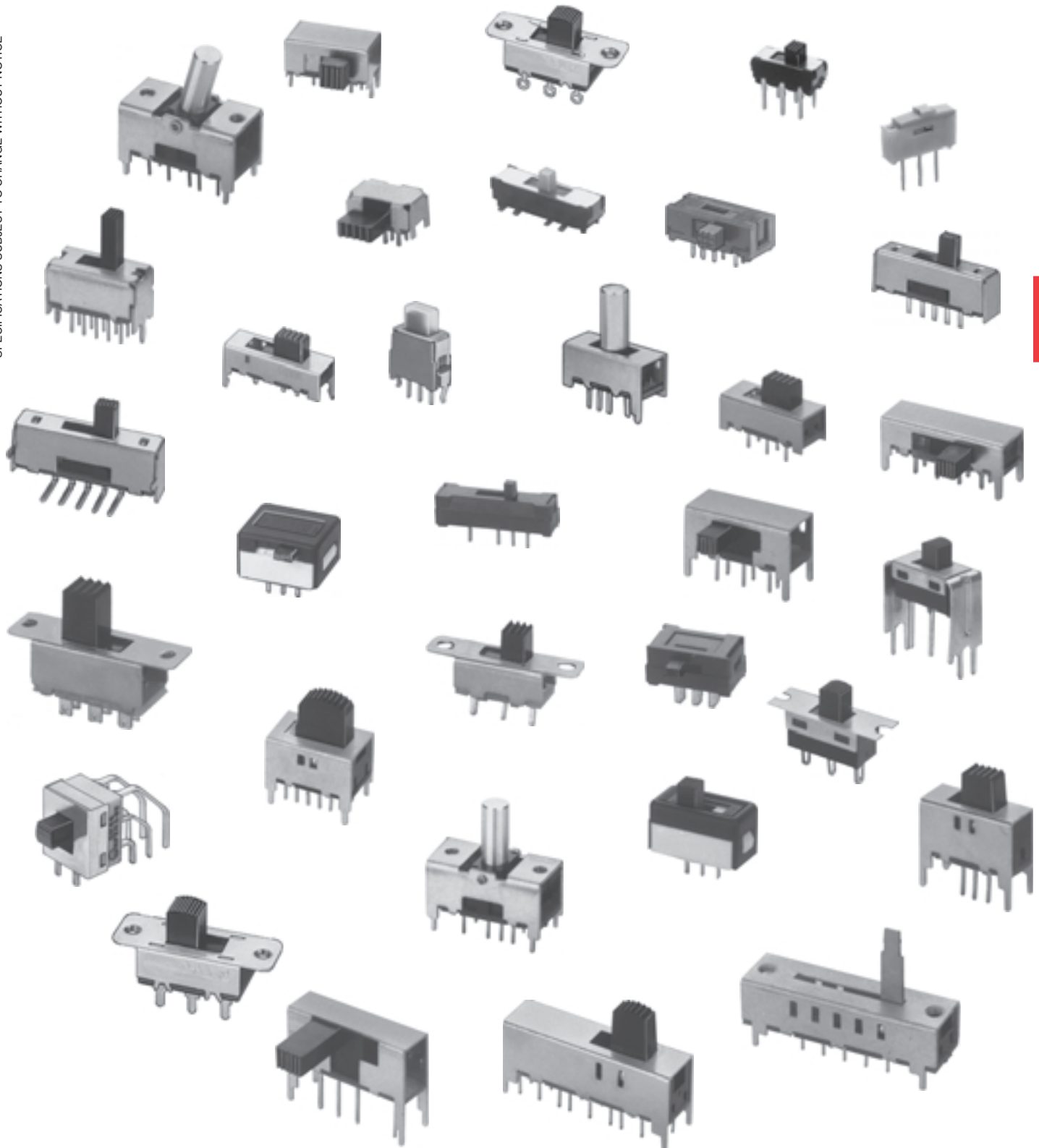


# SLIDE SWITCHES

SEE PUSHBUTTON SWITCH SELECTION GUIDE ON NEXT PAGE

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE



E

# SLIDE SWITCHES

SLIDE SWITCH SELECTION GUIDE: This catalog contains an extensive variety of slide switches with numerous options and accessories. To facilitate easy selection of the desired switch for your application, the guide on pages E2 & E3 lists the various Series with some key selection parameters.

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

E

| MICROMINIATURE SLIDE SWITCHES |               |                |                                                                           |               |                    |                             |                   |         |
|-------------------------------|---------------|----------------|---------------------------------------------------------------------------|---------------|--------------------|-----------------------------|-------------------|---------|
| SERIES                        | POLES         | POS-<br>ITIONS | RATINGS                                                                   | WASH-<br>ABLE | LIFE<br>CYCLES     | MOUNTING                    | ACTUATION         | PAGE(S) |
| TG (SMT)                      | 1             | 2&3            | 0.4 VA @ 20V                                                              | Yes           | 60,000             | Surface                     | Vertical          | E4-E7   |
| MJS                           | 1&2           | 2&3            | 100 ma @ 12VDC                                                            | No            | 10,000             | P.C. thru-hole              | Vert. & rt. angle | E8-E9   |
| MSSA &<br>MSSB                | 2             | 2              | 100 ma @ 30VDC or<br>125VAC & dry circuit                                 | No            | 10,000             | P.C. thru-hole              | Vert. & rt. angle | E10     |
| MA                            | 1             | 2&3            | 300 ma @ 4VDC                                                             | No            | 10,000             | Surface                     | Rt. angle         | E11     |
| MHSS                          | 1&2           | 2              | 300 ma @ 6VDC                                                             | No            | 5000               | P.C. thru-hole              | Vert. & rt. angle | E12     |
| MS                            | 1,2&4         | 2&3            | 300 ma @ 6VDC                                                             | No            | 10,000             | P.C. thru-hole<br>& surface | Vert. & rt. angle | E13-E15 |
| MMPS <i>New!</i>              | 1             | 2&3            | 300 ma @ 4VDC                                                             | No            | 10,000             | Surface                     | Right angle       | E15     |
| MMS                           | 1,2,4&6       | 2&3            | 300 ma @ 30VDC                                                            | No            | 10,000             | P.C. thru-hole              | Vert. & rt. angle | E16-E17 |
| TG                            | 1             | 2&3            | 500 ma @ 48V (AC or DC)<br>& dry circuit                                  | Some          | 30,000 &<br>60,000 | P.C. thru-hole              | Vert. & rt. angle | E18-E20 |
| NK                            | 1             | 2              | 500 ma @ 12V                                                              | No            | 1000               | P.C. thru-hole              | Vertical          | E21     |
| MINIATURE SLIDE SWITCHES      |               |                |                                                                           |               |                    |                             |                   |         |
| SERIES                        | POLES         | POS-<br>ITIONS | RATINGS                                                                   | WASH-<br>ABLE | LIFE<br>CYCLES     | MOUNTING                    | ACTUATION         | PAGE(S) |
| MSTS                          | 1&2           | 3              | 300 ma @ 28VDC                                                            | Yes           | 10,000             | P.C. thru-hole              | Vertical          | E22     |
| MHS <i>New!</i>               | 1&2           | 2&3            | 300 ma @ 30VDC                                                            | Yes           | 10,000             | P.C. thru-hole              | Vertical          | E23-E26 |
| SLB                           | 1&2           | 2,3,4&5        | 300 ma @ 30VDC or 125 VAC                                                 | Yes           | 10,000             | P.C. thru-hole              | Vert. & rt. angle | E27-E34 |
| SLC                           | 1&2           | 2              | 300 ma @ 30VDC or 125 VAC                                                 | Yes           | 10,000             | Panel                       | Vertical          | E35     |
| SLG                           | 1             | 2              | 300 ma @ 30VDC or 125 VAC                                                 | Yes           | 10,000             | P.C. thru-hole<br>& panel   | Vertical          | E36     |
| SLA                           | 1&2           | 2              | 500 ma @ 125VAC                                                           | Yes           | 10,000             | P.C. thru-hole<br>& panel   | Vertical          | E37-E38 |
| SLE                           | 1&2           | 2              | 500 ma @ 125VAC                                                           | Yes           | 10,000             | P.C. thru-hole<br>& panel   | Vertical          | E38-E39 |
| G                             | 1&2           | 2&3            | 4 amps @ 125VAC, 2 amps<br>@ 250 VAC or 3 amps @ 30<br>VDC & dry circuit  | No            | 20,000 -<br>60,000 | P.C. thru-hole<br>& panel   | Vert. & rt. angle | E40-E44 |
| 25000N                        | 1&2           | 2&3            | 4 amps @ 125 VAC, 2 amps<br>@ 250 VAC or 3 amps @ 30<br>VDC & dry circuit | No            | 10,000 -<br>20,000 | P.C. thru-hole              | Vert. & rt. angle | E45-E49 |
| STANDARD SIZE SLIDE SWITCHES  |               |                |                                                                           |               |                    |                             |                   |         |
| SERIES                        | POLES         | POS-<br>ITIONS | RATINGS                                                                   | WASH-<br>ABLE | LIFE<br>CYCLES     | MOUNTING                    | ACTUATION         | PAGE(S) |
| MSS                           | 1,2&4         | 2,3&4          | 300 ma @ 30VDC or 125 VAC<br>& dry circuit                                | Yes           | 10,000             | P.C. thru-hole              | Vert. & rt. angle | E50-E52 |
| M                             | 1,2,4,<br>6&8 | 2&3            | 300 ma @30VDC or 125 VAC                                                  | Yes           | 10,000             | P.C. thru-hole              | Vert. & rt. angle | E53-E57 |
| PM                            | 1&2           | 2              | 6 amps @ 125 VAC or 3 amps<br>@ 250 VAC                                   | Yes           | 10,000             | Panel                       | Vertical          | E58     |

# SLIDE SWITCHES

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

## SLIDE SWITCH SELECTION GUIDE (CONT'D.)

| MINIATURE PUSHBUTTON STYLE SLIDE SWITCHES |              |                |                                                          |               |                |                |           |         |
|-------------------------------------------|--------------|----------------|----------------------------------------------------------|---------------|----------------|----------------|-----------|---------|
| SERIES                                    | POLES        | POS-<br>ITIONS | RATINGS                                                  | WASH-<br>ABLE | LIFE<br>CYCLES | MOUNTING       | ACTUATION | PAGE(S) |
| <b>MPS</b>                                | PB-1<br>SL-1 | PB-1<br>SL-3   | PB - 0.4 VA @ 20 V max.<br>Slide - 300 ma @ 30VDC/125VAC | No            | 100,000        | P.C. thru-hole | Rt. angle | E59     |
| SINGLE POLE MULTI-POSITION SLIDE SWITCHES |              |                |                                                          |               |                |                |           |         |
| SERIES                                    | POLES        | POS-<br>ITIONS | RATINGS                                                  | WASH-<br>ABLE | LIFE<br>CYCLES | MOUNTING       | ACTUATION | PAGE(S) |
| <b>MSL</b>                                | 1            | 3,5&6          | 200 ma @ 30VDC/125VAC                                    | Yes           | 10,000         | P.C. thru-hole | Vertical  | E60     |
| BATON TOGGLE STYLE SLIDE SWITCHES         |              |                |                                                          |               |                |                |           |         |
| SERIES                                    | POLES        | POS-<br>ITIONS | RATINGS                                                  | WASH-<br>ABLE | LIFE<br>CYCLES | MOUNTING       | ACTUATION | PAGE(S) |
| <b>MBT</b>                                | 2,4&6        | 2,3&4          | 300 ma @ 30VDC/125VAC                                    | Yes           | 10,000         | P.C. thru-hole | Toggle    | E61-E63 |

E

## ALPHA-NUMERIC INDEX BY SERIES

| SERIES      | Page (s)         | SERIES          | Page (s)         |
|-------------|------------------|-----------------|------------------|
| <b>G</b>    | <b>E40 - E44</b> | <b>MSSA</b>     | <b>E10</b>       |
| <b>M</b>    | <b>E53 - E57</b> | <b>MSSB</b>     | <b>E10</b>       |
| <b>MA</b>   | <b>E11</b>       | <b>MSTS</b>     | <b>E22</b>       |
| <b>MBT</b>  | <b>E61 - E63</b> | <b>NK</b>       | <b>E21</b>       |
| <b>MHS</b>  | <b>E23 - E26</b> | <b>PM</b>       | <b>E58</b>       |
| <b>MHSS</b> | <b>E12</b>       | <b>SLA</b>      | <b>E37 - E38</b> |
| <b>MMPS</b> | <b>E15</b>       | <b>SLB</b>      | <b>E27 - E34</b> |
| <b>MJS</b>  | <b>E8 - E9</b>   | <b>SLC</b>      | <b>E35</b>       |
| <b>MMS</b>  | <b>E16 - E17</b> | <b>SLE</b>      | <b>E38 - E39</b> |
| <b>MPS</b>  | <b>E59</b>       | <b>SLG</b>      | <b>E36</b>       |
| <b>MS</b>   | <b>E13 - E15</b> | <b>25000N</b>   | <b>E45 - E49</b> |
| <b>MSL</b>  | <b>E60</b>       | <b>TG</b>       | <b>E18 - E20</b> |
| <b>MSS</b>  | <b>E50 - E52</b> | <b>TG (SMT)</b> | <b>E4 - E7</b>   |

### DESIGNED EXCLUSIVELY FOR SURFACE MOUNTING

SMT TG Series switches incorporate many desirable features that include:

● **Tape & reel packaging**

This type of packaging is recommended for:

- economy
- suitability for automated placement
- handling of large quantities of components per packaging unit
- positive component positioning
- protection of terminals against damage during handling
- high static resistance

● **Reflow solderable**

- High temperature plastic materials
- Tin plated grounding brackets
- Tin-lead alloy over nickel terminal plating
- Terminals turned outward to prevent the shadow effect in infrared soldering and to permit visual inspection of the solder joints
- .021" (0.55mm) air gap between p.c. board and switch case
- End stackable with .400" (10.16mm) pitch
- Available with positioning pins to assure correct switch orientation during the reflow process and provide additional mechanical integrity

● **Washable**

Switches are designed to withstand cleaning processes, including hot water under pressure.

Surface mount devices (SMD) are subject to more stringent constraints of temperature, solderability, sealing and space savings than through-hole components.

To meet these requirements, APEM has designed a family of tiny surface mount switches that include TL Series toggle switches, TP Series pushbutton switches, TR Series rocker switches & TG Series slide switches. See toggle, pushbutton & rocker switch sections of catalog for TL, TP & TR Series respectively.



# TG SERIES - SMT WASHABLE TINY SLIDE SWITCHES

## ELECTRICAL SPECIFICATIONS

|                                          |                                                                          |
|------------------------------------------|--------------------------------------------------------------------------|
| <b>Contact ratings (resistive lds.):</b> | 0.4 VA at 20 V max. (AC or DC)                                           |
| <b>Minimum load:</b>                     | 10 mA at 50 mV or 10µA at 5 VD                                           |
| <b>Initial contact resistance:</b>       | 20 milliohms maximum                                                     |
| <b>Insulation resistance:</b>            | 1000 MΩ min. at 500 VDC                                                  |
| <b>Dielectric strength:</b>              | 1000 V rms between terminals & frame. 500 V rms between terminals        |
| <b>Electrical life (at full load):</b>   | 2 position switches: 60,000 cycles<br>3 position switches: 30,000 cycles |
| <b>Static resistance:</b>                | 10 KV (Schaffner equipment)                                              |

## GENERAL SPECIFICATIONS

|                                     |                                     |
|-------------------------------------|-------------------------------------|
| <b>Travel:</b>                      | .102" (2.60mm)                      |
| <b>Operating temperature range:</b> | -40°C to +85°C                      |
| <b>Moisture resistance:</b>         | 21 days per IEC 512-6 test 11c      |
| <b>Vibration resistance:</b>        | 10-500 Hz/10g per IEC 512-4 test 6d |
| <b>Shock resistance:</b>            | 50 g per IEC 512-4 test 6c          |

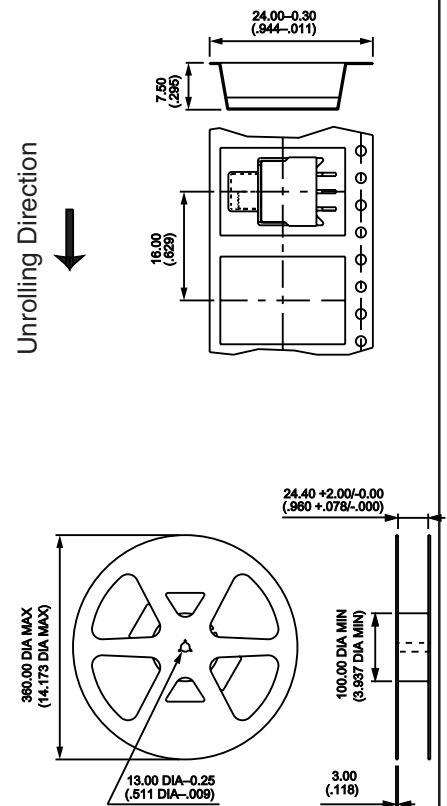
## MATERIALS

|                            |                                              |
|----------------------------|----------------------------------------------|
| <b>Case:</b>               | High temperature plastic UL94V-0             |
| <b>Actuator:</b>           | High temperature plastic UL94V-0             |
| <b>Grounding brackets:</b> | Tin plated steel (includes positioning pins) |
| <b>Contacts:</b>           | Gold plated brass                            |
| <b>Terminals:</b>          | Brass with tin-lead alloy over nickel plate  |
| <b>Terminal seal:</b>      | Epoxy                                        |

## SOLDERING AND CLEANING

|                          |                                                             |
|--------------------------|-------------------------------------------------------------|
| <b>Reflow soldering:</b> | Infrared, vapor phase and infrared convection               |
| <b>Washable:</b>         | Per IEA-RS448-2: water and detergent - preferred. Solvents. |

## PACKAGING



### Standard packaging unit:

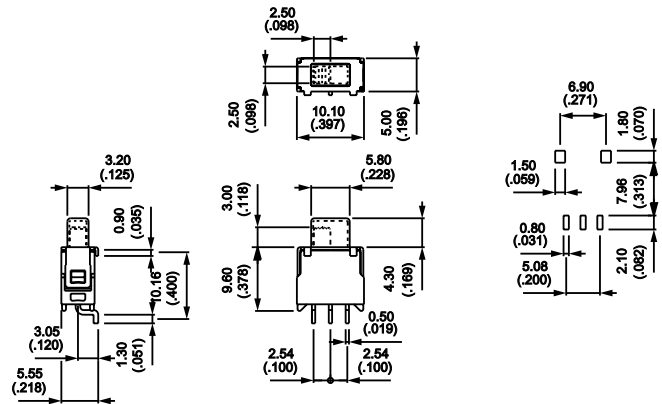
500 pieces  
Tape meeting international standard IEC Publication 286-3 (EIA481A)  
Start leader: 15.7" (400mm) min.

# TG SERIES - SMT WASHABLE TINY SLIDE SWITCHES

## Single pole slide switches



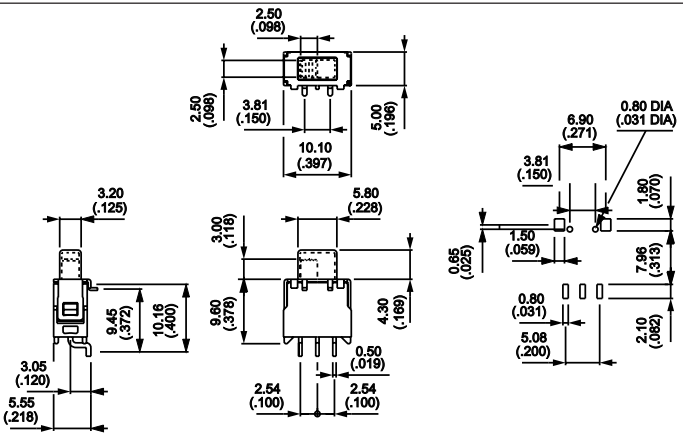
| MODEL NO.   | CIRCUIT   |
|-------------|-----------|
| TG36WS80050 | ON - ON   |
| TG39WS80050 | ON OFF ON |



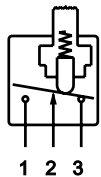
## Single pole slide switches with positioning pins



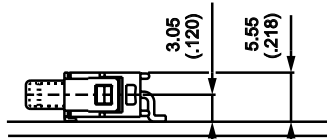
| MODEL NO.   | CIRCUIT   |
|-------------|-----------|
| TG36WS80065 | ON - ON   |
| TG39WS80065 | ON OFF ON |



### SWITCH ACTION



### P.C. BOARD DIMENSIONS



### LED INDICATOR IN TINY PACKAGE

#### ELECTRICAL SPECIFICATIONS

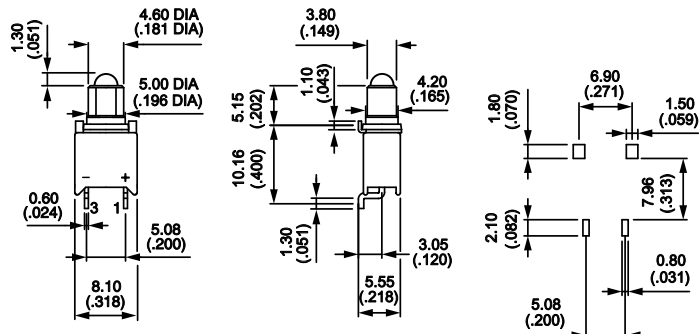
Forward voltage: Red; 3.0 volts at 10 milliamps (2V typical)  
Green; 3.0 volts at 20 milliamps (2.2V typical)  
Yellow; 3.0 volts at 10 milliamps (2.1V typical)  
Reverse voltage: 5.0 volts minimum  
Viewing angle (total): 90°  
Wavelength: Red; 635 nm  
Green; 565 nm  
Yellow; 585 nm

#### PACKAGING

Tape & reel



| MODEL NO.   | COLOR  |
|-------------|--------|
| TV01WS00100 | Red    |
| TV02WS00100 | Green  |
| TV03WS00100 | Yellow |



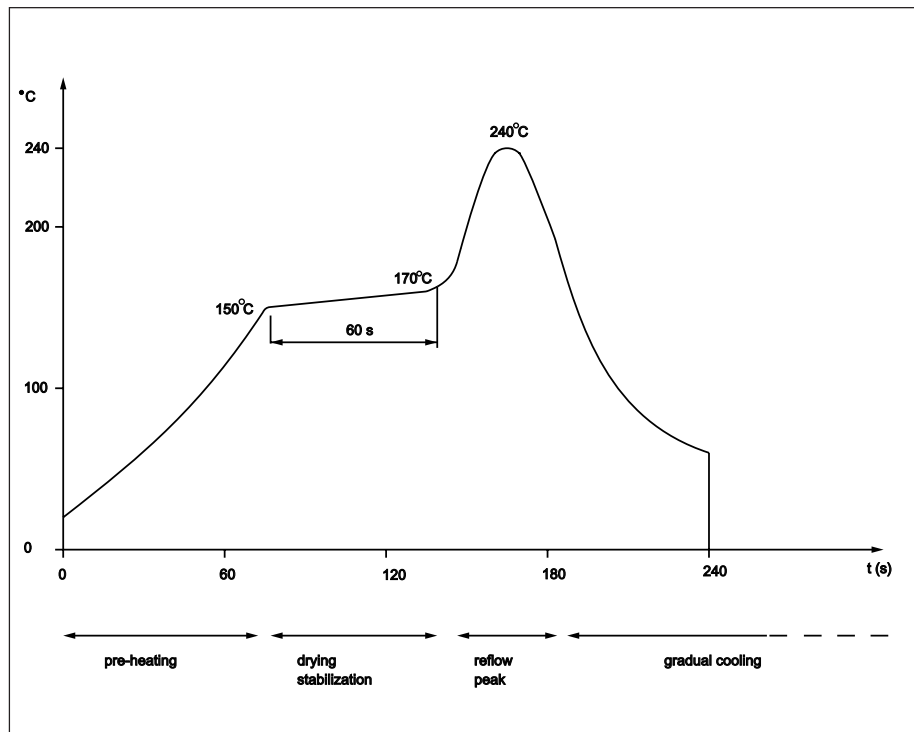
# TG SERIES - SMT WASHABLE TINY SLIDE SWITCHES

## REFLOW SOLDERING - STANDARD PROFILE

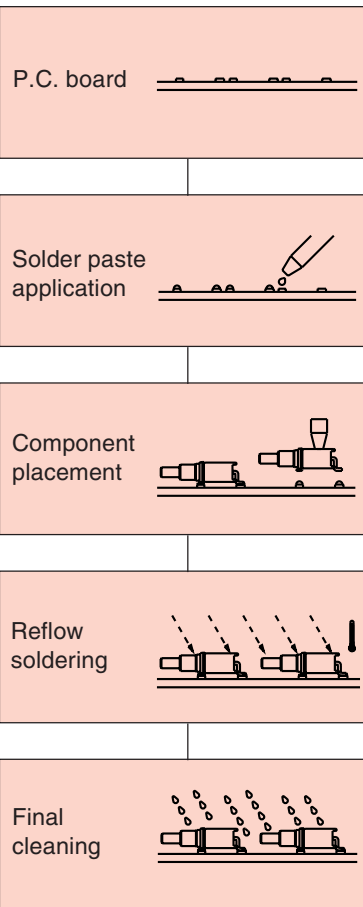
The printed circuit board, carried by a conveyor belt, travels through the reflow soldering oven and experiences the following programmed cycles:

- pre-heat to a maximum of 200°C for 30 seconds
- reflow at a maximum of 245°C for 10 seconds
- final cleaning

### TEMPERATURE/TIME PROFILE (typical)



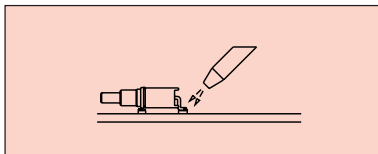
### PROCESSING STEPS



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### P.C. BOARD REWORK RECOMMENDATIONS

Hot air reflow technique is preferred. Avoid the use of a soldering iron.



**Caution:** Excessive and/or repeated high temperature exposure may affect switch performance & reliability.

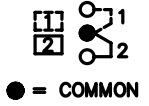
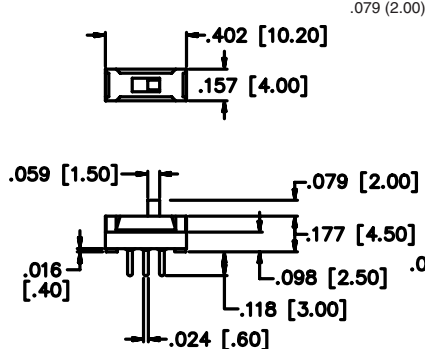
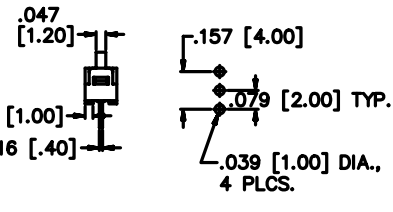
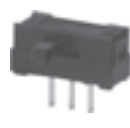
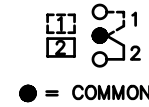
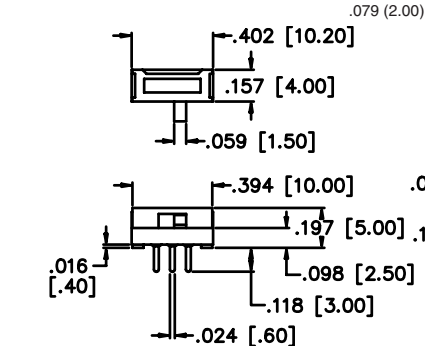
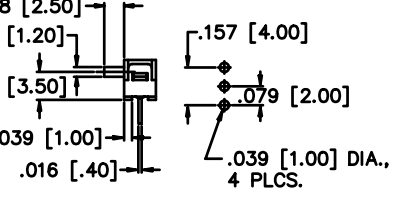
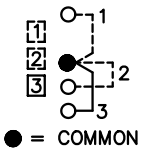
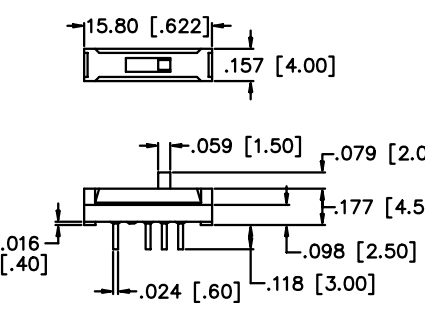
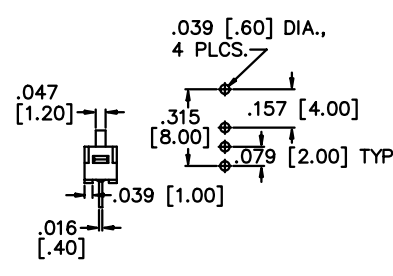
# MJS Series

## Microminiature Slide Switches

| SPECIFICATIONS                                                                                                                                                                                                                                                                                                                                                                                                                                                    | FEATURES                                                                                                                                                                                                                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Contact rating:</b> 100 mA at 12 VDC<br><b>Initial contact resistance:</b> 20 milliohms max.<br><b>Insulation resistance:</b> 100 megohms min. at 500 VDC<br><b>Dielectric strength:</b> 500 volts RMS at sea level<br><b>Electrical life:</b> 10,000 cycles min.<br><b>Operating temperature range:</b> -10°C to +60°C<br><b>Actuation force:</b> 225g (average)<br><b>Solder heat resistance:</b> 260°C max. for 5 seconds<br><b>Washing not recommended</b> | <ul style="list-style-type: none"> <li>● Bifurcated wiping contact design.</li> <li>● Molded-in terminals minimize flux or solder entry.</li> <li>● Molded-in high temperature phenolic base.</li> <li>● Low Profile.</li> </ul> |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | MATERIALS                                                                                                                                                                                                                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>Contacts &amp; terminals:</b> Silver plated<br><b>Case &amp; actuator:</b> Thermoplastic<br><b>Terminal seal:</b> Molded-in                                                                                                   |

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

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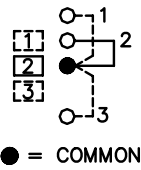
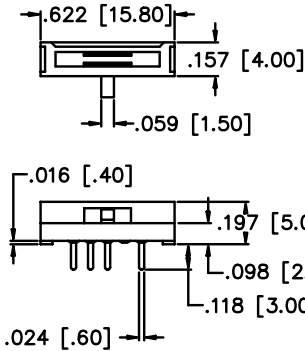
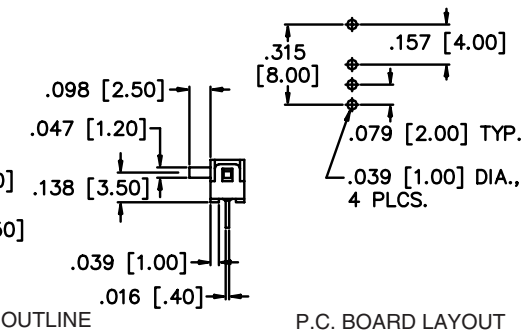
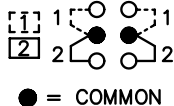
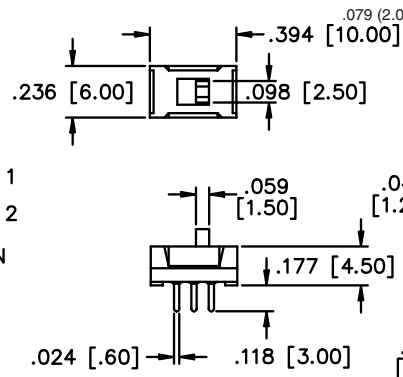
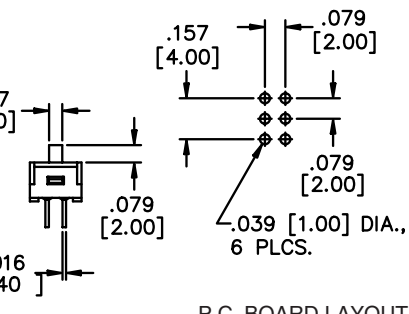
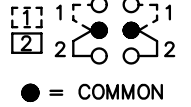
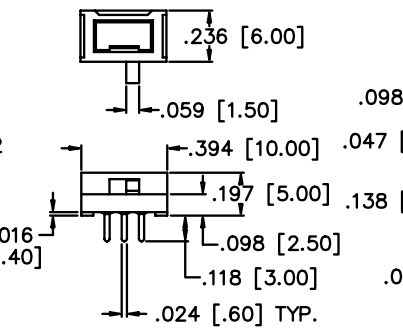
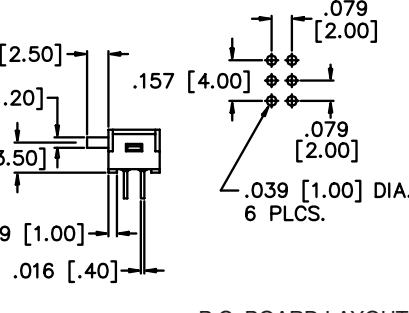
|                                   |             |                                                                                     |                                                                                                       |                                                                                                                      |                                                                                       |
|-----------------------------------|-------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| <b>MODEL NO.</b><br><b>MJS12</b>  | <b>1P2T</b> |   |  <p>● = COMMON</p>  |  <p>.079 (2.00) TRAVEL/THROW</p>  |   |
| <b>MODEL NO.</b><br><b>MJS12R</b> | <b>1P2T</b> |  |  <p>● = COMMON</p> |  <p>.079 (2.00) TRAVEL/THROW</p> |  |
| <b>MODEL NO.</b><br><b>MJS13</b>  | <b>1P3T</b> |  |  <p>● = COMMON</p> |  <p>.079 (2.00) TRAVEL/THROW</p> |  |



# MJS Series

## Microminiature Slide Switches

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

|                                                                                     |                      |                                                                                                       |                                                                                                                |                                                                                                                |
|-------------------------------------------------------------------------------------|----------------------|-------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| MODEL NO.                                                                           |                      | .079 (2.00) TRAVEL/THROW                                                                              |                                                                                                                |                                                                                                                |
| MJS13R                                                                              |                      |                                                                                                       |                                                                                                                |                                                                                                                |
|    | RIGHT ANGLE ACTUATOR |  <p>● = COMMON</p>   |  <p>MECHANICAL OUTLINE</p>    |  <p>P.C. BOARD LAYOUT</p>    |
| MODEL NO.                                                                           |                      | .079 (2.00) TRAVEL/THROW                                                                              |                                                                                                                |                                                                                                                |
| MJS22                                                                               |                      |                                                                                                       |                                                                                                                |                                                                                                                |
|   | VERTICAL ACTUATOR    |  <p>● = COMMON</p>  |  <p>MECHANICAL OUTLINE</p>  |  <p>P.C. BOARD LAYOUT</p>  |
| MODEL NO.                                                                           |                      | .079 (2.00) TRAVEL/THROW                                                                              |                                                                                                                |                                                                                                                |
| MJS22R                                                                              |                      |                                                                                                       |                                                                                                                |                                                                                                                |
|  | RIGHT ANGLE ACTUATOR |  <p>● = COMMON</p> |  <p>MECHANICAL OUTLINE</p> |  <p>P.C. BOARD LAYOUT</p> |

E

# MSSA & MSSB Series

## Microminiature Slide Switches

### SPECIFICATIONS

**Contact ratings:** Gold; 0.4 Volt-Amps (VA) max. at 20 V max. (AC or DC)  
**Silver;** 100 mA at 125 VAC or 30 VDC  
**Initial contact resistance:** 30 milliohms max.  
**Insulation resistance:** 100 megohms min. at 250 VDC  
**Dielectric strength:** 250 volts RMS at sea level  
**Electrical life:** 10,000 cycles min.  
**Operating temperature range:** -10°C to +60°C  
**Actuation force:** 250g ± 150g  
**Solder heat resistance:** 260°C max. for 3 seconds  
**Washing not recommended**

### FEATURES

- Low Profile.
- Epoxy sealed terminals.
- Cosmetic molded case.

