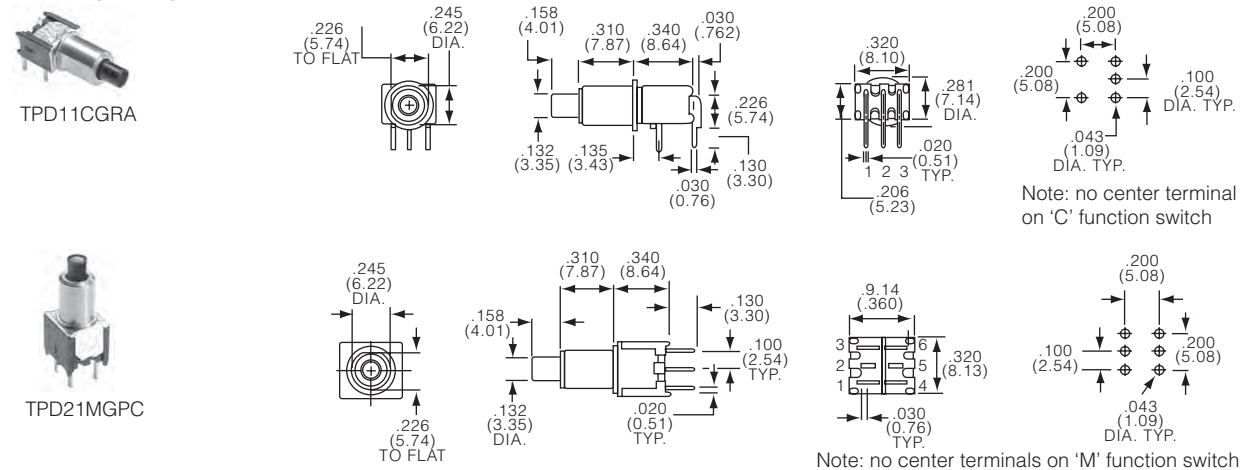


D, .250" (6.35) dia. bushing, not threaded

printed circuit board



right angle

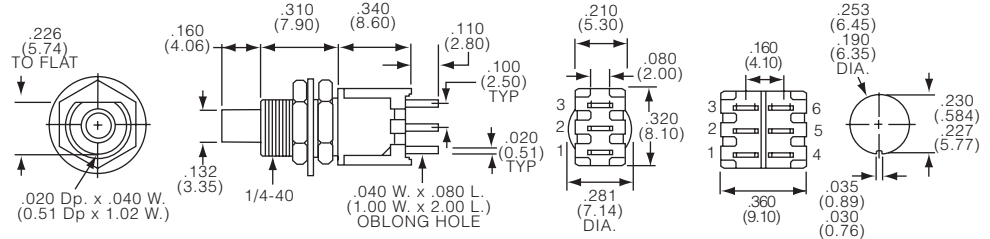


Pushbutton Switches

TP Series, Tiny (Continued)

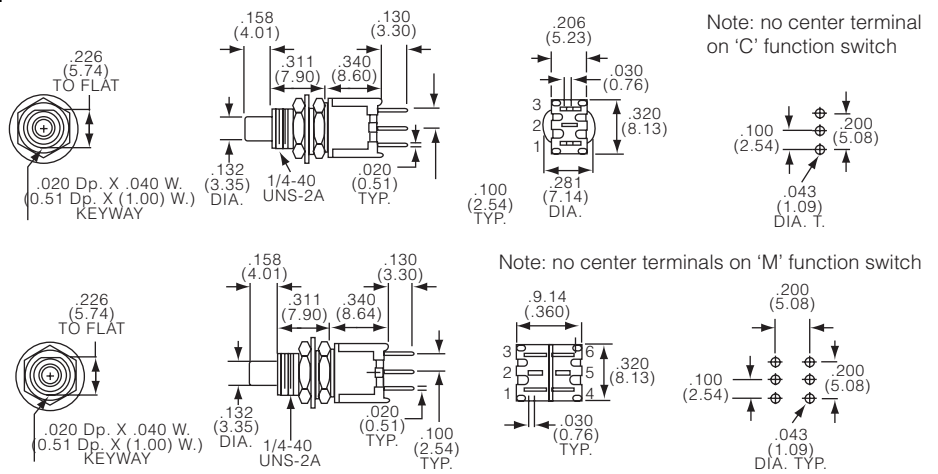
F, Round 1/4-40 UNS 2B thread

wire lug



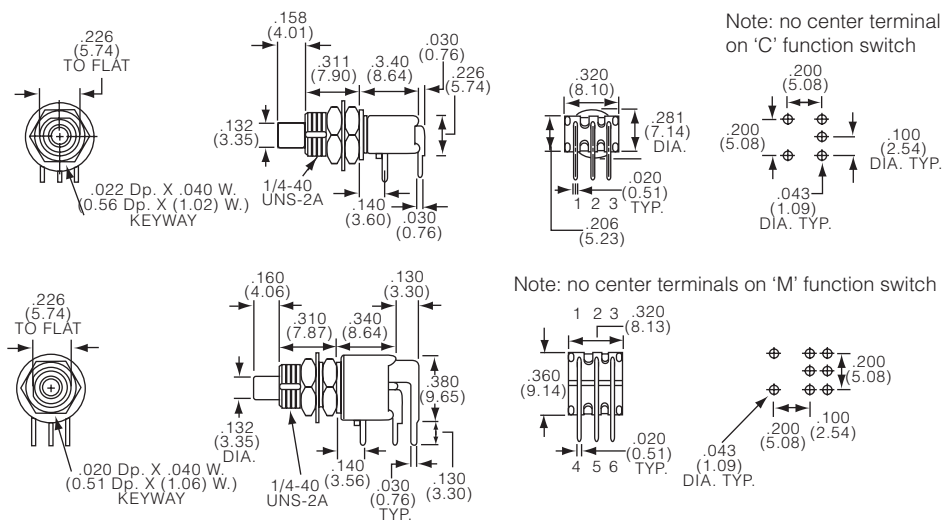
Note: no center terminal on 'C' and 'M' function switch

printed circuit board





Pushbutton Switches

right angle



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

TP Series, Tiny (Continued)

