# 8020 Series
# Snap-acting Momentary Pushbutton Switches

## Features/Benefits

- *Positive tactile feel*
- *Multi-positions available*
- *Wide variety of termination options*
- *Epoxy terminal seal compatible with bottom wash cleaning*
- *RoHS compliant models available*

c UL us
Models Available

## Typical Applications

- *Instrumentation*
- *Computer peripherals*
- *Telecommunications equipment*

## Specifications

CONTACT RATING: B contact material (8X25 Models): 0.4 VA max. @ 20 V AC or DC maximum. G contact material (8X21, U8X1 Models): 1 AMP @ 120 V AC or 28 V DC or 0.4 VA max. @ 20 V AC or DC max. Note: Break-before-makecontacts. Multi-pole contacts do not make and break simultaneously. See page A-43 for additional ratings.

ELECTRICAL LIFE: 60,000 make-and-break cycles at full load.

CONTACT RESISTANCE: Below 50 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: 8X2X MODELS: –30°C to 75°C. U8X1 MODELS: –30°C to 65°C.

CAP INSTALLATION FORCE: 10 lbs. max. permissible.

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

**NOTE:** Any models supplied with B, P, R, 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: Glass filled nylon or glass filled polyester (PBT) (UL 94V-0).

CAP & FRAME: Nylon, black, standard.

BUSHING: Brass or zinc, nickel plated.

HOUSING: Stainless steel.

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

N.O. & N.C. CONTACTS: 8X21, U8X1 MODELS: G contact material: Coin silver, with gold plate over nickel plate. See page A-43 for additional contact materials.
8X25 MODELS: B contact material: Copper alloy, with gold plate over nickel plate. See page A-43 for additional contact materials.

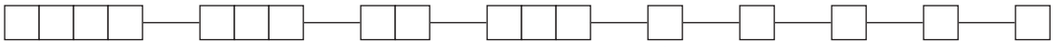
COMMON CONTACT & ALL TERMINALS: Copper alloy, with gold plate over nickel plate.

TERMINAL SEAL: Epoxy. Refer to soldering and cleaning 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-30 thru A-45. 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

- **8121** SPDT On-Mom. 1 Amp
- **8125** SPDT On-Mom. 0.4VA
- **8221** DPDT On-Mom. 1 Amp
- **8225** DPDT On-Mom. 0.4VA
- **8321** 3PDT On-Mom. 1 Amp
- **8325** 3PDT On-Mom. 0.4VA
- **8421** 4PDT On-Mom. 1 Amp
- **8425** 4PDT On-Mom. 0.4VA

**Note:** UL models available, see page A-30 and A-31.

### Actuator or Plunger

- **S** Plunger
- **NONE** Snap-in
- **J80** Snap-in
- **J81** Snap-in w/frame
- **J82** Snap-in w/frame for LED
- **J83** Snap-in w/frame & flush cap
- **J84** Snap-in w/frame for LED, flush cap
- **J85** Snap-in w/frame & LED
- **J95** PC w/V-bracket & LED
- **L** Plunger
- **M** Snap-fitting plunger

### Bushing

- **D9** .280" high, keyway
- **H** .250" high, flat
- **NONE** No bushing choice required
- **D** .280" high, keyway
- **D2** .288" high, flat
- **D3** .180" high
- **D8** .288" high, flat
- **H9** .250" high, flat, hi torque
- **Y** .350" high, keyway
- **Y3** 6.35mm high, keyway, hi torque
- **Y4** .378" high, flat, hi torque
- **Y9** .350" high, keyway

### Contact Material

- **B** Gold
- **P** Gold, matte-tin
- **G** Gold over silver
- **R** Gold over silver, matte-tin

### Seal

- **E** Epoxy
- **I** Epoxy potted base

### Cap Color

- **2** Black
- **NONE** Models without caps
- **1** White
- **3** Red
- **4** Orange
- **5** Yellow
- **6** Green
- **7** Blue
- **9** Gray

### Frame Color

- **2** Black
- **NONE** Models without frame
- **1** White
- **3** Red
- **5** Yellow
- **6** Green
- **9** Gray

### LED Color

- **3** Red
- **NONE** Models without LED
- **5** Yellow
- **6** Green

### Terminations

- **A** Right angle, PC thru-hole
- **AV2** Vertical right angle, PC thru-hole
- **C** PC Thru-hole
- **Z** Solder lug
- **A2** Right angle, PC thru-hole
- **A3** Right angle, snap-in, PC thru-hole
- **A4** Right angle, PC thru-hole, reversed terminals
- **A6** Right angle, PC thru-hole
- **AV1** Vertical right angle, PC thru-hole
- **AV3** Vertical right angle, snap-in, PC thru-hole
- **R** Right angle with PCB
- **R2** Right angle with PCB, reversed terminals
- **V2** .555" high, V-bracket
- **V3** .460" high, V-bracket
- **V4** .630" high, V-bracket
- **V6** .460" high, V-bracket
- **V7** .630" high, V-bracket
- **V8** .953" high, V-bracket
- **V9** 1.150" high, V-bracket
- **V31** .460" high, snap-in V-bracket
- **V61** .460" high, snap-in V-bracket
- **W** .750" long, wire wrap
- **W1** .964" long, wire wrap
- **W3** .425" long, wire wrap
- **W4** 1.062" long, wire wrap
- **Z3** Quick connect

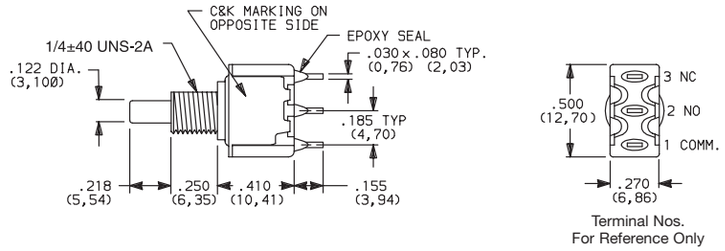
*Dimensions are shown: Inches (mm)*
*Specifications and dimensions subject to change*

# 8020 Series
# Snap-acting Momentary Pushbutton Switches

## SWITCH FUNCTION

| NO. POLES | MODEL NO. | UL/CSA* MODEL NO. | SWITCH FUNCTION POS. 1 (C&K marking on opposite side) | SWITCH FUNCTION POS. 2 (C&K marking on opposite side) | CONNECTED TERMINALS POS. 1 (C&K marking on opposite side) | CONNECTED TERMINALS POS. 2 (C&K marking on opposite side) | SCHEMATIC |
|---|---|---|---|---|---|---|---|
| SP | 8121 | U811 | ON | MOM. | 1-3 | 1-2 | SPDT |
| | 8125 | | ON | MOM. | | | |

### SPDT

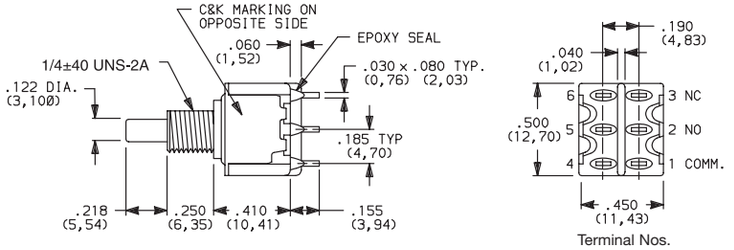



Part number shown: 8121SHZGE

Terminal Nos.
For Reference Only

| NO. POLES | MODEL NO. | UL/CSA* MODEL NO. | SWITCH FUNCTION POS. 1 (C&K marking on opposite side) | SWITCH FUNCTION POS. 2 (C&K marking on opposite side) | CONNECTED TERMINALS POS. 1 (C&K marking on opposite side) | CONNECTED TERMINALS POS. 2 (C&K marking on opposite side) | SCHEMATIC |
|---|---|---|---|---|---|---|---|
| DP | 8221 | U821 | ON | MOM. | 1-3,4-6 | 1-2,4-5 | DPDT |
| | 8225 | | ON | MOM. | | | |

### DPDT

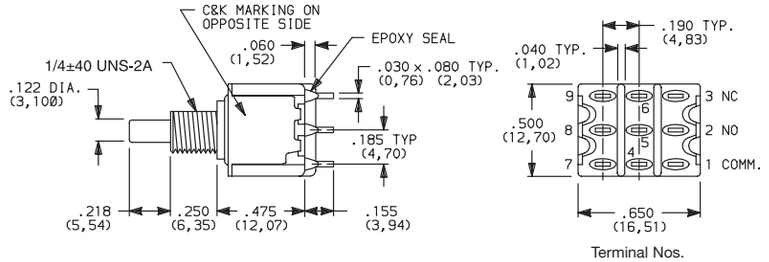



Part number shown: 8221SHZGE

Terminal Nos.
For Reference Only

| NO. POLES | MODEL NO. | UL/CSA* MODEL NO. | SWITCH FUNCTION POS. 1 (C&K marking on opposite side) | SWITCH FUNCTION POS. 2 (C&K marking on opposite side) | CONNECTED TERMINALS POS. 1 (C&K marking on opposite side) | CONNECTED TERMINALS POS. 2 (C&K marking on opposite side) | SCHEMATIC |
|---|---|---|---|---|---|---|---|
| 3P | 8321 | U831 | ON | MOM. | 1-3,4-6,7-9 | 1-2,4-5,7-8 | 3PDT |
| | 8325 | | ON | MOM. | | | |

### 3PDT




Part number shown: 8321SHZGE

Terminal Nos.
For Reference Only

MOM. = Momentary

*U811 thru U841 model numbers c UL us with all options (except R, R2 terminations) when ordered with G or R contact material.

