

# C&K EP Series Sealed Tiny Pushbutton Switches

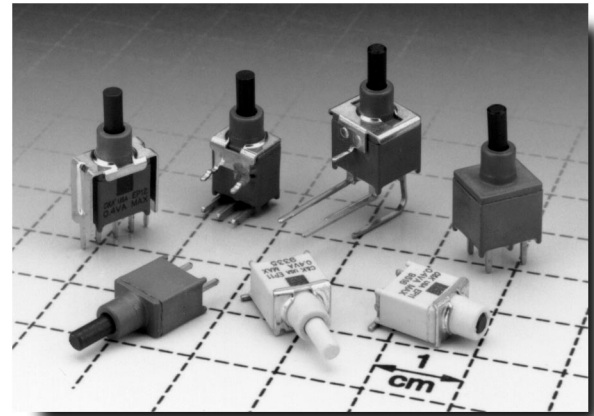


## Features/Benefits

- Sealed against solder & cleaning processes
- Thru-hole and surface mount models
- Snap-fitting actuator accepts standard caps
- Tape & reel packaging available

## Typical Applications

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

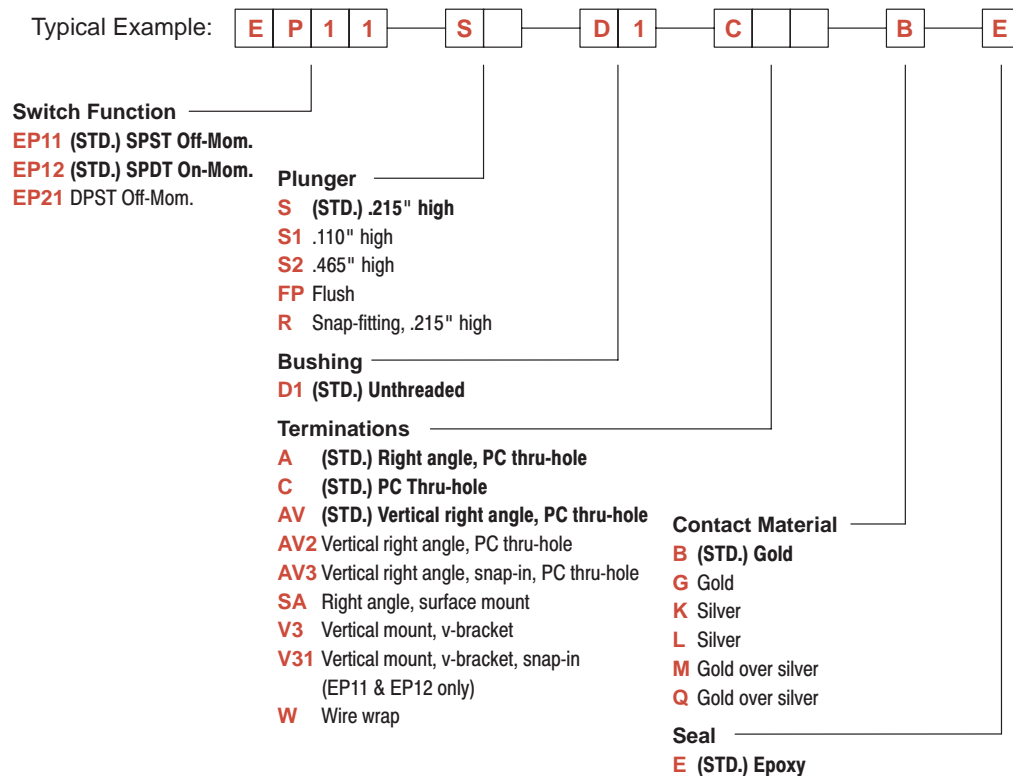


B

Pushbutton

## Build-A-Switch

Our easy Build-A-Switch concept allows you to mix and match options to create the switch you need. Below is a complete listing of options shown in catalog. To order, simply select desired option from each category and place in the appropriate box. Switches with standard options are shown on pages B-4 and B-5. Available options are shown and described on pages B-5 thru B-9. For additional options not shown in catalog, consult Customer Service Center. All models are process sealed to withstand machine soldering temperatures and pressure wash cleaning methods.