### MATERIALS

**Contacts & terminals:** Gold or silver available (see contact ratings)  
**Housing and Actuator:** Thermoplastic  
**Base:** High temperature thermoplastic  
**Terminal seal:** Epoxy

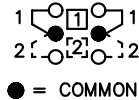
#### MODEL NO. PLATING

**MSSA22** SILVER  
**MSSA22G** GOLD

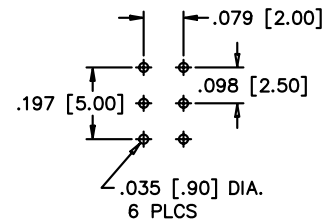
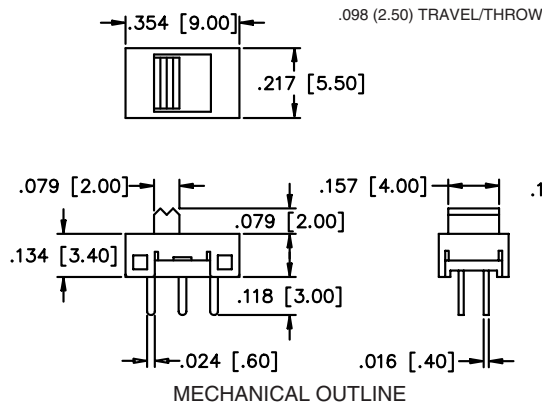
#### 2P2T



VERTICAL ACTUATOR



SCHEMATIC



### SPECIFICATIONS

**Contact ratings:** Gold; 0.4 Volt-Amps (VA) max. at 20 V max. (AC or DC)  
**Silver;** 100 mA at 125 VAC or 30 VDC  
**Initial contact resistance:** 20 milliohms max.  
**Insulation resistance:** 100 megohms min. at 250 VDC  
**Dielectric strength:** 250 volts RMS at sea level  
**Electrical life:** 10,000 cycles min.  
**Operating temperature range:** -10°C to +60°C  
**Actuation force:** 200g ± 150g  
**Solder heat resistance:** 260°C max. for 3 seconds  
**Washing not recommended**

### FEATURES

- Bifurcated wiping contact design.
- Low Profile.
- Epoxy sealed terminals.

### MATERIALS

**Contacts & terminals:** Gold or silver available (see contact ratings)  
**Housing:** Tin plated steel  
**Actuator:** Thermoplastic  
**Base:** Phenolic laminated sheet  
**Terminal seal:** Epoxy

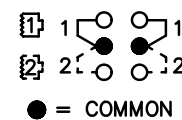
#### MODEL NO. PLATING

**MSSB22R** SILVER  
**MSSB22RG** GOLD

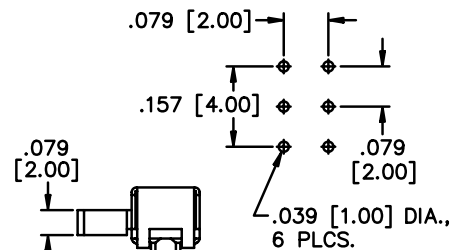
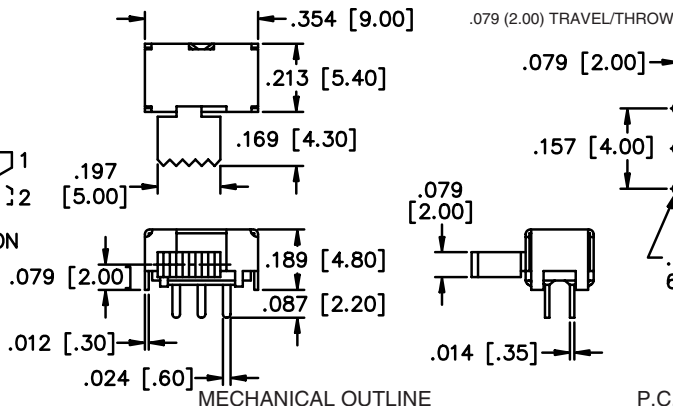
#### 2P2T



RIGHT ANGLE ACTUATOR



SCHEMATIC

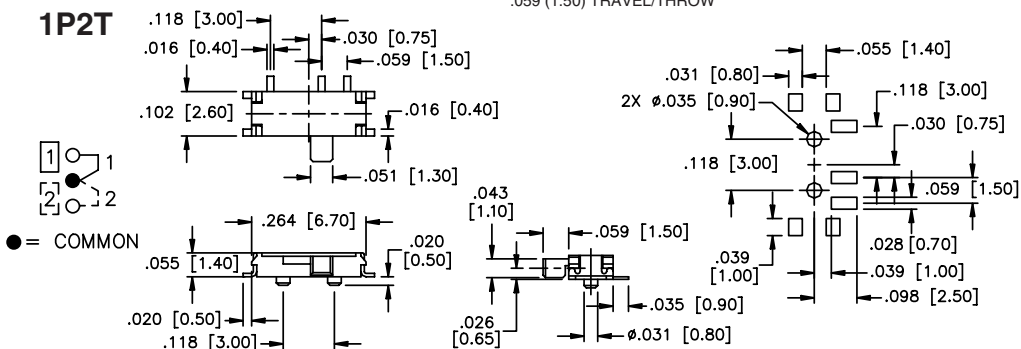
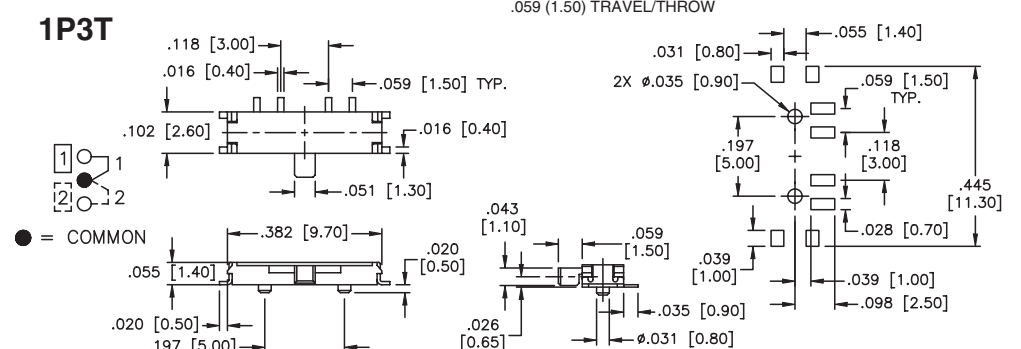
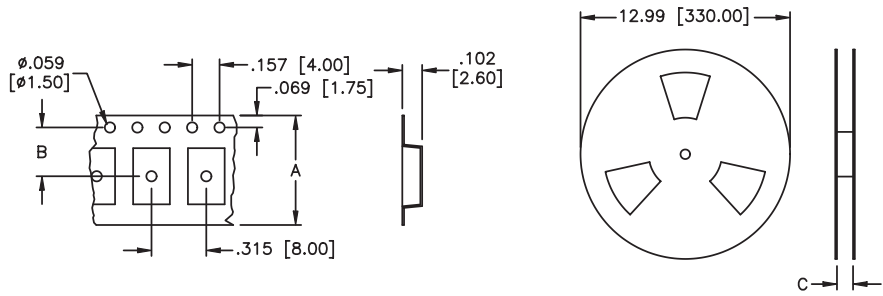


# MA Series

## Microminiature Memory Card

### Slide Switches

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

| SPECIFICATIONS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |             | FEATURES                                                                                                                                                                                                  |             |        |        |         |             |            |             |         |             |             |             |                                                                                                                             |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|--------|--------|---------|-------------|------------|-------------|---------|-------------|-------------|-------------|-----------------------------------------------------------------------------------------------------------------------------|--|
| <b>Contact rating:</b> 300 mA at 4 VDC<br><b>Initial contact resistance:</b> 70 milliohms max.<br><b>Insulation resistance:</b> 100 megohms min. at 100 VDC<br><b>Dielectric strength:</b> 100 VAC for 1 minute<br><b>Electrical life:</b> 10,000 cycles min.<br><b>Operating temperature range:</b> -10°C to +60°C<br><b>Actuation force:</b> 200g ± 100g<br><b>Solder heat resistance:</b> Reflow - 260°C max. for 1 min.<br>Manual - iron temperature<br>305 °C max. for 6 seconds.<br><b>Washing not recommended</b> |             | <ul style="list-style-type: none"> <li>● Ultra-compact size.</li> <li>● Low Profile.</li> <li>● Surface mounting with restraining bosses.</li> <li>● Reflow or hand solderable.</li> </ul>                |             |        |        |         |             |            |             |         |             |             |             |                                                                                                                             |  |
| MODEL NO.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |             | MATERIALS                                                                                                                                                                                                 |             |        |        |         |             |            |             |         |             |             |             |                                                                                                                             |  |
| MA12R                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |             | <b>Contacts:</b> Silver plated beryllium copper<br><b>Terminals:</b> Silver plated brass<br><b>Base:</b> Liquid crystal polymer <b>Cover:</b> Tin plated steel<br><b>Actuator:</b> Liquid crystal polymer |             |        |        |         |             |            |             |         |             |             |             |                                                                                                                             |  |
|  <p>RIGHT ANGLE ACTUATOR</p>                                                                                                                                                                                                                                                                                                                                                                                                           |             | <p>1P2T    .059 (1.50) TRAVEL/THROW</p>  <p>● = COMMON</p> <p>SCHMATIC    MECHANICAL OUTLINE    P.C. BOARD LAYOUT</p>  |             |        |        |         |             |            |             |         |             |             |             |                                                                                                                             |  |
| MA13R                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |             | <p>1P3T    .059 (1.50) TRAVEL/THROW</p>  <p>● = COMMON</p> <p>SCHMATIC    MECHANICAL OUTLINE    P.C. BOARD LAYOUT</p> |             |        |        |         |             |            |             |         |             |             |             |                                                                                                                             |  |
| <p><b>MODEL NO.</b></p> <p>MA12R/TR<br/>MA13R/TR</p> <p>Same as above models except supplied on tape &amp; reel as shown.</p> <table border="1"> <thead> <tr> <th>Model No.</th><th>Dim. A</th><th>Dim. B</th><th>Dim. C</th></tr> </thead> <tbody> <tr> <td>MA12RTR</td><td>.630 (16.0)</td><td>.217 (5.5)</td><td>.646 (16.4)</td></tr> <tr> <td>MA13RTR</td><td>.945 (24.0)</td><td>.453 (11.5)</td><td>.960 (24.4)</td></tr> </tbody> </table>                                                                       |             | Model No.                                                                                                                                                                                                 | Dim. A      | Dim. B | Dim. C | MA12RTR | .630 (16.0) | .217 (5.5) | .646 (16.4) | MA13RTR | .945 (24.0) | .453 (11.5) | .960 (24.4) |  <p>CARRIER TAPE    REEL DIMENSIONS</p> |  |
| Model No.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Dim. A      | Dim. B                                                                                                                                                                                                    | Dim. C      |        |        |         |             |            |             |         |             |             |             |                                                                                                                             |  |
| MA12RTR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | .630 (16.0) | .217 (5.5)                                                                                                                                                                                                | .646 (16.4) |        |        |         |             |            |             |         |             |             |             |                                                                                                                             |  |
| MA13RTR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | .945 (24.0) | .453 (11.5)                                                                                                                                                                                               | .960 (24.4) |        |        |         |             |            |             |         |             |             |             |                                                                                                                             |  |

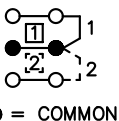
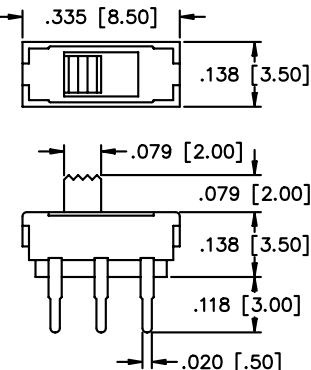
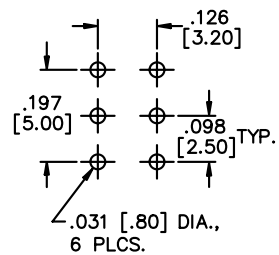
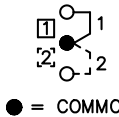
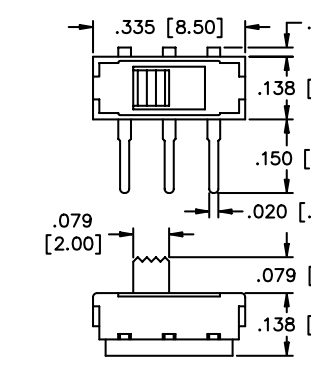
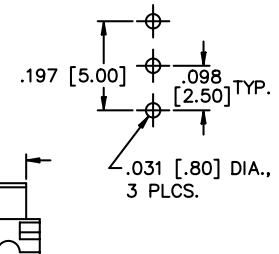
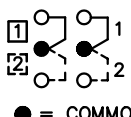
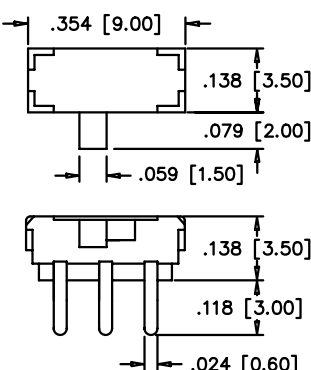
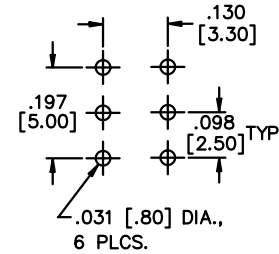
E

# MHSS Series

## Microminiature Slide Switches

| SPECIFICATIONS                                                                                                                                                                                                                                                                                                                                                                                                  | FEATURES                                                                                                                                                                                                                   |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Contact ratings:</b> 300 mA at 6 VDC<br><b>Initial contact resistance:</b> 60 milliohms max.<br><b>Insulation resistance:</b> 100 megohms min. at 100 VDC<br><b>Dielectric strength:</b> 100 VAC for 1 minute<br><b>Electrical life:</b> 5000 cycles min.<br><b>Operating temperature range:</b> -20°C to +70°C<br><b>Solder heat resistance:</b> 350°C max. for 3 seconds<br><b>Washing not recommended</b> | <ul style="list-style-type: none"> <li>● Excellent tactile feed-back (detent action).</li> <li>● Molded-in terminals minimize flux or solder entry.</li> <li>● Ultra-compact case size.</li> <li>● Low profile.</li> </ul> |
|                                                                                                                                                                                                                                                                                                                                                                                                                 | MATERIALS                                                                                                                                                                                                                  |
|                                                                                                                                                                                                                                                                                                                                                                                                                 | <b>Contacts &amp; terminals:</b> Silver plated<br><b>Case:</b> 30% Glass filled nylon, type 6/6, black<br><b>Actuator:</b> Nylon, type 6/6, black (blue for MHSS2220 only)                                                 |

E

|                                     |                                                                                                                   |                                                                                                                     |                                                                                                                |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| <b>MODEL NO.</b><br><b>MHSS1104</b> | <b>1P2T</b>  <p>● = COMMON</p>  |  <p>.079 (2.00) TRAVEL/THROW</p>  |  <p>P.C. BOARD LAYOUT</p>  |
| <b>MODEL NO.</b><br><b>MHSS1105</b> | <b>1P2T</b>  <p>● = COMMON</p> |  <p>.079 (2.00) TRAVEL/THROW</p> |  <p>P.C. BOARD LAYOUT</p> |
| <b>MODEL NO.</b><br><b>MHSS2220</b> | <b>2P2T</b>  <p>● = COMMON</p> |  <p>.079 (2.00) TRAVEL/THROW</p> |  <p>P.C. BOARD LAYOUT</p> |

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

# MS Series

## Microminiature Slide Switches

### SPECIFICATIONS

**Contact rating:** 300 mA at 6 VDC  
**Initial contact resistance:** 70 milliohms max.  
**Insulation resistance:** 100 megohms max. at 500 VDC  
**Dielectric strength:** 500 volts RMS at sea level  
**Electrical life:** 10,000 cycles min.  
**Operating temperature range:** -10°C to +60°C  
**Solder heat resistance:** 260°C max. for 3 seconds  
**Washing not recommended**

### FEATURES

- Low profile.
- Insert molded terminals.
- Stainless steel cover.

### MATERIALS

**Contacts & terminals:** Silver plated  
**Cover:** Stainless steel  
**Actuator:** Thermoplastic  
**Base:** High temperature thermoplastic    **Terminal seal:** Insert molded

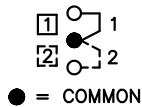
#### MODEL NO.

**MS12**

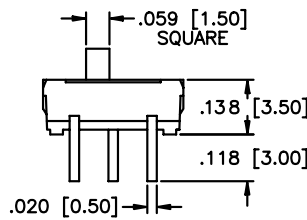
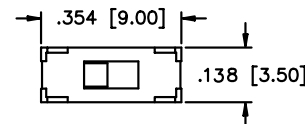


VERTICAL ACTUATOR

#### 1P2T

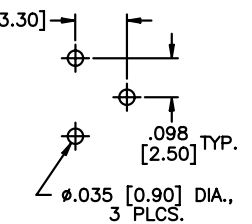
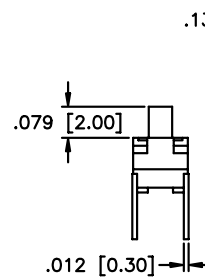


SCHEMATIC



MECHANICAL OUTLINE

.079 (2.00) TRAVEL/THROW



P.C. BOARD LAYOUT

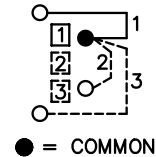
#### MODEL NO.

**MS13**

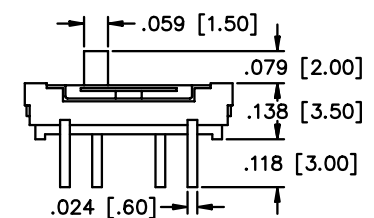
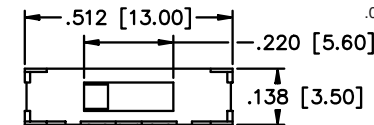


VERTICAL ACTUATOR

#### 1P3T

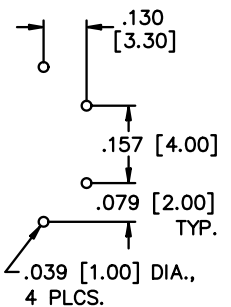
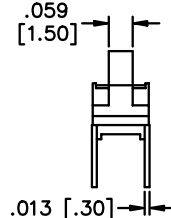


SCHEMATIC



MECHANICAL OUTLINE

.079 (2.00) TRAVEL/THROW



P.C. BOARD CUTOUT

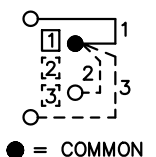
#### MODEL NO.

**MS13S**

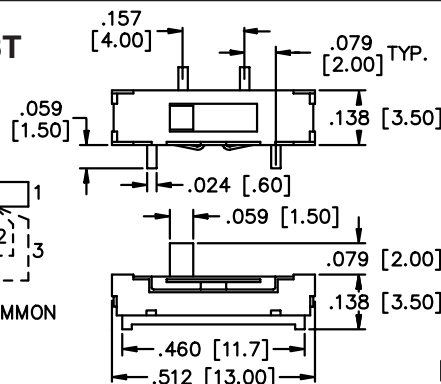


VERTICAL ACTUATOR

#### 1P3T

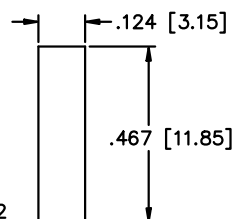
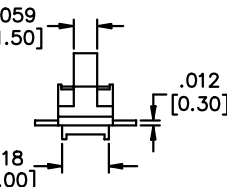


SCHEMATIC



MECHANICAL OUTLINE

.079 (2.00) TRAVEL/THROW

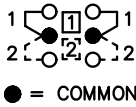
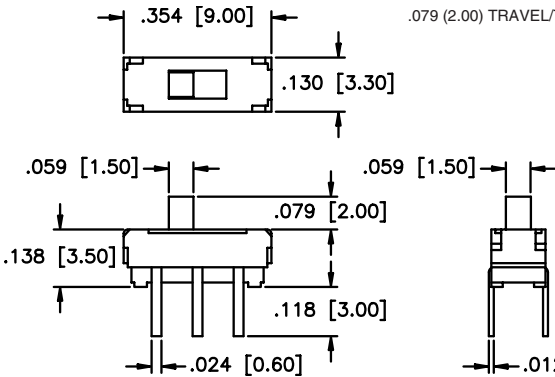
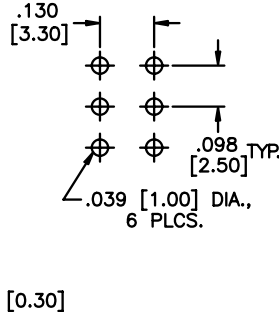
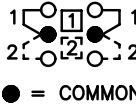
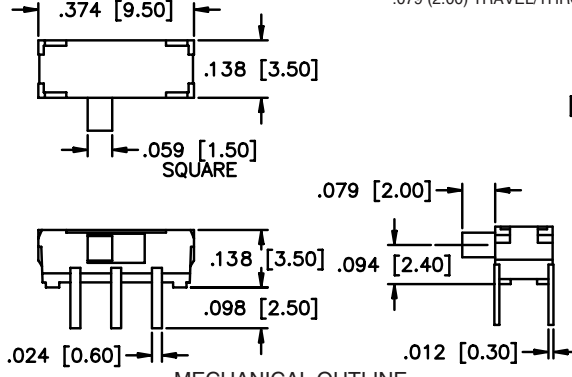
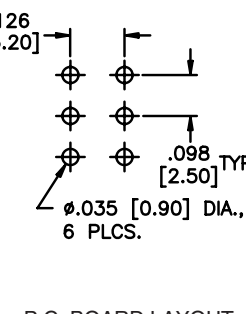
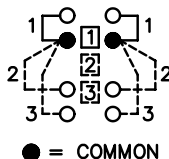
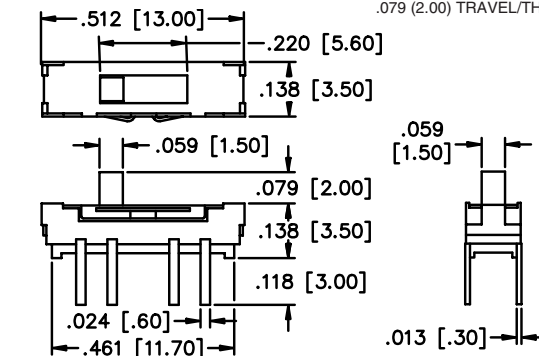
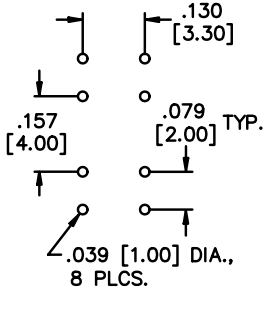
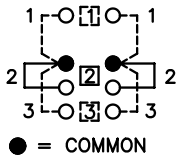
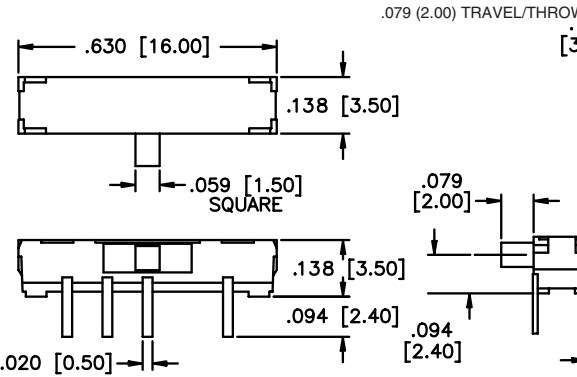
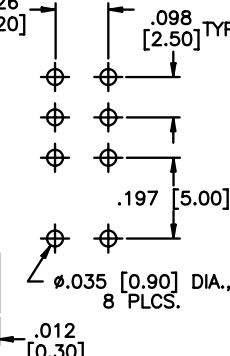


P.C. BOARD LAYOUT

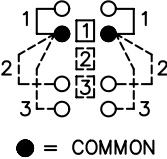
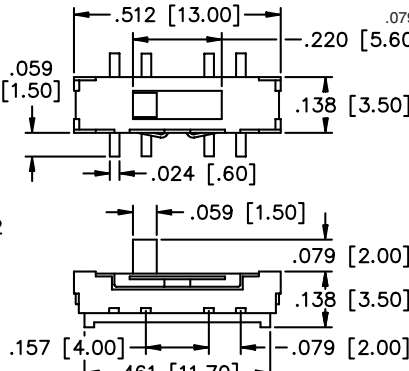
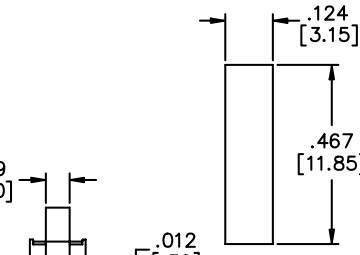
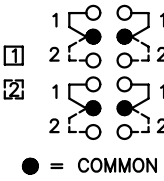
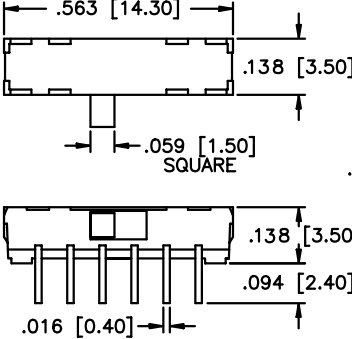
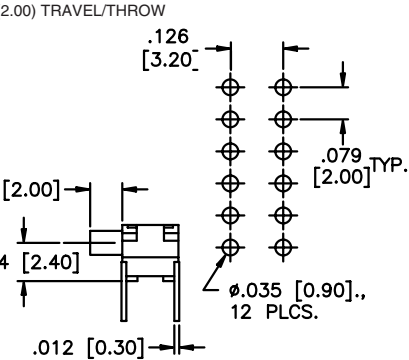
# MS Series

## Microminiature Slide Switches

E

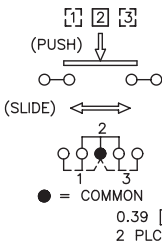
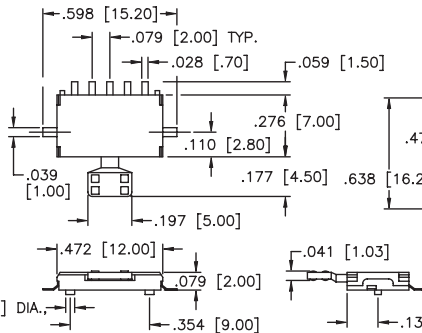
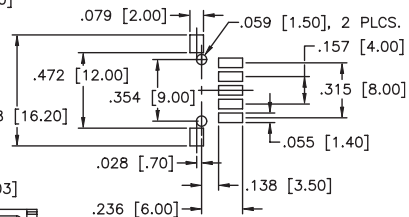
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|-------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>MODEL NO.</b></p> <p><b>MS22</b></p>  <p>VERTICAL ACTUATOR</p>       | <p><b>2P2T</b></p> <p><b>SCHEMATIC</b></p>  <p>● = COMMON</p> <p><b>MECHANICAL OUTLINE</b></p>  <p><b>P.C. BOARD LAYOUT</b></p>  <p>.079 (2.00) TRAVEL/THROW</p>       |
| <p><b>MODEL NO.</b></p> <p><b>MS22R</b></p>  <p>RIGHT ANGLE ACTUATOR</p>  | <p><b>2P2T</b></p> <p><b>SCHEMATIC</b></p>  <p>● = COMMON</p> <p><b>MECHANICAL OUTLINE</b></p>  <p><b>P.C. BOARD LAYOUT</b></p>  <p>.079 (2.00) TRAVEL/THROW</p>    |
| <p><b>MODEL NO.</b></p> <p><b>MS23</b></p>  <p>VERTICAL ACTUATOR</p>     | <p><b>2P3T</b></p> <p><b>SCHEMATIC</b></p>  <p>● = COMMON</p> <p><b>MECHANICAL OUTLINE</b></p>  <p><b>P.C. BOARD LAYOUT</b></p>  <p>.079 (2.00) TRAVEL/THROW</p> |
| <p><b>MODEL NO.</b></p> <p><b>MS23R</b></p>  <p>RIGHT ANGLE ACTUATOR</p> | <p><b>2P3T</b></p> <p><b>SCHEMATIC</b></p>  <p>● = COMMON</p> <p><b>MECHANICAL OUTLINE</b></p>  <p><b>P.C. BOARD CUTOUT</b></p>  <p>.079 (2.00) TRAVEL/THROW</p> |

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

|                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                      |  |  |
|---------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| <b>MODEL NO.</b>                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                      |  |  |
| <b>MS23S</b>                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                      |  |  |
|  <p>VERTICAL ACTUATOR</p>    | <div> <div> <p><b>2P3T</b></p>  <p>● = COMMON</p> </div> <div>  <p>MECHANICAL OUTLINE</p> </div> <div>  <p>P.C. BOARD CUTOUT</p> </div> </div> |  |  |
| <b>MODEL NO.</b>                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                      |  |  |
| <b>MS42R</b>                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                      |  |  |
|  <p>RIGHT ANGLE ACTUATOR</p> | <div> <div> <p><b>4P2T</b></p>  <p>● = COMMON</p> </div> <div>  <p>MECHANICAL OUTLINE</p> </div> <div>  <p>P.C. BOARD LAYOUT</p> </div> </div> |  |  |

**New!**

## MMPS Series Microminiature Pushbutton Style Slide Switches

| SPECIFICATIONS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  | FEATURES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <p><b>Contact rating:</b> 300 mA at 4 VDC</p> <p><b>Initial contact resistance:</b> 70 milliohms max.</p> <p><b>Insulation resistance:</b> 100 megohms min. at 100 VDC</p> <p><b>Dielectric strength:</b> 100 VAC for 1 minute</p> <p><b>Electrical life:</b> 10,000 cycles min.</p> <p><b>Operating temperature range:</b> -10°C to +60°C</p> <p><b>Actuation force:</b> Pushbutton; 200g average<br/>Slide; 275g average</p> <p><b>Solder heat resistance:</b> 260°C max. for 3 seconds</p> <p><b>Washing not recommended</b></p> |  | <ul style="list-style-type: none"><li>● <b>Surface mounting configuration.</b></li><li>● <b>Combination momentary pushbutton &amp; slide switch mechanism.</b></li><li>● <b>Ultra-low profile &amp; ultra-compact case.</b></li><li>● <b>Molded-in terminal seal.</b></li></ul>                                                                                                                                                                                                                                           |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  | MATERIALS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  | <p><b>Contacts:</b> Gold plated copper alloy</p> <p><b>Frame:</b> Stainless steel     <b>Actuator:</b> 6/6 Nylon or PA</p> <p><b>Base:</b> High temperature PPS</p> <p><b>Terminal seal:</b> Molded-in</p>                                                                                                                                                                                                                                                                                                                |  |
| MODEL NO.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  | <div><div><div><div><div>1P2T, (PB)</div><div>1P3T, (Slide)</div></div><div></div></div></div><div><div></div><div></div></div></div> <div><div>RIGHT ANGLE ACTUATOR</div><div>SCHEMATIC</div><div>MECHANICAL OUTLINE</div><div>P.C. BOARD LAYOUT</div></div> |  |
| MMPS101                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |



# MMS Series

## Microminiature Slide Switches

| SPECIFICATIONS                                                                                                                                                                                                                                                                                                                                                                                                                | FEATURES                                                                                                                                                                          |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Contact ratings:</b> 300 mA at 30 VDC<br><b>Initial contact resistance:</b> 25 milliohms max.<br><b>Insulation resistance:</b> 100 megohms min. at 500 VDC<br><b>Dielectric strength:</b> 500 volts RMS for 1 minute<br><b>Electrical life:</b> 10,000 cycles min.<br><b>Operating temperature range:</b> -20°C to +70°C<br><b>Solder heat resistance:</b> 255°C max. for 5 seconds max.<br><b>Washing not recommended</b> | <ul style="list-style-type: none"> <li>● Bifurcated wiping contact design.</li> <li>● Low Profile.</li> <li>● Epoxy sealed terminals.</li> <li>● Cosmetic molded case.</li> </ul> |
|                                                                                                                                                                                                                                                                                                                                                                                                                               | MATERIALS                                                                                                                                                                         |
|                                                                                                                                                                                                                                                                                                                                                                                                                               | <b>Contacts &amp; terminals:</b> Silver plated<br><b>Case:</b> Polyacetal<br><b>Actuator:</b> PBT <b>Base:</b> Glass filled PBT<br><b>Terminal seal:</b> Epoxy or phenol resin    |

