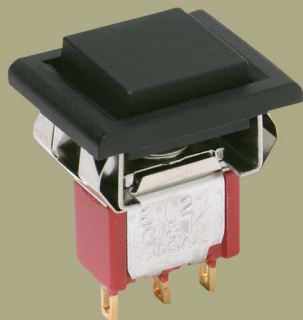
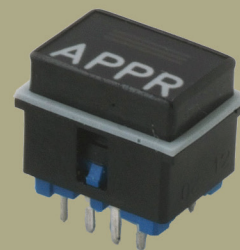
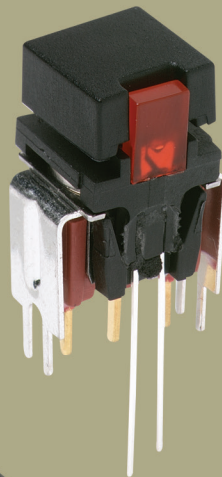


audio
automotive
aerospace
communication devices
consumer appliances
consumer electronics
datacom
data storage
handheld devices
industrial
industrial equipment
instrumentation
medical
military
mobile phones
portable tools
pumps & motors
security alarms
telecom
test equipment
thermostatic controls















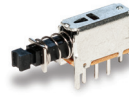

pushbutton



Pushbutton

Product Selection Guide

Pushbutton									
Series	ELUM	EP	TP	E020	8020	E010	8060	8500	KM
Switch Type	PCB Illuminated	Sub-miniature	Sub-miniature	Miniature	Miniature	Miniature	Miniature	Sub-miniature	Sub-miniature
Poles/Throws	SPDT	SPST, SPDT, DPST	SPST, SPDT, DPST	SPDT, DPDT	SPDT, DPDT, 3PDT, 4PDT	SPDT	SPDT, DPDT	SPST	SPST, SPDT
Max. Current	3.5 VA	1 Amp	1 Amp	1 Amp	1 Amp	4 Amps	6 Amps	3 Amps	1 Amp
Process Sealed		•		•		•			
Illuminated	•				•		•	•	
PCB Mount									
Thru-hole	•	•	•	•	•	•	•	•	•
Surface Mount	•	•							
Panel Mount									
Wire Wrap						•	•		
Solder Lug			•		•	•	•	•	
Quick Connect							•		•
Page No.	A-4	A-9	A-15	A-21	A-29	A-46	A-52	A-62	A-67





Pushbutton							
Series	8600	8700	GP	PN	PHB	F	NE-18
Switch Type	Micro/ultra-miniature	Sub-miniature	Micro/ultra-miniature	Sub-miniature	Miniature	Miniature	Miniature
Poles/Throws	SPST	SPST	SPST, SPDT	SPDT, DPDT, 4PDT	DPDT, 4PDT	DPDT, 4PDT, 6PDT, 8PDT, 10PDT	DPST, DPDT Varied
Max. Current	500 mA	1 Amp	0.4 VA	200 mA	100 mA	500 mA	6 A
Process Sealed			•				
PCB Mount							
Thru-hole	•	•	•	•	•	•	•
Surface Mount			•				
Panel Mount							
Wire Wrap							
Solder Lug	•	•					
Quick Connect							
Page No.	A-71	A-74	A-77	A-81	A-84	A-87	A-96

Pushbutton Product Selection Guide



A
Pushbutton

Pushbutton								
Series	FP	AP	APB	NP	PNP	ATP	PBA	PB
Switch Type	Micro/ultra-miniature	Sealed/Industrial	Sealed/Industrial	Sealed/Industrial	Sealed/Industrial	Panel Illuminated	PCB Illuminated	Miniature
Poles/Throws	SPST, SPDT, DPST, DPDT	SPST	SPST	SPDT	SPST, SPDT	SPDT, DPDT	DPDT, 4PDT	DPDT 4PDT
Max. Current	0.4 VA	400mA	400mA	5 Amp	10mA / 3A / 5A	3A / 5A	0.3 / 1A	0.3 / 1A
Process Sealed	•	•	•		•			
PCB Mount								
Thru-hole	•	•	•	•	•		•	•
Surface Mount								
Panel Mount								
Wire Leads		•	•	•	•	•		
Solder Lug		•	•	•	•	•		
Quick Connect								
Page No.	A-105	A-108	A-114	A-118	A-125	A-130	A-143	A-147

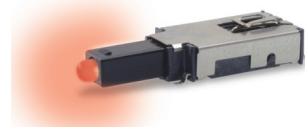
Pushbutton				
Series	PS	PVA	KLS	PLP
Switch Type	Miniature	Miniature	PCB Illuminated	Panel Illuminated
Poles/Throws	SPST, DPDT	DPST, DPDT	SPST, DPDT	Pilot light, SPST, DPDT
Max. Current	0.1 / 1A 0.3 / 2A	100 mA	0.5A / 25Vdc 0.1A / 28Vdc	3A / 250Vac 1A / 30Vdc
Process Sealed			•	
PCB Mount				
Thru-hole	•	•	•	
Surface Mount				
Panel Mount				
Wire Leads	•			•
Solder Lug				•
Quick Connect				
Page No.	A-155	A-171	A-174	A-178



**LEAD FREE
COMPATIBLE OPTION**

Patent Numbers
6,974,924 B2 US
EP1583118B1 Europe

- **Telecom network equipment**
- **Automotive electronics**
- **Consumer electronics**
- **Computer, server, modem, data storage**
- **Professional instrumentation, medical**



OPERATING TEMPERATURE: -40°C TO 80°C.
STORAGE TEMPERATURE: -40°C TO 80°C.
RELATIVE HUMIDITY: 90% R.H. @ 80°C.
OPERATING LIFE: 30,000 Cycles.
VIBRATION: Per EIA 186-E Method
MECHANICAL SHOCK: Per EIA 186-E Method 12.
OVERLOAD: Withstands 40 N for 1 minute without damage

SOLDERABILITY: According to Mil STD 202F Method 208D or EIA RS-186E Method 9.

LEAD FREE PROCESS COMPATIBLE: 260°C peak, 10 seconds Max. above 250° C.

WASHING PROCESS: No clean process compatible (SMT)
Bottom wash compatible (Thru-hole)

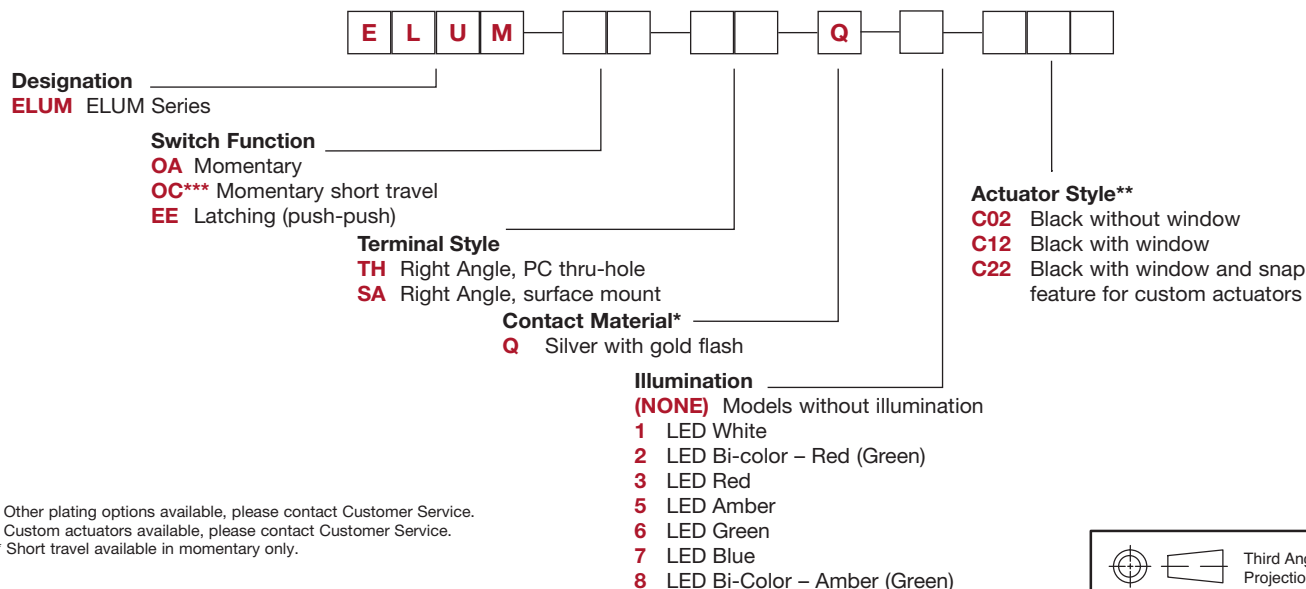
SHEAR TEST (SWITCH/PCB): > 40 N

“SA” Terminal Style SMT: Tape and reel per EIA 481-2 (450/reel)
 “TH” Terminal Style PC: Tray (60/tray)

NOTE: Any models supplied with Q, contact material are RoHS compliant.

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

To order, simply select desired option from each category and place in the appropriate box.



*** Short travel available in momentary only.

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

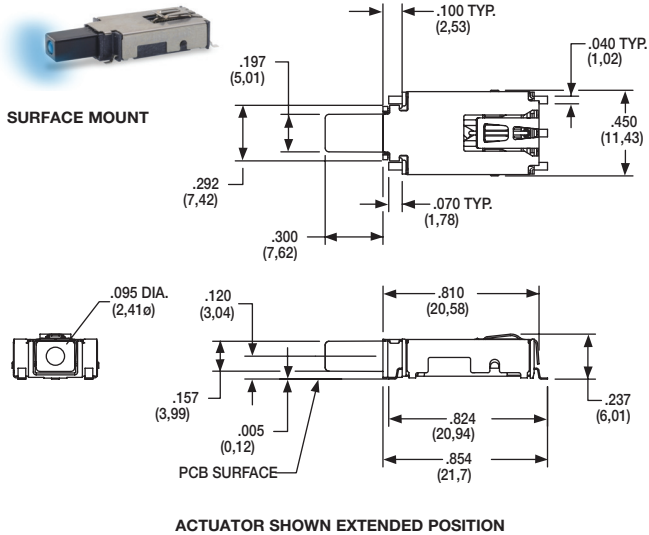
ELUM™ Series Right Angle Illuminated Latching Pushbutton



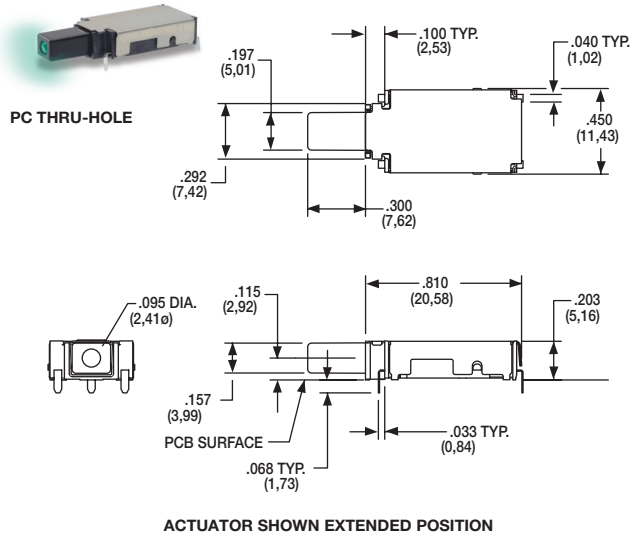
A
Pushbutton

STANDARD OPTIONS

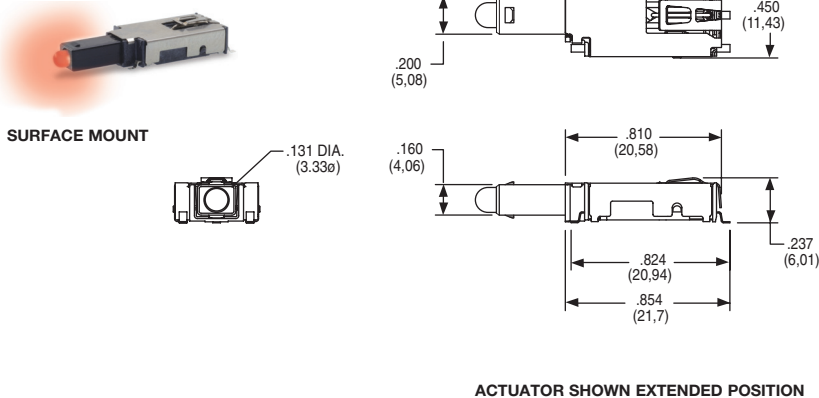
ELUMEEAQA7C12



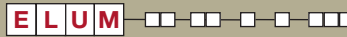
ELUMOATHQ6C12



ELUMEEAQA3C22



DESIGNATION



ELUM ELUM SERIES, Illuminated Latching Pushbutton

SWITCH FUNCTION

OPTION CODE	NO. OF POLES	POSITION 1		POSITION 2		SCHEMATIC
		SWITCH FUNCTION	CONNECTED TERMINALS	SWITCH FUNCTION	CONNECTED TERMINALS	
OA / OC	SP Momentary	ON	3 - 4	ON (Mom.)	3 - 2	<p>SPDT + Anode - Cathode</p>
EE	SP Latching (Push-Push)	ON	3 - 4	ON	3 - 2	

For SPST N.O. function, only terminals 3 & 2 are used.

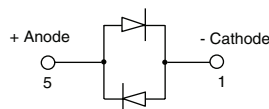
For SPST N.C. function, only terminals 3 & 4 are used.

Circuit: Make before break

LED pins 1 & 5 are independent of switch function.

NOTE:

For bi-color LED's the polarity must be reversed to alternate the color



Third Angle
Projection

C&K

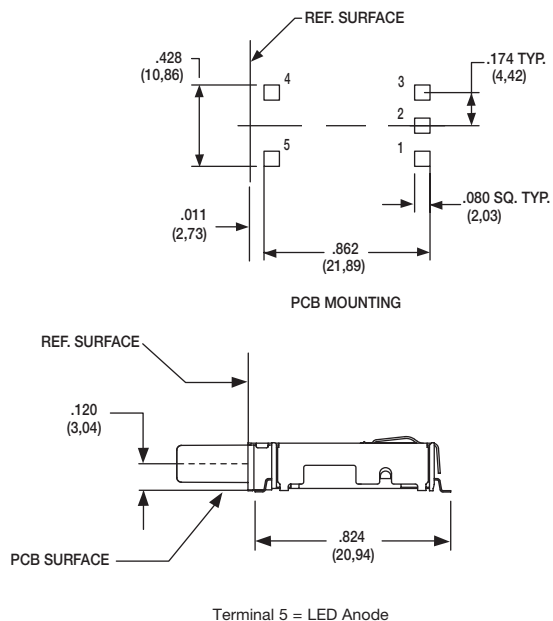
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



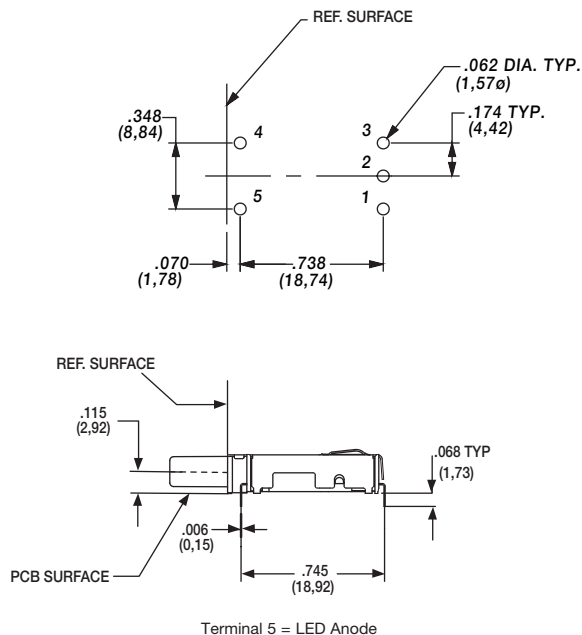
ELUM™ Series Right Angle Illuminated Latching Pushbutton

TERMINAL STYLE

SA RIGHT ANGLE, SURFACE MOUNT



TH RIGHT ANGLE, PC THRU-HOLE



CONTACT MATERIAL

OPTION CODE	CONTACT MATERIAL	TERMINAL PLATING	RATINGS
Q	SILVER WITH GOLD FLASH	SILVER	250 mA

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

FIXED CONTACTS AND TERMINALS: Stainless steel, silver plated with gold flash

MOVABLE CONTACTS: Copper alloy, silver plated with gold flash

NOTE: Any models supplied with Q, contact material are RoHS compliant.

ILLUMINATION

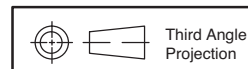
OPTION CODE	ILLUMINATION TYPE	TYPICAL INTENSITY* MIN MAX	PEAK WAVELENGTH	Vf Forward Voltage
		(mcd)	(nm)	
0	Model without illumination	N/A	N/A	
1	LED Super White	4,000 5,000	N/A	3.5
2	LED Bi-Color – Red (Green)	10 20	635/565	2.0
3	LED Red	4 8	700	2.0
5	LED Amber	35 50	610	2.0
6	LED Green	35 50	565	2.0
7	LED Super Blue	800 1,500	470	3.8
8	LED Bi-Color – Amber (Green)	10 10	585/565	2.0

*LED FORWARD CURRENT: 20 mA

LED FORWARD VOLTAGE: see chart above

LED REVERSE VOLTAGE: 5.0 V MAX

* For information on specific and custom LED, please contact Customer Service.



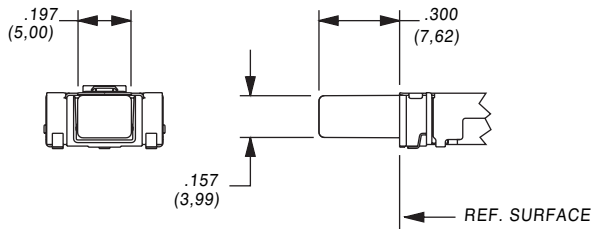
ELUM™ Series Right Angle Illuminated Latching Pushbutton



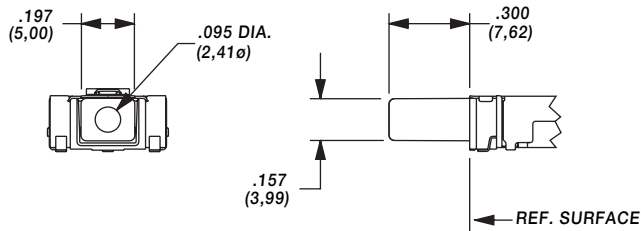
A
Pushbutton

ACTUATOR STYLE*

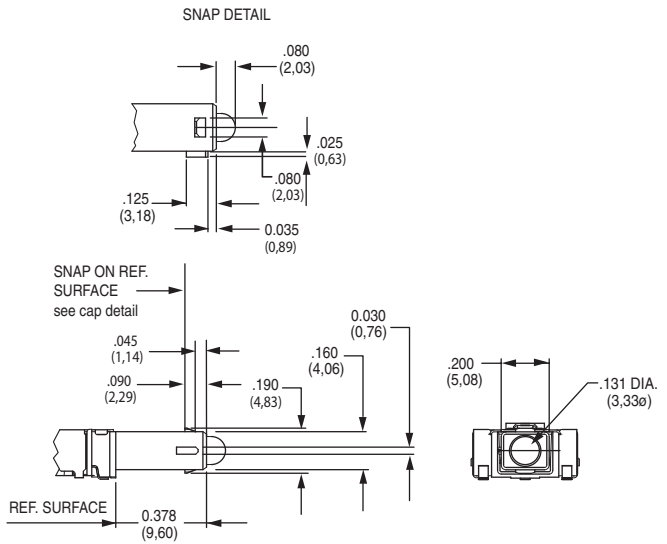
C02 BLACK WITHOUT WINDOW



C12 BLACK WITH WINDOW

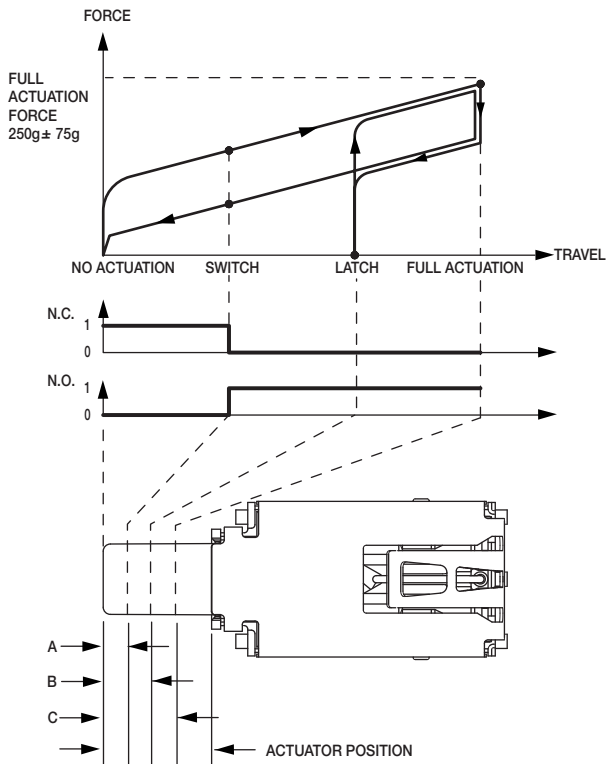


C22 BLACK WITH WINDOW AND SNAP FEATURE TO ACCEPT CUSTOM CAP



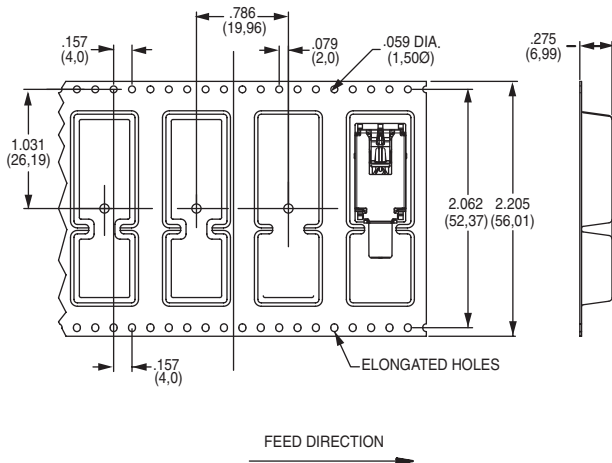
* Custom actuators available, please contact Customer Service.

FORCE TRAVEL DIAGRAM



OA, EE ACTUATOR POSITION			
A	SWITCH POINT	.067 ± .020	1,7 ± 0.5mm
B	LATCH	.131 ± .020	3,3 ± 0.5mm
C	FULL ACTUATION	.200 ± .020	5,1 ± 0.5mm
OC ACTUATOR POSITION			
A	SWITCH POINT	.067 ± .020	1,7 ± 0.5mm
C	FULL ACTUATION	.098 ± .020	2,5 ± 0.5mm

TAPE & REEL



Third Angle
Projection

C&K

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



ELUM™ Series Right Angle Illuminated Latching Pushbutton

AVAILABLE HARDWARE

Cap



PART NO.

957C00000 High temperature black cap with universal standby symbol

956C02000 High temperature black cap with no symbol

Material: 4/6 Nylon SMT compatible

Cap



PART NO.

181D01000 Paint and Laser Etched with black paint and universal standby symbol

Material: Clear polycarbonate

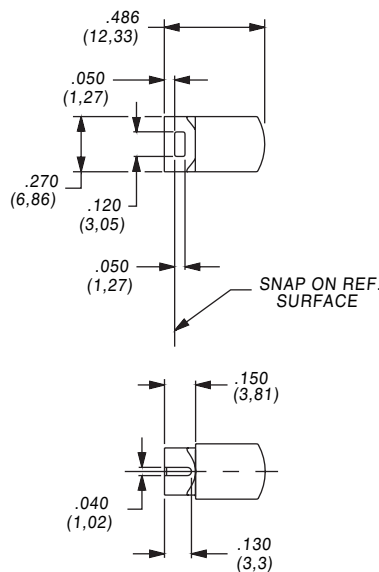
Cap



PART NO.

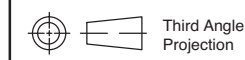
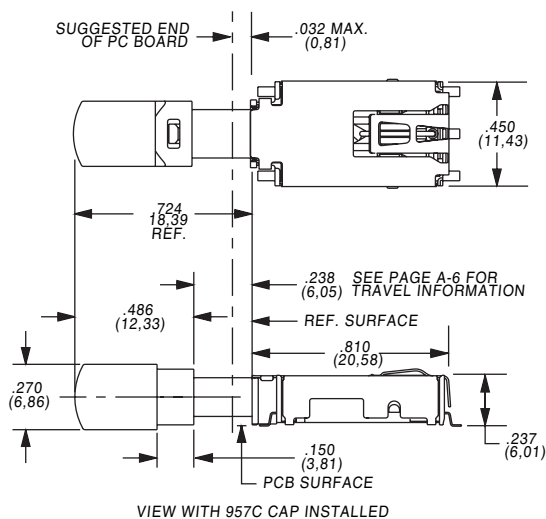
181D00000 Paint and laser etched with white paint underlay and black paint with universal standby symbol.

Material: Clear polycarbonate



NOTE: Caps are for use with the C22 actuator style. Other colors and symbols available, consult Customer Service Center.

CAP INSTALLATION



Third Angle
Projection

EP Series Sealed Tiny Pushbutton Switches



A
Pushbutton

Features/Benefits

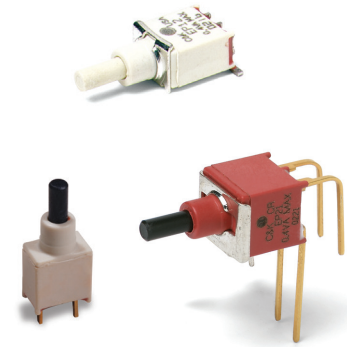
- Sealed against solder & cleaning processes
- Thru-hole and surface mount models
- Snap-fitting actuator accepts standard caps
- Tape & reel packaging available
- RoHS compliant models available



Models Available

Typical Applications

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



Specifications

CONTACT RATING: B contact material: 0.4 VA max. @ 20 V AC or DC max. See page A-13 for additional ratings.

ELECTRICAL LIFE: EP11, EP21 models: 60,000 make-and-break cycles at full load. EP12 models: 30,000 cycles.

CONTACT RESISTANCE: Below 20 mΩ typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: 10⁹ Ω min.

DIELECTRIC STRENGTH: 1000 Vrms min. @ sea level.

OPERATING TEMPERATURE: -30°C to 85°C.

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

DEGREE OF PROTECTION: IP57; Protection against harmful dust deposit, full-scale voltage protection, temporary immersion.

PACKAGING: Surface mount switches standard in anti-static tape and reel packaging per EIA 481-3, see page A-14 for drawings and reel information. Tape and cover strip are conductive for use near statically sensitive components, consult Customer Service Center.

Materials

CASE & BUSHING: High temperature material, glass filled nylon 4/6, flame retardant, heat stabilized (UL 94V-0) on EP11 / EP12 models; glass filled nylon 6/6 on EP21.

PLUNGER: Thermoplastic polyester or glass filled nylon (UL 94V-0), with internal o-ring seal. SA surface mount: High temperature material, glass filled LCP (UL 94V-0).

SWITCH SUPPORT: Brass, matte-tin plated.

CONTACTS & TERMINALS: B contact material: Copper alloy, with gold plate over nickel plate. See page A-13 for additional contact materials.

TERMINAL SEAL: Epoxy.

NOTE: Any models supplied with Q, B, P, S, 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.

CAUTION: PC mounting layouts and pads as shown are designed to be compatible with the latest equipment and reflow techniques. Care should be taken in the design and location of PC lands to suit individual needs. Orientation relative to reflow direction may significantly impact solder joint integrity.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages A-10 thru A-14. For additional options not shown in catalog, consult Customer Service Center. All models are process sealed to withstand machine soldering temperatures and pressure wash cleaning methods.

