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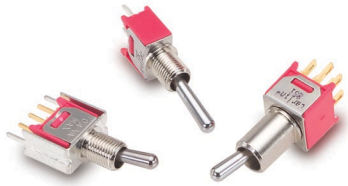
## Contact us

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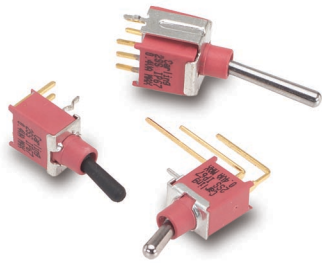
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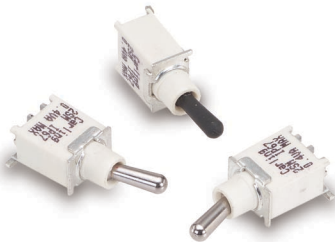




**2S1-Series**  
Sub-Miniature Toggle Switch



**2SS-Series**  
**Sealed** Sub-Miniature Toggle Switch



**2SM-Series**  
**Sealed Surface Mount** Sub-Miniature Toggle Switch

### 2S1-Series Ordering Scheme



| <p><b>1 SERIES</b><br/>2S1 Sub-Miniature Toggle Switch</p>   |  |  |                                  |                             |                               |                             |                               |                  |           |    |      |          |   |    |      |    |   |    |      |      |   |      |     |      |   |    |     |      |
|--|--|--|----------------------------------|-----------------------------|-------------------------------|-----------------------------|-------------------------------|------------------|-----------|----|------|----------|---|----|------|----|---|----|------|------|---|------|-----|------|---|----|-----|------|
| <p><b>2 POLES</b><br/>MSP single pole - uses terminals 1, 2 &amp; 3.<br/>MDP double pole uses terminals 1,2, 3, 4, 5 &amp; 6.</p>  |  |  |                                  |                             |                               |                             |                               |                  |           |    |      |          |   |    |      |    |   |    |      |      |   |      |     |      |   |    |     |      |
| <p><b>3 CIRCUIT</b><br/>( ) - momentary</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th colspan="3" style="text-align: left;"><b>Switching Position:</b></th> </tr> <tr> <th></th> <th colspan="3" style="text-align: left;">2-3, 5-6</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1</td> <td>ON</td> <td>OPEN</td> <td>2-1, 5-4</td> </tr> <tr> <td style="text-align: center;">2</td> <td>ON</td> <td>NONE</td> <td>ON</td> </tr> <tr> <td style="text-align: center;">3</td> <td>ON</td> <td>NONE</td> <td>(ON)</td> </tr> <tr> <td style="text-align: center;">4</td> <td>(ON)</td> <td>OFF</td> <td>(ON)</td> </tr> <tr> <td style="text-align: center;">5</td> <td>ON</td> <td>OFF</td> <td>(ON)</td> </tr> </tbody> </table> |  | <b>Switching Position:</b>   |                                  |                             |                               | 2-3, 5-6                    |                               |                  | 1         | ON | OPEN | 2-1, 5-4 | 2 | ON | NONE | ON | 3 | ON | NONE | (ON) | 4 | (ON) | OFF | (ON) | 5 | ON | OFF | (ON) |
|  | <b>Switching Position:</b>   |  |                                  |                             |                               |                             |                               |                  |           |    |      |          |   |    |      |    |   |    |      |      |   |      |     |      |   |    |     |      |
|  | 2-3, 5-6   |  |                                  |                             |                               |                             |                               |                  |           |    |      |          |   |    |      |    |   |    |      |      |   |      |     |      |   |    |     |      |
| 1  | ON   | OPEN   | 2-1, 5-4                         |                             |                               |                             |                               |                  |           |    |      |          |   |    |      |    |   |    |      |      |   |      |     |      |   |    |     |      |
| 2  | ON   | NONE   | ON                               |                             |                               |                             |                               |                  |           |    |      |          |   |    |      |    |   |    |      |      |   |      |     |      |   |    |     |      |
| 3  | ON   | NONE   | (ON)                             |                             |                               |                             |                               |                  |           |    |      |          |   |    |      |    |   |    |      |      |   |      |     |      |   |    |     |      |
| 4  | (ON)   | OFF  | (ON)                             |                             |                               |                             |                               |                  |           |    |      |          |   |    |      |    |   |    |      |      |   |      |     |      |   |    |     |      |
| 5  | ON   | OFF  | (ON)                             |                             |                               |                             |                               |                  |           |    |      |          |   |    |      |    |   |    |      |      |   |      |     |      |   |    |     |      |
| <p><b>4 ACTUATOR STYLE</b></p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">T1 Round toggle .358 length</td> <td style="width: 50%;">T3 Round toggle .299 length</td> </tr> <tr> <td>T2 Round toggle .220 length</td> <td>T4 Round toggle .433 length</td> </tr> </table>  | T1 Round toggle .358 length  | T3 Round toggle .299 length  | T2 Round toggle .220 length      | T4 Round toggle .433 length |                               |                             |                               |                  |           |    |      |          |   |    |      |    |   |    |      |      |   |      |     |      |   |    |     |      |
