

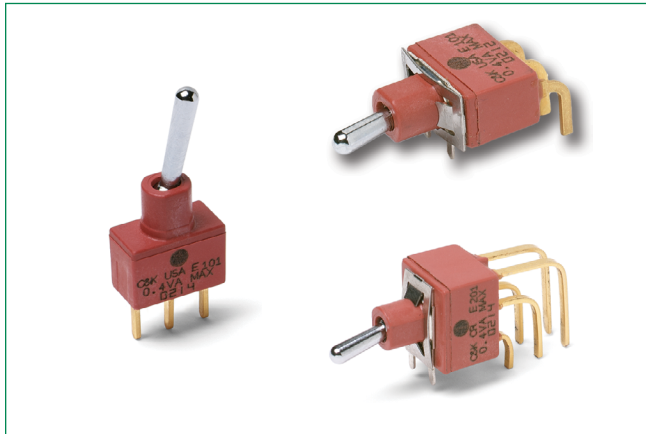


**THE DATASHEET OF  
E101SD1V3QE**



# E Series

## Sealed Miniature Toggle Switches



### Agency Approvals

Agency	Agency File Number
	E42363

### Specifications

<b>Contact Rating</b>	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.
<b>Electrical Life</b>	E1XX and E2XX models: 40,000 make-and-break cycles at full load. E3XX models: 30,000 cycles.
<b>Contact Resistance</b>	Below 10 m $\Omega$ typ. Initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.
<b>Insulation Resistance</b>	10 <sup>9</sup> $\Omega$ min.
<b>Electrostatic Discharge ESD Option</b>	F1 conductive bushing only. Dissipates up to 20,000 V DC from actuator to ground.
<b>Dielectric Strength</b>	1000 Vrms min. @ sea level.
<b>Operating Temperature</b>	-30°C to 85°C
<b>Solderability</b>	Per MIL-STD-202F method 208D, or EIA RS-186E method 9 (1 hour steam aging).
<b>Degree of Protection</b>	IP57; Protection against harmful dust deposit, full-scale voltage protection, temporary immersion.

### Description

Designers in the medical equipment, instrumentation and telecommunications industries need high-quality, long-lasting switches that can withstand any environment. The E series miniature toggle switches are sealed against solder and cleaning process contaminants – and come with a UL 94V-0 nylon case and bushing, helping to ensure that the products last. ESD protection is available in the E series as well.

### 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

### Applications

- Telecommunications
- Instrumentation
- Medical equipment

### Materials

<b>Case &amp; Bushing</b>	Glass filled nylon 6/6, flame retardant, heat stabilized (UL 94V-0). F1 conductive bushing option is impregnated with carbon fibers.
<b>Actuator</b>	Brass, chrome plated with internal o-ring seal standard.
<b>Switch Support</b>	Brass or steel, matte-tin plated.
<b>Switch Support Retainer</b>	Stainless steel
<b>Contact &amp; Terminals</b>	B contact material: Copper alloy, with gold plate over nickel plate. Q contact material: Copper alloy, silver plated.
<b>Terminal Seal</b>	Epoxy
<b>Hardware</b>	Nut & Locking ring: Brass, nickel plated. Lockwasher: Steel, nickel plated.

#### Notes:

Any models supplied with P, S, R, Q, B or G contact material are RoHS compliant and compatible. Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

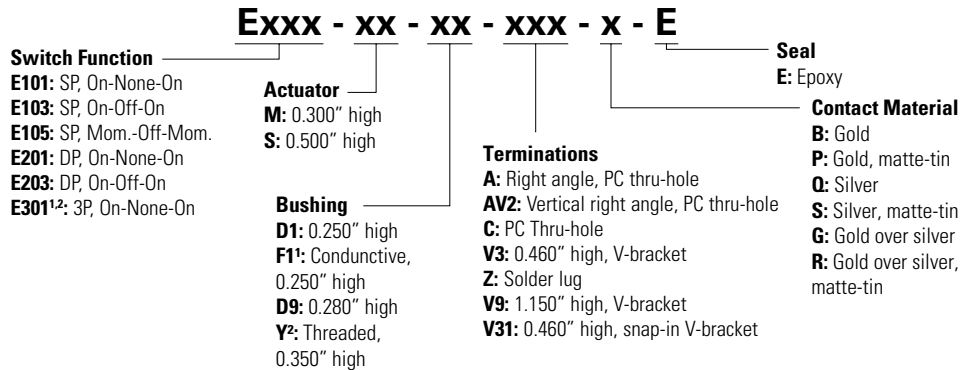
# E Series

## Sealed Miniature Toggle Switches



### Ordering Number

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages through 3-9. 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.



