



Pushbutton  
A

# 8060 Series Alternate Action and Momentary Pushbutton Switches



### Features/Benefits

- Long travel
- Available with LED
- Long life contact design
- Epoxy terminal seal compatible with bottom wash cleaning
- RoHS compliant models available

### Typical Applications

- Instrumentation
- Computers and peripherals
- Telecommunications and networking equipment



### Specifications

CONTACT RATING: Q contact material: 6 AMPS @ 120 V AC or 28 V DC; 3 AMPS @ 250 V AC. See page A-59 for additional ratings.

ELECTRICAL LIFE: 50,000 make-and-break cycles at full load.

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: 1,000 Vrms min. @ sea level.

OPERATING TEMPERATURE: -30°C to 65°C

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

CAP INSTALLATION FORCE: 10 lbs. maximum permissible.

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

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

### Materials

CASE: Glass filled nylon 6/6 or diallyl phthalate (DAP), flame retardant (UL 94V-0).

PLUNGER: S, S1, S2 Options: Glass filled nylon or glass filled polyester (PBT) (UL 94V-0). L, L1 Options: Brass, nickel plated.

CAP & FRAME: Nylon, black standard.

BUSHING: Brass or zinc, nickel plated.

HOUSING: Stainless steel.

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

END CONTACTS: Q contact material: Coin silver, silver plated. See page A-59 for additional contact materials.

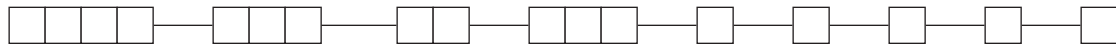
CENTER CONTACT & ALL TERMINALS: Q contact material: Copper alloy, silver plated. See page A-59 for additional contact materials.

TERMINAL SEAL: Epoxy. Refer to soldering and cleaning in Technical Data Chapter.

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

### 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-53 thru A-61. For additional options not shown in catalog, consult Customer Service Center. All models have epoxy terminal seal and are compatible with all "bottom-wash" PCB cleaning methods.



#### Switch Function

- 8161** SPDT On-On
- 8168** SPDT On-Mom.
- 8261** DPDT On-On

#### Actuator or Plunger

- S** .710" high plunger with .375" dia. cap
- J80** Snap-in
- J81** Snap-in with frame
- J82** Snap-in with frame for LED
- J86** Snap-in with frame & LED
- L** .740" high plunger with .395" dia. cap
- L1** .740" high plunger with .590" dia. cap
- S1** .615" high plunger with .200" dia. cap
- S2** .710" high plunger with .310" dia. cap

#### Bushing

- H** .300" high, flat, hi torque
- H9** .300" high, flat, hi torque
- NONE** No bushing choice required
- Y3** 7.6mm, keyway

#### Terminations

- A** Right angle, PC thru-hole
- AV2** Vertical right angle, PC thru-hole
- C** PC Thru-hole
- Z** Solder lug
- A3** Right angle, snap-in, PC thru-hole
- AV3** Vertical right angle, snap-in, PC thru-hole
- V3** .460" high, V-bracket
- V4** .630" high, V-bracket
- V6** .460" high, V-bracket
- V21** .555" high, snap-in V-bracket
- V31** .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
- I** Epoxy potted base

#### Cap Color

- 2** Black
- 1** White
- 3** Red
- 4** Orange
- 5** Yellow
- 9** Gray

#### Frame Color

- 2** Black

#### LED Color

- 3** Red
- NONE** Models without LED



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

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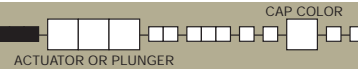
## SWITCH FUNCTION

NO. POLES	MODEL NO.	SWITCH FUNCTION		CONNECTED TERMINALS		SCHEMATIC
		POS. 1	POS. 2	POS. 1	POS. 2	
SP	<b>8161</b> <b>8168</b>	ON	ON	2-3	2-1	
		ON	MOM.	2-3	2-1	
<p><b>SPDT</b></p> <p>Part number shown: 8161SHZQE</p>						
DP	<b>8261</b>	ON	ON	2-3-5-6	2-1-5-4	
<p><b>DPDT</b></p> <p>Part number shown: 8261SHZQE</p>						

MOM. = Momentary

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

## ACTUATOR—SNAP-IN FRONT MOUNT



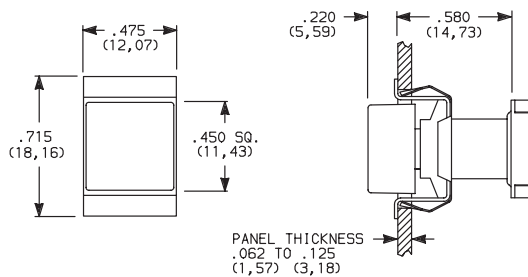
OPTION CODE	CAP COLOR
<b>2</b>	BLACK
<b>1</b>	WHITE
<b>3</b>	RED
<b>4</b>	ORANGE
<b>5</b>	YELLOW
<b>9</b>	GRAY

Cap Finish: matte.  
Other colors available, consult Customer Service Center.

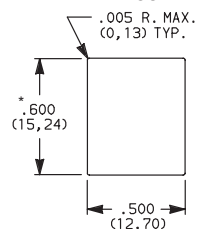
Available with C, W, Z or Z3 terminations.

