8060 Series
Alternate Action and Momentary Pushbutton Switches



Features/Benefits

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

Typical Applications

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

c UL us
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: $10^9\Omega$ 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

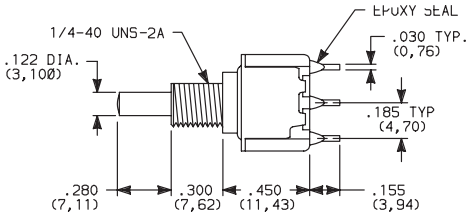
Frame Color
- **2** Black

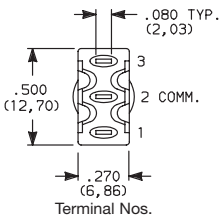
LED Color
- **3** Red
- **NONE** Models without LED

SWITCH FUNCTION

NO. POLES	MODEL NO.	SWITCH FUNCTION POS. 1 (C&K marking this side)	SWITCH FUNCTION POS. 2 (C&K marking this side)	CONNECTED TERMINALS POS. 1 (C&K marking this side)	CONNECTED TERMINALS POS. 2 (C&K marking this side)	SCHEMATIC
SP	8161	ON	ON	2-3	2-1	SPDT
	8168	ON	MOM.	2-3	2-1	

SPDT



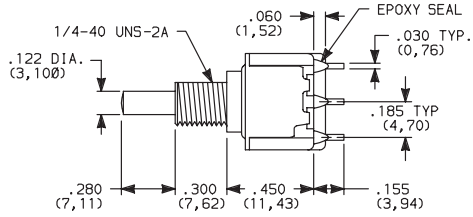


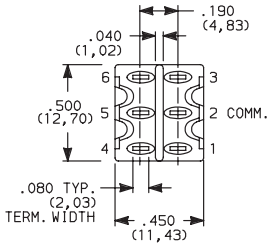
Terminal Nos.
For Reference Only

Part number shown: 8161SHZQE

NO. POLES	MODEL NO.	SWITCH FUNCTION POS. 1 (C&K marking this side)	SWITCH FUNCTION POS. 2 (C&K marking this side)	CONNECTED TERMINALS POS. 1 (C&K marking this side)	CONNECTED TERMINALS POS. 2 (C&K marking this side)	SCHEMATIC
DP	8261	ON	ON	2-3,5-6	2-1,5-4	DPDT

DPDT





Terminal Nos.
For Reference Only

Part number shown: 8261SHZQE

MOM. = Momentary

All models cULus with all options when ordered with G or Q contact material.

ACTUATOR—SNAP-IN FRONT MOUNT

CAP COLOR
ACTUATOR OR PLUNGER

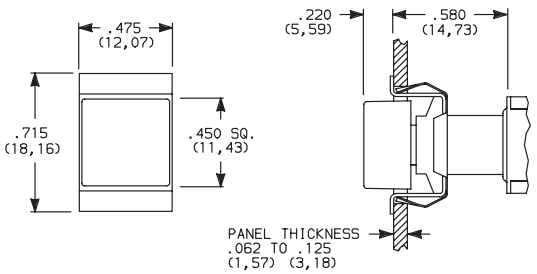
OPTION CODE	CAP COLOR
2	BLACK
1	WHITE
3	RED
4	ORANGE
5	YELLOW
9	GRAY

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

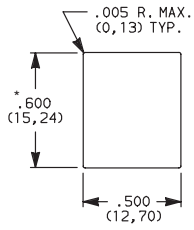
Available with C, W, Z or Z3 terminations.