**Notes:**

1. F1 available with SP and DP versions only.
2. Y threaded bushing available for SP and DP versions only.

# E Series

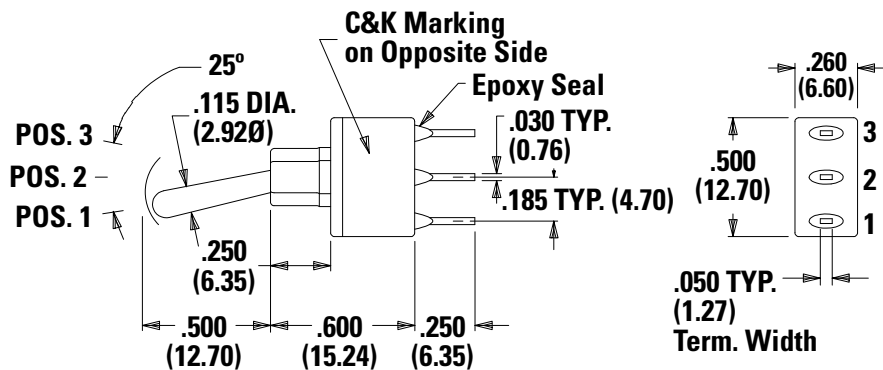
## Sealed Miniature Toggle Switches



### Switch Function

#### SPDT

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						
SP	E101	ON	NONE	ON	2-3	OPEN	2-1	SPDT 
	E103	ON	OFF	ON		N/A		
	E105	MOM.	OFF	MOM.		N/A		



Note: Part number shown: E101SD1CBE

Terminal Numbers For Reference Only

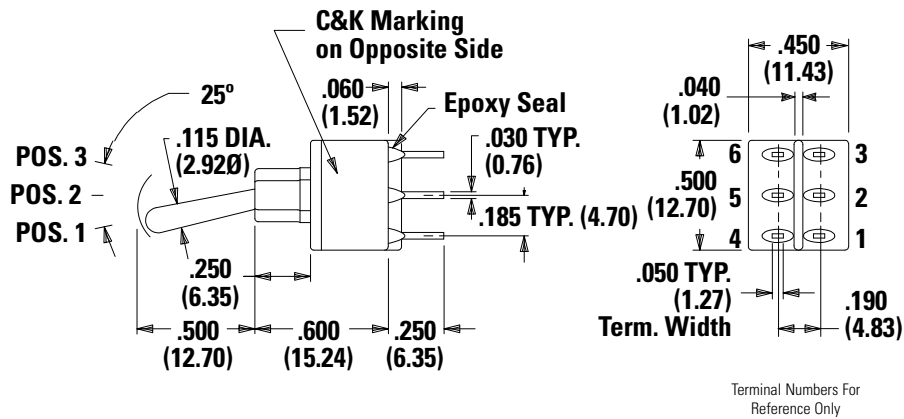
# E Series

## Sealed Miniature Toggle Switches



### DPDT

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						
DP	E201	ON	NONE	ON	2-3,5-6	N/A	2-1,5-4	
	E203	ON	OFF		OPEN			



**Notes:** Part number shown: E201SD1CBE

MOM. = Momentary All models with all options when ordered with G, R, Q or S contact material.  
Wiring for 3-way switch

