



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



Models Available

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: 10⁹Ω 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.

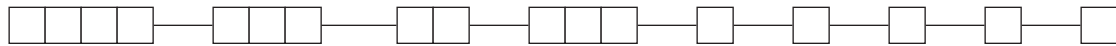
CENTER CONTACT & ALL TERMINALS: Q contact material: Copper alloy, silver plated. See page A-59 for additional contact materials.

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

8060 Series Alternate Action and Momentary Pushbutton Switches



A
Pushbutton

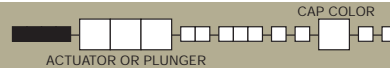
SWITCH FUNCTION

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



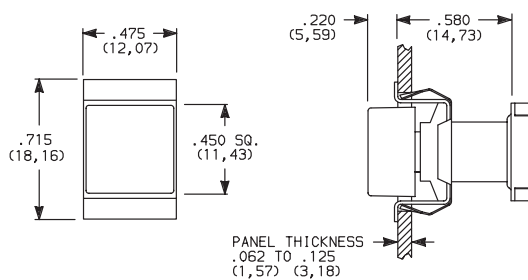
OPTION CODE	CAP COLOR
2	BLACK
1	WHITE
3	RED
4	ORANGE
5	YELLOW
9	GRAY

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

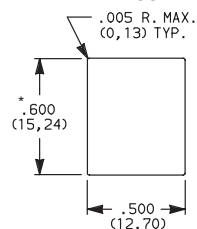
Available with C, W, Z or Z3 terminations.

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

J80 SNAP-IN



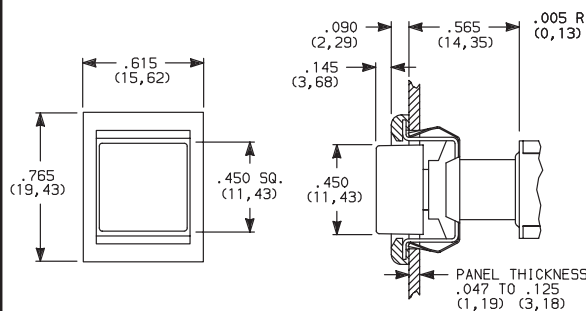
PANEL MOUNTING



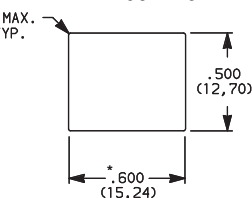
*Increase this dimension to .620/.625 (15.75/15.88) for .091/.125 (2.41/2.18) thick panels.



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



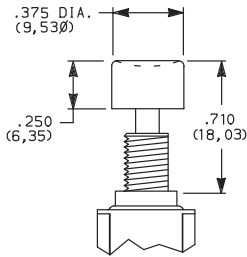
8060 Series Alternate Action and Momentary Pushbutton Switches



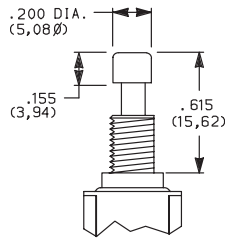
Pushbutton

PLUNGER

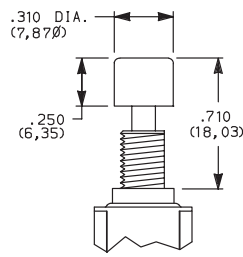
S PLUNGER WITH CAP P/N 7527



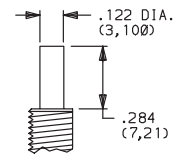
S1 PLUNGER WITH CAP P/N 7089



S2 PLUNGER WITH CAP P/N 8018

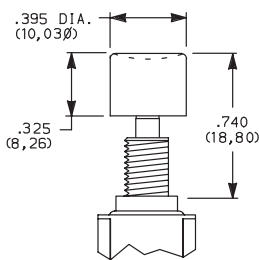


S, S1, S2 plunger dimensions.

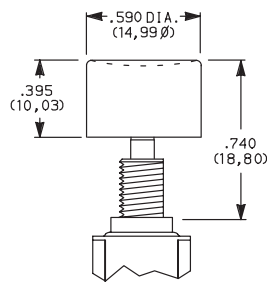


Plunger material: Glass filled nylon or glass filled polyester (UL 94V-0).

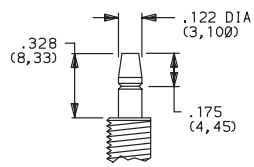
L PLUNGER WITH CAP P/N 8941



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.

