

# C&K EP Series Sealed Tiny Pushbutton Switches

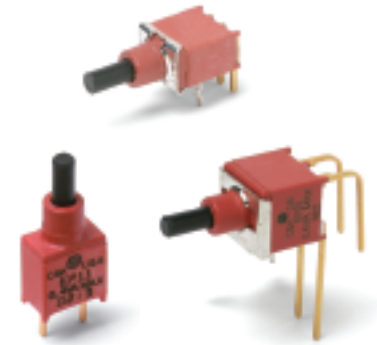


## Features/Benefits

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

## Typical Applications

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



Models Available

## Specifications

**CONTACT RATING:** B contact material: 0.4 VA max. @ 20 V AC or DC max. See page A-11 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 mΩ typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

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

**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.

**PACKAGING:** Surface mount switches standard in anti-static tape and reel packaging per EIA 481-3, see page A-12 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, matte-tin plated.

**CONTACTS & TERMINALS:** B contact material: Copper alloy, with gold plate over nickel plate. See page A-11 for additional contact materials.

**TERMINAL SEAL:** Epoxy.

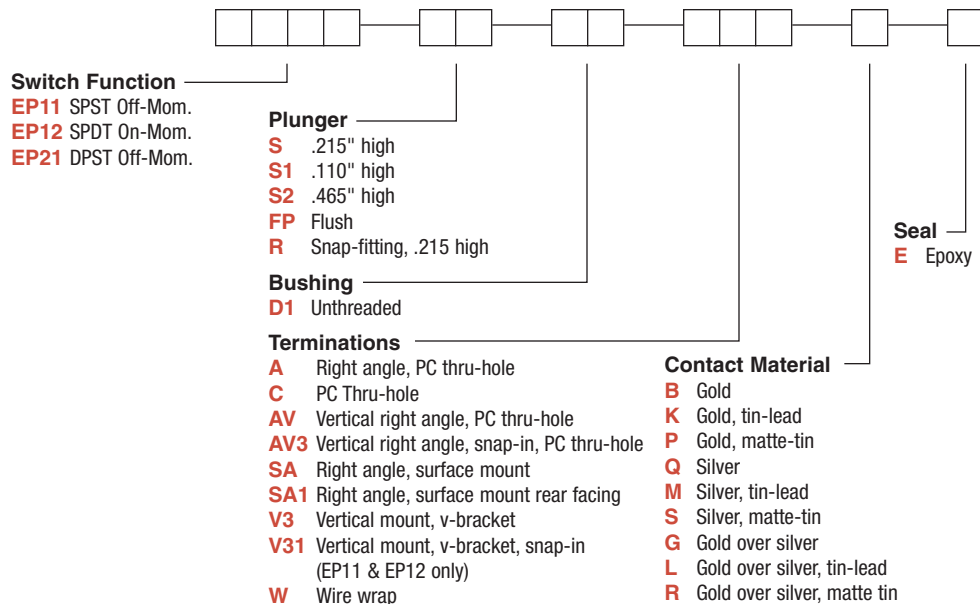
**NOTE:** Any models supplied with Q, B, P, S, R or G contact material are RoHS compliant. For the latest information regarding RoHS compliance, please go to: [www.ittcannon.com/rohs](http://www.ittcannon.com/rohs).

**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.

## 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 A-8 thru A-11. 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.

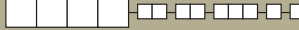


Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change



# C&K EP Series Sealed Tiny Pushbutton Switches

## SWITCH FUNCTION



Pushbutton  
A

NO. POLES	MODEL NO.	SWITCH FUNCTION		CONNECTED TERMINALS		SCHEMATIC
		POS. 1	POS. 2	POS. 1	POS. 2	
		C&K marking on opposite side		C&K marking on opposite side		
SP	EP11	OFF	MOM.	OPEN	1-3	
	EP12	ON	MOM.	2-1	2-3	
<b>SPDT</b>						
<p>Part number shown: EP12SD1CBE</p> <p>Terminal Nos. For Reference Only</p>						
DP	EP21	OFF	MOM.	OPEN	1-3,4-6	
<b>DPST</b>						
<p>Part number shown: EP21SD1CBE</p> <p>Terminal Nos. For Reference Only</p>						