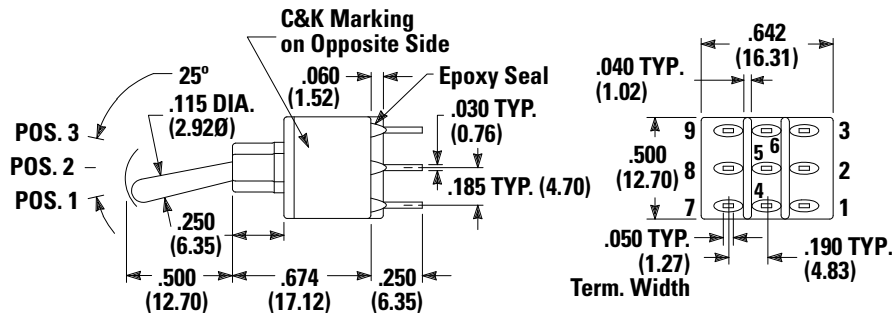
# E Series

## Sealed Miniature Toggle Switches



### 3PDT

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						
3P	E301	ON	NONE	ON	2-3,5-6,8-9	N/A	2-1,5-4,8-7	

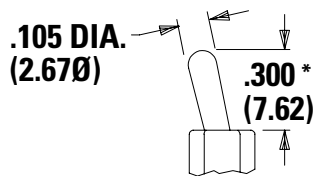


**Notes:** Part number shown: E301SD1CBE  
 MOM. = Momentary All models us with all options when ordered with G, R, Q or S contact material.  
 Wiring for 3-way switch

Terminal Numbers For Reference Only

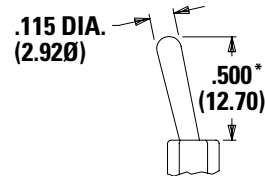
### Actuator

#### M 0.300" High



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

#### S 0.500" High



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

**Notes:** Actuators shown with standard D1 bushing. Subtract 0.030 (0.76) for D9 bushing. Subtract 0.100 (2.54) for Y bushing.

Option Code	L3 Actuator Color
2	Black

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

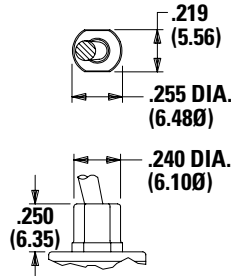
# E Series

## Sealed Miniature Toggle Switches



### Bushing

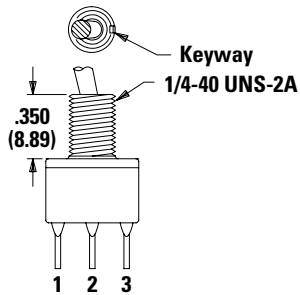
#### D1 0.250" High, Unthreaded F1 ESD Conductive Bushing, 0.250" High, Unthreaded



F1 bushing is not UL approved

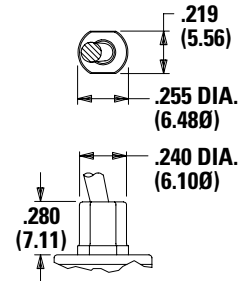
**Notes:** ESD protection depends on proper grounding of switch support bracket. F1 conductive bushing option is impregnated with carbon fibers; dissipates electrostatic discharge (ESD) up to 20,000 V from actuator to ground. Available with M & S actuator options and A, A3, AV2, AV3, V3-V61 termination options.

#### Y Threaded, Insulated, 0.350" High with Keyway

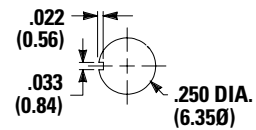


**Notes:** Available only with C, Z, Z3, & W terminations. Available for 1&2 pole only.  
Hardware: One dress nut part number 299D01201, one hex nut part number 540400201 and lockwasher part number 700303202 supplied standard. Will withstand 4 in.-lbs. of torque with no distortion.

#### D9 0.280" High, Unthreaded



#### Panel Mounting



**Notes:** E3XX models not available with D9 bushing. Internal o-ring actuator seal standard for all bushing options.

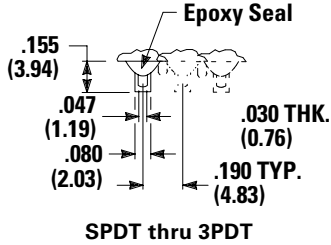
# E Series

## Sealed Miniature Toggle Switches



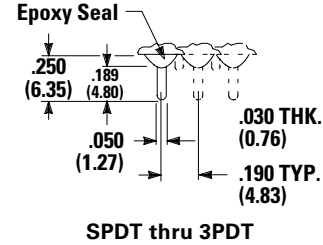
### Terminations

#### Z Solder Lug



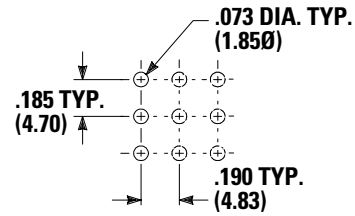
Notes: Not available with F1 conductive bushing or P, R or S contact material.