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

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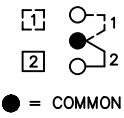
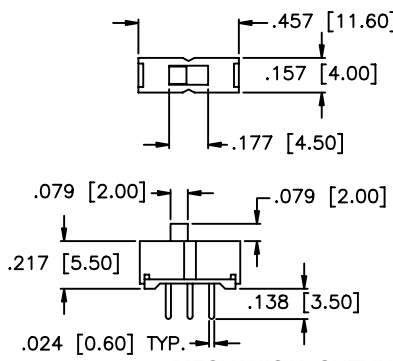
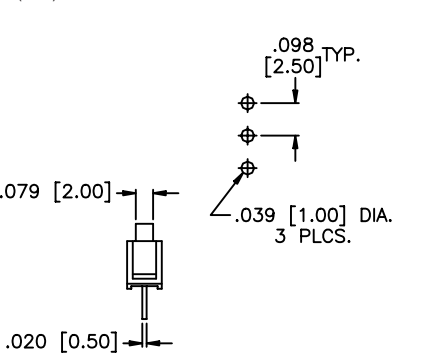
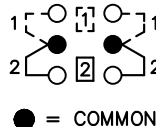
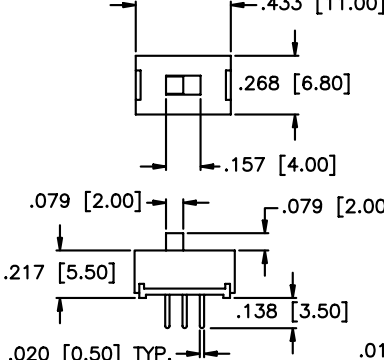
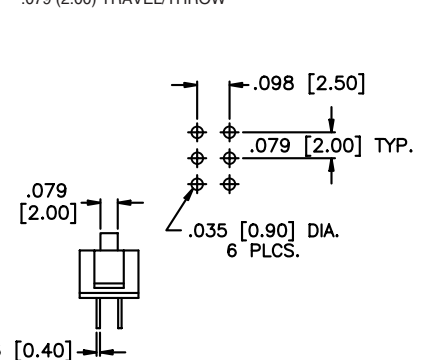
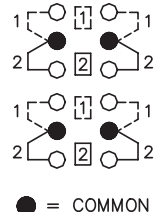
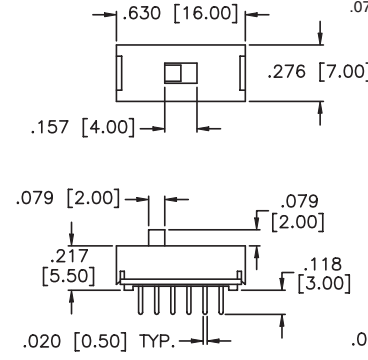
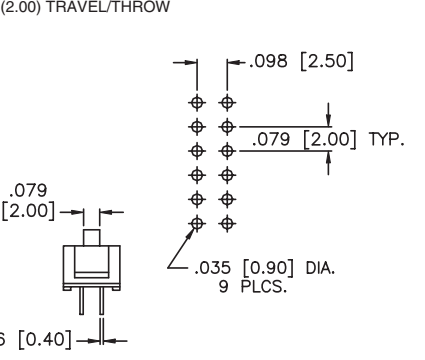
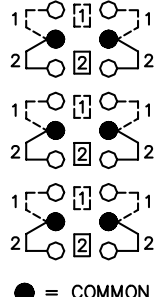
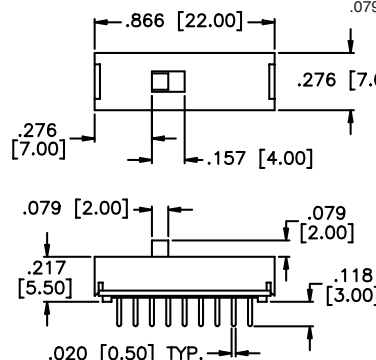
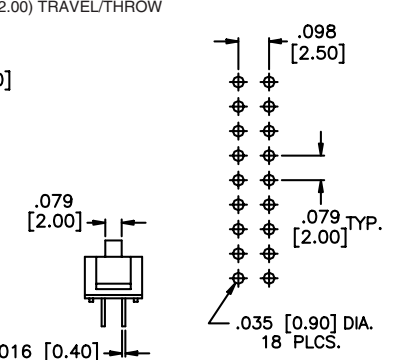
|                                   |             |                   |                           |                          |
|-----------------------------------|-------------|-------------------|---------------------------|--------------------------|
| <b>MODEL NO.</b><br><b>MMS22R</b> | <b>2P2T</b> | <p>● = COMMON</p> | <p>MECHANICAL OUTLINE</p> | <p>P.C. BOARD LAYOUT</p> |
| <b>MODEL NO.</b><br><b>MMS23R</b> | <b>2P3T</b> | <p>● = COMMON</p> | <p>MECHANICAL OUTLINE</p> | <p>P.C. BOARD LAYOUT</p> |
| <b>MODEL NO.</b><br><b>MMS42R</b> | <b>4P2T</b> | <p>● = COMMON</p> | <p>MECHANICAL OUTLINE</p> | <p>P.C. BOARD LAYOUT</p> |



# MMS Series

## Microminiature Slide Switches

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

|                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                            |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>MODEL NO.</div> <div>MMS1208</div> <div>  </div> <div>VERTICAL ACTUATOR</div>   | <div>1P2T</div> <div>  <p>● = COMMON</p> </div> <div>  <p>MECHANICAL OUTLINE</p> </div> <div>  <p>P.C. BOARD LAYOUT</p> </div>       |
| <div>MODEL NO.</div> <div>MMS2214</div> <div>  </div> <div>VERTICAL ACTUATOR</div>  | <div>2P2T</div> <div>  <p>● = COMMON</p> </div> <div>  <p>MECHANICAL OUTLINE</p> </div> <div>  <p>P.C. BOARD LAYOUT</p> </div>    |
| <div>MODEL NO.</div> <div>MMS42</div> <div>  </div> <div>VERTICAL ACTUATOR</div>   | <div>4P2T</div> <div>  <p>● = COMMON</p> </div> <div>  <p>MECHANICAL OUTLINE</p> </div> <div>  <p>P.C. BOARD LAYOUT</p> </div> |
| <div>MODEL NO.</div> <div>MMS6202</div> <div>  </div> <div>VERTICAL ACTUATOR</div> | <div>6P2T</div> <div>  <p>● = COMMON</p> </div> <div>  <p>MECHANICAL OUTLINE</p> </div> <div>  <p>P.C. BOARD LAYOUT</p> </div> |

E

# TG Series

## Microminiature Slide Switches

### SPECIFICATIONS

**Contact ratings:** Gold; 0.4 Volt-Amps max. at 20 V max.  
Silver; 500 mA at 48 V max. (AC or DC)

**Initial contact resistance:** 20 milliohms max.

**Insulation resistance:** 1000 megohms min. at 500 VDC

**Dielectric strength:** 1000 V rms min. between terms. and ground plate (and bracket)

**Electrical life:** 2 position switches-60,000 cycles min.  
3 position switches-30,000 cycles min.

**Operating temperature range:** -30°C to +85°C

**Solder heat resistance:** 260°C for 5 seconds max.

**Washing:** Permissible (with model option 50)

### FEATURES

- Ultra-compact case size.
- Washable models.
- SPDT maintained action with long electrical life.
- See additional options on pg. E20.

### MATERIALS

**Contacts & terminals:** Gold or silver available (see contact ratings)

**Actuator:** Thermoplastic

**Ground plate & bracket:** Tin plated steel

**Case:** Flame retardant thermoplastic **Terminal seal:** Epoxy

**Washable seal:** Translucent silicone rubber (with model option 50)

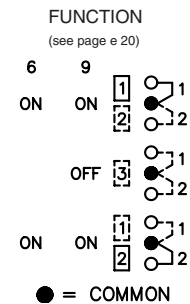
E

| MODEL NO.   | PLATING | ACTION    |
|-------------|---------|-----------|
| TG36P000000 | Gold    | on - on   |
| TG39P000000 | Gold    | on off on |
| TG36P010000 | Silver  | on - on   |
| TG39P010000 | Silver  | on off on |

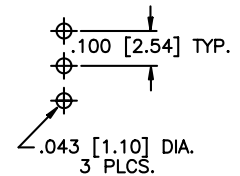
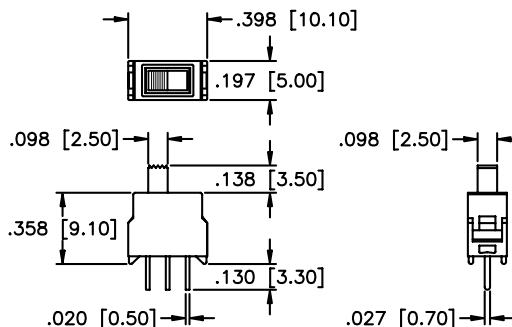


#### STRAIGHT P.C. TERMINALS - STANDARD MODELS

TRAVEL/THROW; .102 (2.60)



SCHEMATIC



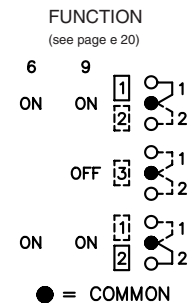
| MODEL NO.   | PLATING | ACTION    |
|-------------|---------|-----------|
| TG36P000050 | Gold    | on - on   |
| TG39P000050 | Gold    | on off on |
| TG36P010050 | Silver  | on - on   |
| TG39P010050 | Silver  | on off on |



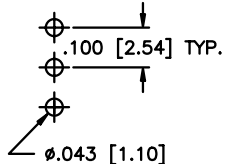
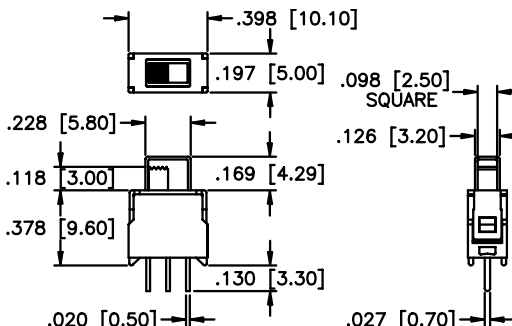
PROCESS COMPATIBLE

#### STRAIGHT P.C. TERMINALS - WASHABLE MODELS

TRAVEL/THROW; .102 (2.60)



SCHEMATIC

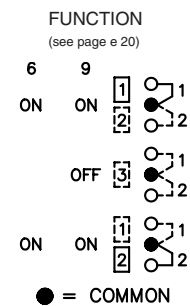


| MODEL NO.   | PLATING | ACTION    |
|-------------|---------|-----------|
| TG36Y000000 | Gold    | on - on   |
| TG39Y000000 | Gold    | on off on |
| TG36Y010000 | Silver  | on - on   |
| TG39Y010000 | Silver  | on off on |

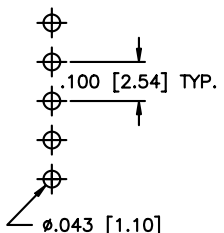
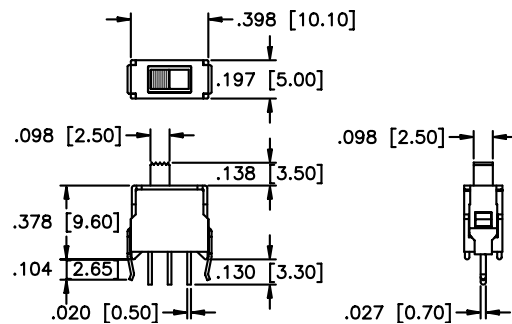


#### STRAIGHT P.C. TERMINALS - BRACKET MTG. - STANDARD MODELS

TRAVEL/THROW; .102 (2.60)



SCHEMATIC



# TG Series

## Microminiature Slide Switches

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

| MODEL NO.   | PLATING | ACTION    | STRAIGHT P.C. TERMINALS - BRACKET MTG. - WASHABLE MODELS                       |          |                    | TRAVEL/THROW; .102 (2.60) |
|-------------|---------|-----------|--------------------------------------------------------------------------------|----------|--------------------|---------------------------|
| TG36Y000050 | Gold    | on - on   | <p>FUNCTION<br/>(see page e 20)</p> <p>6 9</p> <p>ON ON </p> <p>● = COMMON</p> |          |                    |                           |
| TG39Y000050 | Gold    | on off on |                                                                                |          |                    |                           |
| TG36Y010050 | Silver  | on - on   |                                                                                |          |                    |                           |
| TG39Y010050 | Silver  | on off on |                                                                                |          |                    |                           |
|             |         |           | PROCESS COMPATIBLE                                                             | SCHMATIC | MECHANICAL OUTLINE | P.C. BOARD LAYOUT         |
| MODEL NO.   | PLATING | ACTION    | RIGHT ANGLE TERMINALS - HORIZONTAL MTG. - STANDARD MODELS                      |          |                    | TRAVEL/THROW; .102 (2.60) |
| TG36W000000 | Gold    | on - on   | <p>FUNCTION<br/>(see page e 20)</p> <p>6 9</p> <p>ON ON </p> <p>● = COMMON</p> |          |                    |                           |
| TG39W000000 | Gold    | on off on |                                                                                |          |                    |                           |
| TG36W010000 | Silver  | on - on   |                                                                                |          |                    |                           |
| TG39W010000 | Silver  | on off on |                                                                                |          |                    |                           |
|             |         |           | PROCESS COMPATIBLE                                                             | SCHMATIC | MECHANICAL OUTLINE | P.C. BOARD LAYOUT         |
| MODEL NO.   | PLATING | ACTION    | RIGHT ANGLE TERMINALS - HORIZONTAL MTG. - WASHABLE MODELS                      |          |                    | TRAVEL/THROW; .102 (2.60) |
| TG36W000050 | Gold    | on - on   | <p>FUNCTION<br/>(see page e 20)</p> <p>6 9</p> <p>ON ON </p> <p>● = COMMON</p> |          |                    |                           |
| TG39W000050 | Gold    | on off on |                                                                                |          |                    |                           |
| TG36W010050 | Silver  | on - on   |                                                                                |          |                    |                           |
| TG39W010050 | Silver  | on off on |                                                                                |          |                    |                           |
|             |         |           | PROCESS COMPATIBLE                                                             | SCHMATIC | MECHANICAL OUTLINE | P.C. BOARD LAYOUT         |

General tolerances for all TG Series drawings -  $\pm .012$ " (0.3 mm)

# TG Series

## Microminiature Slide Switches

**Additional ordering information:** Commonly ordered models are shown on preceeding pages with complete model numbers and specifications. Below is an order format that enables you to 'build your own switch' and specify the correct switch model number by simply selecting from all available options shown and filling in the boxes.

### 'BUILD YOUR OWN SWITCH' ORDER FORMAT

Fill in boxes shown with options selected from below.  
Allowable options for each box are shown under each respective box.

| Series               | Poles                | Function             | Terms.                   | Contact &<br>Term. Mat'l. | Actuator             | Model                |
|----------------------|----------------------|----------------------|--------------------------|---------------------------|----------------------|----------------------|
| <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/>     | <input type="text"/>      | <input type="text"/> | <input type="text"/> |
| T G                  | 3                    | 6<br>9               | P 0<br>Y 0<br>W 0<br>M W | 0<br>1<br>3<br>8<br>9     | 0 0<br>1 0           | 0 0<br>5 0           |

**Poles:** 3 = Single Pole

**Functions:** 6 = ON - ON 9 = ON OFF ON

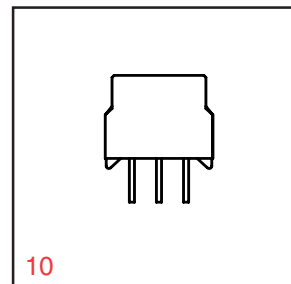
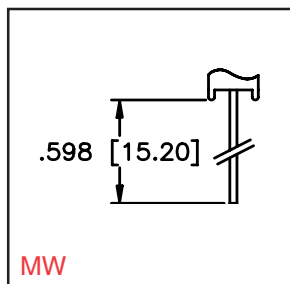
**Terminals:** P 0 = Straight printed circuit terminals  
Y 0 = Straight printed circuit terminals, bracket mtg.  
W 0 = Right angle printed circuit terminals, horizontal mtg. with bracket  
M W = Wirewrap terminals

**Contact & terminal materials:** 0 = Brass, gold plated (standard)  
1 = Brass, silver plated  
3 = Brass, gold plated (1.27 microns gold)  
8 = Brass contacts, gold plated and tin plated terminals  
9 = Brass contacts, gold plated (1.27 microns gold) and tin plated terminals

**Actuators:** 0 0 = High (standard)  
1 0 = Flush

**Model:** 0 0 = Standard  
5 0 = Washable

### Options MW (wirewrap terminals) and 10 (flush actuator)



**New!**  
Raised actuator

## NK Series

### Microminiature Slide Switches

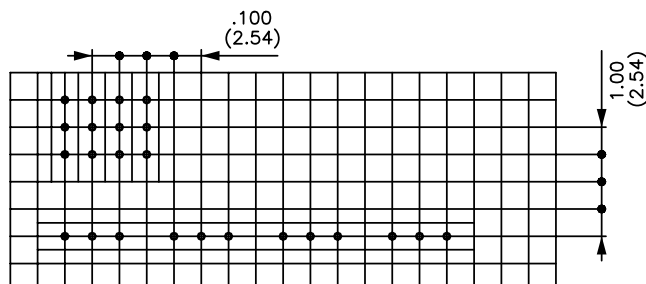
SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

| SPECIFICATIONS                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | FEATURES                                                                                                                                                                                                                                                                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Contact rating:</b> 500 mA 12V max. - 1mA 10 mV min.<br><b>Initial contact resistance:</b> 20 milliohms max.<br><b>Insulation resistance:</b> 10,000 MΩ min. at 500VDC<br><b>Dielectric strength:</b> 250 Vrms between terminals<br>2000 Vrms between adjacent poles placed side by side<br><b>Electrical life:</b> 2,000 cycles min.<br><b>Operating temperature range:</b> -40°C to +85°C<br><b>Solder heat resistance:</b> 250°C max. for 5 seconds<br><b>Washing not recommended</b> | <ul style="list-style-type: none"> <li>● Cost effective.</li> <li>● Flush or raised actuator.</li> <li>● Wave solderable, flux sealed.</li> <li>● Through-hole round terminals, straight or right angle.</li> <li>● Stackable in X &amp; Y directions ( with straight terminals).</li> </ul> |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | MATERIALS                                                                                                                                                                                                                                                                                    |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <b>Contacts &amp; terminals:</b> Gold over nickel plated<br><b>Case:</b> PBT, glass filled (UL94V-0)<br><b>Actuator:</b> PBT, glass filled (UL94V-0)                                                                                                                                         |

| MODEL NO.                                                              | 1P2T              | .062 (1.6) TRAVEL                                  |
|------------------------------------------------------------------------|-------------------|----------------------------------------------------|
| <b>NK236</b> Flush actuator (shown)<br><b>NK236H</b> Raised actuator   | <p>● = COMMON</p> | <p>MECHANICAL OUTLINE</p> <p>P.C. BOARD LAYOUT</p> |
| <b>NK236W</b> Flush actuator<br><b>NK236WH</b> Raised actuator (shown) | <p>● = COMMON</p> | <p>MECHANICAL OUTLINE</p> <p>P.C. BOARD LAYOUT</p> |

#### EXAMPLE OF PRINTED CIRCUIT BOARD LAYOUT FOR STACKING UNITS

Pitch = .100" (2.54mm)

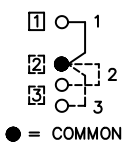
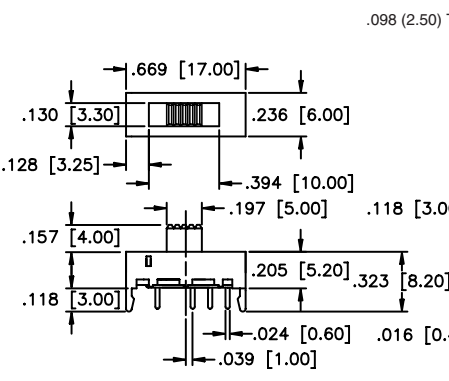
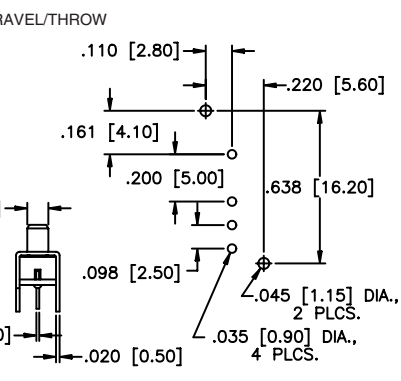
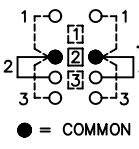
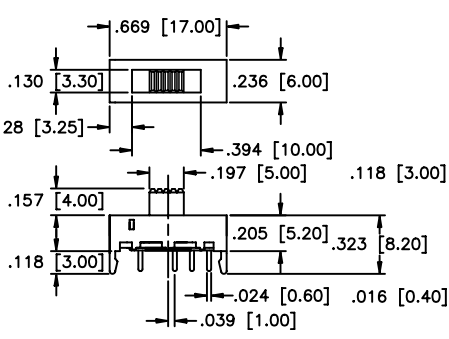
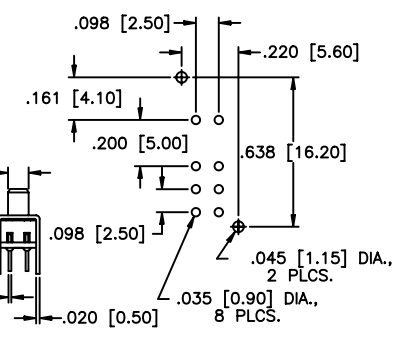


# MSTS Series

## Miniature Slide Switches

| SPECIFICATIONS                                                                                                                                                                                                                                                                                                                                                                                                                                                 | FEATURES                                                                                                                                                                                                                                                                                                                               |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Contact rating:</b> 300 mA at 28 VDC<br><b>Initial contact resistance:</b> 20 milliohms max.<br><b>Insulation resistance:</b> 100 megohms min. at 500 VDC<br><b>Dielectric strength:</b> 500 VAC for 1 minute<br><b>Electrical life:</b> 10,000 cycles min.<br><b>Operating temperature range:</b> -20°C to +85°C<br><b>Solder heat resistance:</b> 250°C max. for 5 seconds<br><b>Actuation force:</b> 200-600 grams<br><b>Solvent washing permissible</b> | <ul style="list-style-type: none"> <li>● Miniature compact size.</li> <li>● Wash-through open frame construction.</li> <li>● Snap-in p.c. mounting bracket design.</li> <li>● Positive spring loaded ball detent mechanism.</li> <li>● Epoxy sealed terminals.</li> <li>● Gold plated contacts available - consult factory.</li> </ul> |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                | MATERIALS                                                                                                                                                                                                                                                                                                                              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <b>Contacts &amp; terminals:</b> Silver plated brass<br><b>Housing:</b> Zinc plated steel<br><b>Actuator:</b> Polyacetal, color black<br><b>Base:</b> Phenolic laminated sheet                                                                                                                                                         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <b>Terminal seal:</b> Epoxy                                                                                                                                                                                                                                                                                                            |

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|                                      |                                                                                                                      |                                                                                                                |                                                                                                                |
|--------------------------------------|----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| <b>MODEL NO.</b><br><b>MSTS1332K</b> | <b>1P3T</b><br> <p>● = COMMON</p>  |  <p>MECHANICAL OUTLINE</p>  |  <p>P.C. BOARD LAYOUT</p>  |
| <b>MODEL NO.</b><br><b>MSTS2332K</b> | <b>2P3T</b><br> <p>● = COMMON</p> |  <p>MECHANICAL OUTLINE</p> |  <p>P.C. BOARD LAYOUT</p> |

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

# MHS Series

## Miniature Slide Switches

with aluminum actuator

### SPECIFICATIONS

**Contact rating:** 300 mA at 30 VDC  
**Initial contact resistance:** 20 milliohms max.  
**Insulation resistance:** 100 megohms min. at 500 VDC  
**Dielectric strength:** 500 VAC for 1 minute  
**Electrical life:** 10,000 cycles min.  
**Operating temperature range:** -20°C to +85°C  
**Solder heat resistance:** 260°C max. for 3 seconds  
**Actuation force:** 250 ±150 grams  
**Solvent washing permissible**

### FEATURES

- Miniature compact size.
- Wash-through open frame construction.
- Positive spring loaded ball detent mechanism.
- Epoxy sealed terminals.

### MATERIALS

**Contacts & terminals:** Silver plated brass  
**Housing:** Tin plated steel  
**Actuator:** Aluminum alloy  
**Base:** Phenolic laminated sheet  
**Terminal seal:** Epoxy

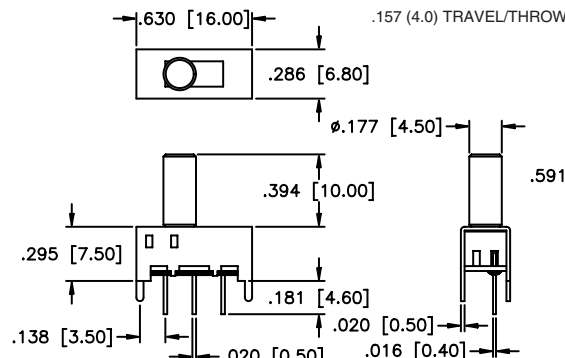
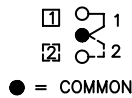
#### MODEL NO.

**MHS122K**



VERTICAL ACTUATOR

#### 1P2T



SCHEMATIC

MECHANICAL OUTLINE

P.C. BOARD LAYOUT

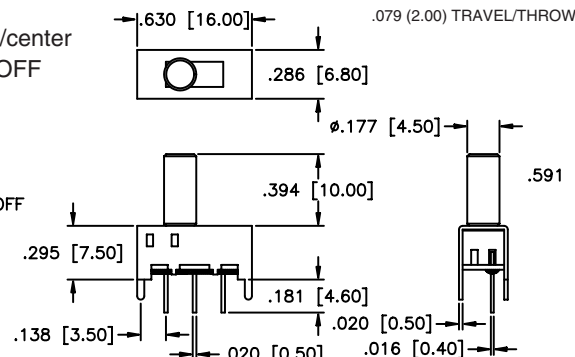
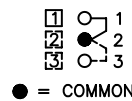
#### MODEL NO.

**MHS123K**



VERTICAL ACTUATOR

#### 1P2T w/center OFF



SCHEMATIC

MECHANICAL OUTLINE

P.C. BOARD LAYOUT

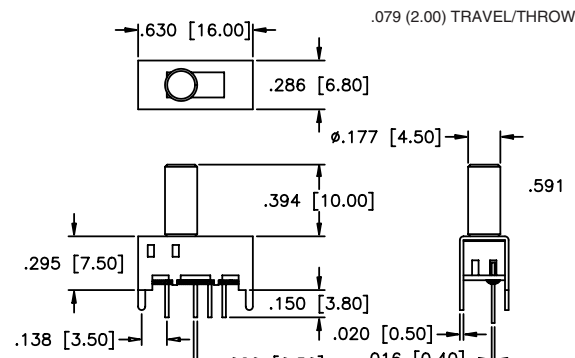
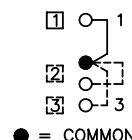
#### MODEL NO.

**MHS133K**



VERTICAL ACTUATOR

#### 1P3T



SCHEMATIC

MECHANICAL OUTLINE

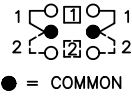
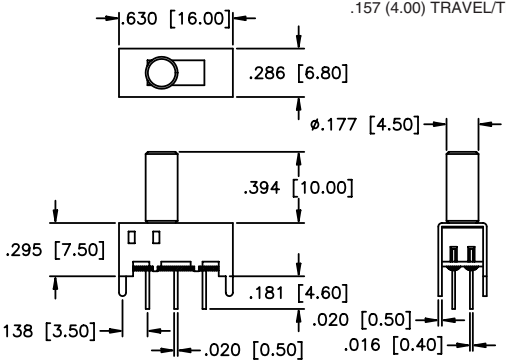
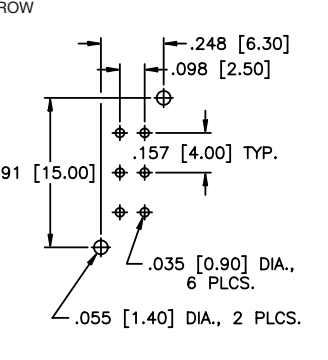
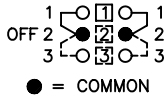
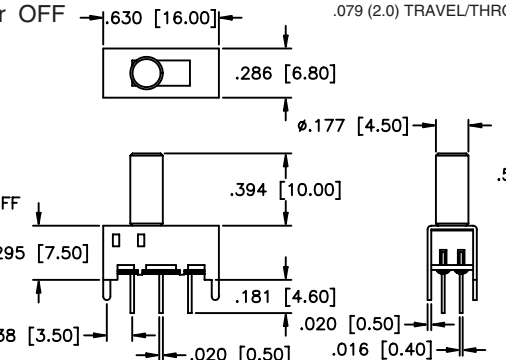
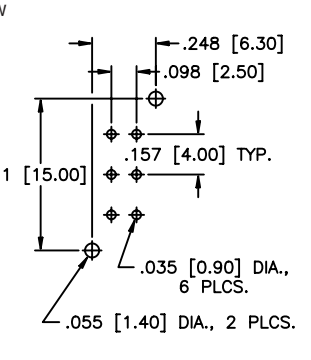
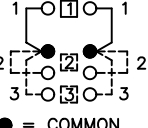
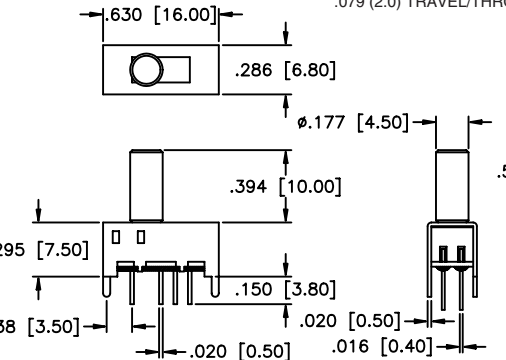
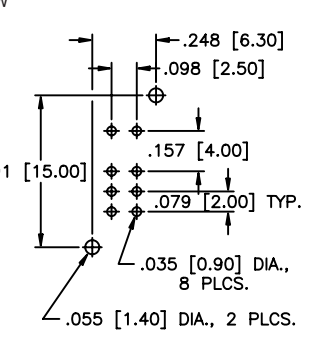
P.C. BOARD LAYOUT

# MHS Series

## Miniature Slide Switches

with aluminum actuator

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|                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>MODEL NO.</b></p> <p><b>MHS222K</b></p>  <p>VERTICAL ACTUATOR</p>   | <p><b>2P2T</b></p> <p><b>SCHEMATIC</b></p>  <p>● = COMMON</p> <p><b>MECHANICAL OUTLINE</b></p>  <p><b>P.C. BOARD LAYOUT</b></p>  <p>.157 (4.00) TRAVEL/THROW</p> <p>.630 [16.00]</p> <p>.286 [6.80]</p> <p>φ.177 [4.50]</p> <p>.394 [10.00]</p> <p>.295 [7.50]</p> <p>.138 [3.50]</p> <p>.181 [4.60]</p> <p>.020 [0.50]</p> <p>.016 [0.40]</p> <p>.591 [15.00]</p> <p>.248 [6.30]</p> <p>.098 [2.50]</p> <p>.157 [4.00] TYP.</p> <p>.035 [0.90] DIA., 6 PLCS.</p> <p>.055 [1.40] DIA., 2 PLCS.</p>                         |
| <p><b>MODEL NO.</b></p> <p><b>MHS223K</b></p>  <p>VERTICAL ACTUATOR</p>  | <p><b>2P2T w/center OFF</b></p> <p><b>SCHEMATIC</b></p>  <p>● = COMMON</p> <p><b>MECHANICAL OUTLINE</b></p>  <p><b>P.C. BOARD LAYOUT</b></p>  <p>.079 (2.0) TRAVEL/THROW</p> <p>.630 [16.00]</p> <p>.286 [6.80]</p> <p>φ.177 [4.50]</p> <p>.394 [10.00]</p> <p>.295 [7.50]</p> <p>.138 [3.50]</p> <p>.181 [4.60]</p> <p>.020 [0.50]</p> <p>.016 [0.40]</p> <p>.591 [15.00]</p> <p>.248 [6.30]</p> <p>.098 [2.50]</p> <p>.157 [4.00] TYP.</p> <p>.035 [0.90] DIA., 6 PLCS.</p> <p>.055 [1.40] DIA., 2 PLCS.</p>          |
| <p><b>MODEL NO.</b></p> <p><b>MHS233K</b></p>  <p>VERTICAL ACTUATOR</p> | <p><b>2P3T</b></p> <p><b>SCHEMATIC</b></p>  <p>● = COMMON</p> <p><b>MECHANICAL OUTLINE</b></p>  <p><b>P.C. BOARD LAYOUT</b></p>  <p>.079 (2.0) TRAVEL/THROW</p> <p>.630 [16.00]</p> <p>.286 [6.80]</p> <p>φ.177 [4.50]</p> <p>.394 [10.00]</p> <p>.295 [7.50]</p> <p>.138 [3.50]</p> <p>.150 [3.80]</p> <p>.020 [0.50]</p> <p>.016 [0.40]</p> <p>.591 [15.00]</p> <p>.248 [6.30]</p> <p>.098 [2.50]</p> <p>.157 [4.00]</p> <p>.079 [2.00] TYP.</p> <p>.035 [0.90] DIA., 8 PLCS.</p> <p>.055 [1.40] DIA., 2 PLCS.</p> |

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE



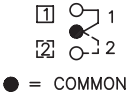
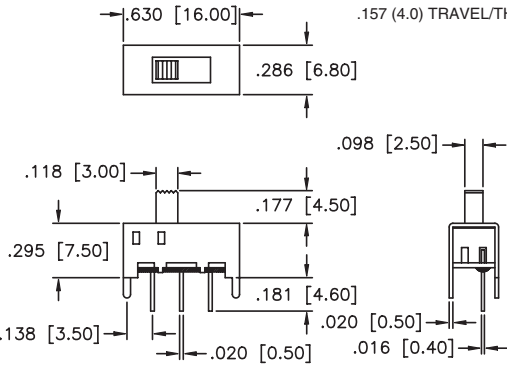
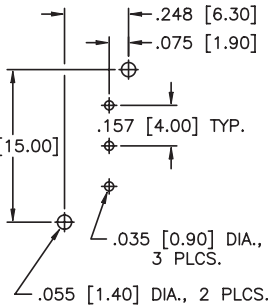
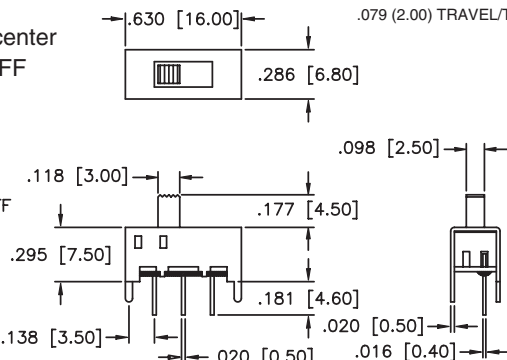
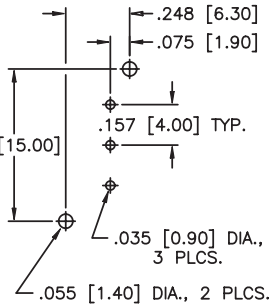
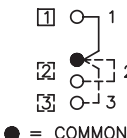
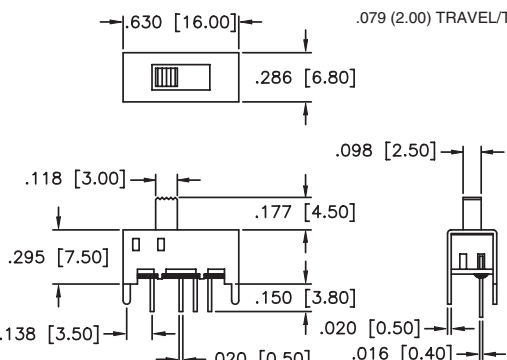
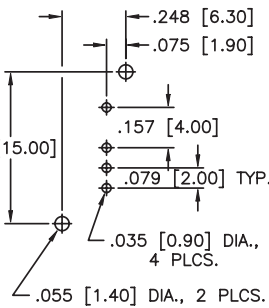
**New!**

