

TP Series Tiny Pushbutton Switches



Features/Benefits

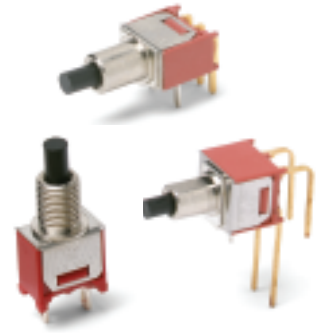
- **Subminiature size—capable of switching 1 AMP**
- **Vertical & right angle terminations**
- **PC & panel mount models**
- **Snap-in front panel mounting available**
- **Epoxy terminal seal-compatible with bottom wash cleaning**
- **RoHS compliant models available**



Models Available

Typical Applications

- **Telecommunications and networking equipment**
- **Computers and peripherals**
- **Instrumentation and controls**



Specifications

CONTACT RATING: B contact material: 0.4 VA max. @ 20 V AC or DC max. Q contact material: 1 AMP @ 120 V AC or 28 V DC. See page A-19 for additional ratings.

ELECTRICAL LIFE: TP11, TP21 MODELS: 60,000 make-and-break cycles at full load. TP12 MODELS: 30,000 cycles.

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

INSULATION RESISTANCE: 10⁹Ω min.

DIELECTRIC STRENGTH: 1000 Vrms min. @ sea level.

OPERATING TEMPERATURE: -30°C to 85°C.

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

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

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

Materials

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

PLUNGER: Thermoplastic polyester (UL 94V-0).

CAP & FRAME: Nylon, black standard.

BUSHING: Brass, nickel plated.

HOUSING: Stainless steel.

SWITCH SUPPORT: Brass, matte-tin plated.

END CONTACTS: B contact material: Copper alloy, with gold plate over nickel plate. Q contact material: Coin silver, silver plated. See page A-19 for additional contact materials.

CENTER CONTACT & ALL TERMINALS: B contact material: Copper alloy, with gold plate over nickel plate. Q contact material: Copper alloy, silver plated. See page A-19 for additional contact materials.

TERMINAL SEAL: Epoxy. Refer to soldering and cleaning in Technical Data Chapter

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

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages A-16 thru A-20. For additional options not shown in catalog, consult Customer Service Center. All models have epoxy terminal seal and are compatible with all "bottom-wash" PCB cleaning methods.

