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

Typical Applications
- Telecommunications and networking equipment
- Computers and peripherals
- Instrumentation and controls

Build-A-Switch
Our easy Build-A-Switch concept allows you to mix and match options to create the switch you need. Below is a complete listing of options shown in catalog. To order, simply select desired option from each category and place in the appropriate box. Switches with standard options are shown on pages B-11 and B-12. Available options are shown and described on pages B-12 thru B-16. For additional options not shown in catalog, consult Customer Service Center. All models have epoxy terminal seal and are compatible with all “bottom-wash” PCB cleaning methods.

Switch Function
- TP11 (STD.) SPST Off-Mom.
- TP12 (STD.) SPDT On-Mom.
- TP21 DPST Off-Mom.

Actuator or Bushing
- SH (STD.) .155" high plunger, unthreaded, .220" high bushing, round
- SH8 (STD.) .155" high plunger, unthreaded, .220" high bushing, flat
- SH9 (STD.) .155" high plunger, .220" high bushing
- J80 Snap-in
- J81 Snap-in with frame
- LT .215" high plunger, .310" high bushing, flat
- LT9 .215" high plunger, unthreaded, .310" high bushing, flat
- MS9 .130" high plunger, .020" high bushing, round

Terminations
- A (STD.) Right angle, PC thru-hole
- C (STD.) PC Thru-hole
- Z (STD.) Solder lug
- AV Vertical right angle, PC thru-hole
- V3 Vertical mount, v-bracket
- W Wire wrap

Contact Material
- B (STD.) Gold
- Q (STD.) silver
- K Gold
- M silver
- G Gold over silver
- L Gold over silver

Seal
- E (STD.) Epoxy

Cap Color
- 2 (STD.) Black
- NONE Models with no cap
- 1 White
- 3 Red

Frame Color
- 2 (STD.) Black
- NONE Models with no frame
The document provides specifications and materials for Tiny Pushbutton Switches with standard options. The SP Models and DP Models are listed with their respective part numbers and functions. The SP Models are SPST and SPDT, while the DP Models are DPST. The TP11SHZQE, TP12SHZQE, TP11SH8ABE, TP12SH8ABE, and TP11SH9ABE models are specifically highlighted. The document also includes notes for PC termination and panel mounting information, as well as materials and terminations for different models.
### TP Series Tiny Pushbutton Switches

#### SWITCHES WITH STANDARD OPTIONS

![SWITCH FUNCTION](image)

### SWITCH FUNCTION

<table>
<thead>
<tr>
<th>NO. POLES</th>
<th>MODEL NO.</th>
<th>SWITCH FUNCTION</th>
<th>CONNECTED TERMINALS</th>
<th>SCHEMATIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP</td>
<td>TP11 (STD.)</td>
<td>OFF MOM.</td>
<td>OPEN 1-3</td>
<td>SPST</td>
</tr>
<tr>
<td>SP</td>
<td>TP12 (STD.)</td>
<td>ON MOM.</td>
<td>2-1 2-3</td>
<td>SPDT</td>
</tr>
<tr>
<td>DP</td>
<td>TP21</td>
<td>OFF MOM.</td>
<td>OPEN 1-3 4-6</td>
<td>OPST</td>
</tr>
</tbody>
</table>

MOM. = Momentary

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

### ACTUATOR—SNAP-IN FRONT MOUNT

#### J80 SNAP-IN

<table>
<thead>
<tr>
<th>PART NUMBER</th>
<th>FUNCTION</th>
<th>POS. 1</th>
<th>POS. 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>TP11SH9AVBE</td>
<td>SPST</td>
<td>MOM.</td>
<td>OFF</td>
</tr>
</tbody>
</table>

MOM. = Momentary

Note: For PC mounting information, see page B-14.

### CAP COLOR

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>CAP COLOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>(STD.) BLACK</td>
</tr>
<tr>
<td>1</td>
<td>WHITE</td>
</tr>
<tr>
<td>3</td>
<td>RED</td>
</tr>
</tbody>
</table>

Note: No frame color choice required.

### J81 SNAP-IN WITH FRAME

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>FRAME COLOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>(STD.) BLACK</td>
</tr>
<tr>
<td>NONE</td>
<td>No Frame Color (J80 option)</td>
</tr>
</tbody>
</table>


Note: Available with Z, C, or W terminations.
### BUSHING

<table>
<thead>
<tr>
<th>SH</th>
<th>(STD.) .155” HIGH PLUNGER, .220” HIGH BUSHING, THREADED, FLAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>SH8</td>
<td>(STD.) .155” HIGH PLUNGER, .220” HIGH BUSHING, UNTHEREADED</td>
</tr>
<tr>
<td>SH9</td>
<td>(STD.) .155” HIGH PLUNGER, .220” HIGH BUSHING, UNTHEREADED, FLAT</td>
</tr>
<tr>
<td>LT</td>
<td>.215” HIGH PLUNGER, .310” HIGH BUSHING, THREADED</td>
</tr>
<tr>
<td>LT9</td>
<td>.215” HIGH PLUNGER, .310” HIGH BUSHING, UNTHEREADED</td>
</tr>
</tbody>
</table>

**Standard with Z, C, W terminations.**

**Standard with A, AV, V3 terminations.**

**Not available with Z terminations.**

### PANEL MOUNTING

<table>
<thead>
<tr>
<th>10-48 BUSHING</th>
<th>1/4 IN. BUSHING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Without locking ring</td>
<td>Without locking ring</td>
</tr>
<tr>
<td>With standard locking ring</td>
<td>With standard locking ring</td>
</tr>
</tbody>
</table>

**NOTE:** One mounting nut, locking ring and lockwasher supplied standard with 10-48 threaded bushings (two nuts with 1/4-40 bushings). Optional mounting nut and locking ring styles and finishes available separately, see section L.