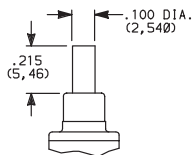
MOM. = Momentary

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

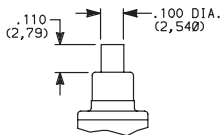
## PLUNGER



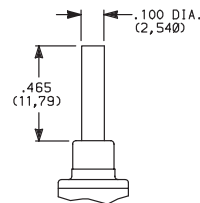
**S** .215" HIGH



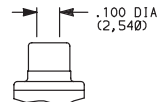
**S1** .110" HIGH



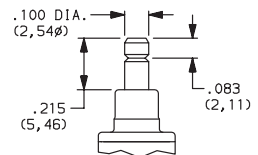
**S2** .465" HIGH



**FP** FLUSH PLUNGER



**R** SNAP-FITTING



S1 & S2 actuators are not available with EP12 & EP21 models or SA1 termination style.

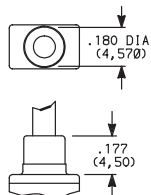
FP & R actuators are not available with EP21 model or SA1 termination style.

NOTE: Caps available for plunger options, see page A-12.

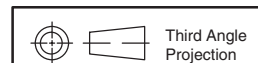
## BUSHING



**D1** UNTHREADED



NOTE: Internal actuator o-ring standard.



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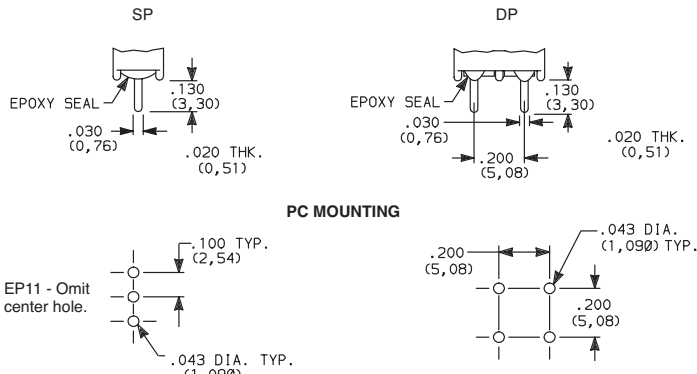
A

Pushbutton

## TERMINATIONS

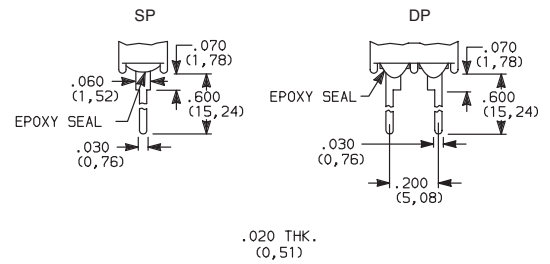


### C PC THRU-HOLE



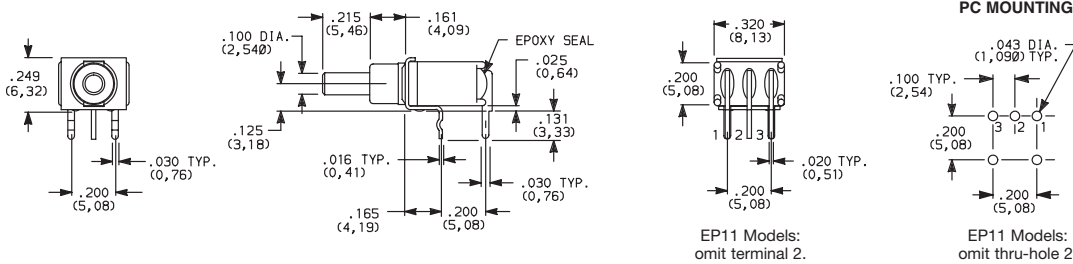
### SP and DP

### W WIRE WRAP



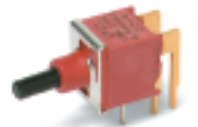
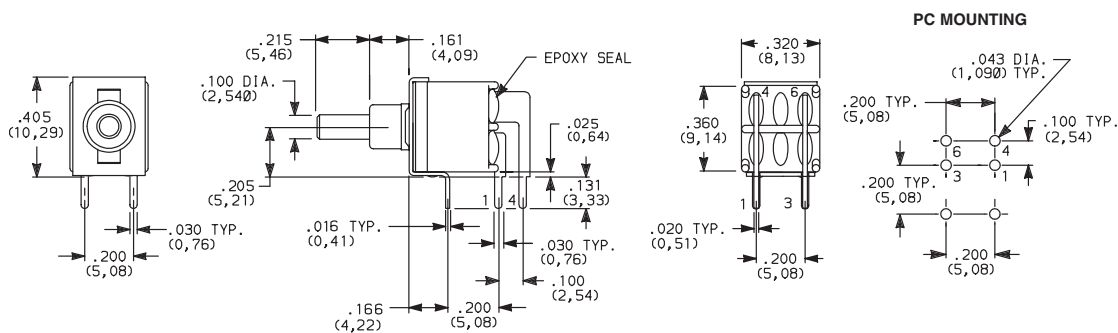
### SP and DP