# MHS Series

## Miniature Slide Switches

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

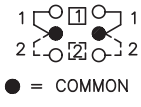
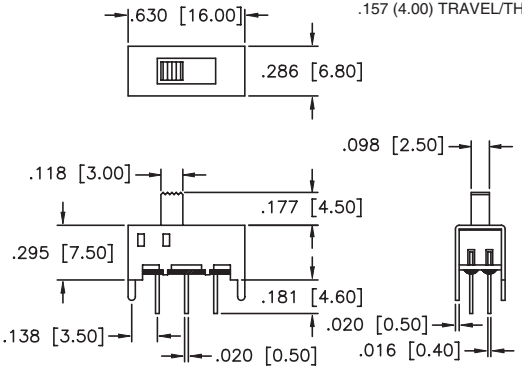
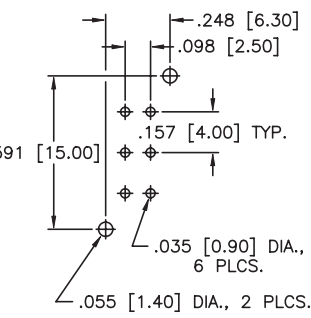
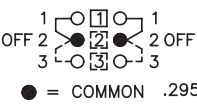
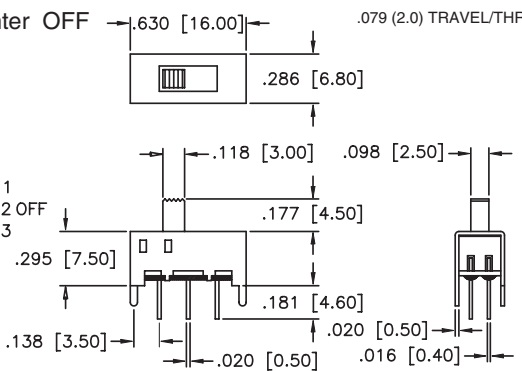
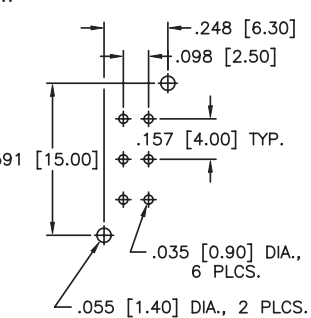
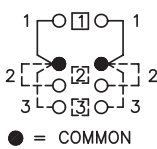
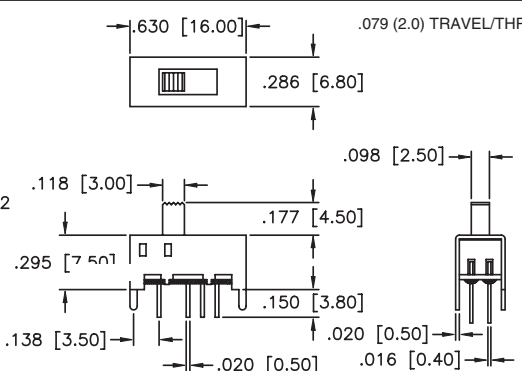
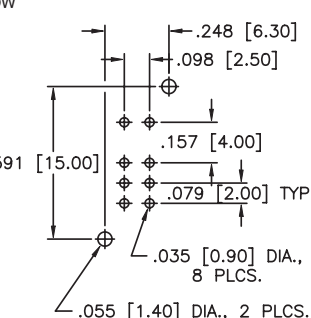
| SPECIFICATIONS                                                                                                                                                                                                                                                                                                                                                                                                                                                  | FEATURES                                                                                                                                                                                                                 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Contact rating:</b> 300 mA at 30 VDC<br><b>Initial contact resistance:</b> 20 milliohms max.<br><b>Insulation resistance:</b> 100 megohms min. at 500 VDC<br><b>Dielectric strength:</b> 500 VAC for 1 minute<br><b>Electrical life:</b> 10,000 cycles min.<br><b>Operating temperature range:</b> -20°C to +85°C<br><b>Solder heat resistance:</b> 260°C max. for 3 seconds<br><b>Actuation force:</b> 250 ±150 grams<br><b>Solvent washing permissible</b> | <ul style="list-style-type: none"> <li>● Miniature compact size.</li> <li>● Wash-through open frame construction.</li> <li>● Positive spring loaded ball detent mechanism.</li> <li>● Epoxy sealed terminals.</li> </ul> |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | MATERIALS                                                                                                                                                                                                                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <b>Contacts &amp; terminals:</b> Silver plated brass<br><b>Housing:</b> Tin plated steel<br><b>Actuator:</b> Polyacetal<br><b>Base:</b> Phenolic laminated sheet                                                         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <b>Terminal seal:</b> Epoxy                                                                                                                                                                                              |

|                                   |                                                                                                                                                                                                                                                                                         |
|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>MODEL NO.</b><br><b>MHS122</b> | <b>1P2T</b>                    |
| <b>MODEL NO.</b><br><b>MHS123</b> | <b>1P2T w/center OFF</b>    |
| <b>MODEL NO.</b><br><b>MHS133</b> | <b>1P3T</b>                 |

# MHS Series

## Miniature Slide Switches

**New!**

|                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |
|--------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| <b>MODEL NO.</b>                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |
| <b>MHS222</b>                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |
|  <p>VERTICAL ACTUATOR</p>   | <div> <div> <p><b>2P2T</b></p>  <p>● = COMMON</p> </div> <div>  <p>SCHEMATIC</p> <p>MECHANICAL OUTLINE</p> </div> <div>  <p>P.C. BOARD LAYOUT</p> </div> </div>                 |  |  |
| <b>MODEL NO.</b>                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |
| <b>MHS223</b>                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |
|  <p>VERTICAL ACTUATOR</p>  | <div> <div> <p><b>2P2T w/center OFF</b></p>  <p>● = COMMON</p> </div> <div>  <p>SCHEMATIC</p> <p>MECHANICAL OUTLINE</p> </div> <div>  <p>P.C. BOARD LAYOUT</p> </div> </div> |  |  |
| <b>MODEL NO.</b>                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |
| <b>MHS233</b>                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |
|  <p>VERTICAL ACTUATOR</p> | <div> <div> <p><b>2P3T</b></p>  <p>● = COMMON</p> </div> <div>  <p>SCHEMATIC</p> <p>MECHANICAL OUTLINE</p> </div> <div>  <p>P.C. BOARD LAYOUT</p> </div> </div>           |  |  |

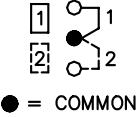
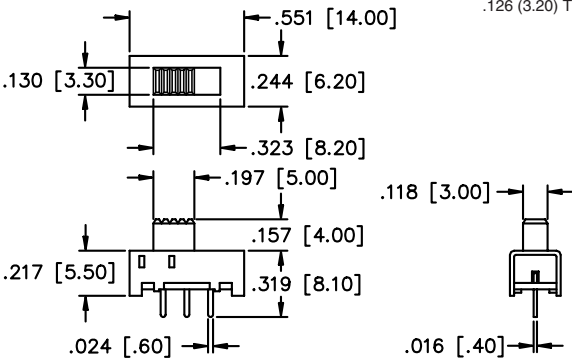
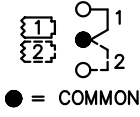
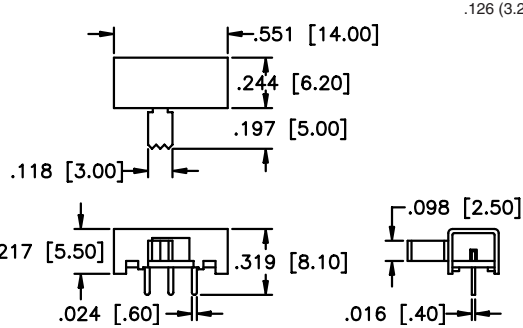
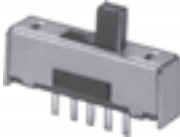
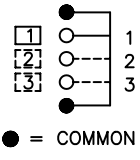
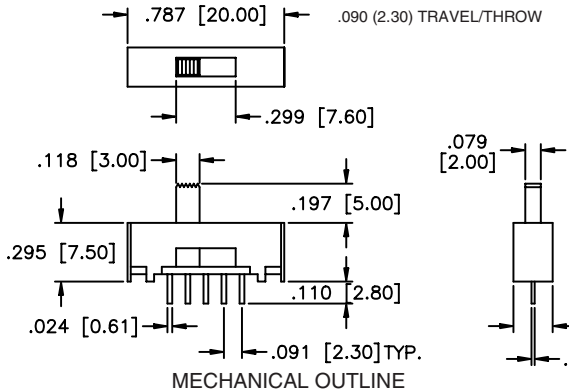
SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

# SLB Series

(with p.c. board stand-off bracket)

## Miniature Slide Switches

| SPECIFICATIONS                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | FEATURES                                                                                                                                                                                                                 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Contact ratings:</b> 300 mA at 125 VAC or 30 VDC<br><b>Initial contact resistance:</b> 20 milliohms max.<br><b>Insulation resistance:</b> 100 megohms min. at 500 VDC<br><b>Dielectric strength:</b> 500 volts RMS for 1 minute<br><b>Electrical life:</b> 10,000 cycles min.<br><b>Operating temperature range:</b> -20°C to +85°C<br><b>Actuation force:</b> 220g ± 100g<br><b>Solder heat resistance:</b> 260°C max. for 3 seconds<br><b>Solvent washing permissible</b> | <ul style="list-style-type: none"> <li>● Miniature compact size.</li> <li>● Wash-through open frame construction.</li> <li>● Positive spring loaded ball detent mechanism.</li> <li>● Epoxy sealed terminals.</li> </ul> |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | MATERIALS                                                                                                                                                                                                                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <b>Contacts &amp; terminals:</b> Silver plated<br><b>Frame:</b> Zinc plated steel<br><b>Actuator:</b> Thermoplastic<br><b>Base:</b> Phenolic laminated sheet                                                             |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <b>Terminal seal:</b> Epoxy                                                                                                                                                                                              |

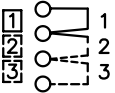
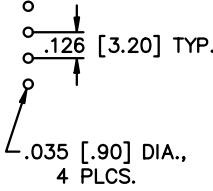
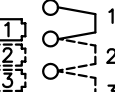
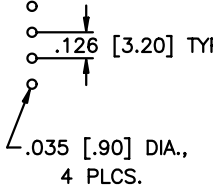
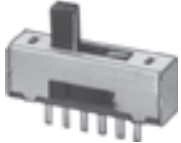
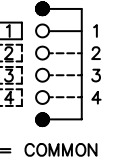
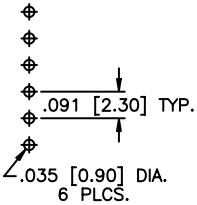
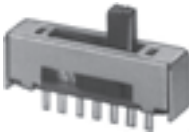
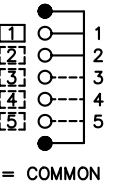
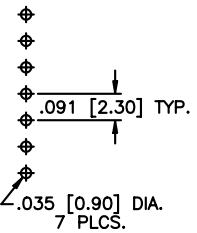
|                                                                                                                                                                            |                                                                                                                                                                                                                                                                                              |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>MODEL NO.</div> <div>SLB12814</div> <div>  </div> <div>VERTICAL ACTUATOR</div>      | <div>1P2T</div> <div>  <p>● = COMMON</p> </div> <div>  </div> <div>SCHEMATICMECHANICAL OUTLINEP.C. BOARD LAYOUT</div>    |
| <div>MODEL NO.</div> <div>SLB1281R5</div> <div>  </div> <div>RIGHT ANGLE ACTUATOR</div> | <div>1P2T</div> <div>  <p>● = COMMON</p> </div> <div>  </div> <div>SCHEMATICMECHANICAL OUTLINEP.C. BOARD LAYOUT</div> |
| <div>MODEL NO.</div> <div>SLB1370</div> <div>  </div> <div>VERTICAL ACTUATOR</div>      | <div>1P3T</div> <div>  <p>● = COMMON</p> </div> <div>  </div> <div>SCHEMATICMECHANICAL OUTLINEP.C. BOARD LAYOUT</div> |

# SLB Series

(with p.c. board stand-off bracket)

## Miniature Slide Switches

E

|                                                                                                                                                                |                                                                                                                                                                                                                                                                  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>MODEL NO.</b></p> <p><b>SLB13814</b></p>  <p>VERTICAL ACTUATOR</p>      | <p><b>1P3T</b></p>   <p>SCHEMATIC</p> <p>MECHANICAL OUTLINE</p> <p>P.C. BOARD LAYOUT</p>     |
| <p><b>MODEL NO.</b></p> <p><b>SLB1381R5</b></p>  <p>RIGHT ANGLE ACTUATOR</p> | <p><b>1P3T</b></p>   <p>SCHEMATIC</p> <p>MECHANICAL OUTLINE</p> <p>P.C. BOARD LAYOUT</p>   |
| <p><b>MODEL NO.</b></p> <p><b>SLB1470</b></p>  <p>VERTICAL ACTUATOR</p>     | <p><b>1P4T</b></p>   <p>SCHEMATIC</p> <p>MECHANICAL OUTLINE</p> <p>P.C. BOARD LAYOUT</p> |
| <p><b>MODEL NO.</b></p> <p><b>SLB1570</b></p>  <p>VERTICAL ACTUATOR</p>     | <p><b>1P5T</b></p>   <p>SCHEMATIC</p> <p>MECHANICAL OUTLINE</p> <p>P.C. BOARD LAYOUT</p> |

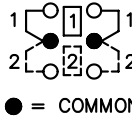
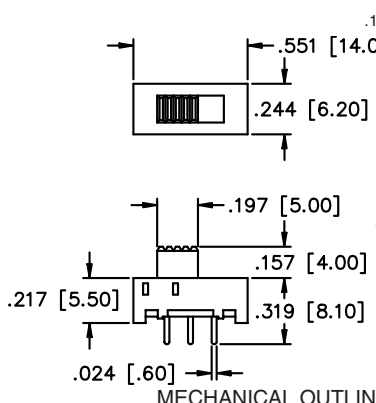
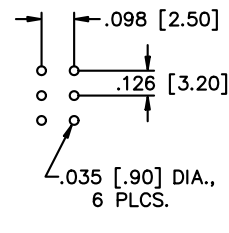
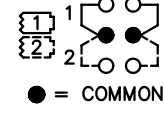
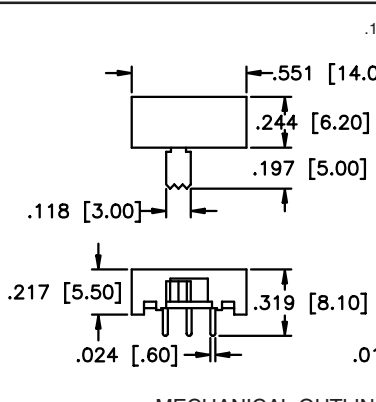
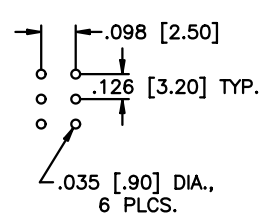
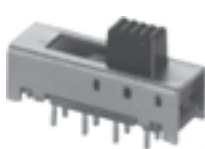
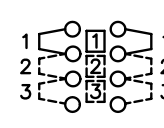
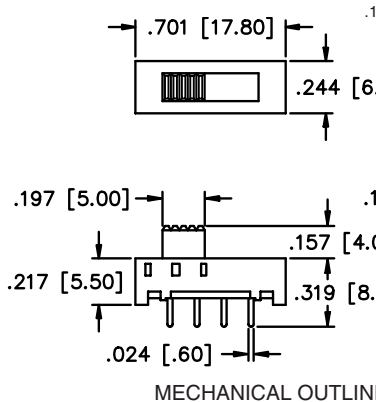
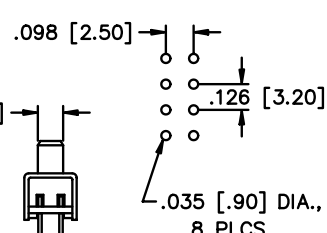
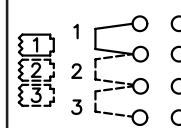
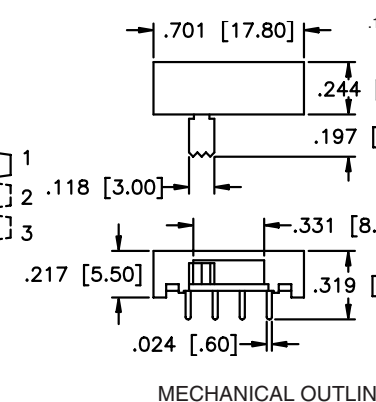
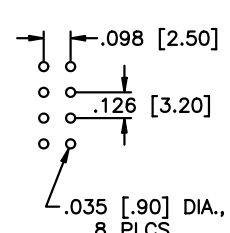
SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

# SLB Series

(with p.c. board stand-off bracket)

## Miniature Slide Switches

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

|                                      |             |                                                                                     |                                                                                                       |                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                          |
|--------------------------------------|-------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>MODEL NO.</b><br><b>SLB22814</b>  | <b>2P2T</b> |    |  <p>● = COMMON</p>   |  <p>.126 (3.20) TRAVEL/THROW<br/>         .551 [14.00]<br/>         .244 [6.20]<br/>         .197 [5.00]<br/>         .157 [4.00]<br/>         .319 [8.10]<br/>         .217 [5.50]<br/>         .024 [.60]<br/>         .118 [3.00]<br/>         .016 [.40]</p>   |  <p>.098 [2.50]<br/>         .126 [3.20]<br/>         .035 [.90] DIA.,<br/>         6 PLCS.</p>       |
| <b>MODEL NO.</b><br><b>SLB2281R5</b> | <b>2P2T</b> |   |  <p>● = COMMON</p>  |  <p>.126 (3.20) TRAVEL/THROW<br/>         .551 [14.00]<br/>         .244 [6.20]<br/>         .197 [5.00]<br/>         .118 [3.00]<br/>         .319 [8.10]<br/>         .217 [5.50]<br/>         .024 [.60]<br/>         .098 [2.50]<br/>         .016 [.40]</p>  |  <p>.098 [2.50]<br/>         .126 [3.20] TYP.<br/>         .035 [.90] DIA.,<br/>         6 PLCS.</p> |
| <b>MODEL NO.</b><br><b>SLB23814</b>  | <b>2P3T</b> |  |  <p>● = COMMON</p> |  <p>.126 (3.20) TRAVEL/THROW<br/>         .701 [17.80]<br/>         .244 [6.20]<br/>         .197 [5.00]<br/>         .157 [4.00]<br/>         .319 [8.10]<br/>         .217 [5.50]<br/>         .024 [.60]<br/>         .118 [3.00]<br/>         .016 [.40]</p> |  <p>.098 [2.50]<br/>         .126 [3.20]<br/>         .035 [.90] DIA.,<br/>         8 PLCS.</p>     |
| <b>MODEL NO.</b><br><b>SLB2381R5</b> | <b>2P3T</b> |  |  <p>● = COMMON</p> |  <p>.126 (3.20) TRAVEL/THROW<br/>         .701 [17.80]<br/>         .244 [6.20]<br/>         .197 [5.00]<br/>         .331 [8.40]<br/>         .319 [8.10]<br/>         .217 [5.50]<br/>         .024 [.60]<br/>         .098 [2.50]<br/>         .016 [.40]</p> |  <p>.098 [2.50]<br/>         .126 [3.20]<br/>         .035 [.90] DIA.,<br/>         8 PLCS.</p>     |

# SLB Series

(with thru- p.c. board hole mounting bracket)

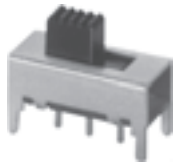
## Miniature Slide Switches

| SPECIFICATIONS                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | FEATURES                                                                                                                                                                                                                 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Contact ratings:</b> 300 mA at 125 VAC or 30 VDC<br><b>Initial contact resistance:</b> 20 milliohms max.<br><b>Insulation resistance:</b> 100 megohms min. at 500 VDC<br><b>Dielectric strength:</b> 500 volts RMS for 1 minute<br><b>Electrical life:</b> 10,000 cycles min.<br><b>Operating temperature range:</b> -20°C to +85°C<br><b>Actuation force:</b> 220g ± 100g<br><b>Solder heat resistance:</b> 260°C max. for 3 seconds<br><b>Solvent washing permissible</b> | <ul style="list-style-type: none"> <li>● Miniature compact size.</li> <li>● Wash-through open frame construction.</li> <li>● Positive spring loaded ball detent mechanism.</li> <li>● Epoxy sealed terminals.</li> </ul> |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | MATERIALS                                                                                                                                                                                                                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <b>Contacts &amp; terminals:</b> Silver plated<br><b>Frame:</b> Zinc plated steel<br><b>Actuator:</b> Thermoplastic<br><b>Base:</b> Phenolic laminated sheet<br><b>Terminal seal:</b> Epoxy                              |

E

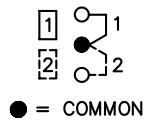
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SLB12804

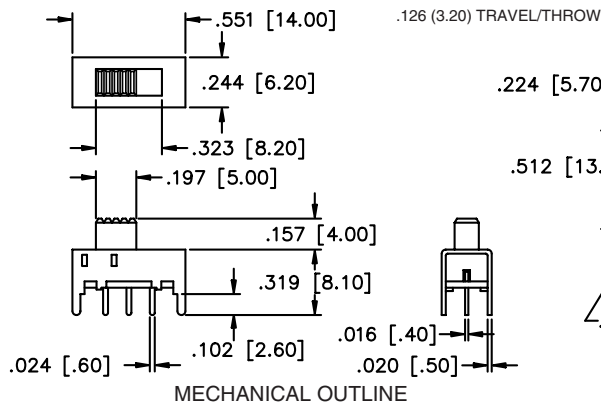


VERTICAL ACTUATOR

### 1P2T

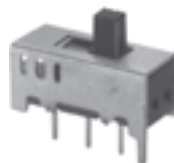


SCHEMATIC



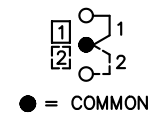
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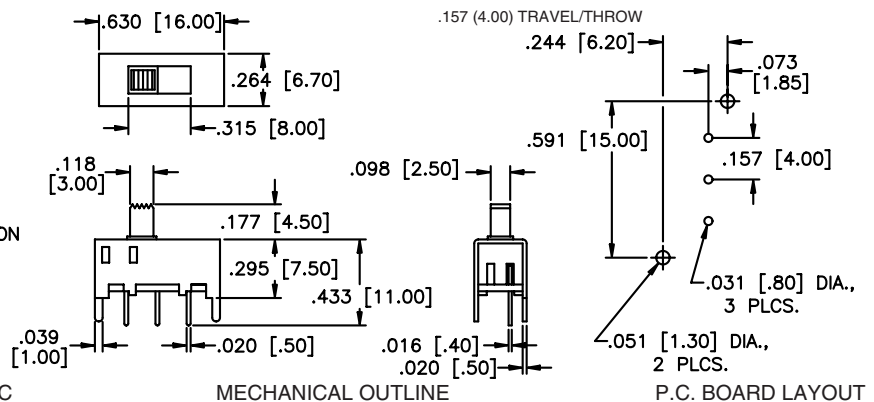


VERTICAL ACTUATOR

### 1P2T



SCHEMATIC



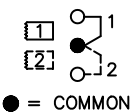
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SLB1240R45

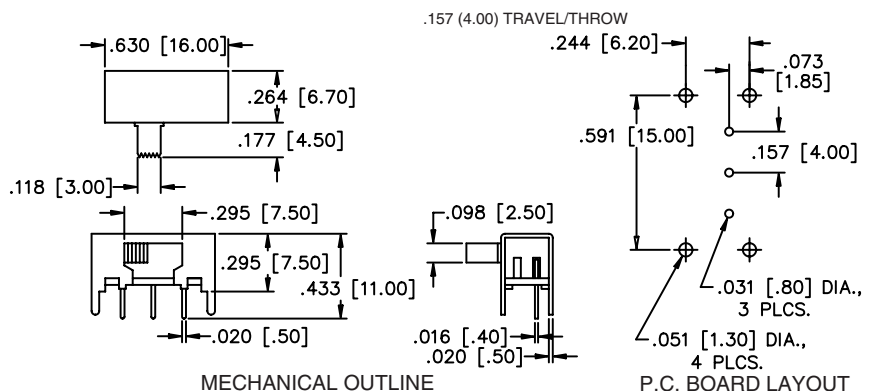


RIGHT ANGLE ACTUATOR

### 1P2T



SCHEMATIC



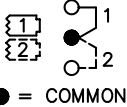
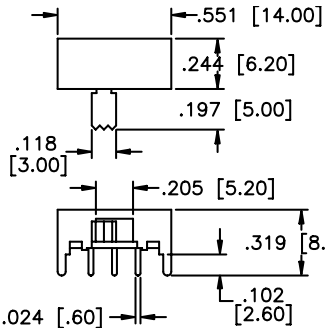
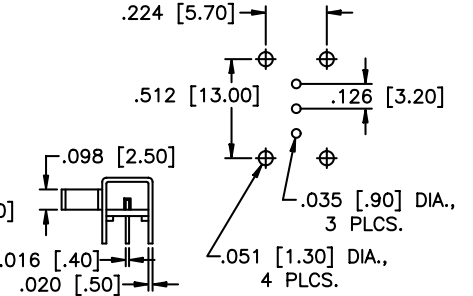
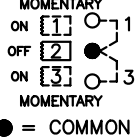
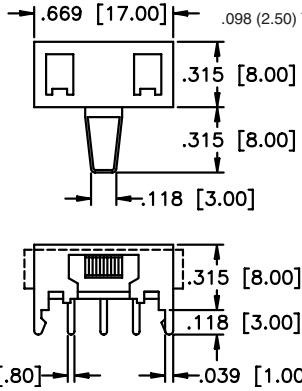
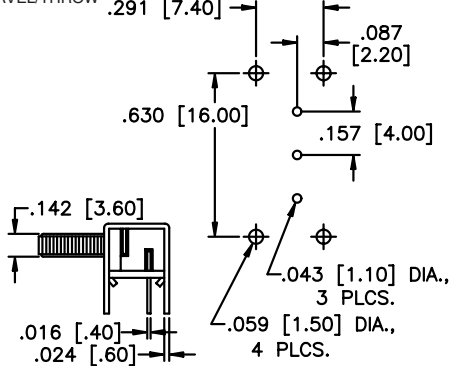
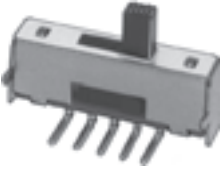
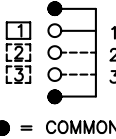
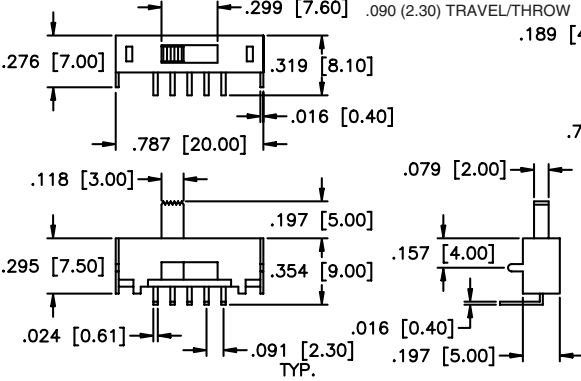
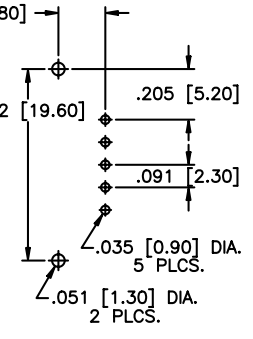
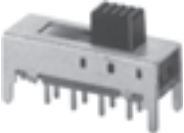
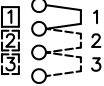
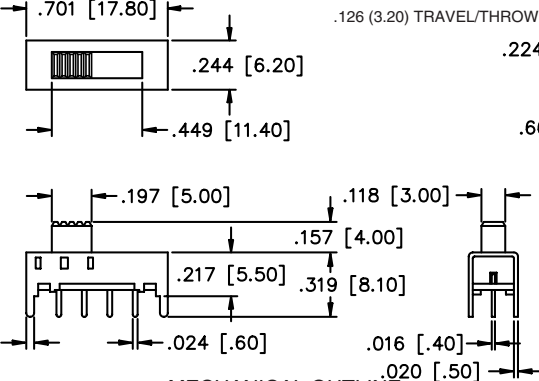
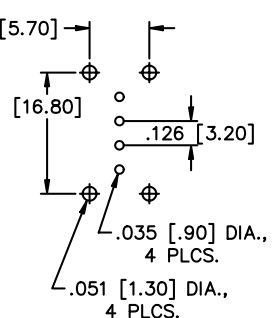
SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

# SLB Series

(with thru- p.c. board hole mounting bracket)

## Miniature Slide Switches

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

|                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>MODEL NO.</div> <div>SLB1280R5</div> <div>  </div> <div>RIGHT ANGLE ACTUATOR</div>  | <div>1P2T</div> <div>  <p>● = COMMON</p> </div> <div>  <p>.126 (3.20) TRAVEL/THROW</p> </div> <div>  <p>.035 [.90] DIA., 3 PLCS.<br/>.051 [1.30] DIA., 4 PLCS.</p> </div> <div>SCHEMATIC</div> <div>MECHANICAL OUTLINE</div> <div>P.C. BOARD LAYOUT</div>                                                   |
| <div>MODEL NO.</div> <div>SLB1250R8</div> <div>  </div> <div>RIGHT ANGLE ACTUATOR</div> | <div>1P2T</div> <div>  <p>MOMENTARY ON [1] OFF [2] ON [3] MOMENTARY<br/>● = COMMON</p> </div> <div>  <p>.098 (2.50) TRAVEL/THROW</p> </div> <div>  <p>.043 [1.10] DIA., 3 PLCS.<br/>.059 [1.50] DIA., 4 PLCS.</p> </div> <div>SCHEMATIC</div> <div>MECHANICAL OUTLINE</div> <div>P.C. BOARD LAYOUT</div> |
| <div>MODEL NO.</div> <div>SLB1370R</div> <div>  </div> <div>RIGHT ANGLE ACTUATOR</div> | <div>1P3T</div> <div>  <p>● = COMMON</p> </div> <div>  <p>.090 (2.30) TRAVEL/THROW</p> </div> <div>  <p>.035 [0.90] DIA., 5 PLCS.<br/>.051 [1.30] DIA., 2 PLCS.</p> </div> <div>SCHEMATIC</div> <div>MECHANICAL OUTLINE</div> <div>P.C. BOARD LAYOUT</div>                                           |
| <div>MODEL NO.</div> <div>SLB13804</div> <div>  </div> <div>VERTICAL ACTUATOR</div>    | <div>1P3T</div> <div>  </div> <div>  <p>.126 (3.20) TRAVEL/THROW</p> </div> <div>  <p>.035 [.90] DIA., 4 PLCS.<br/>.051 [1.30] DIA., 4 PLCS.</p> </div> <div>SCHEMATIC</div> <div>MECHANICAL OUTLINE</div> <div>P.C. BOARD LAYOUT</div>                                                              |

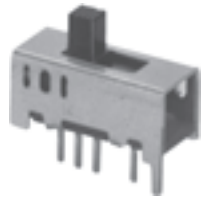
# SLB Series

(with thru-p.c. board hole mounting bracket)

## Miniature Slide Switches

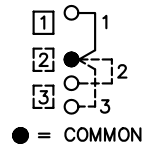
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SLB134145

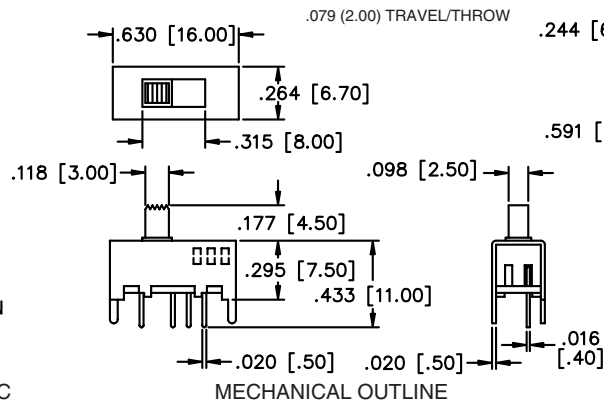


VERTICAL ACTUATOR

### 1P3T



SCHEMATIC



P.C. BOARD LAYOUT

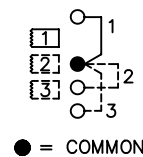
### MODEL NO.