8X25 models must be ordered with B or P contact material.

8X21 and U8X1 models must be ordered with G or R contact material.

Third Angle Projection

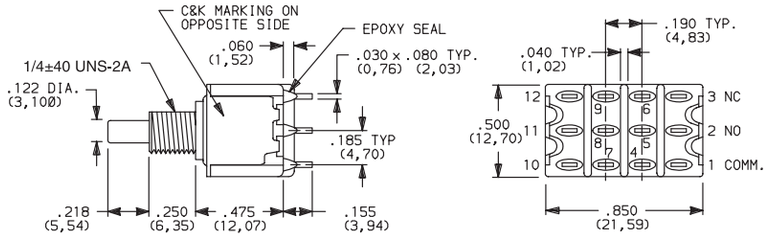
*Dimensions are shown: Inches (mm)*
*Specifications and dimensions subject to change*

# 8020 Series
# Snap-acting Momentary Pushbutton Switches

## SWITCH FUNCTION

| NO. POLES | MODEL NO. | UL/CSA* MODEL NO. | SWITCH FUNCTION POS. 1 | SWITCH FUNCTION POS. 2 | CONNECTED TERMINALS POS. 1 | CONNECTED TERMINALS POS. 2 | SCHEMATIC |
|---|---|---|---|---|---|---|---|
| | | | C&K marking on opposite side | | C&K marking on opposite side | | |
| 4P | 8421 | U841 | ON | MOM. | 1-3,4-6,7-9,10-12 | 1-2,4-5,7-8,10-11 | 4PDT |
| | 8425 | | ON | MOM. | | | |

### 4PDT




Part number shown: 8421SHZGE

Terminal Nos.
For Reference Only

MOM. = Momentary

* U811 thru U841 model numbers c UL us with all options (except R, R2 terminations) when ordered with G or R contact material.

8X25 models must be ordered with B or P contact material.

8X21 and U8X1 models must be ordered with G or R contact material.

## ACTUATOR—SNAP-IN FRONT MOUNT

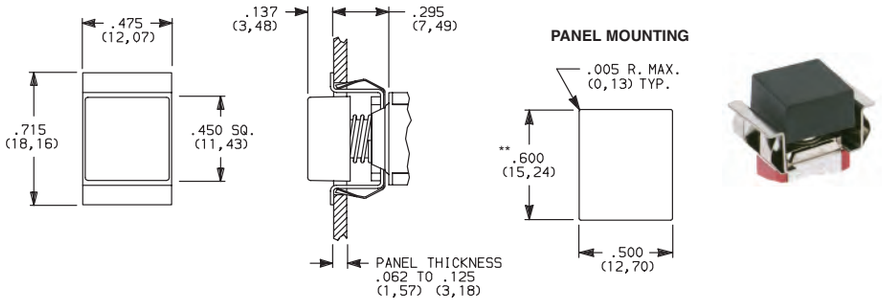
CAP COLOR
ACTUATOR OR PLUNGER
FRAME COLOR

| OPTION CODE | CAP AND FRAME COLOR |
|---|---|
| 2 | BLACK |
| NONE | No Frame Color (J80 option) |
| 1 | WHITE |
| 3 | RED |
| 4 | ORANGE |
| 5 | YELLOW |
| 6 | GREEN |
| 7 | BLUE |
| 9 | GRAY |

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

**NOTE:** Caps and frames available separately, see pages A-44 and A-45.

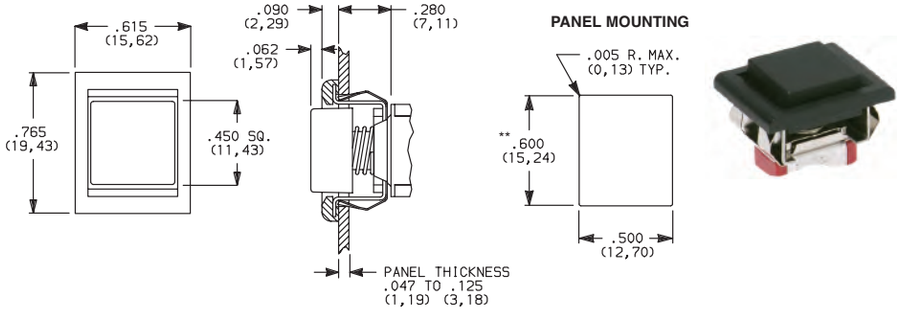
### J80 SNAP-IN




**NOTE:** No frame color choice required.

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

### J81 SNAP-IN WITH FRAME




**NOTE:** Available with C, W-W4, Z or Z3 terminations and SPDT and DPDT models only.

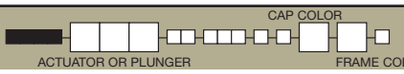
** Increase this dim. to .620/.625 (15,75/15,88) for .091/.125 (2,31/3,18) thk. panels.

Third Angle Projection

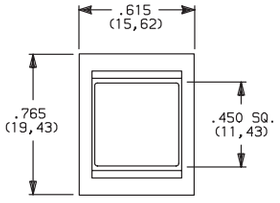
*Dimensions are shown: Inches (mm)*
*Specifications and dimensions subject to change*

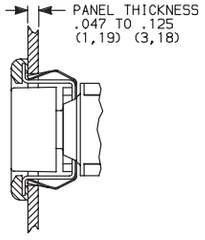
# 8020 Series
# Snap-acting Momentary Pushbutton Switches

## ACTUATOR—SNAP-IN FRONT MOUNT

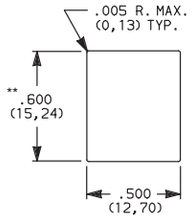



### J83 SNAP-IN WITH FRAME AND FLUSH CAP

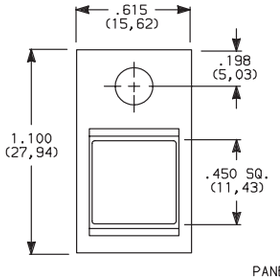


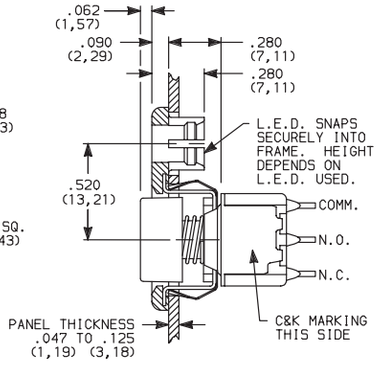




**PANEL MOUNTING**

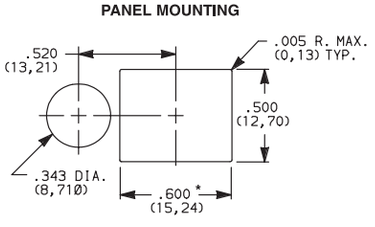



### J82 SNAP-IN WITH FRAME FOR LED



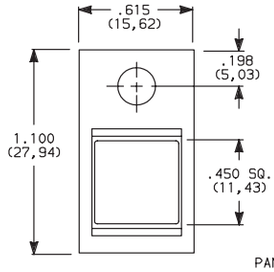

**PANEL MOUNTING**

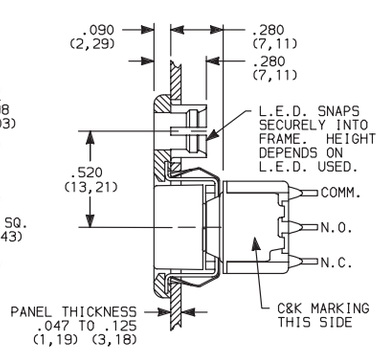



* Increase this dim. to .620/.625 (15,75/15,88) for .091/.125 (2,31/3,18) thk. panels.

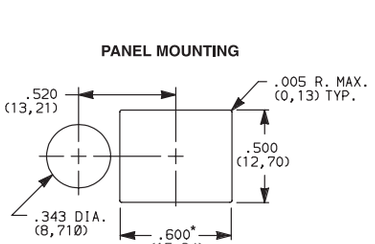
**LED not included.**
For LED information, see page A-45.

### J84 SNAP-IN WITH FRAME FOR LED, FLUSH CAP




**PANEL MOUNTING**




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

**LED not included.**
For LED information, see page A-45.

| OPTION CODE | CAP AND FRAME COLOR |
|---|---|
| 2 | BLACK |
| 1 | WHITE |
| 3 | RED |
| 4 | ORANGE |
| 5 | YELLOW |
| 6 | GREEN |
| 7 | BLUE |
| 9 | GRAY |

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

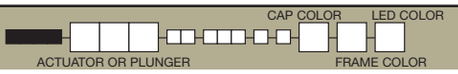
Available with C, W-W4, Z or Z3 terminations and SPDT and DPDT models only.