<p>Switch Function</p> <p>EP11 SPST Off-Mom.</p> <p>EP12 SPDT On-Mom.</p> <p>EP21 DPST Off-Mom.</p>	<p>Plunger</p> <p>S .215" high</p> <p>S1 .110" high</p> <p>S2 .465" high</p> <p>FP Flush</p> <p>R Snap-fitting, .215 high (not available with EP12 version)</p>	<p>Bushing</p> <p>D1 Unthreaded</p>	<p>Terminations</p> <p>A Right angle, PC thru-hole</p> <p>C PC Thru-hole</p> <p>AV Vertical right angle, PC thru-hole</p> <p>AV3 Vertical right angle, snap-in, PC thru-hole</p> <p>SA Right angle, surface mount</p> <p>SA1 Right angle, surface mount rear facing</p> <p>V3 Vertical mount, v-bracket</p> <p>V31 Vertical mount, v-bracket, snap-in (EP11 & EP12 only)</p> <p>W Wire wrap</p>	<p>Contact Material</p> <p>B Gold</p> <p>P Gold, matte-tin</p> <p>Q Silver</p> <p>S Silver, matte-tin</p> <p>G Gold over silver</p> <p>R Gold over silver, matte tin</p>	<p>Seal</p> <p>E Epoxy</p>
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5 Aug 20

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



EP Series Sealed Tiny Pushbutton Switches

SWITCH FUNCTION



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

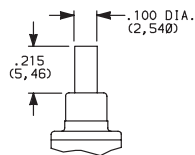
MOM. = Momentary

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

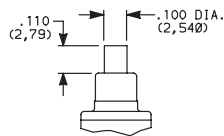
PLUNGER



S .215" HIGH

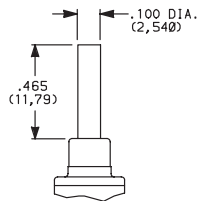


S1 .110" HIGH

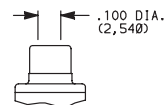


S1 & S2 actuators are not available with EP12 & EP21 models.

S2 .465" HIGH

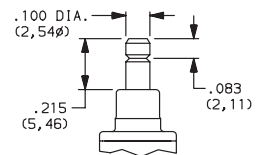


FP FLUSH PLUNGER



FP & R actuators are not available with EP21 model.
R actuators are not available with EP12 model.

R SNAP-FITTING

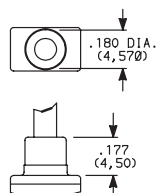


NOTE: Caps available for plunger options, see page A-14.

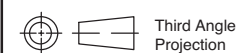
BUSHING



D1 UNTHREADED



NOTE: Internal actuator o-ring standard.



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

C&K

5 Aug 20

EP Series Sealed Tiny Pushbutton Switches

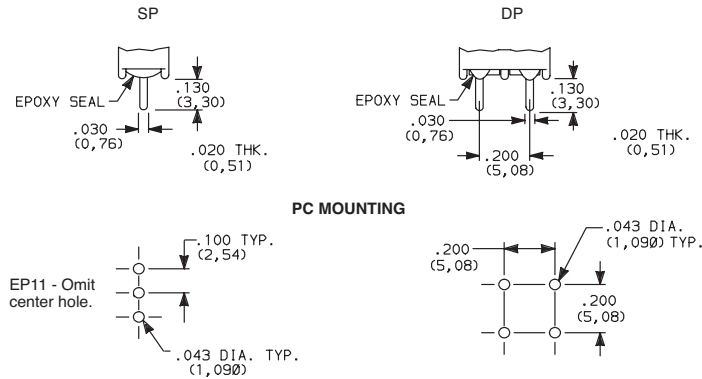


A
Pushbutton

TERMINATIONS

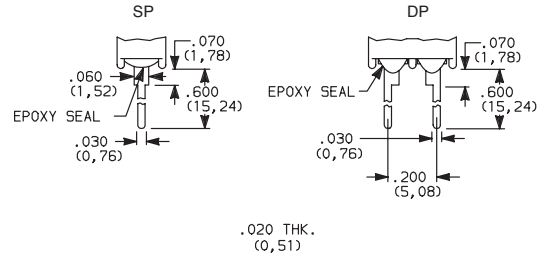


C PC THRU-HOLE



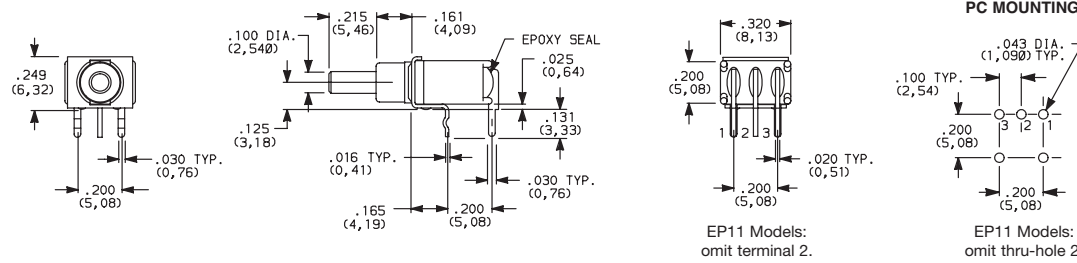
SP and DP

W WIRE WRAP



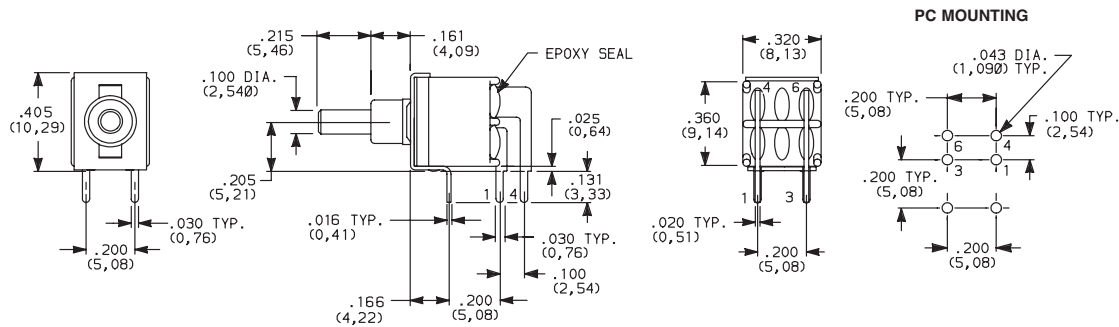
SP and DP

A RIGHT ANGLE, PC THRU-HOLE



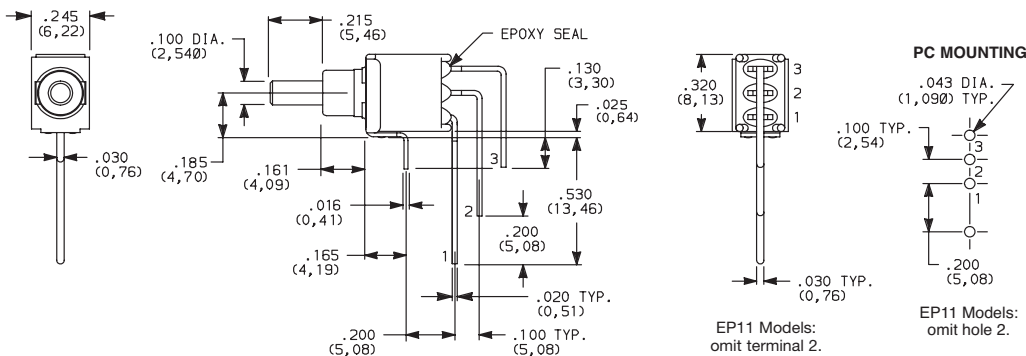
EP12SD1ABE
SPDT

A RIGHT ANGLE, PC THRU-HOLE



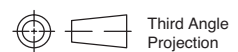
EP21SD1ABE
DPST

AV VERTICAL RIGHT ANGLE, PC THRU-HOLE



EP12SD1AVBE
SPDT

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



Third Angle
Projection

C&K

5 Aug 20

A-11

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

www.ckswitches.com

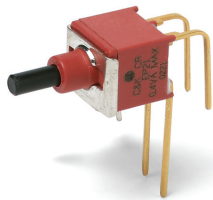


EP Series Sealed Tiny Pushbutton Switches

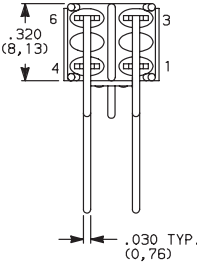
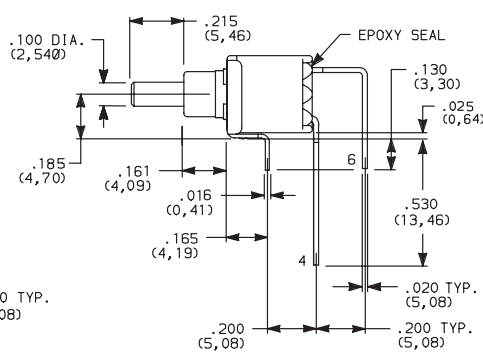
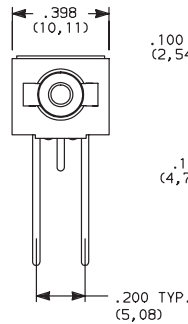
TERMINATIONS



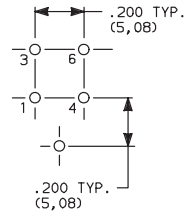
AV VERTICAL RIGHT ANGLE, THRU-HOLE



**EP21SD1AVBE
DPST**

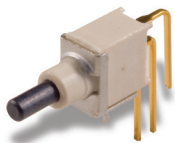


PC MOUNTING

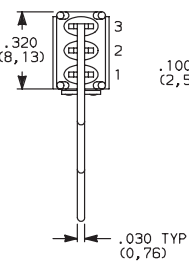
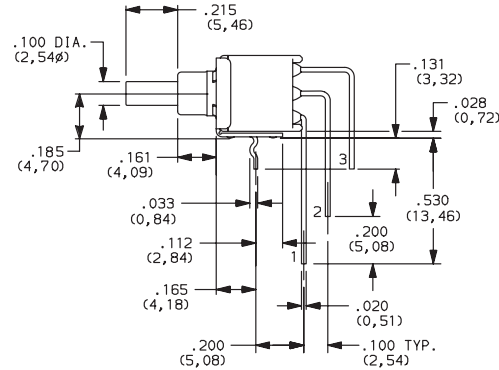
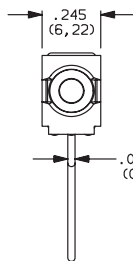


NOTE: Terminal bend radii and lead-in manufacturing option.

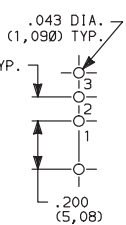
AV3 VERTICAL RIGHT ANGLE, SNAP-IN, PC THRU-HOLE



**EP12SD1AV3BE
SPST**



PC MOUNTING

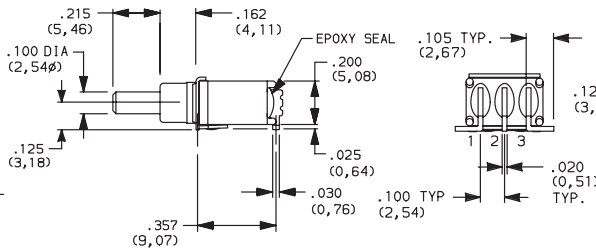
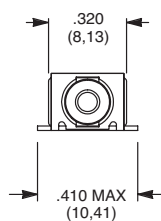


EP11 Models:
omit hole 2.

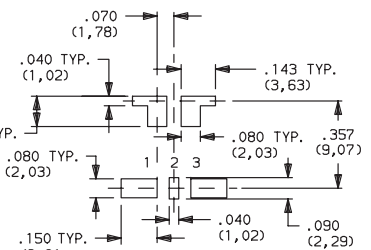
SA RIGHT ANGLE, SURFACE MOUNT



**EP12SD1SAPE
SPDT**



PC MOUNTING



EP11 Models:
omit pad 2.

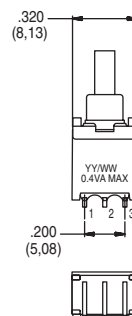
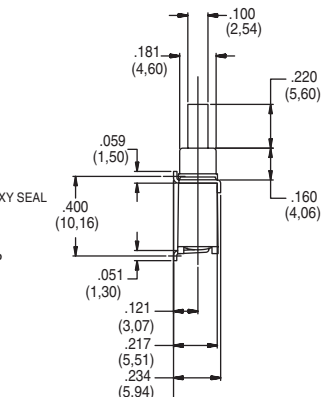
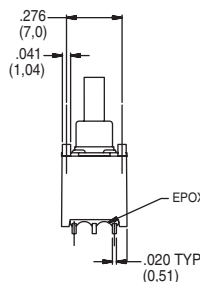
Available with P contact material only.
Not Available on DPST models.

EP11 Models:
omit terminal 2.

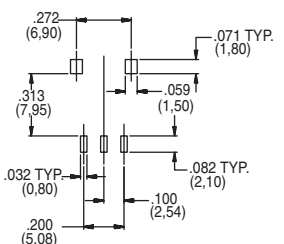
SA1 RIGHT ANGLE, SURFACE MOUNT



**EP12SD1SA1BE
SPDT**



PC MOUNTING



SA1 is only available with B and P contact materials.
Not Available on DPST models.



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

Pushbutton

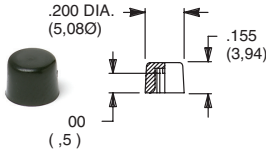
www.ckswitches.com



EP Series Sealed Tiny Pushbutton Switches

AVAILABLE HARDWARE

Cap



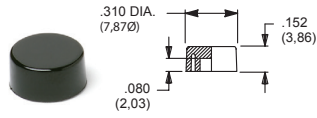
PART NO.

508101000 WHITE
508102000 BLACK
508103000 RED

Material: Nylon
Finish: Gloss

Not for use on S1 plunger

Cap



PART NO.

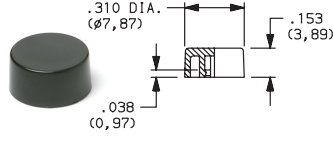
465801000 WHITE
465802000 BLACK
465803000 RED

Material: Nylon
Finish: Gloss

Not for use on S1 plunger

Cap

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



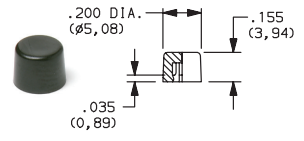
PART NO.

585A01000 WHITE
585A02000 BLACK
585A03000 RED

Material: Nylon
Finish: Gloss

Cap

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



PART NO.

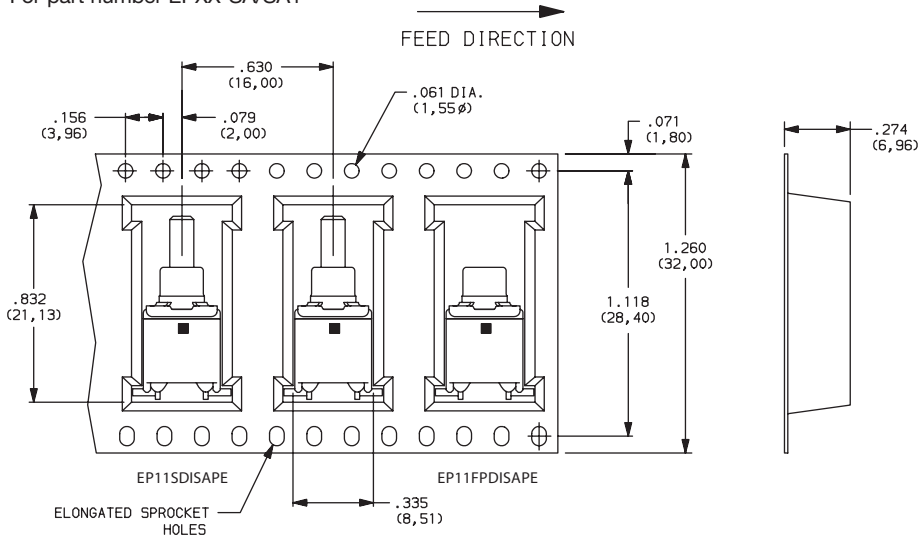
785A01000 WHITE
785A02000 BLACK
785A03000 RED

Material: Nylon
Finish: Gloss

NOTE: Other colors available, consult Customer Service Center.

TAPE & REEL

For part number EPXX-SA/SA1



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



Features/Benefits

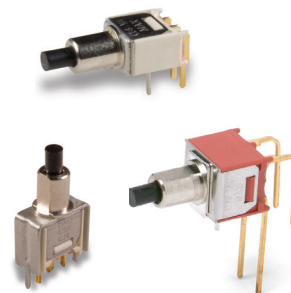
- Subminiature size—capable of switching 1 AMP
- Vertical & right angle terminations
- PC & panel mount models
- Snap-in front panel mounting available
- Epoxy terminal seal-compatible with bottom wash cleaning
- RoHS compliant models available



Models Available

Typical Applications

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



Specifications

CONTACT RATING: B contact material: 0.4 VA max. @ 20 V AC or DC max. Q contact material: 1 AMP @ 120 V AC or 28 V DC. See page A-19 for additional ratings.

ELECTRICAL LIFE: TP11, TP21 MODELS: 60,000 make-and-break cycles at full load. TP12 MODELS: 30,000 cycles.

CONTACT RESISTANCE: Below 20 mΩ 15 typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: 10⁹Ω 15min.

DIELECTRIC STRENGTH: 1000 Vrms min. @ sea level.

OPERATING TEMPERATURE: -30°C to 85°C.

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

NOTE: Any models supplied with Q, 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 4/6 or 6/6, flame retardant, heat stabilized or diallyl phthalate (DAP), (UL 94V-0).

PLUNGER: Thermoplastic polyester (UL 94V-0).

CAP & FRAME: Nylon, black standard.

BUSHING: Brass, nickel plated.

HOUSING: Stainless steel.

SWITCH SUPPORT: Brass, matte-tin plated.

END CONTACTS: B contact material: Copper alloy, with gold plate over nickel plate. Q contact material: Coin silver, silver plated. See page A-19 for additional contact materials.

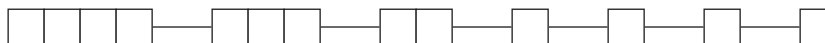
CENTER CONTACT & ALL TERMINALS: B contact material: Copper alloy, with gold plate over nickel plate. Q contact material: Copper alloy, silver plated. See page A-19 for additional contact materials.

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-16 thru A-20. 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

- TP11** SPST Off-Mom.
TP12 SPDT On-Mom.
TP21 DPST Off-Mom.

Actuator or Bushing

- SH** .155" high plunger, threaded,
.220" high bushing, flat
SH8 .155" high plunger, unthreaded,
.220" high bushing, round
SH9 .155" high plunger, unthreaded,
.220" high bushing, flat
J81 Snap-in with frame
LT .215" high plunger, threaded,
.310" high bushing, flat
LT9 .215" high plunger, unthreaded,
.310" high bushing, flat
MS9 .130" high plunger,
.020" high bushing, round

Terminations

- A** Right angle, PC thru-hole
C PC Thru-hole
Z Solder lug
AV Vertical right angle, PC thru-hole
V3 Vertical mount, v-bracket
W Wire wrap

Contact Material

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

Seal

- E** Epoxy

Cap Color

- 2** Black
NONE Models with no cap
1 White

Frame Color

- 2** Black
NONE Models with no frame



TP Series Tiny Pushbutton Switches

SWITCH FUNCTION

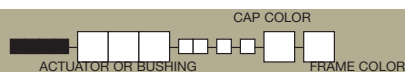


NO. POLES	MODEL NO.	SWITCH FUNCTION		CONNECTED TERMINALS		SCHEMATIC
		POS. 1	POS. 2	POS. 1	POS. 2	
		C&K marking on opposite side		C&K marking on opposite side		
SP	TP11	OFF	MOM.	OPEN	1-3	SPST
	TP12	ON	MOM.	2-1	2-3	SPDT
SPDT						
DP	TP21	OFF	MOM.	OPEN	1-3,4-6	DPST
DPST						

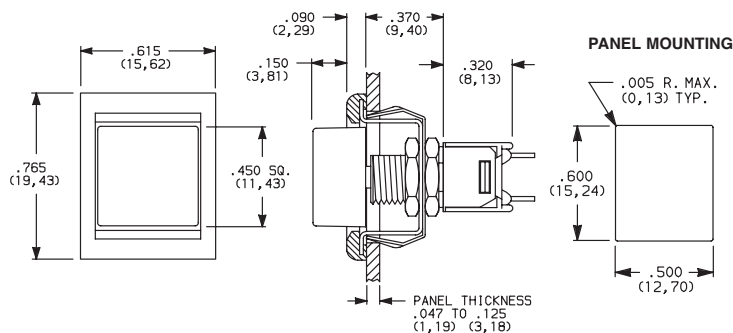
MOM. = Momentary

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

ACTUATOR—SNAP-IN FRONT MOUNT



J81 SNAP-IN WITH FRAME



OPTION CODE	CAP COLOR
2	BLACK
1	WHITE

OPTION CODE	FRAME COLOR
2	BLACK
NONE	No Frame Color (J80 option)

Cap and Frame Finish: matte. Other colors available, consult Customer Service Center.
NOTE: Available with Z, C, or W terminations.

NOTE: Caps & frames available separately, see page A-20.



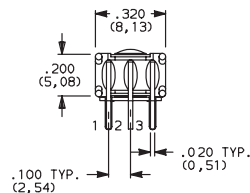
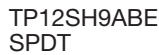
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



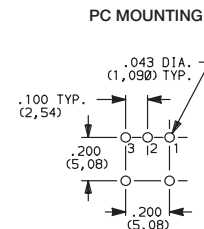
5 Aug 20



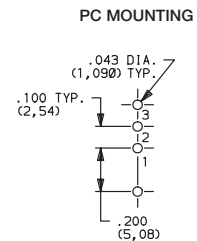
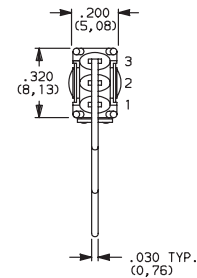
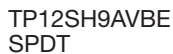
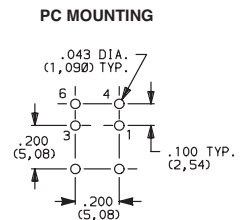
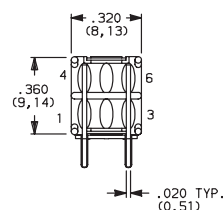
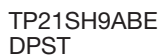
TERMINATIONS



TP11 Models:
omit terminal 2.



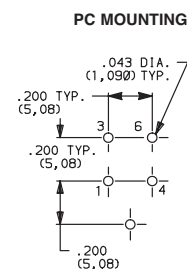
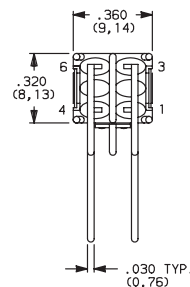
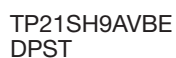
TP11 Models:
omit hole 2.



TP11 Models:
omit hole 2.

TP11 Models:
omit terminal 2.

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



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



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

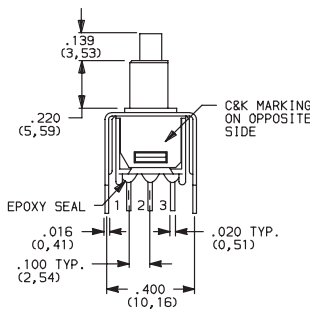
TP Series Tiny Pushbutton Switches



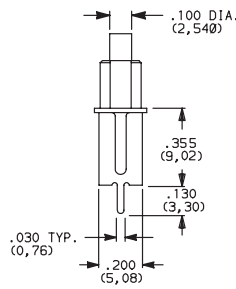
A
Pushbutton

TERMINATIONS

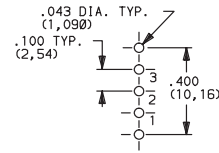
V3 VERTICAL MOUNT, V-BRACKET



TP11 Models:
omit terminal 2.



PC MOUNTING

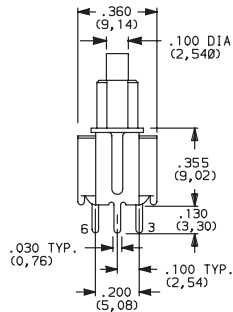
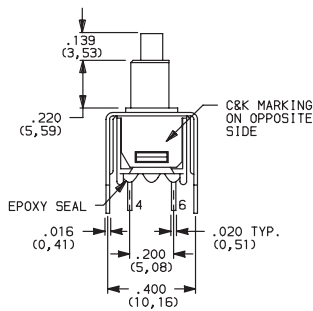


TP11 Models:
omit hole 2.

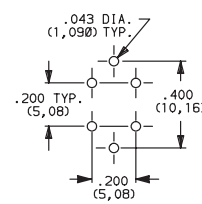


TP12SH9V3BE
SPDT

V3 VERTICAL MOUNT, V-BRACKET



PC MOUNTING



TP21SH9V3BE
DPST

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	1 AMP @ 120 V AC OR 28 V DC.
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 1 AMP @ 120 V AC OR 28 V DC.
R		MATTE-TIN ⁶		

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

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

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


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

⁴ END CONTACTS: Coin silver, silver plated.

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

⁶ TERMINALS: Copper alloy, with matte-tin over nickel plate.

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

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

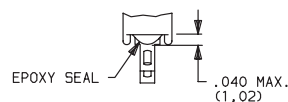
B contact material standard with A, AV, V3 & W terminations.

Q contact material standard with C & Z terminations

P, R contact materials not available with Z terminations.

SEAL

E EPOXY SEAL



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

C&K

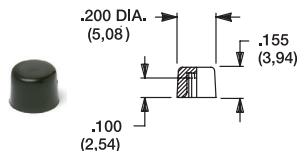
5 Aug 20



TP Series Tiny Pushbutton Switches

AVAILABLE HARDWARE

Cap, .100" DIA. Plungers

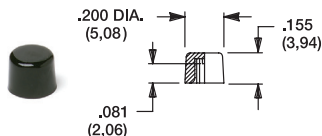


PART NO.

508101000 WHITE
508102000 BLACK

Material: Nylon
Finish: Gloss

Cap, .100" DIA. Plungers (Recommended for S9 plunger)

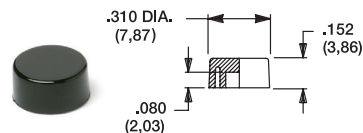


PART NO.

538701000 WHITE
538702000 BLACK

Material: Nylon
Finish: Gloss

Cap, .100" DIA. Plungers

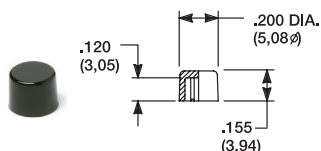


PART NO.

465801000 WHITE
465802000 BLACK

Material: Nylon
Finish: Gloss

Cap, .120" DIA. Plungers

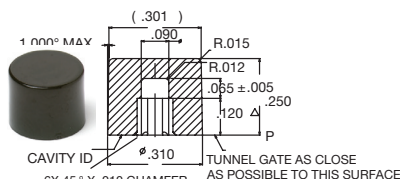


PART NO.

708901000 WHITE
708902000 BLACK

Material: Nylon
Finish: Gloss

Cap, .120" DIA. Plungers

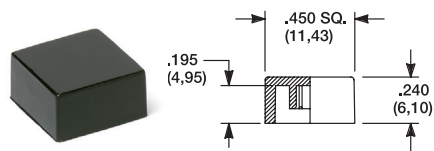


PART NO.

891D01000 WHITE
891D02000 BLACK

Material: Nylon
Finish: Gloss

Cap, J81 option only



PART NO.

484601000 WHITE
484602000 BLACK

Material: Nylon
Finish: Gloss

PART NO.