Pushbutton Switches

| 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 compliant | 1825098-1 |
| TPC11CGRA004 | 10/48 | | | | | | | | right angle | | | 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
 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
 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 | 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 | | | | | | | | | | | |

TP_ES Series, Tiny, Process Sealed (Continued)

Bushing

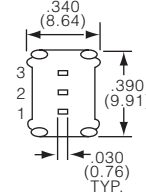
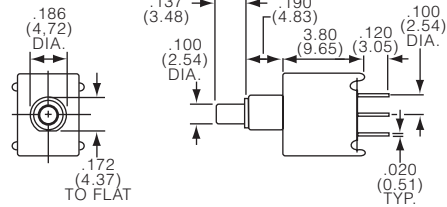


B, Round .188 (4.78) dia. bushing not threaded

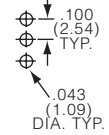
printed circuit board



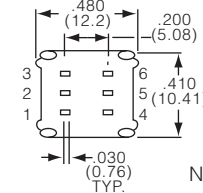
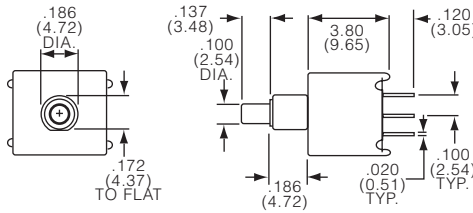
TPB11CGPCES



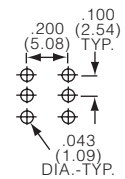
Note: no center terminal on 'C' function switch



TPB21RGPCES



Note: no center terminals on 'M' function switch

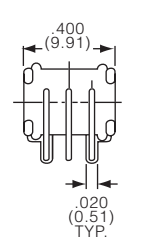
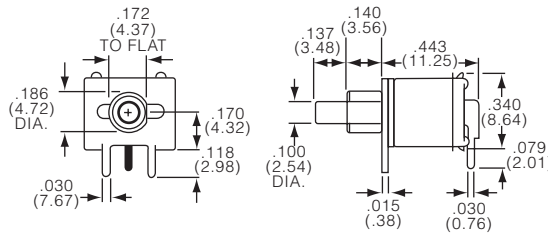


Pushbutton Switches

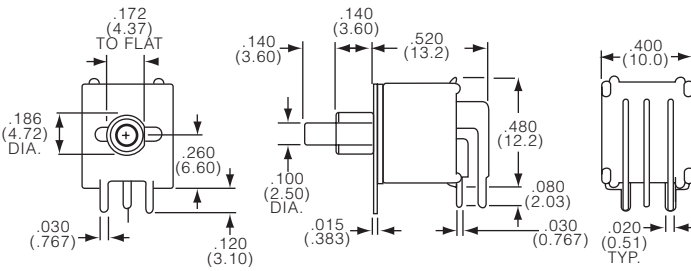
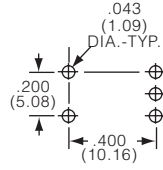
right angle



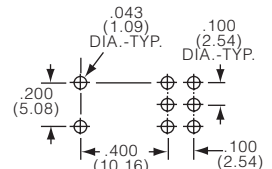
TPB11CGRAES



Note: no center terminal on 'C' function switch



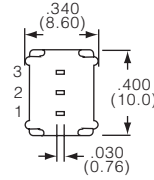
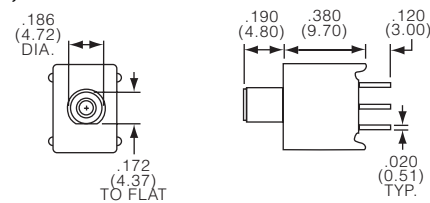
Note: no center terminals on 'M' function switch



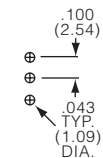
printed circuit board, flush actuator



TPBF11CGPCES

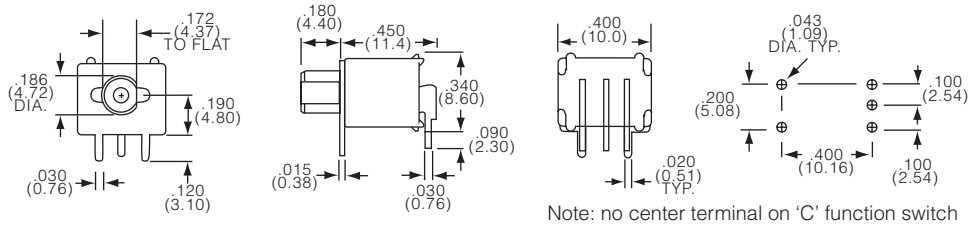


Note: no center terminal on 'C' function switch



TP_ES Series, Tiny, Process Sealed (Continued)