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## Specifications

- CONTACT RATING: B contact material: 0.4 VA max. @ 20 V AC or DC max. See page B-9 for additional ratings.
- ELECTRICAL LIFE: EP11, EP21 models: 60,000 make-and-break cycles at full load. EP12 models: 30,000 cycles.
- CONTACT RESISTANCE: Below 20 milliohms typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.
- INSULATION RESISTANCE:  $10^9$  ohms min.
- DIELECTRIC STRENGTH: 1000 V RMS min. @ sea level.
- OPERATING TEMPERATURE:  $-30^{\circ}\text{C}$  to  $85^{\circ}\text{C}$ .
- 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.
- PACKAGING: Surface mount switches available in anti-static tape and reel packaging per EIA 481-3, see page L-35 for drawings and reel information. Tape and cover strip are conductive for use near statically sensitive components, consult Customer Service Center.

## Materials

- CASE & BUSHING: Glass filled nylon 6/6, flame retardant, heat stabilized (UL 94V-0). SA surface mount: High temperature material, glass filled nylon 4/6, flame retardant, heat stabilized (UL 94V-0).
- PLUNGER: Thermoplastic polyester or glass filled nylon (UL 94V-0), with internal o-ring seal. SA surface mount: High temperature material, glass filled nylon 4/6, flame retardant, heat stabilized (UL 94V-0).
- SWITCH SUPPORT: Brass, tin plated.
- CONTACTS & TERMINALS: B contact material: Copper alloy, with gold plate over nickel plate. See page B-9 for additional contact materials.
- TERMINAL SEAL: Epoxy.

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

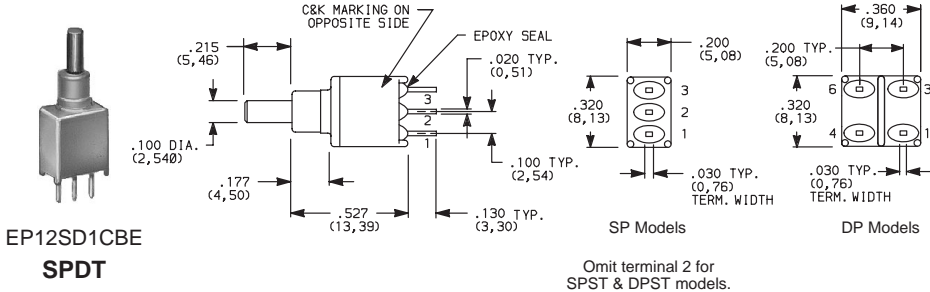
**CAUTION:** PC mounting layouts and pads as shown are designed to be compatible with the latest equipment and reflow techniques. Care should be taken in the design and location of PC lands to suit individual needs. Orientation relative to reflow direction may significantly impact solder joint integrity.



B

Pushbutton

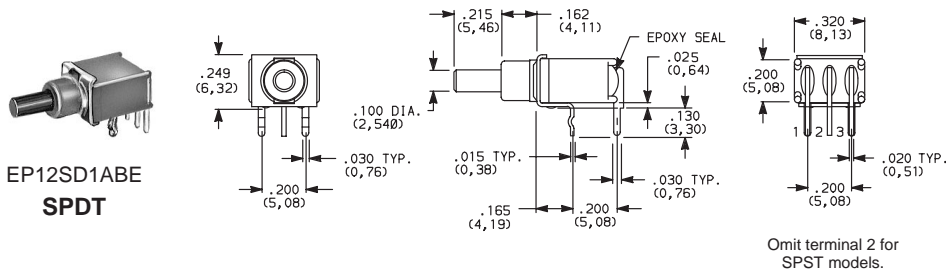
## SWITCHES WITH STANDARD OPTIONS



PART NUMBER	FUNCTION	POS. 1	POS. 2
EP11SD1CBE	SPST	OFF	MOM.
EP12SD1CBE	SPDT	ON	MOM.
EP21SD1CBE	DPST	OFF	MOM.