### A RIGHT ANGLE, PC THRU-HOLE



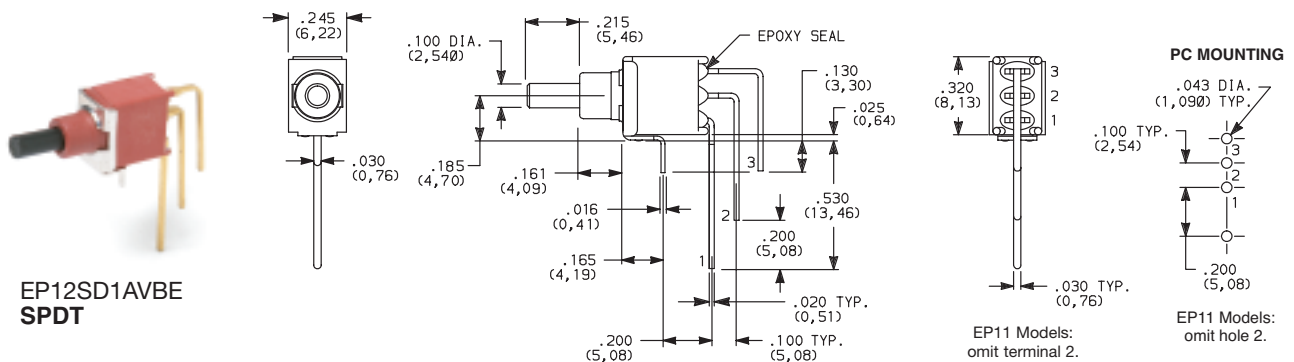
EP12SD1ABE  
SPDT

### A RIGHT ANGLE, PC THRU-HOLE



EP21SD1ABE  
DPST

### AV VERTICAL RIGHT ANGLE, PC THRU-HOLE



EP12SD1AVBE  
SPDT

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



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





# C&K EP Series Sealed Tiny Pushbutton Switches

## TERMINATIONS



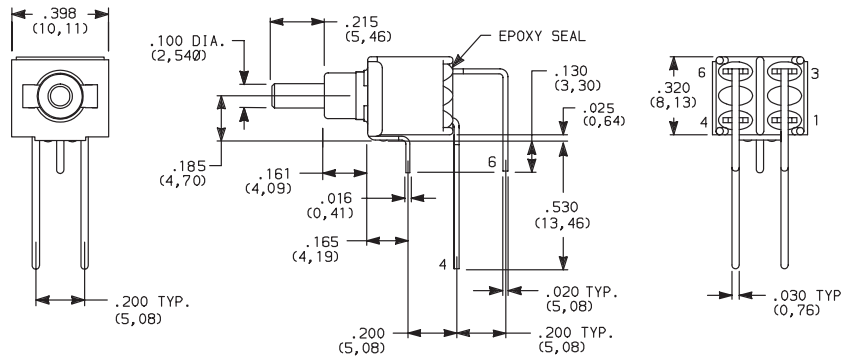
Pushbutton

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### AV VERTICAL RIGHT ANGLE, THRU-HOLE