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

J80 SNAP-IN



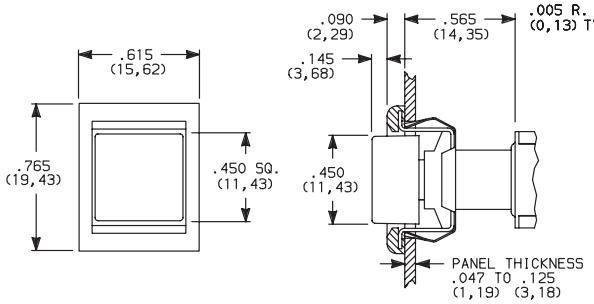
PANEL MOUNTING



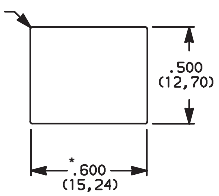
*Increase this dimension to .620/.625 (15,75/15,88) for .091/.125 (2,41/2,18) thick panels.



J81 SNAP-IN WITH BLACK FRAME



PANEL MOUNTING



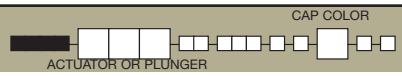
*Increase this dimension to .620/.625 (15,75/15,88) for .091/.125 (2,41/2,18) thick panels.



Third Angle Projection

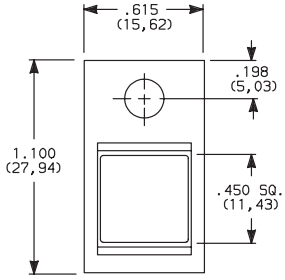
8060 Series
Alternate Action and Momentary Pushbutton Switches

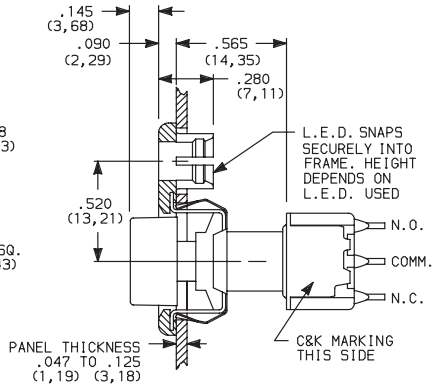
ACTUATOR—SNAP-IN FRONT MOUNT



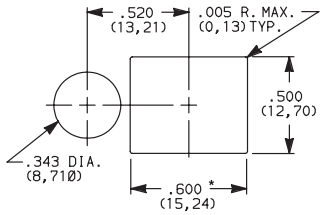
J82 SNAP-IN WITH BLACK FRAME FOR LED







PANEL MOUNTING



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

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.

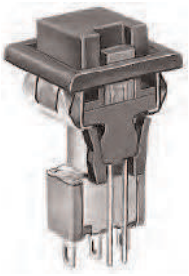
Other colors available, consult Customer Service Center.

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

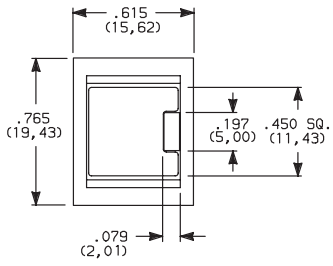
ACTUATOR—SNAP-IN FRONT MOUNT

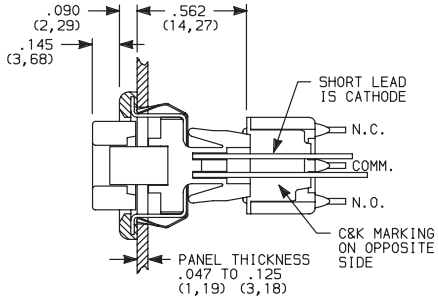


J86 SNAP-IN WITH BLACK FRAME AND LED

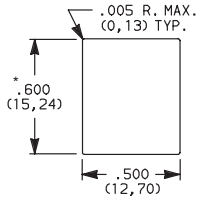


8161J86ZQE223
SPDT





PANEL MOUNTING



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

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

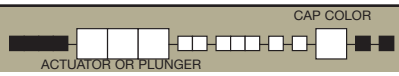
OPTION CODE	LED COLOR
3	RED

For LED information, see page A-61.

