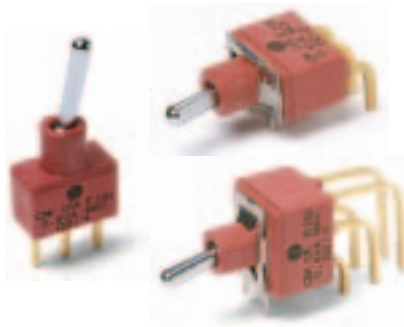


# E Series

## Sealed Miniature Toggle Switches



### Features/Benefits

- Sealed against solder and cleaning process contaminants
- UL 94V-0 Nylon case and bushing
- Multi-positions
- ESD protection available
- RoHS compliant models available

### Typical Applications

- Telecommunications
- Instrumentation
- Medical equipment



### Specifications

CONTACT RATING: B contact material: 0.4 VA max. @ 20 V AC or DC max. Q contact material: E1XX & E2XX MODELS: 7.5 AMPS @ 125 V AC or 28 V DC; 3 AMPS @ 250 V AC. E3XX MODELS: 5 AMPS @ 125 V AC or 28 V DC; 2 AMPS @ 250 V AC. See page F-25 for additional ratings.

ELECTRICAL LIFE: E1XX and E2XX models: 40,000 make-and-break cycles at full load. E3XX models: 30,000 cycles.

CONTACT RESISTANCE: Below 10 mΩ typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: 10<sup>9</sup> Ω min.

ELECTROSTATIC DISCHARGE (ESD) OPTION: F1 conductive bushing only. Dissipates up to 20,000 V DC from actuator to ground.

DIELECTRIC STRENGTH: 1000 Vrms min. @ sea level.

OPERATING TEMPERATURE: -30°C to 85°C.

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

DEGREE OF PROTECTION: IP57; Protection against harmful dust deposit, full-scale voltage protection, temporary immersion.

### Materials

CASE & BUSHING: Glass filled nylon 6/6, flame retardant, heat stabilized (UL 94V-0). F1 conductive bushing option is impregnated with carbon fibers.

ACTUATOR: Brass, chrome plated with internal o-ring seal standard.

SWITCH SUPPORT: Brass or steel, matte-tin plated.

SWITCH SUPPORT RETAINER: Stainless steel.

CONTACTS & TERMINALS: B contact material: Copper alloy, with gold plate over nickel plate. Q contact material: Copper alloy, silver plated. See page F-29 for additional contact materials.

TERMINAL SEAL: Epoxy.

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

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

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

### Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages F-23 thru F-29. For additional options not shown in catalog, consult our Customer Service Center. All models are process sealed to withstand machine soldering temperatures and pressure wash cleaning methods.

#### Switch Function

- E101** SP, On-None-On
- E103** SP, On-Off-On
- E105** SP, Mom.-Off-Mom.
- E107** SP, On-Off-Mom.
- E108** SP, On-None-Mom.
- E201** DP, On-None-On
- E203** DP, On-Off-On
- E205** DP, Mom.-Off-Mom.
- E207** DP, On-Off-Mom.
- E208** DP, On-None-Mom.
- E211** DP, On-On-On
- E213** DP, On-On-Mom.
- E215** DP, Mom.-On-Mom.
- E301** 3P, On-None-On

#### Actuator

- M** .300" high
- S** .500" high
- L3** Plastic, .940" high

#### Bushing

- D1** .250" high
- F1** Conductive, .250" high\*
- D9** .280" high
- Y** Threaded, .350" high

#### Terminations

- A** Right angle, PC thru-hole
- AV2** Vertical right angle, PC thru-hole
- C** PC Thru-hole
- V3** .460" high, V-bracket
- Z** Solder lug
- A3** Right angle, PC thru-hole
- AV3** Vertical right angle, PC thru-hole
- V6** .460" high, V-bracket
- V9** 1.150" high, V-bracket
- V31** .460" high, snap-in V-bracket
- V61** .460" high, snap-in V-bracket
- W** .750" long, wire wrap
- Z3** Quick connect

#### Contact Material

- B** Gold
- P** Gold, matte-tin
- Q** Silver
- S** Silver, matte-tin
- G** Gold over silver
- R** Gold over silver, matte-tin

#### Seal

- E** Epoxy

\* F1 available with SP and DP versions only, please see page F-24

Toggle  
F



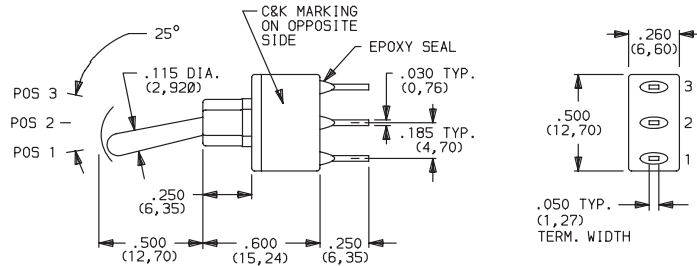
Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change