**NOTE:** Caps & frames available separately, see pages A-60 and A-61.

### J80 SNAP-IN



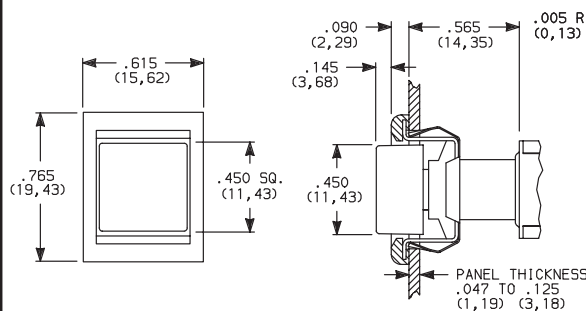
### PANEL MOUNTING



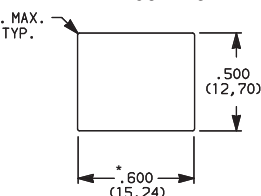
\*Increase this dimension to .620/.625 (15.75/15.88) for .091/.125 (2.41/2.18) thick panels.



### J81 SNAP-IN WITH BLACK FRAME



### PANEL MOUNTING



\*Increase this dimension to .620/.625 (15.75/15.88) for .091/.125 (2.41/2.18) thick panels.



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





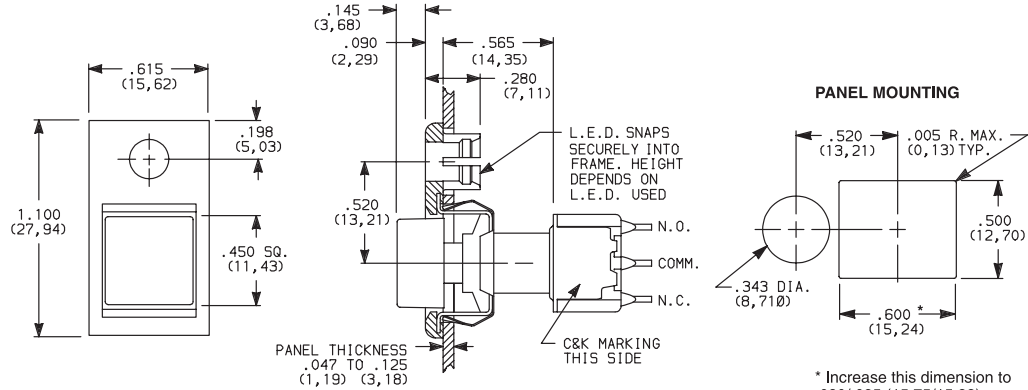
# 8060 Series Alternate Action and Momentary Pushbutton Switches

## ACTUATOR—SNAP-IN FRONT MOUNT



Pushbutton  
A

### J82 SNAP-IN WITH BLACK FRAME FOR LED



Available with C, W, Z or Z3 terminations.

**LED not included.**  
For LED information, see page A-61.

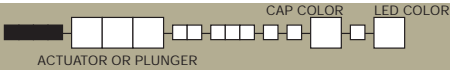
**NOTE:** Caps & frames available separately, see pages A-60 and A-61.

Other colors available, consult Customer Service Center.

OPTION CODE	CAP COLOR
2	BLACK
1	WHITE
3	RED
4	ORANGE
5	YELLOW
9	GRAY

\* Increase this dimension to .620/.625 (15,75/15,88) for .091/.125 (2,31/3,18) thick panels.

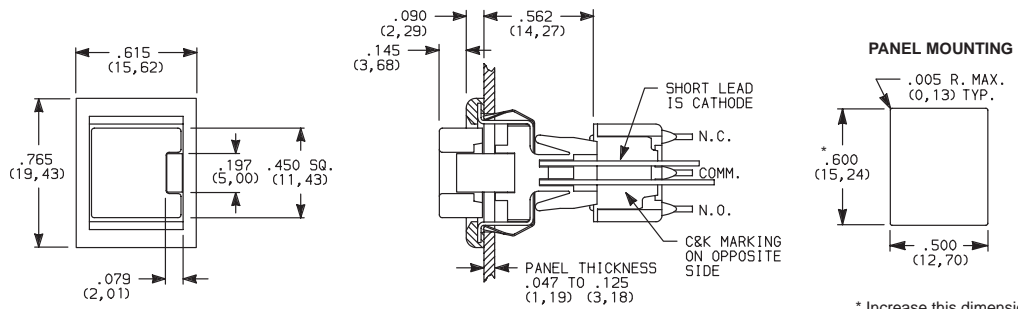
## ACTUATOR—SNAP-IN FRONT MOUNT



### J86 SNAP-IN WITH BLACK FRAME AND LED



8161J86ZQE223  
SPDT



Available with C, W, Z or Z3 terminations and SPDT models only.

**NOTE:** Caps & frames available separately, see pages A-60 and A-61.

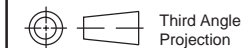
Other colors available, consult Customer Service Center.