#### C PC Thru-hole



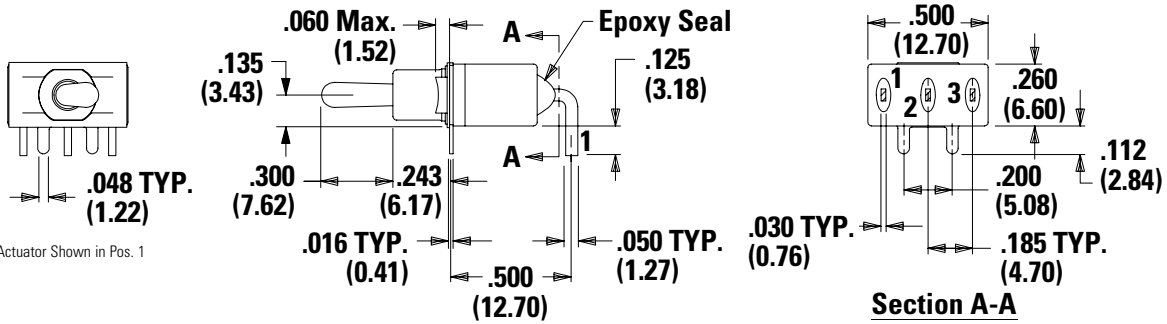
Notes: Not available with F1 conductive bushing.