MOM. = Momentary

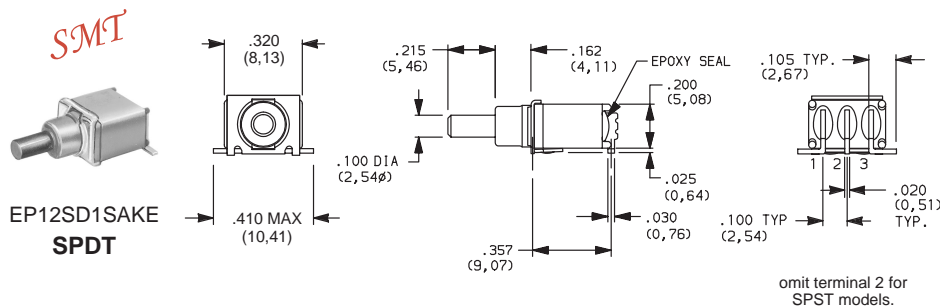
**NOTE:** For PC mounting information, see page B-6.



PART NUMBER	FUNCTION	POS. 1	POS. 2
EP11SD1ABE	SPST	OFF	MOM.
EP12SD1ABE	SPDT	ON	MOM.

MOM. = Momentary

**NOTE:** For PC mounting information, see page B-6.





PART NUMBER	FUNCTION	POS. 1	POS. 2
EP11SD1SAKE	SPST	OFF	MOM.
EP12SD1SAKE	SPDT	ON	MOM.

MOM. = Momentary

**NOTE:** For PC mounting information, see page B-8.

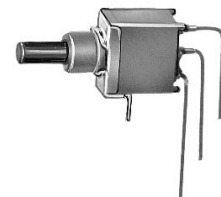
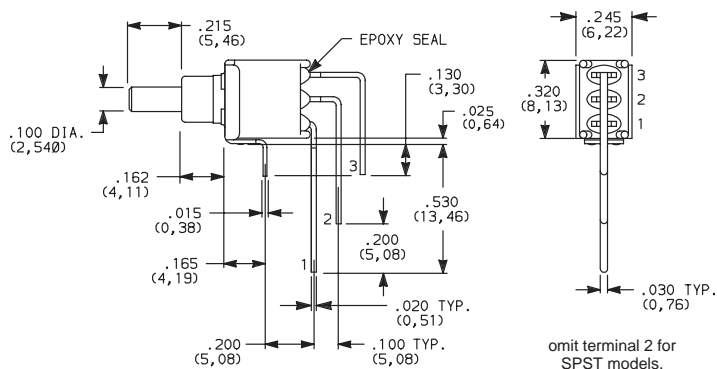
# C&K EP Series Sealed Tiny Pushbutton Switches

## SWITCHES WITH STANDARD OPTIONS

PART NUMBER	FUNCTION	POS. 1	POS. 2
			
<b>EP11SD1AVBE</b>	SPST	OFF	MOM.
<b>EP12SD1AVBE</b>	SPDT	ON	MOM.

MOM. = Momentary







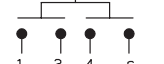
NOTE: For PC mounting information, see page B-7.





EP12SD1AVBE  
SPDT

## SWITCH FUNCTION



NO. POLES	MODEL NO.	SWITCH FUNCTION		CONNECTED TERMINALS		SCHEMATIC
		POS. 1	POS. 2	POS. 1	POS. 2	
						
SP	<b>EP11 (STD.)</b>	OFF	MOM.	OPEN	1-3	SPST 
	<b>EP12 (STD.)</b>	ON	MOM.	2-1	2-3	SPDT NC 1 ● 2 (COMM) ● 3 NO 
DP	<b>EP21</b>	OFF	MOM.	OPEN	1-3,4-6	DPST 

MOM. = Momentary

All models   with all options when ordered with G, L, M or Q contact material. EP12 model not CSA.

EP21 model not available with FP plunger option.