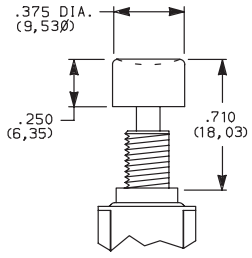
Third Angle Projection

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

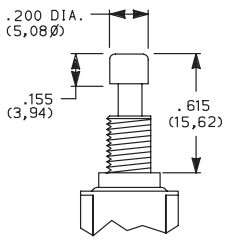
PLUNGER



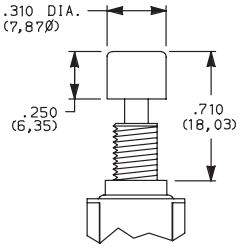
S PLUNGER WITH CAP P/N 7527



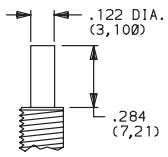
S1 PLUNGER WITH CAP P/N 7089



S2 PLUNGER WITH CAP P/N 8018

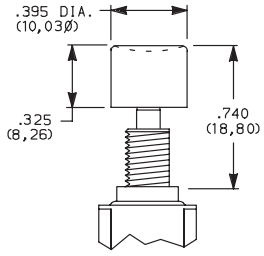


S, S1, S2 plunger dimensions.

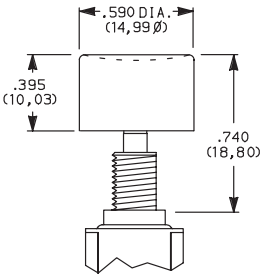


Plunger material: Glass filled nylon or glass filled polyester (UL 94V-0).

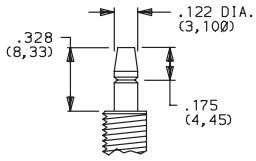
L PLUNGER WITH CAP P/N 8941



L1 PLUNGER WITH CAP P/N 8940



L, L1 plunger dimensions.



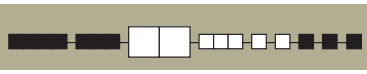
Plunger Material: Brass, chrome plated.

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.

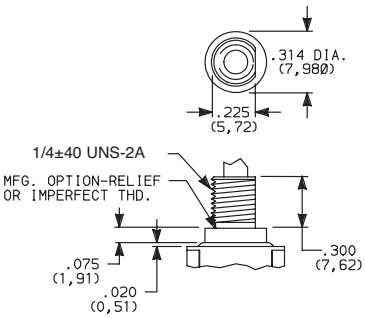
NOTE: When selecting plunger and cap option, bushing selection must also be made, see below.

BUSHING



H .300" HIGH THREADED, FLAT

H9 .300" HIGH UNTHREADED, FLAT

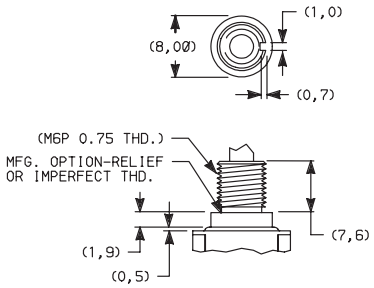


H bushing standard with C, W, Z or Z3 terminations.
H9 bushing standard with A, A3, AV2, AV3, or V3-V31 terminations.

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

NONE NO BUSHING CHOICE REQUIRED (JXX ACTUATORS)

Y3 7.6mm THREADED, KEYWAY

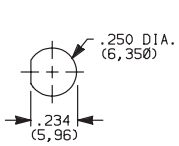


Withstands 12 in./lbs. of torque with no distortion.

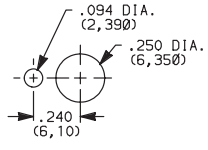
NOTE: When selecting bushing option, plunger selection must also be made, see above. No bushing option choice required when any JXX actuator option is selected.