#### PC Mounting



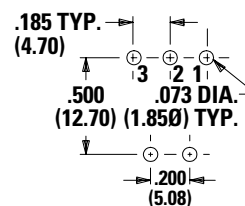
#### A Right Angle, PC Thru-hole

#### E101MD1ABE Horizontal Actuation SPDT



Terminal Numbers For Reference Only

#### PC Mounting

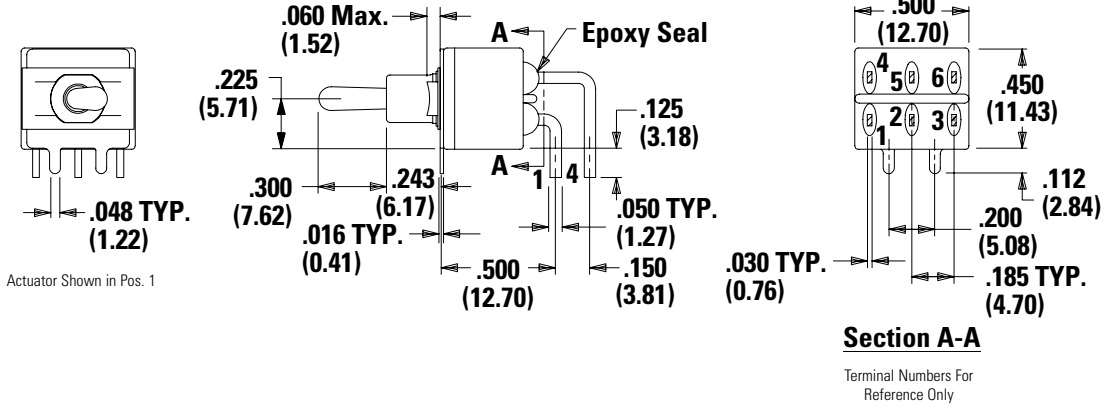


# E Series

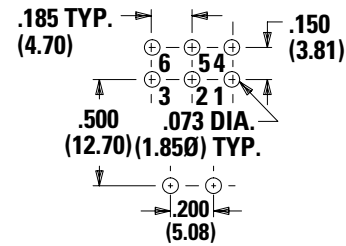
## Sealed Miniature Toggle Switches



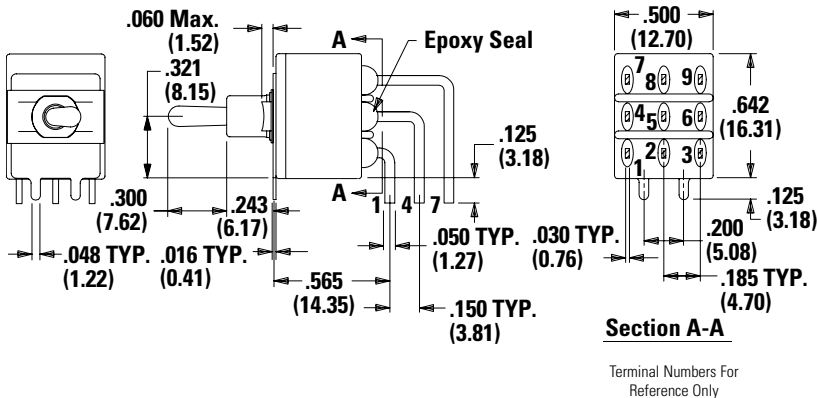
### A Right Angle, PC Thru-hole E201MD1ABE Horizontal Actuation DPDT



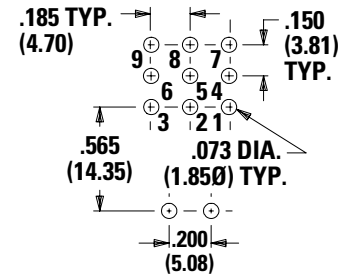
#### PC Mounting



### A Right Angle, PC Thru-hole E301MD1ABE Horizontal Actuation 3PDT



#### PC Mounting



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

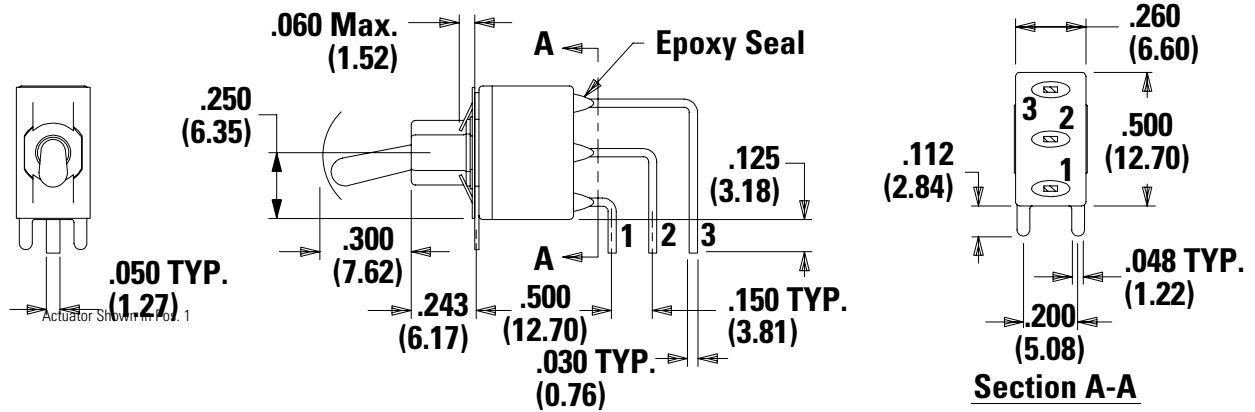
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## Sealed Miniature Toggle Switches