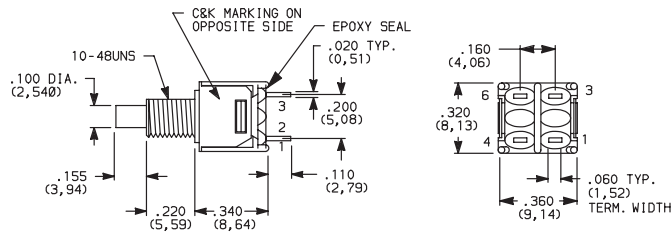
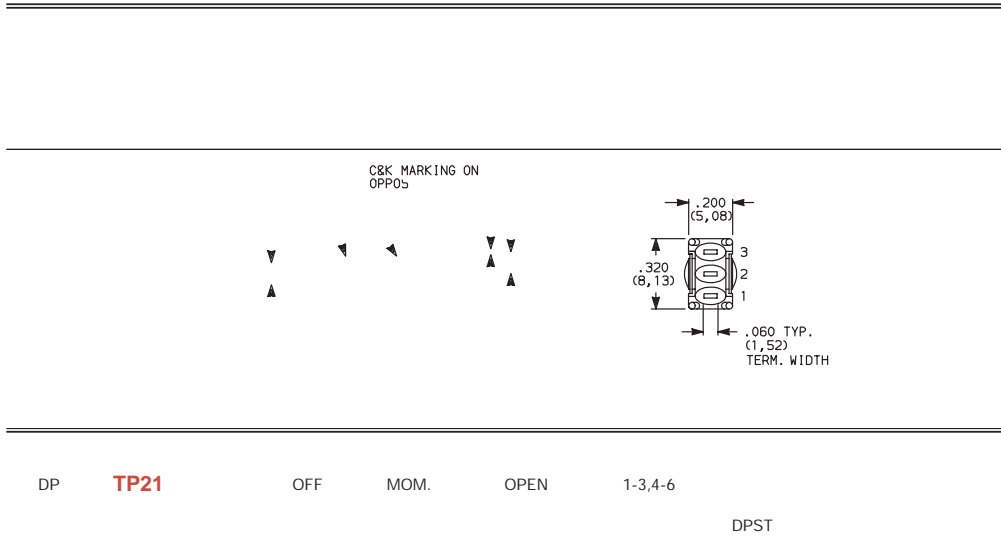
<p>Switch Function</p> <p>TP11 SPST Off-Mom.</p> <p>TP12 SPDT On-Mom.</p> <p>TP21 DPST Off-Mom.</p>	<p>Actuator or Bushing</p> <p>SH .155" high plunger, threaded, .220" high bushing, flat</p> <p>SH8 .155" high plunger, unthreaded, .220" high bushing, round</p> <p>SH9 .155" high plunger, unthreaded, .220" high bushing, flat</p> <p>J81 Snap-in with frame</p> <p>LT .215" high plunger, threaded, .310" high bushing, flat</p> <p>LT9 .215" high plunger, unthreaded, .310" high bushing, flat</p> <p>MS9 .130" high plunger, .020" high bushing, round</p>	<p>Terminations</p> <p>A Right angle, PC thru-hole</p> <p>C PC Thru-hole</p> <p>Z Solder lug</p> <p>AV Vertical right angle, PC thru-hole</p> <p>V3 Vertical mount, v-bracket</p> <p>W Wire wrap</p>	<p>Seal</p> <p>E Epoxy</p>	<p>Cap Color</p> <p>2 Black</p> <p>NONE Models with no cap</p> <p>1 White</p>	<p>Frame Color</p> <p>2 Black</p> <p>NONE Models with no frame</p>
<p>Contact Material</p> <p>B Gold</p> <p>P Gold, matte-tin</p> <p>Q Silver</p> <p>G Gold over silver</p> <p>R Gold over silver, matte-tin</p>					



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

TP Series Tiny Pushbutton Switches

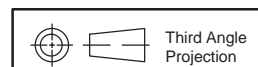
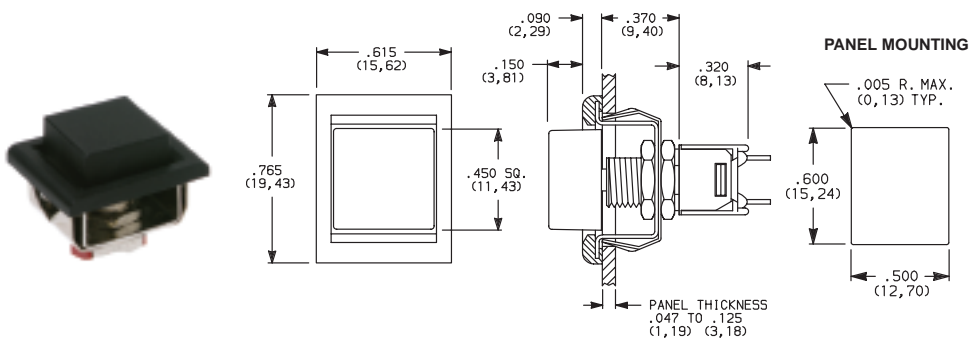
SWITCH FUNCTION