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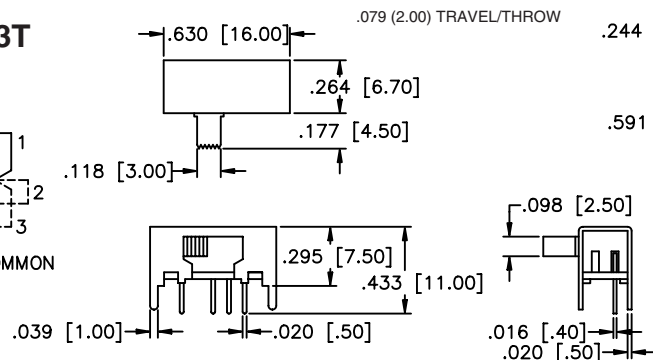


RIGHT ANGLE ACTUATOR

### 1P3T



SCHEMATIC



P.C. BOARD LAYOUT

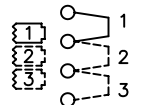
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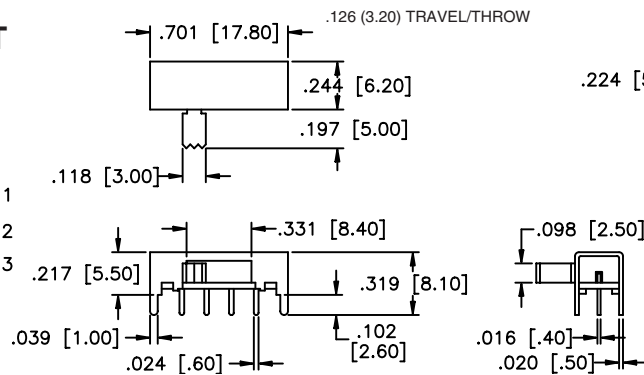


RIGHT ANGLE ACTUATOR

### 1P3T



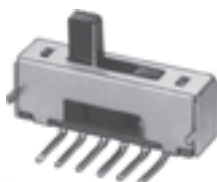
SCHEMATIC



P.C. BOARD LAYOUT

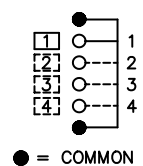
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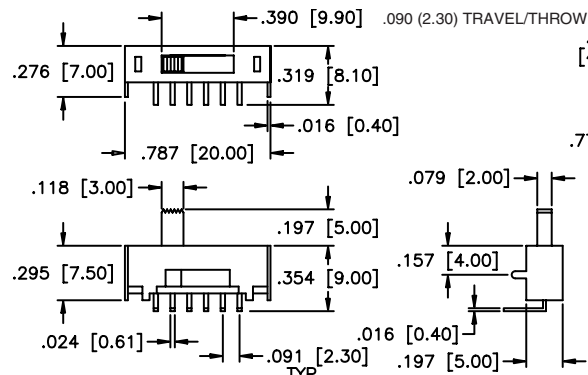


RIGHT ANGLE ACTUATOR

### 1P4T



SCHEMATIC



P.C. BOARD LAYOUT

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

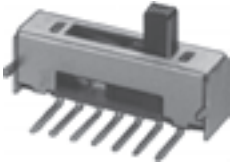
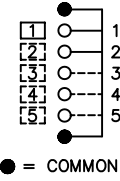
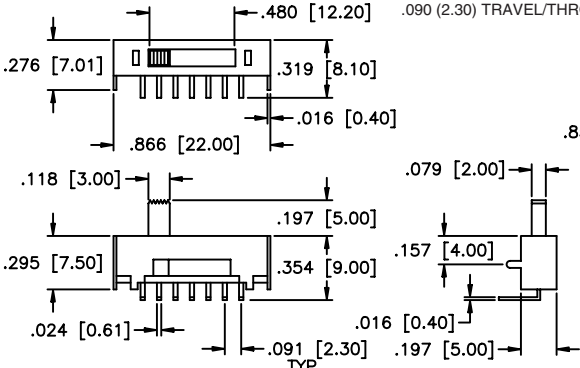
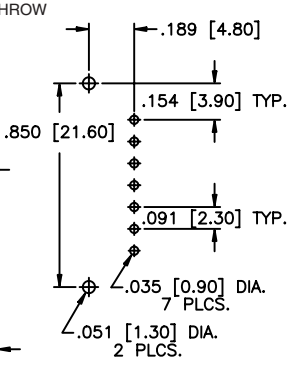
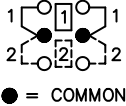
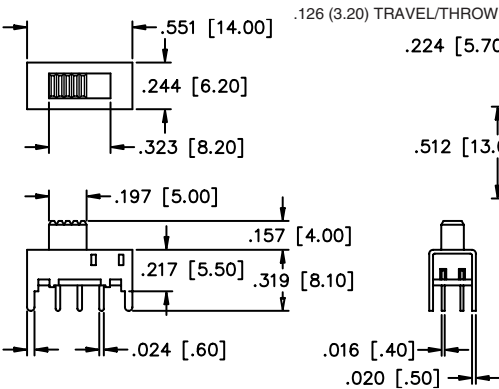
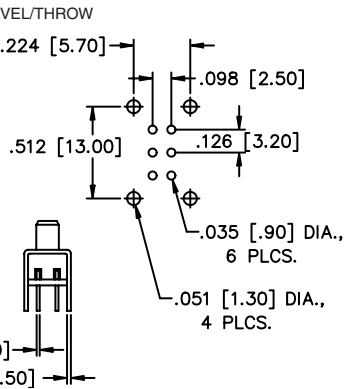
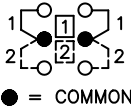
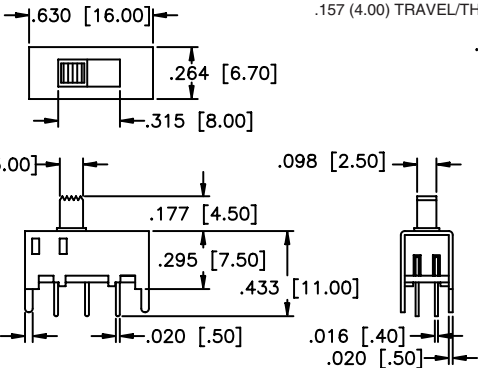
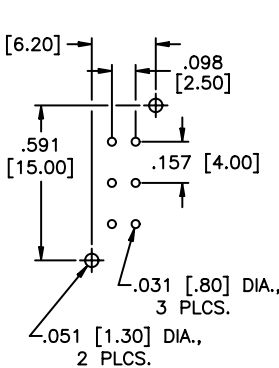
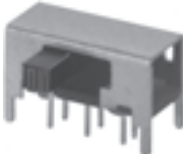
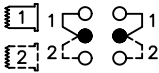
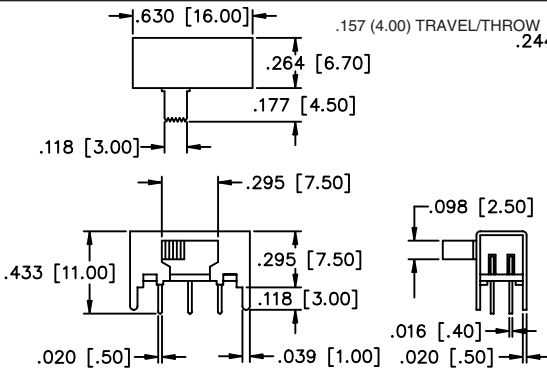
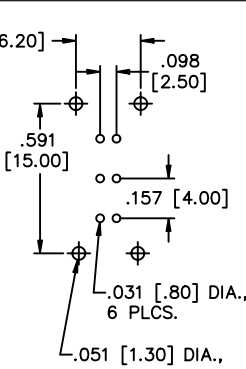


# SLB Series

(with thru-p.c. board hole mounting bracket)

## Miniature Slide Switches

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

|                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>MODEL NO.</div> <div>SLB1570R</div> <div>  </div> <div>RIGHT ANGLE ACTUATOR</div>     | <div>1P5T</div> <div>  </div> <div>SCHEMATIC</div> <div>  </div> <div>MECHANICAL OUTLINE</div> <div>  </div> <div>P.C. BOARD LAYOUT</div>       |
| <div>MODEL NO.</div> <div>SLB22804</div> <div>  </div> <div>VERTICAL ACTUATOR</div>       | <div>2P2T</div> <div>  </div> <div>SCHEMATIC</div> <div>  </div> <div>MECHANICAL OUTLINE</div> <div>  </div> <div>P.C. BOARD LAYOUT</div>     |
| <div>MODEL NO.</div> <div>SLB224145</div> <div>  </div> <div>VERTICAL ACTUATOR</div>     | <div>2P2T</div> <div>  </div> <div>SCHEMATIC</div> <div>  </div> <div>MECHANICAL OUTLINE</div> <div>  </div> <div>P.C. BOARD LAYOUT</div> |
| <div>MODEL NO.</div> <div>SLB2240R45</div> <div>  </div> <div>RIGHT ANGLE ACTUATOR</div> | <div>2P2T</div> <div>  </div> <div>SCHEMATIC</div> <div>  </div> <div>MECHANICAL OUTLINE</div> <div>  </div> <div>P.C. BOARD LAYOUT</div> |

# SLB Series

(with thru-p.c. board hole mounting bracket)  
Miniature Slide Switches

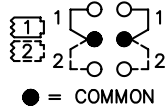
## MODEL NO.

SLB2280R5

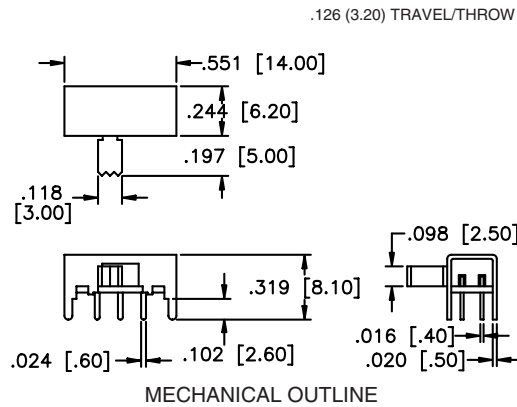


RIGHT ANGLE ACTUATOR

## 2P2T



SCHEMATIC



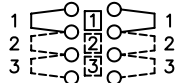
## MODEL NO.

SLB23804

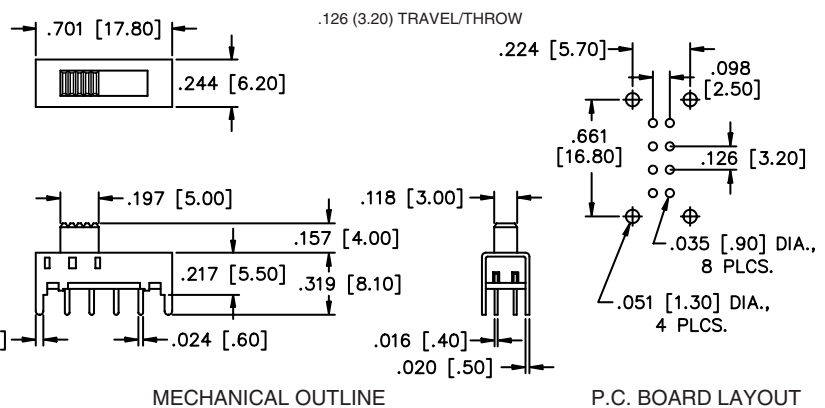


VERTICAL ACTUATOR

## 2P3T

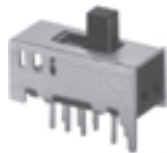


SCHEMATIC



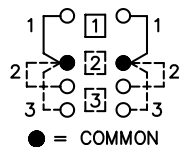
## MODEL NO.

SLB234145

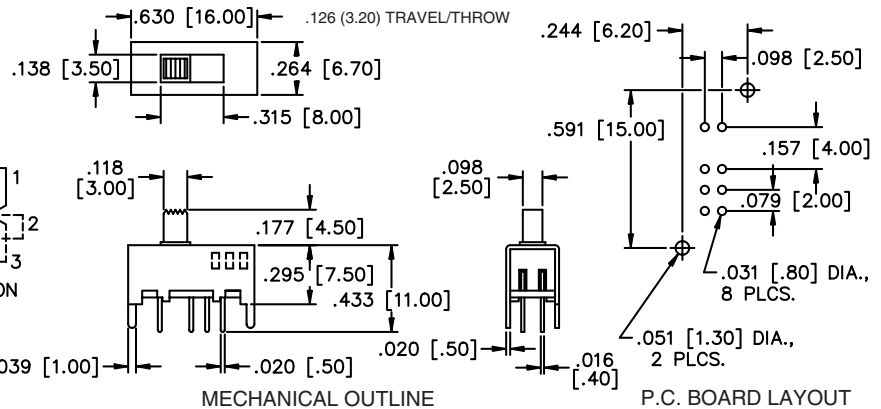


VERTICAL ACTUATOR

## 2P3T

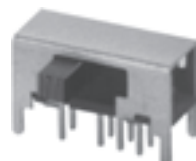


SCHEMATIC



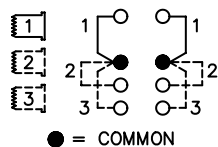
## MODEL NO.

SLB2340R45

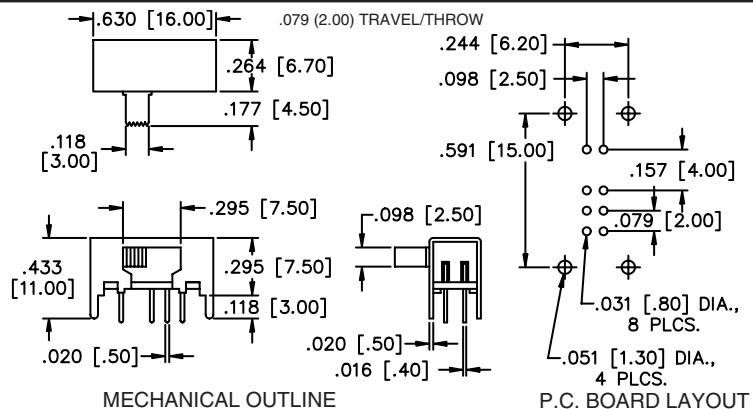


RIGHT ANGLE ACTUATOR

## 2P3T



SCHEMATIC



SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

# SLC Series

## Miniature Slide Switches

### SPECIFICATIONS

**Contact ratings:** 300 mA at 125 VAC or 30 VDC  
**Initial contact resistance:** 20 milliohms max.  
**Insulation resistance:** 100 megohms min. at 500 VDC  
**Dielectric strength:** 500 volts RMS for 1 minute  
**Electrical life:** 10,000 cycles min.  
**Operating temperature range:** -20°C to +85°C  
**Actuation force:** 220g ± 100g  
**Solder heat resistance:** 260°C max. for 3 seconds  
**Solvent washing permissible**

### FEATURES

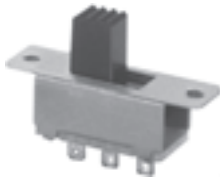
- Panel mounting with solder lug terminals.
- Wash-through open frame construction.
- Positive spring loaded ball detent mechanism.

### MATERIALS

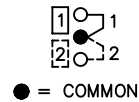
**Contacts & terminals:** Silver plated  
**Frame:** Zinc plated steel  
**Actuator:** Thermoplastic  
**Base:** Phenolic laminated sheet

#### MODEL NO.

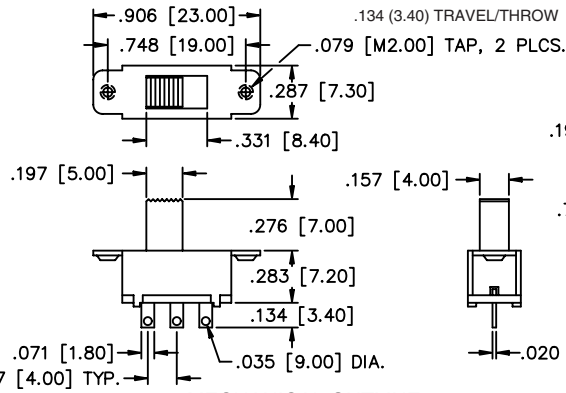
SLC12007



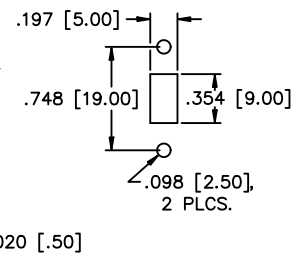
#### 1P2T



SCHEMATIC



MECHANICAL OUTLINE



PANEL CUTOUT

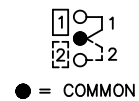
#### MODEL NO.

SLC120025

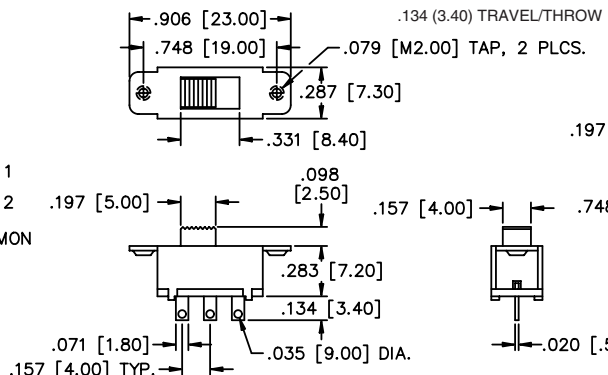
**New!**



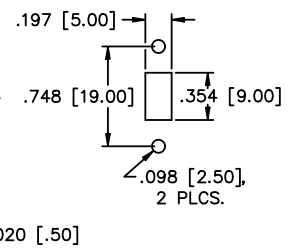
#### 1P2T



SCHEMATIC



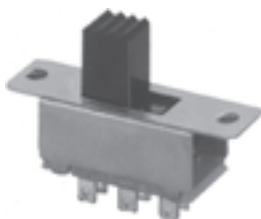
MECHANICAL OUTLINE



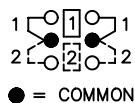
PANEL CUTOUT

#### MODEL NO.

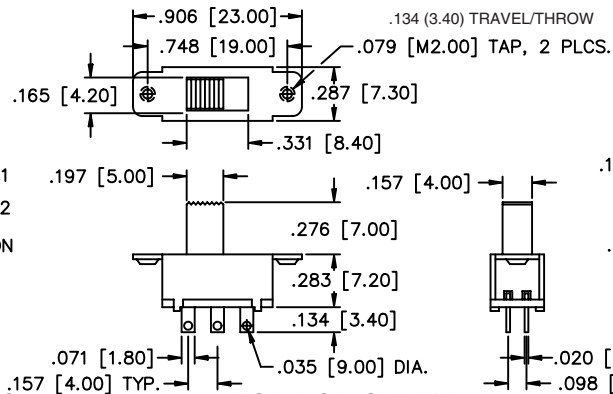
SLC22007



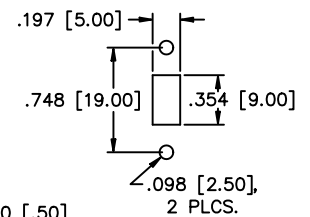
#### 2P2T



SCHEMATIC



MECHANICAL OUTLINE



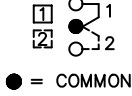
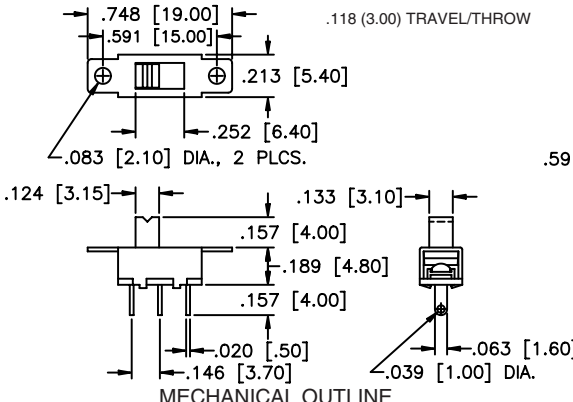
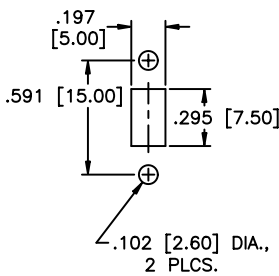
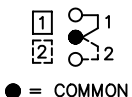
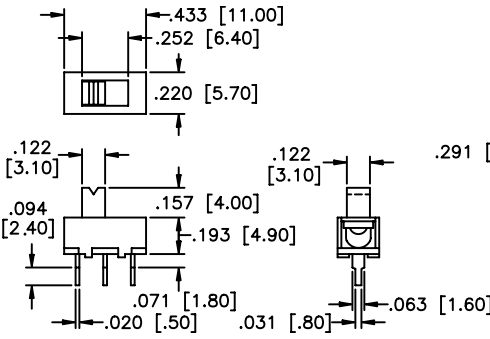
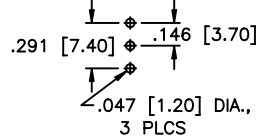
PANEL CUTOUT

# SLG Series

## Miniature Slide Switches

| SPECIFICATIONS                                                                                                                                                                                                                                                                                                                                                                                                                                                                | FEATURES                                                                                                                                                                                      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Contact ratings:</b> 300 mA at 125 VAC or 30 VDC<br><b>Initial contact resistance:</b> 20 milliohms max.<br><b>Insulation resistance:</b> 100 megohms min. at 500 VDC<br><b>Dielectric strength:</b> 500 volts RMS for 1 minute<br><b>Electrical life:</b> 10,000 cycles min.<br><b>Operating temperature range:</b> -20°C to +85°C<br><b>Actuation force:</b> 200g ± 75g<br><b>Solder heat resistance:</b> 260°C max. for 3 seconds<br><b>Solvent washing permissible</b> | <ul style="list-style-type: none"> <li>● Wash-through open frame construction.</li> <li>● Panel and p.c. mounting models.</li> <li>● Positive spring loaded ball detent mechanism.</li> </ul> |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | MATERIALS                                                                                                                                                                                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <b>Contacts &amp; terminals:</b> Silver plated<br><b>Frame:</b> Zinc plated steel<br><b>Actuator:</b> Thermoplastic<br><b>Base:</b> Phenolic laminated sheet                                  |

E

|                                     |                                                                                                                                                                                                                                                                                                                                                |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>MODEL NO.</b><br><b>SLG12004</b> | <b>1P2T</b>    <p>SCHEMATIC</p> <p>MECHANICAL OUTLINE</p> <p>PANEL CUTOUT</p>         |
| <b>MODEL NO.</b><br><b>SLG12014</b> | <b>1P2T</b>    <p>SCHEMATIC</p> <p>MECHANICAL OUTLINE</p> <p>P.C. BOARD LAYOUT</p> |
| <b>VERTICAL MOUNTING</b>            |                                                                                                                                                                                                                                                                                                                                                |

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

# SLA Series

## Miniature Slide Switches

### SPECIFICATIONS

**Contact ratings:** 500 mA at 125 VAC  
**Initial contact resistance:** 20 milliohms max.  
**Insulation resistance:** 100 megohms min. at 500 VDC  
**Dielectric strength:** 500 volts RMS for 1 minute  
**Electrical life:** 10,000 cycles min.  
**Operating temperature range:** -20°C to +85°C  
**Actuation force:** 350g ± 200g  
**Solder heat resistance:** 260°C max. for 3 seconds  
**Solvent washing permissible**

### FEATURES

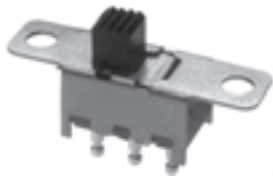
- Miniature compact size.
- Wash-through open frame construction.
- Panel and p.c. mounting models.

### MATERIALS

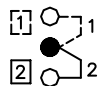
**Contacts & terminals:** Silver plated brass  
**Frame:** Zinc plated steel  
**Actuator:** PBT Thermoplastic  
**Base:** Phenolic laminated sheet

#### MODEL NO.

**SLA1200**

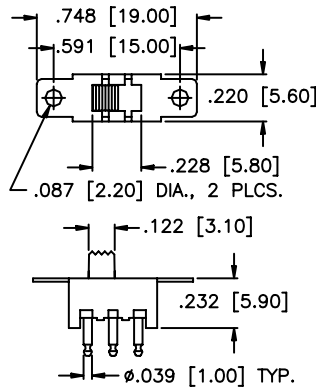


#### 1P2T



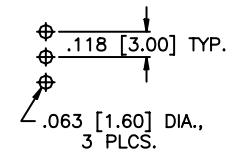
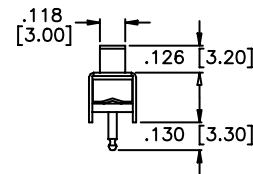
● = COMMON

SCHEMATIC



MECHANICAL OUTLINE

.106 (2.70) TRAVEL/THROW



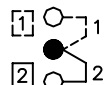
P.C. BOARD LAYOUT

#### MODEL NO.

**SLA1201**

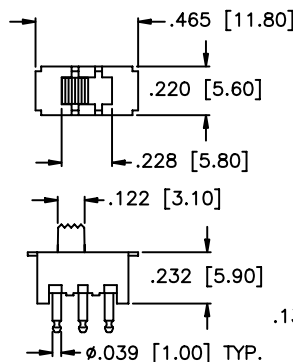


#### 1P2T



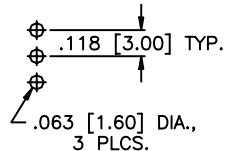
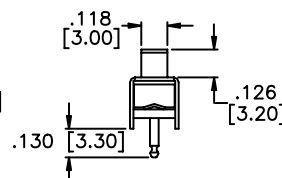
● = COMMON

SCHEMATIC



MECHANICAL OUTLINE

.106 (2.70) TRAVEL/THROW



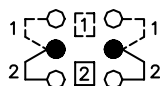
P.C. BOARD LAYOUT

#### MODEL NO.

**SLA2200**

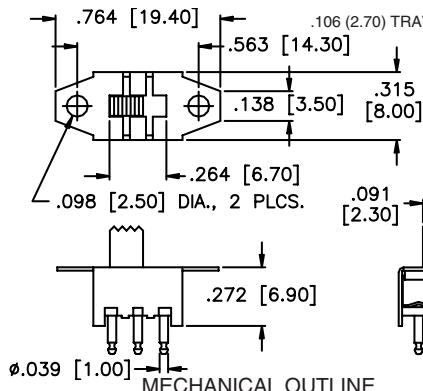


#### 2P2T



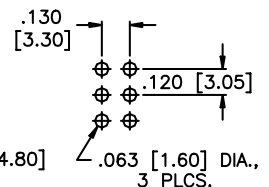
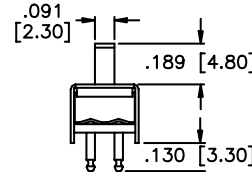
● = COMMON

SCHEMATIC



MECHANICAL OUTLINE

.106 (2.70) TRAVEL/THROW



P.C. BOARD LAYOUT

|                                    |                                                                                                                                                                                                                                                                                                                                                  |  |  |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| <b>MODEL NO.</b><br><b>SLA2201</b> | <div data-bbox="500 121 581 153">2P2T</div> <div data-bbox="472 226 634 359"> </div> <div data-bbox="480 480 607 504">SCHEMATIC</div> <div data-bbox="656 111 1219 474"> </div> <div data-bbox="805 480 1039 504">MECHANICAL OUTLINE</div> <div data-bbox="1230 174 1471 359"> </div> <div data-bbox="1239 480 1453 504">P.C. BOARD LAYOUT</div> |  |  |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|

## SLE Series

### Miniature Slide Switches

| SPECIFICATIONS                                                                                                                                                                                                                                                                                                                                                                                                                                                       | FEATURES                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Contact ratings:</b> 500 mA at 125 VAC<br><b>Initial contact resistance:</b> 20 milliohms max.<br><b>Insulation resistance:</b> 100 megohms min. at 500 VDC<br><b>Dielectric strength:</b> 500 volts RMS for 1 minute<br><b>Electrical life:</b> 10,000 cycles min.<br><b>Operating temperature range:</b> -20°C to +85°C<br><b>Actuation force:</b> 350g ± 200g<br><b>Solder heat resistance:</b> 260°C max. for 3 seconds<br><b>Solvent washing permissible</b> | <ul style="list-style-type: none"> <li>● Miniature compact size.</li> <li>● Wash-through open frame construction.</li> <li>● Panel and p.c. mounting models.</li> </ul> <div data-bbox="737 974 906 1005">MATERIALS</div> <p> <b>Contacts &amp; terminals:</b> Silver plated brass<br/> <b>Frame:</b> Zinc plated steel<br/> <b>Actuator:</b> PBT Thermoplastic<br/> <b>Base:</b> Phenolic laminated sheet         </p> |

|                                    |                                                                                                                                                                                                                                                                                                                                                                |  |  |
|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
| <b>MODEL NO.</b><br><b>SLE1200</b> | <div data-bbox="500 1203 581 1234">1P2T</div> <div data-bbox="472 1308 634 1440"> </div> <div data-bbox="480 1562 607 1585">SCHEMATIC</div> <div data-bbox="656 1182 1292 1556"> </div> <div data-bbox="805 1562 1039 1585">MECHANICAL OUTLINE</div> <div data-bbox="1230 1255 1438 1493"> </div> <div data-bbox="1239 1562 1453 1585">P.C. BOARD LAYOUT</div> |  |  |
| <b>MODEL NO.</b><br><b>SLE1201</b> | <div data-bbox="500 1629 581 1661">1P2T</div> <div data-bbox="472 1724 634 1856"> </div> <div data-bbox="480 1978 607 2001">SCHEMATIC</div> <div data-bbox="656 1598 1292 1971"> </div> <div data-bbox="805 1978 1039 2001">MECHANICAL OUTLINE</div> <div data-bbox="1230 1703 1438 1856"> </div> <div data-bbox="1239 1978 1453 2001">P.C. BOARD LAYOUT</div> |  |  |

# SLE Series

## Miniature Slide Switches

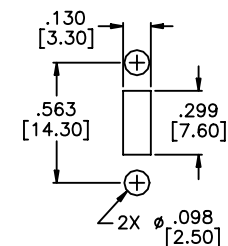
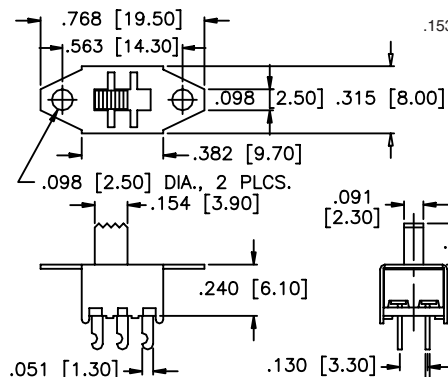
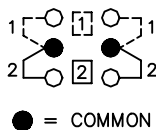
SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

MODEL NO.

**SLE2200**



**2P2T**



SCHEMATIC

MECHANICAL OUTLINE

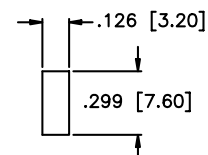
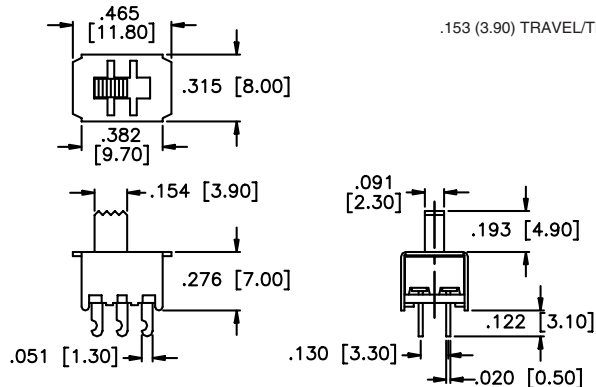
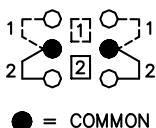
P.C. BOARD LAYOUT

MODEL NO.

**SLE2201**



**2P2T**



SCHEMATIC

MECHANICAL OUTLINE

P.C. BOARD LAYOUT

**E**

# G Series

## Instrument Grade Miniature Slide Switches

### SPECIFICATIONS

#### Contact ratings:

**Gold;** 0.4 Volt-Amps (VA) max. at 20 V max. (AC or DC)

**Silver;** 4 A at 125 VAC, 2 A at 250 VAC or 3 A at 30 VDC

**Initial contact resistance:** 10 milliohms max.

**Insulation resistance:** 1000 megohms min.

**Dielectric strength:** 1000 V rms min.

**Electrical life w/resistive load:** Gold; 60,000 cycles min.

Silver; 2 pos. - 40,000 cycles, 3 pos. - 20,000 cycles

**Operating temperature range:** -30°C to +85°C

**Solder heat resistance:** 300°C max. for 5 seconds

**Washing not recommended**

### FEATURES

- Epoxy sealed terminals.
- Break-before-make contact action.
- SPDT and DPDT models with long electrical life.
- Many additional models & options available (see page E44).