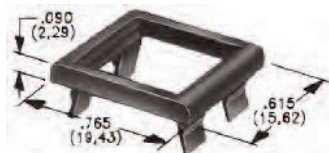
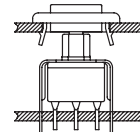
798201000 WHITE
798202263 BLACK

Material: Nylon
Finish: Matte

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

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.

PART NO.

432702263

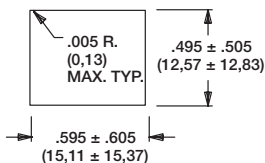
.125" (3,18) PANEL THK.

PART NO.

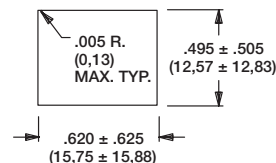
432802263 BLACK

PANEL MOUNTING

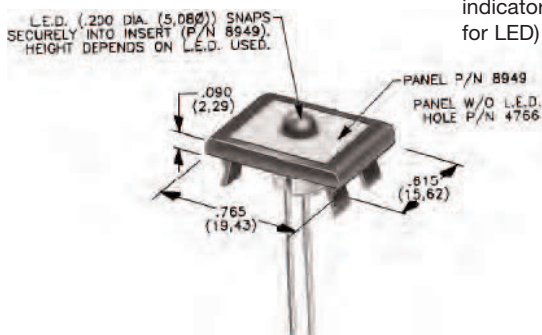
For part numbers
432502263, 432602263



For part numbers
432702263, 432802263



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

PART NO.

894902000

BLANK PANEL INSERT
WITHOUT HOLE FOR LED

PART NO.

476602000 BLACK

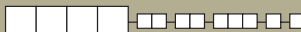







Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



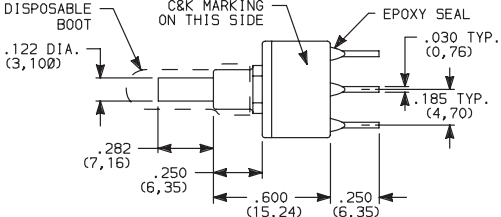
E020 Series Sealed Snap-acting Momentary Pushbutton Switches

SWITCH FUNCTION



NO. POLES	MODEL NO.	SWITCH FUNCTION		CONNECTED TERMINALS		SCHEMATIC
		POS. 1	POS. 2	POS. 1	POS. 2	
						
		C&K marking this side		C&K marking this side		
SP	E121	ON	MOM.	1-3	1-2	
	E125	ON	MOM.			
SPDT						

SPDT



DISPOSABLE BOOT

C&K MARKING ON THIS SIDE

EPOXY SEAL

.122 DIA. (3, 100)

.282 (7, 16)

.250 (6, 35)

.600 (15, 24)

.250 (6, 35)

.030 TYP. (0, 76)

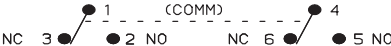
.185 TYP. (4, 70)

.260 (6, 60)

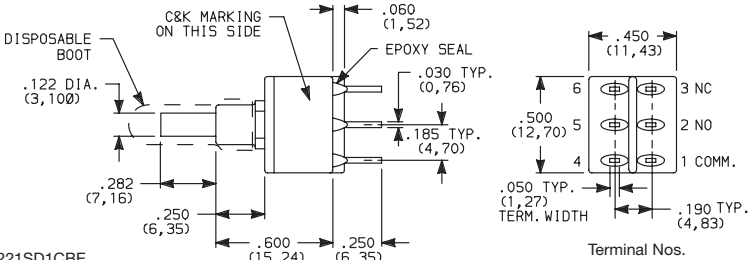
.500 (12, 70)

.050 TYP. (1, 27) TERM. WIDTH

Terminal Nos.
For Reference Only

DP	E221	ON	MOM.	1-3,4-6	1-2,4-5	
	E225	ON	MOM.			
DPDT						

DPDT



DISPOSABLE BOOT

C&K MARKING ON THIS SIDE

EPOXY SEAL

.122 DIA. (3, 100)

.282 (7, 16)

.250 (6, 35)

.600 (15, 24)

.250 (6, 35)

.060 (1, 52)

.030 TYP. (0, 76)

.185 TYP. (4, 70)

.450 (11, 43)

.500 (12, 70)

.050 TYP. (1, 27) TERM. WIDTH

.190 TYP. (4, 83)

Terminal Nos.
For Reference Only

MOM. = Momentary

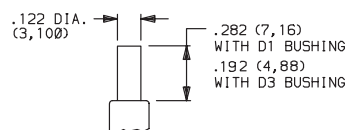
E121, E221 models with all options when ordered with G or R contact material.

EX25 models must be ordered with B or P contact material.
EX21 models must be ordered with G or R contact material.

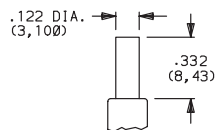
PLUNGER



S .282" HIGH

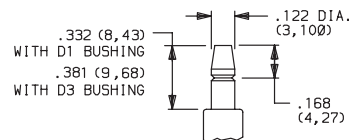


S1 .332" HIGH



Not Available with D1 bushing.

M .332" HIGH SNAP-FITTING

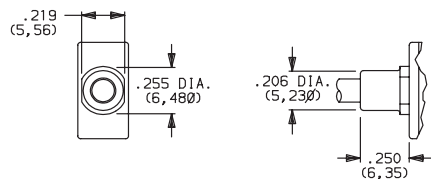


NOTE: Caps available for all plunger options, see page A-27.

BUSHING

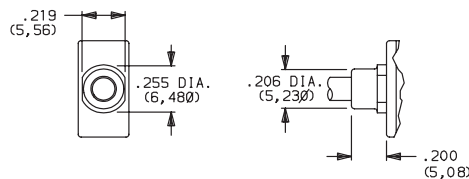


D1 UNTHREADED

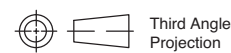


Not available with S1 actuator.

D3 .180" HIGH UNTHREADED



NOTE: Disposable splashproof vinyl over actuator and bushing supplied std., see page A-26.



Third Angle Projection

C&K

5 Aug 20

E020 Series Sealed Snap-acting Momentary Pushbutton Switches



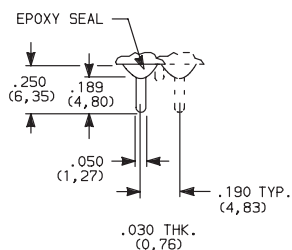
A

Pushbutton

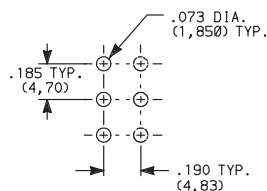
TERMINATIONS



C PC THRU-HOLE

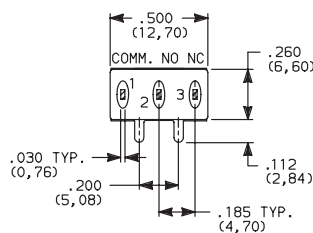
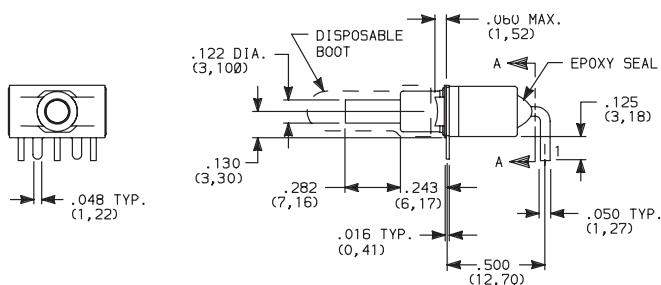


PC MOUNTING



SPDT and DPDT

A RIGHT ANGLE, PC THRU-HOLE



SECTION A-A

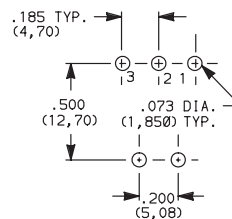


E121SD1AGE
SPDT

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

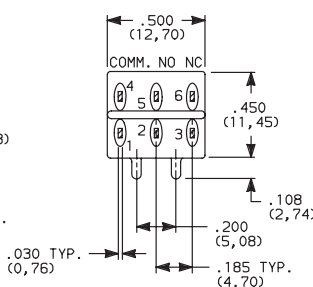
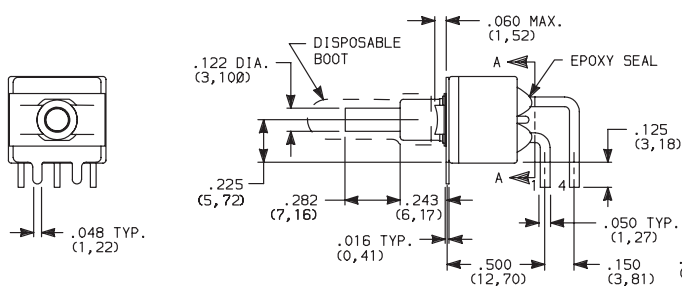


PC MOUNTING

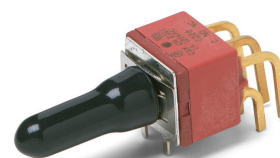


NOTE: Terminal bend radii and lead-in manufacturing option.

A RIGHT ANGLE, PC THRU-HOLE



SECTION A-A

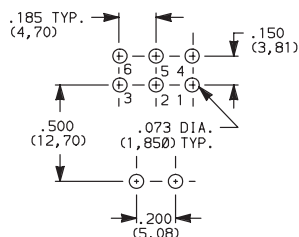


E221SD1AGE
DPDT

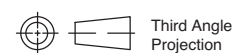
A3 RIGHT ANGLE, SNAP-IN, PC THRU-HOLE



PC MOUNTING



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



Third Angle
Projection



5 Aug 20

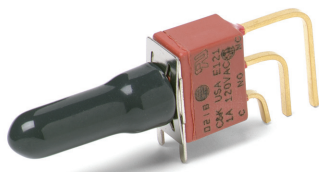


E020 Series Sealed Snap-acting Momentary Pushbutton Switches

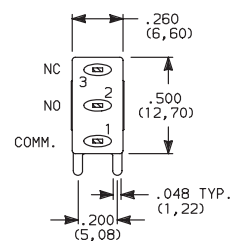
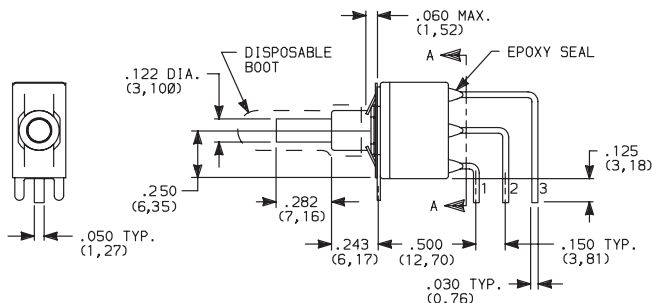
TERMINATIONS



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

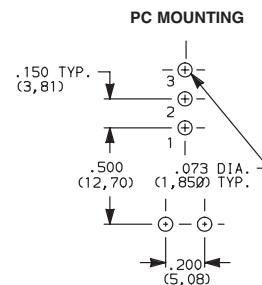
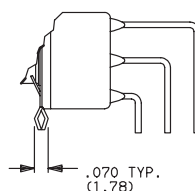
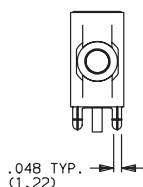


E121SD1AV2GE
SPDT



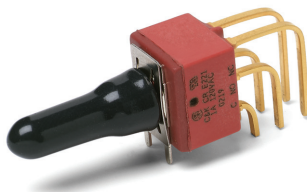
SECTION A-A

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

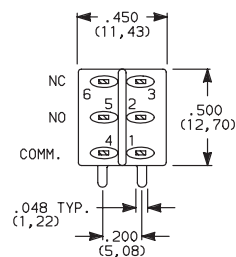
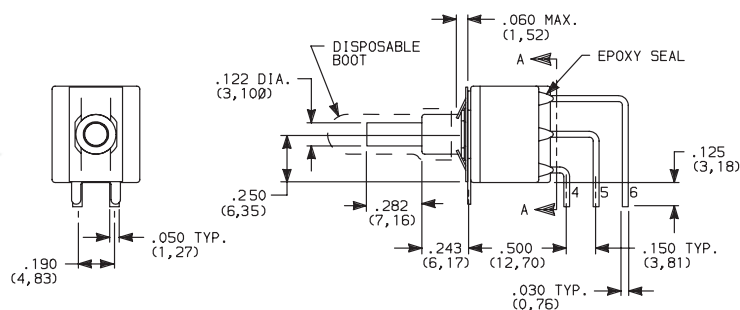


NOTE: Terminal bend radii and lead-in manufacturing option.

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

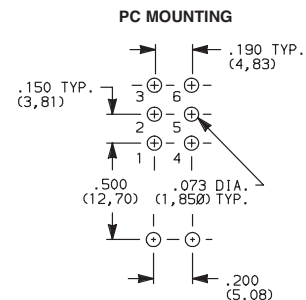
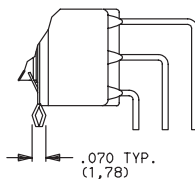
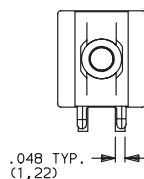


E221SD1AV2GE
DPDT



SECTION A-A

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



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



Third Angle
Projection

E020 Series Sealed Snap-acting Momentary Pushbutton Switches

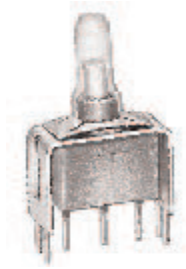
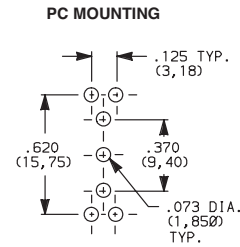
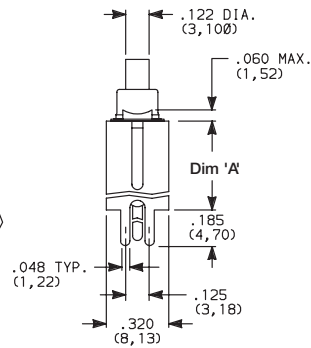
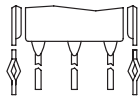
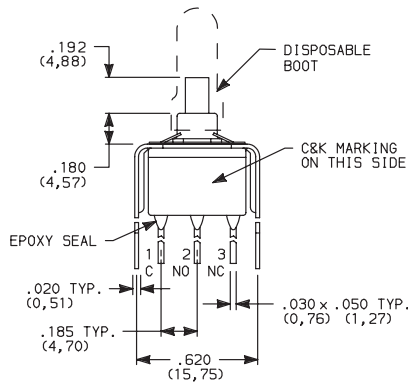
TERMINATIONS



A
Pushbutton

V3, V4 VERTICAL MOUNT, V-BRACKET

V31, V41 VERTICAL MOUNT, V-BRACKET, SNAP-IN

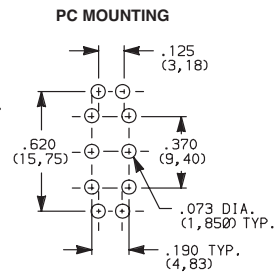
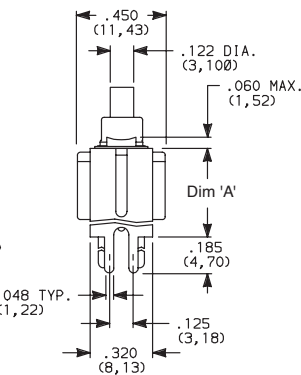
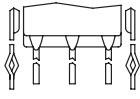
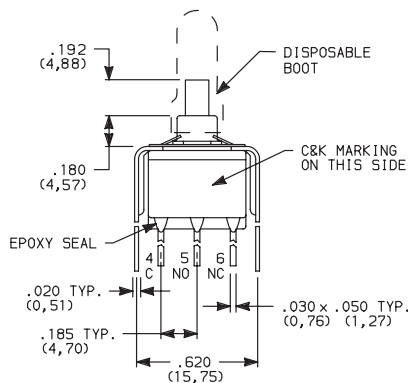


E121SD3_GE
SPDT

OPTION CODE	DIM 'A'
V3, V31	.460 (11,68)
V4, V41	.630 (16,00)

V3, V4 VERTICAL MOUNT, V-BRACKET

V31, V41 VERTICAL MOUNT, V-BRACKET, SNAP-IN

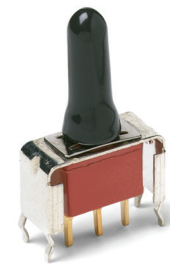
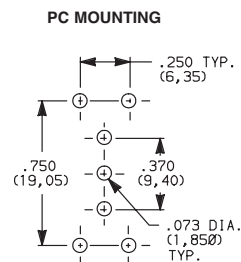
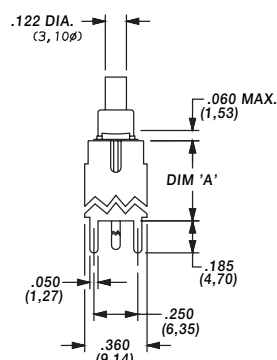
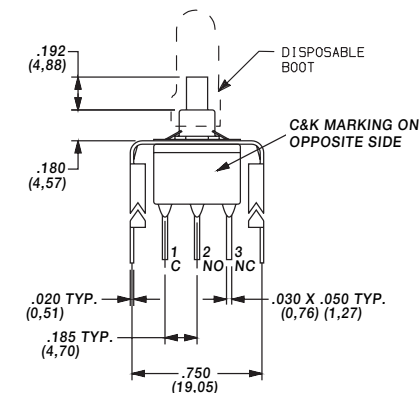


E221SD3_GE
DPDT

OPTION CODE	DIM 'A'
V3, V31	.460 (11,68)
V4, V41	.630 (16,00)

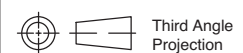
V6, V8 VERTICAL MOUNT, V-BRACKET

V61, V81 VERTICAL MOUNT, V-BRACKET, SNAP-IN



E121SD3_GE
SPDT

OPTION CODE	DIM 'A'
V6, V61	.460 (11,68)
V8, V81	.953 (24,21)



C&K

5 Aug 20

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



E020 Series Sealed Snap-acting Momentary Pushbutton Switches

TERMINATIONS

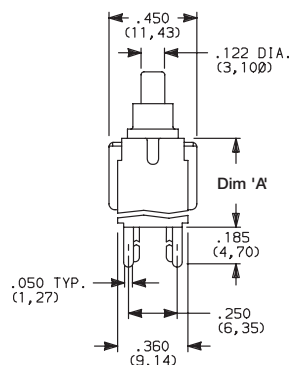
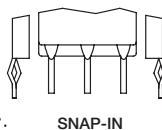
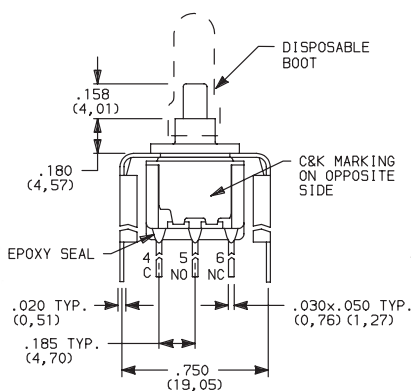


V6, V8 VERTICAL MOUNT, V-BRACKET

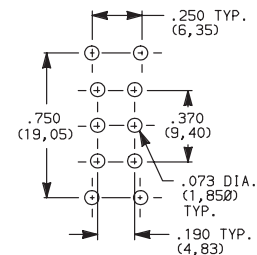
V61, V81 VERTICAL MOUNT, V-BRACKET, SNAP-IN



E221SD3V6GE
DPDT



PC MOUNTING



OPTION CODE	DIM 'A'
V6, V61	.460 (11,68)
V8, V81	.953 (24,21)

CONTACT MATERIAL



OPTION CODE	CONTACT MATERIAL	TERMINAL PLATING	RATINGS	
B	GOLD ¹	GOLD ¹	LOW LEVEL/DRY CIRCUIT	EX25 MODELS ONLY: 0.4 VA 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	EX21 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 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 alloy over nickel plate.

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

E121, E221 models  with all options when ordered with mandatory G, or R contact material.

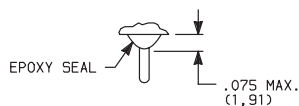
P or B contact material must be ordered with EX25 models.

R or G contact material must be ordered with EX21 models.

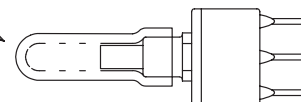
SEAL



E EPOXY SEAL AND DISPOSABLE SPLASHPROOF BOOT



Disposable splashproof boot supplied standard. Remove and discard boot *only after* soldering and cleaning processes are complete.



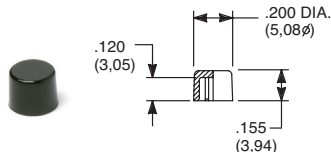
E020 Series Sealed Snap-acting Momentary Pushbutton Switches



A
Pushbutton

AVAILABLE HARDWARE

Cap

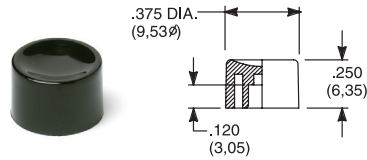


PART NO.

708901000 WHITE
708902000 BLACK
708903000 RED

Material: Nylon
Finish: Gloss

Cap

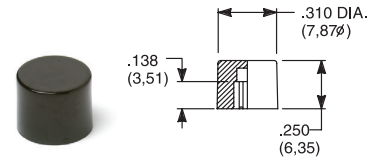


PART NO.

752701000 WHITE
752702000 BLACK
752703000 RED

Material: Nylon
Finish: Gloss

Cap

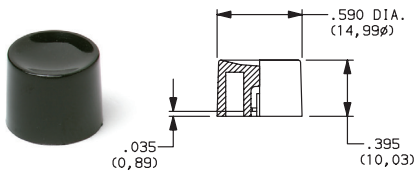


PART NO.

801801000 WHITE
801802000 BLACK
801803000 RED

Material: Nylon
Finish: Gloss

Cap, Snap-fitting plunger

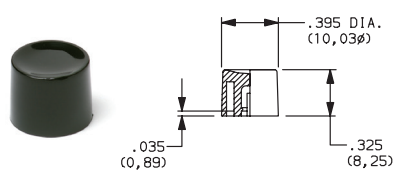


PART NO.

452D01000 WHITE
452D02000 BLACK
452D03000 RED

Material: Nylon
Finish: Gloss

Cap, Snap-fitting plunger

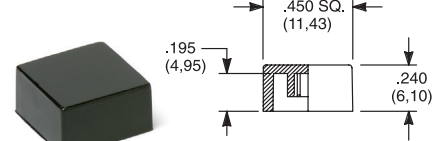


PART NO.

894101000 WHITE
894102000 BLACK
894103000 RED

Material: Nylon
Finish: Gloss

Cap



PART NO.

484601000 WHITE
484602000 BLACK
484603000 RED

Material: Nylon
Finish: Gloss

PART NO.

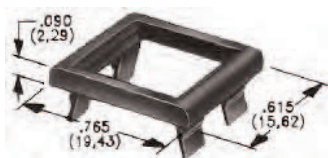
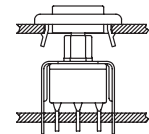
798201000 WHITE
798202263 BLACK
798203000 RED

Material: Nylon
Finish: Matte

NOTE: Other cap colors available, consult Customer Service Center.

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.

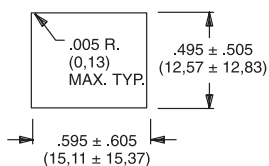
432702263

PART NO.

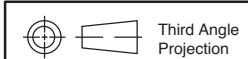
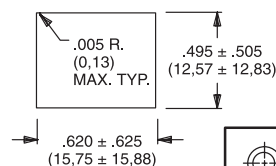
432802263 BLACK

PANEL MOUNTING

For part numbers
4325xxxxx, 4326xxxxx



For part numbers
4327xxxxx, 4328xxxxx



C&K

5 Aug 20

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

www.ckswitches.com



A

Pushbutton

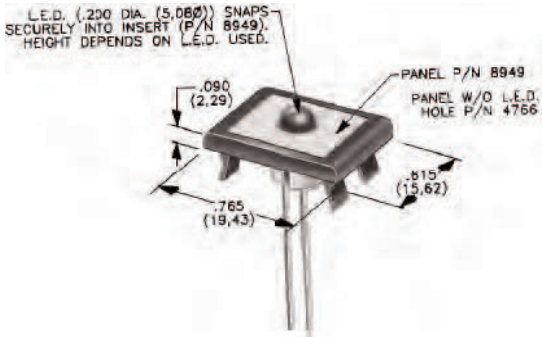
E020 Series

Sealed Snap-acting Momentary Pushbutton Switches

AVAILABLE HARDWARE

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

PART NO.
894902000

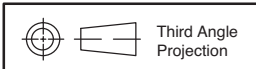
BLANK PANEL INSERT
WITHOUT HOLE FOR LED

PART NO.
476602000 BLACK

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



5 Aug 20



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

8020 Series Snap-acting Momentary Pushbutton Switches



A
Pushbutton

Features/Benefits

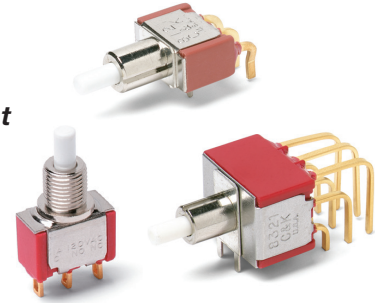
- **Positive tactile feel**
- **Multi-positions available**
- **Wide variety of termination options**
- **Epoxy terminal seal compatible with bottom wash cleaning**
- **RoHS compliant models available**



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-make contacts. 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: 10⁹Ω 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



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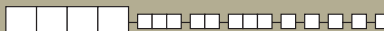






A

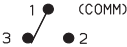
Pushbutton

8020 Series Snap-acting Momentary Pushbutton Switches

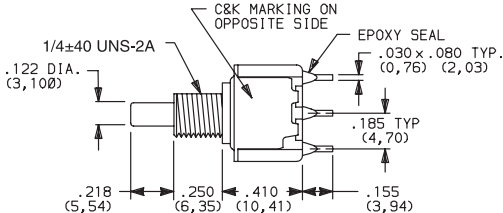
SWITCH FUNCTION



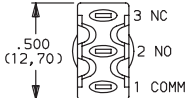
NO. POLES	MODEL NO.	UL/CSA* MODEL NO.	SWITCH FUNCTION		CONNECTED TERMINALS		SCHEMATIC
			POS. 1	POS. 2	POS. 1	POS. 2	
							
			C&K marking on opposite side		C&K marking on opposite side		

SP	8121	U811	ON	MOM.	1-3	1-2	
	8125		ON	MOM.			

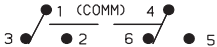
SPDT



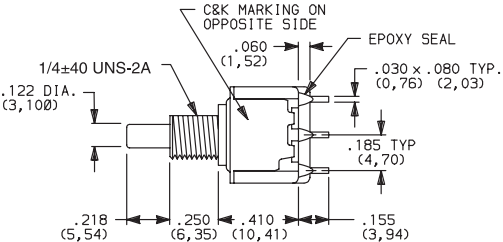
Part number shown: 8121SHZGE



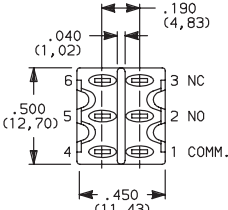
Terminal Nos.
For Reference Only

DP	8221	U821	ON	MOM.	1-3,4-6	1-2,4-5	
	8225		ON	MOM.			

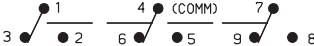
DPDT



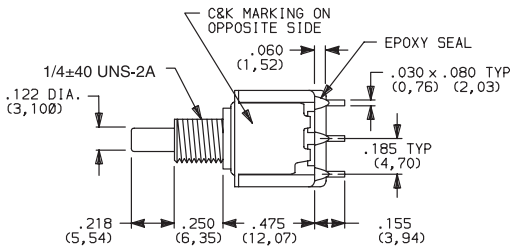
Part number shown: 8221SHZGE



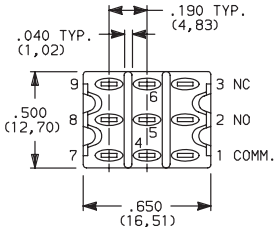
Terminal Nos.
For Reference Only

3P	8321	U831	ON	MOM.	1-3,4-6,7-9	1-2,4-5,7-8	
	8325		ON	MOM.			