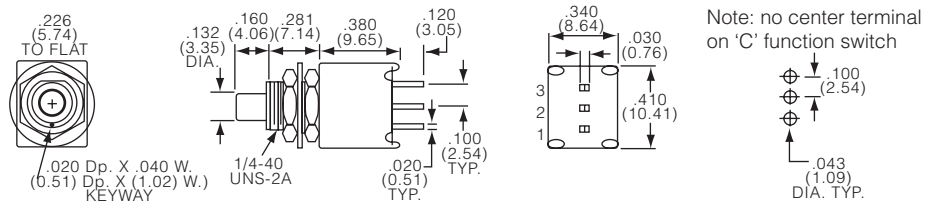
right angle, flush actuator



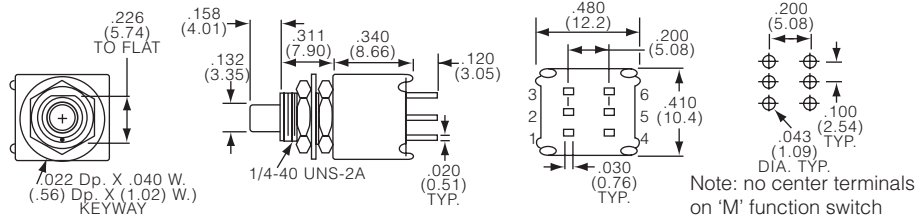
Note: no center terminal on 'C' function switch

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

printed circuit board



Note: no center terminal on 'C' function switch



Note: no center terminals on 'M' function switch

| Product key | Bushing | Act. | Poles | Rating | Function | Off | On | Plating | Terminals | Btn. | Material | Part Number |
|-----------------|--------------|-------|-------|--------|----------|-----|-----|---------|-------------|-------|----------------|-------------|
| TPB11CGPCES004 | round | std | 1 | 0.4VA | Off-(On) | Off | 1-3 | Gold | pcb | black | RoHS compliant | 1825097-3 |
| TPB11CGRAES004 | .188 (4.78) | | | | | | | | right angle | | | 1825097-5 |
| TPB11CGRAES204 | dia | | | | | | | | | red | | 1825097-7 |
| TPB11FGPCES204 | bushing, not | | | | On-(On) | 1-2 | 2-3 | | pcb | | | 1-1825097-0 |
| TPB11FGRAES004 | threaded | | | | | | | | right angle | black | | 1-1825097-4 |
| TPB11FGRAES604 | | | | | | | | | | 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 |

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



Pushbutton Switches

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

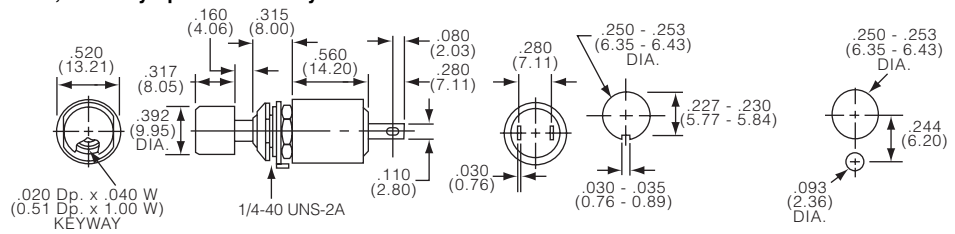
Contacts copper alloy gold plated over nickel
 Actuator polyamide
 Terminals copper alloy gold plated over nickel
 Case steel
 RoHS Directive 2002/95/EC compliant

| | | | | | | | |
|--------------------|--|----------|-------------|------------|----------|----------|-----------|
| 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 | 2 | pin | | | | |
| | 0 pin | 1 | wire lug | | | | |
| Material | 04 RoHS compliant | | | | | | |

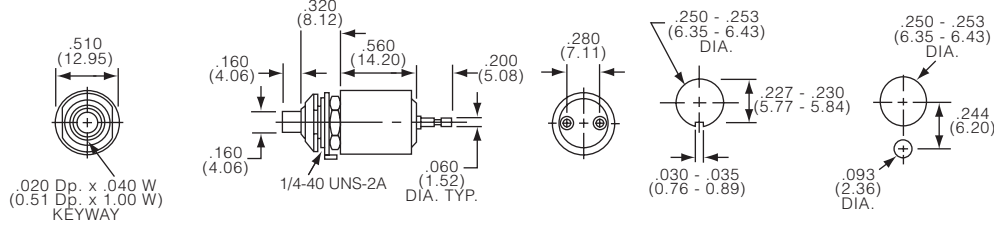
MSPM Series, Magnetic Reed, Long Life, Hermetically Sealed (Continued)

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 |

Pushbutton Switches

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
- Destructive mounting hardware supplied, others available
- Various button (actuator) colors



Pushbutton Switches

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 travel098" (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 |

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

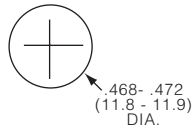
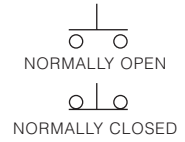
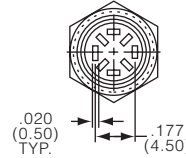
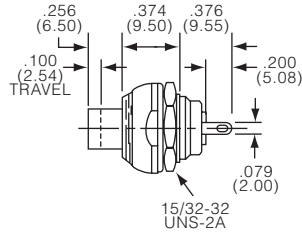
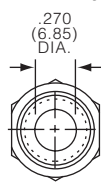
Action



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



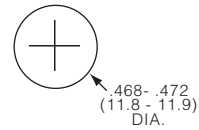
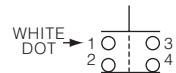
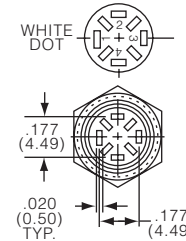
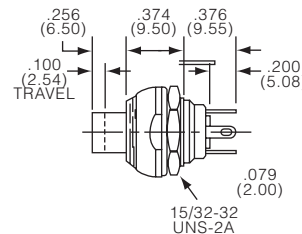
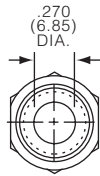
MSPF101B



Code BC normally closed and normally open, 2 circuits

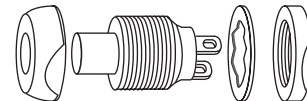


MSPF101BC



Mounting

Application note: Illustration shows versatile front 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 |