## ACTUATOR



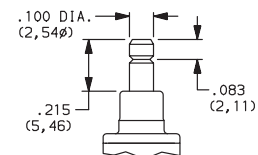
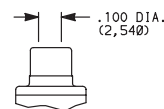
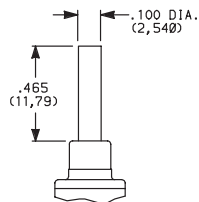
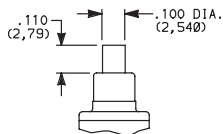
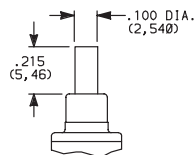
**S** (STD.) .215" HIGH

**S1** .110" HIGH

**S2** .465" HIGH

**FP** FLUSH PLUNGER

**R** SNAP-FITTING



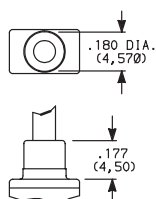
S1 & S2 actuators are not available with EP12 & EP21 models.

FP & R actuators are not available with EP21 model.

## BUSHING



**D1** (STD.) UNTHREADED



NOTE: Internal actuator o-ring standard.



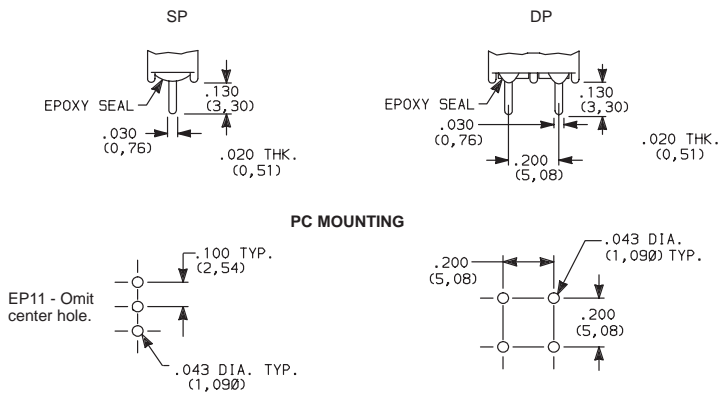
**B**

Pushbutton

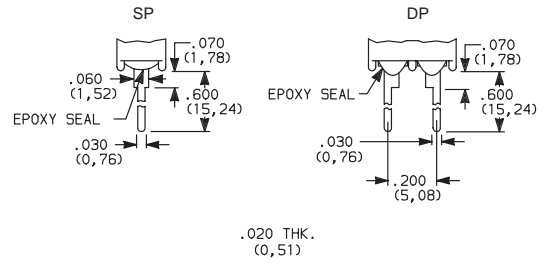
# C&K EP Series Sealed Tiny Pushbutton Switches