3PDT



Part number shown: 8321SHZGE



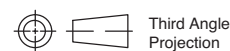
Terminal Nos.
For Reference Only

MOM. = Momentary

*U811 thru U841 model numbers 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

29 Aug 18

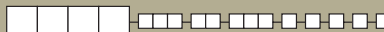
8020 Series Snap-acting Momentary Pushbutton Switches



A

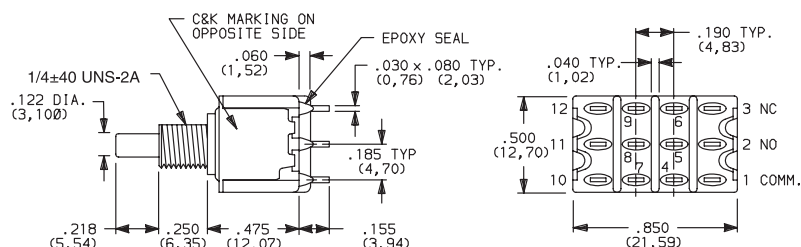
Pushbutton

SWITCH FUNCTION



NO. POLES	MODEL NO.	UL/CSA* MODEL NO.	SWITCH FUNCTION		CONNECTED TERMINALS		SCHEMATIC
			POS. 1	POS. 2	POS. 1	POS. 2	
4P	8421	U841	ON	MOM.	1-3,4-6,7-9,10-12	1-2,4-5,7-8,10-11	
	8425		ON	MOM.			

4PDT



Part number shown: 8421SHZGE

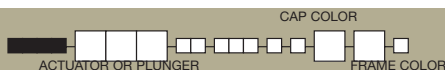
MOM. = Momentary

* U811 thru U841 model numbers 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

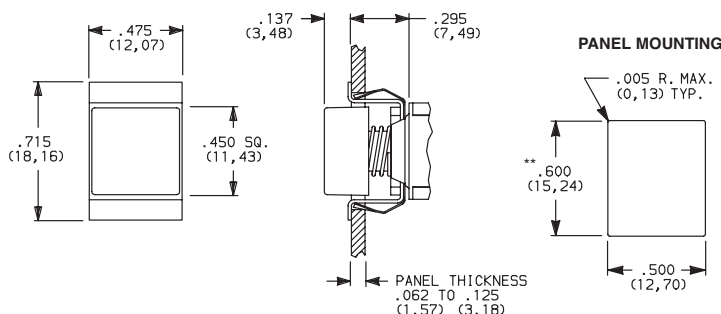


OPTION CODE	CAP AND FRAME COLOR
2	BLACK
NONE	No Frame Color (J80 option)
1	WHITE
3	RED
4	ORANGE
5	YELLOW
6	GREEN
7	BLUE
9	GRAY

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.

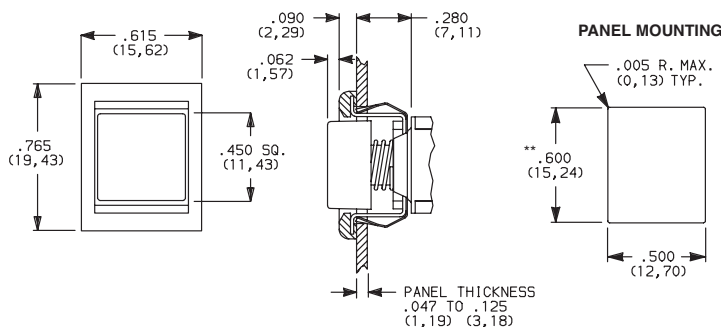
J80 SNAP-IN



NOTE: No frame color choice required.

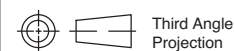
** Increase this dim. to .620/.625 (15,75/15,88) for .091/.125 (2,31/3,18) thk. panels.

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.



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

C&K

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A

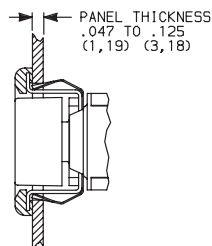
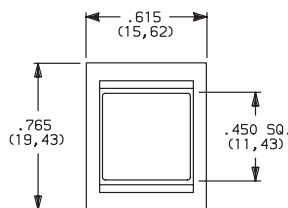
Pushbutton

8020 Series Snap-acting Momentary Pushbutton Switches

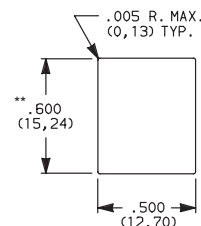
ACTUATOR—SNAP-IN FRONT MOUNT



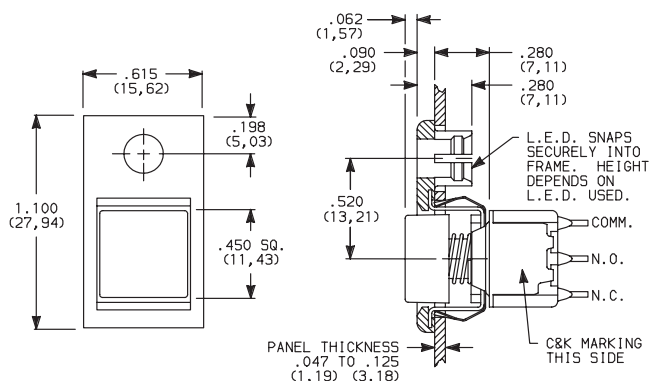
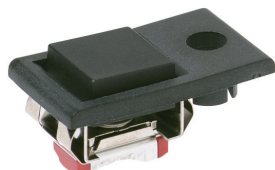
J83 SNAP-IN WITH FRAME AND FLUSH CAP



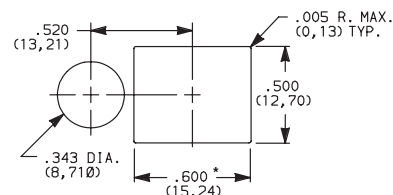
PANEL MOUNTING



J82 SNAP-IN WITH FRAME FOR LED



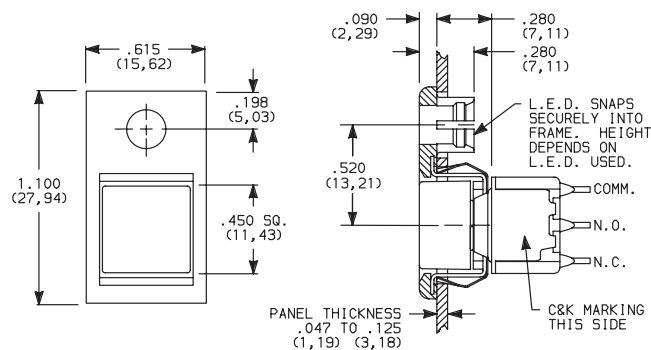
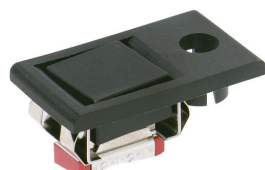
PANEL MOUNTING



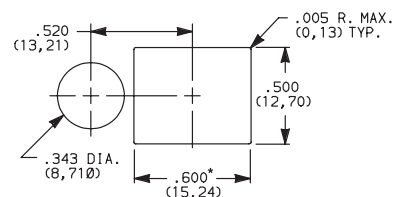
* Increase this dim. to .620/.625 (15,75/15,88) for .091/.125 (2,31/3,18) thk. panels.

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.

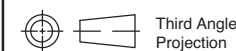
LED not included.
For LED information, see page A-45.

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



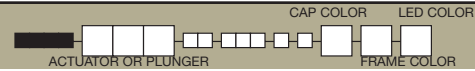
29 Aug 18

8020 Series Snap-acting Momentary Pushbutton Switches

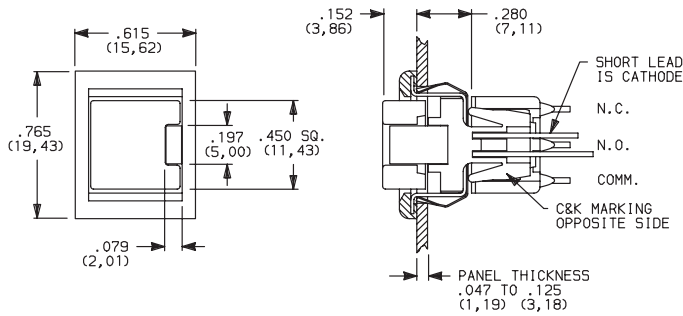


A
Pushbutton

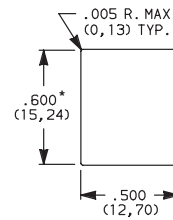
ACTUATOR—SNAP-IN FRONT MOUNT



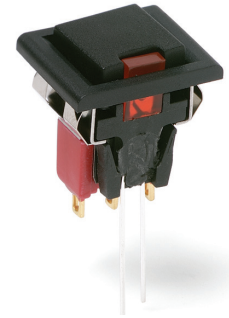
J85 SNAP-IN WITH FRAME AND LED



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

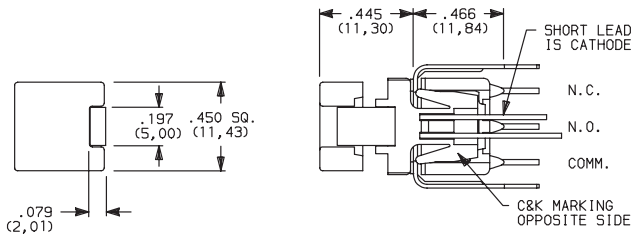
OPTION CODE	LED COLOR
3	RED
5	YELLOW
6	GREEN

For LED information see page A-45.

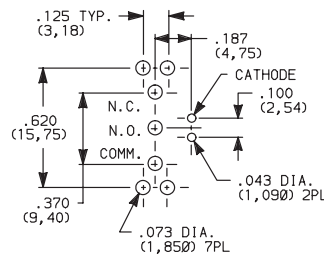
ACTUATOR—PC MOUNT



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

C&K

29 Aug 18

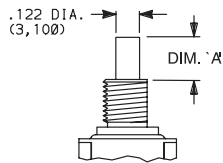


8020 Series Snap-acting Momentary Pushbutton Switches

PLUNGER

ACTUATOR OR PLUNGER

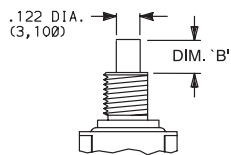
S PLUNGER



NONE NO PLUNGER CHOICE REQUIRED
(JXX ACTUATORS)

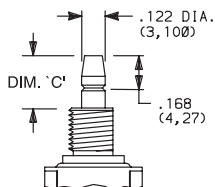
AVAILABLE BUSHINGS	DIM. 'A' FOR C, W-W4, Z & Z3 TERMINATIONS	DIM. 'A' FOR A, A2, A3, A4, A6, AV-A3, R & R2 TERMINATIONS	DIM. 'A' FOR V3-V61 TERMINATIONS
D, D9	.244 (6,20)	.228 (5,79)	.224 (5,69)
H, H9	.218 (5,54)	.202 (5,13)	.198 (5,03)
Y, Y9	.203 (5,16)	.187 (4,75)	.183 (4,65)
Y3	(5,54)	(5,13)	(5,03)
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.

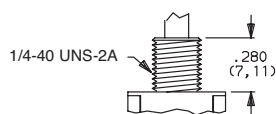
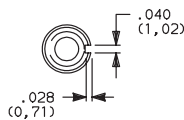
BUSHING

NONE NO BUSHING
CHOICE REQUIRED
(JXX ACTUATORS)

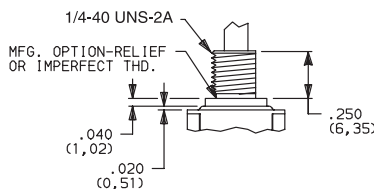
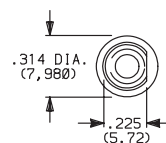
D .280" HIGH THREADED, KEYWAY
D9 .28034" HIGH UNTHREADED,
KEYWAY

H .250"34 HIGH THREADED, FLAT
H9 .250"34 HIGH UNTHREADED,
FLAT

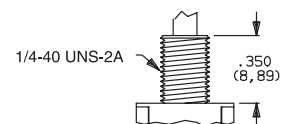
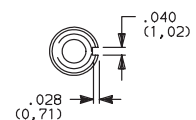
Y .350" HIGH THREADED, KEYWAY
Y9 .350" HIGH UNTHREADED, KEYWAY



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.



Dimensions are shown: Inches (mm)

Specifications and dimensions subject to change

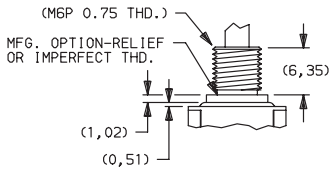
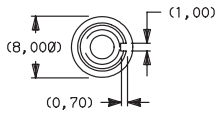
Snap-acting Momentary Pushbutton Switches



A Pushbutton

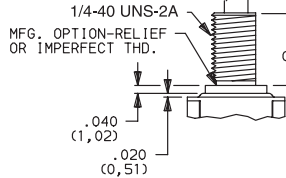
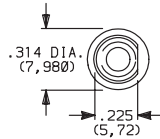
BUSHING

Y3 6.35mm THREADED, KEYWAY



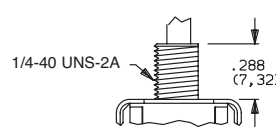
Y3 & Y4 bushings not available on single pole models with A3-A6, R, R2 terminations. Will withstand 12 in./lbs. of torque with no distortion.

Y4 .378" HIGH THREADED, FLAT



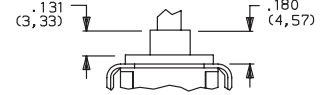
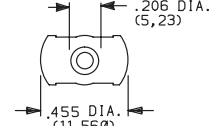
D2 .288" HIGH THREADED, FLAT

D8 .288" HIGH UNTHREADED, FLAT



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

D3 .180" HIGH UNTHREADED

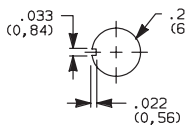


D3 bushing available with A, A2, A3, AV, AV2, AV3 and V2-V61 terminations only.

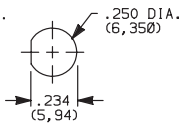
NOTE: No bushing option choice required when JXX actuator option is selected. When selecting bushing option, plunger selection must also be made, see previous page. Plunger lengths vary with bushing and termination options selected.

PANEL MOUNTING

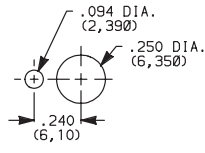
1/4 INCH BUSHING



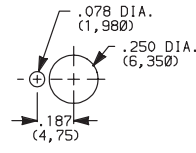
Without locking ring



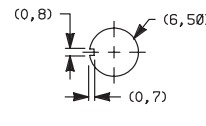
With standard locking ring



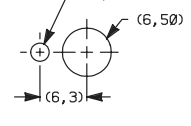
With small locking ring



METRIC BUSHING



Without locking ring

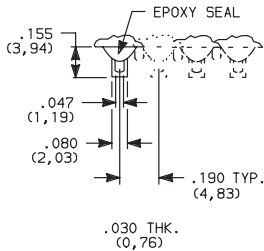


With locking ring

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

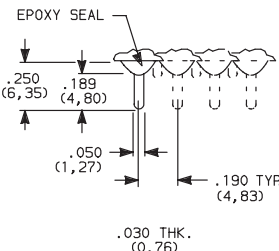
Z SOLDER LUG



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

SPDT thru 4PDT

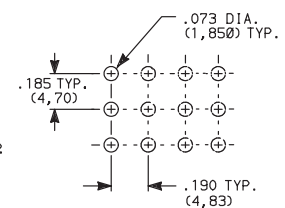
C PC THRU-HOLE



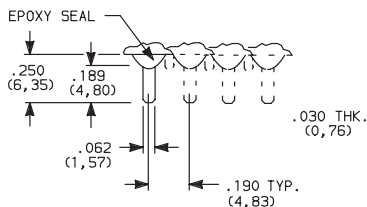
SPDT thru 4PDT

Not available with J95 actuator option.

PC MOUNTING



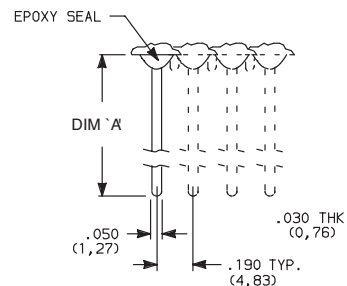
Z3 QUICK CONNECT



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

SPDT thru 4PDT

W W1, W3, W4 WIRE WRAP



SPDT thru 4PDT

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.



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

C&K

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8020 Series Snap-acting Momentary Pushbutton Switches

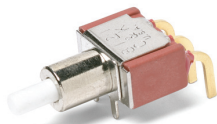
TERMINATIONS



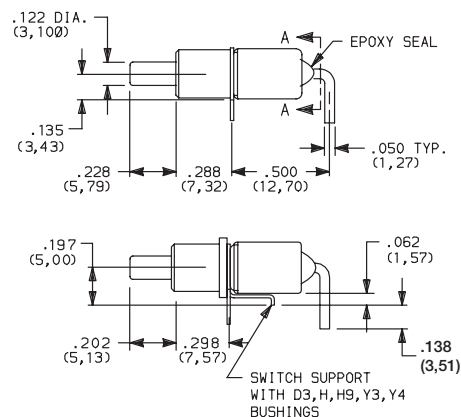
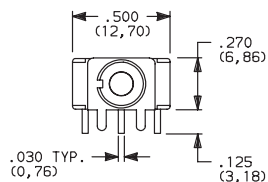
Pushbutton

A

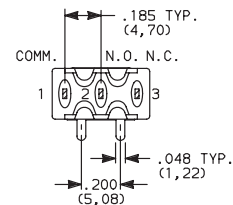
A RIGHT ANGLE, PC THRU-HOLE



8121SD9AGE
SPDT



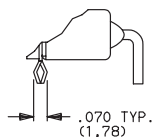
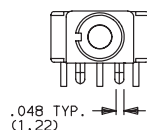
Part Number 8121SH9AGE



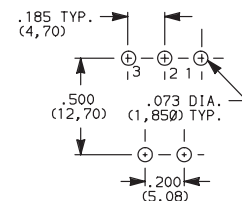
SECTION A-A

Terminal Nos.
For Reference Only.

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

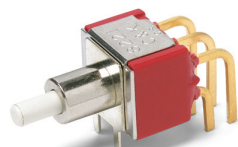


PC MOUNTING

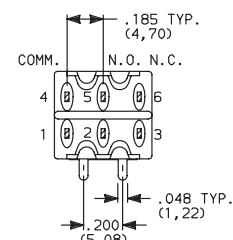
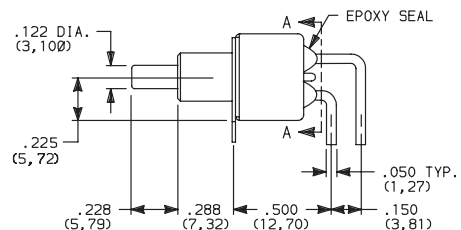
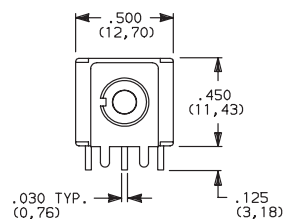


Not available with JXX actuators and I seal.
Terminal bend radii and lead-in manufacturing option.

A RIGHT ANGLE, PC THRU-HOLE

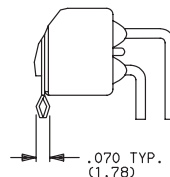
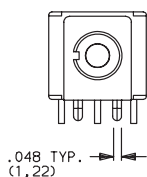


8221SD9AGE
DPDT

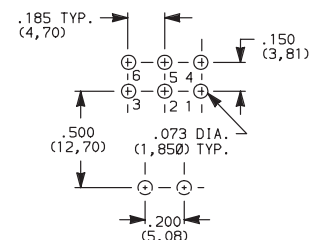


SECTION A-A

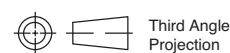
A3 RIGHT ANGLE, SNAP-IN, PC THRU-HOLE



PC MOUNTING



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



Third Angle
Projection

C&K

29 Aug 18

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

Pushbutton



A

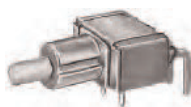
Pushbutton

8020 Series Snap-acting Momentary Pushbutton Switches

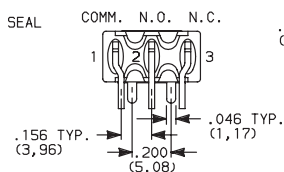
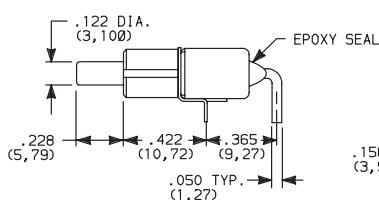
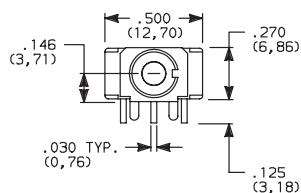
TERMINATIONS



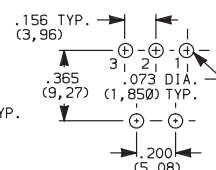
A6 RIGHT ANGLE, PC THRU-HOLE



8121SD9A6GE
SPDT



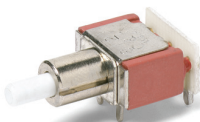
PC MOUNTING



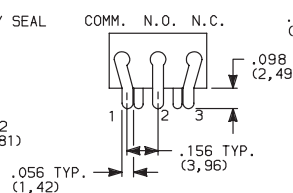
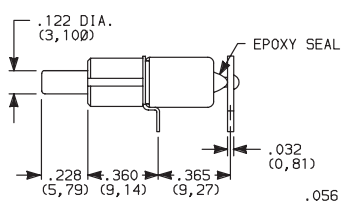
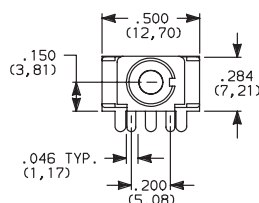
Not available with JXX actuators, D3, H, H9, Y3, Y4 bushings and I seal.
 Terminal bend radii and lead-in manufacturing option.

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.

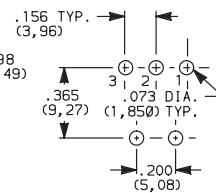
R RIGHT ANGLE WITH PCB



8121SD9RGE
SPDT

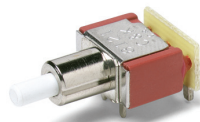


PC MOUNTING

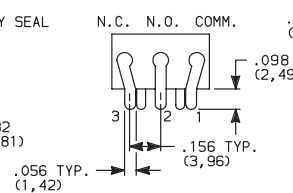
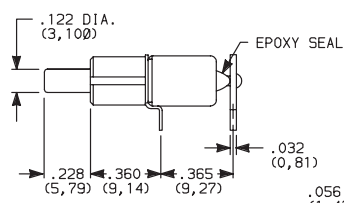
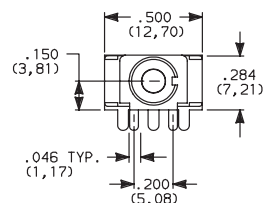


Not available with JXX actuators, D3, H, H9, Y3, Y4 bushings, I seal option.
 R termination not UL/CSA approved.

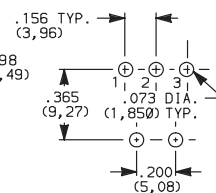
R2 RIGHT ANGLE WITH PCB, REVERSED TERMINALS



8121SD9R2GE
SPDT



PC MOUNTING



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



Third Angle
Projection

8020 Series Snap-acting Momentary Pushbutton Switches

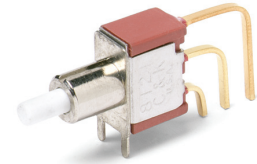
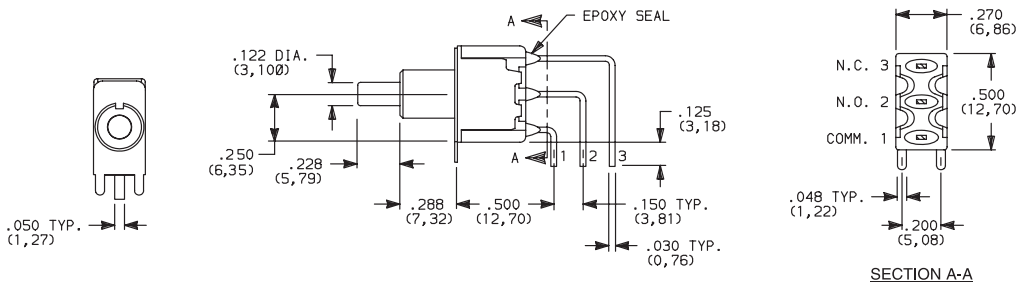


A
Pushbutton

TERMINATIONS

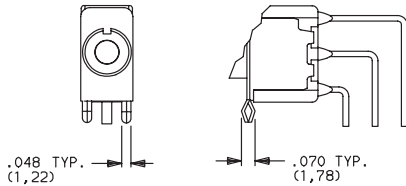


AV2 VERTICAL RIGHT ANGLE, PC THRU-HOLE, .150" PITCH

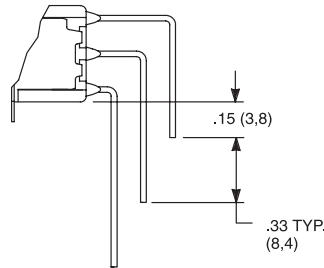


8121SD9AV2GE
SPDT

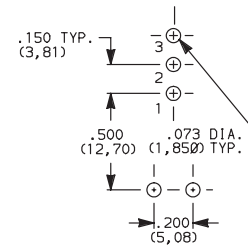
AV3 VERTICAL RIGHT ANGLE, SNAP-IN,, PC THRU-HOLE, .150" PITCH



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

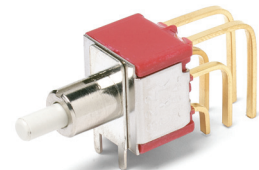
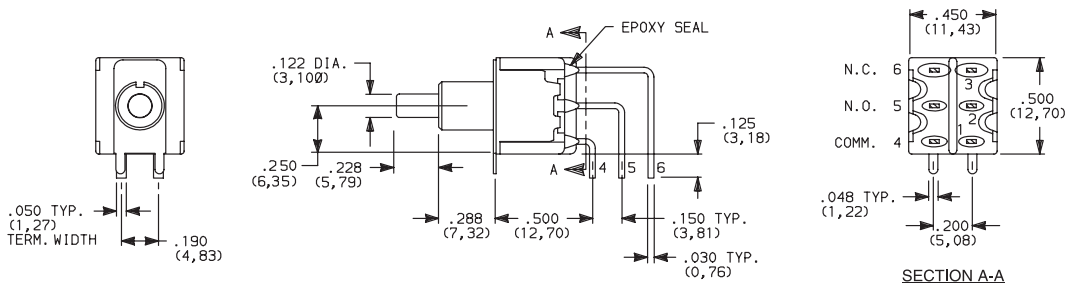


PC MOUNTING



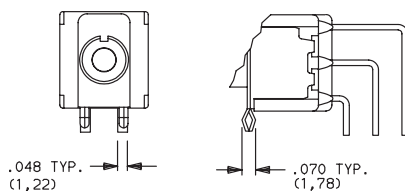
Not available with JXX actuators and I seal.
Terminal bend radii and lead-in manufacturing option.