OPTION CODE	CAP COLOR
2	BLACK
1	WHITE
3	RED
4	ORANGE
5	YELLOW
9	GRAY

OPTION CODE	LED COLOR
3	RED

For LED information, see page A-59.

\* Increase this dimension to .620/.625 (15,75/15,88) for .091/.125 (2,31/3,18) thick panels.



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

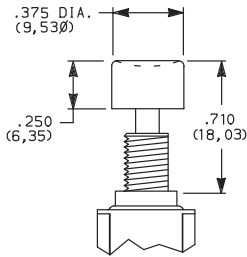
# 8060 Series Alternate Action and Momentary Pushbutton Switches



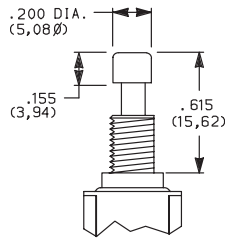
Pushbutton

## PLUNGER

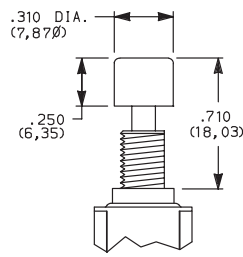
**S** PLUNGER WITH CAP P/N 7527



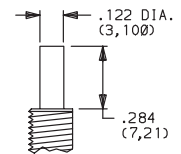
**S1** PLUNGER WITH CAP P/N 7089



**S2** PLUNGER WITH CAP P/N 8018

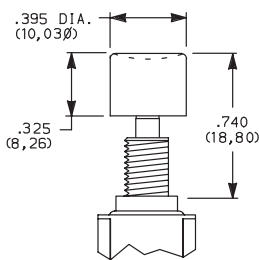


**S, S1, S2 plunger dimensions.**

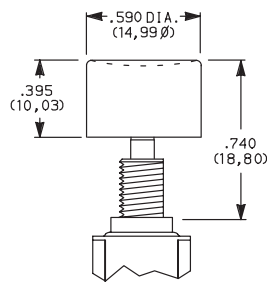


Plunger material: Glass filled nylon or glass filled polyester (UL 94V-0).

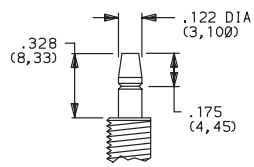
**L** PLUNGER WITH CAP P/N 8941



**L1** PLUNGER WITH CAP P/N 8940



**L, L1 plunger dimensions.**



Plunger Material: Brass, chrome plated.

OPTION CODE	CAP COLOR
2	BLACK
1	WHITE
3	RED
4	ORANGE
5	YELLOW
9	GRAY

Cap Finish: gloss. Cap supplied not installed. Other colors available, consult Customer Service Center.

**NOTE:** When selecting plunger and cap option, bushing selection must also be made, see below.

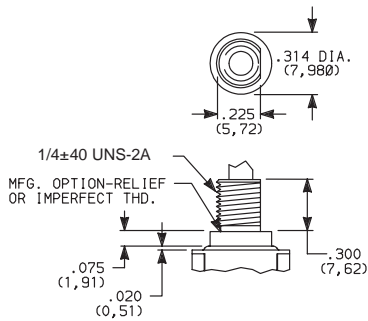
## BUSHING

**H** .300" HIGH THREADED, FLAT

**NONE** NO BUSHING CHOICE REQUIRED (JXX ACTUATORS)

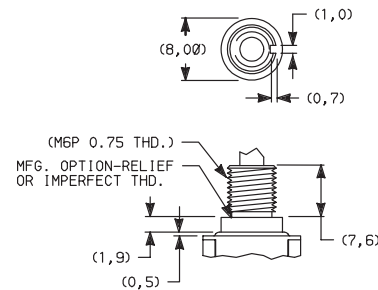
**Y3** 7.6mm THREADED, KEYWAY

**H9** .300" HIGH UNTHREADED, FLAT



H bushing standard with C, W, Z or Z3 terminations. H9 bushing standard with A, A3, AV2, AV3, or V3-V31 terminations.

Withstands 12 in./lbs. of torque with no distortion.

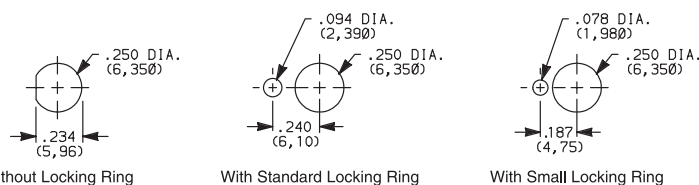


Withstands 12 in./lbs. of torque with no distortion.

**NOTE:** When selecting bushing option, plunger selection must also be made, see above. No bushing option choice required when any JXX actuator option is selected.

### PANEL MOUNTING

#### 1/4 IN. BUSHING

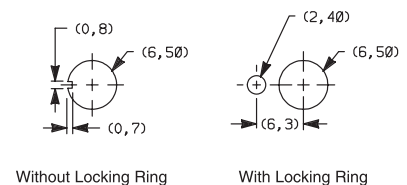


Without Locking Ring

With Standard Locking Ring

With Small Locking Ring

#### METRIC BUSHING



Without Locking Ring

With Locking Ring

**NOTE.** Two mounting nuts, locking ring and lockwasher supplied standard with threaded bushings. Optional mounting nut and locking ring styles and finishes available, see section "Technical Data and Additional Hardware".