| T1 Round toggle .358 length  | T3 Round toggle .299 length  |  |                                  |                             |                               |                             |                               |                  |           |    |      |          |   |    |      |    |   |    |      |      |   |      |     |      |   |    |     |      |
| T2 Round toggle .220 length  | T4 Round toggle .433 length  |  |                                  |                             |                               |                             |                               |                  |           |    |      |          |   |    |      |    |   |    |      |      |   |      |     |      |   |    |     |      |
| <p><b>5 BUSHING<sup>1</sup></b></p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">B1 Threaded Standard, keyway</td> <td rowspan="8" style="font-size: small; vertical-align: top;">                     Note:<br/>                     1 All Switches come with standard nut, washer and locking ring shipped bulk. B5 &amp; B7 bushing styles use small locking ring.                 </td> </tr> <tr> <td>B2 Non-Threaded Standard, keyway</td> </tr> <tr> <td>B3 Threaded Short, keyway</td> </tr> <tr> <td>B4 Non-Threaded Short, keyway</td> </tr> <tr> <td>B5 High Torque, 7.5mm, flat</td> </tr> <tr> <td>B6 High Torque, 8.0mm, keyway</td> </tr> <tr> <td>B7 Long threaded</td> </tr> <tr> <td>B8 Metric</td> </tr> </table>                   | B1 Threaded Standard, keyway   | Note:<br>1 All Switches come with standard nut, washer and locking ring shipped bulk. B5 & B7 bushing styles use small locking ring. | B2 Non-Threaded Standard, keyway | B3 Threaded Short, keyway   | B4 Non-Threaded Short, keyway | B5 High Torque, 7.5mm, flat | B6 High Torque, 8.0mm, keyway | B7 Long threaded | B8 Metric |    |      |          |   |    |      |    |   |    |      |      |   |      |     |      |   |    |     |      |
| B1 Threaded Standard, keyway   | Note:<br>1 All Switches come with standard nut, washer and locking ring shipped bulk. B5 & B7 bushing styles use small locking ring. |  |                                  |                             |                               |                             |                               |                  |           |    |      |          |   |    |      |    |   |    |      |      |   |      |     |      |   |    |     |      |
| B2 Non-Threaded Standard, keyway   |  |  |                                  |                             |                               |                             |                               |                  |           |    |      |          |   |    |      |    |   |    |      |      |   |      |     |      |   |    |     |      |
| B3 Threaded Short, keyway  |  |  |                                  |                             |                               |                             |                               |                  |           |    |      |          |   |    |      |    |   |    |      |      |   |      |     |      |   |    |     |      |
| B4 Non-Threaded Short, keyway  |  |  |                                  |                             |                               |                             |                               |                  |           |    |      |          |   |    |      |    |   |    |      |      |   |      |     |      |   |    |     |      |
| B5 High Torque, 7.5mm, flat  |  |  |                                  |                             |                               |                             |                               |                  |           |    |      |          |   |    |      |    |   |    |      |      |   |      |     |      |   |    |     |      |
| B6 High Torque, 8.0mm, keyway  |  |  |                                  |                             |                               |                             |                               |                  |           |    |      |          |   |    |      |    |   |    |      |      |   |      |     |      |   |    |     |      |
| B7 Long threaded   |  |  |                                  |                             |                               |                             |                               |                  |           |    |      |          |   |    |      |    |   |    |      |      |   |      |     |      |   |    |     |      |
| B8 Metric  |  |  |                                  |                             |                               |                             |                               |                  |           |    |      |          |   |    |      |    |   |    |      |      |   |      |     |      |   |    |     |      |

### Specifications

|                                 |   |
|---------------------------------|---|
| Contact Rating . . . . .        | refer to ordering scheme  |
| Electrical Life . . . . .       | 30,000 make & break cycles @ full load  |
| Contact Resistance. . . . .     | 20 mΩ max. initial @ 2-4 VDC<br>100mA for both silver & gold plated contacts. |
| Insulation Resistance . . . . . | 1000 MΩ min.  |
| Dielectric Strength . . . . .   | 1500 Volts RMS @ sea level  |
| Operating Temperature . . . . . | -30°C to +85°C  |
| Index of Protection . . . . .   | <b>2SS &amp; 2SM-Series:</b> IP67   |
| Solder Heat Resistance. . . . . | MIL-STD-202, Method 210   |
| Actuator Travel . . . . .       | 25°   |