PANEL MOUNTING

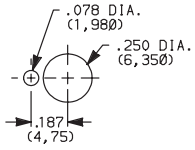
1/4 IN. BUSHING



Without Locking Ring

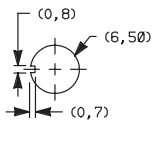


With Standard Locking Ring

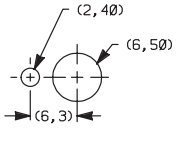


With Small Locking Ring

METRIC BUSHING

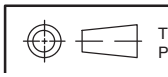


Without Locking Ring



With Locking Ring

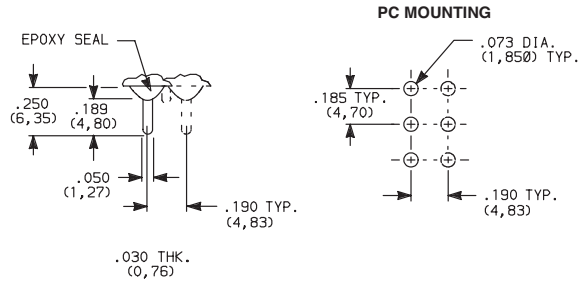
NOTE. Two mounting nuts, locking ring and lockwasher supplied standard with threaded bushings. Optional mounting nut and locking ring styles and finishes available, see section "Technical Data and Additional Hardware".



8060 Series
Alternate Action and Momentary Pushbutton Switches

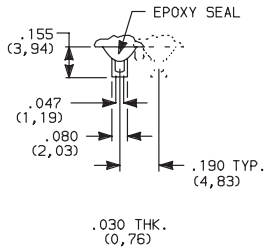
TERMINATIONS

C PC THRU-HOLE



SPDT and DPDT

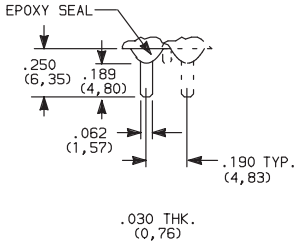
Z SOLDER LUG



SPDT and DPDT

Not available with P, S or R contact material.

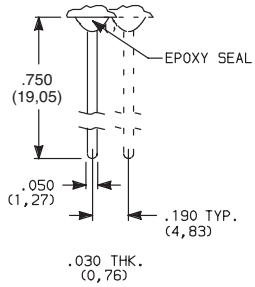
Z3 QUICK CONNECT



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

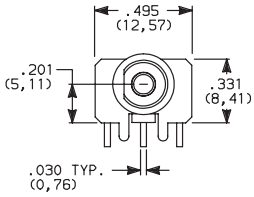


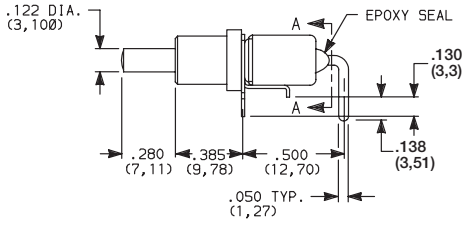
SPDT and DPDT

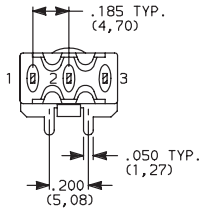
A RIGHT ANGLE, PC THRU-HOLE



8161SH9ABE2
SPDT

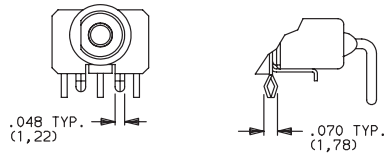




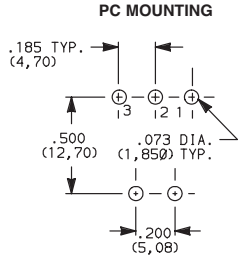


SECTION A-A

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



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



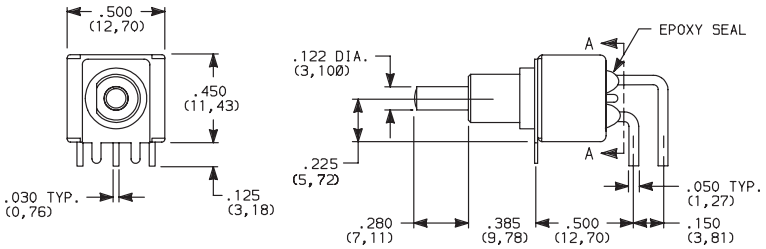
NOTE: PC pattern must clear switch support leg.