**NOTE:** Caps and frames available separately, see pages A-44 and A-45.

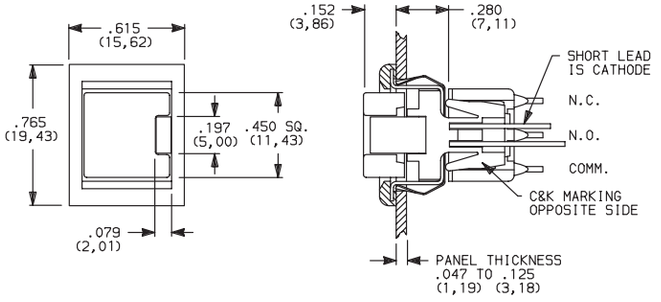
Third Angle Projection

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

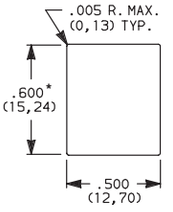
## ACTUATOR—SNAP-IN FRONT MOUNT




### J85 SNAP-IN WITH FRAME AND LED




**PANEL MOUNTING**




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

8121J85ZGE223
**SPST**

Available with C, W-W4, Z or Z3 terminations and SPDT models only.
For LED information see page A-45.

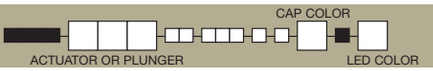
**NOTE:** Caps & frames available separately, see pages A-44 and A-45.

| OPTION CODE | CAP AND FRAME COLOR |
|---|---|
| 2 | BLACK |
| 1 | WHITE |
| 3 | RED |
| 4 | ORANGE |
| 5 | YELLOW |
| 6 | GREEN |
| 7 | BLUE |
| 9 | GRAY |

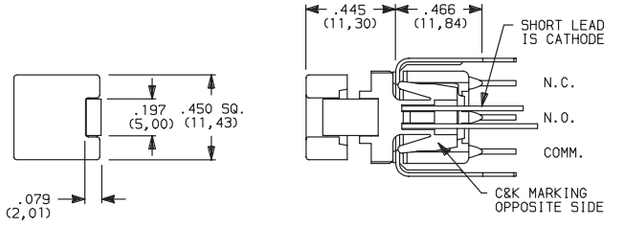
| OPTION CODE | LED COLOR |
|---|---|
| 3 | RED |
| 5 | YELLOW |
| 6 | GREEN |

For LED information see page A-45.

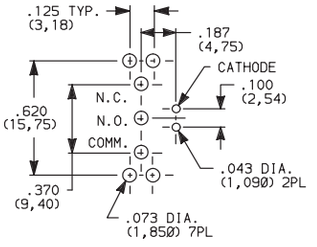
## ACTUATOR—PC MOUNT




### J95 PC WITH V-BRACKET AND LED




**PC MOUNTING**



8121J95V3GE23
**SPST**

| OPTION CODE | CAP AND FRAME COLOR |
|---|---|
| 2 | BLACK |
| 1 | WHITE |
| 3 | RED |
| 4 | ORANGE |
| 5 | YELLOW |
| 6 | GREEN |
| 7 | BLUE |
| 9 | GRAY |

| OPTION CODE | LED COLOR |
|---|---|
| 3 | RED |
| 5 | YELLOW |
| 6 | GREEN |

For LED information see page A-45.

**NOTE:** Caps available separately, see page A-44.
Available with V3 terminations and SPDT models only.

Third Angle Projection

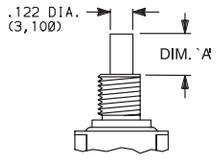
*Dimensions are shown: Inches (mm)*
*Specifications and dimensions subject to change*

# 8020 Series
# Snap-acting Momentary Pushbutton Switches

## PLUNGER

ACTUATOR OR PLUNGER

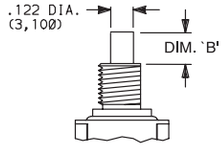
**S** PLUNGER




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

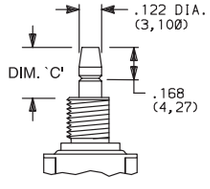
| AVAILABLE BUSHINGS | DIM. 'A' FOR C, W-W4, Z & Z3 TERMINATIONS | DIM. 'A' FOR A, A2, A3, A4, A6, AV-A3, R & R2 TERMINATIONS | DIM. 'A' FOR V3-V61 TERMINATIONS |
|---|---|---|---|
| D, D9 | .244 (6,20) | .228 (5,79) | .224 (5,69) |
| H, H9 | .218 (5,54) | .202 (5,13) | .198 (5,03) |
| Y, Y9 | .203 (5,16) | .187 (4,75) | .183 (4,65) |
| Y3 | (5,54) | (5,13) | (5,03) |
| Y4 | .185 (4,70) | .169 (4,29) | .165 (4,19) |
| D2, D8 | N/A | .232 (5,89) | .228 (5,79) |
| D3 | N/A | .162 (4,11) | .158 (4,01) |

**L** PLUNGER




| AVAILABLE BUSHINGS | DIM. 'B' FOR C, W-W4, Z & Z3 TERMINATIONS | DIM. 'B' FOR A, A2, A3, A4, A6, AV-A3, R & R2 TERMINATIONS | DIM. 'B' FOR V3-V61 TERMINATIONS |
|---|---|---|---|
| Y, Y9 | .178 (4,52) | .162 (4,11) | .158 (4,01) |
| Y4 | .090 (2,29) | .074 (1,88) | .070 (1,78) |

**M** SNAP-FITTING PLUNGER




| AVAILABLE BUSHINGS | DIM. 'C' FOR C, W-W4, Z & Z3 TERMINATIONS | DIM. 'C' FOR A, A2, A3, A4, A6, AV-A3, R & R2 TERMINATIONS | DIM. 'C' FOR V3-V61 TERMINATIONS |
|---|---|---|---|
| D, D9 | .297 (7,54) | .281 (7,14) | .277 (7,04) |
| H, H9 | .267 (6,78) | .251 (6,38) | .247 (6,27) |
| Y, Y9 | .259 (6,58) | .243 (6,17) | .239 (6,07) |
| Y3 | (6,78) | (6,37) | (6,27) |
| Y4 | .259 (6,58) | .243 (6,17) | .239 (6,07) |
| D2, D8 | N/A | .273 (6,93) | .269 (6,83) |
| D3 | N/A | .361 (9,17) | .357 (9,07) |

N/A = NOT AVAILABLE

**NOTE:** When selecting plunger option, bushing selection must also be made, see next page. No plunger option is required when any JXX actuator option is selected. Additional plunger lengths are available on SPDT and DPDT models, consult Customer Service Center. Not all plunger lengths sufficient for use with caps, see page A-44.

## BUSHING

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

**D** .280" HIGH THREADED, KEYWAY

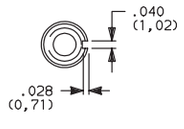
**D9** .280" HIGH UNTHREADED, KEYWAY

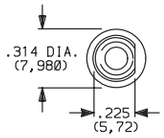
**H** .250" HIGH THREADED, FLAT

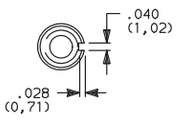
**H9** .250" HIGH UNTHREADED, FLAT

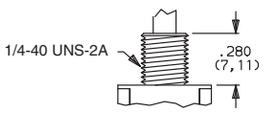
**Y** .350" HIGH THREADED, KEYWAY

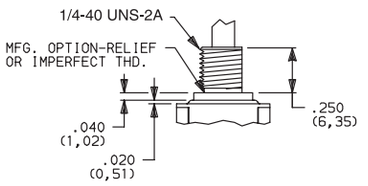
**Y9** .350" HIGH UNTHREADED, KEYWAY

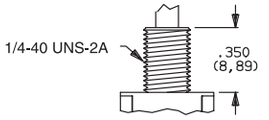



D9 bushing standard with A-A6, R, R2 AV-AV3 terminations.

H bushing standard with C, W-W4, Z or Z3 terminations. H, H9 bushings not available on single pole models with A3-A6, R, R2 terminations.

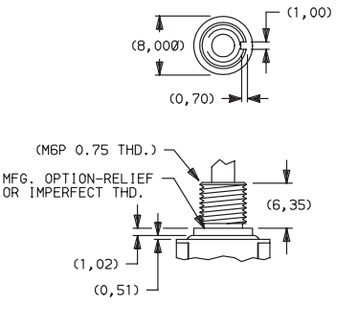
**Will withstand 12 in./lbs. of torque with no distortion.**

Third Angle Projection

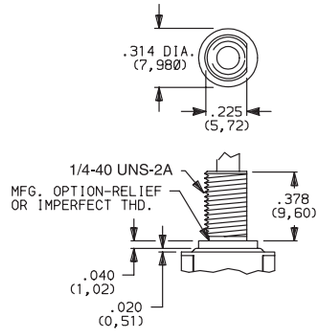
*Dimensions are shown: Inches (mm)*
*Specifications and dimensions subject to change*

## BUSHING

**Y3** 6.35mm THREADED, KEYWAY



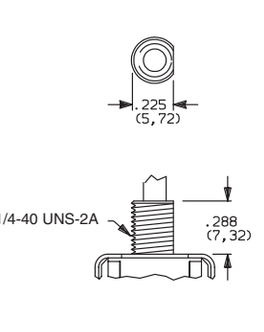

**Y4** .378" HIGH THREADED, FLAT




Y3 & Y4 bushings not available on single pole models with A3-A6, R, R2 terminations. Will withstand 12 in./lbs. of torque with no distortion.