## TERMINATIONS

### C (STD.) PC THRU-HOLE



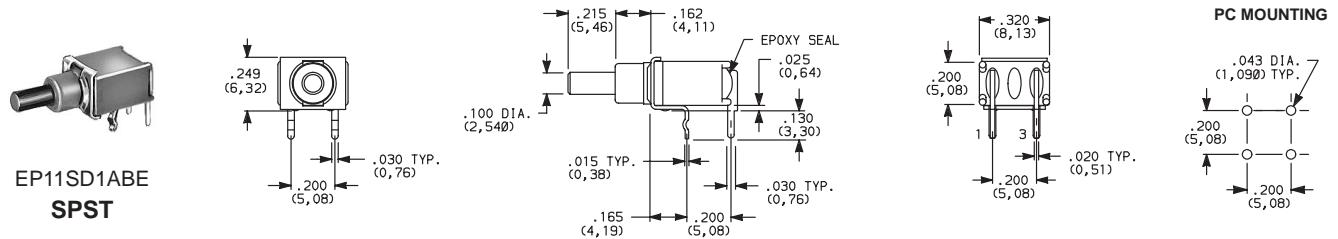
### W WIRE WRAP



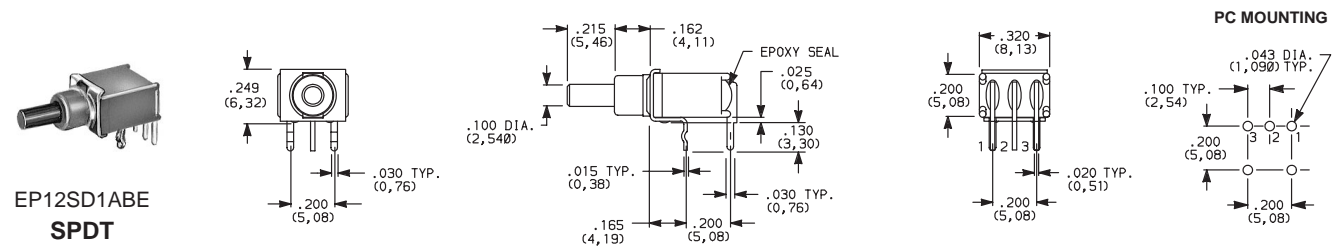
### SP and DP

### SP and DP

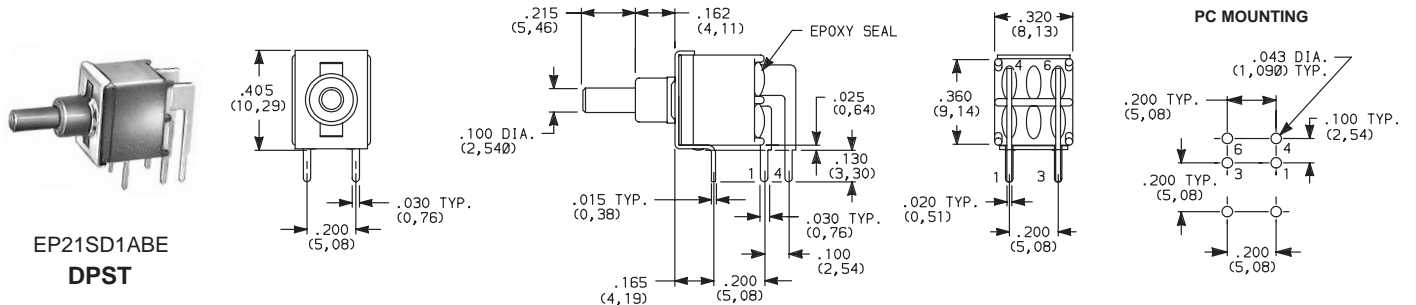
### A (STD.) RIGHT ANGLE, PC THRU-HOLE



### A (STD.) RIGHT ANGLE, PC THRU-HOLE



### A (STD.) RIGHT ANGLE, PC