# E Series Sealed Miniature Toggle Switches

## SWITCH FUNCTION

| NO. POLES | MODEL NO. | SWITCH FUNCTION              |        |        | CONNECTED TERMINALS          |        |        | SCHEMATIC |
|-----------|-----------|------------------------------|--------|--------|------------------------------|--------|--------|-----------|
|           |           | POS. 1                       | POS. 2 | POS. 3 | POS. 1                       | POS. 2 | POS. 3 |           |
|           |           |                              |        |        |                              |        |        |           |
|           |           | C&K marking on opposite side |        |        | C&K marking on opposite side |        |        |           |
| SP        | E101      | ON                           | NONE   | ON     | 2-3                          | N/A    | 2-1    |           |
|           | E103      | ON                           | OFF    | ON     |                              |        |        |           |
|           | E105      | MOM.                         | OFF    | MOM.   | 2-3                          | OPEN   | 2-1    |           |
|           | E107      | ON                           | OFF    | MOM.   |                              |        |        |           |
|           | E108      | ON                           | NONE   | MOM.   | 2-3                          | N/A    | 2-1    |           |

### SPDT

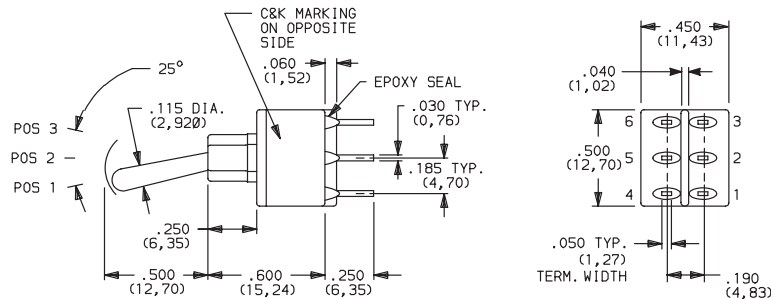


Part number shown: E101SD1CBE

Terminal Numbers  
For Reference Only

|    |         |      |      |      |         |         |         |  |
|----|---------|------|------|------|---------|---------|---------|--|
| DP | E201    | ON   | NONE | ON   | 2-3,5-6 | N/A     | 2-1,5-4 |  |
|    | E203    | ON   | OFF  | ON   |         |         |         |  |
|    | E205    | MOM. | OFF  | MOM. | 2-3,5-6 | OPEN    | 2-1,5-4 |  |
|    | E207    | ON   | OFF  | MOM. |         |         |         |  |
|    | E208    | ON   | NONE | MOM. | 2-3,5-6 | N/A     | 2-1,5-4 |  |
|    | E211 ** | ON   | ON   | ON   |         |         |         |  |
|    | E213**  | ON   | ON   | MOM. | 2-3,5-6 | 2-3,5-4 | 2-1,5-4 |  |
|    | E215**  | MOM. | ON   | MOM. |         |         |         |  |

### DPDT



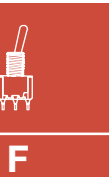
Part number shown: E201SD1CBE

Terminal Numbers  
For Reference Only

MOM. = Momentary

\*\* Wiring for 3-way switch, see Section N.

All models with all options when ordered with G,R, Q or S contact material except with F1 conductive bushing.



Toggle



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

# E Series

## Sealed Miniature Toggle Switches

### SWITCH FUNCTION

| NO. POLES                                        | MODEL NO. | SWITCH FUNCTION              |        |        | CONNECTED TERMINALS          |        |             | SCHEMATIC |
|--------------------------------------------------|-----------|------------------------------|--------|--------|------------------------------|--------|-------------|-----------|
|                                                  |           | POS. 1                       | POS. 2 | POS. 3 | POS. 1                       | POS. 2 | POS. 3      |           |
|                                                  |           |                              |        |        |                              |        |             |           |
|                                                  |           | C&K marking on opposite side |        |        | C&K marking on opposite side |        |             |           |
| 3P                                               | E301      | ON                           | NONE   | ON     | 2-3,5-6,8-9                  | N/A    | 2-1,5-4,8-7 |           |
| <b>3PDT</b><br><br>Part number shown: E301SD1CBE |           |                              |        |        |                              |        |             |           |

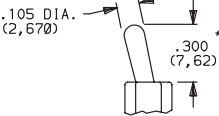
MOM. = Momentary

\*\* Wiring for 3-way switch, see Section N.