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



Pushbutton Switches

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

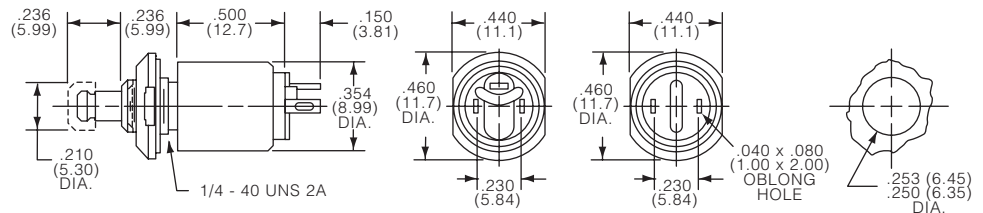
Typical product key

MPA 103 C 04

| | | | |
|-----------------------|----------------------------|----------|------------------------------|
| Type MPA | Sub-Miniature Pushbutton | | |
| Version 103 | standard | | |
| Action B | Normally Closed, momentary | D | Push on/Push off - (tactile) |
| C | Normally Open, momentary | 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 compliant | 1825403-1 |
| MPA103C04 | N/O | | | | 1825403-2 |
| MPA103D04 | Push on/Push off | SPDT | | | 1825404-1 |
| MPA103F04 | Momentary | | | | 1825404-2 |

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 travel098" (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 | 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 | |

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

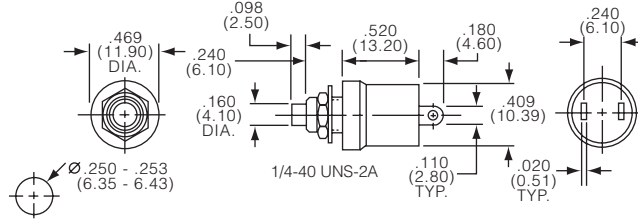
Contact



103 3 A contact



MSP103B

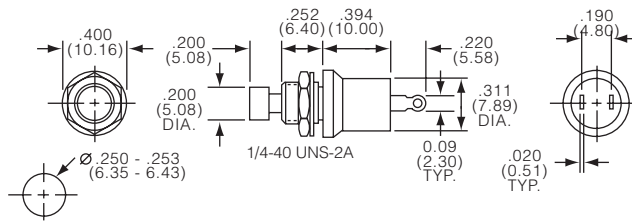


| Contact | Action | Bushing len. |
|---------|--------|---------------|
| 103 | B | 6.00mm (.236) |
| | C | 6.00mm (.236) |
| | C0 | 6.00mm (.236) |
| | C2 | 9.50mm (.374) |

S103 0.5 A contact



MSPS103B



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

Pushbutton Switches

| 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 |

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 |

Pushbutton Switches

| | | | | | | | | | | | | | |
|--------------------|---|--------|--|--|--|--|---|----------|-----------|----------|-----------|-----------|--|
| 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 | D single pole Push-On/Push-Off F momentary | | | | | | N double pole Push-On/Push-Off R momentary | | | | | | |
| Terminals | blank wire lug | | | | | | RA right angle PC terminal | | | | | | |
| | PC printed circuit board | | | | | | WW wire wrap or extended PC | | | | | | |
| | PCV printed circuit board, with support | | | | | | | | | | | | |
| Material | 04 RoHS compliant | | | | | | | | | | | | |

MPS Series, Snap Action (Continued)

Function



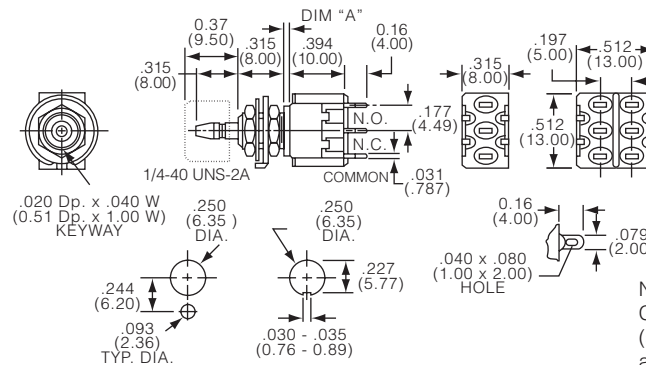
| Fct. | Poles | | | | |
|------|-------|----|------|----------|----------|
| D | 1 | On | On | 3-2 | 3-1 |
| F | 1 | On | (On) | 3-2 | 3-1 |
| N | 2 | On | On | 3-2, 6-5 | 3-1, 6-4 |
| R | 2 | On | (On) | 3-2, 6-5 | 3-1, 6-4 |

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

Terminals



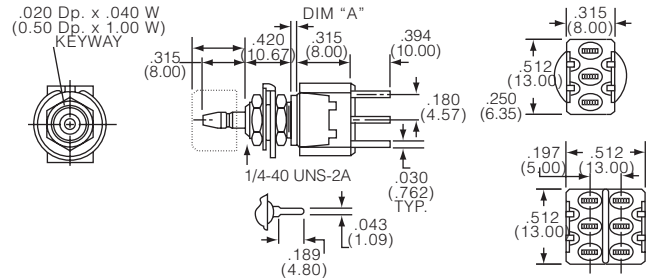
blank wire lug



| Funct | 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)