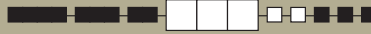
Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change



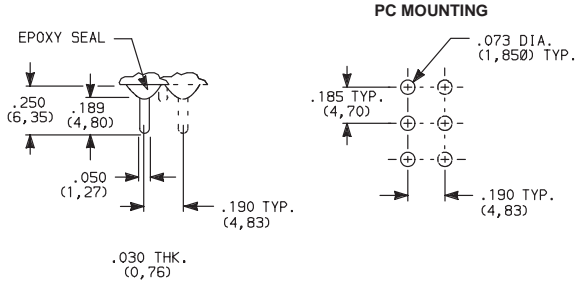
Pushbutton  
A

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## TERMINATIONS

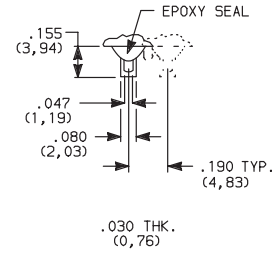


### C PC THRU-HOLE



### SPDT and DPDT

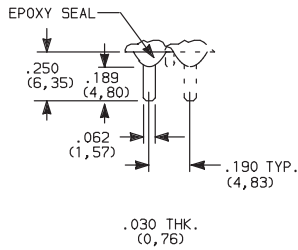
### Z SOLDER LUG



### SPDT and DPDT

Not available with P, S or R contact material.

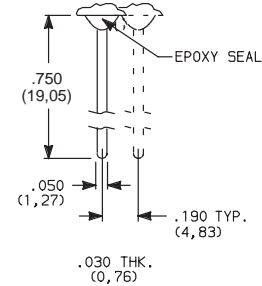
### Z3 QUICK CONNECT



### SPDT and DPDT

Not available with P, S or R contact material.  
Mating quick connector available;  
order part number 530100000, page A-61.

### W WIRE WRAP

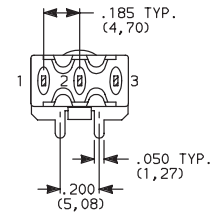
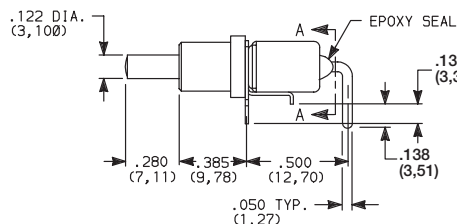
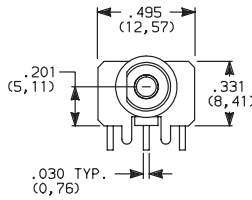


### SPDT and DPDT

### A RIGHT ANGLE, PC THRU-HOLE

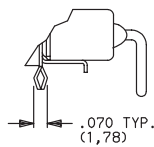
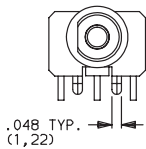


8161SH9ABE2  
SPDT

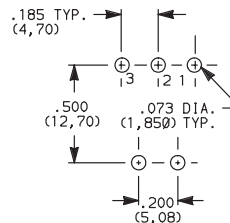


SECTION A-A

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

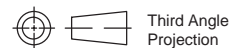


### PC MOUNTING



Not available with I seal.  
Terminal bend radii and lead-in manufacturing option.

NOTE: PC pattern must clear switch support leg.



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



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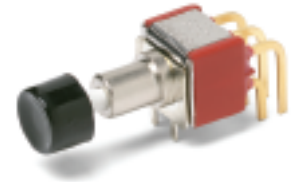
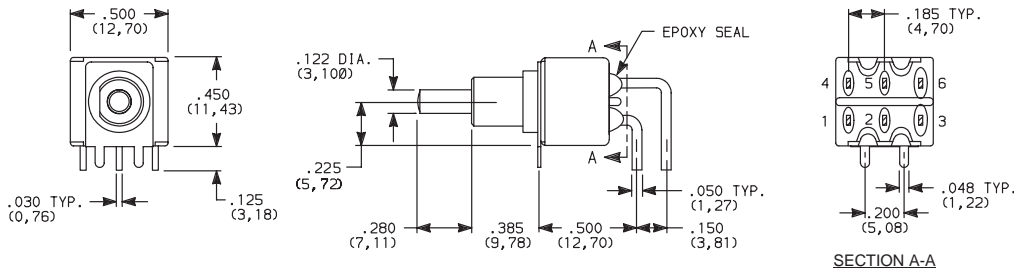


A

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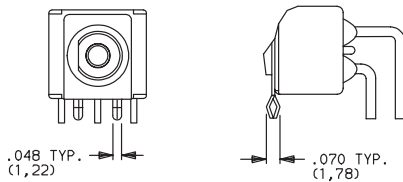
## TERMINATIONS