EP21SD1AVBE  
DPST

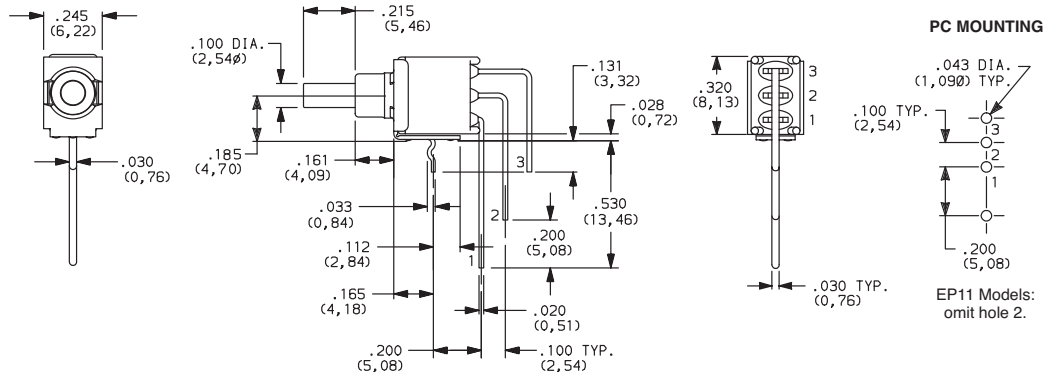


NOTE: Terminal bend radii and lead-in manufacturing option.

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



EP12SD1AV3BE  
SPST

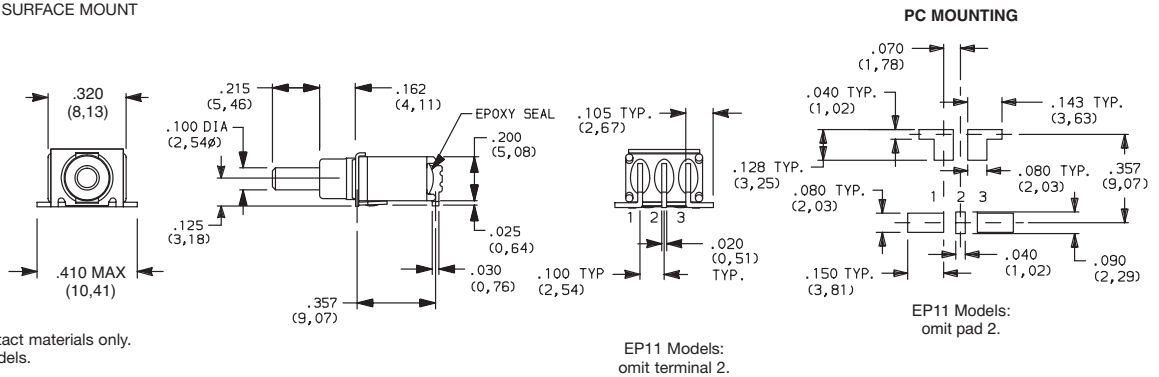


### SA RIGHT ANGLE, SURFACE MOUNT

#### SMT



EP12SD1SAPE  
SPDT

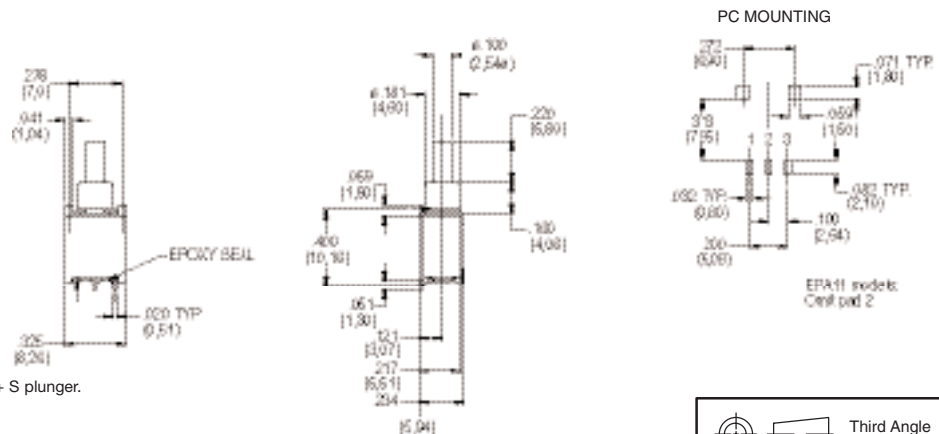


Available with K and P contact materials only.  
Not Available on DPST models.

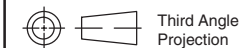
### SA1 RIGHT ANGLE, SURFACE MOUNT



EP12SD1SA1BE  
SPDT



SA1 is only available with B contact materials option + S plunger.  
Not Available on DPST models.