### TERMINATIONS

<table>
<thead>
<tr>
<th>C</th>
<th>(STD.) PC THRU-HOLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP</td>
<td>EPOXY SEAL</td>
</tr>
<tr>
<td>DP</td>
<td>EPOXY SEAL</td>
</tr>
</tbody>
</table>

**PC MOUNTING**

- .020 THK. (0.51)
- .030 (0.76)
- .020 (0.51)
- .030 (0.76)
- .020 (0.51)
- .020 (0.51)
- .030 (0.76)
- .020 (0.51)
- .020 (0.51)
- .030 (0.76)
- .020 (0.51)
- .030 (0.76)
- .020 (0.51)

<table>
<thead>
<tr>
<th>Z</th>
<th>(STD.) SOLDER LUG</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP</td>
<td>EPOXY SEAL</td>
</tr>
<tr>
<td>DP</td>
<td>EPOXY SEAL</td>
</tr>
</tbody>
</table>

**PC MOUNTING**

- .060 (1.52)
- .030 (0.76)
- .020 (0.51)
- .030 (0.76)
- .020 (0.51)
- .030 (0.76)
- .020 (0.51)
- .030 (0.76)
- .020 (0.51)

<table>
<thead>
<tr>
<th>W</th>
<th>WIRE WRAP</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP</td>
<td>EPOXY SEAL</td>
</tr>
<tr>
<td>DP</td>
<td>EPOXY SEAL</td>
</tr>
</tbody>
</table>

**PC MOUNTING**

- .060 (1.52)
- .030 (0.76)
- .020 (0.51)
- .030 (0.76)
- .020 (0.51)
- .030 (0.76)
- .020 (0.51)

**Not available with MS9 bushing or K, L or M contact material.**
### TP Series
Tiny Pushbutton Switches

<table>
<thead>
<tr>
<th>TERMINATIONS</th>
<th>A</th>
<th>PC MOUNTING</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPST</td>
<td>TP11 Only</td>
<td>(STD.) RIGHT ANGLE, PC THRU-HOLE</td>
</tr>
<tr>
<td>TP11SH9ABE</td>
<td>TP12 Only</td>
<td>(STD.) RIGHT ANGLE, PC THRU-HOLE</td>
</tr>
<tr>
<td>SPST</td>
<td>TP21 Only</td>
<td>(STD.) RIGHT ANGLE, PC THRU-HOLE</td>
</tr>
<tr>
<td>TP11SH9AVBE</td>
<td>TP11 Only</td>
<td>(STD.) RIGHT ANGLE, PC THRU-HOLE</td>
</tr>
<tr>
<td>SPST</td>
<td>NOTE: Terminal bend radii and lead-in manufacturing option</td>
<td></td>
</tr>
</tbody>
</table>
Tiny Pushbutton Switches

TP Series

TERMINATIONS

AV VERTICAL RIGHT ANGLE, PC THRU-HOLE

TP12 Only

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

AV VERTICAL RIGHT ANGLE, PC THRU-HOLE

TP21 Only

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

V3 VERTICAL MOUNT, V-BRACKET

TP11 Only

V3 VERTICAL MOUNT, V-BRACKET

TP12 Only

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V3 VERTICAL MOUNT, V-BRACKET

TP21SH9V3BE DPST

TP21 Only

CONTACT MATERIAL

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>CONTACT MATERIAL</th>
<th>TERMINAL PLATING</th>
<th>RATINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>B (STD.)</td>
<td>GOLD 1</td>
<td>GOLD 1</td>
<td>LOW LEVEL / DRY CIRCUIT</td>
</tr>
<tr>
<td></td>
<td>TIN-LEAD 6</td>
<td></td>
<td>0.4 VA MAX @ 20 V AC OR DC MAX.</td>
</tr>
<tr>
<td>K</td>
<td>SILVER 4,5</td>
<td>SILVER 5</td>
<td>POWER</td>
</tr>
<tr>
<td></td>
<td>TIN-LEAD 6</td>
<td></td>
<td>1 AMP @ 120 V AC OR 28 V DC.</td>
</tr>
<tr>
<td>Q (STD.)</td>
<td>GOLD OVER SILVER 2,3</td>
<td>GOLD 3</td>
<td>LOW LEVEL / DRY CIRCUIT OR POWER</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TIN-LEAD 6</td>
<td>0.4 VA MAX @ 20 V AC OR DC MAX. OR 1 AMP @ 120 V AC OR 28 V DC.</td>
</tr>
</tbody>
</table>

CONTACT MATERIAL / APPLICATION RECOMMENDATIONS – SEE CHART, PAGE L-31.

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

All models with all options when ordered with G, L, M or Q contact material.
B contact material standard with A, AV, V3 & W terminations.
Q contact material standard with C & Z terminations.
K, L & M contact materials not available with Z terminations.

SEAL

E (STD.) EPOXY SEAL

EPOXY SEAL

0.040 MAX, (1.02)

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