**Materials**

|                          |   |
|--------------------------|---|
| Case . . . . .           | all UL 94 V-0<br><i>2S1-Series:</i> Diallyl phthalate (DAP)<br><i>2SS-Series:</i> Glass filled nylon 6/6, flame retardant, heat stabilized<br><i>2SM-Series:</i> Glass filled nylon 4/6, flame retardant, heat stabilized   |
| Toggle. . . . .          | <i>2S1-Series:</i> Brass, chrome plated.<br><i>2SS &amp; 2SM-Series:</i> Brass, chrome plated or nylon, internal o-ring sealed  |
| Bushing . . . . .        | <i>2S1-Series:</i> Brass, nickel plated<br><i>2SS-Series:</i> Glass filled nylon 6/6, flame retardant, heat stabilized (UL 94V-0)<br><i>2SM-Series:</i> Glass filled nylon 4/6, flame retardant, heat stabilized (UL 94V-0) |
| Housing. . . . .         | Stainless Steel   |
| Switch Support . . . . . | Brass, tin plated   |
| Terminal Seal . . . . .  | Epoxy   |

**6 TERMINATION**

|             |  |
|-------------|--|
| <b>M1</b>   | Solder Lug                                     |
| <b>M2</b>   | PCB  |
| <b>M6</b>   | PC Mount, 90° horizontal                       |
| <b>M7</b>   | PC Mount, 90° vertical                         |
| <b>VS2</b>  | PC Mount, U bracket, .620 mounting x .460 high |
| <b>VS3</b>  | PC Mount, U bracket, .620 mounting x .630 high |
| <b>VS21</b> | Snap-In, U bracket                             |

**7 CONTACT**

|          | Material            | Terminal Plating              | Rating                            | Approvals |
|----------|---------------------|-------------------------------|-----------------------------------|-----------|
| <b>G</b> | silver <sup>1</sup> | gold over silver <sup>3</sup> | 3A@125VAC or 28VDC, 1.5A @ 250VAC | UL CSA    |
| <b>K</b> | gold <sup>2</sup>   | tin-lead <sup>4</sup>         | 0.4VA max. @20V max (AC/DC)       | -         |
| <b>P</b> | silver <sup>1</sup> | tin-lead <sup>4</sup>         | 3A@125VAC or 28VDC, 1.5A @ 250VAC | UL CSA    |
| <b>Q</b> | silver <sup>1</sup> | silver <sup>1</sup>           | 3A@125VAC or 28VDC, 1.5A @ 250VAC | UL CSA    |
| <b>R</b> | gold <sup>2</sup>   | gold <sup>2</sup>             | 0.4VA max. @20V max (AC/DC)       | -         |

**NOTE:**  
 Tin-lead option available with PC type terminations only.  
 1 Moveable contact & terminals: copper alloy, silver plate  
 2 Moveable contact & terminals: copper alloy with gold plated over nickel plate  
 3 Terminals: silver plate with outer layer in gold plating  
 4 Outer terminals: copper alloy with tin-lead over nickel plate

**8 EPOXY SEAL**

|          |            |
|----------|------------|
| <b>E</b> | epoxy seal |
|----------|------------|

### 2SS-Series Ordering Scheme



**1 SERIES**  
**2SS** Sealed Sub-Miniature Toggle Switch

**2 POLES**  
**MSP** single pole - uses terminals 1, 2 & 3.  
**MDP** double pole uses terminals 1,2, 3, 4, 5 & 6.

**3 CIRCUIT**  
 ( ) - momentary

| <b>Switching Position:</b> |          |      |          |
|----------------------------|----------|------|----------|
|                            | 2-3, 5-6 | OPEN | 2-1, 5-4 |
| 1                          | ON       | NONE | ON       |
| 2                          | ON       | NONE | (ON)     |
| 3                          | ON       | OFF  | ON       |
| 4                          | (ON)     | OFF  | (ON)     |
| 5                          | ON       | OFF  | (ON)     |

**4 ACTUATOR STYLE**

|  |  |
|--|--|
| <b>T1</b> Round toggle .358 length<br><b>T2</b> Round toggle .220 length<br><b>T3</b> Round toggle .299 length<br><b>T4</b> Round toggle .433 length | <b>P1</b> ESD resistant plastic toggle .421 length<br><b>P2</b> ESD resistant plastic toggle .272 length |
|--|--|