### MATERIALS

**Contacts & terminals:** Gold or silver available (see contact ratings)

**Cover:** Stainless steel

**Actuator:** Glass filled polyamide

**Case:** PES high temp. thermoplastic **Terminal seal:** Epoxy

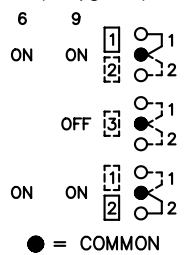
E

| MODEL NO.          | PLATING | ACTION    |
|--------------------|---------|-----------|
| <b>GH36S000001</b> | Gold    | on - on   |
| <b>GH39S000001</b> | Gold    | on off on |
| <b>GH36S010001</b> | Silver  | on - on   |
| <b>GH39S010001</b> | Silver  | on off on |

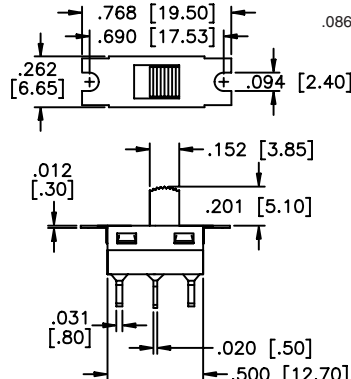


#### SPDT

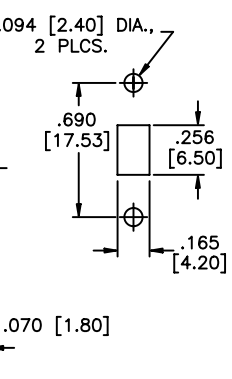
Function  
(see pg. E46)



SCHEMATIC



MECHANICAL OUTLINE



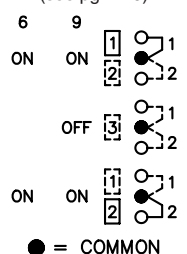
PANEL CUTOUT

| MODEL NO.          | PLATING | ACTION    |
|--------------------|---------|-----------|
| <b>GH36P000001</b> | Gold    | on - on   |
| <b>GH39P000001</b> | Gold    | on off on |
| <b>GH36P010001</b> | Silver  | on - on   |
| <b>GH39P010001</b> | Silver  | on off on |

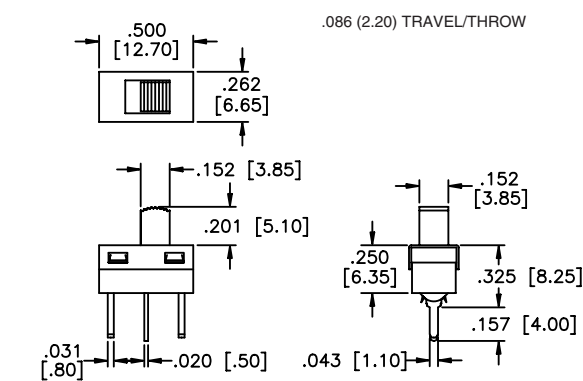


#### SPDT

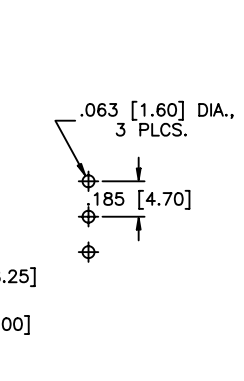
Function  
(see pg. E46)



SCHEMATIC



MECHANICAL OUTLINE



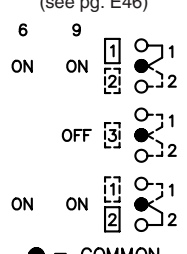
P.C. BOARD LAYOUT

| MODEL NO.          | PLATING | ACTION    |
|--------------------|---------|-----------|
| <b>GH36W000001</b> | Gold    | on - on   |
| <b>GH39W000001</b> | Gold    | on off on |
| <b>GH36W010001</b> | Silver  | on - on   |
| <b>GH39W010001</b> | Silver  | on off on |

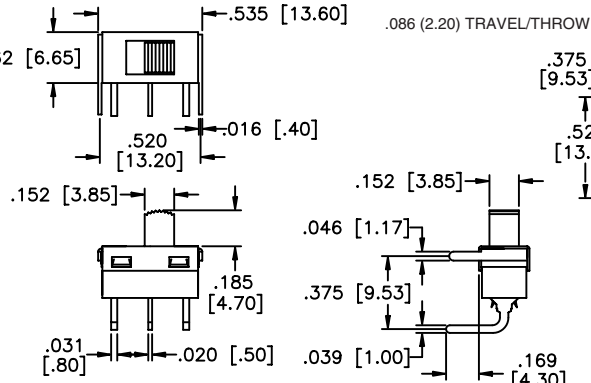


#### SPDT

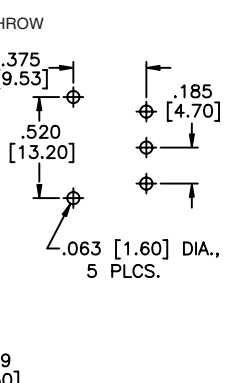
Function  
(see pg. E46)



SCHEMATIC



MECHANICAL OUTLINE



P.C. BOARD LAYOUT

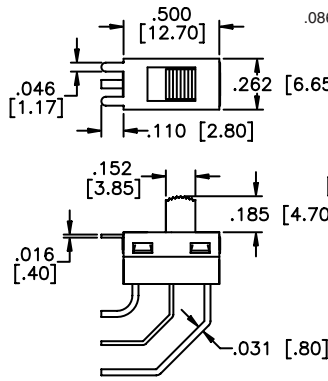
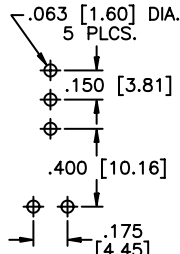
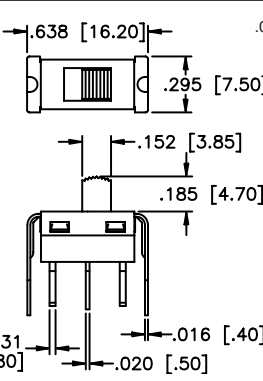
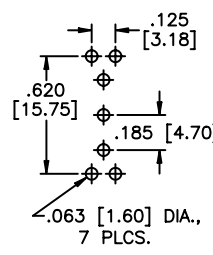
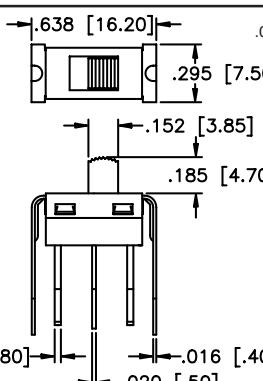
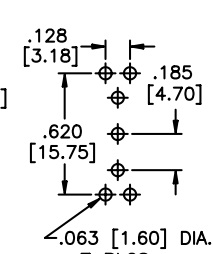
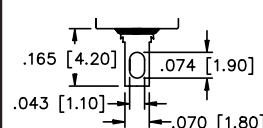
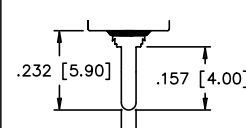
SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE



# G Series

## Instrument Grade Miniature Slide Switches

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

| MODEL NO.                                                                  | PLATING | ACTION    | SPDT                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                    |                                                                                                               |
|----------------------------------------------------------------------------|---------|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| <b>GH36WW00001</b>                                                         | Gold    | on - on   | Function<br>(see pg. E46)<br><br>6      9<br>ON   ON <br>OFF <br><br>ON   ON <br>ON   ON <br><br>● = COMMON         |                                   |                                                                                                               |
| <b>GH39WW00001</b>                                                         | Gold    | on off on |                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                  |                            |
| <b>GH36WW10001</b>                                                         | Silver  | on - on   |                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                    |                                                                                                               |
| <b>GH39WW10001</b>                                                         | Silver  | on off on |                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                    |                                                                                                               |
| MODEL NO.                                                                  | PLATING | ACTION    | SPDT                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                    |                                                                                                               |
| <b>GH36Y000001</b>                                                         | Gold    | on - on   | Function<br>(see pg. E46)<br><br>6      9<br>ON   ON <br>OFF <br><br>ON   ON <br>ON   ON <br><br>● = COMMON     |                                  |                                                                                                               |
| <b>GH39Y000001</b>                                                         | Gold    | on off on |                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                 |                           |
| <b>GH36Y010001</b>                                                         | Silver  | on - on   |                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                    |                                                                                                               |
| <b>GH39Y010001</b>                                                         | Silver  | on off on |                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                    |                                                                                                               |
| MODEL NO.                                                                  | PLATING | ACTION    | SPDT                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                    |                                                                                                               |
| <b>GH36Y400001</b>                                                         | Gold    | on - on   | Function<br>(see pg. E46)<br><br>6      9<br>ON   ON <br>OFF <br><br>ON   ON <br>ON   ON <br><br>● = COMMON |                                 |                                                                                                               |
| <b>GH39Y400001</b>                                                         | Gold    | on off on |                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                |                          |
| <b>GH36Y410001</b>                                                         | Silver  | on - on   |                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                    |                                                                                                               |
| <b>GH39Y410001</b>                                                         | Silver  | on off on |                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                    |                                                                                                               |
| <b>ACTUATOR POSITION AND CONNECTIONS<br/>(FOR BOTH SP &amp; DP MODELS)</b> |         |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <b>SOLDER LUG TERMINAL</b><br> | <b>P.C. TERMINAL</b><br> |
| Function 6                                                                 | ON      | NONE      | ON                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                    |                                                                                                               |
| Function 9                                                                 | ON      | OFF       | ON                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                    |                                                                                                               |

E

# G Series

## Instrument Grade Miniature Slide Switches

E

| MODEL NO.          | PLATING | ACTION    | DPDT                                                                                                                                                                 |                                                                                       |
|--------------------|---------|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| <b>GH46S000001</b> | Gold    | on - on   | <p>Function (see pg. E46)</p> <p>6 9</p> <p>ON ON [1] 1 1</p> <p>[2] 2 2</p> <p>OFF [3] 1 1</p> <p>[2] 2 2</p> <p>ON ON [1] 1 1</p> <p>[2] 2 2</p> <p>● = COMMON</p> | <p>.086 (2.20) TRAVEL/THROW</p> <p>SCHEMATIC MECHANICAL OUTLINE P.C. BOARD LAYOUT</p> |
| <b>GH49S000001</b> | Gold    | on off on |                                                                                                                                                                      |                                                                                       |
| <b>GH46S010001</b> | Silver  | on - on   |                                                                                                                                                                      |                                                                                       |
| <b>GH49S010001</b> | Silver  | on off on |                                                                                                                                                                      |                                                                                       |
| MODEL NO.          | PLATING | ACTION    | DPDT                                                                                                                                                                 |                                                                                       |
| <b>GH46P000001</b> | Gold    | on - on   | <p>Function (see pg. E46)</p> <p>6 9</p> <p>ON ON [1] 1 1</p> <p>[2] 2 2</p> <p>OFF [3] 1 1</p> <p>[2] 2 2</p> <p>ON ON [1] 1 1</p> <p>[2] 2 2</p> <p>● = COMMON</p> | <p>.086 (2.20) TRAVEL/THROW</p> <p>SCHEMATIC MECHANICAL OUTLINE P.C. BOARD LAYOUT</p> |
| <b>GH49P000001</b> | Gold    | on off on |                                                                                                                                                                      |                                                                                       |
| <b>GH46P010001</b> | Silver  | on - on   |                                                                                                                                                                      |                                                                                       |
| <b>GH49P010001</b> | Silver  | on off on |                                                                                                                                                                      |                                                                                       |
| MODEL NO.          | PLATING | ACTION    | DPDT                                                                                                                                                                 |                                                                                       |
| <b>GH46W000001</b> | Gold    | on - on   | <p>Function (see pg. E46)</p> <p>6 9</p> <p>ON ON [1] 1 1</p> <p>[2] 2 2</p> <p>OFF [3] 1 1</p> <p>[2] 2 2</p> <p>ON ON [1] 1 1</p> <p>[2] 2 2</p> <p>● = COMMON</p> | <p>.086 (2.20) TRAVEL/THROW</p> <p>SCHEMATIC MECHANICAL OUTLINE P.C. BOARD LAYOUT</p> |
| <b>GH49W000001</b> | Gold    | on off on |                                                                                                                                                                      |                                                                                       |
| <b>GH46W010001</b> | Silver  | on - on   |                                                                                                                                                                      |                                                                                       |
| <b>GH49W010001</b> | Silver  | on off on |                                                                                                                                                                      |                                                                                       |

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

# G Series

## Instrument Grade Miniature Slide Switches

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

| MODEL NO.   | PLATING | ACTION    | DPDT                                                                                               | .086 (2.20) TRAVEL/THROW |
|-------------|---------|-----------|----------------------------------------------------------------------------------------------------|--------------------------|
| GH46WW00001 | Gold    | on - on   | <p>Function (see pg. E46)</p> <p>6 9</p> <p>ON ON </p> <p>OFF </p> <p>ON ON </p> <p>● = COMMON</p> |                          |
| GH49WW00001 | Gold    | on off on |                                                                                                    |                          |
| GH46WW10001 | Silver  | on - on   |                                                                                                    |                          |
| GH49WW10001 | Silver  | on off on |                                                                                                    |                          |
|             |         |           | <p>SCHEMATIC</p> <p>MECHANICAL OUTLINE</p> <p>P.C. BOARD LAYOUT</p>                                |                          |
| MODEL NO.   | PLATING | ACTION    | DPDT                                                                                               | .086 (2.20) TRAVEL/THROW |
| GH46Y000001 | Gold    | on - on   | <p>Function (see pg. E46)</p> <p>6 9</p> <p>ON ON </p> <p>OFF </p> <p>ON ON </p> <p>● = COMMON</p> |                          |
| GH49Y000001 | Gold    | on off on |                                                                                                    |                          |
| GH46Y010001 | Silver  | on - on   |                                                                                                    |                          |
| GH49Y010001 | Silver  | on off on |                                                                                                    |                          |
|             |         |           | <p>SCHEMATIC</p> <p>MECHANICAL OUTLINE</p> <p>P.C. BOARD LAYOUT</p>                                |                          |
| MODEL NO.   | PLATING | ACTION    | DPDT                                                                                               | .086 (2.20) TRAVEL/THROW |
| GH46Y400001 | Gold    | on - on   | <p>Function (see pg. E46)</p> <p>6 9</p> <p>ON ON </p> <p>OFF </p> <p>ON ON </p> <p>● = COMMON</p> |                          |
| GH49Y400001 | Gold    | on off on |                                                                                                    |                          |
| GH46Y410001 | Silver  | on - on   |                                                                                                    |                          |
| GH49Y410001 | Silver  | on off on |                                                                                                    |                          |
|             |         |           | <p>SCHEMATIC</p> <p>MECHANICAL OUTLINE</p> <p>P.C. BOARD LAYOUT</p>                                |                          |

E

# G Series

## Instrument Grade

### Miniature Slide Switches

**Additional ordering information:** Commonly ordered models are shown on pgs. E40 thru E43 with complete specifications. Below is an ordering format that enables you to 'build your own switch' by simply selecting from all available options shown and filling in the boxes.

#### 'BUILD YOUR OWN SWITCH' ORDER FORMAT

Fill in all boxes shown with options selected from below.  
Allowable options for each box are shown under each respective box.

| Series                         | Actuator Height      | Poles                | Function             | Terminals            | Contact & Term. Mat'l. | Special Option 1     | Special Option 2     |
|--------------------------------|----------------------|----------------------|----------------------|----------------------|------------------------|----------------------|----------------------|
| <input type="text" value="G"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/>   | <input type="text"/> | <input type="text"/> |
|                                | B*                   | 3                    | 6                    | S 0                  | 0                      | 0 0                  | 0 0                  |
|                                | C                    | 4                    | 9                    | P 0                  | 1                      | 1 0                  | 0 1                  |
|                                | E*                   |                      |                      | W 0                  | 2                      | 1 1                  | 1 0                  |
|                                | H                    |                      |                      | WW                   | 5                      | 1 2                  | 1 1                  |
|                                | L*                   |                      |                      | Y 0                  | 8                      |                      |                      |
|                                | N                    |                      |                      | Y 4                  |                        |                      |                      |

\* indicates Actuator options B, E & L are available for single pole models only .

**Actuators heights:** Dimensions in inches and millimeters. H is standard.

B = .301" (7.65mm)      C = .137" (3.50mm)      E = .358" (9.10mm)  
H = .200" (5.10mm) for S0 & P0 and .185" (4.70mm) for Y, Y4, W0 & WW  
L = .251" (6.40mm)      N = .374" (9.50mm)

**Poles:**      3 = Single Pole      4 = Double Pole  
**Functions:**      6 = ON - ON      9 = ON OFF ON

**Terminals:** See completely specified models in prior section for configurations and dimensions.

S0 = Solder lugs  
P0 = .250" (6.35mm) long Printed circuit terminals  
W0 = Right angle horizontal p.c. terminals with mounting bracket  
WW = Right angle vertical p.c. terminals with mounting bracket  
Y0 = P.C. terminals with short bracket  
Y4 = P.C. terminals with tall bracket

**Contact & terminal materials:** See contact ratings under "specifications".

0 = Gold plated brass

1 = Silver  
2 = Gold plated silver  
5 = Special contact with lower rating  
8 = Gold plated brass contacts with tin plated terminals (not available w/SO)

**Special options 1:**

00 = Standard model  
10 = Switch without ground plate  
11 = .407" (10.35mm) long printed circuit terminals  
12 = Same as 11 except without ground plate

**Special options 2:**

00 = No epoxy seal (for printed circuit terminals only as S0 (solder lug) terminals are always sealed)  
01 = Epoxy sealed terminals (standard on solder lug models)  
10 = Extended terminals for WW models (see figure 1)  
11 = Same as 10 above except with epoxy sealed terminals

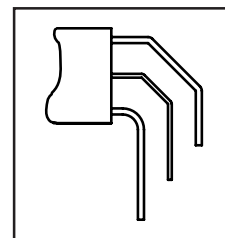


figure 1

## SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

E

**APEM**, PO BOX 8288, HAVERHILL, MA USA 01835-0788 TOLL FREE: (877) 246-7890 FAX: (781) 245-4531 E-mail: [info@apem.com](mailto:info@apem.com) E45

## Miniature Slide Switches

E

# 25000N Series

## Miniature Slide Switches

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

| MODEL NO.                                      | PLATING                          | ACTION                                       | DOUBLE POLE                                     |                           |                                                                                                     |
|------------------------------------------------|----------------------------------|----------------------------------------------|-------------------------------------------------|---------------------------|-----------------------------------------------------------------------------------------------------|
| 25546NLD<br>25549NLD<br>25546NA<br>25549NA     | Gold<br>Gold<br>Silver<br>Silver | on - on<br>on off on<br>on - on<br>on off on | <p>Function (see pg. E51)</p> <p>● = COMMON</p> | <p>MECHANICAL OUTLINE</p> | <p>TRAVEL/THROW; 3 POSITION - .078 (2.00)<br/>2 POSITION - .150</p> <p>P.C. BOARD LAYOUT</p>        |
|                                                |                                  |                                              | RIGHT ANGLE ACTUATOR                            |                           |                                                                                                     |
| MODEL NO.                                      | PLATING                          | ACTION                                       | SINGLE POLE                                     |                           |                                                                                                     |
| 25136NLDH<br>25139NLDH<br>25136NAH<br>25139NAH | Gold<br>Gold<br>Silver<br>Silver | on - on<br>on off on<br>on - on<br>on off on | <p>Function (see pg. E51)</p> <p>● = COMMON</p> | <p>MECHANICAL OUTLINE</p> | <p>TRAVEL/THROW; 3 POSITION - .078 (2.00)<br/>2 POSITION - .150</p> <p>P.C. BOARD LAYOUT</p>        |
|                                                |                                  |                                              | VERTICAL ACTUATOR                               |                           |                                                                                                     |
| MODEL NO.                                      | PLATING                          | ACTION                                       | SINGLE POLE                                     |                           |                                                                                                     |
| 25336NLD6<br>25339NLD6<br>25336NA6<br>25339NA6 | Gold<br>Gold<br>Silver<br>Silver | on - on<br>on off on<br>on - on<br>on off on | <p>Function (see pg. E51)</p> <p>● = COMMON</p> | <p>MECHANICAL OUTLINE</p> | <p>TRAVEL/THROW; 3 POSITION - .078 (2.00)<br/>2 POSITION - .150 (3.80)</p> <p>P.C. BOARD LAYOUT</p> |
|                                                |                                  |                                              | RIGHT ANGLE ACTUATOR                            |                           |                                                                                                     |
| MODEL NO.                                      | PLATING                          | ACTION                                       | DOUBLE POLE                                     |                           |                                                                                                     |
| 25146NLDH<br>25149NLDH<br>25146NAH<br>25149NAH | Gold<br>Gold<br>Silver<br>Silver | on - on<br>on off on<br>on - on<br>on off on | <p>Function (see pg. E51)</p> <p>● = COMMON</p> | <p>MECHANICAL OUTLINE</p> | <p>TRAVEL/THROW; 3 POSITION - .078 (2.00)<br/>2 POSITION - .150 (3.80)</p> <p>P.C. BOARD LAYOUT</p> |
|                                                |                                  |                                              | VERTICAL ACTUATOR                               |                           |                                                                                                     |

E



# 25000N Series

## Miniature Slide Switches

E

| MODEL NO.                   | PLATING | ACTION    | DOUBLE POLE                                                                                                                       |                    |                   |
|-----------------------------|---------|-----------|-----------------------------------------------------------------------------------------------------------------------------------|--------------------|-------------------|
| 25346NLD6                   | Gold    | on - on   | <p>Function (see pg. E51)</p> <p>ON ON 1 1 1 1</p> <p>OFF 2 2 2 2</p> <p>ON ON 1 1 1 1</p> <p>ON ON 2 2 2 2</p> <p>● = COMMON</p> |                    |                   |
| 25349NLD6                   | Gold    | on off on |                                                                                                                                   |                    |                   |
| 25346NA6                    | Silver  | on - on   |                                                                                                                                   |                    |                   |
| 25349NA6                    | Silver  | on off on |                                                                                                                                   |                    |                   |
| <p>RIGHT ANGLE ACTUATOR</p> |         |           | SCHEMATIC                                                                                                                         | MECHANICAL OUTLINE | P.C. BOARD LAYOUT |
| MODEL NO.                   | PLATING | ACTION    | SINGLE POLE                                                                                                                       |                    |                   |
| 25436NLDH                   | Gold    | on - on   | <p>Function (see pg. E51)</p> <p>ON ON 1 1</p> <p>OFF 2 2</p> <p>ON ON 1 1</p> <p>ON ON 2 2</p> <p>● = COMMON</p>                 |                    |                   |
| 25439NLDH                   | Gold    | on off on |                                                                                                                                   |                    |                   |
| 25436NAH                    | Silver  | on - on   |                                                                                                                                   |                    |                   |
| 25439NAH                    | Silver  | on off on |                                                                                                                                   |                    |                   |
| <p>VERTICAL ACTUATOR</p>    |         |           | SCHEMATIC                                                                                                                         | MECHANICAL OUTLINE | P.C. BOARD LAYOUT |
| MODEL NO.                   | PLATING | ACTION    | SINGLE POLE                                                                                                                       |                    |                   |
| 25536NLD6                   | Gold    | on - on   | <p>Function (see pg. E51)</p> <p>ON ON 1 1</p> <p>OFF 2 2</p> <p>ON ON 1 1</p> <p>ON ON 2 2</p> <p>● = COMMON</p>                 |                    |                   |
| 25539NLD6                   | Gold    | on off on |                                                                                                                                   |                    |                   |
| 25536NA6                    | Silver  | on - on   |                                                                                                                                   |                    |                   |
| 25539NA6                    | Silver  | on off on |                                                                                                                                   |                    |                   |
| <p>RIGHT ANGLE ACTUATOR</p> |         |           | SCHEMATIC                                                                                                                         | MECHANICAL OUTLINE | P.C. BOARD LAYOUT |
| MODEL NO.                   | PLATING | ACTION    | DOUBLE POLE                                                                                                                       |                    |                   |
| 25446NLDH                   | Gold    | on - on   | <p>Function (see pg. E51)</p> <p>ON ON 1 1 1 1</p> <p>OFF 2 2 2 2</p> <p>ON ON 1 1 1 1</p> <p>ON ON 2 2 2 2</p> <p>● = COMMON</p> |                    |                   |
| 25449NLDH                   | Gold    | on off on |                                                                                                                                   |                    |                   |
| 25446NAH                    | Silver  | on - on   |                                                                                                                                   |                    |                   |
| 25449NAH                    | Silver  | on off on |                                                                                                                                   |                    |                   |
| <p>VERTICAL ACTUATOR</p>    |         |           | SCHEMATIC                                                                                                                         | MECHANICAL OUTLINE | P.C. BOARD LAYOUT |

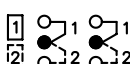
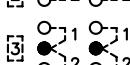
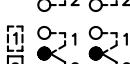
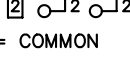
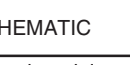
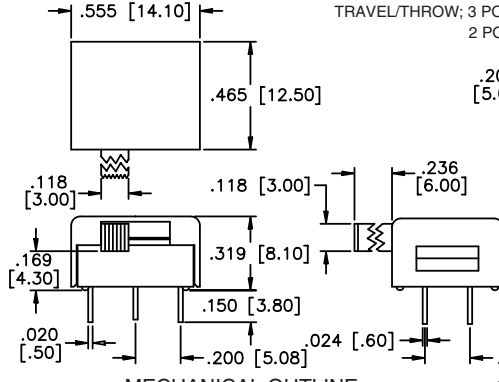
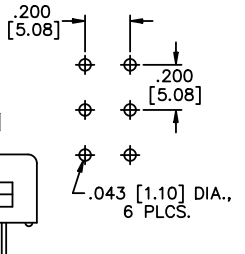
SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE



# 25000N Series

## Miniature Slide Switches

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

| MODEL NO.                                                                         | PLATING | ACTION    | DOUBLE POLE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                    |                                                                                                                                                               |
|-----------------------------------------------------------------------------------|---------|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 25546NLD6                                                                         | Gold    | on - on   | Function<br>(see pg. below)<br><br>6 ON ON <br>9 ON ON <br>OFF OFF <br>ON ON <br>ON ON <br>● = COMMON |  | TRAVEL/THROW; 3 POSITION - .078 (2.00)<br>2 POSITION - .150 (3.80)<br><br> |
| 25549NLD6                                                                         | Gold    | on off on |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                    |                                                                                                                                                               |
| 25546NA6                                                                          | Silver  | on - on   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                    |                                                                                                                                                               |
| 25549NA6                                                                          | Silver  | on off on |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                    |                                                                                                                                                               |
|  |         |           | SCHEMATIC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | MECHANICAL OUTLINE                                                                 | P.C. BOARD LAYOUT                                                                                                                                             |

**Additional ordering information:** Commonly ordered models are shown above and on preceeding pages with complete model numbers and specifications. Below is an order format that enables you to 'build your own switch' and specify the correct switch model number by simply selecting from all available options shown and filling in the boxes.

### 'BUILD YOUR OWN SWITCH' ORDER FORMAT

Fill in boxes shown with options selected from below.  
Allowable options for each box are shown under each respective box.

| Series | Actuator/<br>Term. Spacing | Poles | Functions | Version | *Contact &<br>Term. Mat'l. | *Actuators | Approvals   |
|--------|----------------------------|-------|-----------|---------|----------------------------|------------|-------------|
| 2 5    |                            |       |           |         |                            |            |             |
|        | 1                          | 3     | 6         | N       | A                          | B          | (NONE)      |
|        | 4                          | 4     | 9         |         | L D                        | H          | X 6 9 3 U L |
|        | 3                          |       |           |         |                            | H 6        |             |
|        | 5                          |       |           |         |                            | 6          |             |

\* If a single suffix selection is chosen from the **Contact & Term. Mat'l.** or **Actuator** categories above, eliminate the extra box.

**Actuator/Terminal spacing:** Dimensions in inches and millimeters.  
 1 = Vertical actuator and .100" (2.54mm) terminal spacing  
 4 = Vertical actuator and .200" (5.08mm) terminal spacing  
 3 = Side actuator and .100" (2.54mm) terminal spacing  
 5 = Side actuator and .200" (5.08mm) terminal spacing

**Poles:** 3 = Single Pole 4 = Double Pole

**Functions:** 6 = ON - ON 9 = ON OFF ON

**Version:** N = Version specification (Specify for all models)

**Contact & terminal materials:** See contact ratings under "specifications". A = Silver LD = Gold plated brass

**Actuators:** Dimensions in inches and millimeters.  
 B = Flush vertical actuator  
 H = Vertical actuator .110" (2.80mm) high  
 H6 = Vertical actuator .236" (6.00mm) high  
 6 = Side actuator .236" (6.00mm) long  
**Note:** If **Actuator** boxes are not used, a side actuator .090" (2.30mm) long will be supplied.

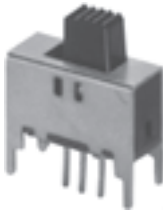
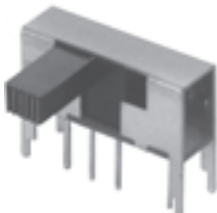
**Approvals:** X693UL = Switches recognized and marked UL - silver (A) contacts only.

# MSS Series

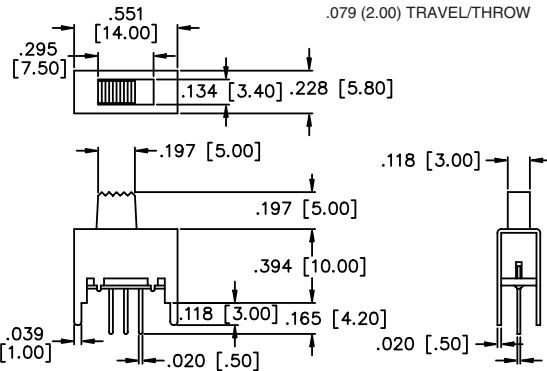
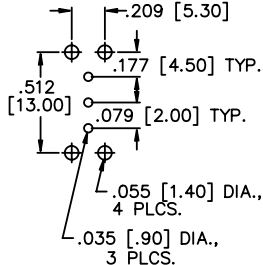
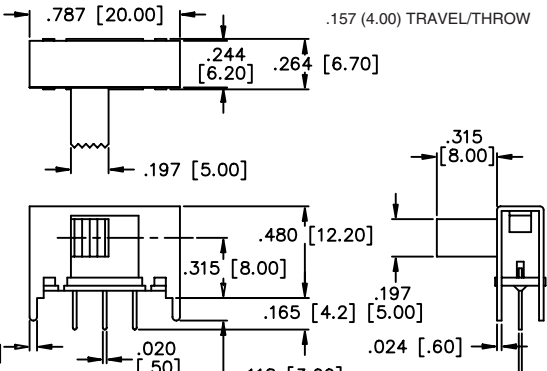
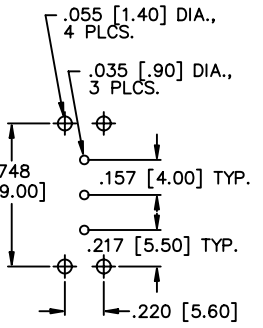
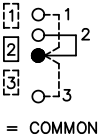
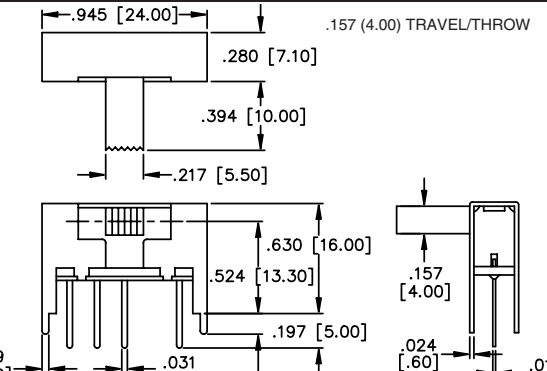
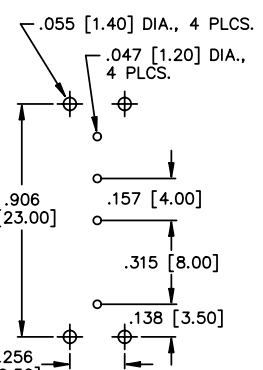
## Standard Size Slide Switches

| SPECIFICATIONS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | FEATURES                                                                                                                                                                                                        |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Contact ratings:</b> Gold; 0.4 Volt-Amps (VA) max. at 20 V max. (AC or DC)<br>Silver; 300 mA at 125 VAC or 30 VDC<br><b>Initial contact resistance:</b> 20 milliohms max.<br><b>Insulation resistance:</b> 100 megohms min. at 500 VDC<br><b>Dielectric strength:</b> 500 volts RMS at sea level<br><b>Electrical life:</b> 10,000 cycles min.<br><b>Operating temperature range:</b> -10°C to +60°C<br><b>Solder heat resistance:</b> 260°C max. for 3 seconds<br><b>Solvent washing permissible</b> | <ul style="list-style-type: none"> <li>● Bifurcated wiping contact design.</li> <li>● Epoxy sealed terminals.</li> <li>● Wash-through open frame construction.</li> <li>● Reinforcing mounting legs.</li> </ul> |
| MATERIALS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                 |
| <b>Contacts &amp; terminals:</b> Gold or silver available (see contact ratings)<br><b>Housing:</b> Tin/lead plated steel<br><b>Base:</b> Phenolic laminated sheet                                                                                                                                                                                                                                                                                                                                        | <b>Actuator:</b> Thermoplastic<br><b>Terminal seal:</b> Epoxy                                                                                                                                                   |

E

| MODEL NO.    PLATING                                                                |  |
|-------------------------------------------------------------------------------------|--|
| MSS12A       SILVER                                                                 |  |
| MSS12AG      GOLD                                                                   |  |
|   |  |
| VERTICAL ACTUATOR                                                                   |  |
| MODEL NO.    PLATING                                                                |  |
| MSS12AR       SILVER                                                                |  |
| MSS12ARG      GOLD                                                                  |  |
|  |  |
| RIGHT ANGLE ACTUATOR                                                                |  |
| MODEL NO.    PLATING                                                                |  |
| MSS13AR       SILVER                                                                |  |
|  |  |
| RIGHT ANGLE ACTUATOR                                                                |  |

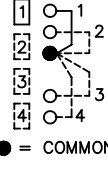
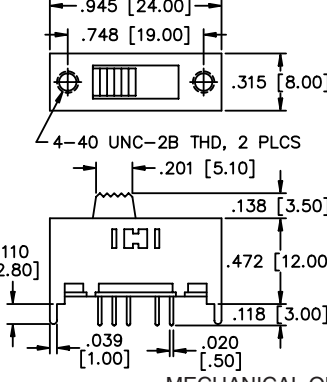
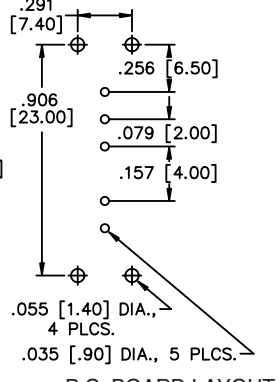
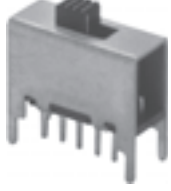
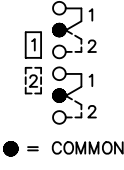
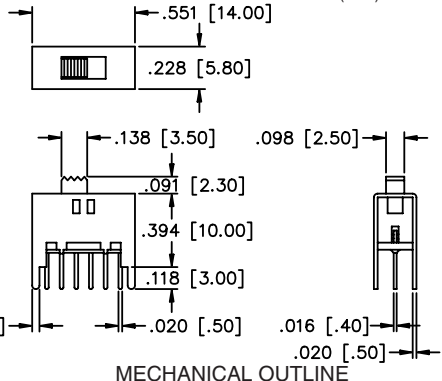
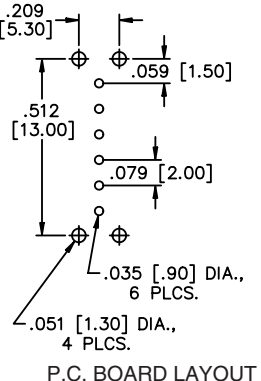
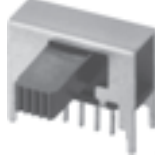
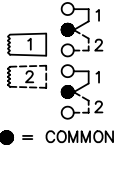
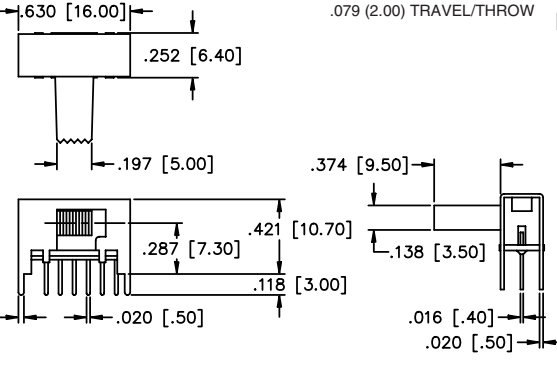
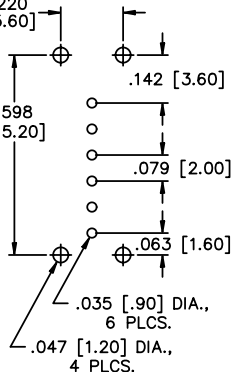
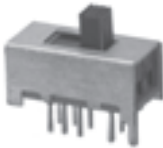
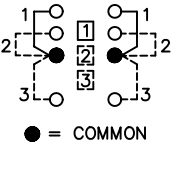
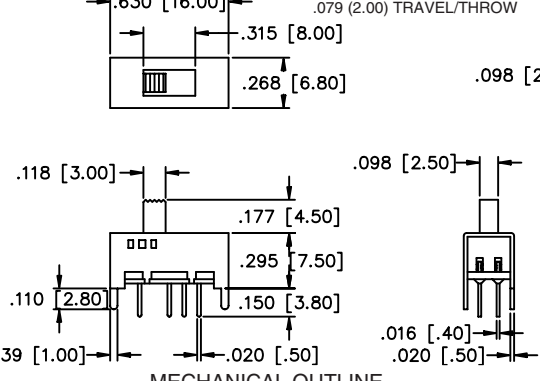
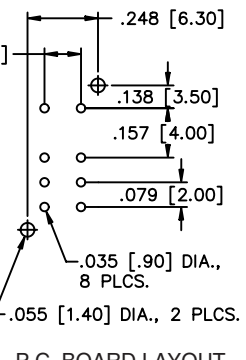
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|------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|
| <b>1P2T</b><br><br>● = COMMON   | <br>MECHANICAL OUTLINE  | <br>P.C. BOARD LAYOUT  |
| <b>1P2T</b><br><br>● = COMMON | <br>MECHANICAL OUTLINE | <br>P.C. BOARD LAYOUT |
| <b>1P3T</b><br><br>● = COMMON | <br>MECHANICAL OUTLINE | <br>P.C. BOARD LAYOUT |