### A RIGHT ANGLE, PC THRU-HOLE

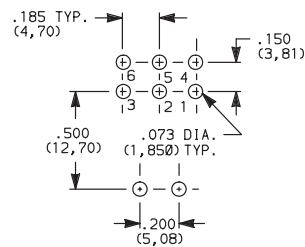


8261SH9ABE2  
DPDT

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

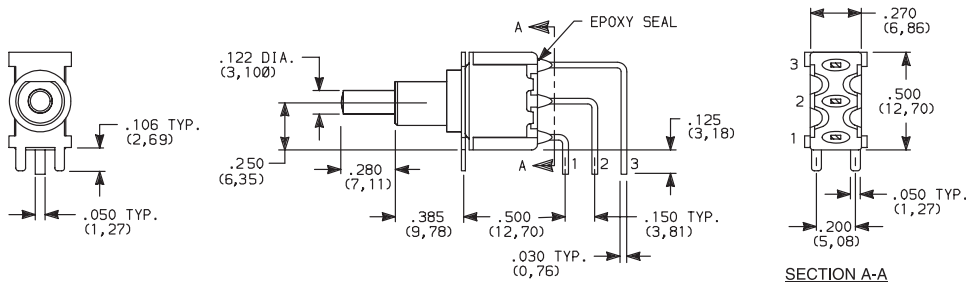


#### PC MOUNTING



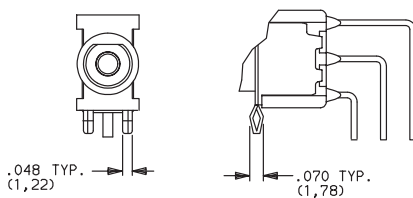
Not available with I seal.  
Terminal bend radii and lead-in manufacturing option.

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

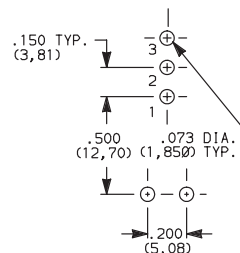


8161SH9AV2BE2  
SPDT

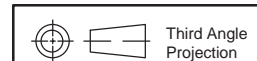
### AV3 VERTICAL RIGHT ANGLE, SNAP-IN, PC THRU-HOLE, .150" PITCH



#### PC MOUNTING



Not available with I seal.  
Terminal bend radii and lead-in manufacturing option.



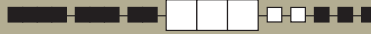
Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change





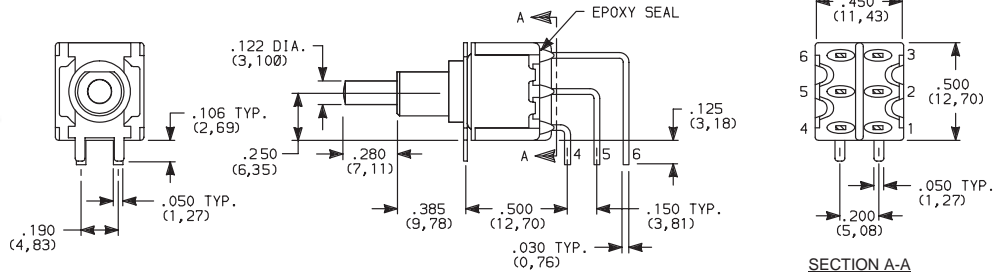
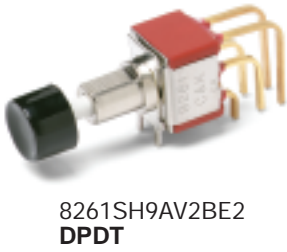
# 8060 Series Alternate Action and Momentary Pushbutton Switches

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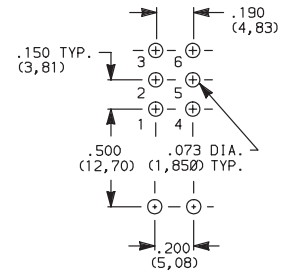
**AV2** VERTICAL RIGHT ANGLE, PC THRU-HOLE, .150" PITCH



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



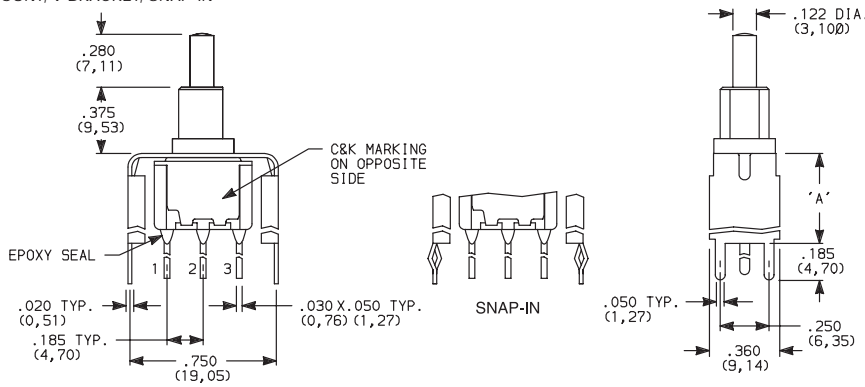
**PC MOUNTING**



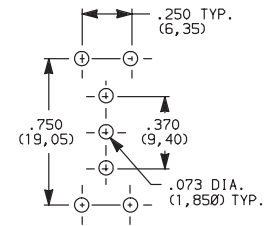
Not available with I seal.  
Terminal bend radii and lead-in manufacturing option.