ACTUATOR—SNAP-IN FRONT MOUNT

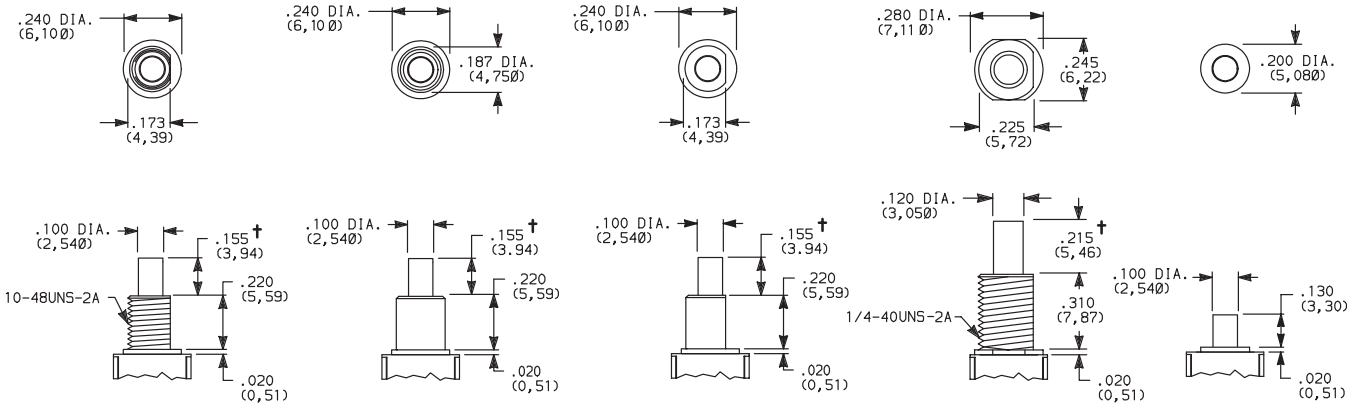


J81 SNAP-IN WITH FRAME



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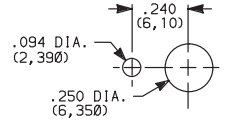
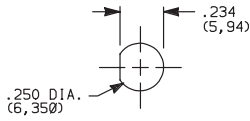
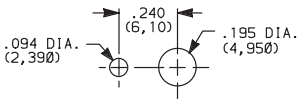
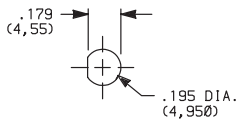
TP Series Tiny Pushbutton Switches



PANEL MOUNTING

10-48 BUSHING

1/4 IN. BUSHING



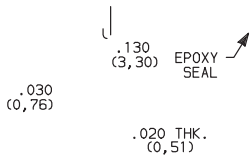
Without locking ring

With standard locking ring

Without locking ring

With standard locking ring

TERMINATIONS



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



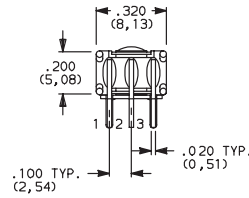
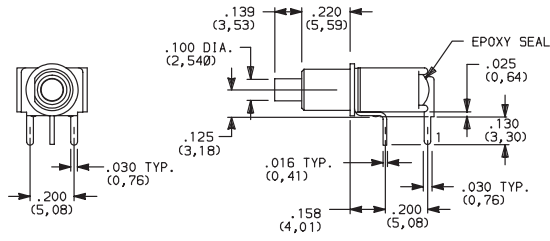
TP Series Tiny Pushbutton Switches

TERMINATIONS



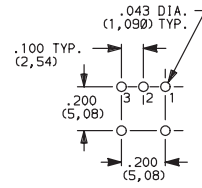
A

Pushbutton

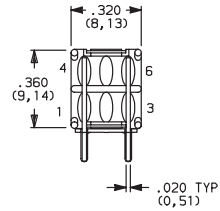
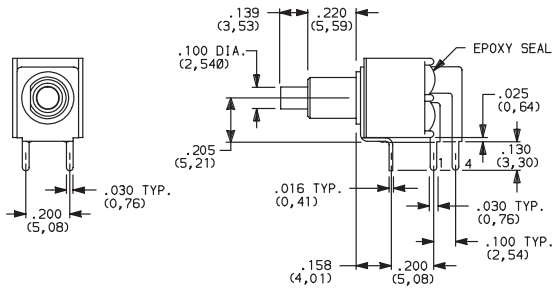


TP11 Models:
omit terminal 2.