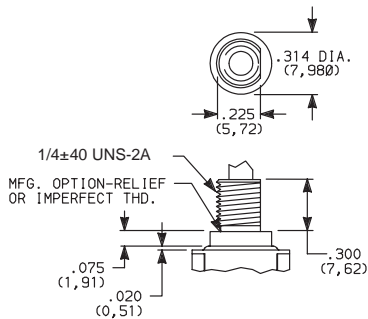
BUSHING

H .300" HIGH THREADED, FLAT

NONE NO BUSHING CHOICE REQUIRED (JXX ACTUATORS)

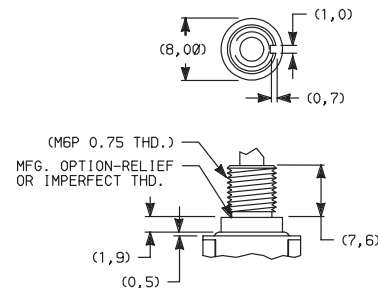
Y3 7.6mm THREADED, KEYWAY

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.

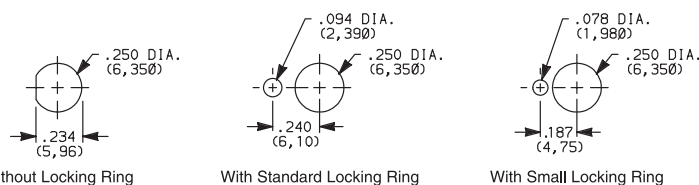


Withstands 12 in./lbs. of torque with no distortion.

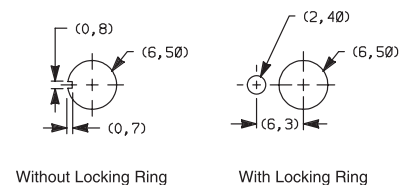
NOTE: When selecting bushing option, plunger selection must also be made, see above. No bushing option choice required when any JXX actuator option is selected.

PANEL MOUNTING

1/4 IN. BUSHING



METRIC BUSHING



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

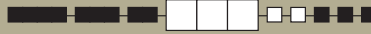




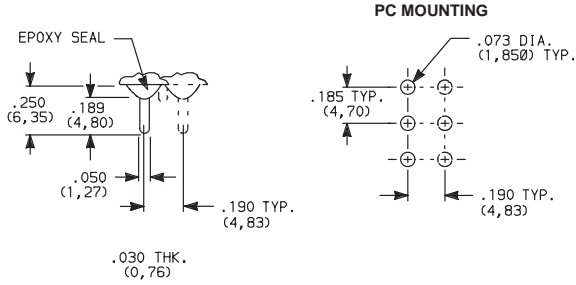
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A

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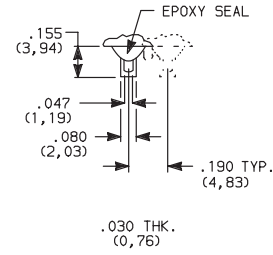


C PC THRU-HOLE



SPDT and DPDT

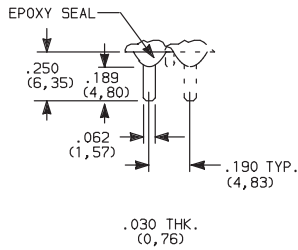
Z SOLDER LUG



SPDT and DPDT

Not available with P, S or R contact material.

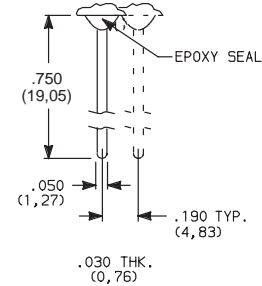
Z3 QUICK CONNECT



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

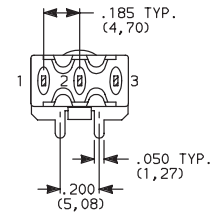
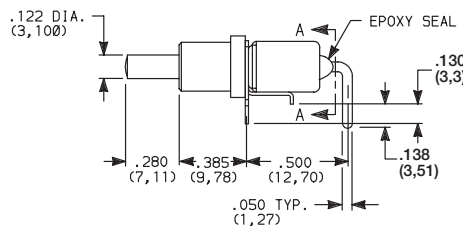
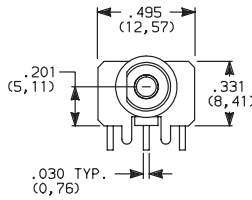


SPDT and DPDT

A RIGHT ANGLE, PC THRU-HOLE

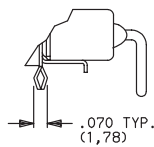
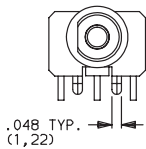


8161SH9ABE2
SPDT



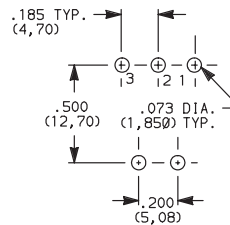
SECTION A-A

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



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

PC MOUNTING



NOTE: PC pattern must clear switch support leg.