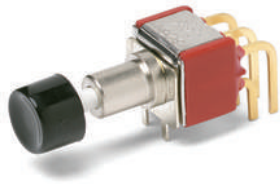
Third Angle Projection

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

TERMINATIONS

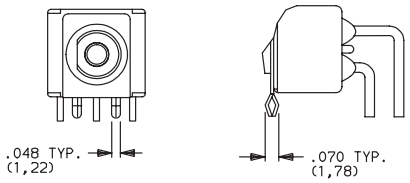
A RIGHT ANGLE, PC THRU-HOLE





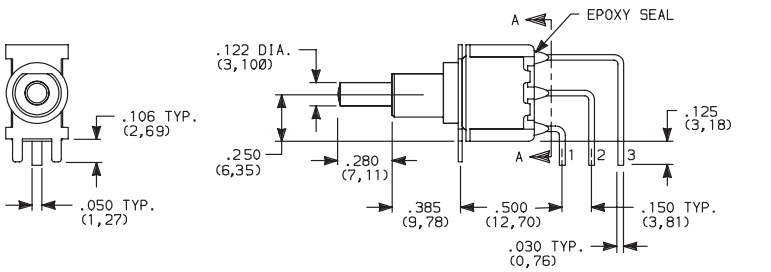
8261SH9ABE2
DPDT

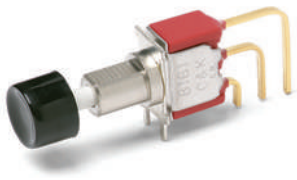
A3 RIGHT ANGLE, SNAP-IN, PC THRU-HOLE



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

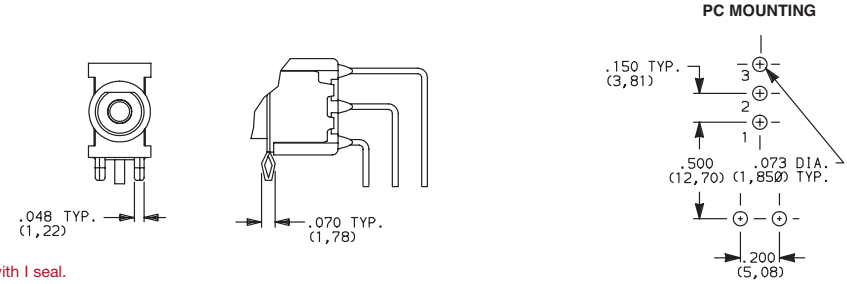
AV2 VERTICAL RIGHT ANGLE, PC THRU-HOLE, .150" PITCH





8161SH9AV2BE2
SPDT

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



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

Third Angle Projection

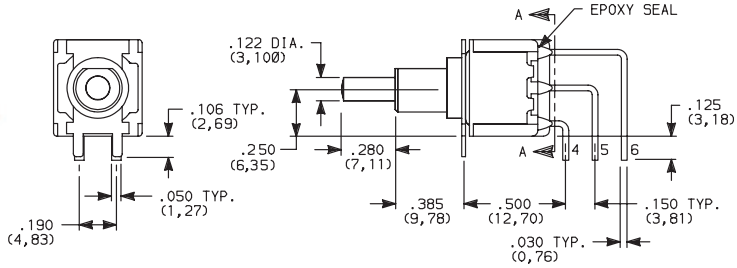
8060 Series
Alternate Action and Momentary Pushbutton Switches