**5 BUSHING**  
**B4** Unthreaded bushing

**6 TERMINATION**

|             |  |
|-------------|--|
| <b>M2</b>   | PCB  |
| <b>M6</b>   | PC Mount, 90° horizontal                       |
| <b>M61</b>  | Snap-In PC Mount, 90° horizontal               |
| <b>M7</b>   | PC Mount, 90° vertical                         |
| <b>M71</b>  | Snap-In PC Mount, 90° vertical                 |
| <b>VS2</b>  | PC Mount, U bracket, .620 mounting x .460 high |
| <b>VS21</b> | Snap-In, U bracket                             |

**7 CONTACT**

|          | Material            | Terminal Plating              | Rating                            |      |
|----------|---------------------|-------------------------------|-----------------------------------|------|
| <b>G</b> | silver <sup>1</sup> | gold over silver <sup>3</sup> | 3A@125VAC or 28VDC, 1.5A @ 250VAC | IP67 |
| <b>K</b> | gold <sup>2</sup>   | tin-lead plated <sup>4</sup>  | 0.4VA max. @20V max (AC/DC)       | IP67 |
| <b>P</b> | silver <sup>1</sup> | tin-lead plated <sup>4</sup>  | 3A@125VAC or 28VDC, 1.5A @ 250VAC | IP67 |
| <b>R</b> | gold <sup>2</sup>   | gold plated <sup>2</sup>      | 0.4VA max. @20V max (AC/DC)       | IP67 |

**NOTE:**  
 Tin-lead option available with PC type terminations only.  
 1 Moveable contact & terminals: copper alloy, silver plate  
 2 Moveable contact & terminals: copper alloy with gold plate over nickel plate  
 3 Terminals: silver plate with outer layer in gold plating  
 4 Outer terminals: copper alloy with tin-lead over nickel plate

**8 EPOXY SEAL**  
**E** epoxy seal

### 2SM-Series Ordering Scheme



**1 SERIES**  
**2SM** Sealed Surface Mount Sub-Miniature Toggle Switch

**2 POLES**  
**MSP** single pole - uses terminals 1, 2 & 3.

**3 CIRCUIT**  
 ( ) - momentary

| <b>Switching Position:</b> |      |      |      |
|----------------------------|------|------|------|
|                            | 2-3  | OPEN | 2-1  |
| 1                          | ON   | NONE | ON   |
| 2                          | ON   | NONE | (ON) |
| 3                          | ON   | OFF  | ON   |
| 4                          | (ON) | OFF  | (ON) |
| 5                          | ON   | OFF  | (ON) |

**4 ACTUATOR STYLE**

|  |  |
|--|--|
| <b>T1</b> Round toggle .358 length<br><b>T2</b> Round toggle .220 length<br><b>P1</b> ESD resistant plastic toggle .421 length<br><b>P2</b> ESD resistant plastic toggle .272 length |  |
|--|--|

**5 TERMINATION**

|           |                               |
|-----------|-------------------------------|
| <b>M6</b> | Surface Mount, 90° flat       |
| <b>M7</b> | Surface Mount, 90° vertical   |
| <b>S6</b> | Surface Mount, 90° horizontal |

**6 CONTACT**

|          | Material            | Terminal Plating              | Rating                            |      |
|----------|---------------------|-------------------------------|-----------------------------------|------|
| <b>G</b> | silver <sup>1</sup> | gold over silver <sup>3</sup> | 3A@125VAC or 28VDC, 1.5A @ 250VAC | IP67 |
| <b>K</b> | gold <sup>2</sup>   | tin-lead plated <sup>4</sup>  | 0.4VA max. @20V max (AC/DC)       | IP67 |
| <b>P</b> | silver <sup>1</sup> | tin-lead plated <sup>4</sup>  | 3A@125VAC or 28VDC, 1.5A @ 250VAC | IP67 |
| <b>R</b> | gold <sup>2</sup>   | gold plated <sup>2</sup>      | 0.4VA max. @20V max (AC/DC)       | IP67 |

**NOTE:**  
 Tin-lead option available with PC type terminations only.  
 1 Moveable contact & terminals: copper alloy, silver plate  
 2 Moveable contact & terminals: copper alloy with gold plate over nickel plate  
 3 Terminals: silver plate with outer layer in gold plating  
 4 Outer terminals: copper alloy with tin-lead over nickel plate