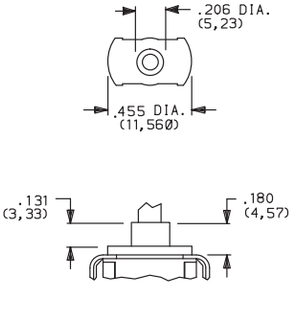
**D2** .288" HIGH THREADED, FLAT

**D8** .288" HIGH UNTHREADED, FLAT




D2, D8 bushings not available with C, W-W4, Z, Z3 terminations.

**D3** .180" HIGH UNTHREADED

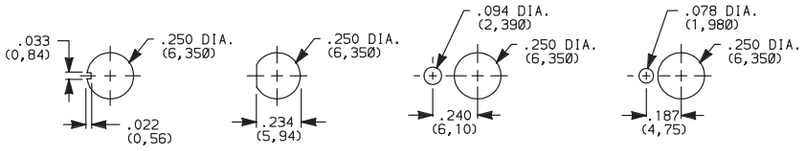



D3 bushing available with A, A2, A3, AV, AV2, AV3 and V2-V61 terminations only.

**NOTE:** No bushing option choice required when JXX actuator option is selected. When selecting bushing option, plunger selection must also be made, see previous page. Plunger lengths vary with bushing and termination options selected.

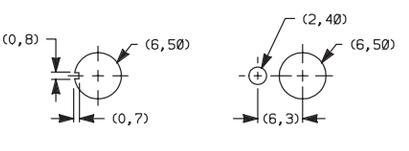
**PANEL MOUNTING**

1/4 INCH BUSHING




Without locking ring | With standard locking ring | With small locking ring

METRIC BUSHING

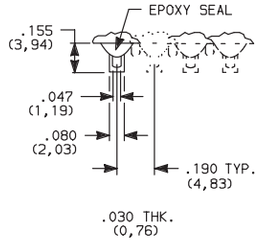



Without locking ring | With locking ring

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

## TERMINATIONS

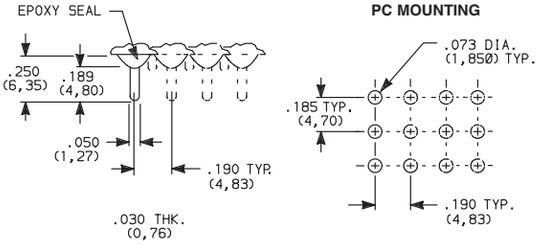
**Z** SOLDER LUG




**SPDT thru 4PDT**

Not available with J95 actuator, P or R contact material.

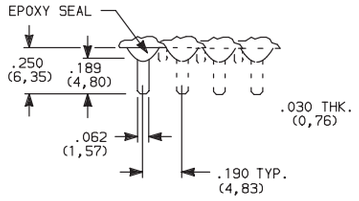
**C** PC THRU-HOLE




**SPDT thru 4PDT**

Not available with J95 actuator option.

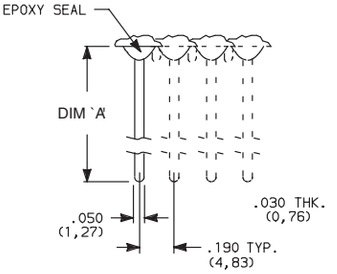
**Z3** QUICK CONNECT




**SPDT thru 4PDT**

Not available with J95 actuator, P or R contact material. Mating quick connector available, order part number 530100000, page A-44.

**W W1, W3, W4** WIRE WRAP




| OPTION CODE | DIM 'A' |
|---|---|
| W | .750 (19,05) |
| W1 | .964 (24,49) |
| W3 | .425 (10,80) |
| W4 | 1.062 (26,97) |

Not available with J95 actuator option.

**SPDT thru 4PDT**

Third Angle Projection

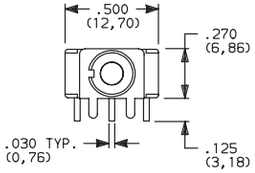
*Dimensions are shown: Inches (mm)*
*Specifications and dimensions subject to change*

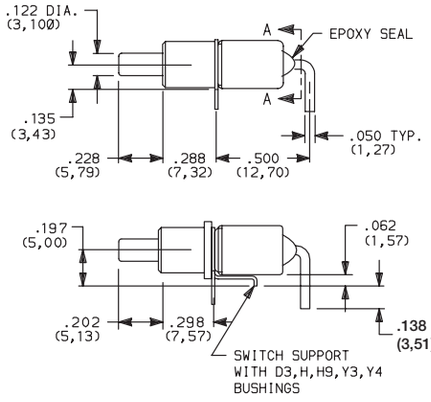
# 8020 Series
# Snap-acting Momentary Pushbutton Switches

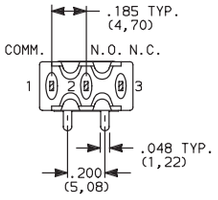
## TERMINATIONS

### A RIGHT ANGLE, PC THRU-HOLE

8121SD9AGE
**SPDT**



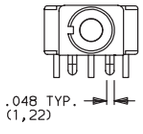



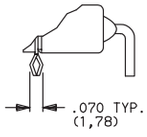

SECTION A-A

Terminal Nos.
For Reference Only.

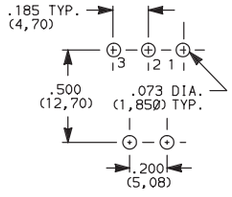
Part Number 8121SH9AGE

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



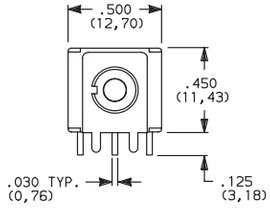

**PC MOUNTING**

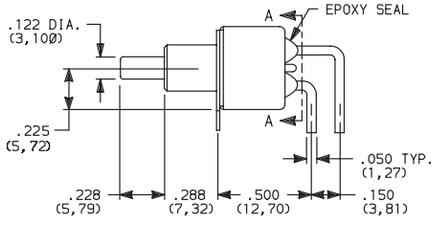


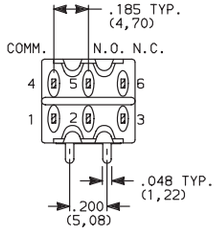

Not available with JXX actuators and I seal.
Terminal bend radii and lead-in manufacturing option.

### A RIGHT ANGLE, PC THRU-HOLE

8221SD9AGE
**DPDT**

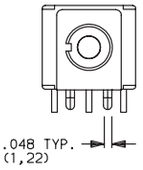


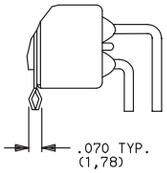



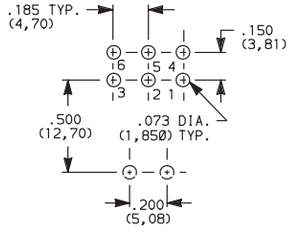

SECTION A-A

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




**PC MOUNTING**



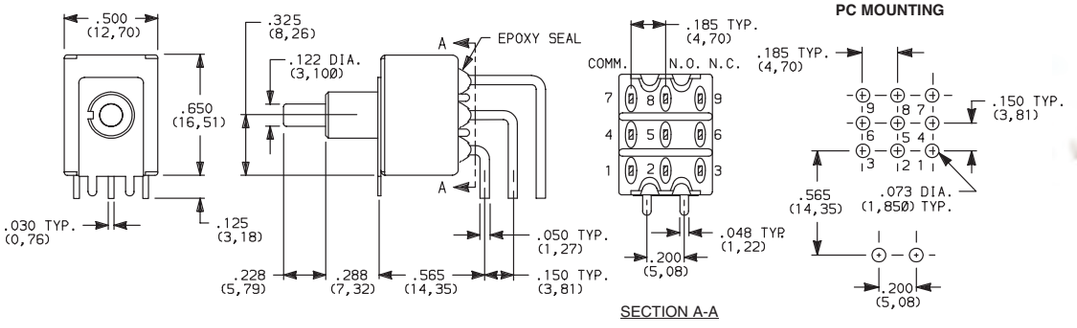

Not available with JXX actuators and I seal option.
Terminal bend radii and lead-in manufacturing option.