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



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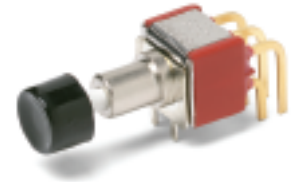
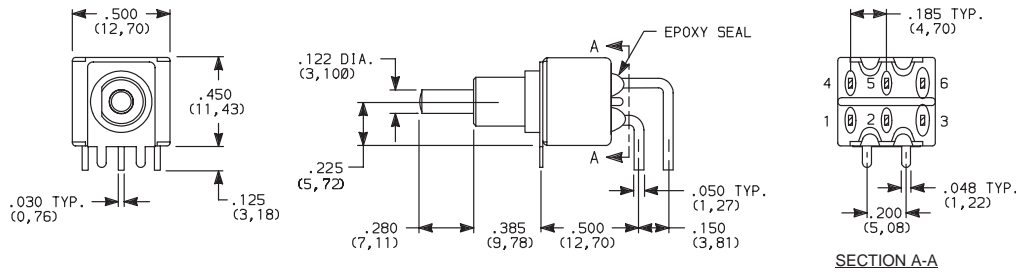


A

Pushbutton

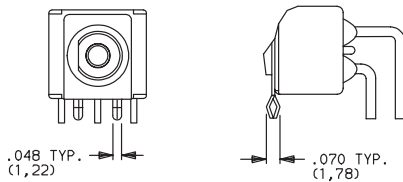
TERMINATIONS

A RIGHT ANGLE, PC THRU-HOLE

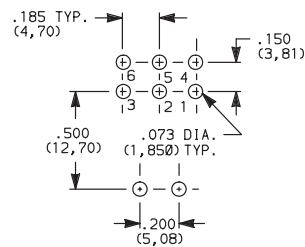


8261SH9ABE2
DPDT

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

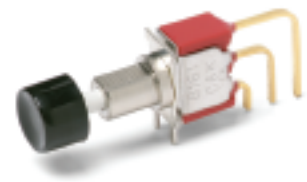
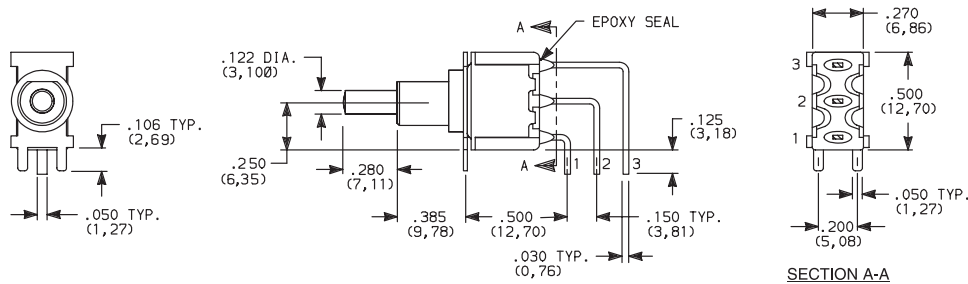


PC MOUNTING



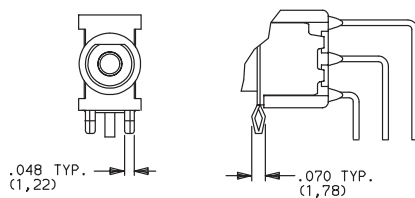
Not available with I seal.
Terminal bend radii and lead-in manufacturing option.