All models with all options when ordered with G, R, Q or S contact material except with F1 conductive bushing.

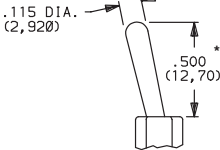
### ACTUATOR

**M** .300" HIGH



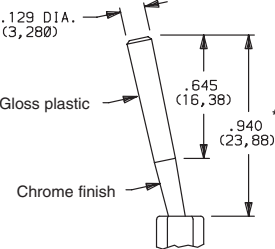
Standard when ordered with A, A3, AV2, AV3, V2-V61 terminations. Finish: Chrome.

**S** .500" HIGH



Standard when ordered with C, Z, Z3, W & W4 terminations. Finish: Chrome.

**L3** PLASTIC, .940" HIGH



| OPTION CODE | L3 ACTUATOR COLOR |
|-------------|-------------------|
| 2           | BLACK             |

Other colors available, consult Customer Service Center. No color choice required for S & M actuators.

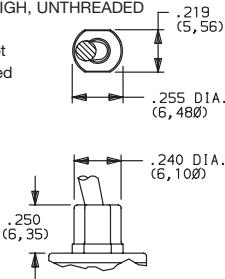
\* Actuators shown with standard D1 bushing. Subtract .030 (0,76) for D9 bushing. Subtract .100 (2,54) for Y bushing.

### BUSHING

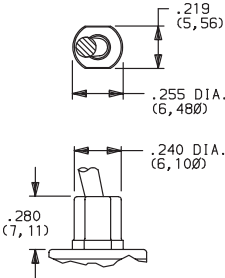
**D1** .250" HIGH, UNTHREADED

**F1** ESD CONDUCTIVE BUSHING, .250" HIGH, UNTHREADED

F1 bushing is not UL/CSA approved



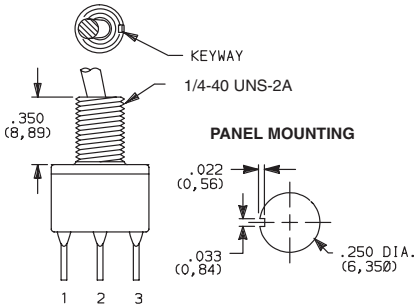
**D9** .280" HIGH, UNTHREADED



E3XX models not available with D9 bushing.

**NOTE:** Internal o-ring actuator seal standard for all bushing options.

**Y** THREADED, INSULATED, .350" HIGH WITH KEYWAY



Available only with C, Z, Z3, & W terminations. Available for 1&2 pole only. Hardware: One dress nut part number 299D01201, one hex nut part number 540400201 and lockwasher part number 700303202 supplied standard. **Will withstand 4 in.-lbs. of torque with no distortion.**



Third Angle Projection

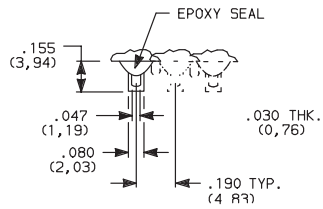
Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change

[www.ck-components.com](http://www.ck-components.com)

# E Series Sealed Miniature Toggle Switches

## TERMINATIONS

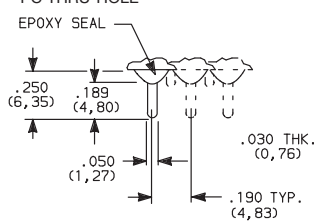
### Z SOLDER LUG



Not available with F1 conductive bushing or P, R or S contact material.

SPDT thru 3PDT

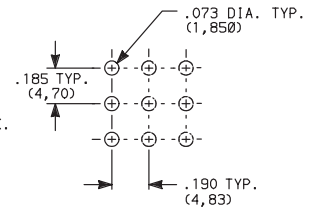
### C PC THRU-HOLE



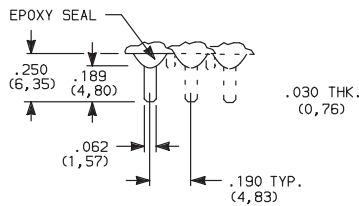
SPDT thru 3PDT

Not available with F1 conductive bushing.