Third Angle Projection

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

## TERMINATIONS

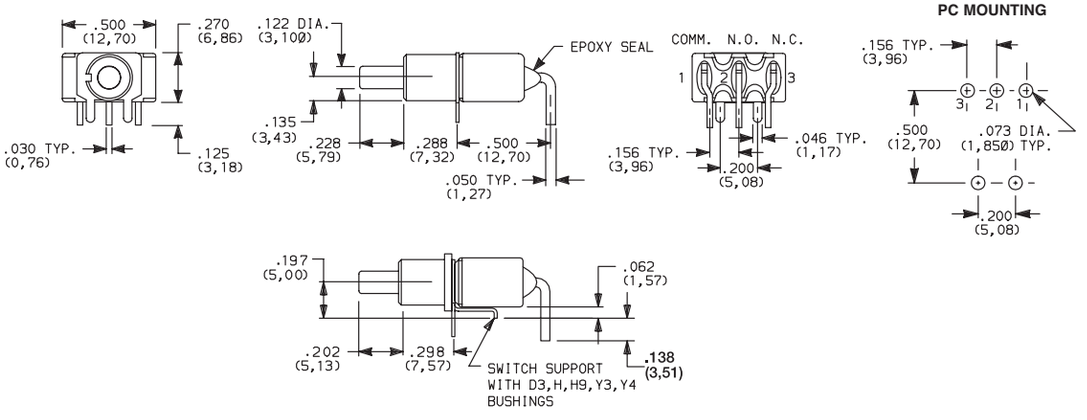
### A RIGHT ANGLE, PC THRU-HOLE



8321SD9AGE
**3PDT**

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

### A2 RIGHT ANGLE, PC THRU-HOLE

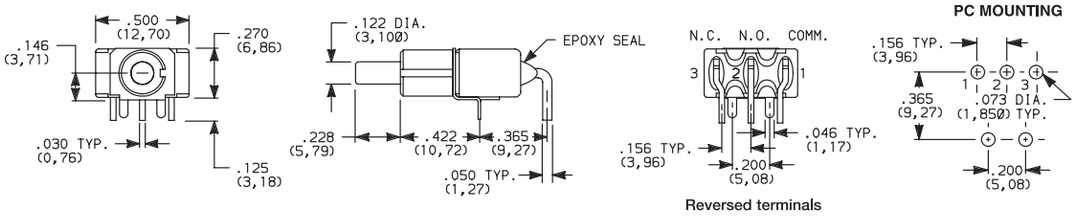



Part Number 8121SH9A2GE

8121SD9A2GE
**SPDT**

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

### A4 RIGHT ANGLE, PC THRU-HOLE, REVERSED TERMINALS




Reversed terminals

8121SD9A4GE
**SPDT**

Not available with JXX actuators, D3, H, H9, Y3, Y4 bushings and I seal.
Terminal bend radii and lead-in manufacturing option.

The A4 and R2 termination options are functionally identical and fit the same PC mounting pattern. The switches, however, are shifted relative to the mounting holes. The PC pattern must clear the switch support legs. Unlike the R2, the A4 option is available with UL/CSA.

Third Angle Projection

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

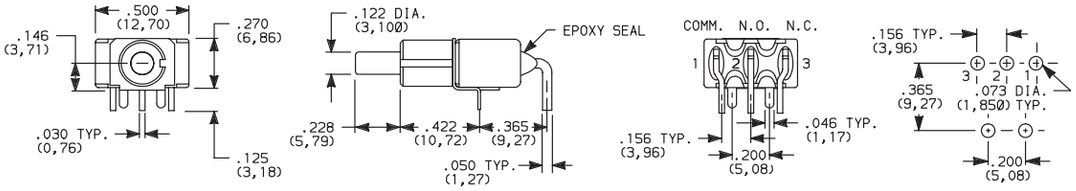
# 8020 Series
# Snap-acting Momentary Pushbutton Switches

## TERMINATIONS

### A6 RIGHT ANGLE, PC THRU-HOLE

8121SD9A6GE
**SPDT**

**PC MOUNTING**



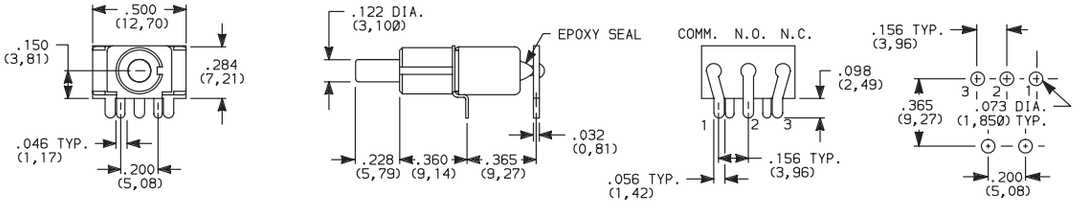

Not available with JXX actuators, D3, H, H9, Y3, Y4 bushings and I seal.
Terminal bend radii and lead-in manufacturing option.

The A6 and R termination options are functionally identical and fit the same PC mounting pattern, The switches, however, are shifted relative to the mounting holes. The PC pattern must clear the switch support legs. Unlike the R, the A6 option is available with UL/CSA.

### R RIGHT ANGLE WITH PCB

8121SD9RGE
**SPDT**

**PC MOUNTING**

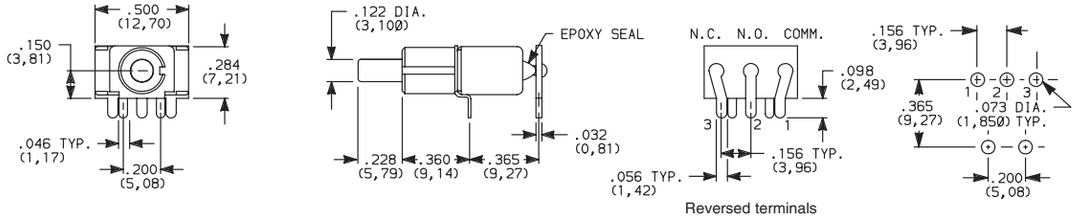



Not available with JXX actuators, D3, H, H9, Y3, Y4 bushings, I seal option.
R termination not UL/CSA approved.

### R2 RIGHT ANGLE WITH PCB, REVERSED TERMINALS

8121SD9R2GE
**SPDT**

**PC MOUNTING**




Reversed terminals

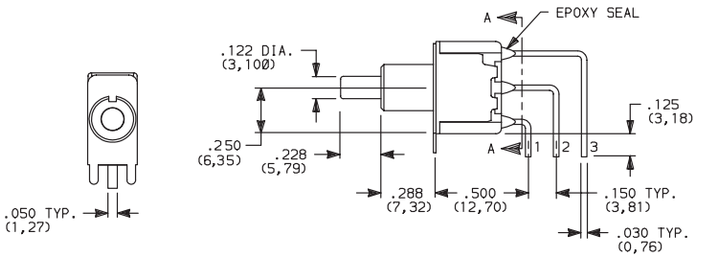
Not available with JXX actuators, D3, H, H9, Y3, Y4 bushings, I seal option.
R2 termination not UL/CSA approved.

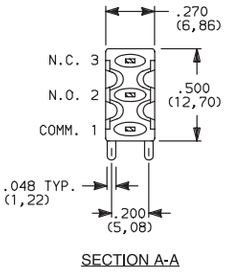
Third Angle Projection

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

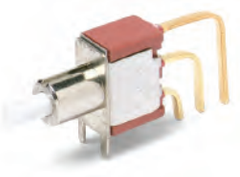
## TERMINATIONS

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



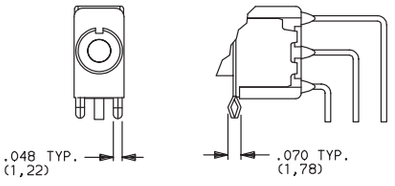




SECTION A-A

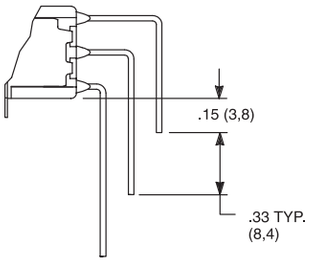


8121SD9AV2GE
**SPDT**

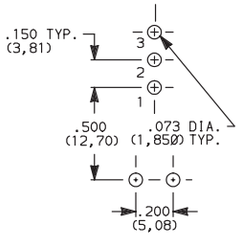
### AV3 VERTICAL RIGHT ANGLE, SNAP-IN,, PC THRU-HOLE, .150" PITCH




### AV1 VERTICAL RIGHT ANGLE, EXTENDED, PC THRU-HOLE, .150" PITCH

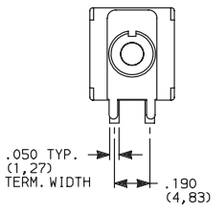


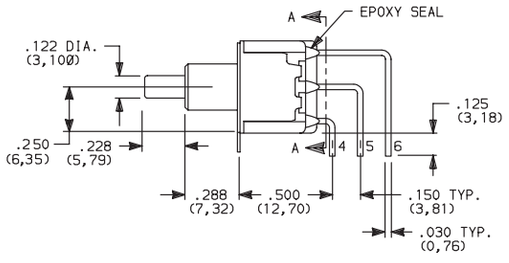

**PC MOUNTING**

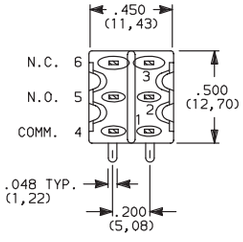



Not available with JXX actuators and I seal.
Terminal bend radii and lead-in manufacturing option.