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

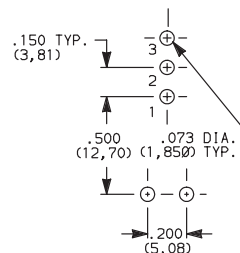


8161SH9AV2BE2
SPDT

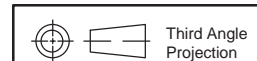
AV3 VERTICAL RIGHT ANGLE, SNAP-IN, PC THRU-HOLE, .150" PITCH



PC MOUNTING



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



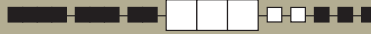
Third Angle Projection
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change





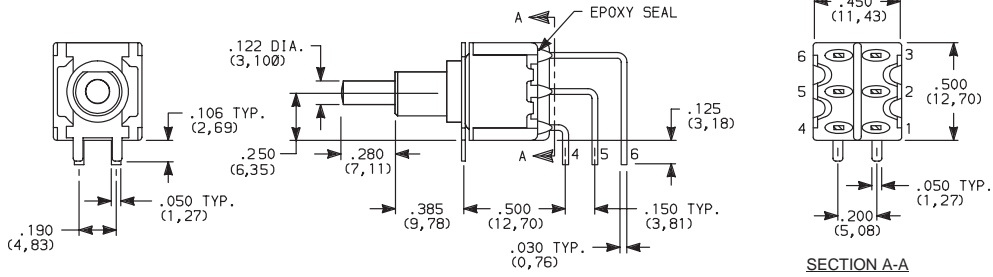
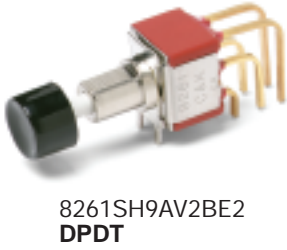
8060 Series Alternate Action and Momentary Pushbutton Switches

TERMINATIONS



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A

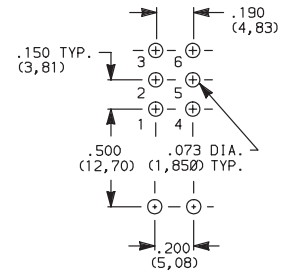
AV2 VERTICAL RIGHT ANGLE, PC THRU-HOLE, .150" PITCH



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



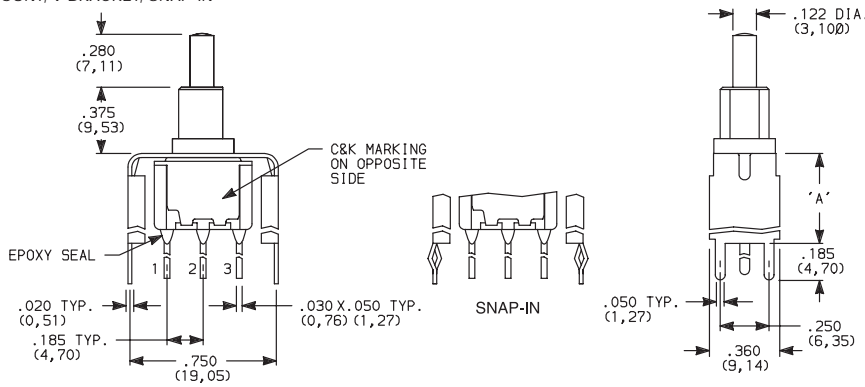
PC MOUNTING



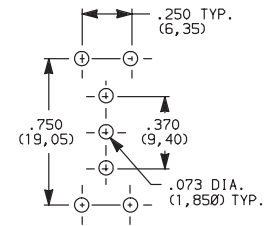
Not available with I seal.
Terminal bend radii and lead-in manufacturing option.

V6 VERTICAL MOUNT, V-BRACKET

V21 VERTICAL MOUNT, V-BRACKET, SNAP-IN



PC MOUNTING

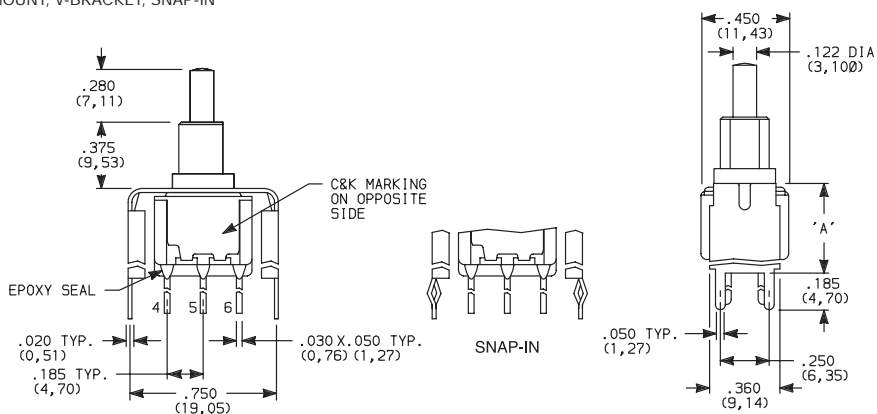
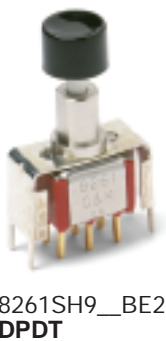


OPTION CODE	DIM 'A'
V21	.555 (14,10)
V6	.460 (11,68)

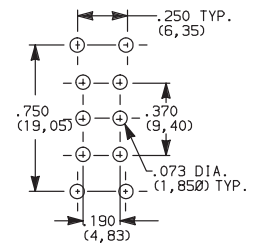
Not available with I seal.