### PC MOUNTING



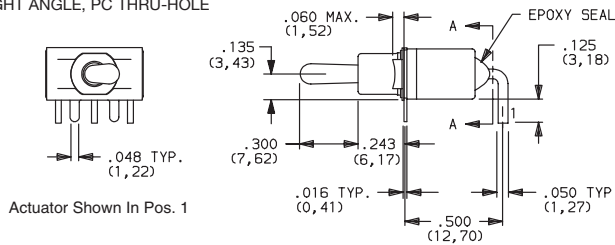
### Z3 QUICK CONNECT



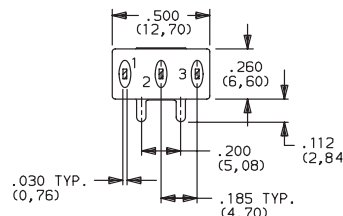
Not available with F1 conductive bushing or P, R or S contact material. Mating quick connector available; order part number 530100000, page F-26.

SPDT thru 3PDT

### A RIGHT ANGLE, PC THRU-HOLE



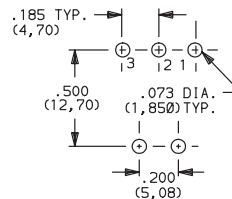
Actuator Shown In Pos. 1



#### SECTION A-A

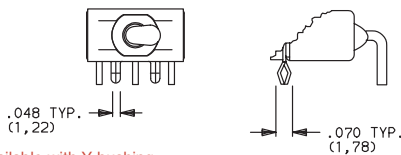
Terminal Nos. For Reference Only

#### PC MOUNTING



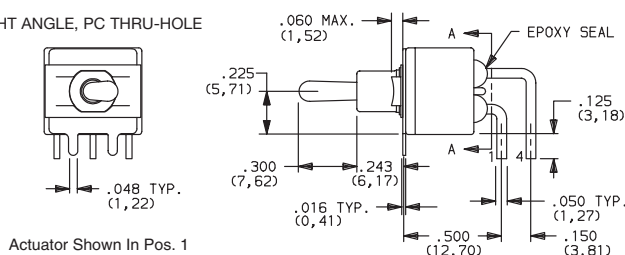
E101MD1ABE  
Horizontal Actuation  
SPDT

### A3 RIGHT ANGLE, SNAP-IN, PC THRU-HOLE

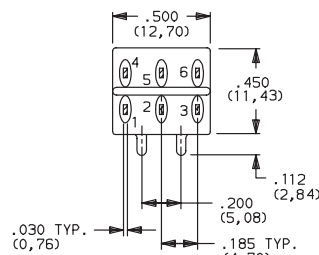


Not available with Y bushing.  
Terminal bend radii and lead-in manufacturing option.

### A RIGHT ANGLE, PC THRU-HOLE



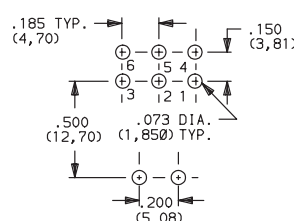
Actuator Shown In Pos. 1



#### SECTION A-A

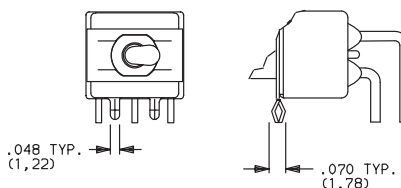
Terminal Nos. For Reference Only

#### PC MOUNTING



E201MD1ABE  
Horizontal Actuation  
DPDT

### A3 RIGHT ANGLE, SNAP-IN, PC THRU-HOLE



Not available with Y bushing.  
Terminal bend radii and lead-in manufacturing option.



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



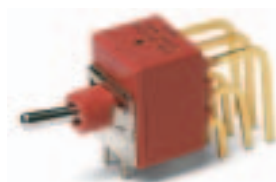
F

Toggle

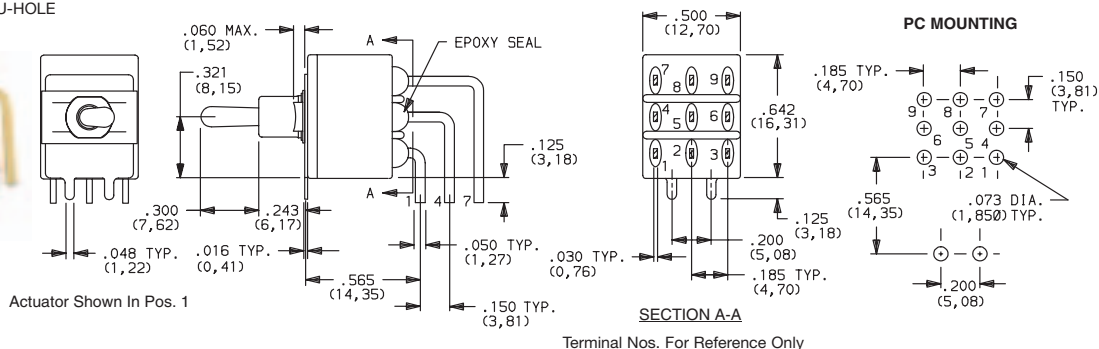
# E Series Sealed Miniature Toggle Switches