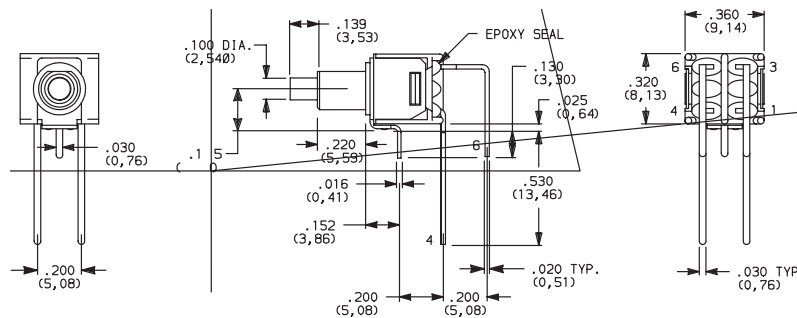
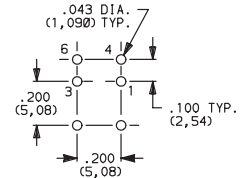
PC MOUNTING



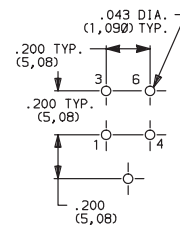
TP11 Models:
omit hole 2.



PC MOUNTING



PC MOUNTING



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

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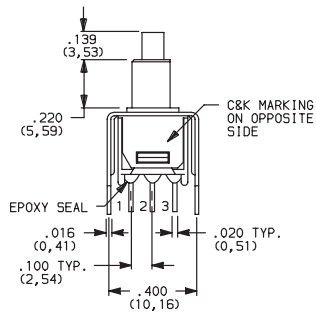


A

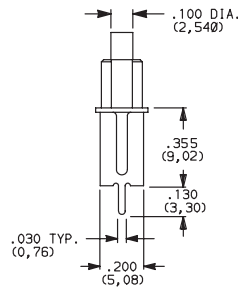
Pushbutton

TERMINATIONS

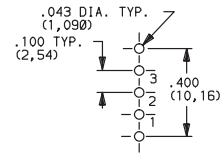
V3 VERTICAL MOUNT, V-BRACKET



TP11 Models:
omit terminal 2.



PC MOUNTING

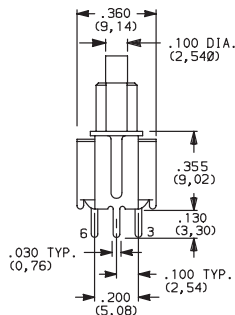
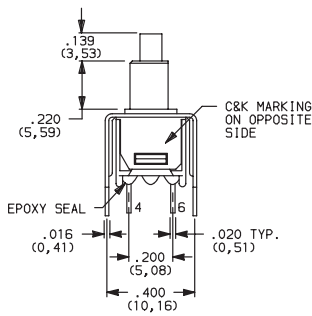


TP11 Models:
omit hole 2.

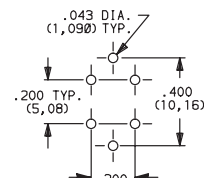


TP12SH9V3BE
SPDT

V3 VERTICAL MOUNT, V-BRACKET



PC MOUNTING



TP21SH9V3BE
DPST

CONTACT MATERIAL

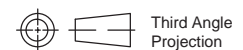
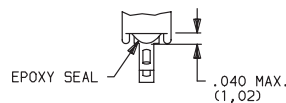
* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

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

²

SEAL

E EPOXY SEAL



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Specifications and dimensions subject to change

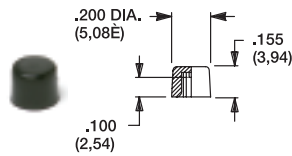


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Pushbutton
A

AVAILABLE HARDWARE

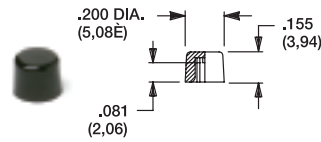
Cap, .100" DIA. Plungers



PART NO.
508101000 WHITE
508102000 BLACK

Material: Nylon
 Finish: Gloss

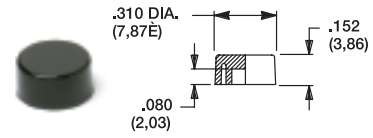
Cap, .100" DIA. Plungers (Recommended for S9 plunger)