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



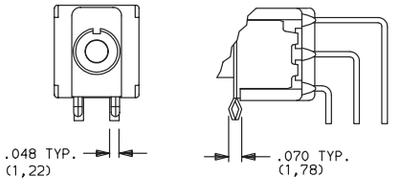



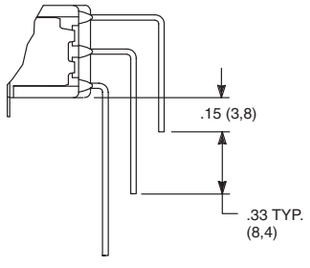

SECTION A-A

8221SD9AV2GE
**DPDT**

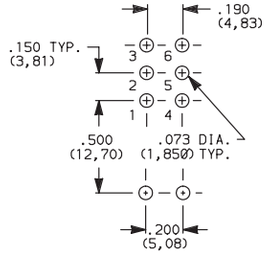
### AV3 VERTICAL RIGHT ANGLE, SNAP-IN, PC THRU-HOLE, .150" PITCH




### AV1 VERTICAL RIGHT ANGLE, EXTENDED, PC THRU-HOLE, .150" PITCH




**PC MOUNTING**




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

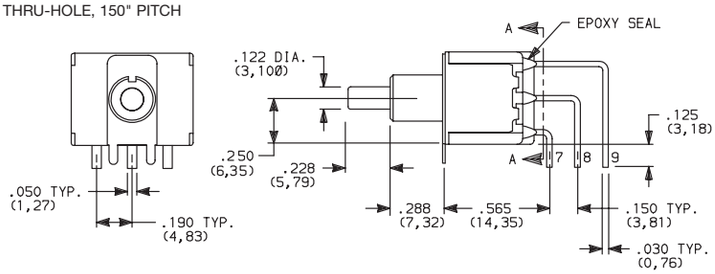
Third Angle Projection

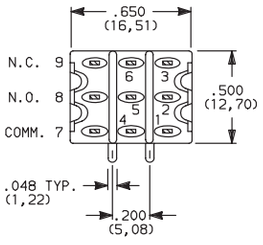
*Dimensions are shown: Inches (mm)*
*Specifications and dimensions subject to change*

# 8020 Series
# Snap-acting Momentary Pushbutton Switches

## TERMINATIONS

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

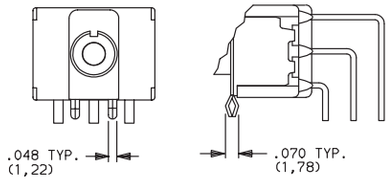



SECTION A-A

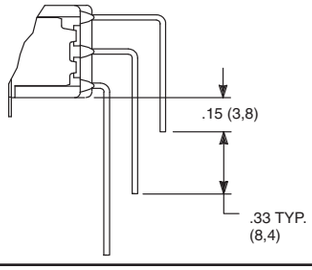
8321SD9AV2GE
**3PDT**

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

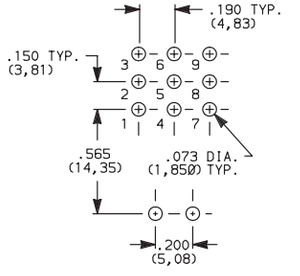



Not available with JXX actuators and I seal.
Terminal bend radii and lead-in manufacturing option.

### AV1 VERTICAL RIGHT ANGLE, EXTENDED, PC THRU-HOLE, .150" PITCH




**PC MOUNTING**

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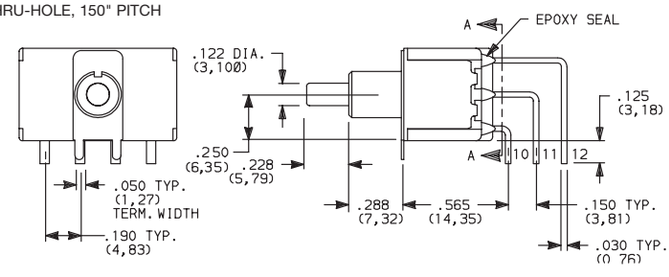
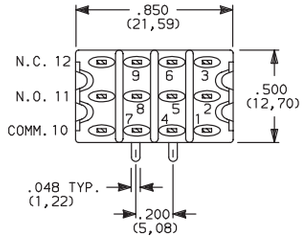
### AV2 VERTICAL RIGHT ANGLE, PC THRU-HOLE, 150" PITCH

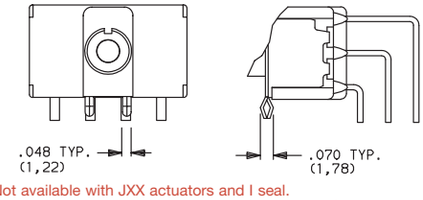



SECTION A-A

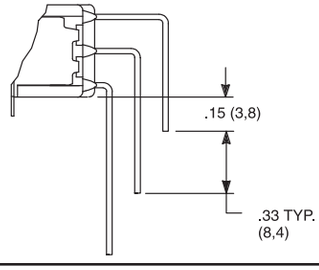
8421SD9AV2GE
**4PDT**

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

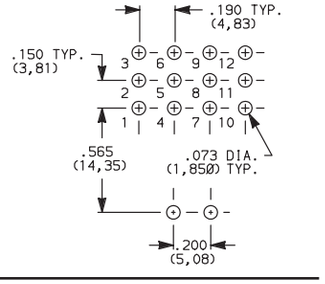



Not available with JXX actuators and I seal.
Terminal bend radii and lead-in manufacturing option.

### AV1 VERTICAL RIGHT ANGLE, EXTENDED, PC THRU-HOLE, .150" PITCH




**PC MOUNTING**

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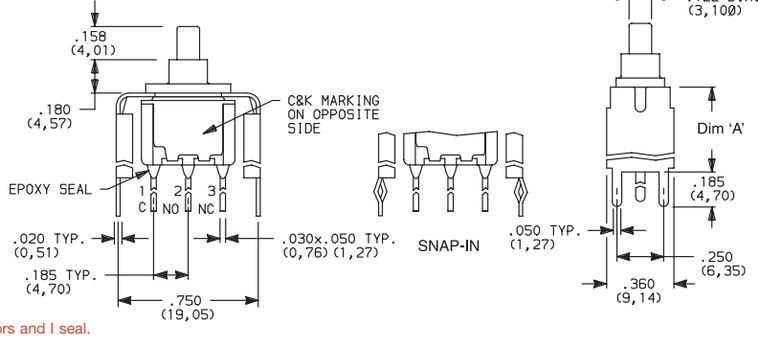
### V2, V6, V7, V8 VERTICAL MOUNT, V-BRACKET

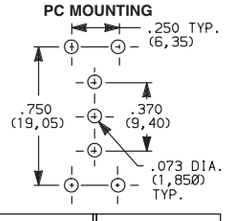
### V61 VERTICAL MOUNT, V-BRACKET, SNAP-IN




8121SD3__GE
**SPDT**

Not available with JXX actuators and I seal.

**PC MOUNTING**



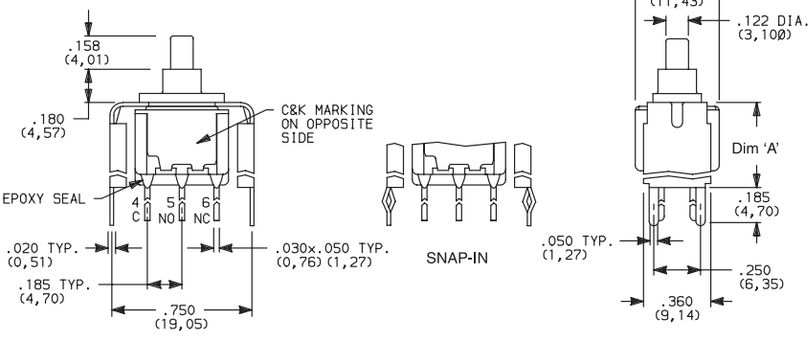

| OPTION CODE | DIM 'A' |
|---|---|
| V2 | .555 (14,10) |
| V6, V61 | .460 (11,68) |
| V7 | .630 (16,00) |
| V8 | .953 (24,21) |

Third Angle Projection

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

## TERMINATIONS

### V2, V6, V7, V8 VERTICAL MOUNT, V-BRACKET
### V61 VERTICAL MOUNT, V-BRACKET, SNAP-IN

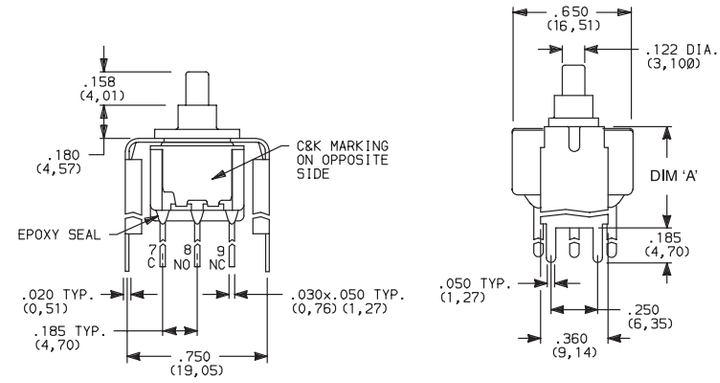


8221SD3__GE
**DPDT**

| OPTION CODE | DIM 'A' |
|---|---|
| V2 | .555 (14,10) |
| V6, V61 | .460 (11,68) |
| V7 | .630 (16,00) |
| V8 | .953 (24,21) |

Not available with JXX actuators and I seal.