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

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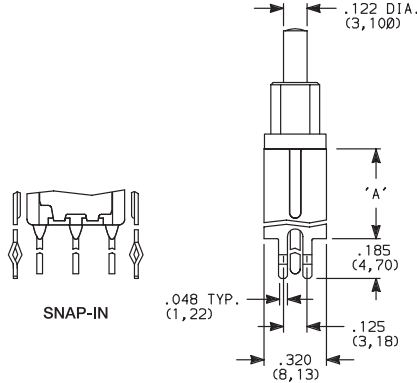
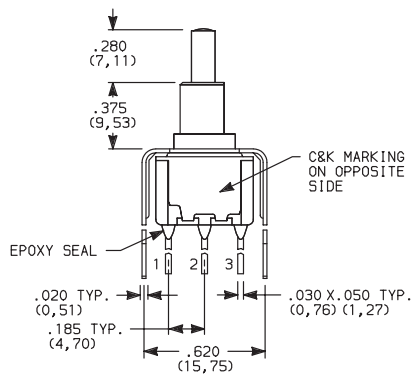
A

Pushbutton

TERMINATIONS

V3, V4 VERTICAL MOUNT, V-BRACKET

V31 VERTICAL MOUNT, V-BRACKET, SNAP-IN



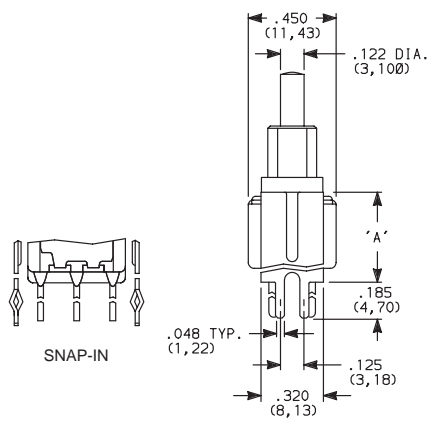
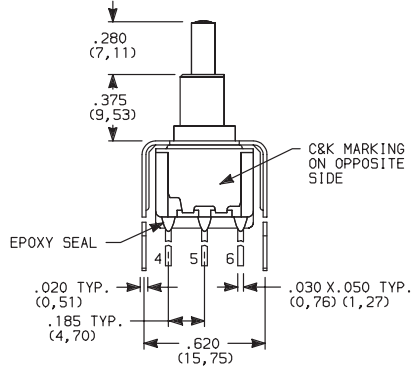
8161SH9_BE2
SPDT

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



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	GOLD ¹	GOLD ¹	LOW LEVEL/DRY CIRCUIT	0.4 VA MAX. @ 20 V AC OR DC MAX.
P		MATTE-TIN ⁶		
Q	SILVER ^{4,5}	SILVER ⁵	POWER	6 AMPS @ 120 V AC OR 28 V DC; 3 AMPS @ 250 V AC.
S		MATTE-TIN ⁶		
G	GOLD OVER SILVER ^{2,3}	GOLD ³	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.
R		MATTE-TIN ⁶		

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

¹ CONTACTS & TERMINALS: Copper alloy, with gold plate over nickel plate.

² END CONTACTS: Coin silver, with gold plate over nickel plate.

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

⁴ END CONTACTS: Coin silver, silver plated.

⁵ CENTER CONTACT & ALL TERMINALS: Copper alloy, silver plated.