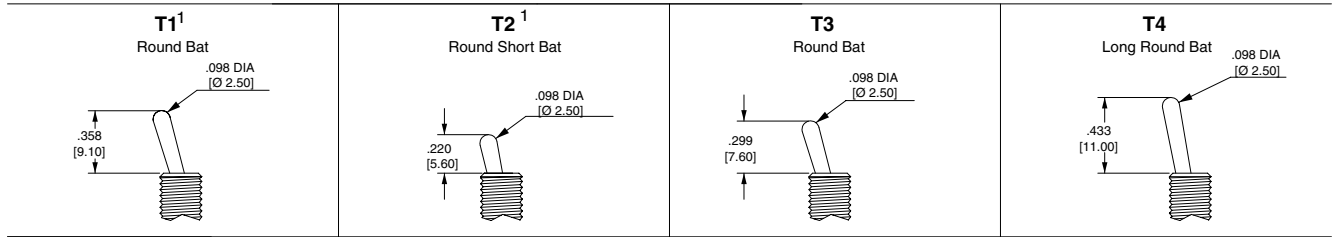
**7 EPOXY SEAL**  
**E** epoxy seal

**8 PACKAGING**  
 Switches are bulk packed, unless **T/R** is specified at the end of the part number.  
**T/R** tape reel - 500 pieces per reel

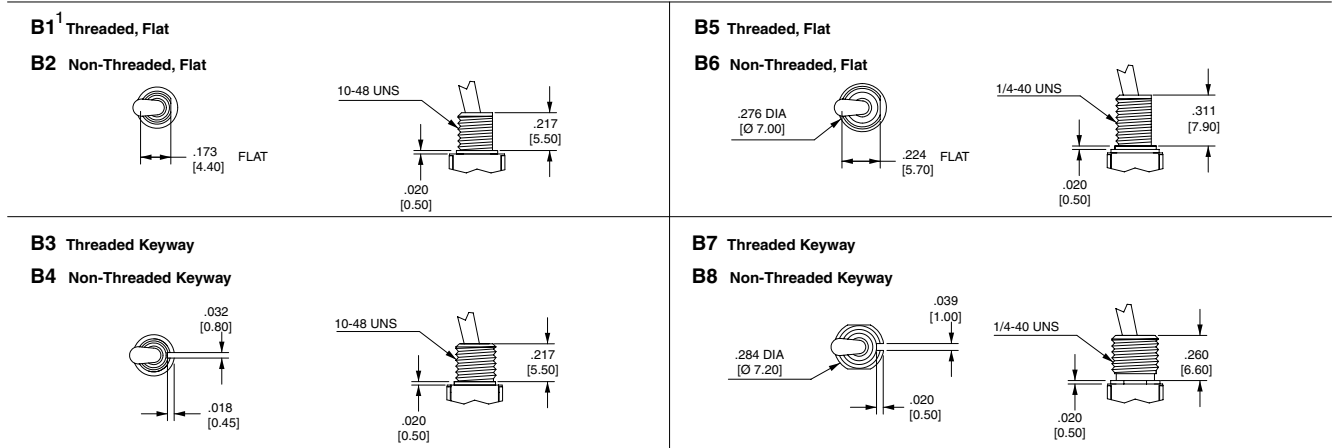
## 2S-Series Dimensional Specifications: in. [mm]