**V6** VERTICAL MOUNT, V-BRACKET

**V21** VERTICAL MOUNT, V-BRACKET, SNAP-IN



**PC MOUNTING**

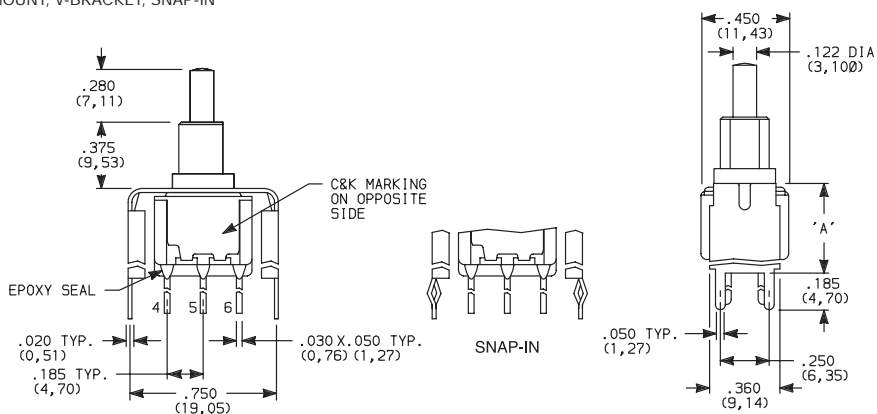
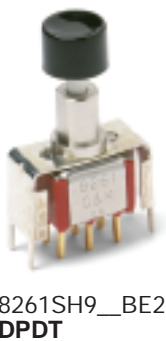


OPTION CODE	DIM 'A'
V21	.555 (14,10)
V6	.460 (11,68)

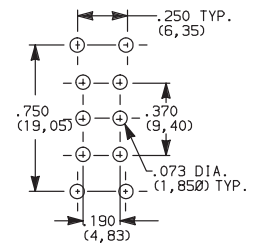
Not available with I seal.

**V6** VERTICAL MOUNT, V-BRACKET

**V21** VERTICAL MOUNT, V-BRACKET, SNAP-IN



**PC MOUNTING**



OPTION CODE	DIM 'A'
V21	.555 (14,10)
V6	.460 (11,68)

Not available with I seal.



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

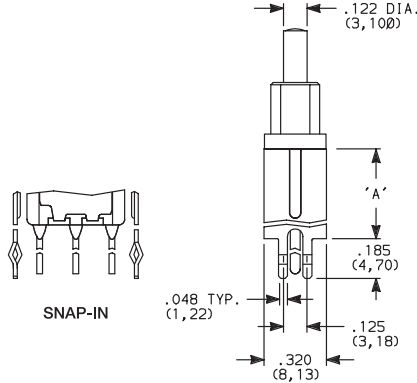
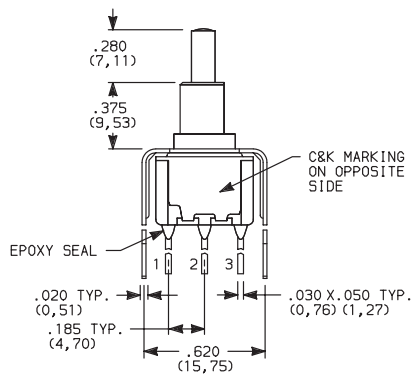


# 8060 Series Alternate Action and Momentary Pushbutton Switches

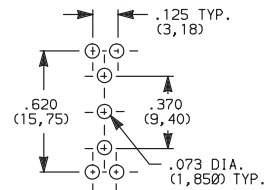
## TERMINATIONS

**V3, V4** VERTICAL MOUNT, V-BRACKET

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



PC MOUNTING



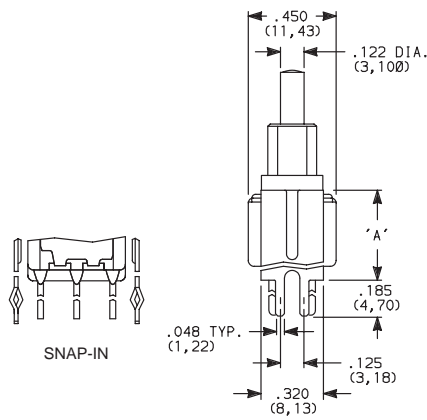
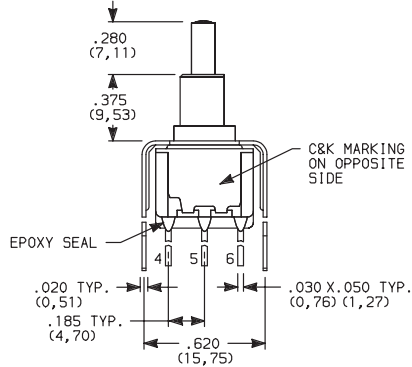
8161SH9\_BE2  
SPDT

OPTION CODE	DIM 'A'
V3, V31	.460 (11,68)
V4	.630 (16,00)

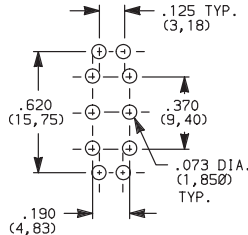
Not available with I seal.