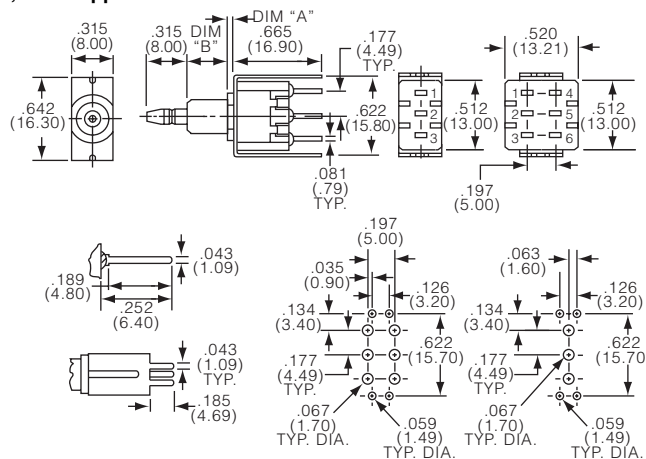
PC printed circuit board



| Funct | 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

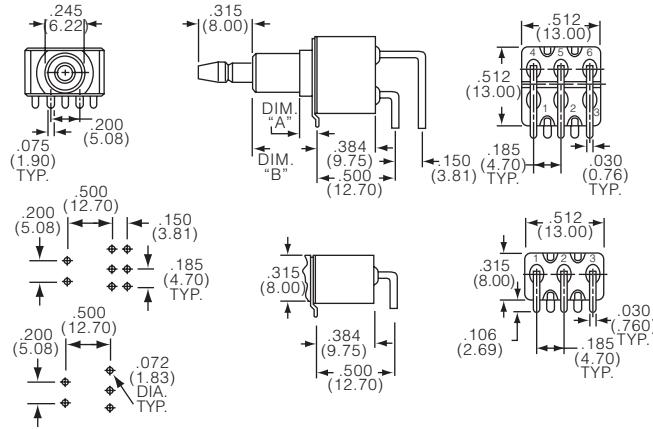
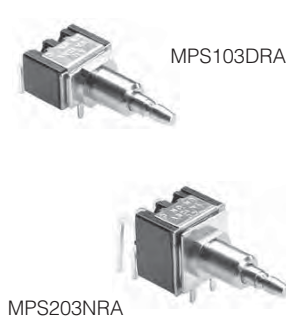


| Funct | Dim A | Dim B |
|-------|-------------|-------------|
| D | 2.03 (.080) | 8.00 (.315) |
| F | 1.01 (.040) | 7.49 (.295) |
| R | 1.01 (.040) | 7.49 (.295) |

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

MPS Series, Snap Action (Continued)

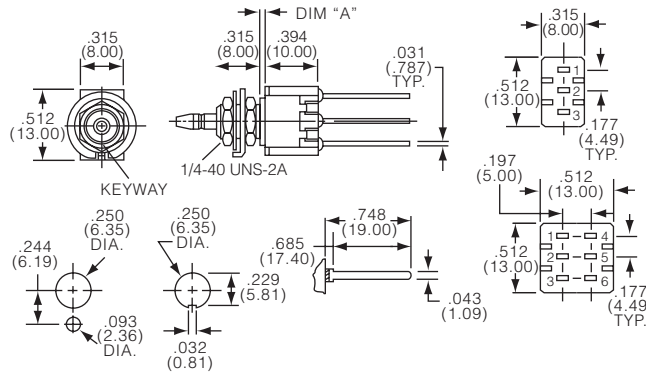
RA right angle, printed circuit board



| Funct | 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) |

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

WW wire wrap, extended pcb



| Funct | 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 @125 VAC | Push-On/Push-Off | solder lug | RoHS | 1825092-1 |
| MPS103DPC04 | | | | printed circuit board | compliant | 1825399-1 |
| MPS103DPCV04 | | | | PCB, with support | | 1825401-1 |
| MPS103DRA04 | | | | right angle PCB | | 1825400-1 |
| MPS103F04 | double pole | | 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 | double pole | | 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 |

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. 1,500Volts 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

Pushbutton Switches

| | | | | | | | | | | | | |
|------------------------|--|---------------------|-----------|--|---|--------------------------|-----------|----------|----------|-----------|----------|-----------|
| 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 | | 3 3 poles | | | | | | | | | |
| | 2 double pole | | 4 4 poles | | | | | | | | | |
| Rating | 06 6 Amp | | | | | | | | | | | |
| Function | D 1 & 3 pole push-on/push-off momentary | | | | N 2 & 4 pole push-on/push-off momentary | | | | | | | |
| | F momentary | | | | R momentary | | | | | | | |
| Terminals | blank wire lug | | | | | PC printed circuit board | | | | | | |
| Material | 04 RoHS compliant | | | | | | | | | | | |

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

Bushing style A



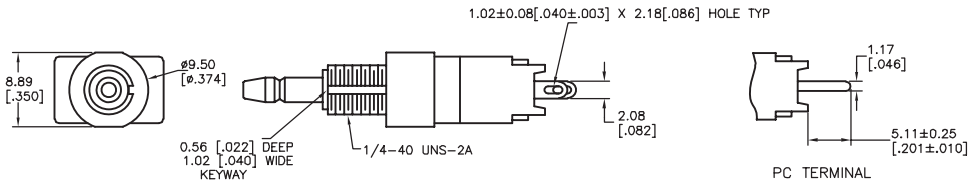
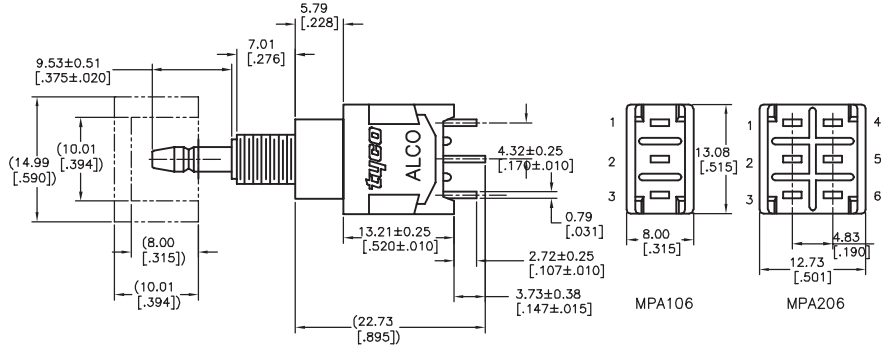
single & double pole