THRU-HOLE

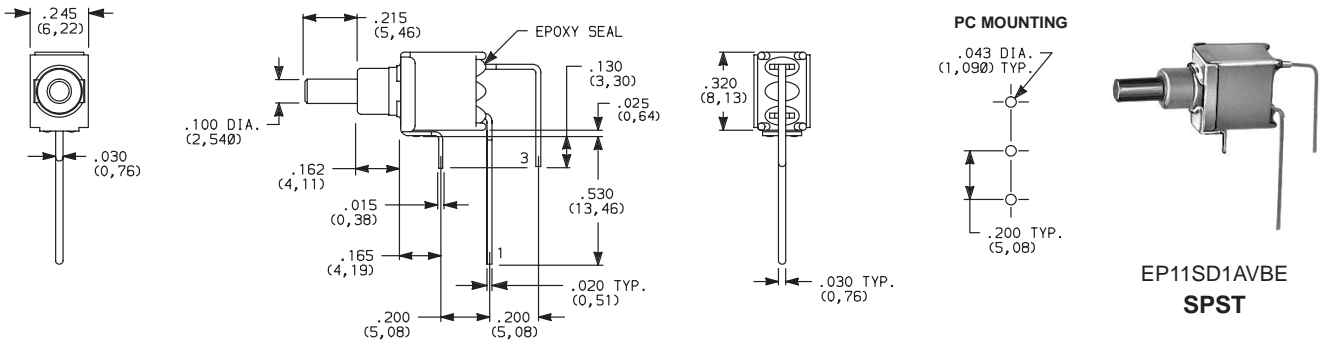


B Pushbutton

# C&K EP Series Sealed Tiny Pushbutton Switches

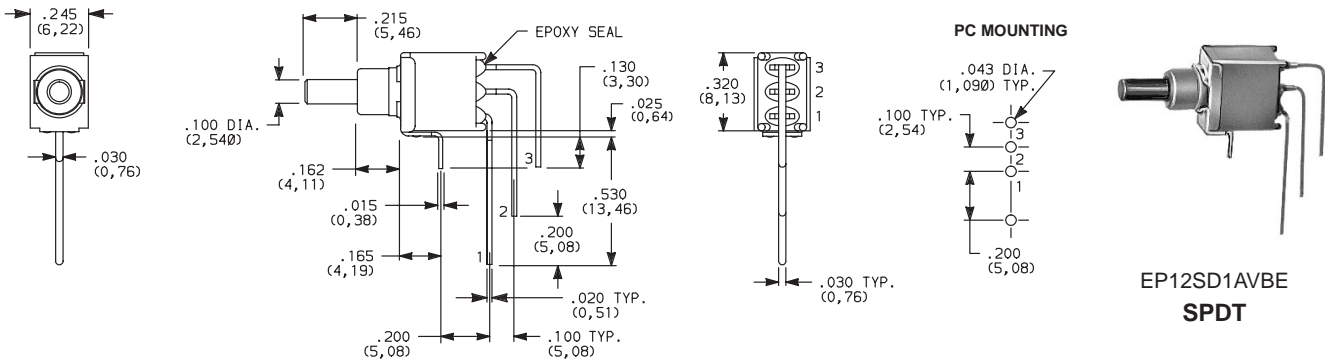
## TERMINATIONS

**AV** (STD.) VERTICAL RIGHT ANGLE, PC THRU-HOLE



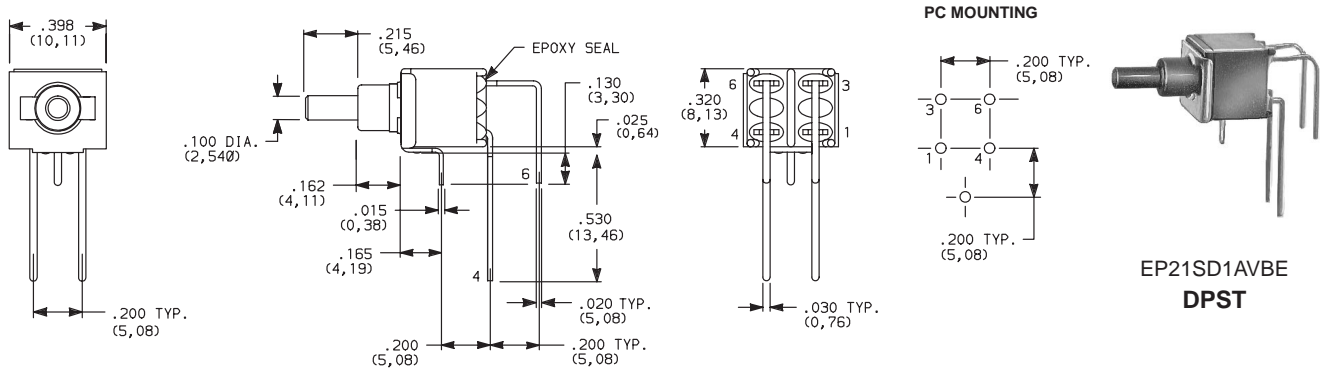
**NOTE:** Terminal bend radii and lead-in manufacturing option.