Dimensions are shown: Inches (mm)  
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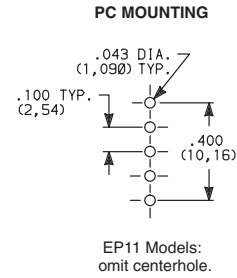
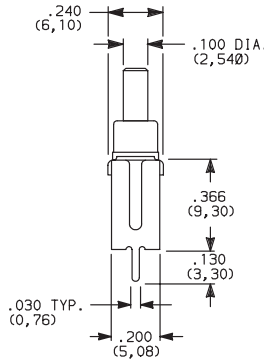
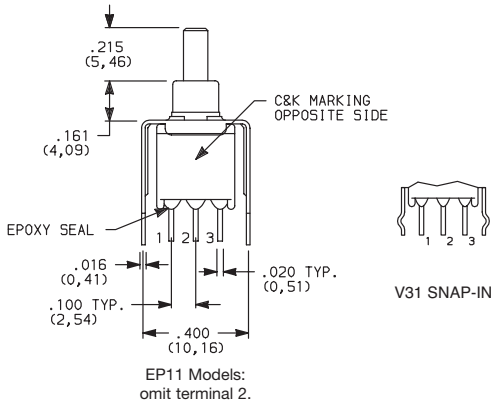


A

Pushbutton

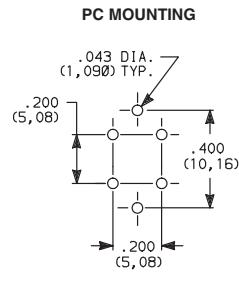
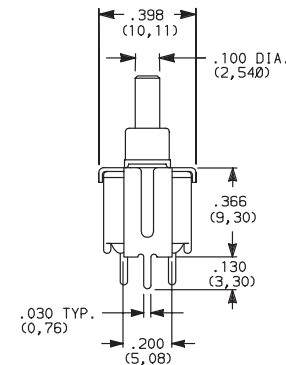
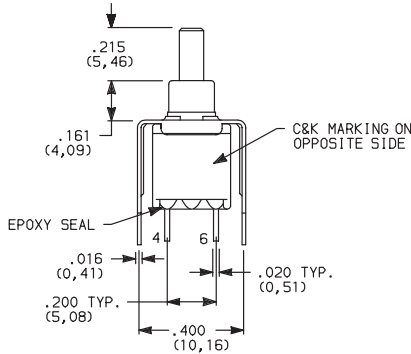
## TERMINATIONS

- V3** VERTICAL MOUNT, V-BRACKET
- V31** VERTICAL MOUNT, V-BRACKET, SNAP-IN



EP12SD1V3BE  
SPDT

- V3** VERTICAL MOUNT, V-BRACKET



EP21SD1V3BE  
DPST

## CONTACT MATERIAL

OPTION CODE	RoHS COMPLIANT *	RoHS COMPATIBLE *	CONTACT MATERIAL	TERMINAL PLATING	RATINGS	
<b>B</b>	YES	YES	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>	NO	YES		TIN-LEAD <sup>6</sup>		
<b>P</b>	YES	YES		MATTE-TIN <sup>7</sup>		
<b>Q</b>	YES	YES	SILVER <sup>4,5</sup>	SILVER <sup>5</sup>	POWER	1 AMP @ 120 V AC OR 28 V DC.
<b>M</b>	NO	YES		TIN-LEAD <sup>6</sup>		
<b>S</b>	YES	YES		MATTE-TIN <sup>7</sup>		
<b>G</b>	YES	YES	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>	NO	YES		TIN-LEAD <sup>6</sup>		
<b>R</b>	YES	YES		MATTE-TIN <sup>7</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, silver plated.

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

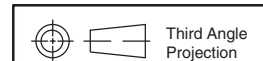
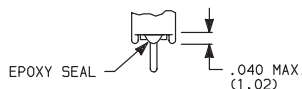
<sup>7</sup> TERMINALS: Copper alloy, with matte tin over nickel plate.

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

## SEAL

- E** EPOXY SEAL



Dimensions are shown: Inches (mm)  
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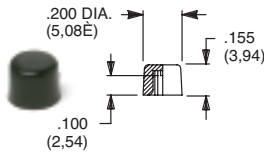


Pushbutton  
A

# C&K EP Series Sealed Tiny Pushbutton Switches

## AVAILABLE HARDWARE

Cap



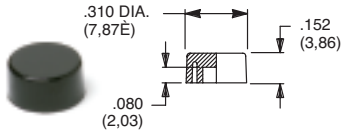
PART NO.

- 508101000 WHITE
- 508102000 BLACK
- 508103000 RED

Material: Nylon  
Finish: Gloss

Not for use on S1 plunger

Cap



PART NO.