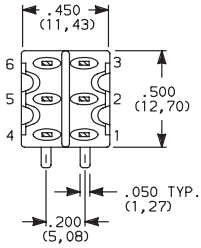
TERMINATIONS

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



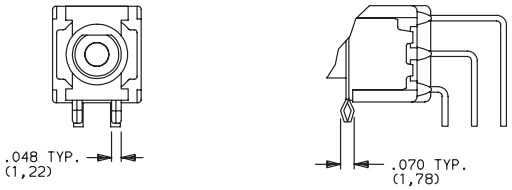
8261SH9AV2BE2
DPDT



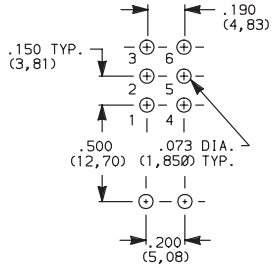


SECTION A-A

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



PC MOUNTING

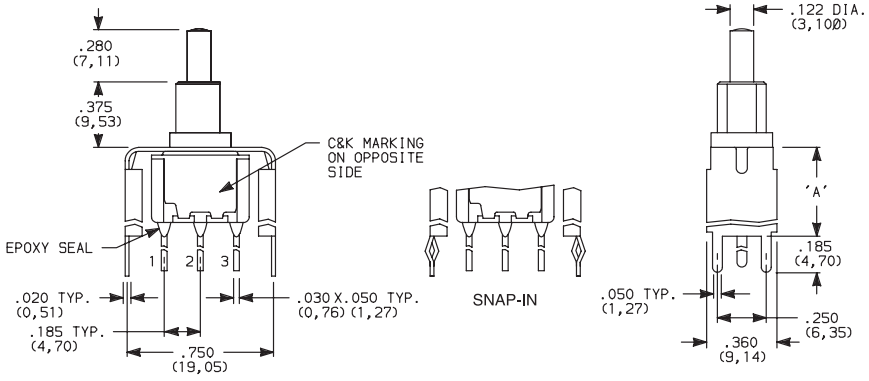


Not available with I seal.
Terminal bend radii and lead-in manufacturing option.

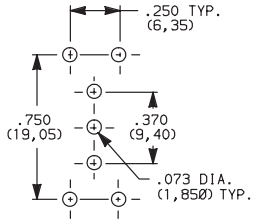
V6 VERTICAL MOUNT, V-BRACKET
V21 VERTICAL MOUNT, V-BRACKET, SNAP-IN



8161SH9__BE2
SPDT



PC MOUNTING



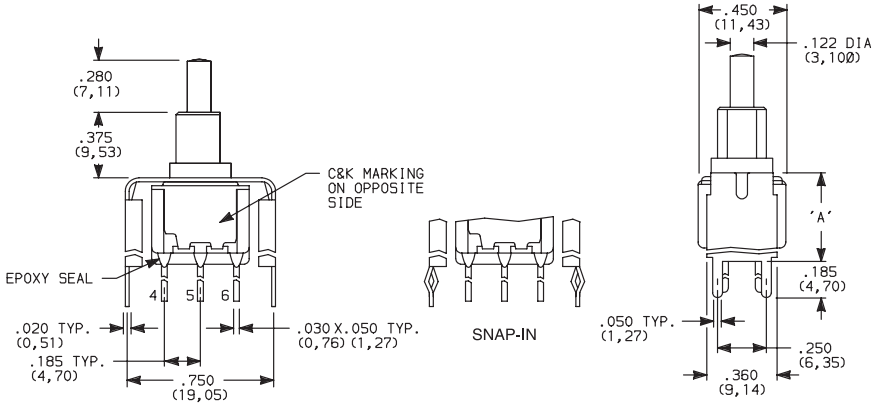
OPTION CODE	DIM 'A'
V21	.555 (14,10)
V6	.460 (11,68)

Not available with I seal.

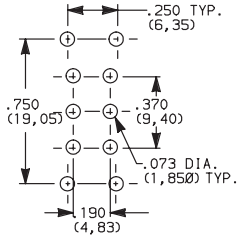
V6 VERTICAL MOUNT, V-BRACKET
V21 VERTICAL MOUNT, V-BRACKET, SNAP-IN



8261SH9__BE2
DPDT



PC MOUNTING



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

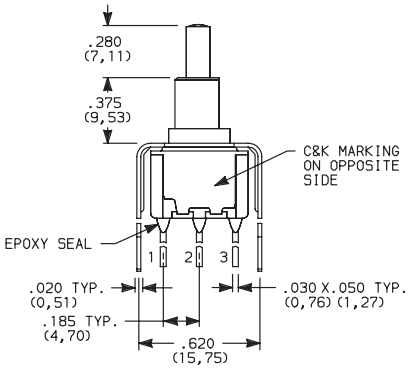
Not available with I seal.