**AV** (STD.) VERTICAL RIGHT ANGLE, PC THRU-HOLE



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

**AV** (STD.) VERTICAL RIGHT ANGLE, THRU-HOLE

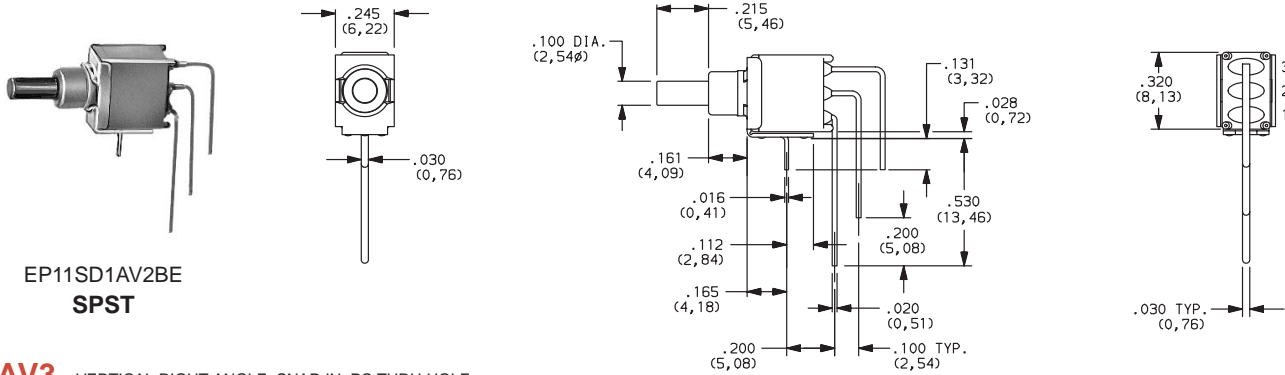


**NOTE:** Terminal bend radii and lead-in manufacturing option.

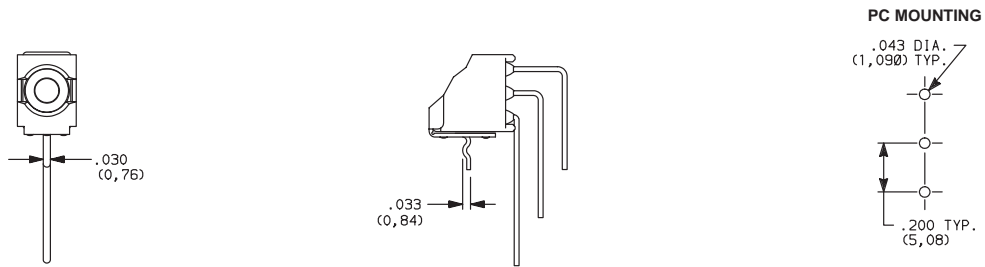
# C&K EP Series Sealed Tiny Pushbutton Switches

## TERMINATIONS

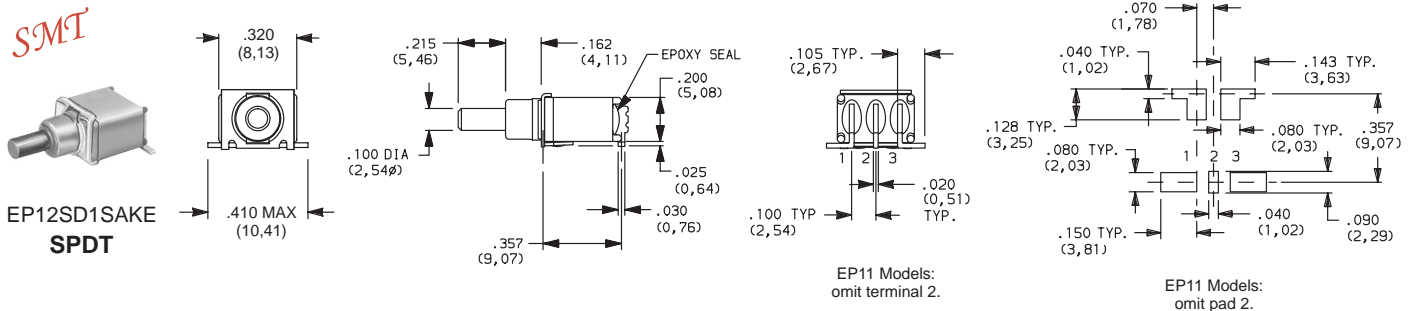
**AV2** VERTICAL RIGHT ANGLE, PC THRU-HOLE