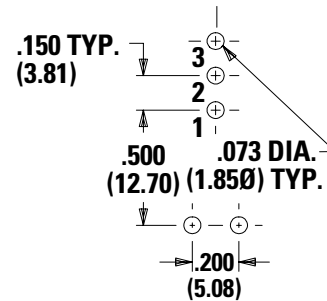


### AV2 Vertical Right Angle, PC Thru-hole, 0.150" Pitch

#### E101MD1AV2BE Vertical Actuation SPDT

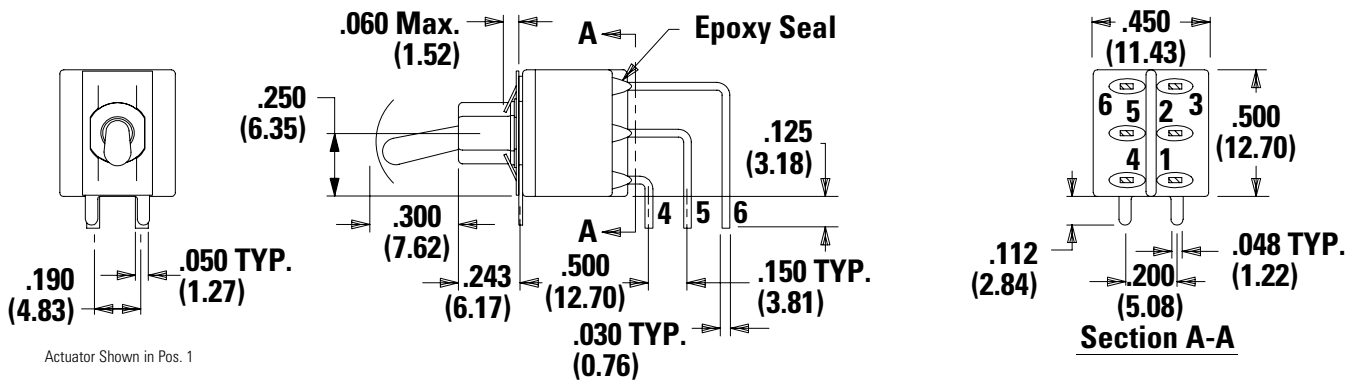


#### PC Mounting



### AV2 Vertical Right Angle, PC Thru-hole, 0.150" Pitch

#### E201MD1AV2BE Vertical Actuation DPDT

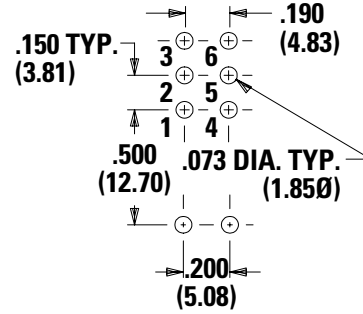


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## Sealed Miniature Toggle Switches

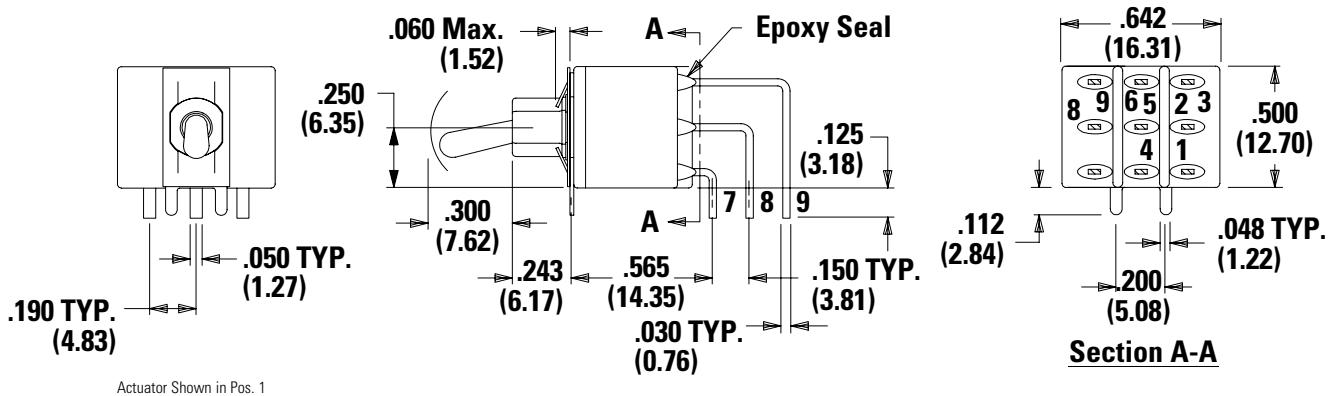


### PC Mounting



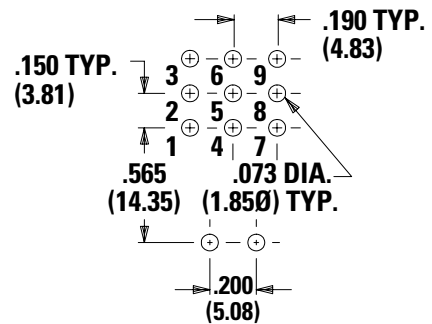
### AV2 Vertical Right Angle, PC Thru-hole, .0150" Pitch