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

# MSS Series

## Standard Size Slide Switches

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

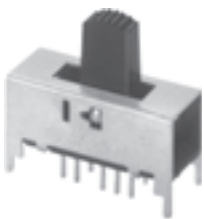
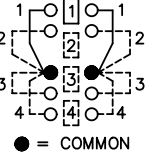
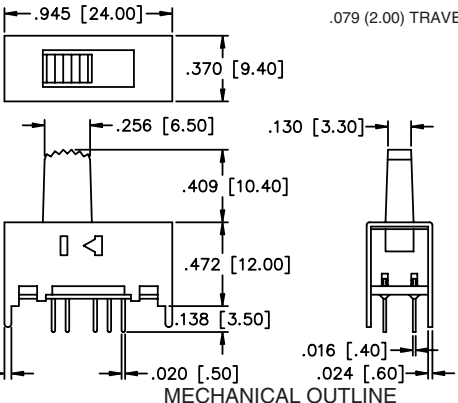
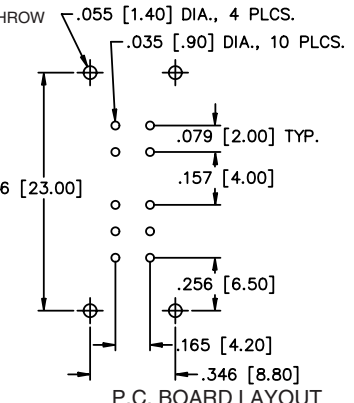
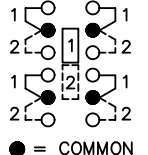
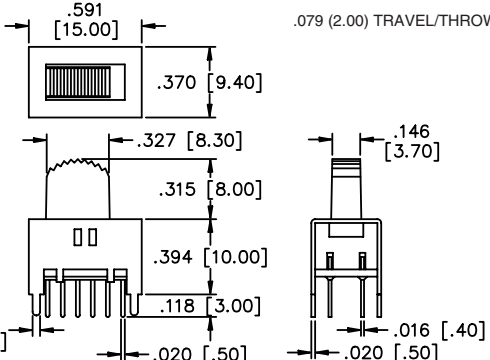
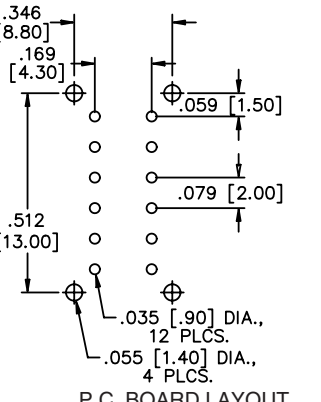
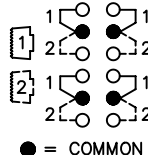
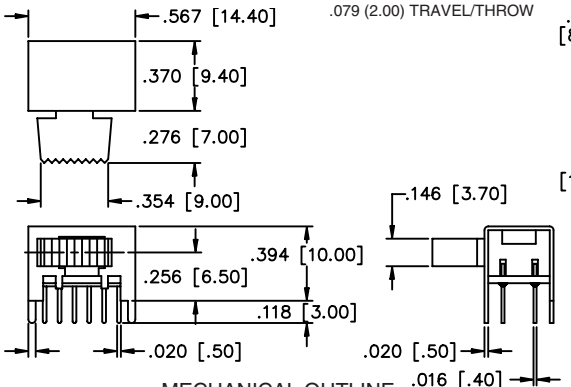
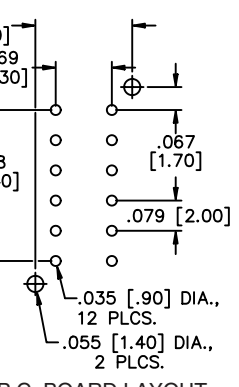
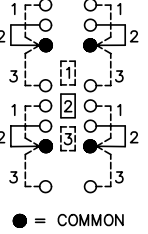
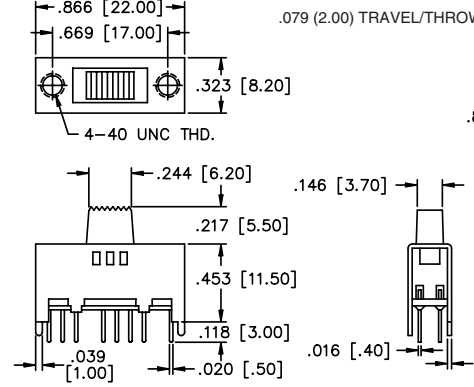
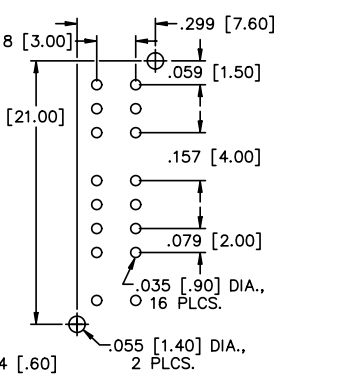
| MODEL NO.                                                                           | PLATING |                                                                                                                  |                                                                                                            |                                                                                                            |
|-------------------------------------------------------------------------------------|---------|------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|
| <b>MSS14</b>                                                                        | SILVER  |                                                                                                                  |                                                                                                            |                                                                                                            |
| <b>MSS14G</b>                                                                       | GOLD    |                                                                                                                  |                                                                                                            |                                                                                                            |
|    |         |                                                                                                                  |                                                                                                            |                                                                                                            |
| VERTICAL ACTUATOR                                                                   |         | <b>1P4T</b><br><br>● = COMMON   | <br>MECHANICAL OUTLINE    | <br>P.C. BOARD LAYOUT   |
| MODEL NO.                                                                           | PLATING |                                                                                                                  |                                                                                                            |                                                                                                            |
| <b>MSS22</b>                                                                        | SILVER  |                                                                                                                  |                                                                                                            |                                                                                                            |
| <b>MSS22G</b>                                                                       | GOLD    |                                                                                                                  |                                                                                                            |                                                                                                            |
|   |         |                                                                                                                  |                                                                                                            |                                                                                                            |
| VERTICAL ACTUATOR                                                                   |         | <b>2P2T</b><br><br>● = COMMON  | <br>MECHANICAL OUTLINE  | <br>P.C. BOARD LAYOUT  |
| MODEL NO.                                                                           | PLATING |                                                                                                                  |                                                                                                            |                                                                                                            |
| <b>MSS225R</b>                                                                      | SILVER  |                                                                                                                  |                                                                                                            |                                                                                                            |
| <b>MSS225RG</b>                                                                     | GOLD    |                                                                                                                  |                                                                                                            |                                                                                                            |
|  |         |                                                                                                                  |                                                                                                            |                                                                                                            |
| RIGHT ANGLE ACTUATOR                                                                |         | <b>2P2T</b><br><br>● = COMMON | <br>MECHANICAL OUTLINE | <br>P.C. BOARD LAYOUT |
| MODEL NO.                                                                           | PLATING |                                                                                                                  |                                                                                                            |                                                                                                            |
| <b>MSS23</b>                                                                        | SILVER  |                                                                                                                  |                                                                                                            |                                                                                                            |
| <b>MSS23G</b>                                                                       | GOLD    |                                                                                                                  |                                                                                                            |                                                                                                            |
|  |         |                                                                                                                  |                                                                                                            |                                                                                                            |
| VERTICAL ACTUATOR                                                                   |         | <b>2P3T</b><br><br>● = COMMON | <br>MECHANICAL OUTLINE | <br>P.C. BOARD LAYOUT |

E

# MSS Series

## Standard Size Slide Switches

E

| MODEL NO.                                                                           | PLATING |                      |                                                                                                                                                                                                                                                                |
|-------------------------------------------------------------------------------------|---------|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MSS24A                                                                              | SILVER  |                      |                                                                                                                                                                                                                                                                |
| MSS24AG                                                                             | GOLD    |                      |                                                                                                                                                                                                                                                                |
|    |         | VERTICAL ACTUATOR    |                                                                                                                                                                                                                                                                |
|                                                                                     |         | 2P4T                 |          |
| MODEL NO.                                                                           | PLATING |                      |                                                                                                                                                                                                                                                                |
| MSS42                                                                               | SILVER  |                      |                                                                                                                                                                                                                                                                |
| MSS42G                                                                              | GOLD    |                      |                                                                                                                                                                                                                                                                |
|   |         | VERTICAL ACTUATOR    |                                                                                                                                                                                                                                                                |
|                                                                                     |         | 4P2T                 |        |
| MODEL NO.                                                                           | PLATING |                      |                                                                                                                                                                                                                                                                |
| MSS42R                                                                              | SILVER  |                      |                                                                                                                                                                                                                                                                |
| MSS42RG                                                                             | GOLD    |                      |                                                                                                                                                                                                                                                                |
|  |         | RIGHT ANGLE ACTUATOR |                                                                                                                                                                                                                                                                |
|                                                                                     |         | 4P2T                 |    |
| MODEL NO.                                                                           | PLATING |                      |                                                                                                                                                                                                                                                                |
| MSS43                                                                               | SILVER  |                      |                                                                                                                                                                                                                                                                |
| MSS43G                                                                              | GOLD    |                      |                                                                                                                                                                                                                                                                |
|  |         | VERTICAL ACTUATOR    |                                                                                                                                                                                                                                                                |
|                                                                                     |         | 4P3T                 |    |

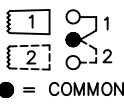
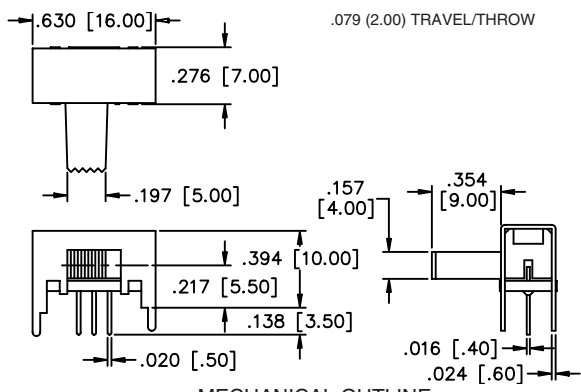
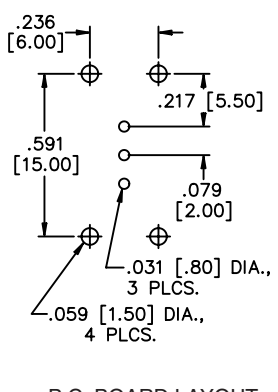
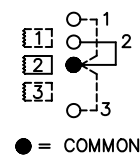
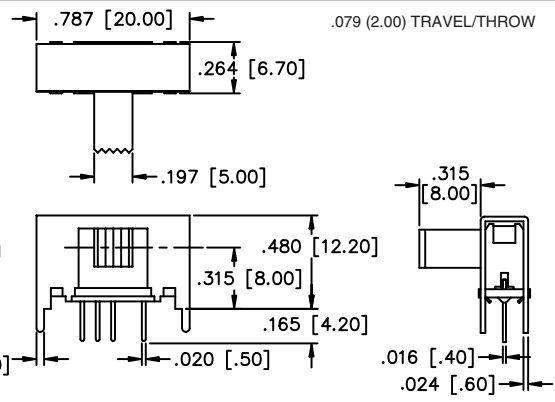
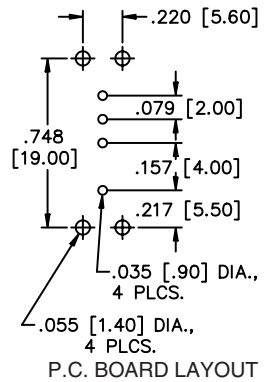
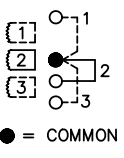
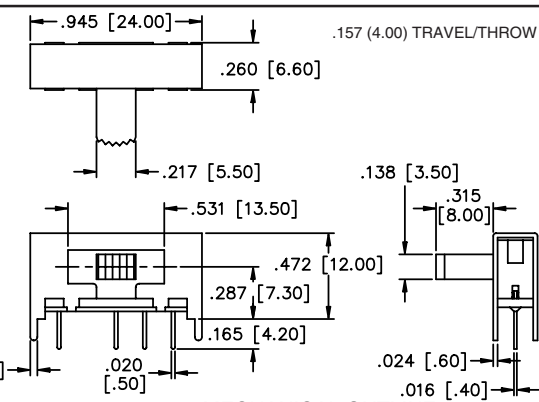
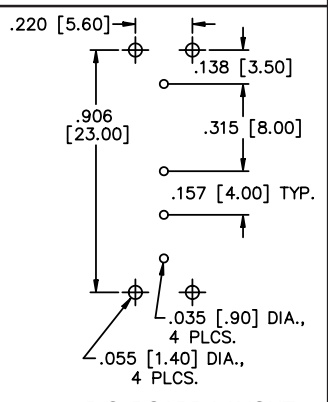
SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

# M Series

## Standard Size Slide Switches

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

| SPECIFICATIONS                                                                                                                                                                                                                                                                                                                                                                                                                         | FEATURES                                                                                                                                                                                                                                                                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Contact rating:</b> 300 mA at 125 VAC or 30 VDC<br><b>Initial contact resistance:</b> 20 milliohms max.<br><b>Insulation resistance:</b> 100 megohms min. at 500 VDC<br><b>Dielectric strength:</b> 500 volts RMS at sea level<br><b>Electrical life:</b> 10,000 cycles min.<br><b>Operating temperature range:</b> -10°C to +60°C<br><b>Solder heat resistance:</b> 260°C max. for 3 seconds<br><b>Solvent washing permissible</b> | <ul style="list-style-type: none"> <li>● Bifurcated wiping contact design.</li> <li>● Epoxy sealed terminals.</li> <li>● Wash-through open frame construction.</li> <li>● Reinforcing mounting legs.</li> <li>● Many actuator styles and lengths available on request.</li> </ul> |
|                                                                                                                                                                                                                                                                                                                                                                                                                                        | MATERIALS                                                                                                                                                                                                                                                                         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>Contacts &amp; terminals:</b> Silver plated<br><b>Housing:</b> Tin plated steel<br><b>Actuator:</b> Thermoplastic<br><b>Base:</b> Phenolic laminated sheet                                                                                                                     |
|                                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>Terminal seal:</b> Epoxy                                                                                                                                                                                                                                                       |

|                                  |                                                                                                                                                                                                                                                                                                        |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>MODEL NO.</b><br><b>M12R</b>  | <b>1P2T</b>    <p>RIGHT ANGLE ACTUATOR</p>     |
| <b>MODEL NO.</b><br><b>M13R</b>  | <b>1P3T</b>    <p>RIGHT ANGLE ACTUATOR</p> |
| <b>MODEL NO.</b><br><b>M13AR</b> | <b>1P3T</b>    <p>RIGHT ANGLE ACTUATOR</p> |

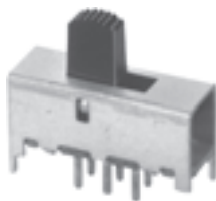
E

# M Series

## Standard Size Slide Switches

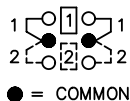
### MODEL NO.

**M22**

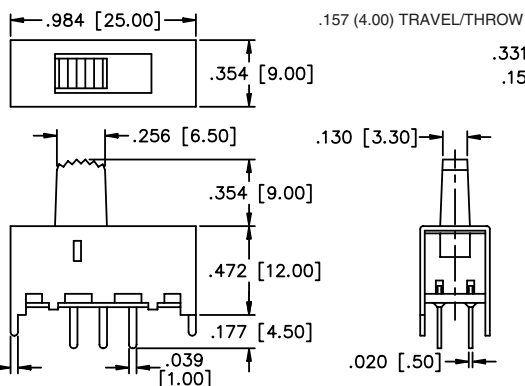


VERTICAL ACTUATOR

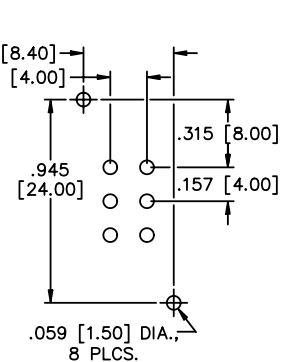
**2P2T**



SCHEMATIC



MECHANICAL OUTLINE



P.C. BOARD LAYOUT

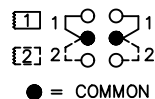
### MODEL NO.

**M22R**

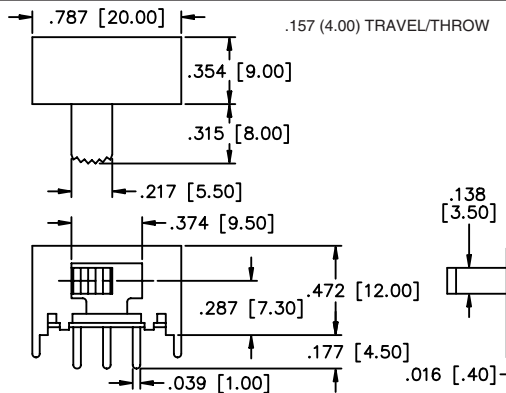


RIGHT ANGLE ACTUATOR

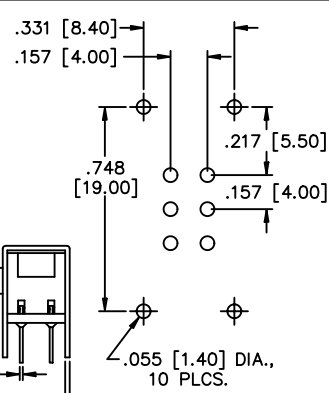
**2P2T**



SCHEMATIC



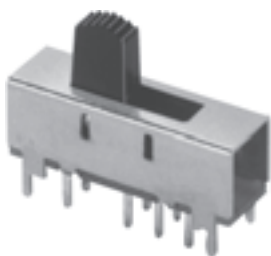
MECHANICAL OUTLINE



P.C. BOARD LAYOUT

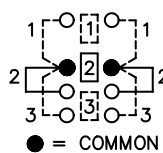
### MODEL NO.

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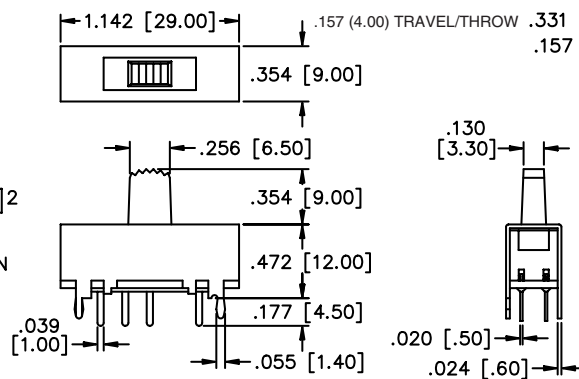


VERTICAL ACTUATOR

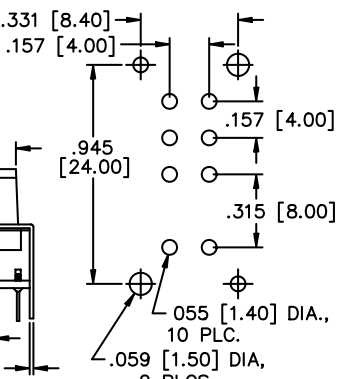
**2P3T**



SCHEMATIC



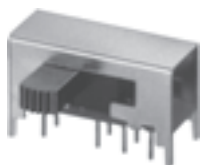
MECHANICAL OUTLINE



P.C. BOARD LAYOUT

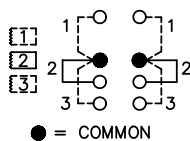
### MODEL NO.

**M23R**

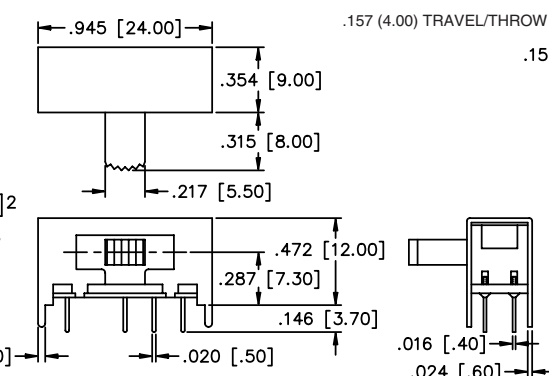


RIGHT ANGLE ACTUATOR

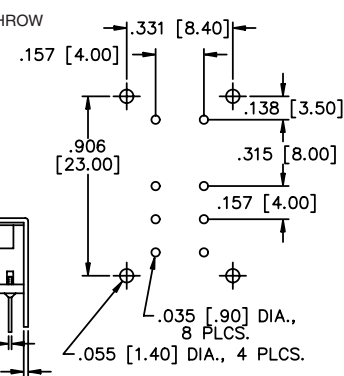
**2P3T**



SCHEMATIC



MECHANICAL OUTLINE



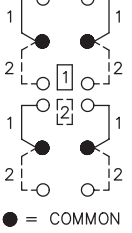
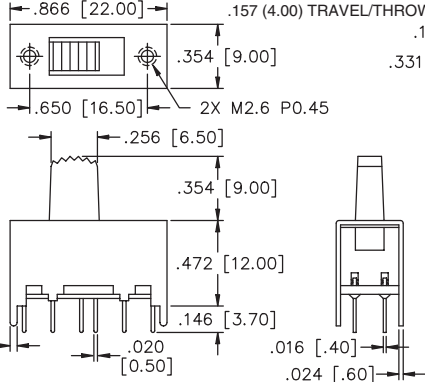
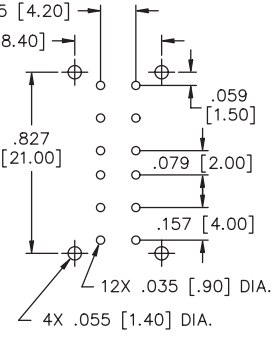
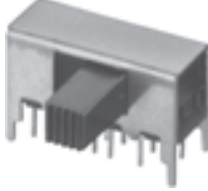
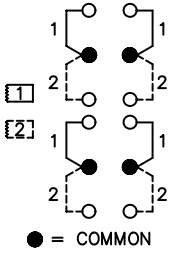
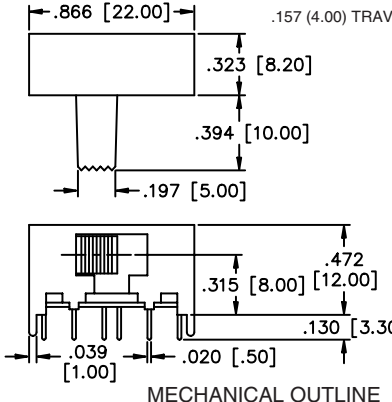
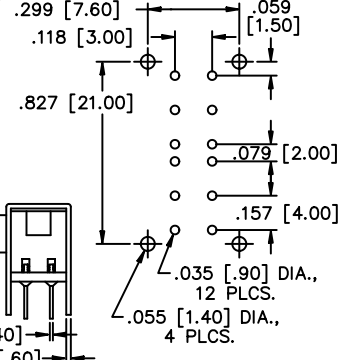
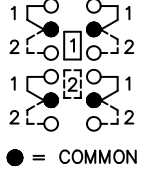
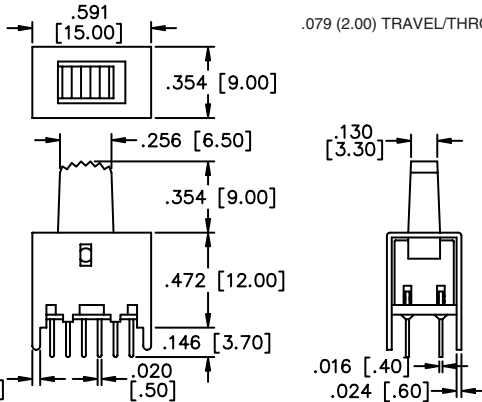
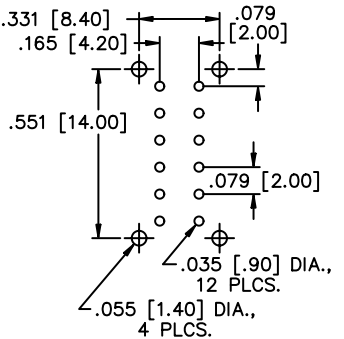
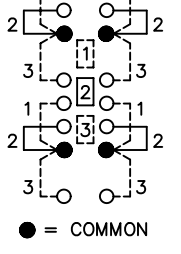
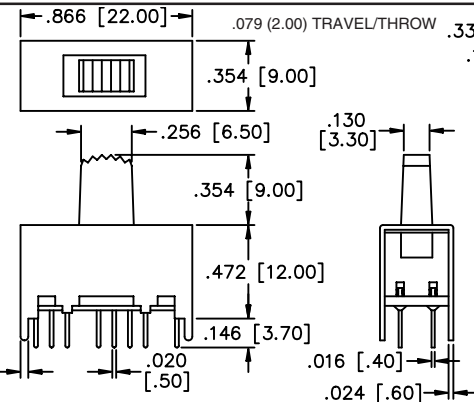
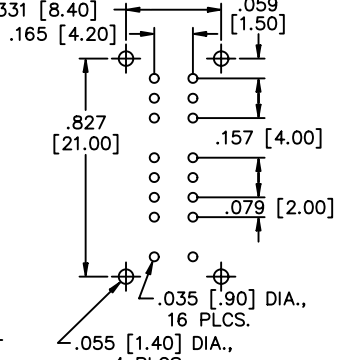
P.C. BOARD LAYOUT

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

# M Series

## Standard Size Slide Switches

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

| MODEL NO.            |                                                                                     |                                                                                     |                                                                                      |                                                                                       |
|----------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| <b>M42</b>           |    |    |    |    |
| VERTICAL ACTUATOR    |                                                                                     | SCHEMATIC                                                                           | MECHANICAL OUTLINE                                                                   | P.C. BOARD LAYOUT                                                                     |
| <b>M42R</b>          |   |   |   |   |
| RIGHT ANGLE ACTUATOR |                                                                                     | SCHEMATIC                                                                           | MECHANICAL OUTLINE                                                                   | P.C. BOARD LAYOUT                                                                     |
| <b>M42A</b>          |  |  |  |  |
| VERTICAL ACTUATOR    |                                                                                     | SCHEMATIC                                                                           | MECHANICAL OUTLINE                                                                   | P.C. BOARD LAYOUT                                                                     |
| <b>M43</b>           |  |  |  |  |
| VERTICAL ACTUATOR    |                                                                                     | SCHEMATIC                                                                           | MECHANICAL OUTLINE                                                                   | P.C. BOARD LAYOUT                                                                     |

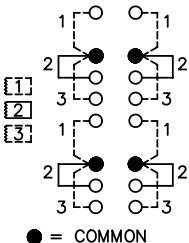
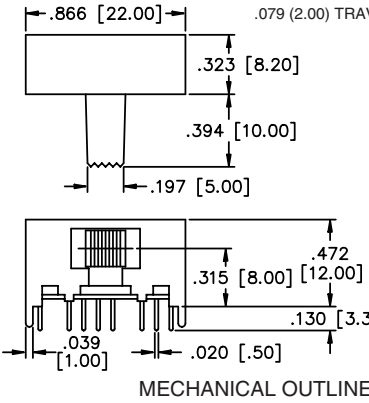
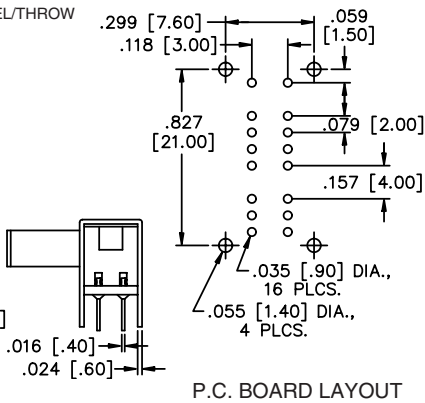
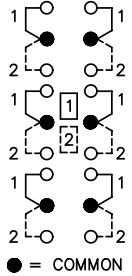
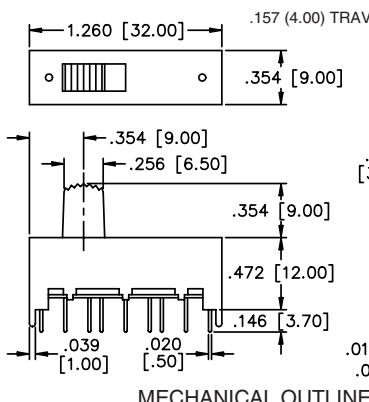
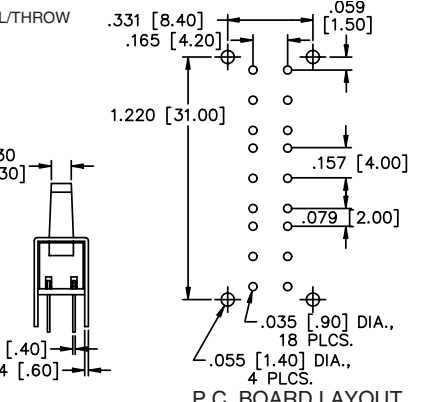
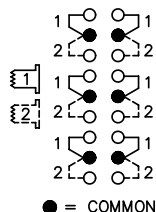
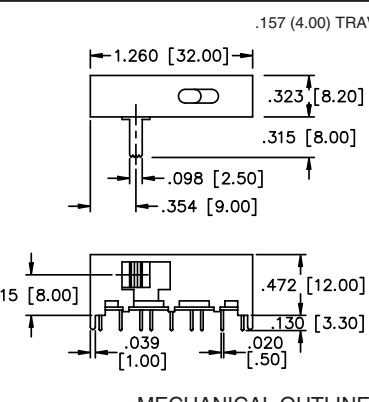
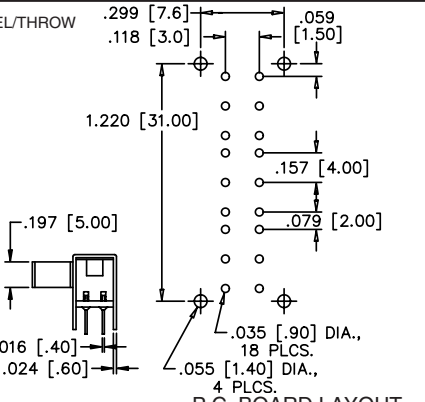
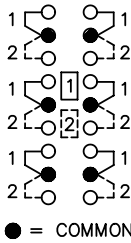
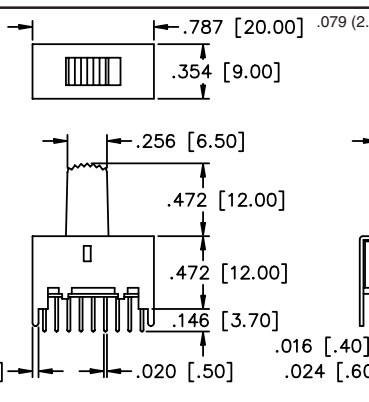
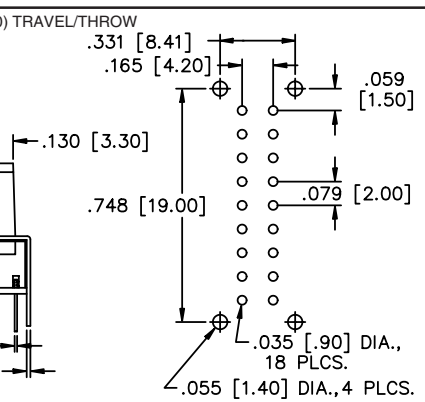
E



# M Series

## Standard Size Slide Switches

E

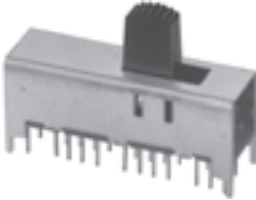
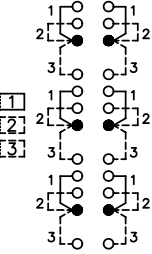
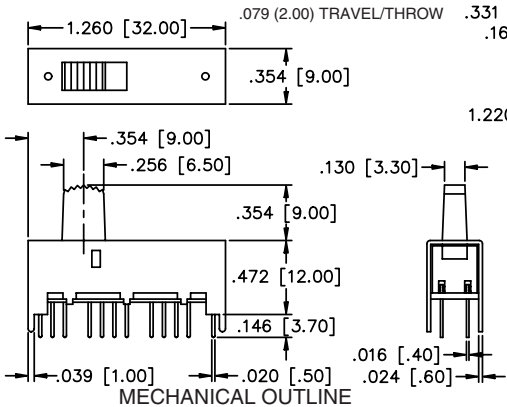
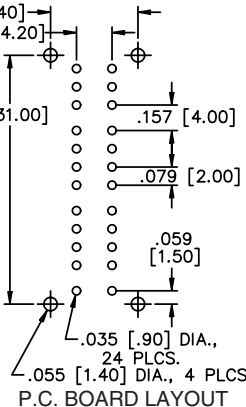
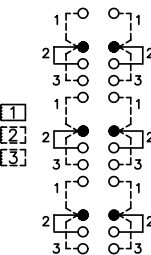
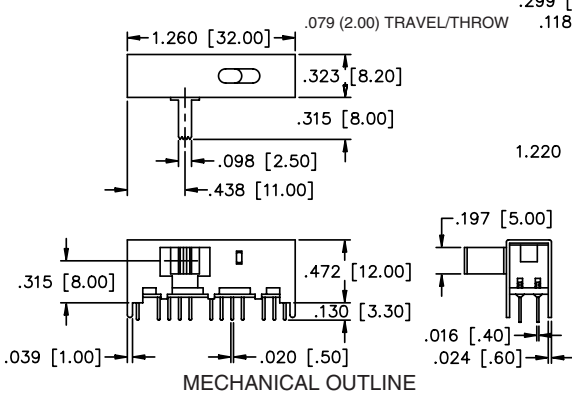
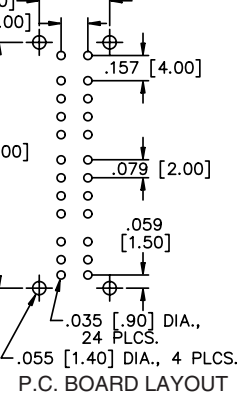
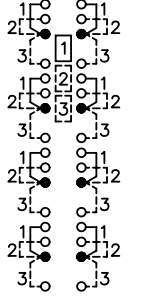
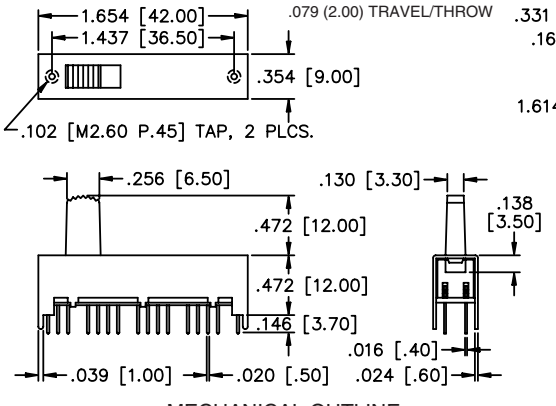
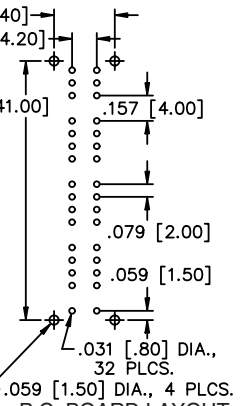
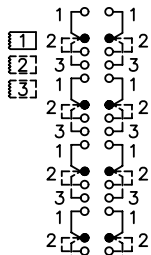
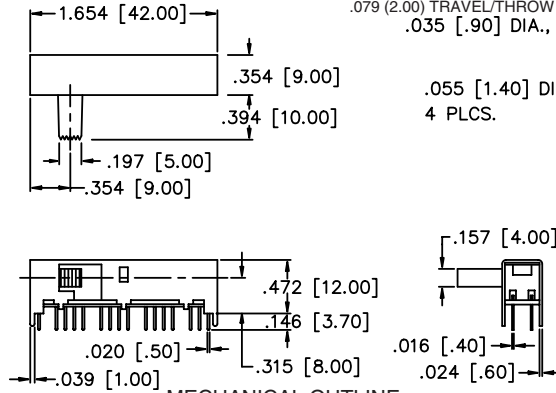
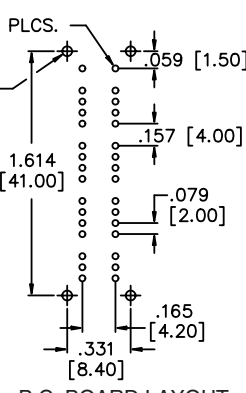
|                                 |                                                                                                                                                                                                                                                                                                                                                                            |
|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>MODEL NO.</b><br><b>M43R</b> | <b>4P3T</b>    <p>RIGHT ANGLE ACTUATOR</p> <p>SCHEMATIC</p> <p>MECHANICAL OUTLINE</p> <p>P.C. BOARD LAYOUT</p>       |
| <b>MODEL NO.</b><br><b>M62</b>  | <b>6P2T</b>    <p>VERTICAL ACTUATOR</p> <p>SCHEMATIC</p> <p>MECHANICAL OUTLINE</p> <p>P.C. BOARD LAYOUT</p>       |
| <b>MODEL NO.</b><br><b>M62R</b> | <b>6P2T</b>    <p>RIGHT ANGLE ACTUATOR</p> <p>SCHEMATIC</p> <p>MECHANICAL OUTLINE</p> <p>P.C. BOARD LAYOUT</p> |
| <b>MODEL NO.</b><br><b>M62A</b> | <b>6P2T</b>    <p>VERTICAL ACTUATOR</p> <p>SCHEMATIC</p> <p>MECHANICAL OUTLINE</p> <p>P.C. BOARD LAYOUT</p>    |

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

# M Series

## Standard Size Slide Switches

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

|                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                        |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>MODEL NO.</b></p> <p><b>M63</b></p>  <p>VERTICAL ACTUATOR</p>       | <p><b>6P3T</b></p>  <p>● = COMMON</p>  <p>MECHANICAL OUTLINE</p>  <p>P.C. BOARD LAYOUT</p>       |
| <p><b>MODEL NO.</b></p> <p><b>M63R</b></p>  <p>RIGHT ANGLE ACTUATOR</p>  | <p><b>6P3T</b></p>  <p>● = COMMON</p>  <p>MECHANICAL OUTLINE</p>  <p>P.C. BOARD LAYOUT</p>    |
| <p><b>MODEL NO.</b></p> <p><b>M83</b></p>  <p>VERTICAL ACTUATOR</p>     | <p><b>8P3T</b></p>  <p>● = COMMON</p>  <p>MECHANICAL OUTLINE</p>  <p>P.C. BOARD LAYOUT</p> |
| <p><b>MODEL NO.</b></p> <p><b>M83R</b></p>  <p>RIGHT ANGLE ACTUATOR</p> | <p><b>8P3T</b></p>  <p>● = COMMON</p>  <p>MECHANICAL OUTLINE</p>  <p>P.C. BOARD LAYOUT</p> |

E

# PM Series

## Standard Size Slide Switches

### SPECIFICATIONS

**Contact rating:** 6 Amps at 125 VAC, 3 Amps at 250 VAC  
**Initial contact resistance:** 30 milliohms max.  
**Insulation resistance:** 100 megohms min. at 500 VDC  
**Dielectric strength:** 1000 VAC for 1 minute (min.)  
**Electrical life:** 10,000 cycles min.  
**Operating temperature range:** -20°C to +60°C  
**Actuation force:** 500g ± 200g  
**Solder heat resistance:** 260°C max. for 3 seconds  
**Solvent washing permissible**

### FEATURES

- Wash-through open frame construction.
- UL & CSA recognized.
- Threaded mounting holes standard - M3X0.5.
- Panel mounting.