**V3, V4** VERTICAL MOUNT, V-BRACKET

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



PC MOUNTING



8261SH9\_BE2  
DPDT

OPTION CODE	DIM 'A'
V3, V31	.460 (11,68)
V4	.630 (16,00)

Not available with I seal.

## CONTACT MATERIAL

OPTION CODE	CONTACT MATERIAL	TERMINAL PLATING	RATINGS	
<b>B</b>	GOLD <sup>1</sup>	GOLD <sup>1</sup>	LOW LEVEL/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	6 AMPS @ 120 V AC OR 28 V DC; 3 AMPS @ 250 V AC.
<b>S</b>		MATTE-TIN <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 6 AMPS @ 120 V AC OR 28 V DC; 3 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, 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, L, M or Q contact material.

B contact material standard with all terminations except C, Z & Z3.

Q contact material standard with C, Z & Z3 terminations.

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

K, L and M options represent Non RoHS tin lead product and are not recommended for new designs. For additional information please contact Customer Service.



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





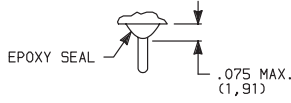


# 8060 Series Alternate Action and Momentary Pushbutton Switches

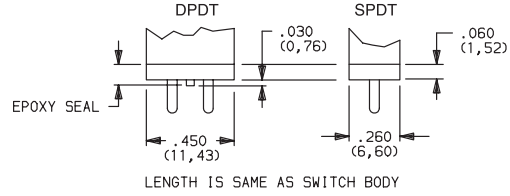
## SEAL

Pushbutton  
A

**E** EPOXY SEAL



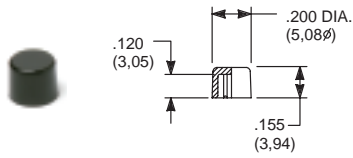
**I** EPOXY POTTED BASE



**NOTE:** Available with C, W, Z, Z3 terminations only.

## AVAILABLE HARDWARE

Cap

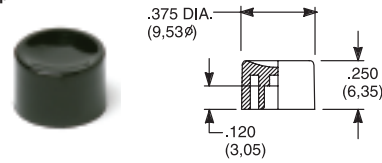


**PART NO.**

**708901000** WHITE  
**708902000** BLACK  
**708903000** RED  
**708904000** ORANGE  
**708905000** YELLOW  
**708909000** GRAY

Material: Nylon  
Finish: Gloss

Cap

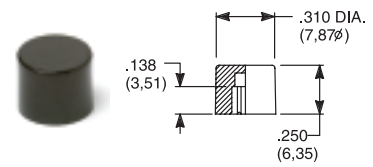


**PART NO.**

**752701000** WHITE  
**752702000** BLACK  
**752703000** RED  
**752704000** ORANGE  
**752705000** YELLOW  
**752709000** GRAY

Material: Nylon  
Finish: Gloss

Cap

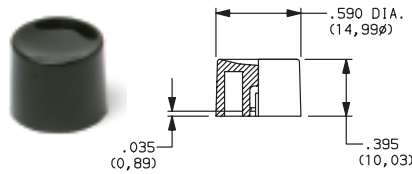


**PART NO.**

**801801000** WHITE  
**801802000** BLACK  
**801803000** RED  
**801804000** ORANGE  
**801805000** YELLOW  
**801809000** GRAY

Material: Nylon  
Finish: Gloss

Cap, Snap-fitting plunger

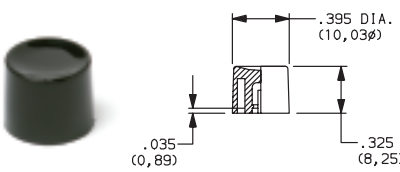


**PART NO.**

**894001000** WHITE  
**894002000** BLACK  
**894003000** RED  
**894004000** ORANGE  
**894005000** YELLOW  
**894009000** GRAY

Material: Nylon  
Finish: Gloss

Cap, Snap-fitting plunger

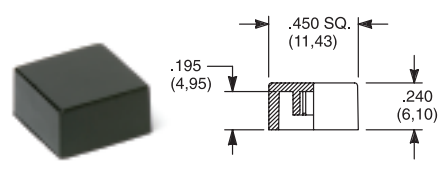


**PART NO.**

**894101000** WHITE  
**894102000** BLACK  
**894103000** RED  
**894104000** ORANGE  
**894105000** YELLOW  
**894109000** GRAY

Material: Nylon  
Finish: Gloss

Cap, J80, J81 & J82 options only



**PART NO.**

**484601000** WHITE  
**484602000** BLACK  
**484603000** RED  
**484604000** ORANGE  
**484605000** YELLOW  
**484609000** GRAY

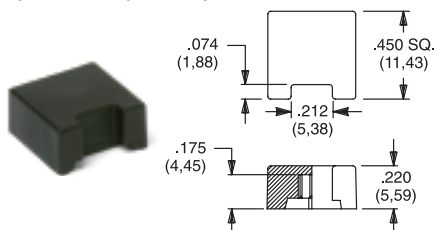
Material: Nylon  
Finish: Gloss

**PART NO.**

**798201000** WHITE  
**798202263** BLACK  
**798203000** RED  
**798204000** ORANGE  
**798205000** YELLOW  
**798209000** GRAY