#### E301MD1AV2BE Vertical Actuation 3PDT



Actuator Shown in Pos. 1

### PC Mounting

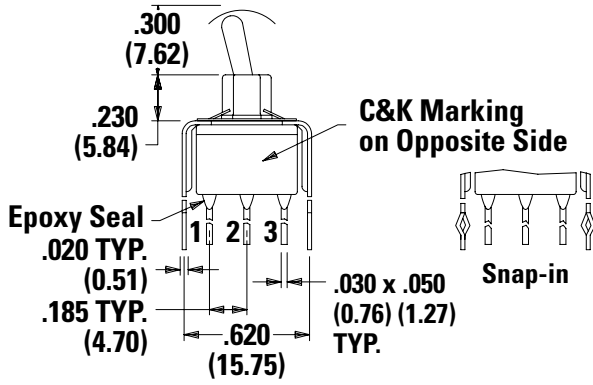


# E Series

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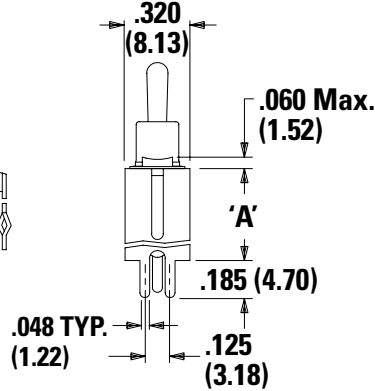


**V3, V9 Vertical Mount, V-Bracket**  
**V31 Vertical Mount, V-Bracket, Snap-in**  
**E101MD1\_BE SPDT**

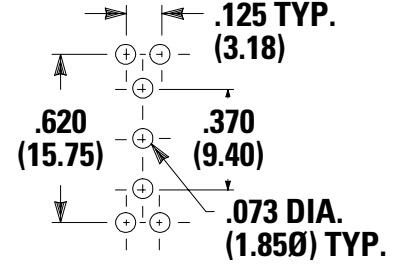


Actuator Shown in POS. 1

Notes: Not available with Y bushings.

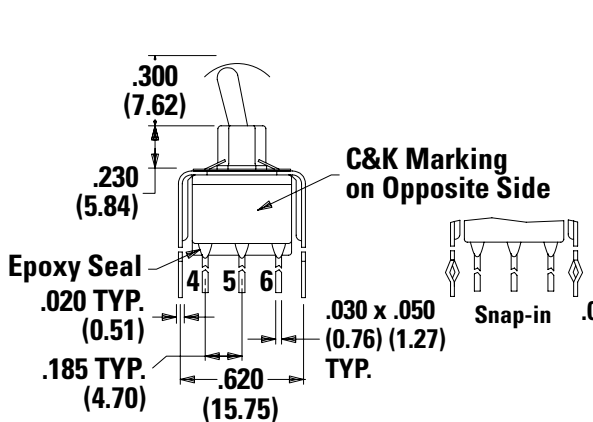


**PC Mounting**



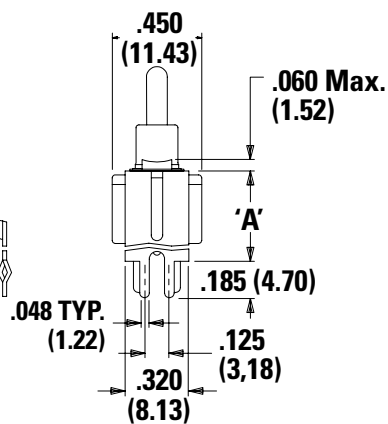
Option Code	DIM 'A'
V3, V31	0.460 (11.68)
V9	1.150 (29.21)

**V3, V9 Vertical Mount, V-Bracket**  
**V31 Vertical Mount, V-Bracket, Snap-in**  
**E201MD1\_BE DPDT**

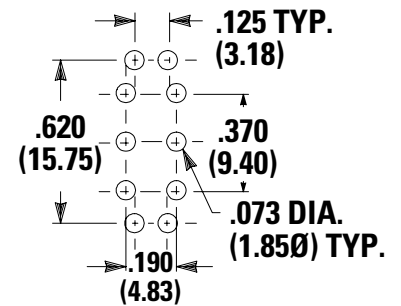


Actuator Shown in POS. 1

Notes: Not available with Y bushings.