MPA106D



MPA206N



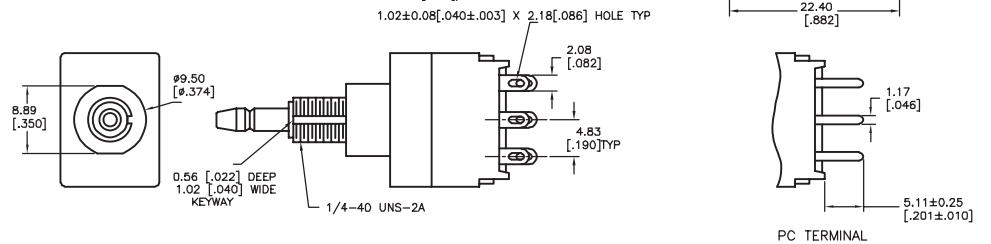
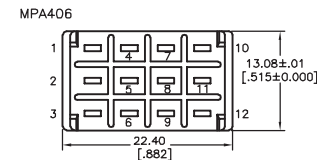
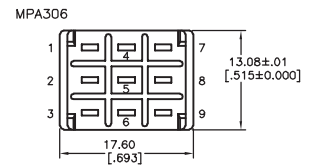
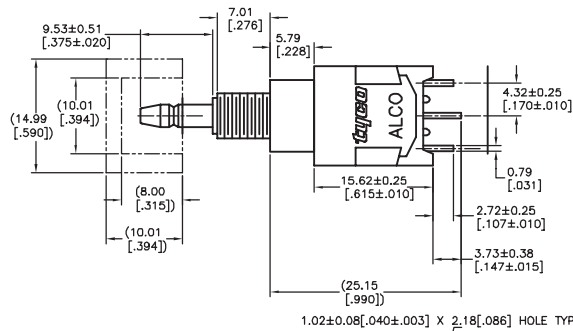
3 & 4 pole