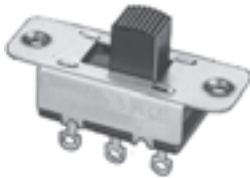
### MATERIALS

**Contacts:** Silver plated phosphor bronze  
**Terminals:** Tin plated brass  
**Base:** Phenolic laminated sheet  
**Actuator:** Nylon, type 6/6  
**Frame:** Zinc plated steel

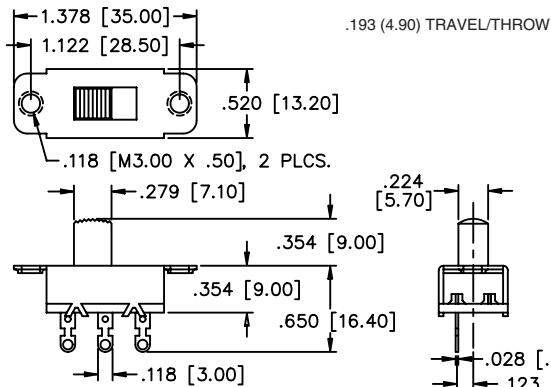
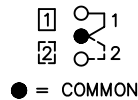
E

#### MODEL NO.

PM13B012

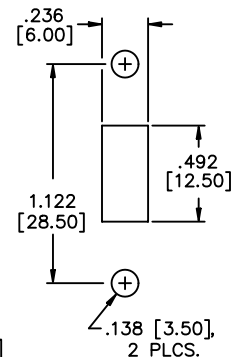


#### 1P2T



SCHEMATIC

MECHANICAL OUTLINE



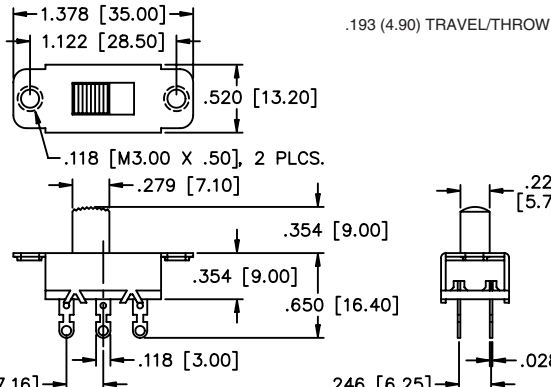
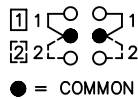
PANEL CUTOUT

#### MODEL NO.

PM13B022

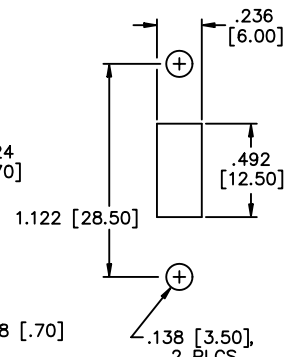


#### 1P2T



SCHEMATIC

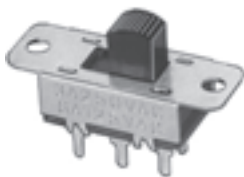
MECHANICAL OUTLINE



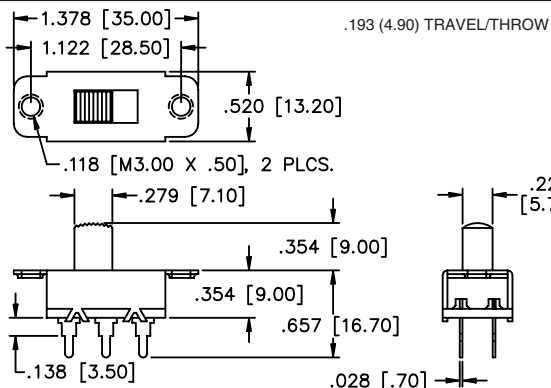
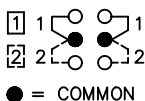
P. C. BOARD LAYOUT

#### MODEL NO.

PM13B022P

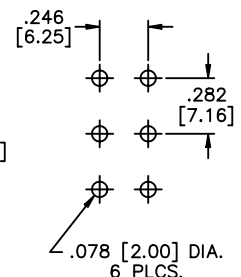


#### 2P2T



SCHEMATIC

MECHANICAL OUTLINE



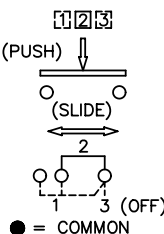
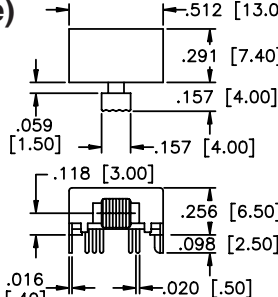
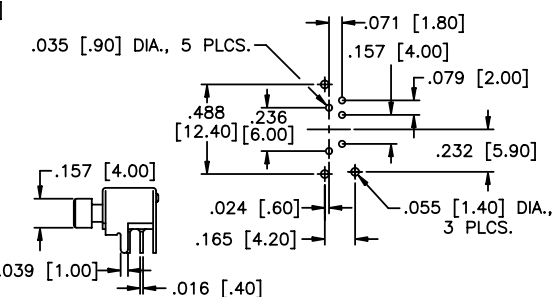
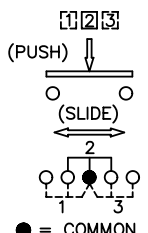
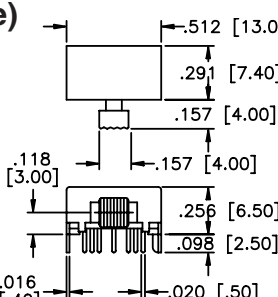
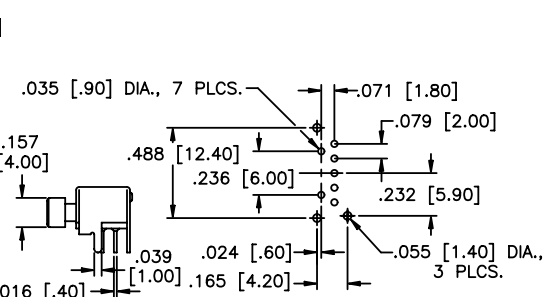
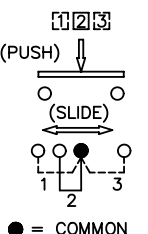
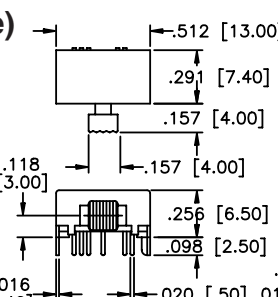
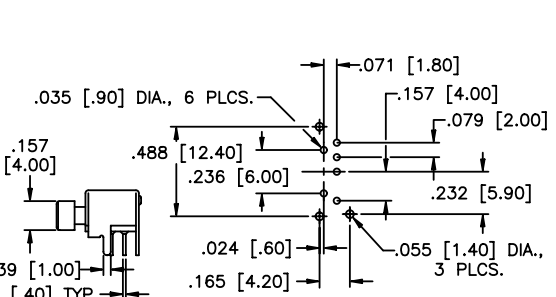
PANEL CUTOUT

# MPS Series

## Miniature Pushbutton Style Slide Switches

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

| SPECIFICATIONS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | FEATURES                                                                                                                                                                                                                              |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Contact ratings:</b> Pushbutton contacts; 0.4 Volt-Amps max. at 20 V max. (AC or DC)<br>Slide contacts; 300 mA at 125 VAC or 30 VDC<br><b>Initial contact resistance:</b> 20 milliohms max.<br><b>Insulation resistance:</b> 100 megohms max. at 250 VDC<br><b>Dielectric strength:</b> 250 volts RMS at sea level<br><b>Electrical life:</b> 100,000 cycles min.<br><b>Operating temperature range:</b> -10°C to +60°C<br><b>Actuation force:</b> Pushbutton; 200g ± 100g<br>Slide; 100g to 450g<br><b>Solder heat resistance:</b> 260°C max. for 3 seconds<br><b>Washing not recommended</b> | <ul style="list-style-type: none"> <li>Combination momentary pushbutton switch and slide switch mechanism.</li> <li>Bifurcated wiping contact design.</li> <li>Epoxy sealed terminals.</li> <li>Reinforcing mounting legs.</li> </ul> |
| MATERIALS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                       |
| <b>Contacts &amp; terminals:</b> Gold plating for pushbutton. Silver plating for slide (see contact ratings).<br><b>Housing:</b> Nickel plated brass<br><b>Base:</b> Phenolic laminated sheet                                                                                                                                                                                                                                                                                                                                                                                                     | <b>Actuator:</b> Thermoplastic<br><b>Terminal seal:</b> Epoxy                                                                                                                                                                         |

| MODEL NO.                                                                                                       | 1P1T, (PB)<br>1P3T, (Slide)                                                                                                                                                                                                                                                                                                      |
|-----------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>MPS101</b>                                                                                                   |                                                                                                                                                                                                                                                                                                                                  |
|  <p>RIGHT ANGLE ACTUATOR</p>  |  <p>SCHEMATIC</p>  <p>MECHANICAL OUTLINE</p>  <p>P.C. BOARD LAYOUT</p>    |
| MODEL NO.                                                                                                       | 1P1T, (PB)<br>1P3T, (Slide)                                                                                                                                                                                                                                                                                                      |
| <b>MPS101A</b>                                                                                                  |                                                                                                                                                                                                                                                                                                                                  |
|  <p>RIGHT ANGLE ACTUATOR</p> |  <p>SCHEMATIC</p>  <p>MECHANICAL OUTLINE</p>  <p>P.C. BOARD LAYOUT</p> |
| MODEL NO.                                                                                                       | 1P1T, (PB)<br>1P3T, (Slide)                                                                                                                                                                                                                                                                                                      |
| <b>MPS101B</b>                                                                                                  |                                                                                                                                                                                                                                                                                                                                  |
|  <p>RIGHT ANGLE ACTUATOR</p> |  <p>SCHEMATIC</p>  <p>MECHANICAL OUTLINE</p>  <p>P.C. BOARD LAYOUT</p> |

# MSL Series

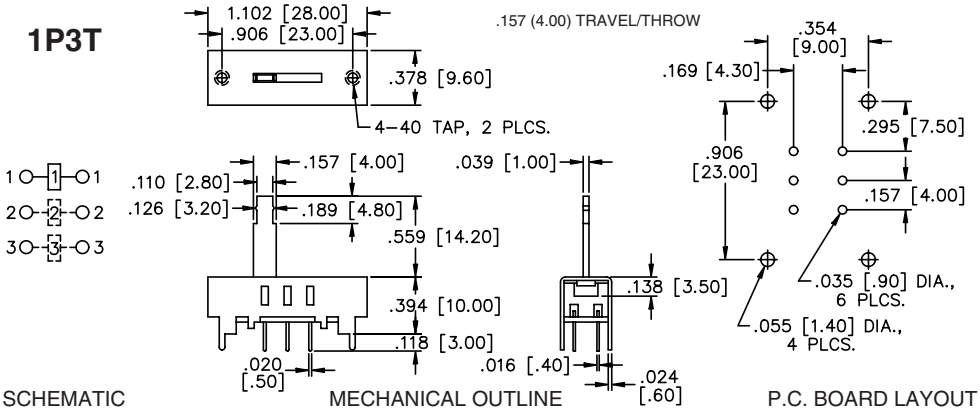
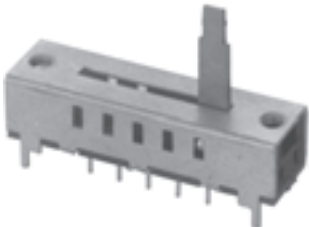
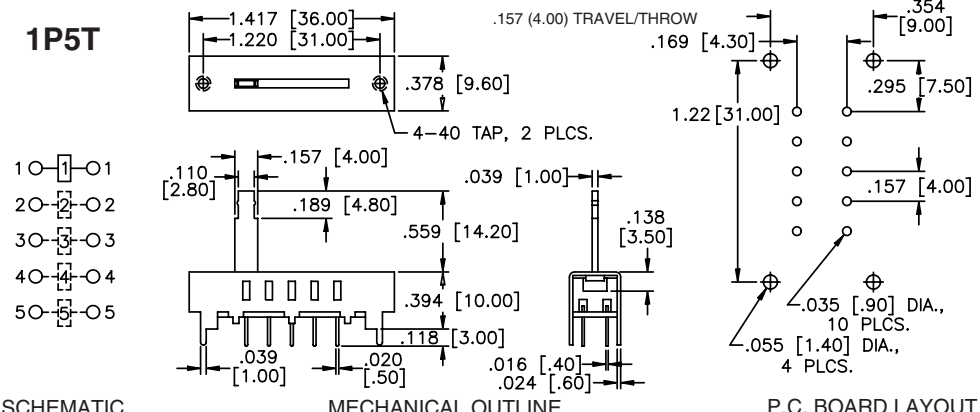
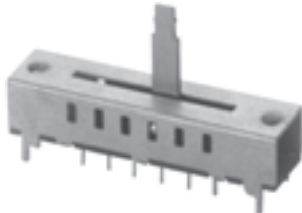
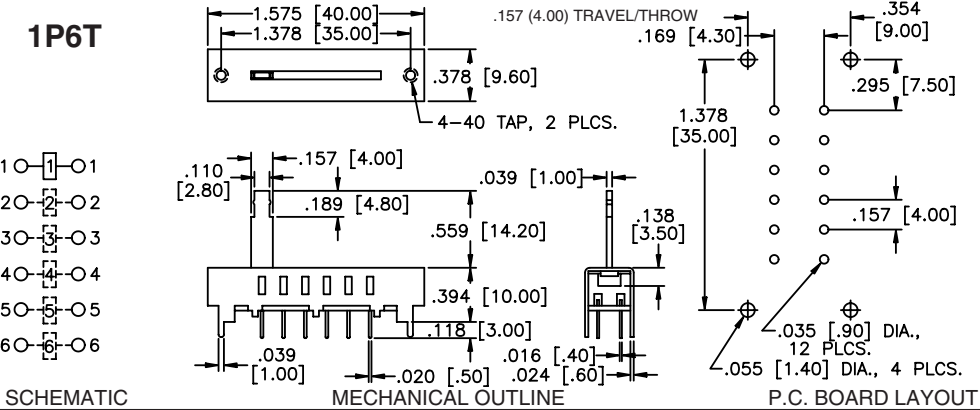
## Single Pole Multi-Position

### Slide Switches

Note: up to 10 positions available - contact factory.  
Minimum quantities may apply.  
Optional color cap available for these models - see  
Hardware section.

| SPECIFICATIONS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | FEATURES                                                                                                                                                                                                                                                                 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Contact rating:</b> 200 mA at 125 VAC or 30 VDC<br><b>Initial contact resistance:</b> 30 milliohms max.<br><b>Contact timing:</b> Non-shorting<br><b>Insulation resistance:</b> 100 megohms max. at 500 VDC<br><b>Dielectric strength:</b> 500 volts RMS at sea level<br><b>Electrical life:</b> 10,000 cycles min.<br><b>Operating temperature range:</b> -10°C to +60°C<br><b>Actuation force:</b> 250g ± 100g<br><b>Solder heat resistance:</b> 260°C max. for 3 seconds<br><b>Solvent washing permissible</b> | <ul style="list-style-type: none"> <li>● Bifurcated wiping contact design.</li> <li>● Epoxy sealed terminals.</li> <li>● Wash-through open frame construction.</li> <li>● Reinforcing mounting legs.</li> <li>● Threaded mounting holes standard - 4-40NC-2B.</li> </ul> |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | MATERIALS                                                                                                                                                                                                                                                                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <b>Contacts &amp; terminals:</b> Silver plated<br><b>Housing:</b> Tin/lead plated steel<br><b>Base:</b> Phenolic laminated sheet<br><b>Slider:</b> High temperature thermoplastic                                                                                        |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <b>Actuator:</b> Steel<br><b>Terminal seal:</b> Epoxy                                                                                                                                                                                                                    |

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|                                  |                                                                                                                          |                                                                                                                                           |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| <b>MODEL NO.</b><br><b>MSL33</b> | <b>1P3T</b>  <p>VERTICAL ACTUATOR</p>  |  <p>SCHMATIC MECHANICAL OUTLINE P.C. BOARD LAYOUT</p>  |
| <b>MODEL NO.</b><br><b>MSL55</b> | <b>1P5T</b>  <p>VERTICAL ACTUATOR</p> |  <p>SCHMATIC MECHANICAL OUTLINE P.C. BOARD LAYOUT</p> |
| <b>MODEL NO.</b><br><b>MSL66</b> | <b>1P6T</b>  <p>VERTICAL ACTUATOR</p> |  <p>SCHMATIC MECHANICAL OUTLINE P.C. BOARD LAYOUT</p> |

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

# MBT Series

## Baton Toggle Style Slide Switches

### SPECIFICATIONS

**Contact rating:** 300 mA at 125 VAC or 30 VDC  
**Initial contact resistance:** 20 milliohms max.  
**Insulation resistance:** 100 megohms max. at 500 VDC  
**Dielectric strength:** 500 volts RMS at sea level  
**Electrical life:** 10,000 cycles min.  
**Operating temperature range:** -10°C to +60°C  
**Actuation force:** 400g ± 200g  
**Solder heat resistance:** 260°C max. for 3 seconds  
**Solvent washing permissible**

### FEATURES

- Bifurcated wiping contact design.
- Epoxy sealed terminals.
- Wash-through open frame construction.
- Reinforcing mounting legs.
- Threaded mounting holes standard.

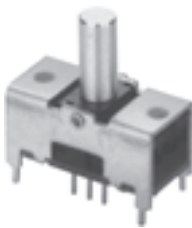
### MATERIALS

**Contacts & terminals:** Silver plated  
**Housing:** Tin plated steel  
**Actuator:** Thermoplastic  
**Base:** Phenolic laminated sheet

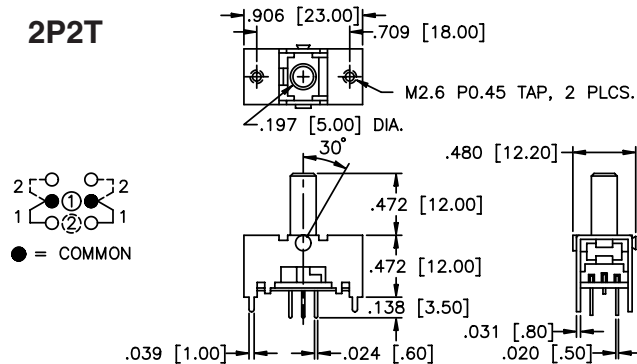
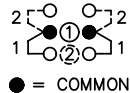
**Terminal seal:** Epoxy

#### MODEL NO. CONTACTS

**MBT22N** NON-SHORTING

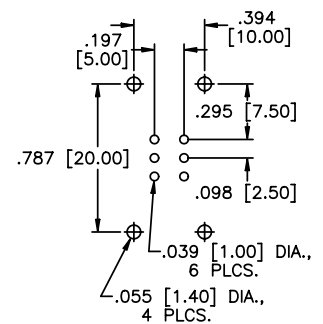


#### 2P2T



SCHEMATIC

MECHANICAL OUTLINE



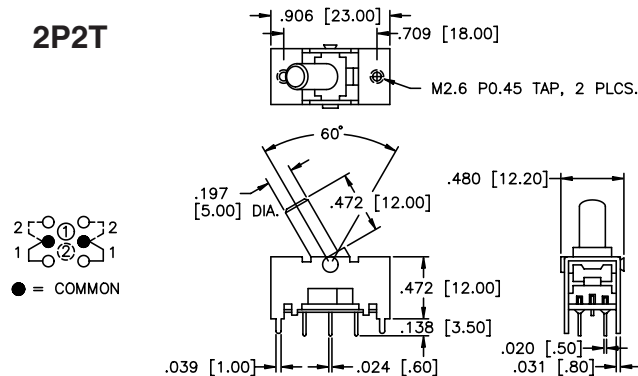
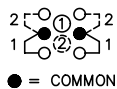
P.C. BOARD LAYOUT

#### MODEL NO. CONTACTS

**MBT22S** SHORTING

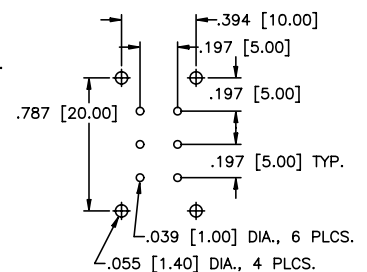


#### 2P2T



SCHEMATIC

MECHANICAL OUTLINE



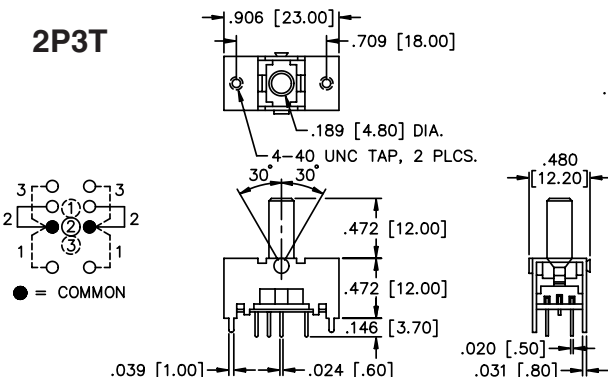
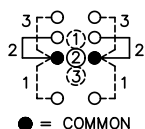
P.C. BOARD LAYOUT

#### MODEL NO. CONTACTS

**MBT23N** NON-SHORTING

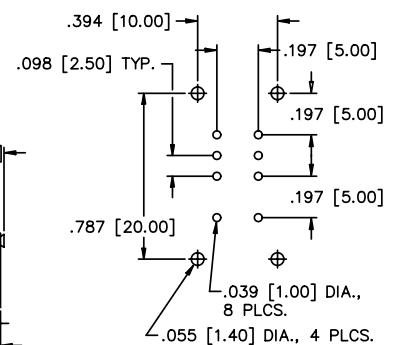


#### 2P3T



SCHEMATIC

MECHANICAL OUTLINE



P.C. BOARD LAYOUT

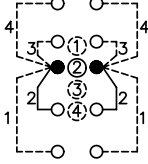
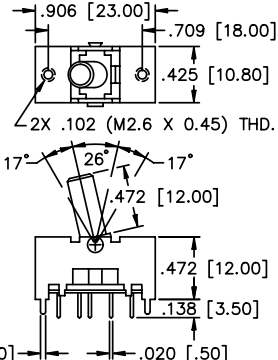
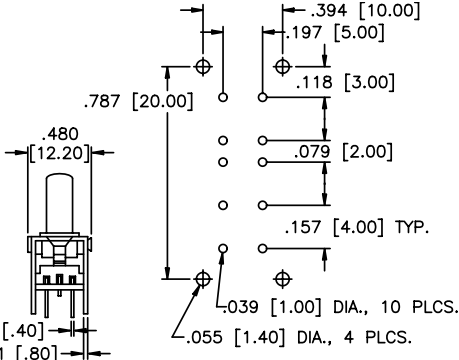
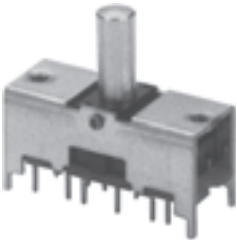
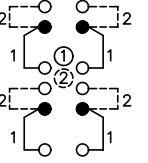
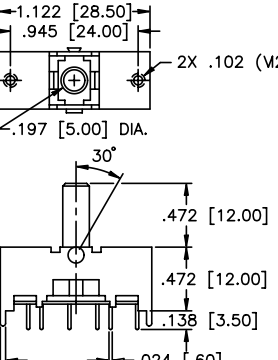
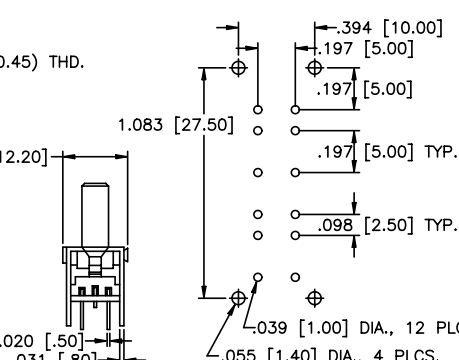
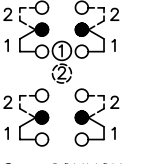
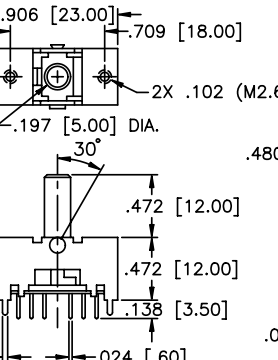
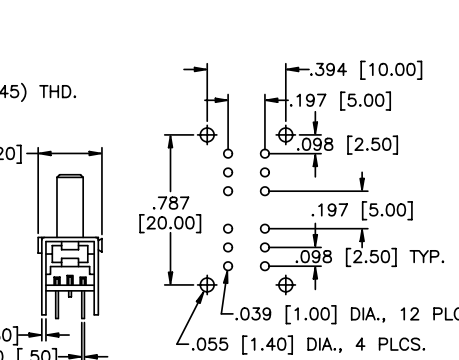
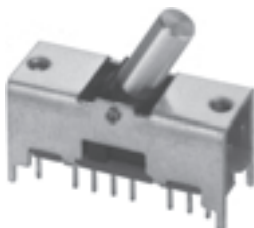
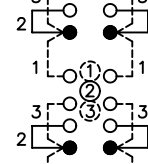
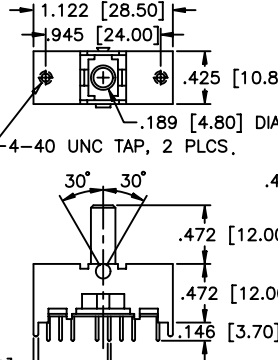
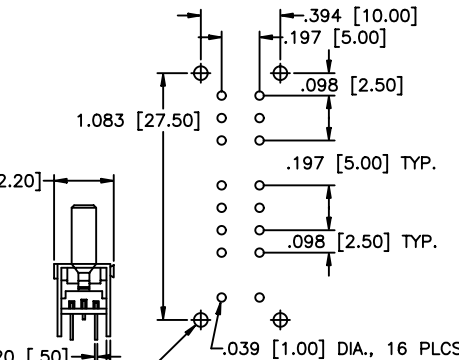


# MBT Series

## Baton Toggle Style Slide Switches

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SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

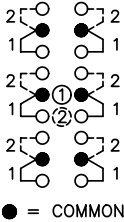
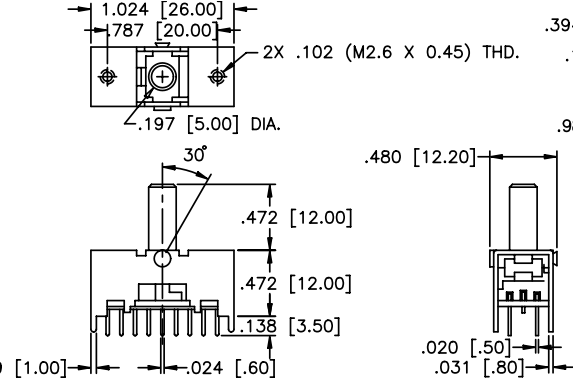
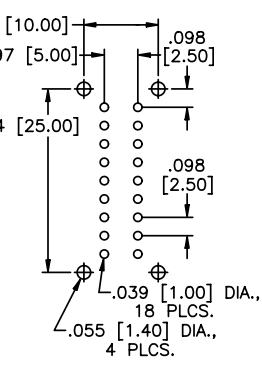
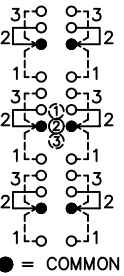
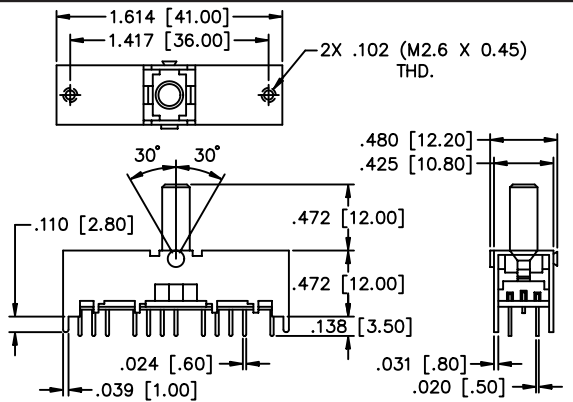
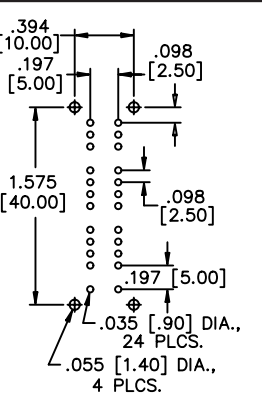
| MODEL NO.                                                                           | CONTACTS                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>MBT24</b>                                                                        | UNSPECIFIED                                                                                                                                                                                                                                                                                                                                                                            |
|    | <p><b>2P4T</b></p> <p></p> <p>● = COMMON</p> <p></p> <p></p> <p>SCHEMATIC      MECHANICAL OUTLINE      P.C. BOARD LAYOUT</p>       |
| MODEL NO.                                                                           | CONTACTS                                                                                                                                                                                                                                                                                                                                                                               |
| <b>MBT42N</b>                                                                       | NON-SHORTING                                                                                                                                                                                                                                                                                                                                                                           |
|   | <p><b>4P2T</b></p> <p></p> <p>● = COMMON</p> <p></p> <p></p> <p>SCHEMATIC      MECHANICAL OUTLINE      P.C. BOARD LAYOUT</p>    |
| MODEL NO.                                                                           | CONTACTS                                                                                                                                                                                                                                                                                                                                                                               |
| <b>MBT42S</b>                                                                       | SHORTING                                                                                                                                                                                                                                                                                                                                                                               |
|  | <p><b>4P2T</b></p> <p></p> <p>● = COMMON</p> <p></p> <p></p> <p>SCHEMATIC      MECHANICAL OUTLINE      P.C. BOARD LAYOUT</p> |
| MODEL NO.                                                                           | CONTACTS                                                                                                                                                                                                                                                                                                                                                                               |
| <b>MBT43N</b>                                                                       | NON-SHORTING                                                                                                                                                                                                                                                                                                                                                                           |
|  | <p><b>4P3T</b></p> <p></p> <p>● = COMMON</p> <p></p> <p></p> <p>SCHEMATIC      MECHANICAL OUTLINE      P.C. BOARD LAYOUT</p> |



# MBT Series

## Baton Toggle Style Slide Switches

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

| MODEL NO.                                                                          | CONTACTS     |                                                                                                                     |                                                                                                                             |                                                                                                               |
|------------------------------------------------------------------------------------|--------------|---------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| <b>MBT62N</b>                                                                      | NON-SHORTING |                                                                                                                     |                                                                                                                             |                                                                                                               |
| <b>MBT62S</b>                                                                      | SHORTING     |                                                                                                                     |                                                                                                                             |                                                                                                               |
|   |              | <b>6P2T</b><br> <p>● = COMMON</p>  |  <p>SCHMATIC      MECHANICAL OUTLINE</p>  |  <p>P.C. BOARD LAYOUT</p>  |
| MODEL NO.                                                                          | CONTACTS     |                                                                                                                     |                                                                                                                             |                                                                                                               |
| <b>MBT63</b>                                                                       | UNSPECIFIED  |                                                                                                                     |                                                                                                                             |                                                                                                               |
|  |              | <b>6P3T</b><br> <p>● = COMMON</p> |  <p>SCHMATIC      MECHANICAL OUTLINE</p> |  <p>P.C. BOARD LAYOUT</p> |

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# AMEYA360

Components Supply Platform

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