## TERMINATIONS

### A RIGHT ANGLE, PC THRU-HOLE



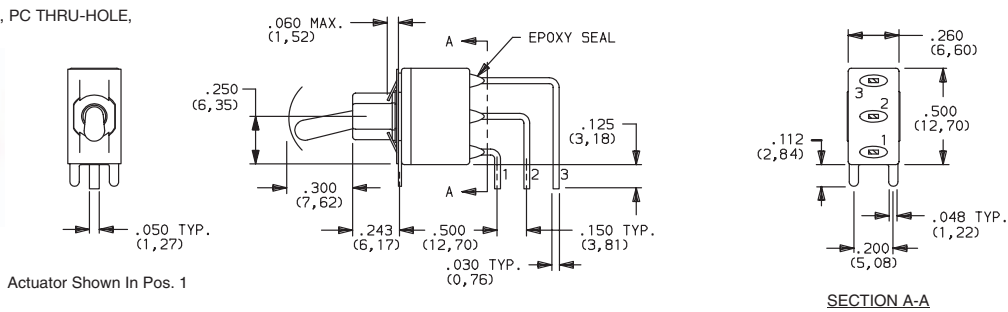
**E301MD1ABE**  
Horizontal Actuation  
**3PDT**



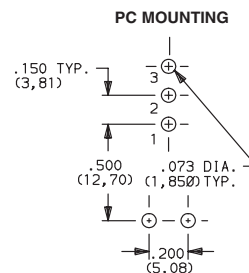
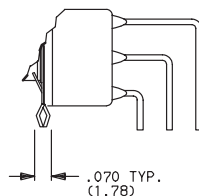
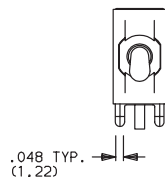
### AV2 VERTICAL RIGHT ANGLE, PC THRU-HOLE, .150" PITCH



**E101MD1AV2BE**  
Vertical Actuation  
**SPDT**



### AV3 VERTICAL RIGHT ANGLE, SNAP-IN, PC THRU-HOLE, .150" PITCH

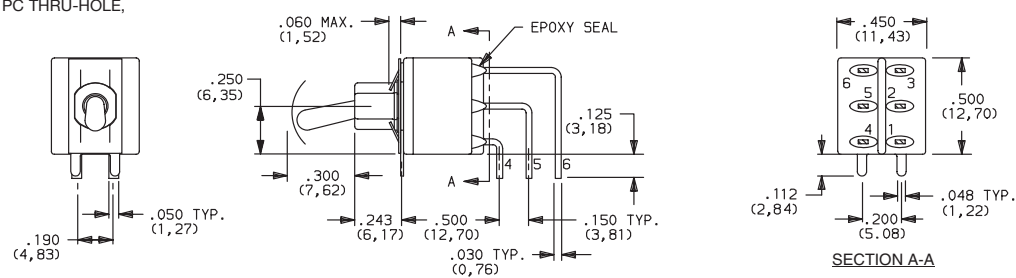


Not available with Y bushing.  
Terminal bend radii and lead-in manufacturing option.

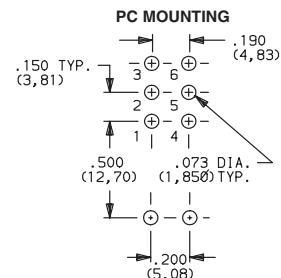
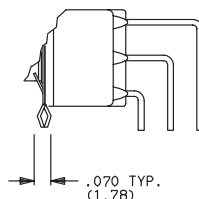
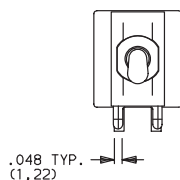
### AV2 VERTICAL RIGHT ANGLE, PC THRU-HOLE, .150" PITCH



**E201MD1AV2BE**  
Vertical Actuation  
**DPDT**



### A3 VERTICAL RIGHT ANGLE, SNAP-IN, PC THRU-HOLE, .150" PITCH



Not available with Y bushing.  
Terminal bend radii and lead-in manufacturing option.