MPA306D

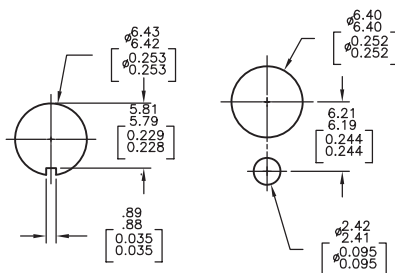


MPA406N

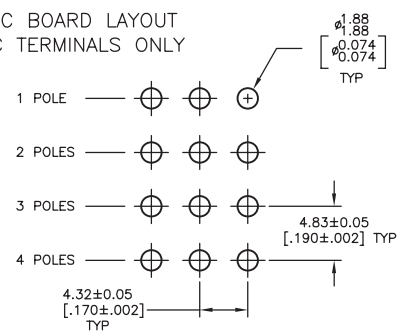


mounting

RECOMMENDED HOLE LAYOUT TO PREVENT ROTATION



PC BOARD LAYOUT PC TERMINALS ONLY



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

Bushing style E



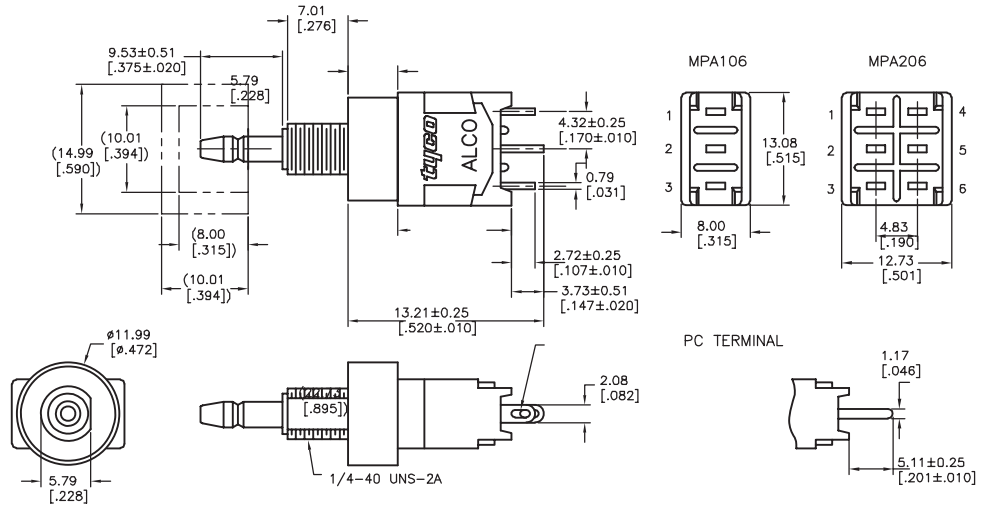
single & double pole



MPE106D



MPE206N



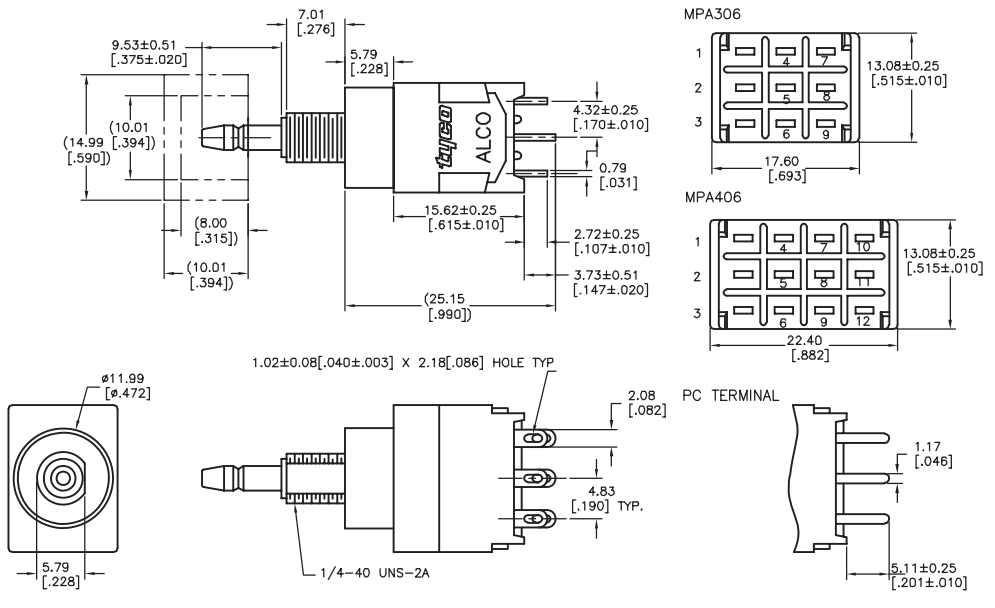
3 & 4 pole



MPE306F

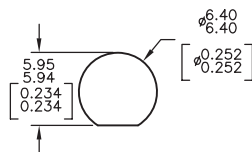


MPE406N

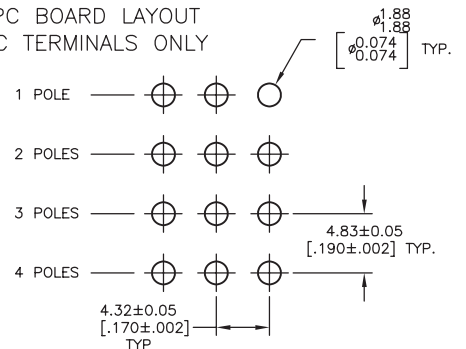


mounting

RECOMMENDED HOLE LAYOUT TO PREVENT ROTATION



PC BOARD LAYOUT PC TERMINALS ONLY



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

Bushing style G

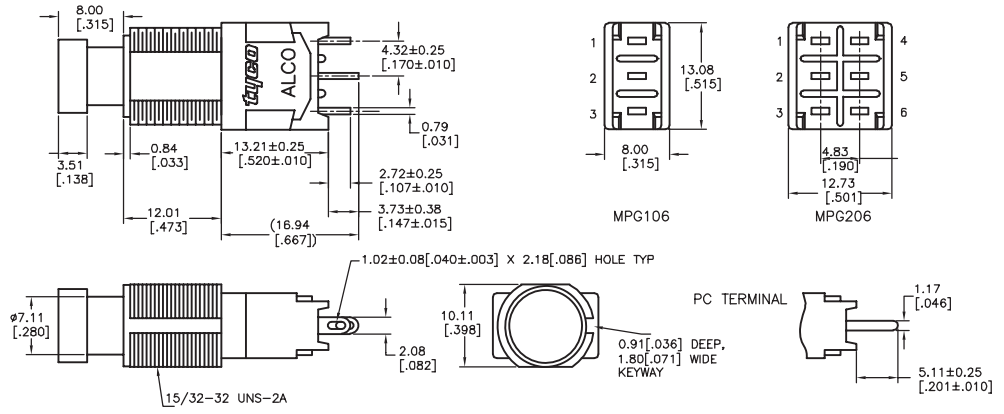
single & double pole



MPG106D



MPG206NPC



3 & 4 pole



MPG306D

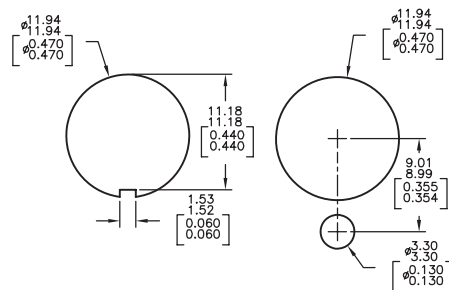


MPG406N



mounting

RECOMMENDED HOLE LAYOUT TO PREVENT ROTATION



PC BOARD LAYOUT
PC TERMINALS ONLY



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

Pushbutton Switches

| 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 compliant | 1825040-1 |
| MPA106F04 | 3.4mm | | | momentary | | | 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

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 |

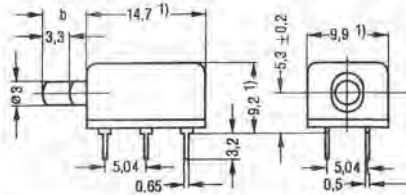
Environmental specification

| | |
|------------------------|-----------------|
| 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

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

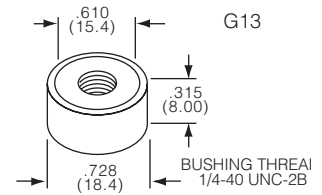


Caps



| Product key | for | Color | Diam A | Length B | Material | Part Number | | |
|-------------|----------------------|-------------|-------------|-------------|----------------|-------------|-----------|-----------|
| C50 | MPA3 | black | 4.95 (.195) | 3.05 (.120) | RoHS compliant | 6-1437627-2 | | |
| C52 | | red | | | | 6-1437627-3 | | |
| C55 | | green | | | | 6-1437627-5 | | |
| C59 | | white | | | | 6-1437627-6 | | |
| C80 | | black | | | | 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 MPE/MPA6 | black | 10.2 (.402) | 8.00 (.315) | | 1825068-1 | | |
| C22204 | | 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 | |