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

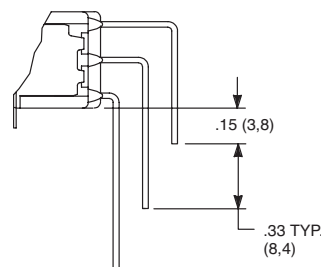


8221SD9AV2GE
DPDT

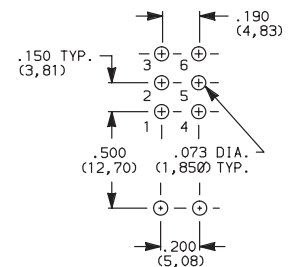
AV3 VERTICAL RIGHT ANGLE, SNAP-IN,, PC THRU-HOLE, .150" PITCH



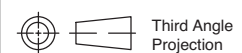
AV1 VERTICAL RIGHT ANGLE, EXTENDED, PC THRU-HOLE, .150" PITCH



PC MOUNTING



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



Third Angle
Projection

C&K

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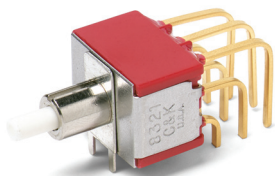
8020 Series Snap-acting Momentary Pushbutton Switches

TERMINATIONS

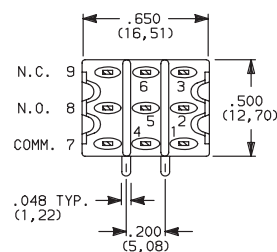
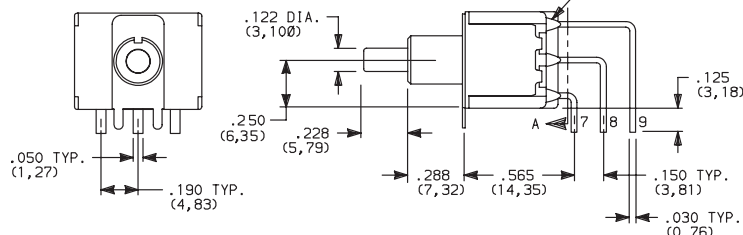


Pushbutton
A

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

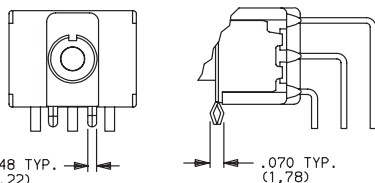


8321SD9AV2GE
3PDT



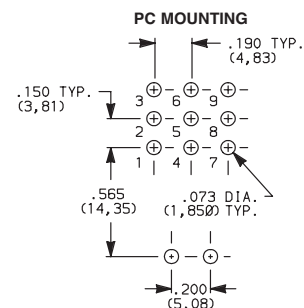
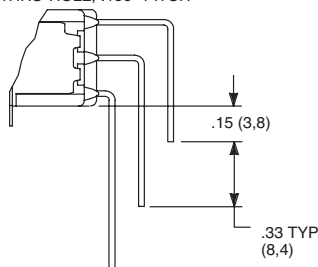
SECTION A-A

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

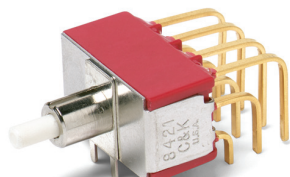


Not available with JXX actuators and I seal.
Terminal bend radii and lead-in manufacturing option.

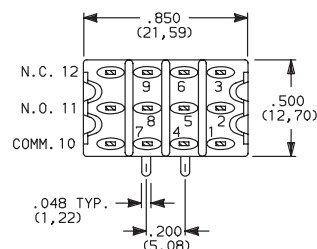
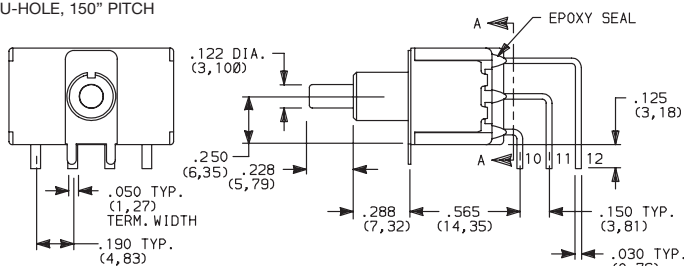
AV1 VERTICAL RIGHT ANGLE, EXTENDED, PC THRU-HOLE, .150" PITCH



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

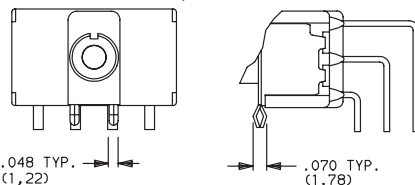


8421SD9AV2GE
4PDT



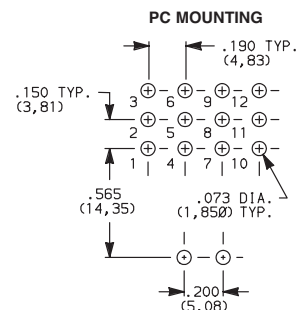
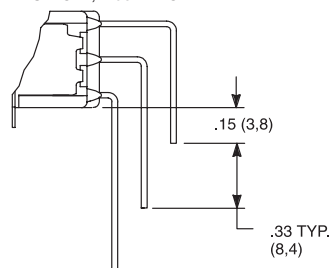
SECTION A-A

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



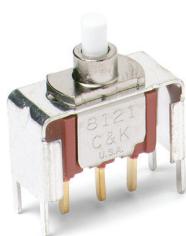
Not available with JXX actuators and I seal.
Terminal bend radii and lead-in manufacturing option.

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

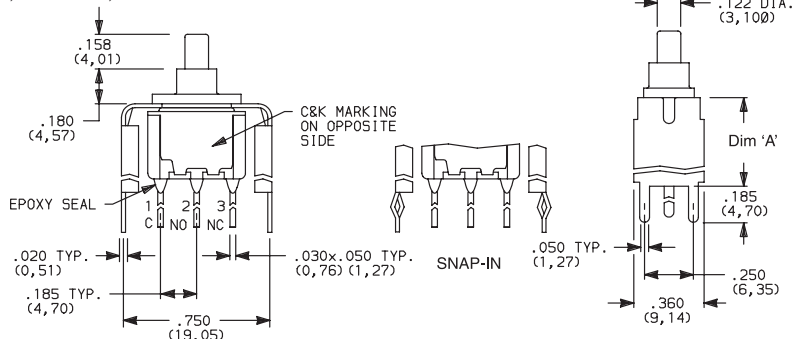


V2, V6, V7, V8 VERTICAL MOUNT, V-BRACKET

V61 VERTICAL MOUNT, V-BRACKET, SNAP-IN

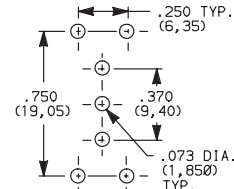


8121SD3_GE
SPDT

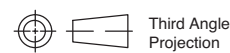


Not available with JXX actuators and I seal.

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



29 Aug 18

Snap-acting Momentary Pushbutton Switches



A

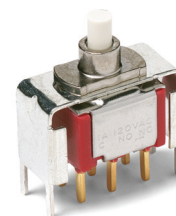
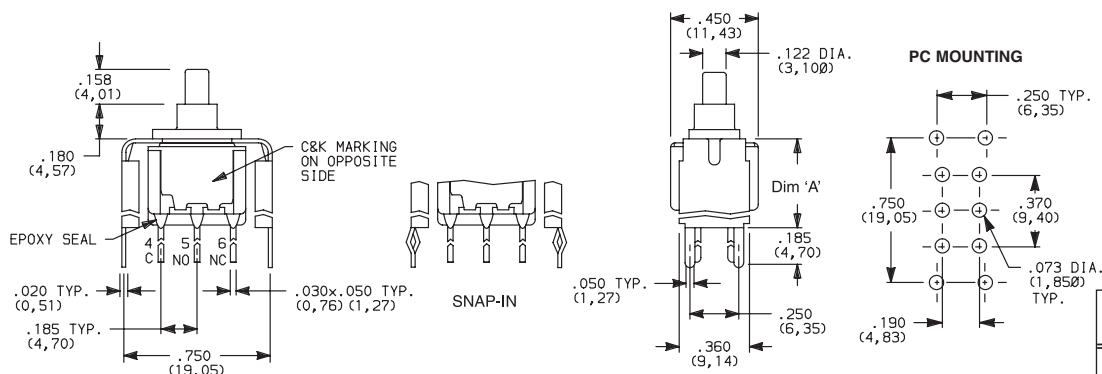
Pushbutton

TERMINATIONS



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

V61 VERTICAL MOUNT, V-BRACKET, SNAP-IN

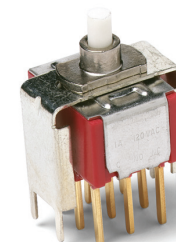
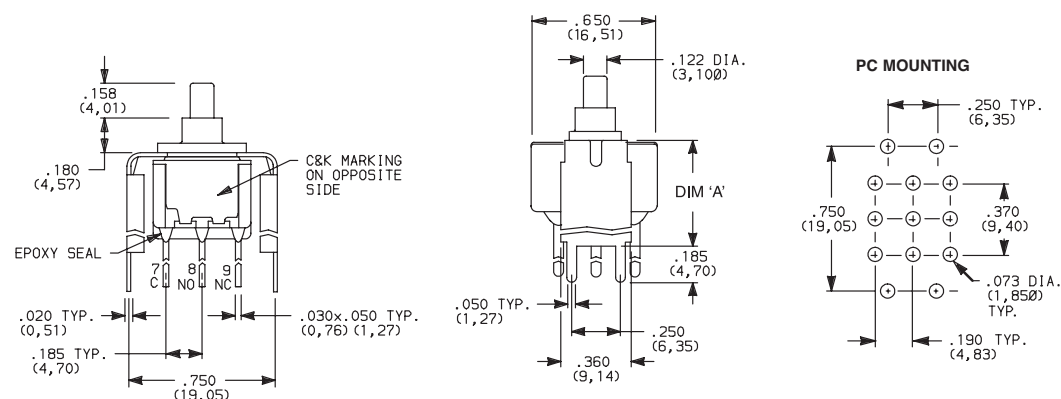


8221SD3_GE
DPDT

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

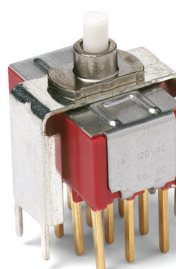
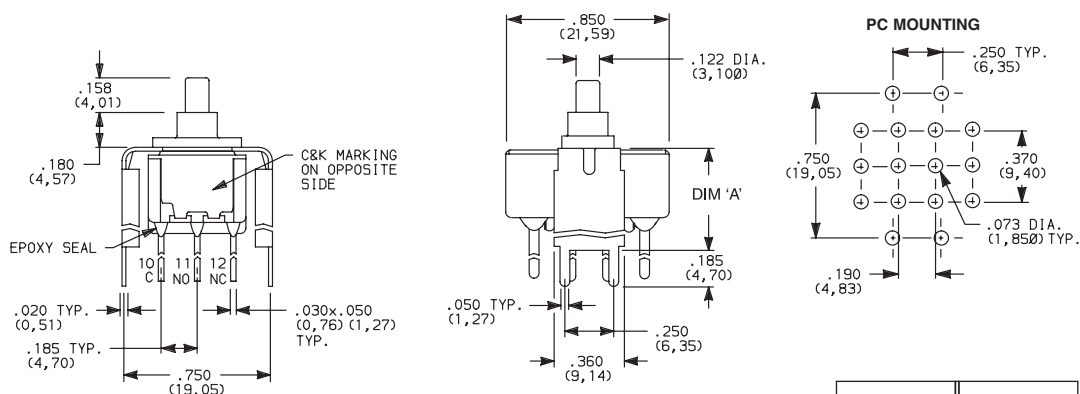


8321SD3_GE
3PDT

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.



C&K

29 Aug 18

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



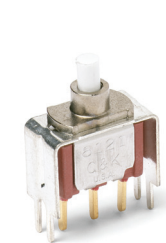
8020 Series Snap-acting Momentary Pushbutton Switches

TERMINATIONS

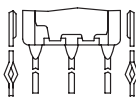
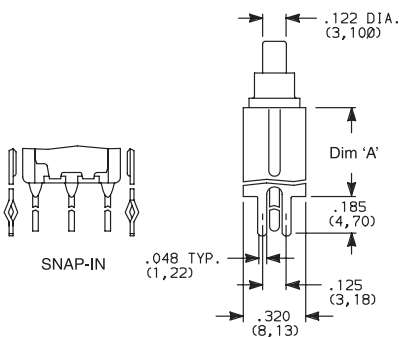
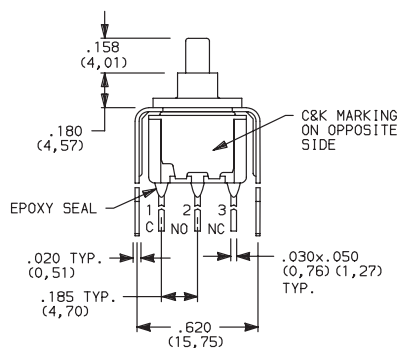


V3, V4, V9 VERTICAL MOUNT, V-BRACKET

V31 VERTICAL MOUNT, V-BRACKET, SNAP-IN

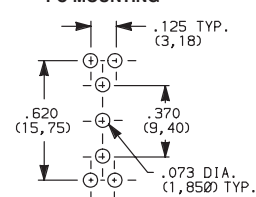


8121SD3_GE
SPDT



SNAP-IN

PC MOUNTING

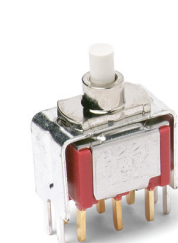


OPTION CODE	DIM 'A'
V3, V31	.460 (11,68)
V4	.630 (16,00)
V9	1.150 (29,21)

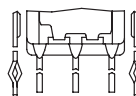
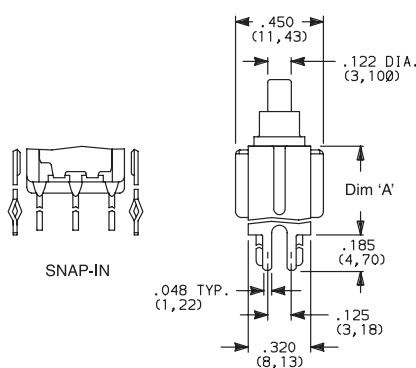
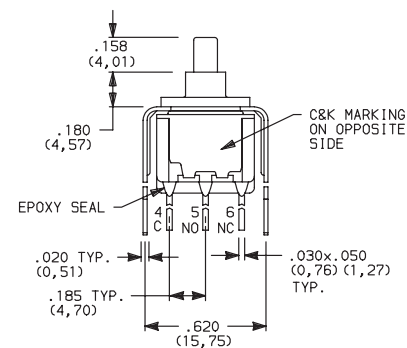
Not available with J8X actuators and I seal.

V3, V4, V9 VERTICAL MOUNT, V-BRACKET

V31 VERTICAL MOUNT, V-BRACKET, SNAP-IN

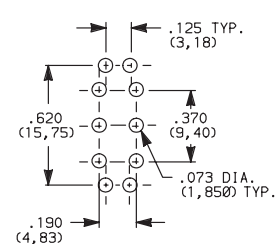


8221SD3_GE
DPDT



SNAP-IN

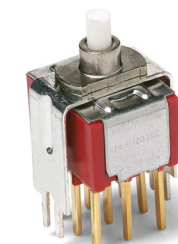
PC MOUNTING



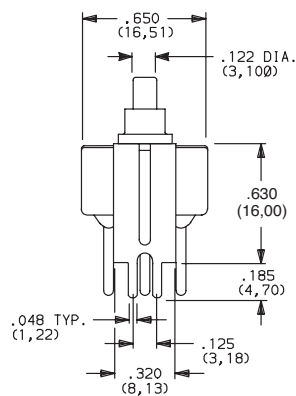
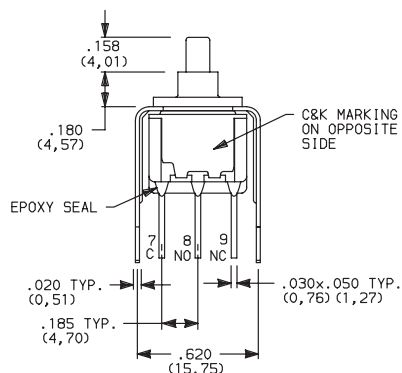
OPTION CODE	DIM 'A'
V3, V31	.460 (11,68)
V4	.630 (16,00)
V9	1.150 (29,21)

Not available with J8X actuators and I seal.

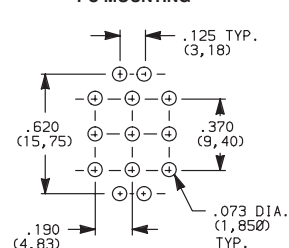
V4, V9 VERTICAL MOUNT, V-BRACKET



8321SD3V4GE
3PDT

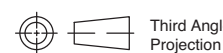


PC MOUNTING



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

Not available with JXX actuators and I seal.



Third Angle
Projection

8020 Series Snap-acting Momentary Pushbutton Switches



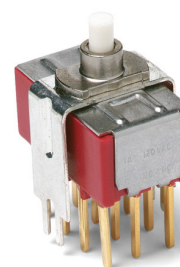
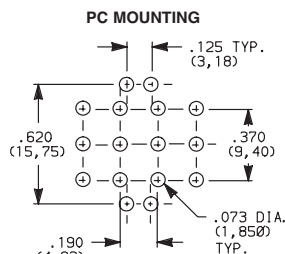
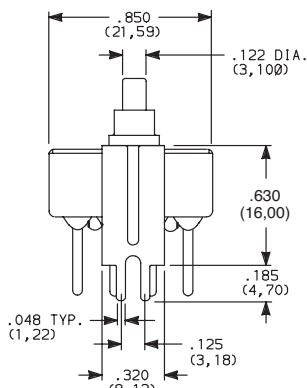
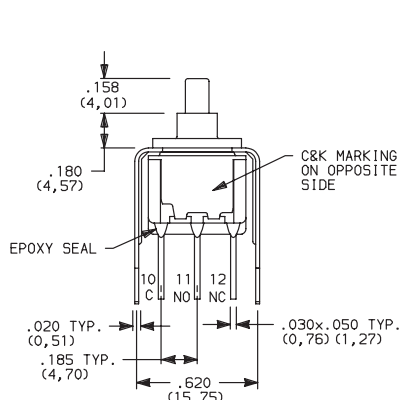
A

Pushbutton

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.

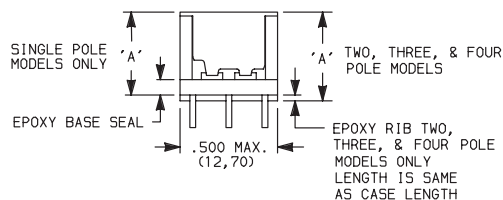
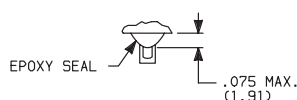
P or R contact material not available with Z, Z3 terminations.

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.



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

C&K

29 Aug 18

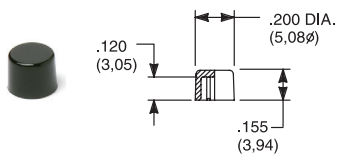


8020 Series

Snap-acting Momentary Pushbutton Switches

AVAILABLE HARDWARE

Cap

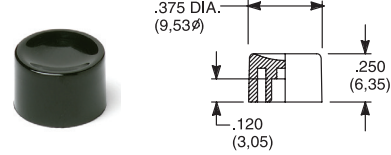


PART NO.

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

Material: Nylon
Finish: Gloss

Cap

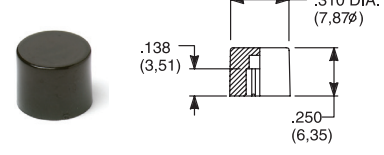


PART NO.

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

Material: Nylon
Finish: Gloss

Cap

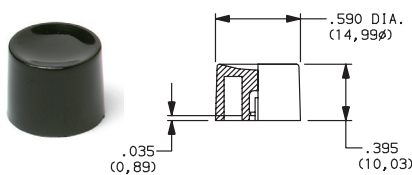


PART NO.

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

Material: Nylon
Finish: Gloss

Cap, Snap-fitting plunger

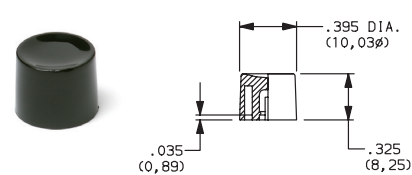


PART NO.

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

Material: Nylon
Finish: Gloss

Cap, Snap-fitting plunger

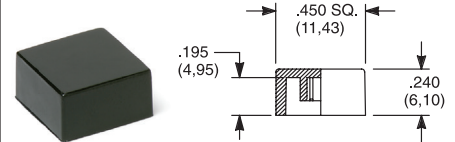


PART NO.

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

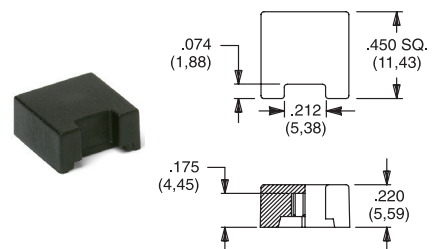


PART NO.

613302263 BLACK

Material: Nylon
Finish: Matte

Cap, J85 & J95 options only



PART NO.

459701000
459702000
459703000
459704000
459705000
459706000
459707000
459709000

Material: Nylon
Finish: 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

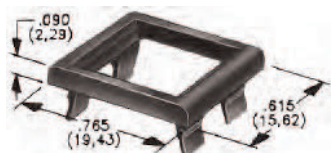
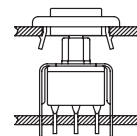
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

8020 Series Snap-acting Momentary Pushbutton Switches

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



.090" (2,29) PANEL THK. .125" (3,18) PANEL THK.

PART NO.

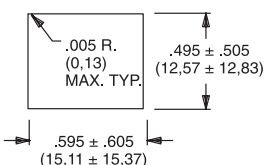
432702263

PART NO.

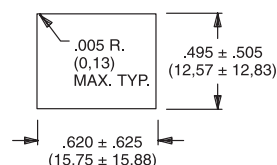
432802263 BLACK

PANEL MOUNTING

For part numbers
4325xxxxx, 4326xxxxx

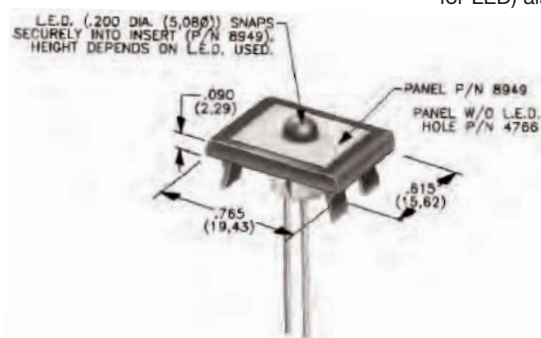


For part numbers
4327xxxxx, 4328xxxxx



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

PART NO.

894902000

BLANK PANEL INSERT
WITHOUT HOLE FOR LED

PART NO.

476602000 BLACK

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

LED INFORMATION

SWITCHES WITH LED SUPPLIED: 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:

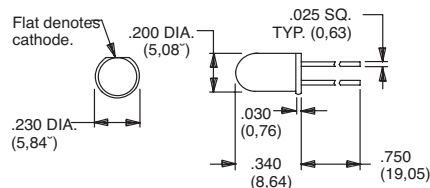
OPTION CODE	COLOR	TYP. INTENSITY	TYP. FORWARD VOLTAGE	TYP. FORWARD CURRENT	MAX RATINGS AT 25°C AMBIENT TEMPERATURE		
					FORWARD VOLTAGE	CONTINUOUS FORWARD CURRENT	POWER DISSIPATION
6	Green	1.0 mcd	2.1 V	20 mA	2.5 V	50 mA	125 mW
3	Red*	0.5 mcd		10 mA		30 mA	75 mW
5	Yellow	4.0 mcd		20 mA		50 mA	125 mW

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

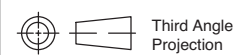
Caution: Circuit elements must limit forward current of LED to 50mA max. continuous.

* 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.

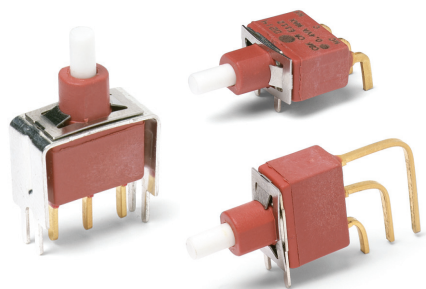


Suggested LED for J82 & J84 options.
Dimensions for reference only.



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

E010 Series Sealed Momentary Pushbutton Switches



Features/Benefits

- ***Process sealed, withstands soldering and cleaning***
- ***Long life contact design***
- ***Snap-fitting plunger available, accepts a variety of caps***
- ***RoHS compliant models available***

Typical Applications

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



Models Available

Specifications

CONTACT RATING: Q contact material: 4 AMPS @ 125 V AC or 28 V DC. See page A-50 for additional ratings.

ELECTRICAL LIFE: 40,000 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: $10^9 \Omega \text{ min.}$

DIELECTRIC STRENGTH: 1000 Vrms min. @ sea level.

OPERATING TEMPERATURE: -30°C to 75°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 P, 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 & BUSHING: Glass filled nylon 6/6, flame retardant (UL 94V-0).

PLUNGER: Glass filled nylon or glass filled polyester (PBT)
(UL 94V-0), with internal o-ring seal standard.

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

SWITCH SUPPORT RETAINER: Stainless steel.

END CONTACTS: Q contact material: Coin silver, silver plated.
See A-50 for additional ratings.

CENTER CONTACTS & ALL TERMINALS: Q contact material: Copper alloy, silver plated. See page A-50 for additional ratings.

TERMINAL SEAL: Epoxy.

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-47 thru A-51. For additional options not shown in catalog, consult Customer Service Center. All models are process sealed to withstand machine soldering temperatures and pressure wash cleaning methods.

Switch Function _____

E112 SPDT On-Mom.

Plunger _____

S .222" high

L .338" high

M .331" high, snap-fitting

Bushing _____

D1 Unthreaded

Y Threaded, keyway

Terminations _____

A Right angle, PC thru-hole

AV2 Vertical right angle, PC thru-hole

C PC Thru-hole

A3 Right angle, snap-in, PC thru-hole

AV3 Vertical right angle, snap-in, PC thru-hole

R2 Right angle with PCB

V3 .460" high, V-bracket

V4 .630" high, V-bracket

V6 .460" high, V-bracket

V8 .953" high, V-bracket

V31 .460" high, snap-in V-bracket

V81 .953" high, snap-in V-bracket

V91 1.150" high, snap-in V-bracket

W .750" long, wire wrap

Z Solder lug

Contact Material _____

B Gold

P Gold, matte-tin

Q Silver

G Gold over silver

Seal _____

E Epoxy

E010 Series Sealed Momentary Pushbutton Switches



A

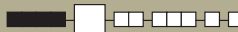
Pushbutton

SWITCH FUNCTION

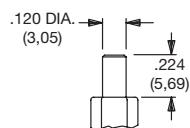


NO. POLES	MODEL NO.	SWITCH FUNCTION		CONNECTED TERMINALS		SCHEMATIC
		POS. 1	POS. 2	POS. 1	POS. 2	
		C&K marking this side		C&K marking this side		
SP	E112	ON	MOM.	2-1	2-3	SPDT NC 1 2 (COMM) 3 NO
SPDT Part number shown: E112SD1CQE MOM. = Momentary All models with all options when ordered with G or Q contact material.						

PLUNGER



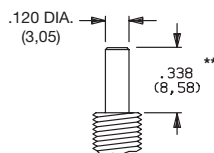
S .218" HIGH



Standard with D1 bushing (as shown).

† Subtract .100 (2,54) from plunger length when ordered with Y bushing.

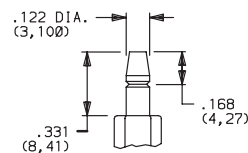
L .338" HIGH



Standard with Y bushing (as shown).