**AV3** VERTICAL RIGHT ANGLE, SNAP-IN, PC THRU-HOLE



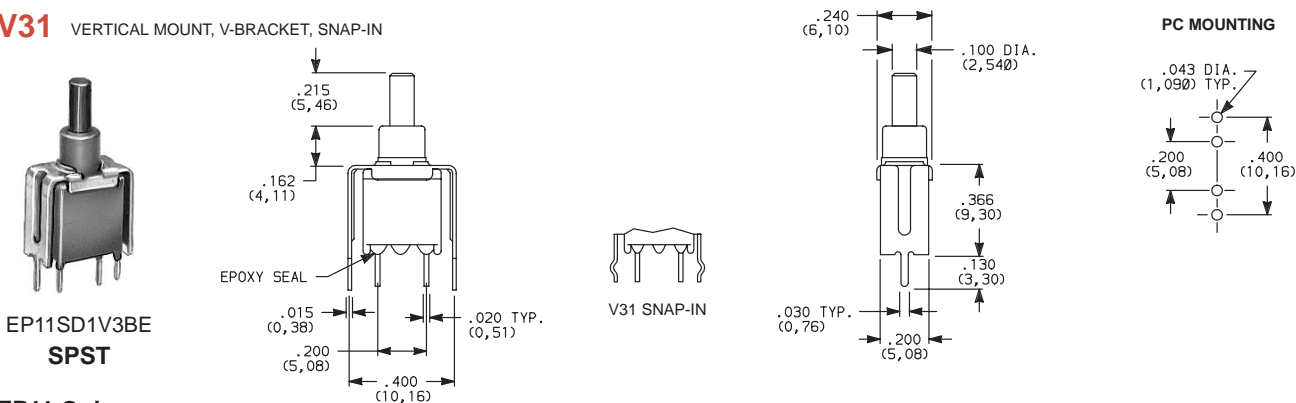
**SA** RIGHT ANGLE, SURFACE MOUNT



Not available on DPST models.

**V3** VERTICAL MOUNT, V-BRACKET

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



EP11 Only

Pushbutton

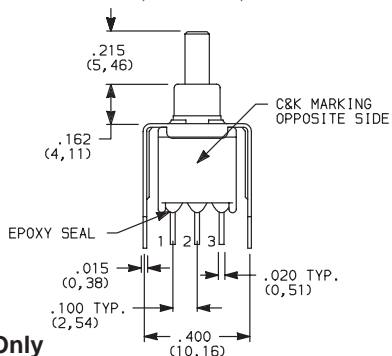
B

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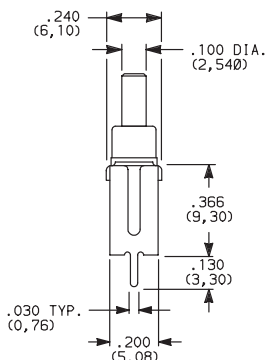
## TERMINATIONS

**V3** VERTICAL MOUNT, V-BRACKET

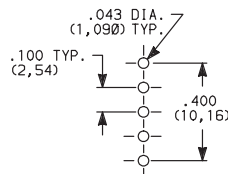
**V31** VERTICAL MOUNT, V-BRACKET, SNAP-IN



EP12 Only

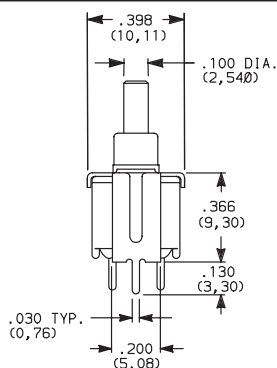
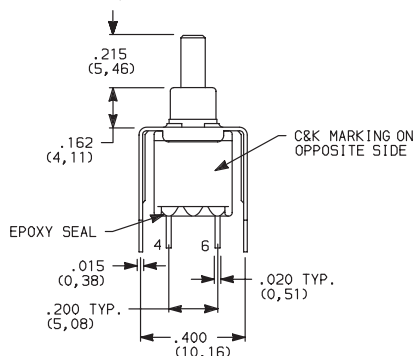


PC MOUNTING

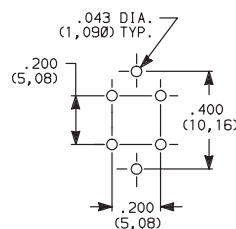


EP12SD1V3BE  
SPDT

**V3** VERTICAL MOUNT, V-BRACKET



PC MOUNTING



EP21SD1V3BE  
DPST

## CONTACT MATERIAL

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

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

<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 CONTACTS & ALL TERMINALS: Copper alloy, silver plated.

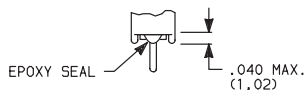
<sup>6</sup> TERMINALS: Copper alloy, with tin-lead alloy over nickel plate.

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

EP21 model not CSA.

## SEAL

**E** (STD.) EPOXY SEAL



**B**

Pushbutton