Material: Nylon  
Finish: Matte

Cap, J86 & J96 options only



**PART NO.**

**459701000** WHITE  
**459702000** BLACK  
**459703000** RED  
**459704000** ORANGE  
**459705000** YELLOW  
**459709000** GRAY

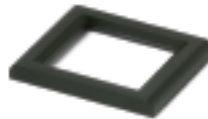
Material: Nylon  
Finish: Gloss

**PART NO.**

**476801000** WHITE  
**476802000** BLACK  
**476803000** RED  
**476804000** ORANGE  
**476805000** YELLOW  
**476809000** GRAY

Material: Nylon  
Finish: Matte

Frame



**PART NO.**

**615602263** BLACK

Material: Nylon  
Finish: Matte

Frame



**PART NO.**

**613302263** BLACK

Material: Nylon  
Finish: Matte

**NOTE:** Additional nuts, locking rings and lockwashers available separately, see section "Technical Data and Additional Hardware". Other cap & frame colors available, consult Customer Service Center.



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



# 8060 Series Alternate Action and Momentary Pushbutton Switches



A

Pushbutton

## AVAILABLE HARDWARE

Fits Z3 Termination female connector

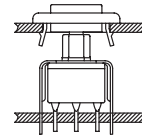
PART NO.  
**530100000**

Available in loose pieces.



Frames snap into panel opening and are independent from switch mounting. Accurate positioning of the PC mounted switch relative to the panel opening is necessary to provide proper clearance between actuator and frame. Available in two basic styles and four panel thicknesses .047-.125 in. Material: Nylon. Finish: Matte.

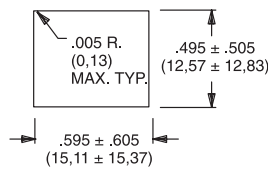
### TYPICAL APPLICATION



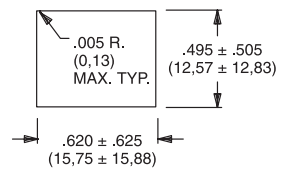
.047" (1,19) PANEL THK.	.062" (1,57) PANEL THK.	.090" (2,29) PANEL THK.	.125" (3,18) PANEL THK.
PART NO. <b>432502263</b>	PART NO. <b>432602263</b>	PART NO. <b>432702263</b>	PART NO. <b>432802263</b> BLACK

### PANEL MOUNTING

For part numbers 4325xxxxx, 4326xxxxx

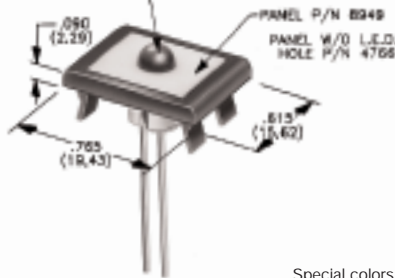


For part numbers 4327xxxxx, 4328xxxxx



### Panel Inserts

LED (.200 DIA. (5,08)) SNAPS SECURELY INTO INSERT (P/N 8949). HEIGHT DEPENDS ON LED USED.



Above frames (part nos. 432XXXXXX) are also available with insert which accepts LED for indicator light assembly. Order insert separately from frame. Blank insert panel (without hole for LED) also available. **LED not included.**

PANEL INSERT WITH HOLE FOR LED

PART NO.  
**894902000**

BLANK PANEL INSERT WITHOUT HOLE FOR LED

PART NO.  
**476602000** BLACK

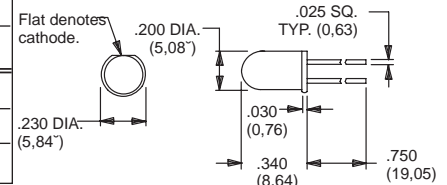
Special colors, custom markings available, consult Customer Service Center.

### LED INFORMATION

SWITCHES WITH LED SUPPLIED: J86 OPTION:

Rectangular LEDs are supplied on 8060 Series pushbutton switches with J86 option. These LEDs are factory installed and are not replaceable. The following specifications apply:

OPTION CODE	COLOR	TYP. INTENSITY	TYP. FORWARD VOLTAGE	TYP. FORWARD CURRENT	MAX RATINGS AT 25°C AMBIENT TEMPERATURE		
					FORWARD VOLTAGE	CONTINUOUS FORWARD CURRENT	POWER DISSIPATION
6	Green	1.0 mcd	2.1 V	20 mA	2.5 V	50 mA	125 mW
3	Red*	0.5 mcd		10 mA		30 mA	75 mW
5	Yellow	4.0 mcd		20 mA		50 mA	125 mW



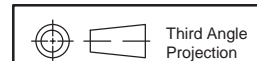
Suggested LED for J82 & J84 options. Dimensions for reference only.

**Process Information:** Soldering to LED leads must be completed within 5 seconds at 500°F (260°C) maximum.

**Caution:** Circuit elements must limit forward current of LED to 50mA max. continuous.

\* Extra-bright red LED available (typ. intensity 4.5 mcd), consult Customer Service Center.

LEDs are not supplied with J82 & J84 options. LED snaps into switch frame surrounding actuator and is wired externally.



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Specifications and dimensions subject to change