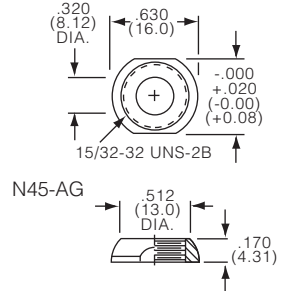
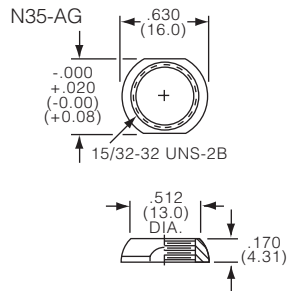
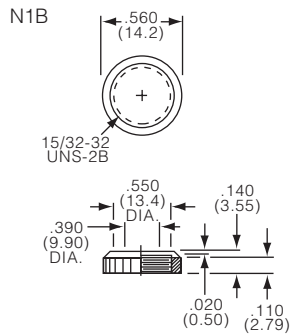
Guards



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

Accessories (Continued)

Decorative Hardware



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

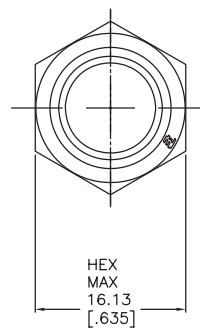
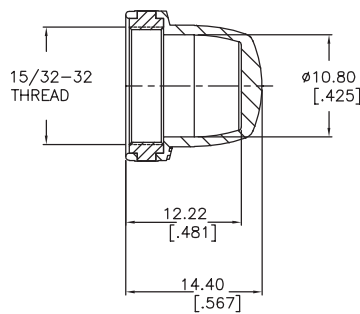
Nut thread



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



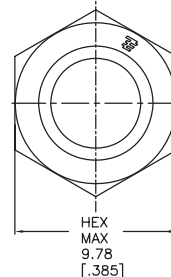
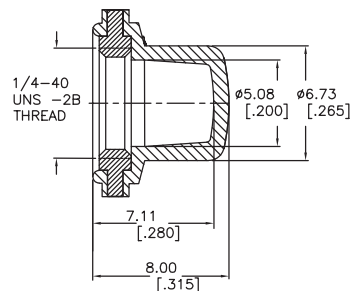
BP1048004



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



BPA1440004

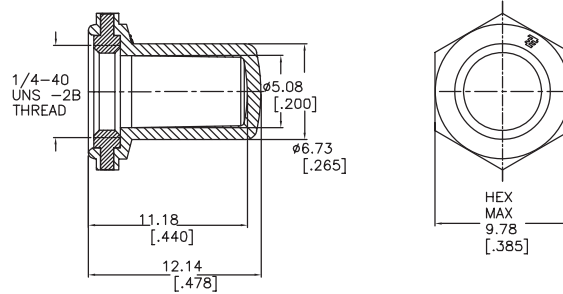


BP Series Boot Seals (Continued)

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



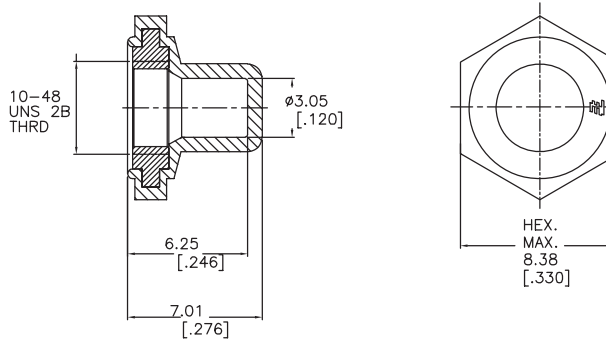
BP1440004



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



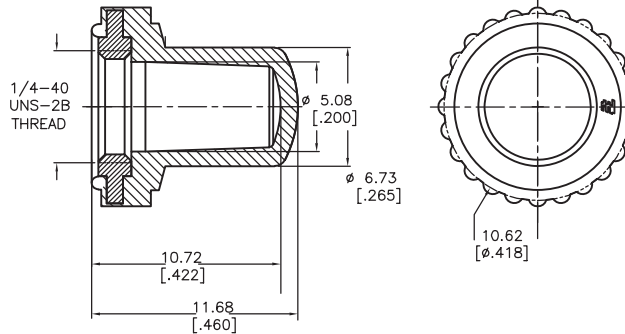
BP1532004



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 compliant | 1825603-1 |
| BP1532204 | | | red | | 1825603-2 |
| BP1532804 | | | gray | | 1825603-3 |
| 1/4-40 Pushbutton Boot Seals | | | | | |
| BPA1440004 | MSPMBS,MSPMCS,MSP3,MPA3,TP series | 1/4-40 | black | RoHS compliant | 1825604-1 |
| BPA1440204 | | | red | | 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 compliant | 1825615-1 |
| BP1048204 | | | red | | 1825615-2 |
| 1/4-40 Knurled Pushbutton Boot Seal | | | | | |
| BP201004 | MSPM,MSP3,MPA3, and TP series | 1/4-40 | black | RoHS compl. | 1825617-2 |

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 available



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 | | | | | | | | | |

BP Series Panel Seal (Continued)

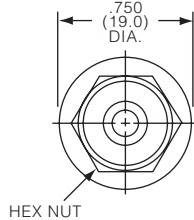
Switch series



BPM BPM Series panel seal, suited for MPA series switches



BPM1532004

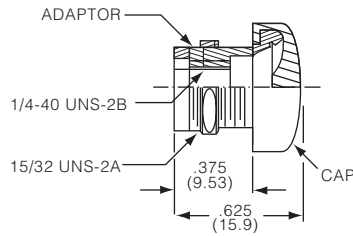
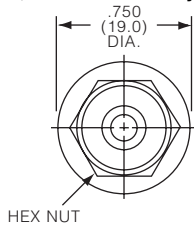


For use with Miniature Pushbutton
The BPM seal adaptor accommodates all Tyco MPA Series of pushbutton switches utilizing the 1/4-40 threaded bushing.

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.

Pushbutton Switches

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