** Add .100 (2,54) from plunger length when ordered with D1 bushing.

M .331" HIGH, SNAP-FITTING

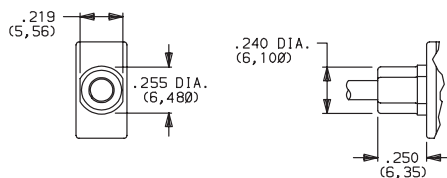


NOTE: Caps available for all plunger options, see pages A-50 and A-51.

BUSHING

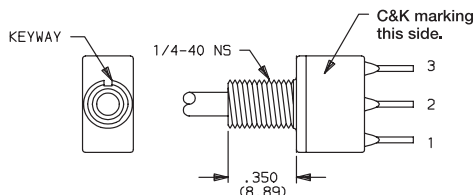


D1 UNTHREADED



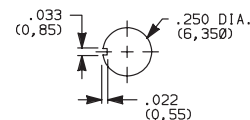
S plunger standard with D1 bushing.

Y THREADED, KEYWAY



L plunger standard with Y bushing. Available only with C, Z terminations.
Hardware: One dress nut part number 299D01201, one hex nut and lockwasher supplied standard.
Withstands 4 in./lbs. without distortion.

PANEL MOUNTING



C&K

NOTE: Internal o-ring actuator seal standard for all bushing options.



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

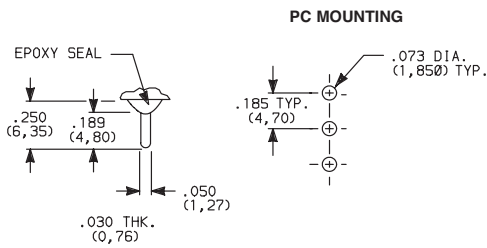


E010 Series Sealed Momentary Pushbutton Switches

TERMINATIONS

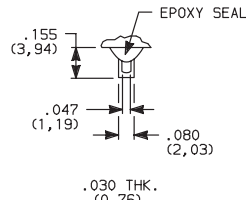


C PC THRU-HOLE



SPDT

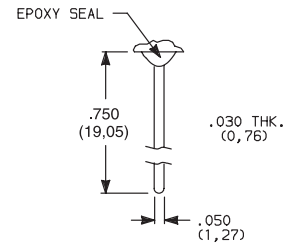
Z SOLDER LUG



SPDT

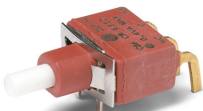
Not available with P contact materials.

W WIRE WRAP

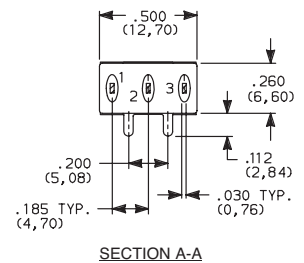
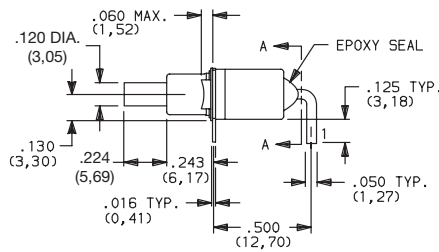
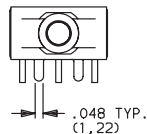


SPDT

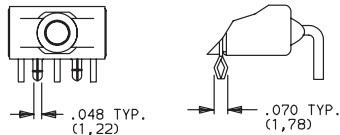
A RIGHT ANGLE, PC THRU-HOLE



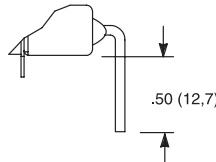
E112SD1ABE
SPDT



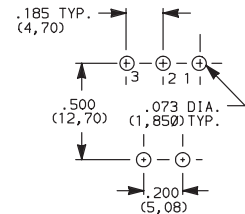
A3 RIGHT ANGLE, SNAP-IN, PC THRU-HOLE



AW RIGHT ANGLE, EXTENDED, PC THRU-HOLE

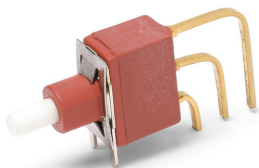


PC MOUNTING

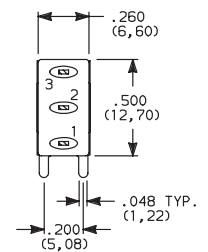
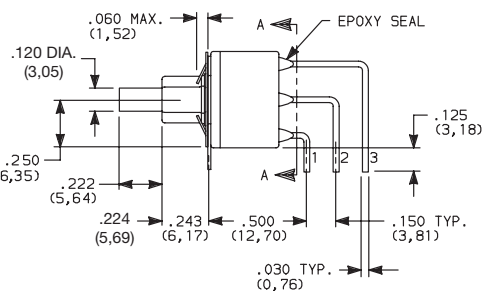
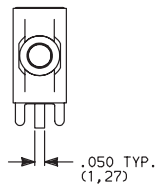


NOTE: Terminal bend radii and lead-in manufacturing option. Available with D1 bushing only.

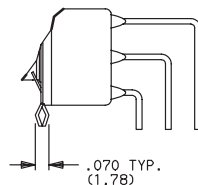
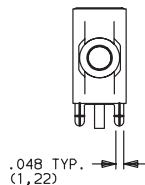
AV2 VERTICAL RIGHT ANGLE, PC THRU-HOLE, .150" PITCH



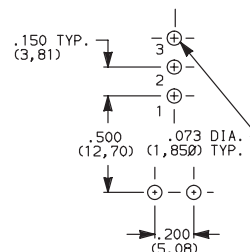
E112SD1AV2BE
SPDT



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



PC MOUNTING



NOTE: Terminal bend radii and lead-in manufacturing option. Available with D1 bushing only.



Third Angle
Projection

C&K

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

E010 Series Sealed Momentary Pushbutton Switches



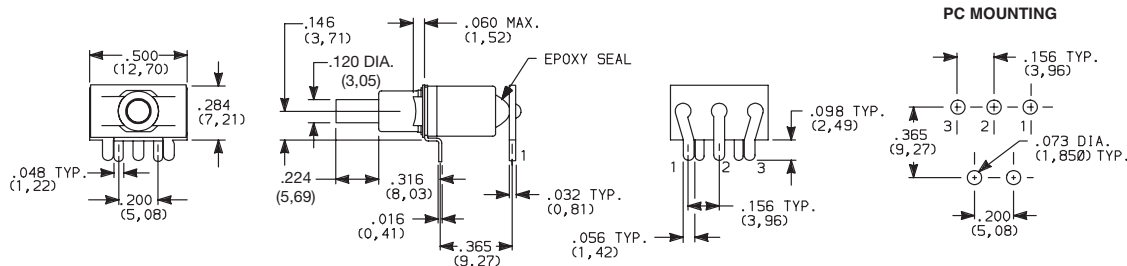
A

Pushbutton

TERMINATIONS



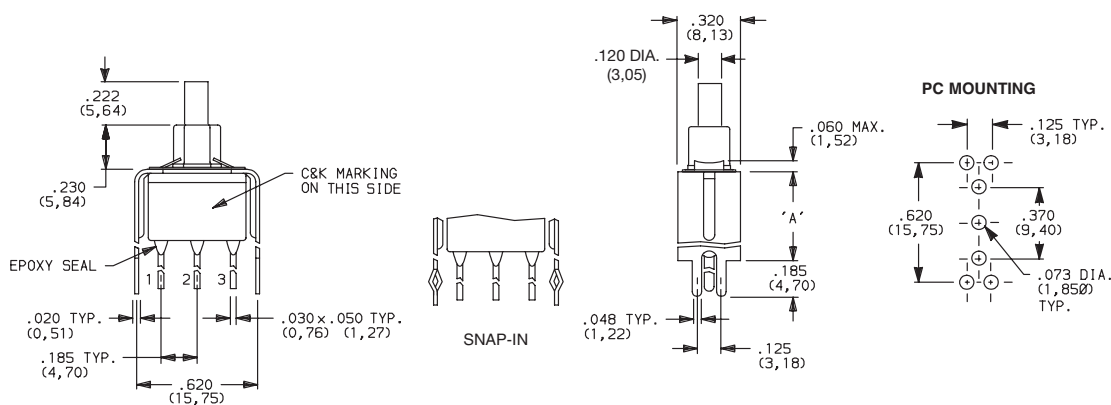
R2 RIGHT ANGLE WITH PCB



NOTE: Available with D1 bushing and B contact material only.

V3, V4 VERTICAL MOUNT, V-BRACKET

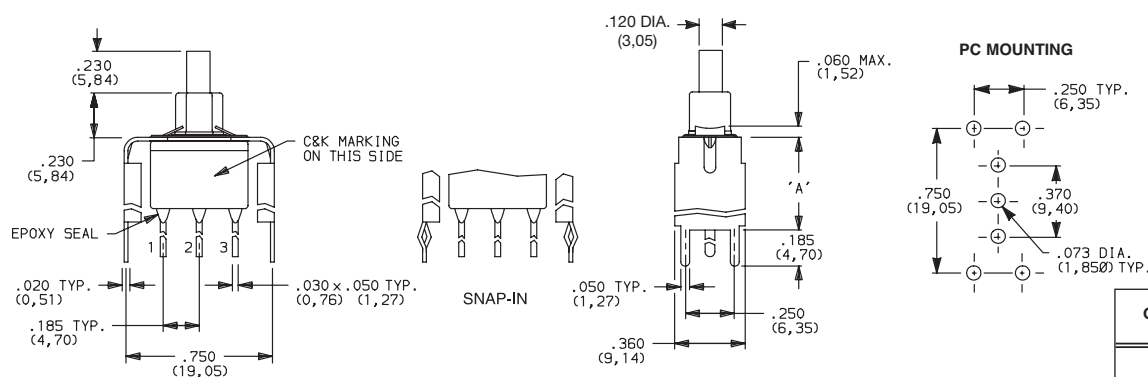
V31, V91 VERTICAL MOUNT, V-BRACKET, SNAP-IN



NOTE: Available with D1 bushing only.

V6, V8 VERTICAL MOUNT, V-BRACKET

V81 VERTICAL MOUNT, V-BRACKET, SNAP-IN



NOTE: Available with D1 bushing only.

OPTION CODE	DIM 'A'
V3, V31	.460 (11,68)
V4	.630 (16,00)
V91	1.150 (29,21)

OPTION CODE	DIM 'A'
V6	.460 (11,68)
V8, V81	.953 (24,21)



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

C&K



E010 Series Sealed Momentary Pushbutton Switches

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	4 AMPS @ 125 V AC 0R 28 V DC.
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 4 AMPS @ 125 V AC 0R 28 V DC.

* 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: Coin silver, with gold plate over nickel plate.

⁴ END CONTACTS: Coin silver, silver plated.

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

⁶ TERMINALS: Copper alloy, with matte-tin over nickel plate.

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

All models **C&K** with all options when ordered with G or Q contact material.

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

B contact material must be ordered with R2 terminations.

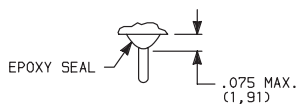
Q contact material standard with C, Z terminations.

P contact materials not available with Z terminations.

SEAL

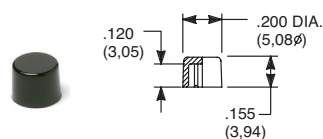


E EPOXY SEAL



AVAILABLE HARDWARE

Cap

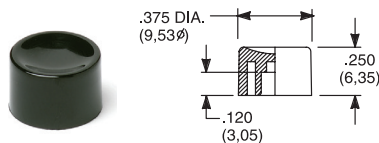


PART NO.

708901000 WHITE
708902000 BLACK
708903000 RED

Material: Nylon
Finish: Gloss

Cap

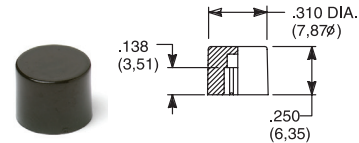


PART NO.

752701000 WHITE
752702000 BLACK
752703000 RED

Material: Nylon
Finish: Gloss

Cap

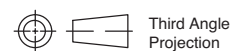


PART NO.

801801000 WHITE
801802000 BLACK
801803000 RED

Material: Nylon
Finish: Gloss

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



Third Angle
Projection

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



E010 Series Sealed Momentary Pushbutton Switches

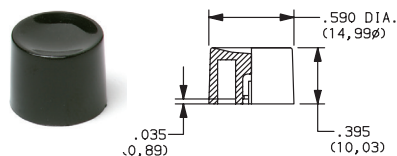


A

Pushbutton

AVAILABLE HARDWARE

Cap, Snap-fitting plunger

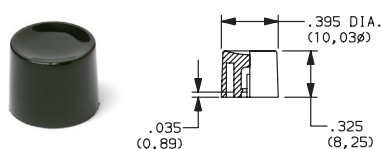


PART NO.

452D01000 WHITE
452D02000 BLACK
452D03000 RED

Material: Nylon
Finish: Gloss

Cap, Snap-fitting plunger

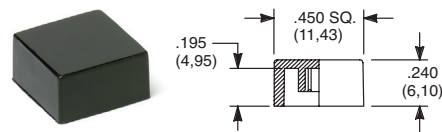


PART NO.

894101000 WHITE
894102000 BLACK
894103000 RED

Material: Nylon
Finish: Gloss

Cap



PART NO.

484601000 WHITE
484602000 BLACK
484603000 RED

Material: Nylon
Finish: Gloss

PART NO.

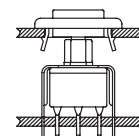
798201000 WHITE
798202263 BLACK
798203000 RED

Material: Nylon
Finish: Matte

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

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



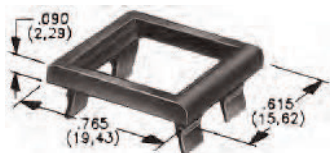
.090" (2,29) PANEL THK. .125" (3,18) PANEL THK.

PART NO.

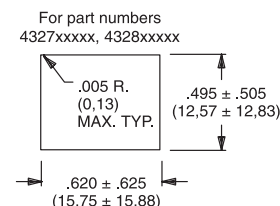
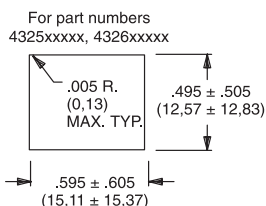
432702263

PART NO.

432802263 BLACK

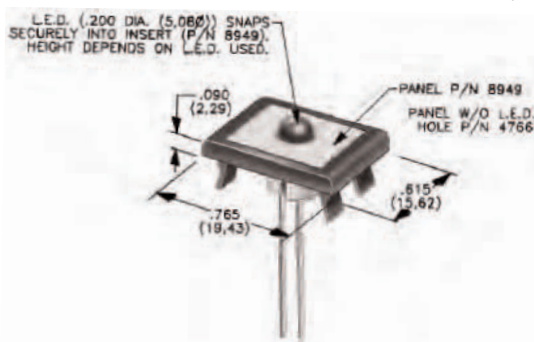


PANEL MOUNTING



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

PART NO.

894902000

BLANK PANEL INSERT
WITHOUT HOLE FOR LED

PART NO.

476602000 BLACK

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



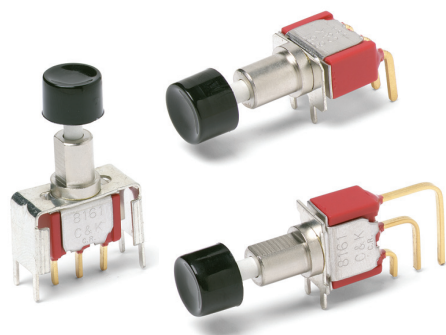
Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

C&K



8060 Series

Alternate Action and Momentary Pushbutton Switches



Features/Benefits

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

Typical Applications

- Instrumentation
- Computers and peripherals
- Telecommunications and networking equipment



Models Available

Specifications

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

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

CONTACT RESISTANCE: Below 20 mΩ typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: 10⁹Ω min.

DIELECTRIC STRENGTH: 1,000 Vrms min. @ sea level.

OPERATING TEMPERATURE: -30°C to 65°C

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

CAP INSTALLATION FORCE: 10 lbs. maximum permissible.

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

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

Materials

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

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

CAP & FRAME: Nylon, black standard.

BUSHING: Brass or zinc, nickel plated.

HOUSING: Stainless steel.

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

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

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

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

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

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages A-53 thru A-61. For additional options not shown in catalog, consult Customer Service Center. All models have epoxy terminal seal and are compatible with all "bottom-wash" PCB cleaning methods.

<div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> </div>			
Switch Function 8161 SPDT On-On 8168 SPDT On-Mom. 8261 DPDT On-On		Bushing H .300" high, flat, hi torque H9 .300" high, flat, hi torque NONE No bushing choice required Y3 7.6mm, keyway	
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		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	

8060 Series Alternate Action and Momentary Pushbutton Switches

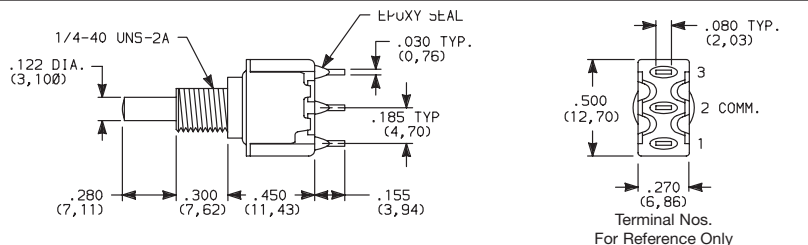


A
Pushbutton

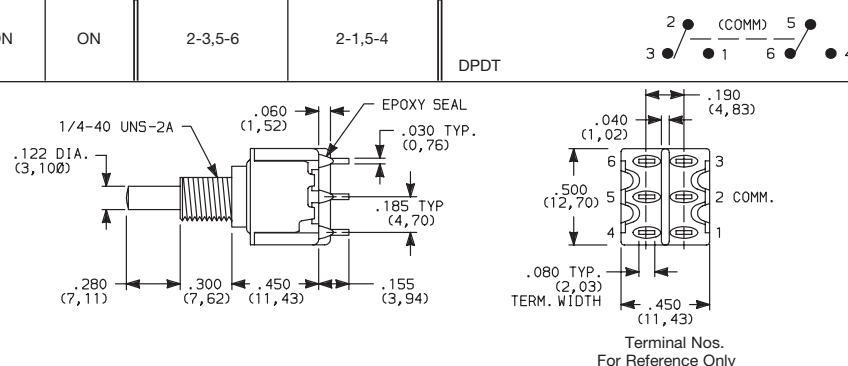
SWITCH FUNCTION

NO. POLES	MODEL NO.	SWITCH FUNCTION		CONNECTED TERMINALS		SCHEMATIC
		POS. 1	POS. 2	POS. 1	POS. 2	
SP	8161	ON	ON	2-3	2-1	
	8168	ON	MOM.	2-3	2-1	

SPDT



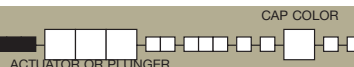
DPDT



MOM. = Momentary

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

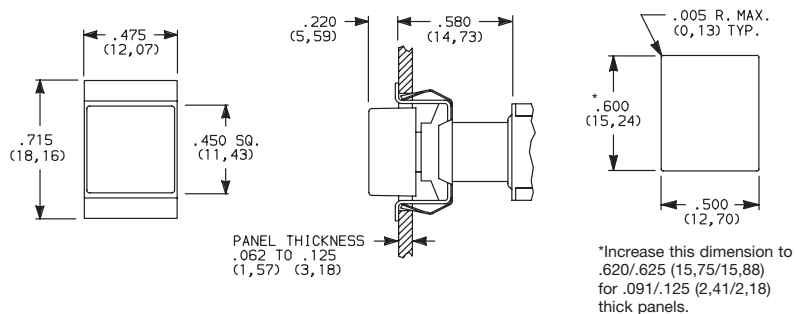
ACTUATOR—SNAP-IN FRONT MOUNT



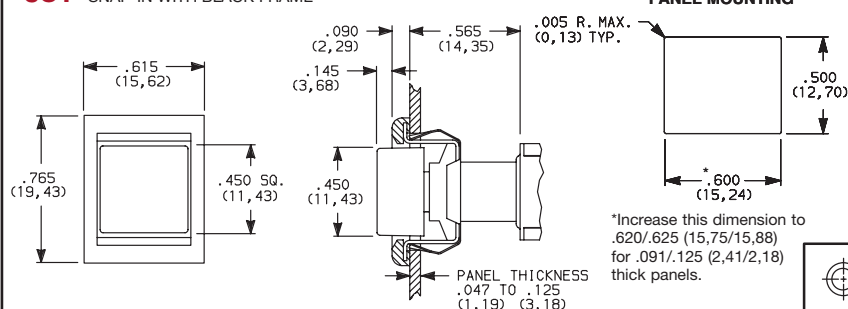
OPTION CODE	CAP COLOR
2	BLACK
1	WHITE
3	RED
4	ORANGE
5	YELLOW
9	GRAY

Cap Finish: matte.
Other colors available, consult Customer Service Center.
Available with C, W, Z or Z3 terminations.
NOTE: Caps & frames available separately, see pages A-60 and A-61.

J80 SNAP-IN



J81 SNAP-IN WITH BLACK FRAME



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

C&K

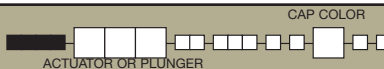
29 Aug 18



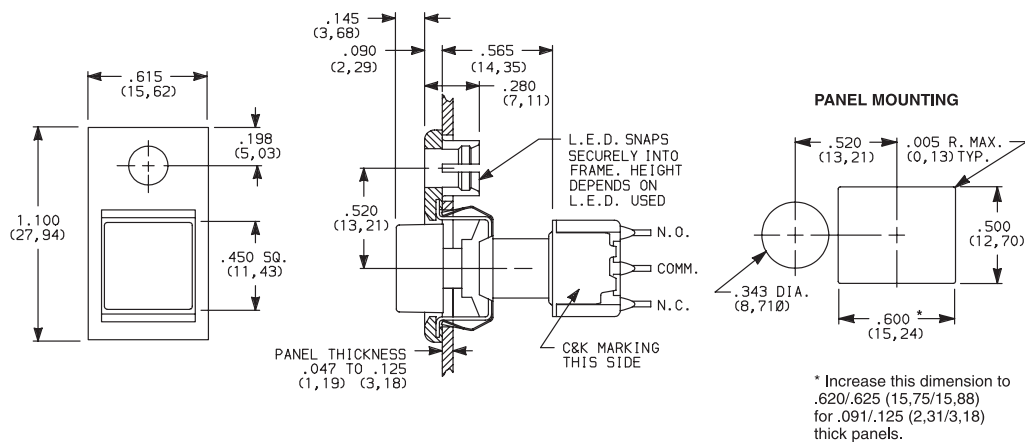
8060 Series

Alternate Action and Momentary Pushbutton Switches

ACTUATOR—SNAP-IN FRONT MOUNT



J82 SNAP-IN WITH BLACK FRAME FOR LED



Available with C, W, Z or Z3 terminations.

LED not included.

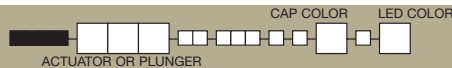
For LED information, see page A-61.

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

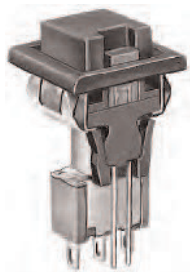
Other colors available, consult Customer Service Center.

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

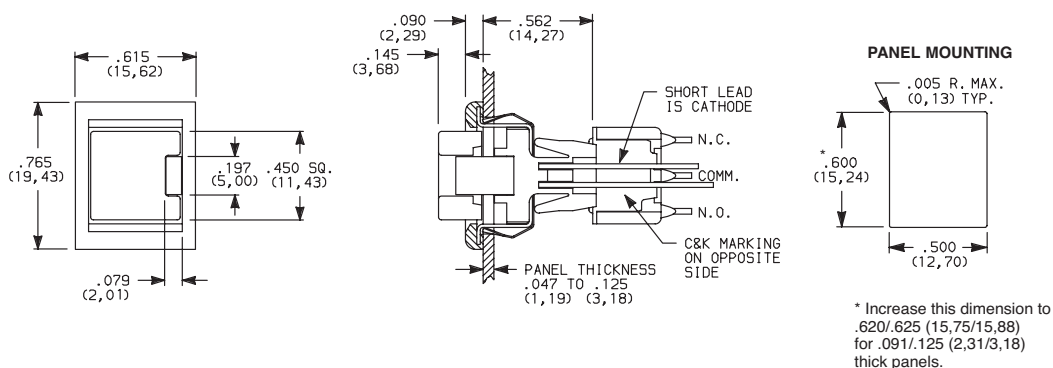
ACTUATOR—SNAP-IN FRONT MOUNT



J86 SNAP-IN WITH BLACK FRAME AND LED



8161J86ZQE223
SPDT



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

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

Other colors available, consult Customer Service Center.

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

OPTION CODE	LED COLOR
3	RED

For LED information, see page A-61.



Dimensions are shown: Inches (mm)

Specifications and dimensions subject to change

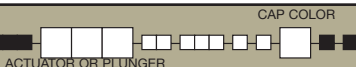
8060 Series Alternate Action and Momentary Pushbutton Switches



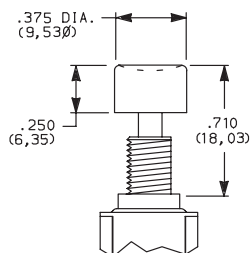
A

Pushbutton

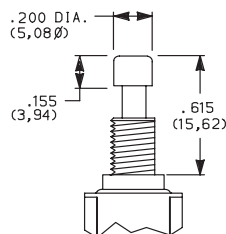
PLUNGER



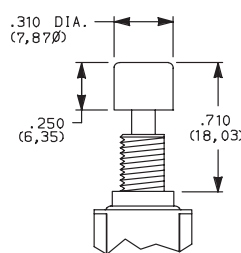
S PLUNGER WITH CAP P/N 7527



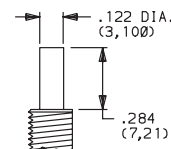
S1 PLUNGER WITH CAP P/N 7089



S2 PLUNGER WITH CAP P/N 8018

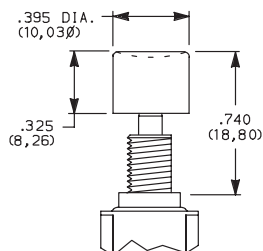


S, S1, S2 plunger dimensions.

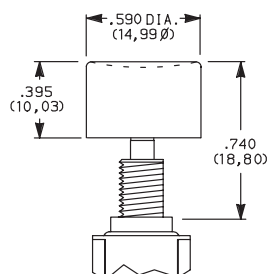


Plunger material: Glass filled nylon or glass filled polyester (UL 94V-0).

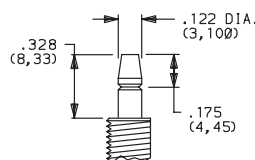
L PLUNGER WITH CAP P/N 8941



L1 PLUNGER WITH CAP P/N 8940



L, L1 plunger dimensions.



Plunger Material: Brass, chrome plated.

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

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

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

BUSHING



H .300" HIGH THREADED, FLAT

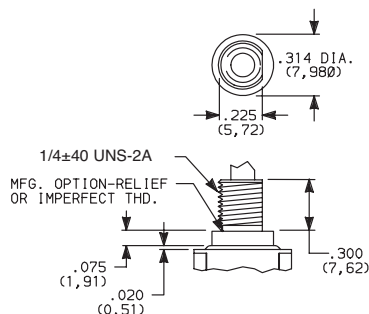
H9 .300" HIGH UNTHREADED, FLAT

NONE

NO BUSHING CHOICE REQUIRED (JXX ACTUATORS)

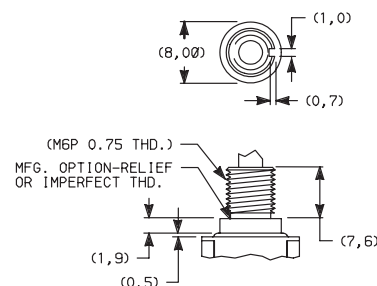
Y3

7.6mm THREADED, KEYWAY



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

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

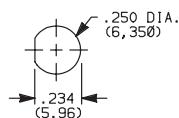


Withstands 12 in./lbs. of torque with no distortion.