### V2, V7, V8 VERTICAL MOUNT, V-BRACKET

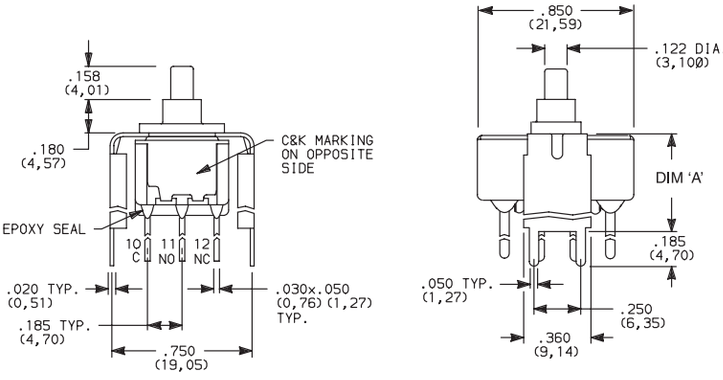


8321SD3__GE
**3PDT**

| OPTION CODE | DIM 'A' |
|---|---|
| V2 | .555 (14,10) |
| V7 | .630 (16,00) |
| V8 | .953 (24,21) |

Not available with JXX actuators and I seal.

### V2, V7, V8 VERTICAL MOUNT, V-BRACKET



8421SD3__GE
**4PDT**

| OPTION CODE | DIM 'A' |
|---|---|
| V2 | .555 (14,10) |
| V7 | .630 (16,00) |
| V8 | .953 (24,21) |

Not available with JXX actuators and I seal.

Third Angle Projection

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

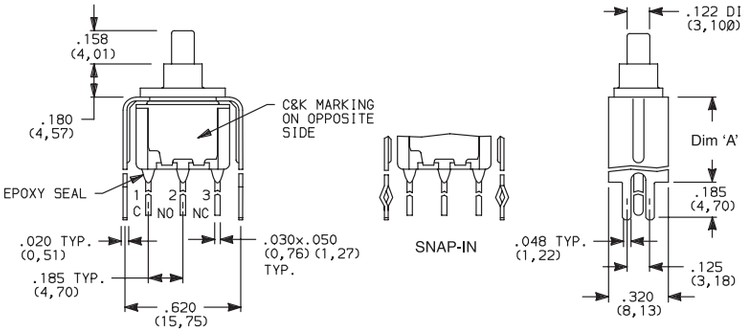
# 8020 Series
# Snap-acting Momentary Pushbutton Switches

## TERMINATIONS

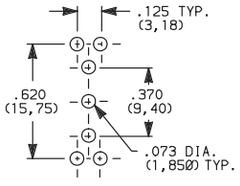
**V3, V4, V9** VERTICAL MOUNT, V-BRACKET

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

8121SD3__GE
**SPDT**




PC MOUNTING



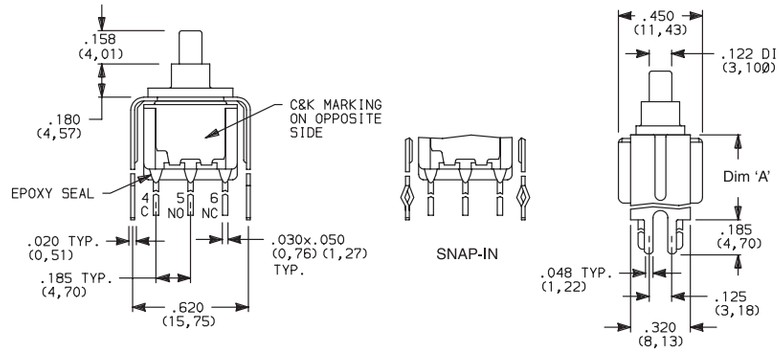

| OPTION CODE | DIM 'A' |
|---|---|
| V3, V31 | .460 (11,68) |
| V4 | .630 (16,00) |
| V9 | 1.150 (29,21) |

Not available with J8X actuators and I seal.

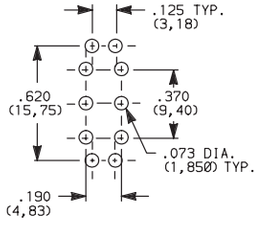
**V3, V4, V9** VERTICAL MOUNT, V-BRACKET

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

8221SD3__GE
**DPDT**




PC MOUNTING

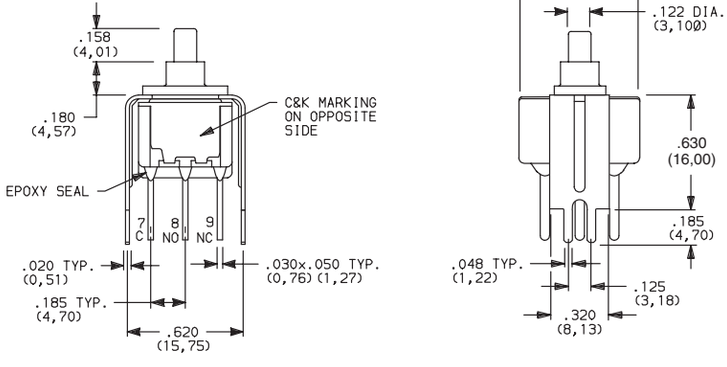



| OPTION CODE | DIM 'A' |
|---|---|
| V3, V31 | .460 (11,68) |
| V4 | .630 (16,00) |
| V9 | 1.150 (29,21) |

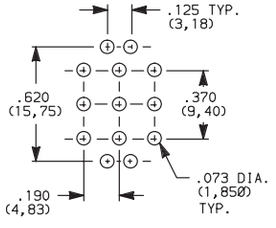
Not available with J8X actuators and I seal.

**V4, V9** VERTICAL MOUNT, V-BRACKET

8321SD3V4GE
**3PDT**




PC MOUNTING




| OPTION CODE | DIM 'A' |
|---|---|
| V4 | .630 (16,00) |
| V9 | 1.150 (29,21) |

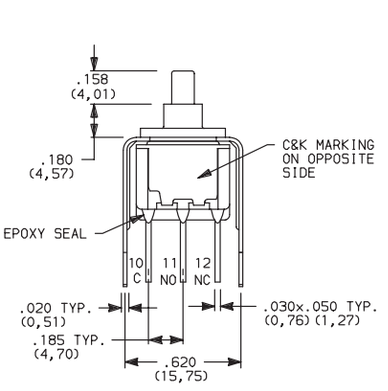
Not available with JXX actuators and I seal.

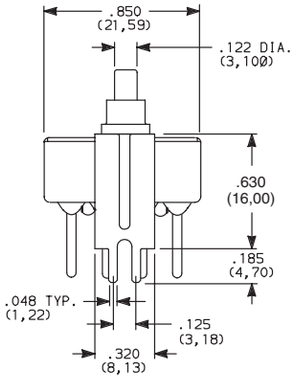
Third Angle Projection

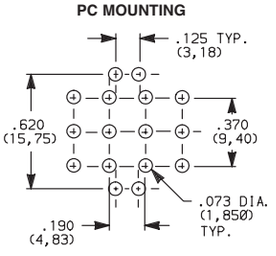
*Dimensions are shown: Inches (mm)*
*Specifications and dimensions subject to change*

## TERMINATIONS

**V4, V9** VERTICAL MOUNT, V-BRACKET



8421SD3V4GE
**4PDT**

| OPTION CODE | DIM 'A' |
|---|---|
| V4 | .630 (16,00) |
| V9 | 1.150 (29,21) |

Not available with JXX actuators and I seal.

## CONTACT MATERIAL

| OPTION CODE | CONTACT MATERIAL | TERMINAL PLATING | RATINGS | |
|---|---|---|---|---|
| B | GOLD [1] | GOLD [1] | LOW LEVEL/DRY CIRCUIT | 8x25 MODELS ONLY: 0.4 MAX. @ 20 V AC OR DC MAX. |
| P | | MATTE-TIN [4] | | |
| G | GOLD OVER SILVER [2,3] | GOLD [3] | LOW LEVEL/DRY CIRCUIT OR POWER | 8X21, U8X1 MODELS ONLY: 0.4 VA MAX @ 20 V AC OR DC MAX. OR 1 AMP @ 120 V AC OR 28 V DC. |
| R | | MATTE-TIN [4] | | |

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

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

[2] N.O. AND N.C. CONTACTS: Coin silver, with gold plate over nickel plate.