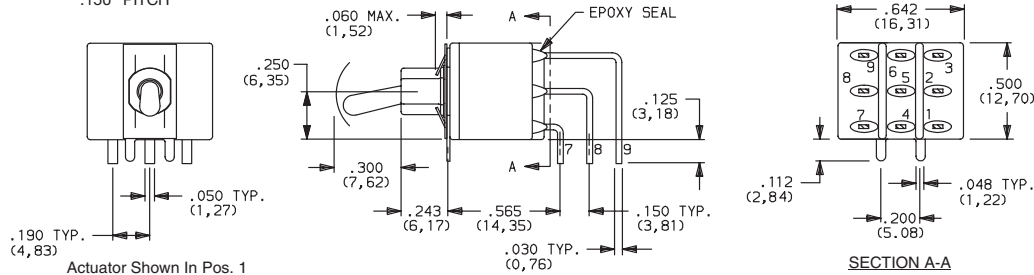
Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change

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# E Series Sealed Miniature Toggle Switches

## TERMINATIONS

### AV2 VERTICAL RIGHT ANGLE, PC THRU-HOLE, .150" PITCH



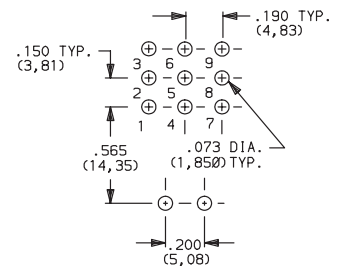
E301MD1AV2BE  
Vertical Actuation  
3PDT

### AV3 VERTICAL RIGHT ANGLE, SNAP-IN, PC THRU-HOLE .150" PITCH



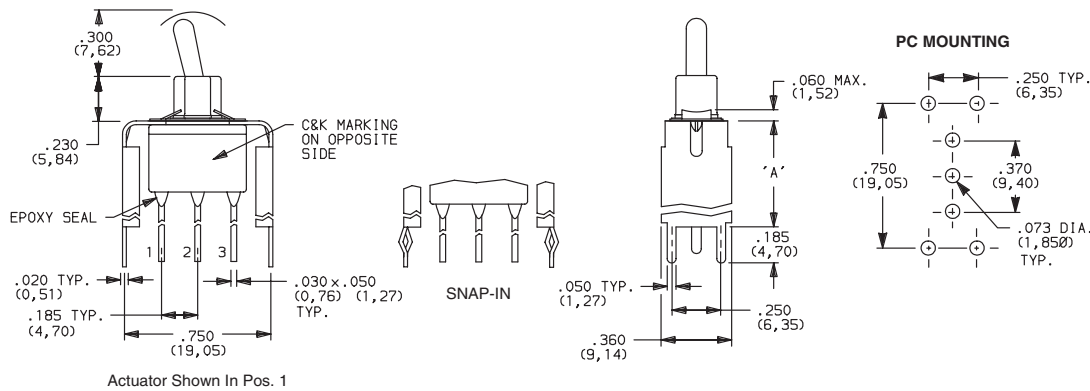
Not available with D9 & Y bushings.  
Terminal bend radii and lead-in manufacturing option.

#### PC MOUNTING

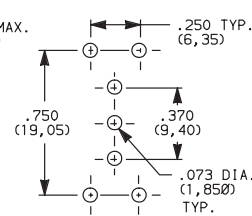


### V6 VERTICAL MOUNT, V-BRACKET

### V61 VERTICAL MOUNT, V-BRACKET, SNAP-IN



#### PC MOUNTING



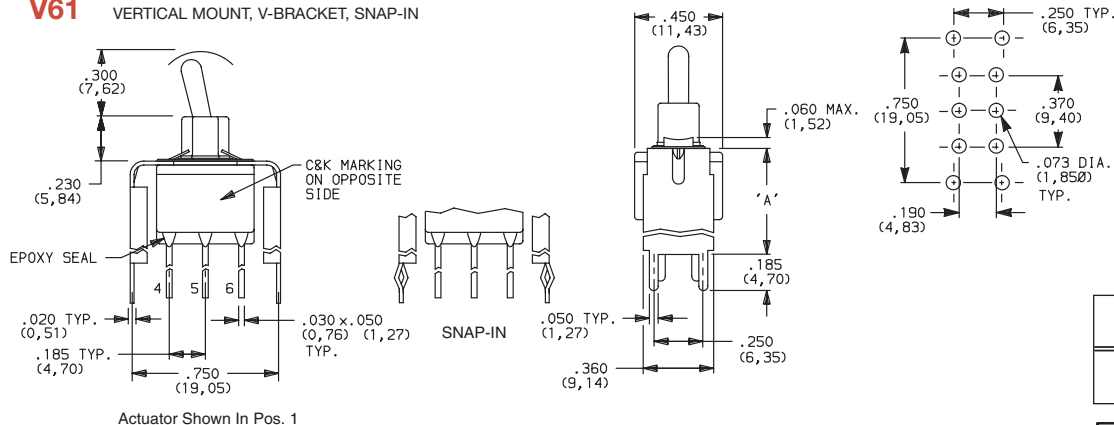
E101MD1\_BE  
SPDT

| OPTION CODE | DIM 'A'      |
|-------------|--------------|
| V6, V61     | .460 (11,68) |

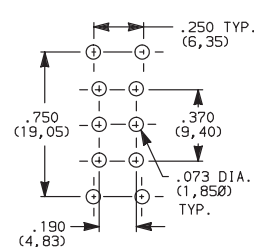
Not available with Y bushing.