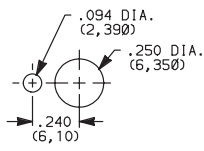
NOTE: When selecting bushing option, plunger selection must also be made, see above. No bushing option choice required when any JXX actuator option is selected.

PANEL MOUNTING

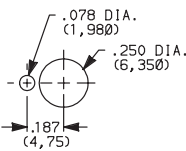
1/4 IN. BUSHING



Without Locking Ring

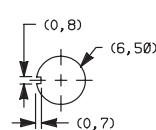


With Standard Locking Ring

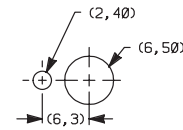


With Small Locking Ring

METRIC BUSHING



Without Locking Ring



With Locking Ring

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



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

C&K

29 Aug 18



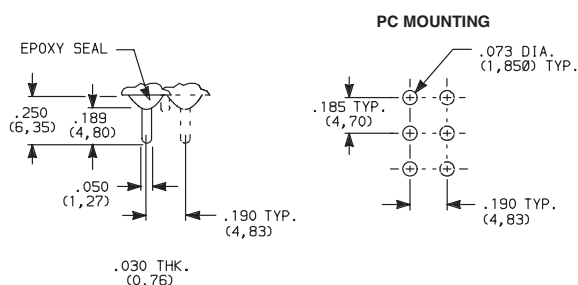
8060 Series

Alternate Action and Momentary Pushbutton Switches

TERMINATIONS

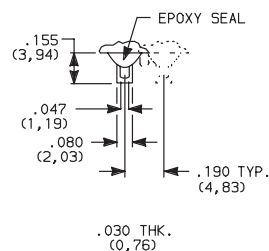


C PC THRU-HOLE



SPDT and DPDT

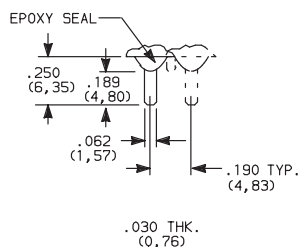
Z SOLDER LUG



SPDT and DPDT

Not available with P, S or R contact material.

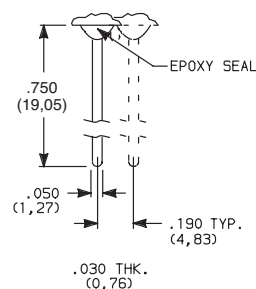
Z3 QUICK CONNECT



SPDT and DPDT

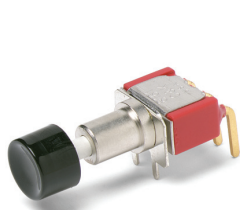
Not available with P, S or R contact material.
Mating quick connector available;
order part number 530100000, page A-61.

W WIRE WRAP

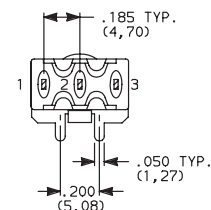
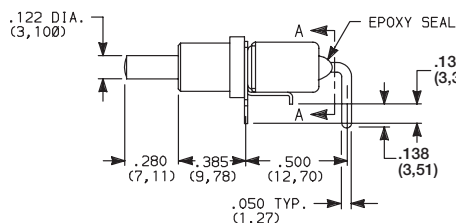
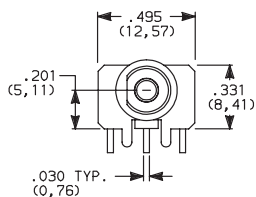


SPDT and DPDT

A RIGHT ANGLE, PC THRU-HOLE

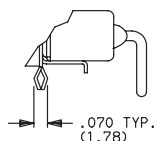
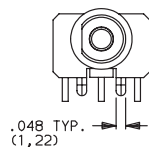


8161SH9ABE2
SPDT

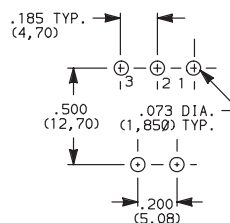


SECTION A-A

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

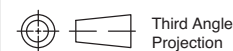


PC MOUNTING



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

NOTE: PC pattern must clear switch support leg.



Third Angle
Projection

8060 Series Alternate Action and Momentary Pushbutton Switches

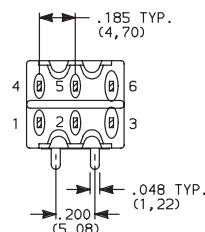
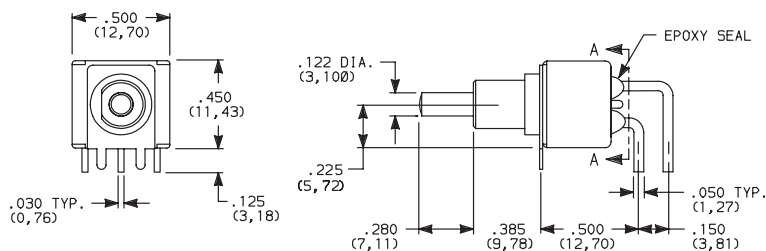
TERMINATIONS



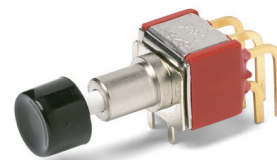
A

Pushbutton

A RIGHT ANGLE, PC THRU-HOLE

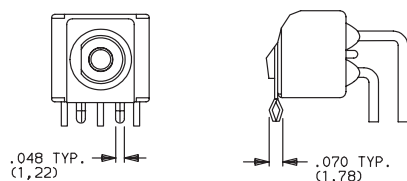


SECTION A-A

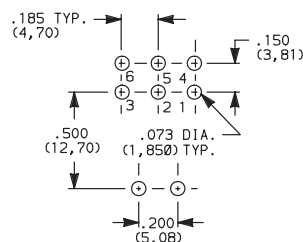


8261SH9ABE2
DPDT

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

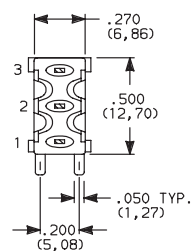
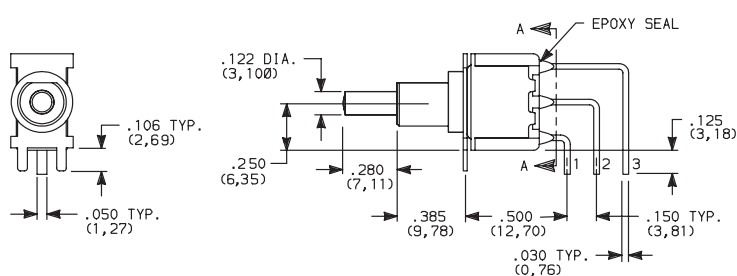


PC MOUNTING

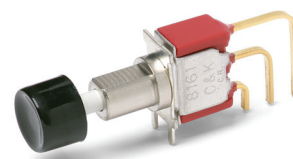


Not available with I seal.
Terminal bend radii and lead-in manufacturing option.

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

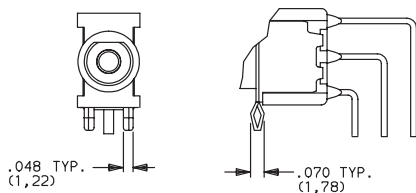


SECTION A-A

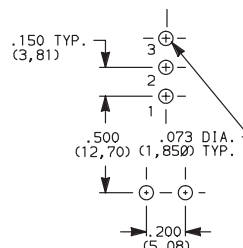


8161SH9AV2BE2
SPDT

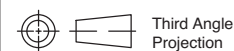
AV3 VERTICAL RIGHT ANGLE, SNAP-IN, PC THRU-HOLE, .150" PITCH



PC MOUNTING



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



Third Angle
Projection

C&K

29 Aug 18



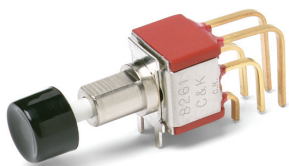
8060 Series

Alternate Action and Momentary Pushbutton Switches

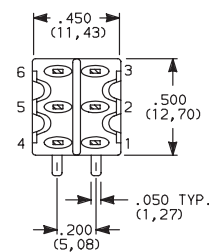
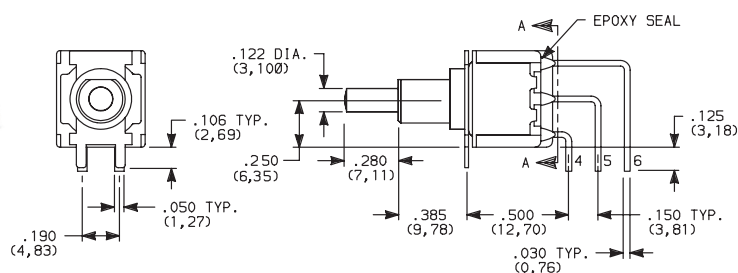
TERMINATIONS



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

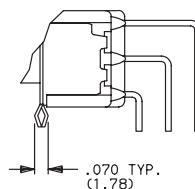
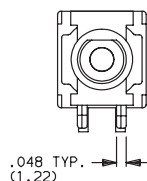


8261SH9AV2BE2
DPDT

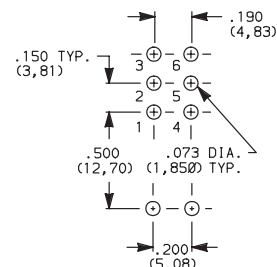


SECTION A-A

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



PC MOUNTING



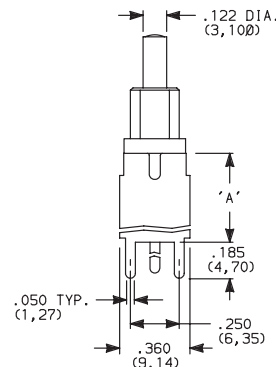
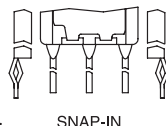
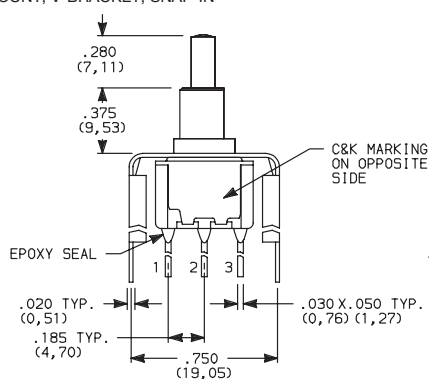
Not available with I seal.
Terminal bend radii and lead-in manufacturing option.

V6 VERTICAL MOUNT, V-BRACKET

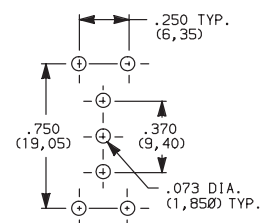
V21 VERTICAL MOUNT, V-BRACKET, SNAP-IN



8161SH9_BE2
SPDT



PC MOUNTING



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

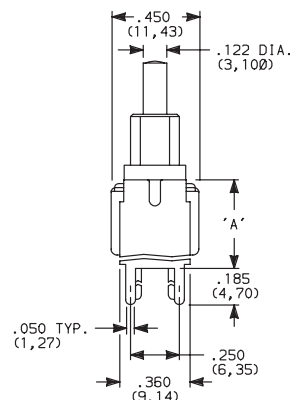
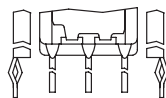
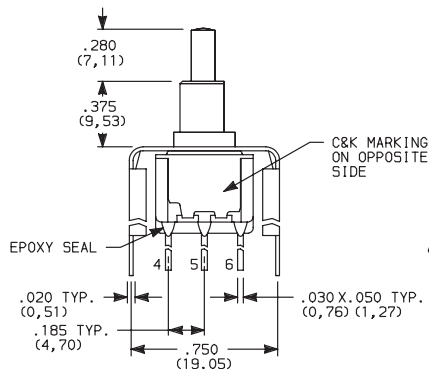
Not available with I seal.

V6 VERTICAL MOUNT, V-BRACKET

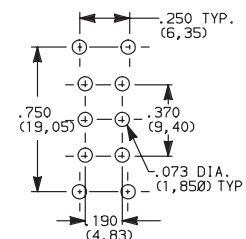
V21 VERTICAL MOUNT, V-BRACKET, SNAP-IN



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

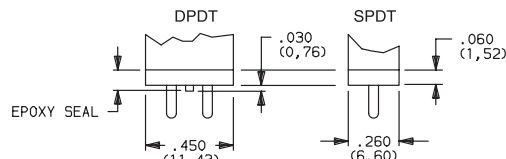
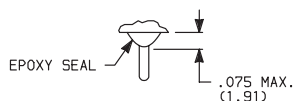
www.ckswitches.com



8060 Series

Alternate Action and Momentary Pushbutton Switches

SEAL

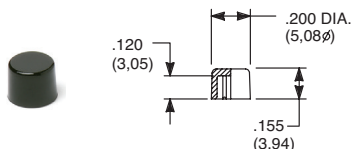
E EPOXY SEAL**I** EPOXY POTTED BASE

LENGTH IS SAME AS SWITCH BODY

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

AVAILABLE HARDWARE

Cap

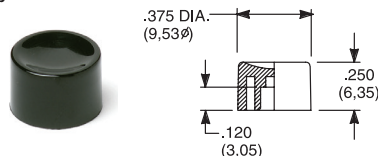


PART NO.

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

Material: Nylon
Finish: Gloss

Cap

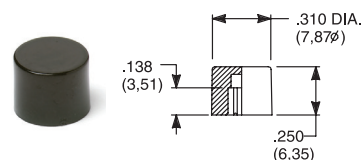


PART NO.

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

Material: Nylon
Finish: Gloss

Cap

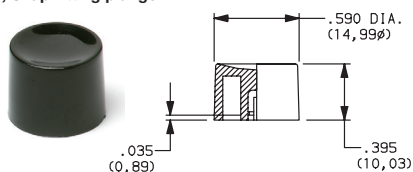


PART NO.

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

Material: Nylon
Finish: Gloss

Cap, Snap-fitting plunger

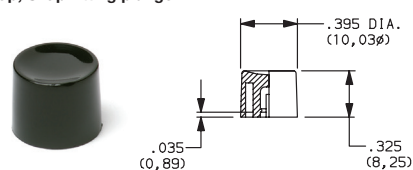


PART NO.

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

Material: Nylon
Finish: Gloss

Cap, Snap-fitting plunger

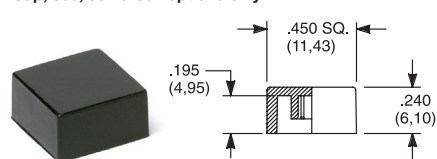


PART NO.

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

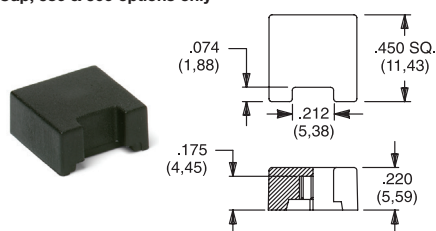
Material: Nylon
Finish: Gloss

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

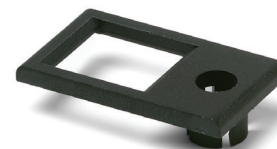


PART NO.

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.



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

8060 Series Alternate Action and Momentary Pushbutton Switches

AVAILABLE HARDWARE

Fits Z3 Termination
female connector

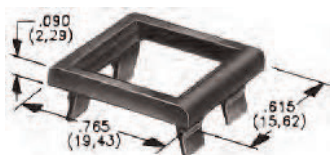
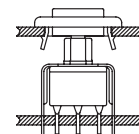
PART NO.
530100000

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

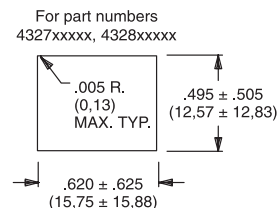
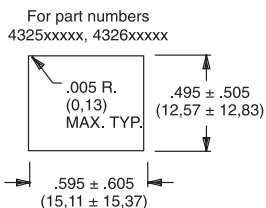


.090" (2,29) PANEL THK. .125" (3,18) PANEL THK.

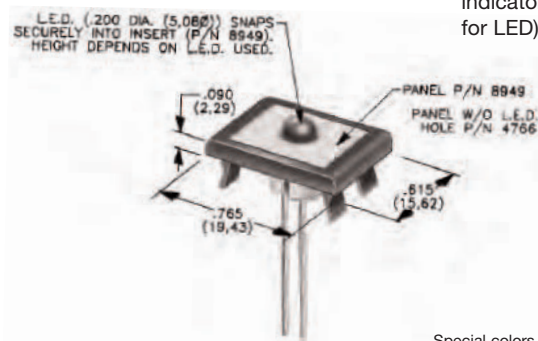
PART NO.
432702263

PART NO.
432802263 BLACK

PANEL MOUNTING



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

PART NO.
894902000

BLANK PANEL INSERT
WITHOUT HOLE FOR LED

PART NO.
476602000 BLACK

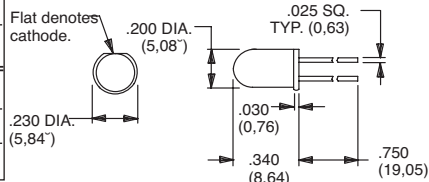
Special colors, custom markings available, consult Customer Service Center.

LED INFORMATION

SWITCHES WITH LED SUPPLIED: J86 OPTION:

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

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



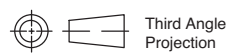
Process Information: Soldering to LED leads must be completed within 5 seconds at 500°F (260°C) maximum.

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.

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



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



29 Aug 18



A

Pushbutton

8500 Series Subminiature Pushbutton Switches



Features/Benefits

- Pre-travel or over-travel models available
- Ratings up to 3 AMPS
- Reliable contact design
- RoHS compliant

Typical Applications

- Detection
- Telecommunications and networking equipment
- Computers and peripherals



Models Available

Specifications

CONTACT RATING: Q contact material (853X Models): 1 AMP @ 120 V AC or 28 V DC; (855X Models): 3 AMPS @ 120 V AC or 28 V DC. See page A-65 for additional ratings.

ELECTRICAL LIFE:

853X MODELS: 250,000 actuations at full load.

855X MODELS: 10,000 actuations at full load.

CONTACT RESISTANCE: Below 30 mΩ typ. initial @

2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: 10⁹Ω min.

DIELECTRIC STRENGTH: 1,000 Vrms min. @ sea level.

OPERATING TEMPERATURE: -30°C to 65°C.

TORQUE SPECS: T, T1 15/32" bushings - 50 in. lbs max.

All other 1/4 -40 bushing types 12 in. lbs max.

Materials

CASE: Glass filled phenolic or diallyl phthalate (DAP) (UL 94V-0).

PLUNGER: Phenolic or glass filled polyester, black standard(UL94V-0).

CAP & FRAME: Nylon, black, standard.

BUSHING: Brass, nickel plated.

CONTACTS: Q contact material: Coin silver, silver plated. See page A-65 for additional contact materials.

TERMINALS: Q contact material: Copper alloy, silver plated. See page A-65 for additional contact materials.

TERMINAL SEAL: Epoxy.

HARDWARE: Nut: Brass, nickel plated; Lockwasher: Steel, bright nickel plated.

NOTE: Any models supplied with 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.

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-63 thru A-66. 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

8531 SPST Off-Mom. 1 Amp

8532 SPST Off-Mom. 1 Amp

8533 SPST On-Mom. 1 Amp

8534 SPST On-Mom. 1 Amp

8551 SPST Off-Mom. 3 Amps

8552 SPST Off-Mom. 3 Amps

Actuator or Plunger

M .150" high

J81 Snap-in with frame

J82 Snap-in with frame for LED

S .210" high

T 15/32 bushing

T1 15/32 bushing with frame
(8532 and 8534 only)

Terminations

Z Solder lug

AV* Right angle, PC thru-hole

C PC Thru-hole

Contact Material

Q Silver

B Gold

G Gold over silver

Seal

E Epoxy

D No epoxy seal

Cap or Plunger Color

2 Black

1 White

3 Red

9 Gray

Frame Color

2 Black

NONE Models without frame

* Available with M or S plunger models, and B contact material only.



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

8500 Series Subminiature Pushbutton Switches

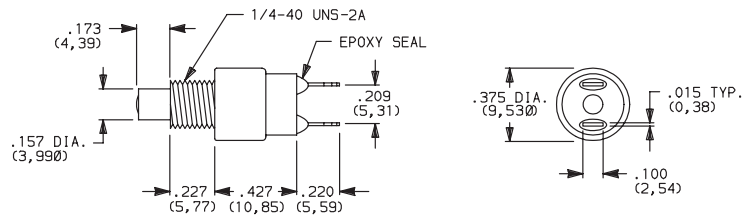


A
Pushbutton

SWITCH FUNCTION

NO. POLES	MODEL NO.	RATING	SWITCH FUNCTION		TOTAL TRAVEL	ACTUATION FORCE	SCHEMATIC
			POS. 1	POS. 2			
SP	8531	1 AMP	OFF	MOM.	.095 (2,41) TYP. with overtravel .042 (1,07) TYP.	7.7 oz (220g) TYP.	N.O. with overtravel
	8551	3 AMPS					

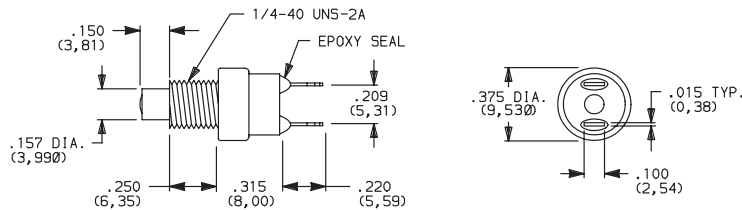
SPST



Part number shown: 8531MZQE2

SP	8532	1 AMP	OFF	MOM.	.050 (1,27) TYP.	6 oz (170g) TYP.	N.O.
	8552	3 AMPS					

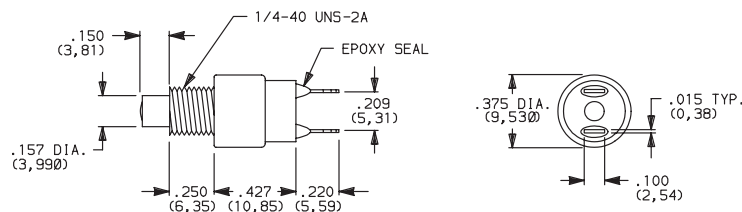
SPST



Part number shown: 8532MZQE2


SP	8533	1 AMP	ON	MOM.	.080 (2,03) TYP. with pretravel .057 (1,45) TYP.	11.5 oz (456 g) TYP.	N.C. with pretravel
	8534	1 AMP			.032 (0,81) TYP. with overtravel .028 (0,71) TYP.	10.3 oz (282g) TYP.	N.C. with overtravel

SPST



Part number shown: 8533MZQE2

MOM. = Momentary

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



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

C&K

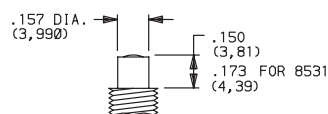


8500 Series Subminiature Pushbutton Switches

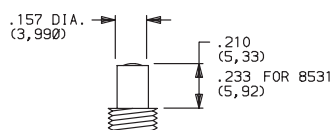
PLUNGER



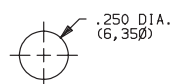
M .150" HIGH PLUNGER



S .210" HIGH PLUNGER



PANEL MOUNTING



NOTE: One mounting nut and lockwasher supplied with all actuators (except T actuator: two nuts supplied).

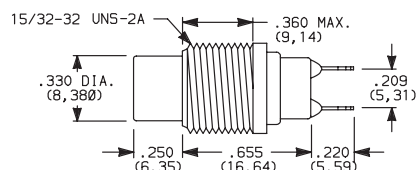
CAP COLOR

OPTION CODE	PLUNGER COLOR
2	BLACK
3	RED

ACTUATOR

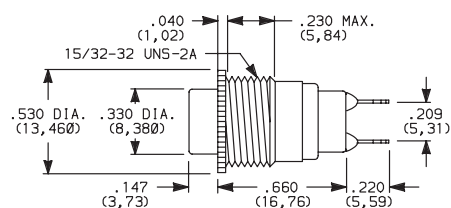


T 15/32 BUSHING



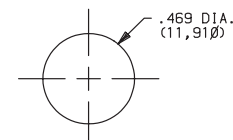
NOTE: No frame color choice required.

T1 15/32 BUSHING WITH FRAME



NOTE: No frame color choice required.
Available with 8532 and 8534 models only.

PANEL MOUNTING



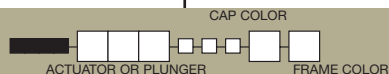
OPTION CODE	CAP COLOR
2	BLACK
1	WHITE
3	RED
9	GRAY

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

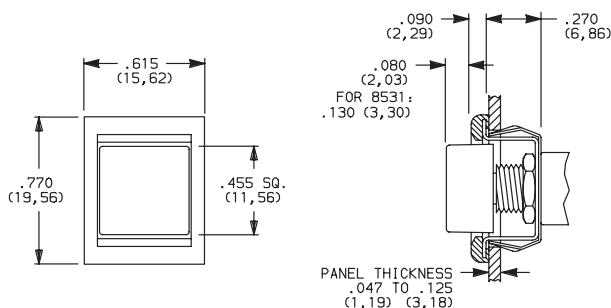
One mounting nut and lockwasher supplied with all actuators (except T actuator: two nuts supplied).

NOTE: Caps available for plunger options, see page A-65.

ACTUATOR—SNAP-IN FRONT MOUNT



J81 SNAP-IN WITH FRAME



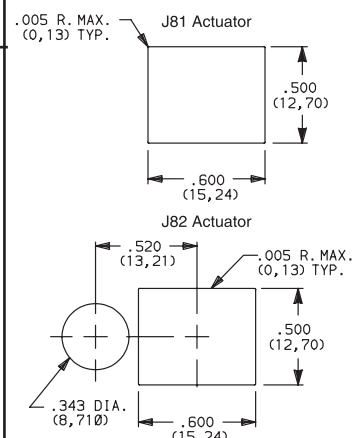
OPTION CODE	CAP AND FRAME COLOR
2	BLACK

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

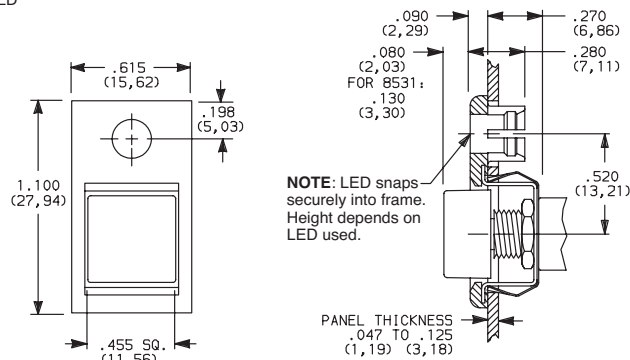
One mounting nut and lockwasher supplied with all actuators.

NOTE: Caps & frames available separately, see pages A-65 and A-66.

PANEL MOUNTING



J82 SNAP-IN WITH FRAME FOR LED



LED not included.
For LED information, see page A-66.