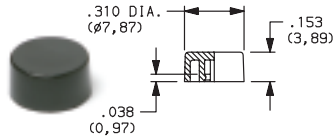
- 465801000 WHITE
- 465802000 BLACK
- 465803000 RED

Material: Nylon  
Finish: Gloss

Not for use on S1 plunger

Cap

Compatible with snap-fitting plungers  
EP11 & EP12 Models. R option only.



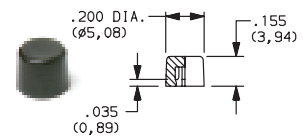
PART NO.

- 585A01000 WHITE
- 585A02000 BLACK
- 585A03000 RED

Material: Nylon  
Finish: Gloss

Cap

Compatible with snap-fitting plungers  
EP11 & EP12 Models. R option only.



PART NO.

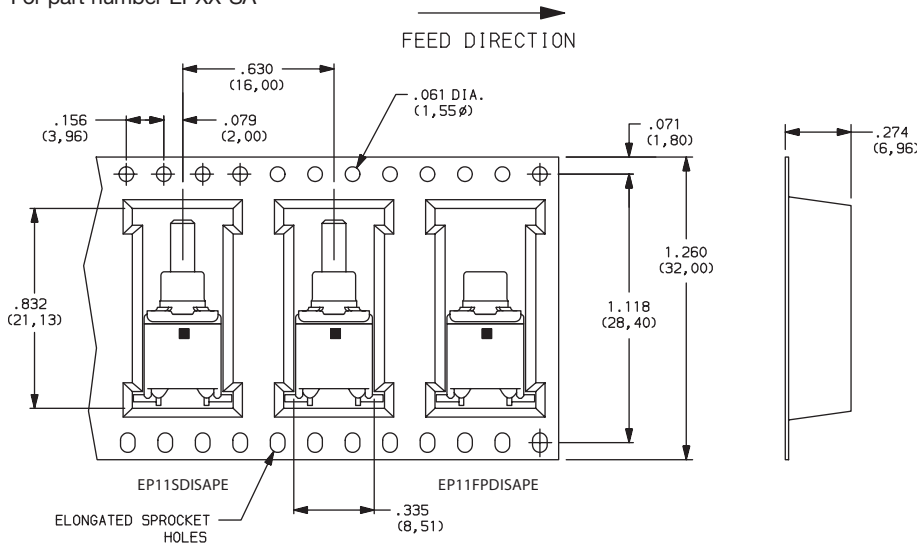
- 785A01000 WHITE
- 785A02000 BLACK
- 785A03000 RED

Material: Nylon  
Finish: Gloss

NOTE: Other colors available, consult Customer Service Center.

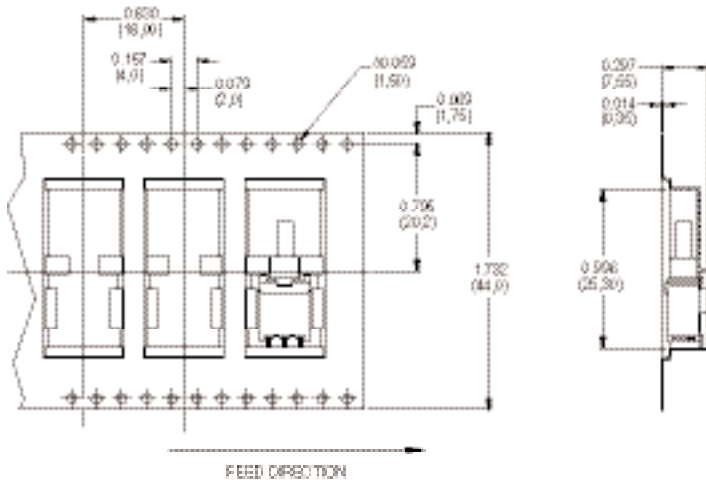
## TAPE & REEL

For part number EPXX-SA

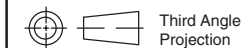


REEL INFORMATION	
OUTSIDE DIAMETER	13.00 (330,0)
PILOT HOLE	.512 (13,0)
QUANTITY PER REEL	600

For part number EPXX-SA1



REEL INFORMATION	
OUTSIDE DIAMETER	13.00 (330,0)
PILOT HOLE	.795 (20,20)
QUANTITY PER REEL	500



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