### 2S1-Series

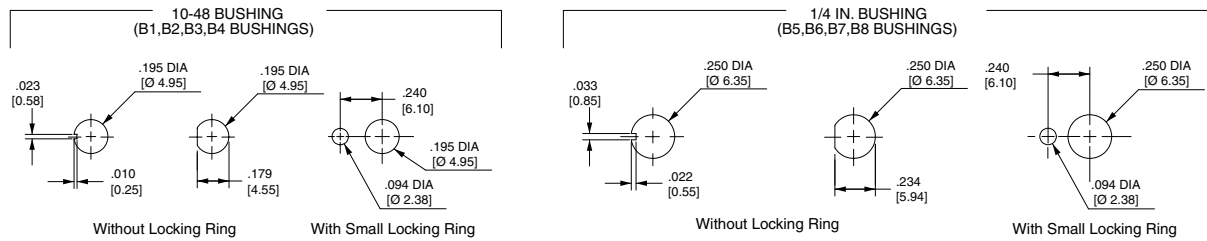
#### ACTUATOR



#### BUSHING

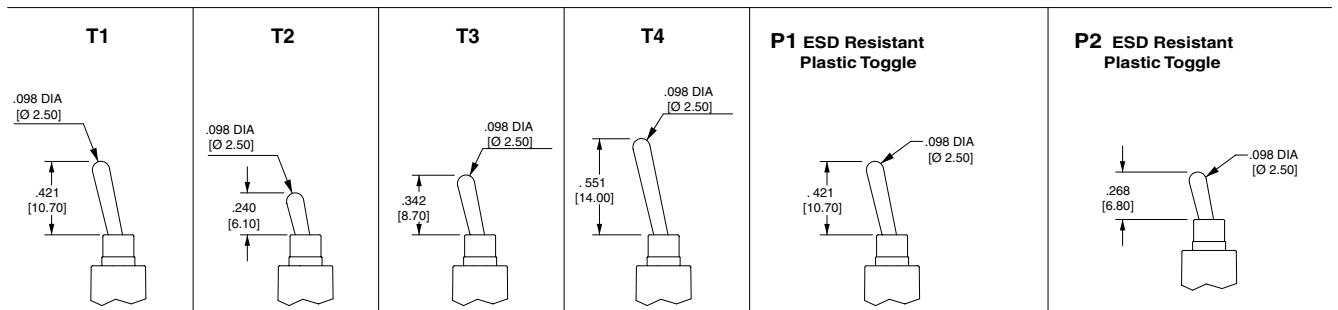


#### PANEL MOUNTING



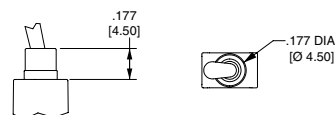
### 2SS-Series

#### ACTUATOR



#### BUSHING

#### B4

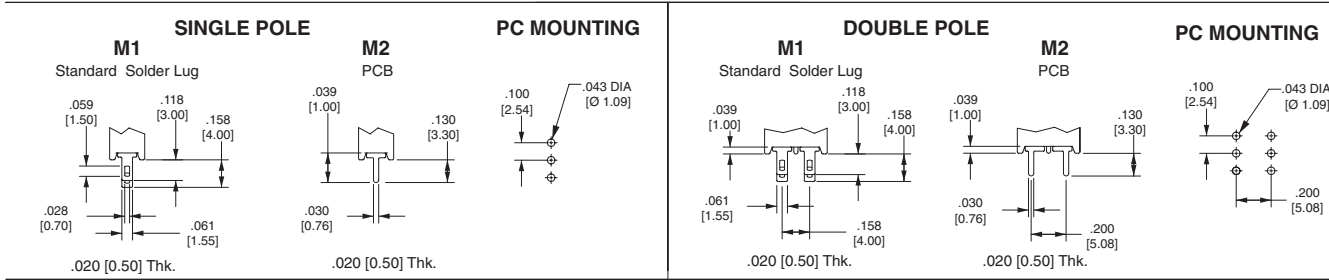


NOTE:  
1 Subtract 2.55mm from toggle length for B1 bushing.

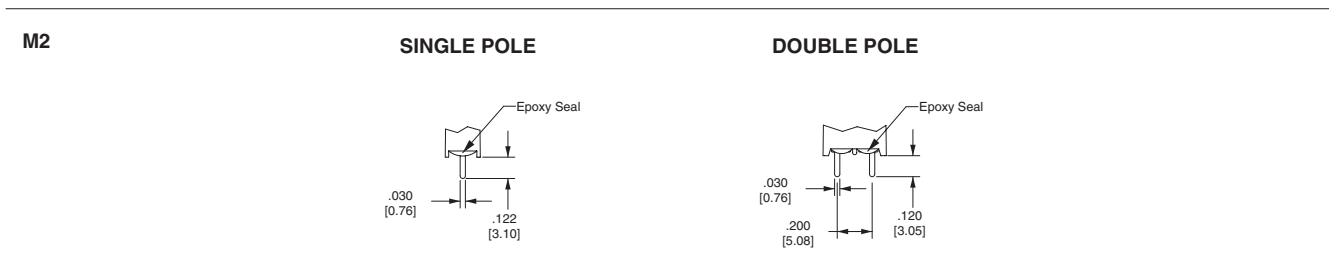
**2S-Series Dimensional Specifications: in. [mm]**