**PC Mounting**



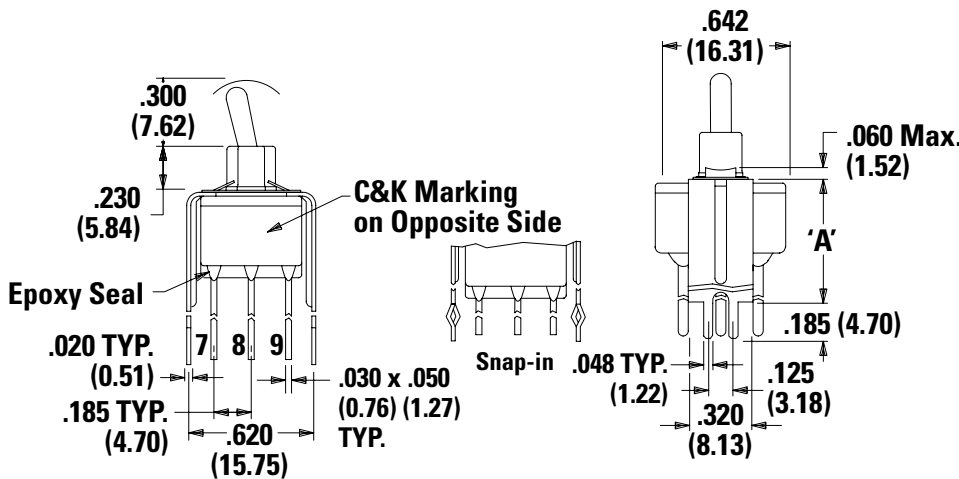
Option Code	DIM 'A'
V3, V31	0.460 (11.68)
V9	1.150 (29.21)

# E Series

## Sealed Miniature Toggle Switches

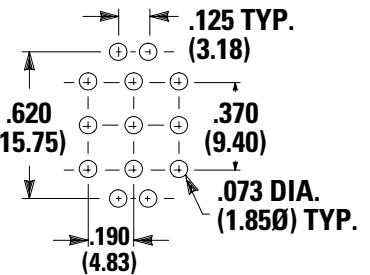


### V9 Vertical Mount, V-Bracket E301MD1\_BE 3PDT



Actuator Shown in POS. 1

### PC Mounting



Notes: Not available with D9 & Y bushings.

Option Code	DIM 'A'
V9	1.150 (29.21)

### Contact Material

Option Code	Contact Material	Terminal Plating		Ratings
B	Gold <sup>1</sup>	Gold <sup>1</sup>	Low Level / Dry Circuit	0.4 VA max. @ 20 V AC or DC Max.
P		Matte-Tin <sup>6</sup>		
Q	Silver <sup>4,5</sup>	Silver <sup>5</sup>	Power	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.
S		Matte-Tin <sup>6</sup>		
G	Gold over Silver <sup>2,3</sup>	Gold <sup>3</sup>	Low Level / Dry Level Circuit or Power	E1XX and E2XX models: 0.4 VA max. @ 20 V AC or DC max. or 7.5 amps @ 125 V AC or 28 V DC; 3 amps @ 250 V AC. DC E3XX models: 0.4 VA max. @ 20 V AC or DC max. or 5 amps @ 125 V AC or 28 V DC; 2 amps @ 250 V AC.
R		Matte-Tin <sup>6</sup>		

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

- Contacts & Terminals:** Copper alloy, with gold plate over nickel plate.
- End Contacts:** Coin silver, with gold plate over nickel plate.
- Center Contacts & All Terminals:** Copper alloy, with gold plate over nickel plate.
- End Contacts:** Coin silver, silver plated.
- Center Contacts & All Terminals:** Copper alloy, with gold flash over silver plate. Or copper alloy, silver plated.
- Terminals:** Copper alloy, with matte tin alloy nickel plate.

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

- All models **C&K** us with all options when ordered with G, S, R, or Q contact material except with F1 conductive bushings.  
 B contact material standard with all terminations.  
 P, S & R contact materials not available with Z terminations.

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