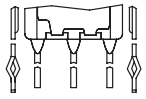
Third Angle Projection

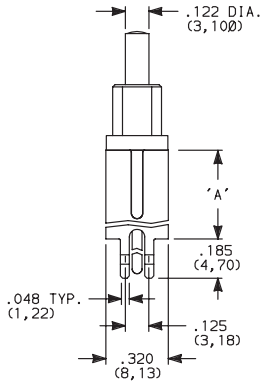
TERMINATIONS

V3, V4 VERTICAL MOUNT, V-BRACKET

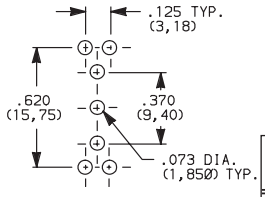
V31 VERTICAL MOUNT, V-BRACKET, SNAP-IN







PC MOUNTING





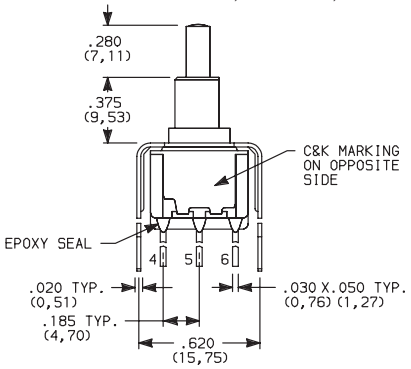
8161SH9__BE2
SPDT

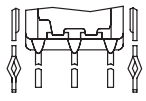
OPTION CODE	DIM 'A'
V3, V31	.460 (11,68)
V4	.630 (16,00)

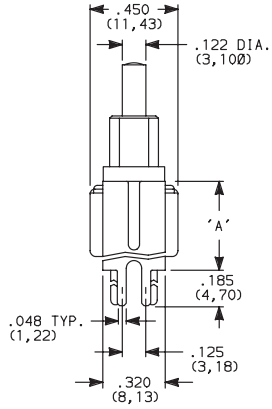
Not available with I seal.

V3, V4 VERTICAL MOUNT, V-BRACKET

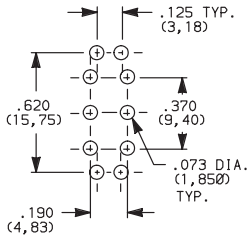
V31 VERTICAL MOUNT, V-BRACKET, SNAP-IN







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	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.

All models c UL us with all options when ordered with S, R, G, 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.

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

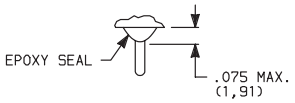
Third Angle Projection

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

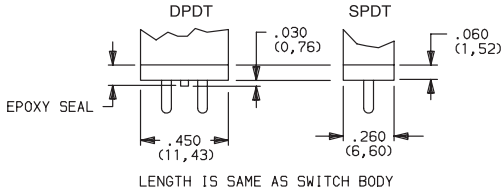
8060 Series
Alternate Action and Momentary Pushbutton Switches

SEAL

E EPOXY SEAL



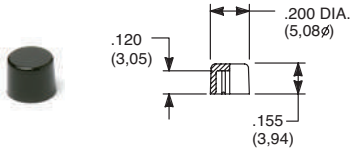
I EPOXY POTTED BASE



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

AVAILABLE HARDWARE

Cap

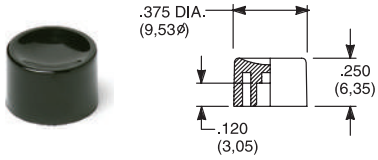


PART NO.

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

Material: Nylon
Finish: Gloss

Cap

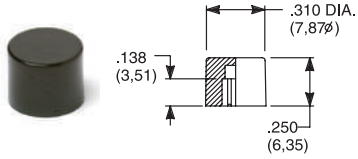


PART NO.