### V6 VERTICAL MOUNT, V-BRACKET

### V61 VERTICAL MOUNT, V-BRACKET, SNAP-IN



#### PC MOUNTING



E201MD1\_BE  
DPDT

| OPTION CODE | DIM 'A'      |
|-------------|--------------|
| V6, V61     | .460 (11,68) |

Not available with Y bushing.



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

www.ck-components.com

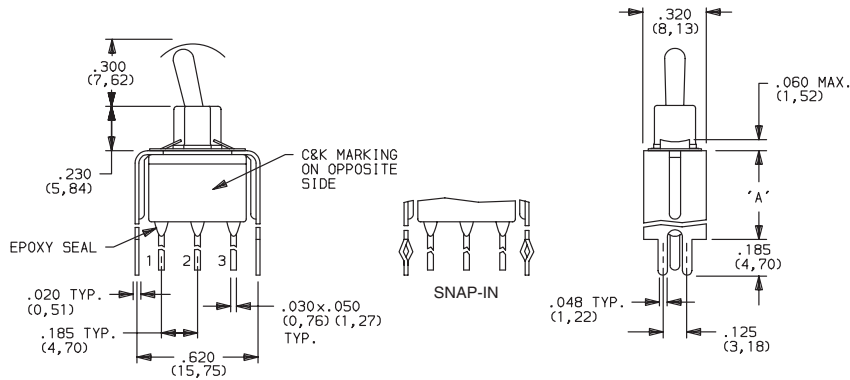


**TERMINATIONS** 

**V31** VERTICAL MOUNT, V-BRACKET, SNAP-IN



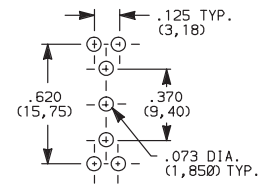
E101MD1\_\_BE  
**SPDT**



Actuator Shown In Pos. 1

Not available with Y bushing.

## PC MOUNTING

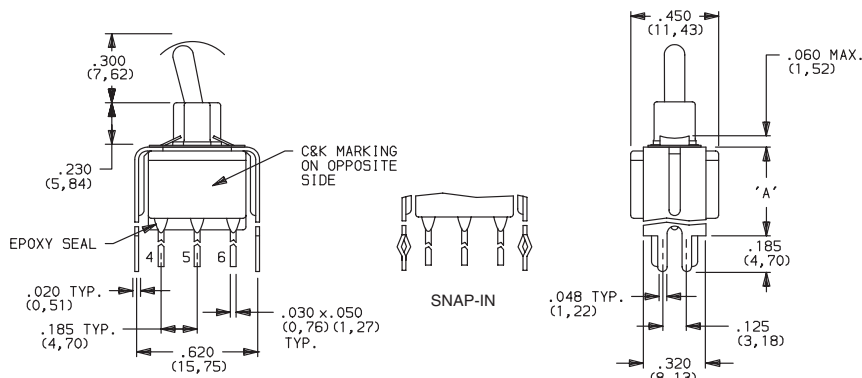


| OPTION CODE    | DIM 'A'       |
|----------------|---------------|
| <b>V3, V31</b> | .460 (11,68)  |
| <b>V9</b>      | 1.150 (29,21) |

**V31** VERTICAL MOUNT, V-BRACKET, SNAP-IN



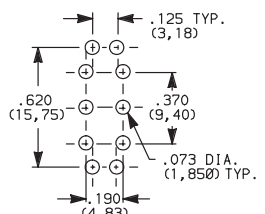
E201MD1\_\_BE  
**DPDT**



Actuator Shown In Pos. 1

Not available with Y bushing.