PART NO.
538701000 WHITE
538702000 BLACK

Material: Nylon
 Finish: Gloss

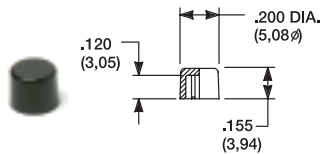
Cap, .100" DIA. Plungers



PART NO.
465801000 WHITE
465802000 BLACK

Material: Nylon
 Finish: Gloss

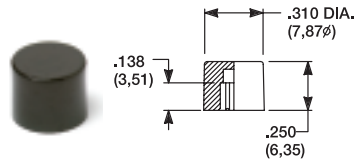
Cap, .120" DIA. Plungers



PART NO.
708901000 WHITE
708902000 BLACK

Material: Nylon
 Finish: Gloss

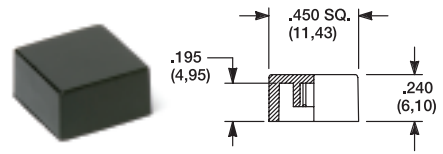
Cap, .120" DIA. Plungers



PART NO.
801801000 WHITE
801802000 BLACK

Material: Nylon
 Finish: Gloss

Cap, J81 option only



PART NO.
484601000 WHITE
484602000 BLACK

Material: Nylon
 Finish: Gloss

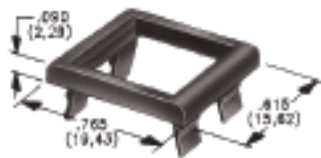
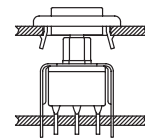
PART NO.
798201000 WHITE
798202263 BLACK

Material: Nylon
 Finish: Matte

NOTE: Additional nuts, locking rings and lockwashers available separately, see section "Technical Data and Additional Hardware".
 Other cap colors available, consult Customer Service Center.

Frames snap into panel opening and are independent from switch mounting. Accurate positioning of the PC mounted switch relative to the panel opening is necessary to provide proper clearance between actuator and frame. Available in two basic styles and four panel thicknesses .047-.125 in. Material: Nylon. Finish: Matte.

TYPICAL APPLICATION

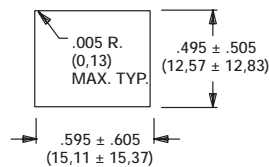


.047" (1,19) PANEL THK. .062" (1,57) PANEL THK. .090" (2,29) PANEL THK. .125" (3,18) PANEL THK.

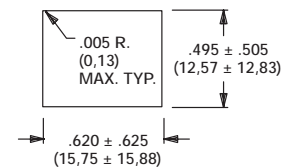
PART NO. **PART NO.** **PART NO.** **PART NO.**
432502263 **432602263** **432702263** **432802263** BLACK

PANEL MOUNTING

For part numbers
 432502263, 432602263

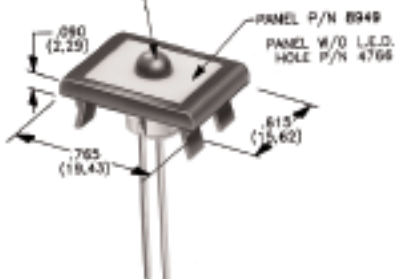


For part numbers
 432702263, 432802263



Panel Inserts

LED (.200 DIA. (5,08E)) SNAPS
 SECURELY INTO INSERT OFF P/N 8949.
 HEIGHT DEPENDS ON LED USED.



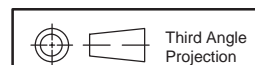
Above frames (part nos. 432XXXXXX) are also available with insert which accepts LED for indicator light assembly. Order insert separately from frame. Blank insert panel (without hole for LED) also available. **LED not included.**

PANEL INSERT
 WITH HOLE FOR LED

PART NO.
894902000

BLANK PANEL INSERT
 WITHOUT HOLE FOR LED

PART NO.
476602000 BLACK



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