**TERMINATION**

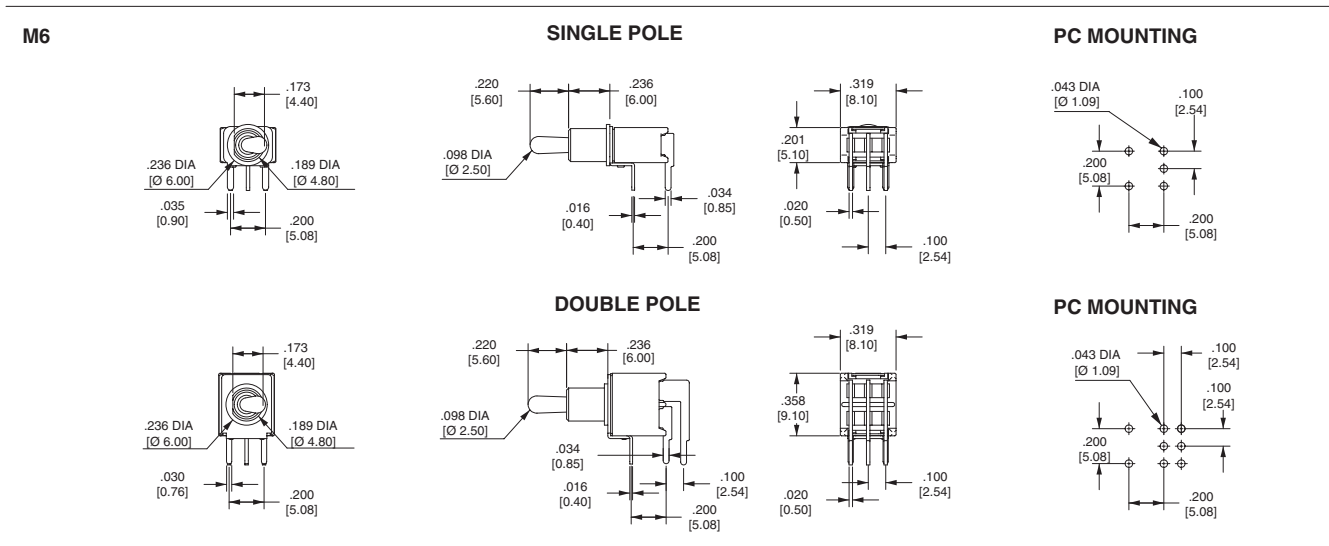
**2S1-Series**



**2SS-Series**



**2S-Series**



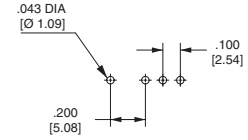
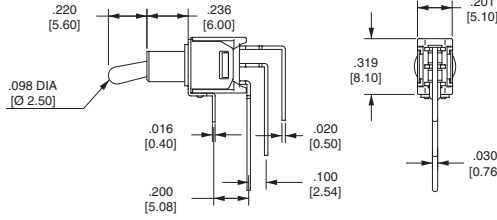
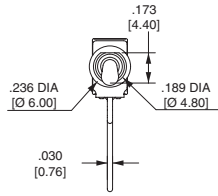
**2S-Series Dimensional Specifications: in. [mm]**

**TERMINATION**

**M7**

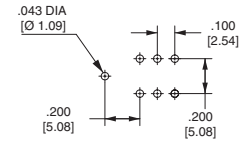
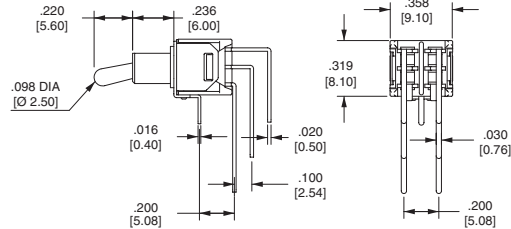
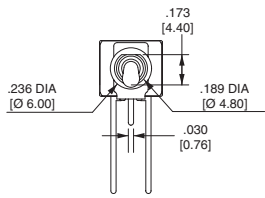
**SINGLE POLE**

**PC MOUNTING**



**DOUBLE POLE**

**PC MOUNTING**



**VS2-VS3**

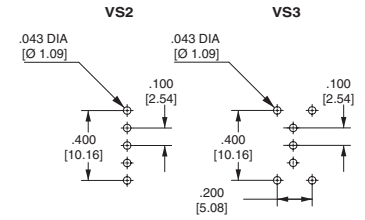
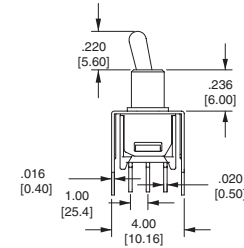
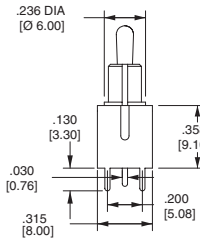
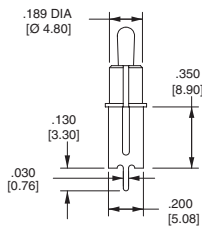
U Bracket Snap-in