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

Material: Nylon
Finish: Gloss

Cap

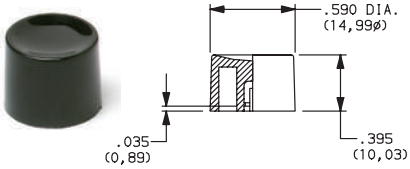


PART NO.

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

Material: Nylon
Finish: Gloss

Cap, Snap-fitting plunger

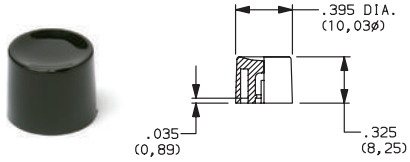


PART NO.

452D01000	WHITE
452D02000	BLACK
452D03000	RED
452D04000	ORANGE
452D05000	YELLOW
452D09000	GRAY

Material: Nylon
Finish: Gloss

Cap, Snap-fitting plunger

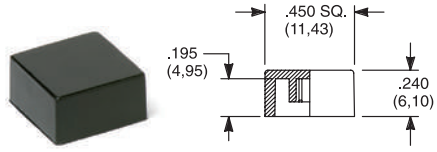


PART NO.

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

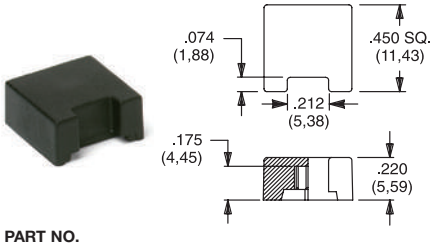
Material: Nylon
Finish: Gloss

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: 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.

Third Angle Projection

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

AVAILABLE HARDWARE

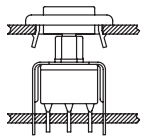
Fits Z3 Termination female connector



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

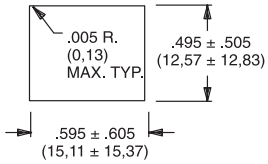




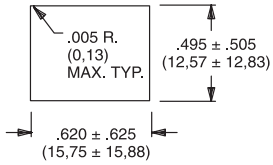
.090" (2,29) PANEL THK.	.125" (3,18) PANEL THK.
PART NO.	**PART NO.**
432702263	**432802263** BLACK

PANEL MOUNTING

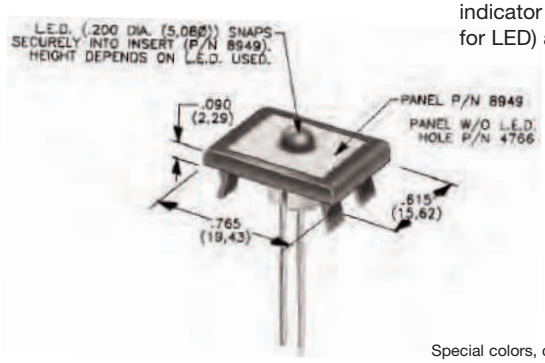
For part numbers 4325xxxxx, 4326xxxxx



For part numbers 4327xxxxx, 4328xxxxx



Panel Inserts



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.**

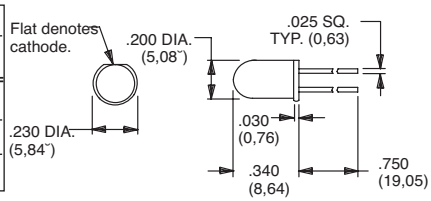
PANEL INSERT WITH HOLE FOR LED	BLANK PANEL INSERT WITHOUT HOLE FOR LED
PART NO.	**PART NO.**
894902000	**476602000** BLACK

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

LED INFORMATION

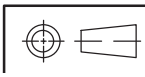
SWITCHES WITH LED SUPPLIED: J86 OPTION:
Rectangular LEDs are supplied on 8060 Series pushbutton switches with J86 option. These LEDs are factory installed and are not replaceable. The following specifications apply:

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