[3] COMMON CONTACTS & ALL TERMINALS: Copper alloy, with gold plate over nickel plate.

[4] TERMINALS: Copper alloy, with matte-tin over nickel plate.

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

U811-U841 models with all options (except R, R2 terminations) when ordered with mandatory G or R contact material.

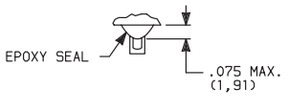
B or P contact material must be ordered with 8X25 models.

G or R contact material must be ordered with 8X21, U8X1 models.

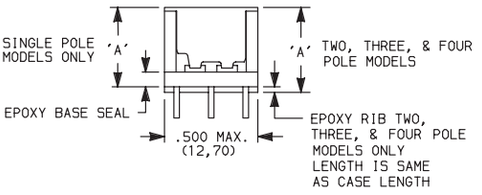
P or R contact material not available with Z, Z3 terminations.

## SEAL

**E** EPOXY SEAL




**I** EPOXY POTTED BASE




| NO. POLES | DIM 'A' |
|---|---|
| SP | .410 (10,41) |
| DP | .440 (11,18) |
| 3P | .505 (12,83) |
| 4P | .505 (12,83) |

**NOTE:** Available with C, W-W4, Z, Z3 terminations only.

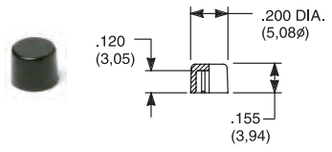
Third Angle Projection

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

# 8020 Series
# Snap-acting Momentary Pushbutton Switches

## AVAILABLE HARDWARE

**Cap**

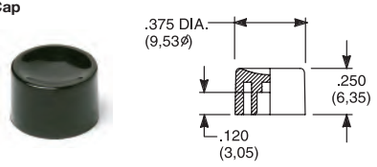



**PART NO.**

| | |
|---|---|
| 708901000 | WHITE |
| 708902000 | BLACK |
| 708903000 | RED |
| 708904000 | ORANGE |
| 708905000 | YELLOW |
| 708906000 | GREEN |
| 708907000 | BLUE |
| 708909000 | GRAY |

Material: Nylon
Finish: Gloss

**Cap**

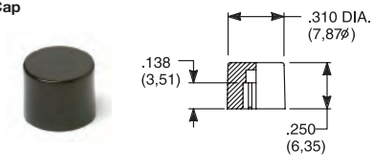



**PART NO.**

| | |
|---|---|
| 752701000 | WHITE |
| 752702000 | BLACK |
| 752703000 | RED |
| 752704000 | ORANGE |
| 752705000 | YELLOW |
| 752706000 | GREEN |
| 752707000 | BLUE |
| 752709000 | GRAY |

Material: Nylon
Finish: Gloss

**Cap**

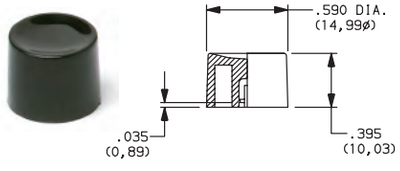



**PART NO.**

| | |
|---|---|
| 801801000 | WHITE |
| 801802000 | BLACK |
| 801803000 | RED |
| 801804000 | ORANGE |
| 801805000 | YELLOW |
| 801806000 | GREEN |
| 801807000 | BLUE |
| 801809000 | GRAY |

Material: Nylon
Finish: Gloss

**Cap, Snap-fitting plunger**

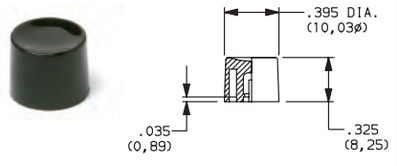



**PART NO.**

| | |
|---|---|
| 452D01000 | WHITE |
| 452D02000 | BLACK |
| 452D03000 | RED |
| 452D04000 | ORANGE |
| 452D05000 | YELLOW |
| 452D06000 | GREEN |
| 452D07000 | BLUE |
| 452D09000 | GRAY |

Material: Nylon
Finish: Gloss

**Cap, Snap-fitting plunger**

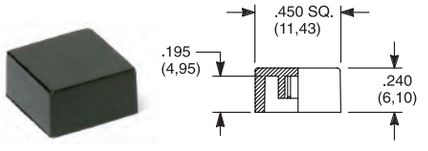



**PART NO.**

| | |
|---|---|
| 894101000 | WHITE |
| 894102000 | BLACK |
| 894103000 | RED |
| 894104000 | ORANGE |
| 894105000 | YELLOW |
| 894106000 | GREEN |
| 894107000 | BLUE |
| 894109000 | GRAY |

Material: Nylon
Finish: Gloss

**Cap, J80, J81, J82, J83 & J84 options only**




**PART NO.**

| | |
|---|---|
| 484601000 | WHITE |
| 484602000 | BLACK |
| 484603000 | RED |
| 484604000 | ORANGE |
| 484605000 | YELLOW |
| 484606000 | GREEN |
| 484607000 | BLUE |
| 484609000 | GRAY |

Material: Nylon
Finish: Gloss

**PART NO.**

| | |
|---|---|
| 798201000 | WHITE |
| 798202263 | BLACK |
| 798203000 | RED |
| 798204000 | ORANGE |
| 798205000 | YELLOW |
| 798206000 | GREEN |
| 798207000 | BLUE |
| 798209000 | GRAY |

Material: Nylon
Finish: Matte

**Frame**

**PART NO.**

615602263 BLACK

Material: Nylon
Finish: Matte

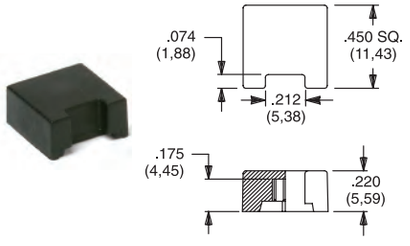
**Frame**

**PART NO.**

613302263 BLACK

Material: Nylon
Finish: Matte

**Cap, J85 & J95 options only**




**PART NO.**

| | |
|---|---|
| 459701000 | |
| 459702000 | |
| 459703000 | |
| 459704000 | |
| 459705000 | |
| 459706000 | |
| 459707000 | |
| 459709000 | |

Material: Nylon
Finish: Gloss

**PART NO.**

| | |
|---|---|
| 476801000 | WHITE |
| 476802000 | BLACK |
| 476803000 | RED |
| 476804000 | ORANGE |
| 476805000 | YELLOW |
| 476806000 | GREEN |
| 476807000 | BLUE |
| 476809000 | GRAY |

Material: Nylon
Finish: Matte

**Fits Z3 Termination female connector**

**PART NO.**

530100000

Available in loose pieces.

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.

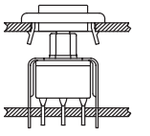
Third Angle Projection

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

## AVAILABLE HARDWARE

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.

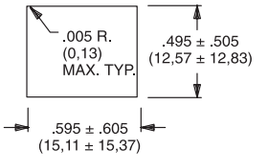
**TYPICAL APPLICATION**



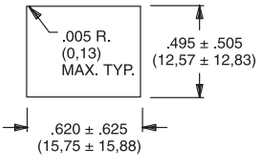
| .047" (1,19) PANEL THK. | .062" (1,57) PANEL THK. | .090" (2,29) PANEL THK. | .125" (3,18) PANEL THK. |
|---|---|---|---|
| **PART NO.** | **PART NO.** | **PART NO.** | **PART NO.** |
| 432502263 | 432602263 | 432702263 | 432802263 BLACK |

**PANEL MOUNTING**

For part numbers
4325xxxxx, 4326xxxxx

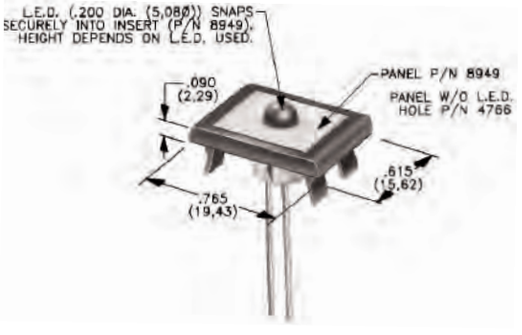



For part numbers
4327xxxxx, 4328xxxxx




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.**



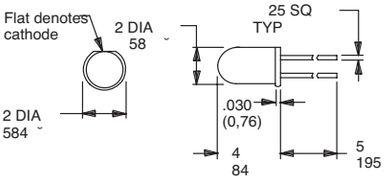

| PANEL INSERT WITH HOLE FOR LED | BLANK PANEL INSERT WITHOUT HOLE FOR LED |
|---|---|
| **PART NO.** | **PART NO.** |
| 894902000 | 476602000 BLACK |

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

## LED INFORMATION

SWITCHES WITH LED SUPPLIED: J85, J95 OPTIONS:
Rectangular LEDs are supplied on 8020 Series pushbutton switches with J85 and J95 options. 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.

Third Angle Projection

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