**VS2**

**VS3**

**SINGLE POLE**

**PC MOUNTING**

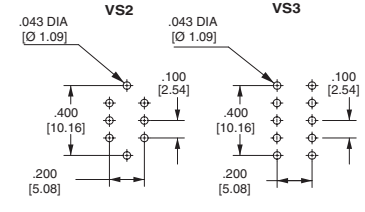
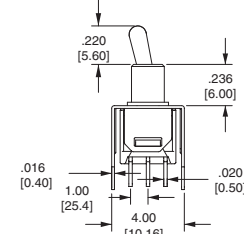
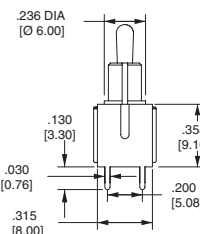
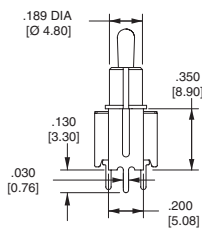


**VS2**

**VS3**

**DOUBLE POLE**

**PC MOUNTING**

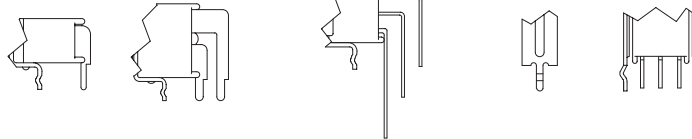


**SNAP-IN TERMINATION**

**M61**

**M71**

**VS21**



M61, M71, VS21 have the same P.C. mounting but with snap-in bracket.

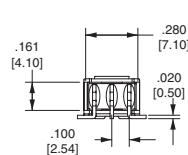
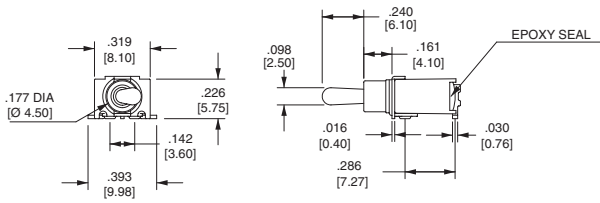
**2SM-Series Dimensional Specifications: in. [mm]**

**ACTUATOR**

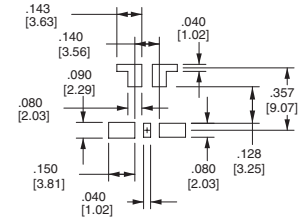
|  |                                |   |   |
|--|--------------------------------|---|---|
| <p><b>T1</b><br/>Round Bat</p> <p>For S6,M7 Only</p> | <p><b>T2</b><br/>Round Bat</p> | <p><b>P1</b><br/>ESD Resistant Plastic Toggle</p> | <p><b>P2</b><br/>ESD Resistant Plastic Toggle</p> |
|--|--------------------------------|---|---|

**TERMINATION**

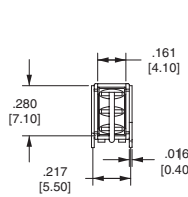
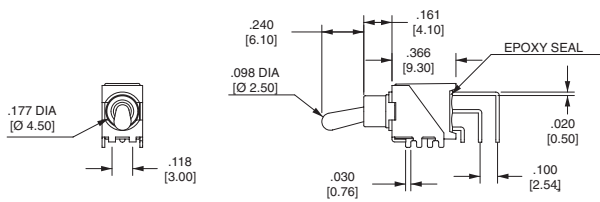
**M6**  
90° Horizontal



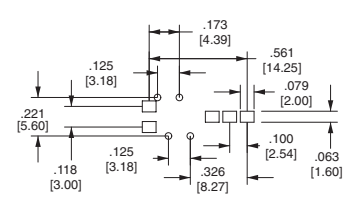
**PC MOUNTING**



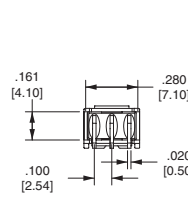
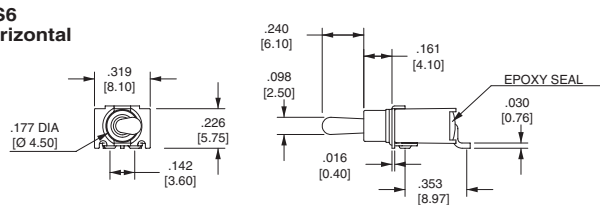
**M7**  
90° Vertical



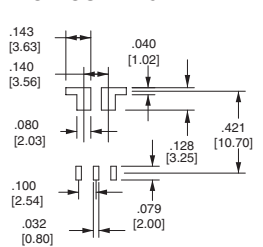
**PC MOUNTING**



**S6**  
90° Horizontal



**PC MOUNTING**



**2SM-Series Dimensional Specifications: in. [mm]**

**REEL TAPING**