## PC MOUNTING

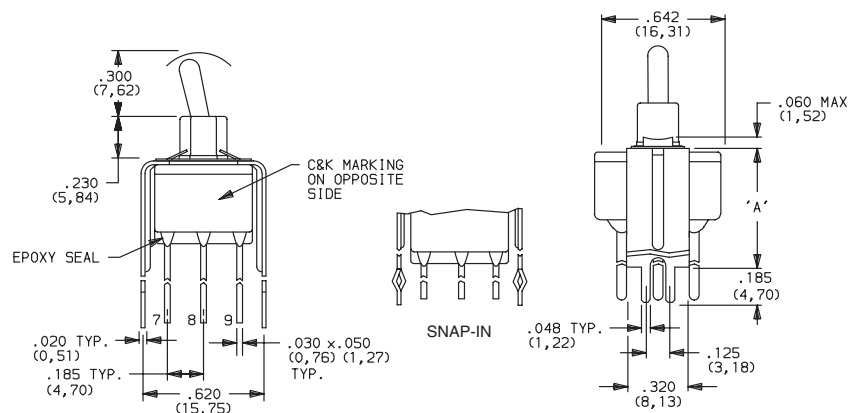


| OPTION CODE    | DIM 'A'       |
|----------------|---------------|
| <b>V3, V31</b> | .460 (11,68)  |
| <b>V9</b>      | 1.150 (29,21) |

**V9** VERTICAL MOUNT, V-BRACKET



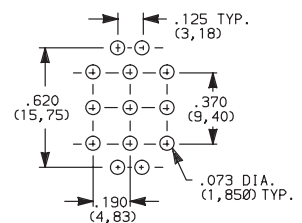
E301MD1\_\_BE  
**3PDT**



Actuator Shown In Pos. 1

Not available with D9 & Y bushings.

## PC MOUNTING



| OPTION CODE | DIM 'A'       |
|-------------|---------------|
| <b>V9</b>   | 1.150 (29,21) |



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

# E Series Sealed Miniature Toggle Switches

## CONTACT MATERIAL



| OPTION CODE | CONTACT MATERIAL                   | TERMINAL PLATING       | RATINGS                           |                                                                                                                                                                                                                         |
|-------------|------------------------------------|------------------------|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>B</b>    | GOLD <sup>1</sup>                  | GOLD <sup>1</sup>      | LOW LEVEL/<br>DRY CIRCUIT         | 0.4 VA MAX. @ 20 V AC OR DC MAX.                                                                                                                                                                                        |
| <b>P</b>    |                                    | MATTE-TIN <sup>6</sup> |                                   |                                                                                                                                                                                                                         |
| <b>Q</b>    | SILVER <sup>4,5</sup>              | SILVER <sup>5</sup>    | POWER                             | E1XX & E2XX MODELS: 7.5 AMPS @ 125 V AC OR 28 V DC;<br>3 AMPS @ 250 V AC.<br>E3XX MODELS: 5 AMPS @ 125 V AC OR 28 V DC; 2 AMPS @ 250 V AC.                                                                              |
| <b>S</b>    |                                    | MATTE-TIN <sup>6</sup> |                                   |                                                                                                                                                                                                                         |
| <b>G</b>    | GOLD OVER<br>SILVER <sup>2,3</sup> | GOLD <sup>3</sup>      | LOW LEVEL/DRY<br>CIRCUIT OR POWER | E1XX AND E2XX MODELS: 0.4 VA MAX @20 V AC OR DC MAX. OR<br>7.5 AMPS @125 V AC OR 28 V DC; 3 AMPS @ 250 V AC.<br>DC E3XX MODELS: 0.4 VA MAX. @ 20 V AC OR DC MAX. OR 5 AMPS @<br>125 V AC OR 28 V DC; 2 AMPS @ 250 V AC. |
| <b>R</b>    |                                    | MATTE-TIN <sup>6</sup> |                                   |                                                                                                                                                                                                                         |

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

<sup>1</sup> CONTACTS & TERMINALS: Copper alloy, with gold plate over nickel plate.

<sup>2</sup> END CONTACTS: Coin silver, with gold plate over nickel plate.

<sup>3</sup> CENTER CONTACTS & ALL TERMINALS: Copper alloy, with gold plate over nickel plate.

<sup>4</sup> END CONTACTS: Coin silver, silver plated.

<sup>5</sup> CENTER CONTACT & ALL TERMINALS: Copper alloy, with gold flash over silver plate. Or copper alloy, silver plated.

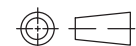
<sup>6</sup> TERMINALS: Copper alloy, with matte-tin over nickel plate.

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

All models   with all options when ordered with S, R, G, or Q contact material except with F1 conductive bushing.

B contact material standard with all terminations.

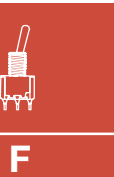
P, S & R contact materials not available with Z & Z3 terminations.



Third Angle  
Projection

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

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Toggle