⁶ 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



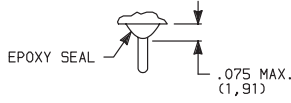


8060 Series Alternate Action and Momentary Pushbutton Switches

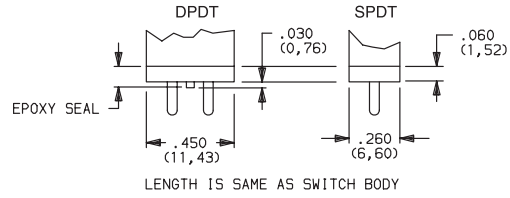
SEAL

Pushbutton
A

E EPOXY SEAL



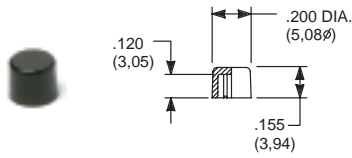
I EPOXY POTTED BASE



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

AVAILABLE HARDWARE

Cap

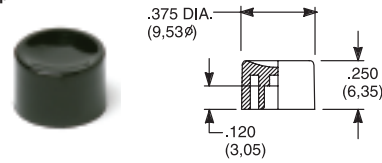


PART NO.

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

Material: Nylon
Finish: Gloss

Cap

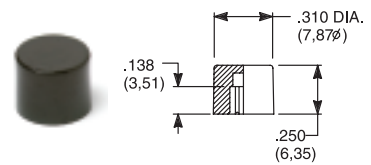


PART NO.

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

Material: Nylon
Finish: Gloss

Cap

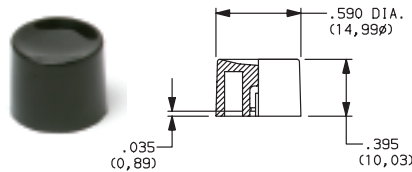


PART NO.

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

Material: Nylon
Finish: Gloss

Cap, Snap-fitting plunger

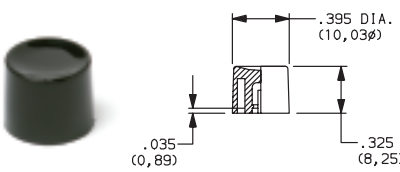


PART NO.

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

Material: Nylon
Finish: Gloss

Cap, Snap-fitting plunger

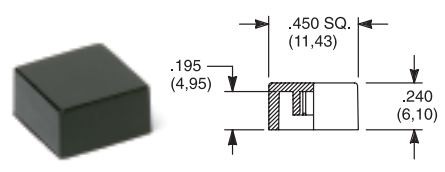


PART NO.

- 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

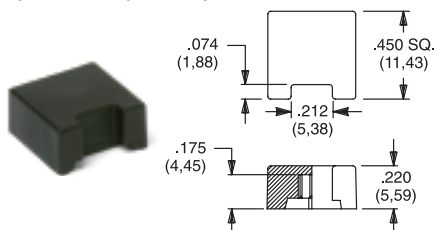
Material: Nylon
Finish: Gloss

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**
- 459702000**
- 459703000**
- 459704000**
- 459705000**
- 459709000**

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

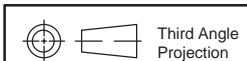


PART NO.

- 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

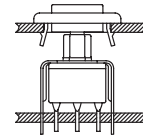
PART NO.
530100000

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.

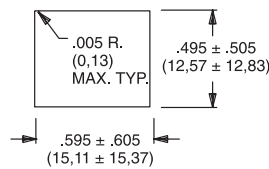
TYPICAL APPLICATION



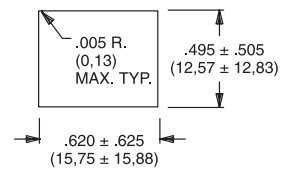
.047" (1,19) PANEL THK.	.062" (1,57) PANEL THK.	.090" (2,29) PANEL THK.	.125" (3,18) PANEL THK.
PART NO. 432502263	PART NO. 432602263	PART NO. 432702263	PART NO. 432802263 BLACK

PANEL MOUNTING

For part numbers
4325xxxxx, 4326xxxxx

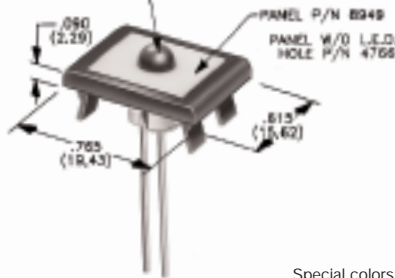


For part numbers
4327xxxxx, 4328xxxxx



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

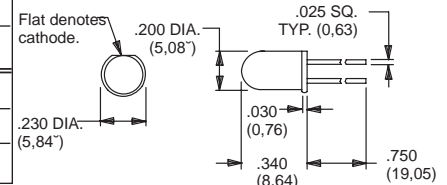
Special colors, custom markings available, consult Customer Service Center.

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



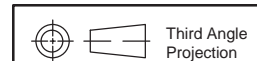
Suggested LED for J82 & J84 options.
Dimensions for reference only.

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.



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