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

8500 Series Subminiature Pushbutton Switches

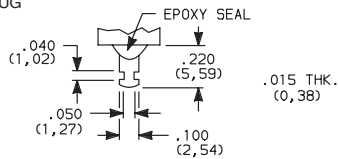


A

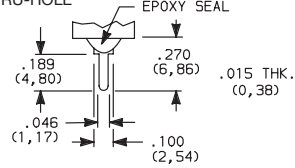
Pushbutton

TERMINATIONS

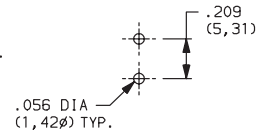
Z SOLDER LUG



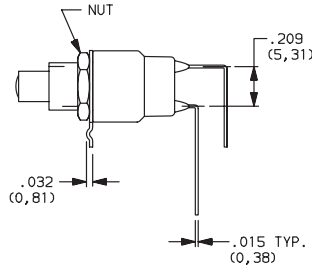
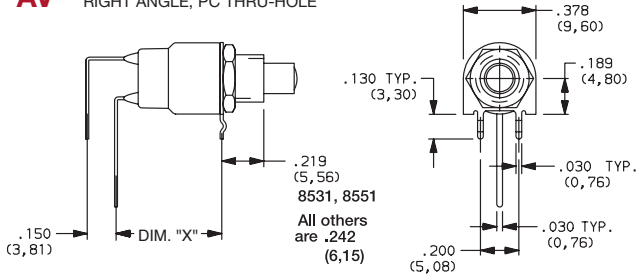
C PC THRU-HOLE



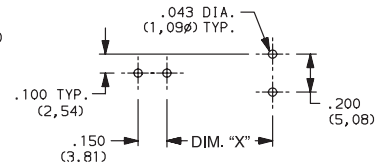
PC MOUNTING



AV RIGHT ANGLE, PC THRU-HOLE



PC MOUNTING



Available with

MODEL NO.	DIM "X"
8531, 8533	0.550
8532, 8534	0.438

NOTE: Available with M or S plunger models, and B contact material only.

CONTACT MATERIAL

OPTION CODE	RoHS COMPLIANT *	RoHS COMPATIBLE *	TERMINAL PLATING	CONTACT MATERIAL	RATINGS	
B	YES	YES	GOLD ¹	GOLD	LOW LEVEL/DRY CIRCUIT	0.4 VA MAX. @ 20 V AC OR DC MAX.
Q	YES	YES	SILVER ⁴	SILVER ⁵	POWER	853X MODELS: 1 AMP @ 120 V AC OR 28 V DC. 855X MODELS: 3 AMPS @ 120 V AC OR 28 V DC.
G	YES	YES	GOLD OVER SILVER ²	GOLD ³	LOW LEVEL/DRY CIRCUIT OR POWER	0.4 V MAX @ 20 V AC OR DC MAX. OR 853X MODELS: 1 AMP @ 120 V AC OR 28 V DC. 855X MODELS: 3 AMPS @ 120 V AC OR 28 V DC.

* 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 CONTACTS: Coin silver, with gold plate over nickel plate.

³ TERMINALS: Copper alloy, with gold plate over nickel plate.

⁴ CONTACTS: Coin silver, silver plated.

⁵ TERMINALS: Copper alloy, silver plated.

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

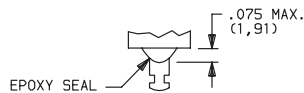
All models  with all options when ordered with G or Q contact material.

Q contact material standard with C, Z terminations.

8551 & 8552 available with Q contact material only.

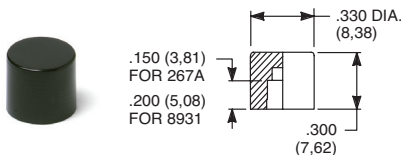
SEAL

E EPOXY SEAL



REPLACEMENT HARDWARE

Cap for 0.157" dia. plungers



PART NO.

267A01000 WHITE
267A02000 BLACK
267A03000 RED
267A09000 GRAY

85X2T, 8534T
models only

Material: Nylon
Finish: Gloss

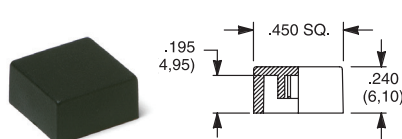
PART NO.

893101000 WHITE
893102000 BLACK
893103000 RED
893109000 GRAY

85X1T, 8532T1,
8533T, 8534T1 models only

Material: Nylon
Finish: Gloss

Cap, J80, J81 & J 82 options only



PART NO.

448901000 WHITE
448902000 BLACK
448903000 RED
448909000 GRAY

Material: Nylon
Finish: Gloss or
matte

Other colors available, consult Customer Service Center.

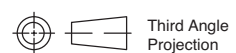
Frame



PART NO.

613302263 BLACK

Material: Nylon
Finish: Matte



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

C&K



8500 Series Subminiature Pushbutton Switches

AVAILABLE HARDWARE

Frame



PART NO.

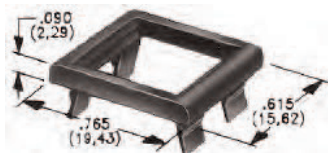
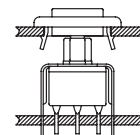
615602263 BLACK

Material: Nylon
Finish: Matte

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

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.

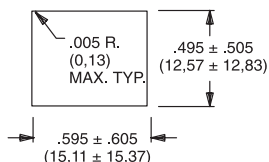
432702263

PART NO.

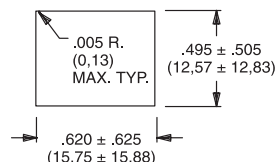
432802263 BLACK

PANEL MOUNTING

For part numbers
4325xxxxx, 4326xxxxx

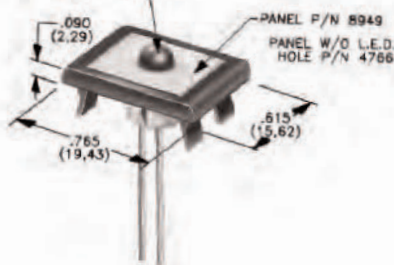


For part numbers
4327xxxxx, 4328xxxxx



Panel Inserts

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



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

PANEL INSERT
WITH HOLE FOR LED

PART NO.

894902000

BLANK PANEL INSERT
WITHOUT HOLE FOR LED

PART NO.

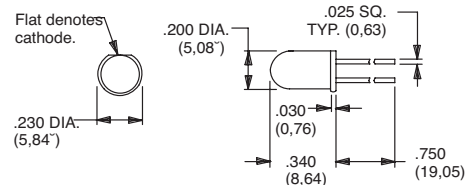
476602000 BLACK

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

LED INFORMATION

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

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



Suggested LED for J82 option.
Dimensions for reference only.



Third Angle
Projection

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

Pushbutton

- **Alarm systems**
- **Computers**
- **Detector switch application**



TERMINAL SEAL: Epoxy.

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

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages A-68 and A-70. For additional options not shown in catalog, consult Customer Service Center.

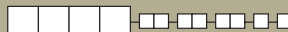


www.ckswitches.com



KM Series Subminiature Pushbutton Switches

SWITCH FUNCTION

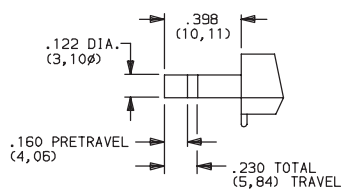


NO. POLES	MODEL NO.	SWITCH FUNCTION		CONNECTED TERMINALS		SCHEMATIC
		POS. 1	POS. 2	POS. 1	POS. 2	
SP	KM11	OFF	MOM.	OPEN	2-1	SPST N.O.
	KM33	ON	MOM.	2-1	OPEN	SPST N.C.
SPST						
SP	KM12	ON	MOM.	2-1	4-3	SPDT
SPDT						

ACTUATOR

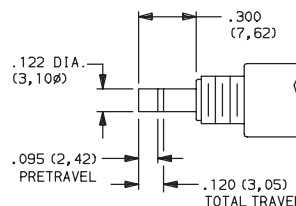


02 .398" HIGH, .122" DIA.

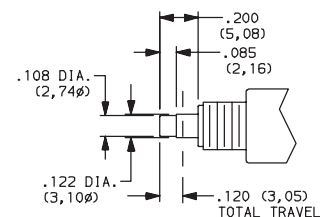


KM12 models only.

01 .122" DIA.



KM11 models only.



KM33 models only.

NOTE: Caps available for plunger options, see page A-70.



Third Angle
Projection

KM Series Subminiature Pushbutton Switches



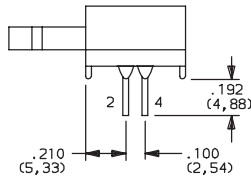
A

Pushbutton

BUSHING/ MOUNTING STYLE

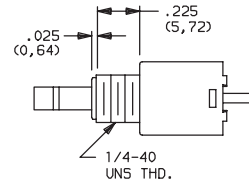


A RIGHT ANGLE



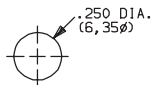
KM12 models only.

RR 1/4-40 THREAD, .225" HIGH



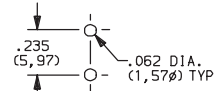
KM11 & KM33 models only.

PANEL MOUNTING

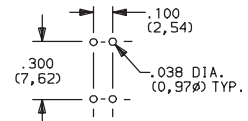


KM11 & KM33 models.

PC MOUNTING



KM11 models only.

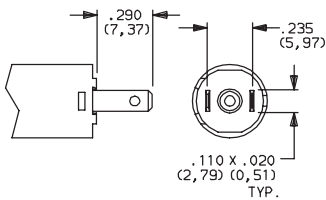


KM12 models only.

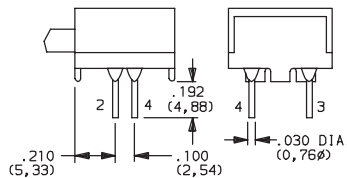
TERMINATIONS



05 .110" QUICK CONNECT

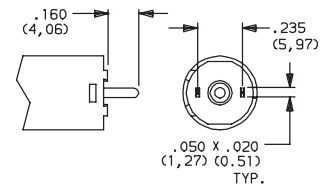


08 RIGHT ANGLE, PC THRU-HOLE



KM12 models only.

02 PC THRU-HOLE



KM11 models only.

CONTACT MATERIAL



OPTION CODE	RoHS COMPLIANT *	RoHS COMPATIBLE *	CONTACT AND TERMINAL MATERIAL	RATINGS	
B	YES	YES	GOLD ¹	LOW LEVEL/DRY CIRCUIT	0.4 VA MAX. @ 20 V AC OR DC MAX.
Q	YES	YES	SILVER ²	POWER	0.25 AMPS @ 125 V AC OR DC (KM11, KM12) (UL) 1 AMP @ 125 V AC OR 28 V DC (KM33).


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

¹ STATIONARY CONTACTS & TERMINALS: Copper, with gold plate over nickel plate.
MOVABLE CONTACT: Phosphor bronze or beryllium copper, with gold plate over nickel plate.

² STATIONARY CONTACTS & TERMINALS: Copper, silver plated (standard with all termination options).
MOVABLE CONTACT: Phosphor bronze or beryllium copper, silver plated.

³ STATIONARY CONTACTS & TERMINALS: Copper, with gold plate over nickel plate over silver plate.
MOVABLE CONTACT: Phosphor bronze or beryllium copper, with gold plate over nickel plate over silver plate.

NOTE: Any models supplied with Q or B contact material are RoHS compliant.

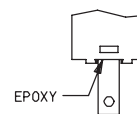
KM11, KM12 models  when ordered with 'Q' contact material.

SEAL



NONE NO SEAL

E EPOXY SEAL



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

C&K

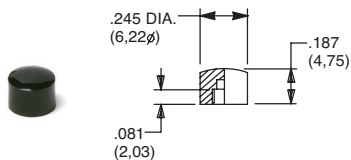


KM Series Subminiature Pushbutton Switches

AVAILABLE HARDWARE

Pushbutton
A

Cap, KM33 models

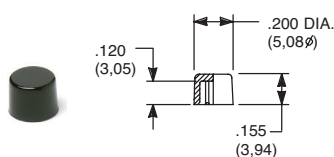


PART NO.

785101000 WHITE
785102000 BLACK
785103000 RED

Material: Nylon
Finish: Gloss

Cap, KM11 and KM12 models

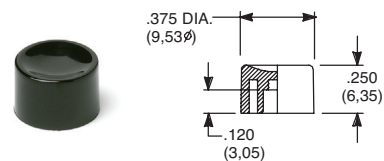


PART NO.

708901000 WHITE
708902000 BLACK
708903000 RED

Material: Nylon
Finish: Gloss

Cap, KM11 and KM12 models

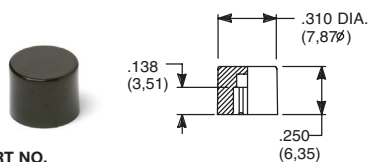


PART NO.

752701000 WHITE
752702000 BLACK
752703000 RED

Material: Nylon
Finish: Gloss

Cap, KM11 and KM12 models

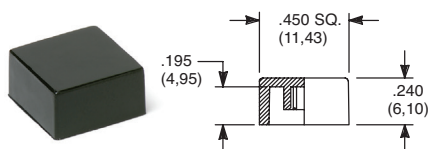


PART NO.

801801000 WHITE
801802000 BLACK
801803000 RED

Material: Nylon
Finish: Gloss

Cap, KM11 models



PART NO.

484601000 WHITE
484602000 BLACK
484603000 RED

Material: Nylon
Finish: Gloss

PART NO.

798201000 WHITE
798202263 BLACK
798203000 RED

Material: Nylon
Finish: Matte

NOTE: Other cap colors available, consult Customer Service Center.



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

8600 Series Microminiature Pushbutton Switches



A

Pushbutton

Features/Benefits

- Available with overtravel
- Normally closed models available
- Microminiature size ideal for applications where space is limited
- RoHS compliant

Typical Applications

- Detection
- Telecommunications and networking equipment
- Computers and peripherals



Models Available

Specifications

CONTACT RATING: Q contact material (8631, 8632 Models):
500 mA @ 120 V AC or 28 V DC; 250 mA @ 250 V AC;
(8633 Model): 250 mA @ 120 V AC or 28 V DC; 125 mA
@ 250 V AC. See page A-73 for additional ratings.

ELECTRICAL LIFE:

8631 and 8633 MODELS: 250,000 actuations at full load.
8632 MODEL: 100,000 actuations at full load.

CONTACT RESISTANCE: Below 30 mΩ typ. initial @
2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: 109 Ω min.

DIELECTRIC STRENGTH: 500 Vrms min. @ sea level.

OPERATING TEMPERATURE: -30°C to 65°C.

SOLDERABILITY: Per MIL-STD-202F method 208D, or
EIA RS-186E method 9.

Materials

CASE: Glass filled phenolic or diallyl phthalate (DAP), (UL94V-0).

PLUNGER: Glass filled nylon (UL94V-0), black standard.

BUSHING: Brass, nickel plated.

CONTACTS: Q contact material: Coin silver, silver plated.
See page A-73 for additional contact materials.

TERMINALS:

8631, 8632 MODELS: Copper alloy, silver plated.

8633 MODEL: Q contact material: Coin silver.

See page A-73 for additional contact materials.

TERMINAL SEAL:

8633 MODEL: Epoxy.

8631, 8632 MODELS: Terminals insert molded.

HARDWARE: Nut: Brass, nickel plated.

NOTE: Any models supplied with 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.

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-72 and A-73. For additional options not shown in catalog, consult Customer Service Center.

<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	
Switch Function	Termination
8631 SPST Off-Mom.	Z Solder lug
8632 SPST Off-Mom.	C PC Thru-hole
8633 SPST On-Mom.	
Contact Material	Seal
B Gold	D No epoxy
Q Silver	E Epoxy
G Gold over silver	
	Plunger Color
	2 Black
	3 Red



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



8600 Series Microminiature Pushbutton Switches

SWITCH FUNCTION



NO. POLES	MODEL NO.	SWITCH FUNCTION		TOTAL TRAVEL	ACTUATION FORCE	SCHEMATIC
		POS. 1	POS. 2			
SP	8631	OFF	MOM.	.040 (1,02) TYP.	5 oz (140g) TYP.	N.O.
SPST <p>Part number shown: 8631ZQD2</p> <p>Terminals Insert Molded</p>						
SP	8632	OFF	MOM.	.106 (2,69) TYP. with overtravel .024 (0,61) TYP.	6.25 oz (177g) TYP.	N.O. with overtravel
SPST <p>Part number shown: 8632ZQD2</p> <p>Terminals Insert Molded</p>						
SP	8633	ON	MOM.	.048 (1,22) TYP.	5 oz (140g) TYP.	N.C.
SPST <p>Part number shown: 8633ZQE2</p>						

MOM. = Momentary

NOTE: Caps available for plunger options, see page A-73.

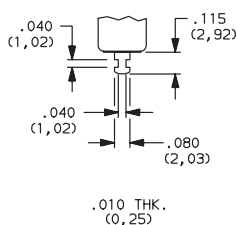
TERMINATIONS



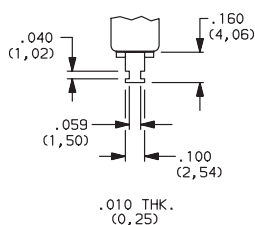
Z SOLDER LUG

C PC THRU-HOLE

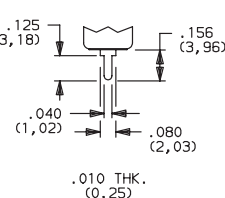
8631, 8632 models only.



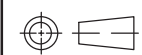
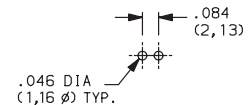
8633 models only.



8631, 8632 models only.



PC MOUNTING



Third Angle
Projection

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

www.ckswitches.com

8600 Series Microminiature Pushbutton Switches



A

Pushbutton

CONTACT MATERIAL

OPTION CODE	RoHS COMPLIANT *	RoHS COMPATIBLE *	CONTACT MATERIAL	TERMINAL PLATING	RATINGS	
B	YES	YES	GOLD ¹	GOLD ¹	LOW LEVEL/ DRY CIRCUIT	0.4 VA MAX. @ 20 V AC OR DC MAX.
Q	YES	YES	SILVER ⁴	SILVER ⁵	POWER	8631, 8632 MODELS: 500 mA @ 120 V AC OR 28 V DC; 250 mA @ 250 V AC. 8633 MODELS: 250 mA @ 120 V AC OR 28 V DC; 125 mA @ 250 V AC.
G	YES	YES	GOLD OVER SILVER ⁴	GOLD ³	LOW LEVEL/DRY CIRCUIT OR POWER	0.4 VA MAX @ 20 V AC OR DC MAX. OR 8631, 8632 MODELS: 500 mA @ 120 V AC OR 28 V DC; 250 mA @ 250 V AC. 8633 MODELS: 250 mA @ 120 V AC OR 28 V DC; 125 mA @ 250 V AC.

* 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 CONTACTS: Coin silver, with gold plate over nickel plate.

³ TERMINALS: Copper alloy, with gold plate over nickel plate.
8633 model only: Coin silver, with gold plate over nickel plate.

⁴ CONTACTS: Coin silver, silver plated.

⁵ TERMINALS: Copper alloy, silver plated. 8633 model only: coin silver.

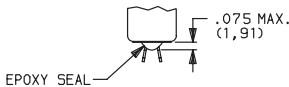
NOTE: Any models supplied with Q, B or G contact material are RoHS compliant.

8631, 8632 models with all options when ordered with G or Q contact material.
Q contact material standard with C, Z terminations.

SEAL

D NO EPOXY SEAL

E EPOXY SEAL



Not available on 8633 model.
Standard on 8631, 8632 models.

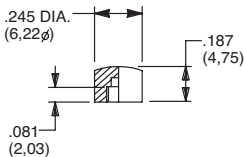
Not available on 8631, 8632 models.
Standard on 8633 model only.

PLUNGER COLOR

OPTION CODE	COLOR
2	BLACK
3	RED

AVAILABLE HARDWARE

Cap

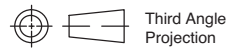


PART NO.

785101000 WHITE
785102000 BLACK
785103000 RED

Material: Nylon
Finish: Gloss

NOTE: Other cap colors available, consult Customer Service Center.



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

C&K

8700 Series Overtravel Pushbutton Switches



A

Pushbutton

SWITCH FUNCTION



NO. POLES	MODEL NO.	SWITCH FUNCTION		TOTAL TRAVEL	ACTUATION FORCE	SCHEMATIC
		POS. 1	POS. 2			
SP	8731	OFF	MOM.	.390 (9,91) TYP. with overtravel .311 TYP.	4.7 oz TYP.	N.O. with overtravel SPST
SPST Part number shown: 8731SHZQE						
SP	8732	OFF	MOM.	.390 (9,91) TYP. with overtravel .350 TYP.	2.2 oz TYP.	N.O. with overtravel SPST
SPST Part number shown: 8732S1HZQE						

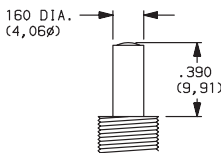
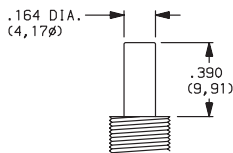
MOM. = Momentary

PLUNGER



S .390" HIGH, BRASS

S1 .390" HIGH, PBT POLYESTER



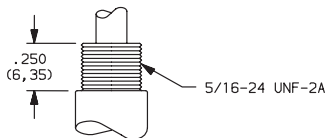
Available with 8731 model only.

Available with 8732 model only.

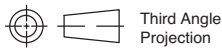
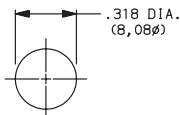
BUSHING



H .250" HIGH



PANEL MOUNTING



Third Angle
Projection

C&K

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



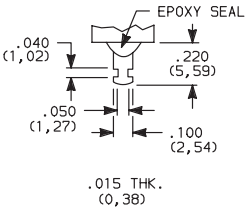
A

Pushbutton

8700 Series Overtravel Pushbutton Switches

TERMINATIONS

Z SOLDER LUG



CONTACT MATERIAL

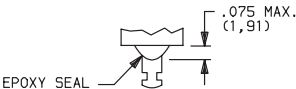
OPTION CODE	RoHS COMPLIANT *	RoHS COMPATIBLE *	CONTACT MATERIAL	TERMINAL PLATING	RATINGS	
Q	YES	YES	SILVER	SILVER	POWER	1 AMP @ 125 V AC OR 28 V DC.
B	YES	YES	GOLD	GOLD	LOW LEVEL/DRY CIRCUIT	0.4 VA MAX. @ 20 V AC OR DC MAX.

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

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

SEAL

E EPOXY SEAL



GP Series Sealed Ultraminiature Pushbutton Switches



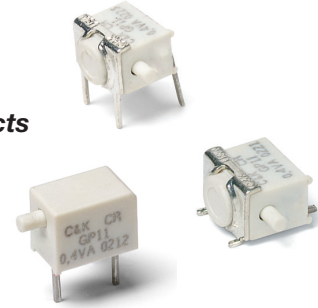
A
Pushbutton

Features/Benefits

- Ultraminiature design saves space
- Process compatible, withstands most soldering and washing processes
- Thru-hole and surface mount models available
- Sealed construction—internal o-ring and epoxy base
- RoHS compliant

Typical Applications

- Telecommunications and network equipment
- Computers and peripheral products
- Instrumentation
- Medical Applications



Specifications

CONTACT RATING: 0.4 VA max. @ 20 V AC or DC max.

MECHANICAL & ELECTRICAL LIFE: 40,000 make-and-break cycles at full load.

CONTACT RESISTANCE: Below 50 mΩ typ. initial @ 2-4 V DC, 100 mA.

INSULATION RESISTANCE: 10⁹Ω min.

DIELECTRIC STRENGTH: 500 Vrms min. @ sea level.

OPERATING TEMPERATURE: -40°C to 85°C.

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

DEGREE OF PROTECTION: IP57; Protection against harmful dust deposit, full-scale voltage protection, temporary immersion.

PACKAGING: Surface mount switches standard in anti-static tape and reel packaging per EIA 481-3, see page A-80 for drawings and reel information. Thru-Hole parts are shipped in trays.

All models are RoHS compliant and compliant.

Materials

HOUSING & BASE: Glass filled nylon 4/6, flame retardant, heat stabilized (UL 94V-0).

ACTUATOR: Glass filled nylon 4/6, flame retardant (UL 94V-0) with standard internal o-ring seal.

SWITCH SUPPORT: Brass, tin plated.

MOVABLE CONTACT: Copper alloy, with gold plate over nickel plate.

STATIONARY CONTACTS Copper alloy, with gold plate over nickel plate.

TERMINALS: Copper alloy, with gold flash over nickel plate.

TERMINAL SEAL: Epoxy/Urethane. All terminals insert molded.

NOTE: Any models supplied with B contact material are RoHS compliant and compatible.

NOTE: Materials listed above are general specifications. Specifications available for specific and custom switches, consult Customer Service Center.

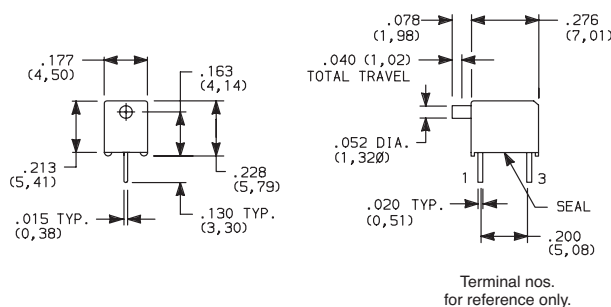
CAUTION: PC mounting layouts and pads as shown are designed to be compatible with the latest equipment and reflow techniques. Care should be taken in the design and location of PC lands to suit individual needs. Orientation relative to reflow direction may significantly impact solder joint integrity.

How To Order

Complete part numbers for GP Series Sealed Ultraminiature Pushbutton Switches are shown on pages A-78 thru A-80.

PART NUMBER	SWITCH FUNCTION		SCHEMATIC
	POS. 1	POS. 2	
GP11MCBE	OFF	MOM.	 1 3
Conn. Terms.	OPEN	1-3	
GP12MCBE	ON	MOM.	 NC 1 2 (COMM) 3 NO
Conn. Terms	2-1	2-3	

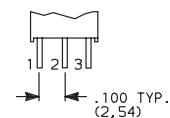
MOM. = Momentary



PC MOUNTING



GP11—omit center hole.



GP12 Model



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



GP Series

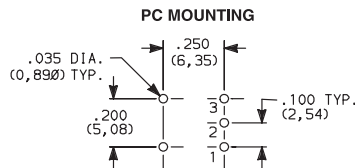
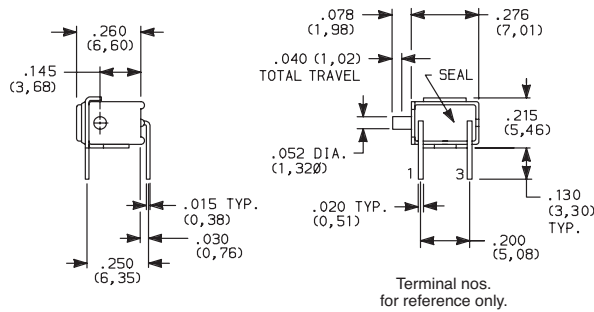
Sealed Ultraminiature Pushbutton Switches

A

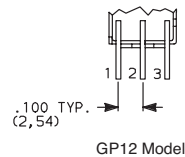
Pushbutton



GP11MABE
SPST



GP11- omit hole 2.



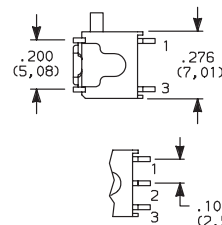
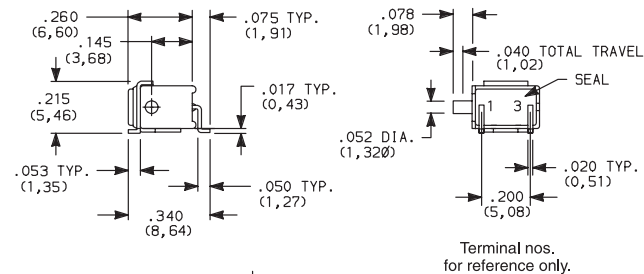
GP12 Model

PART NUMBER	SWITCH FUNCTION		SCHEMATIC
	POS.1	POS. 2	
GP11MABE	OFF	MOM.	
Conn. Terms.	OPEN	1-3	
GP12MABE	ON	MOM.	
Conn. Terms.	2-1	2-3	

MOM. = Momentary



GP11MSABE
SPST



GP12 Model

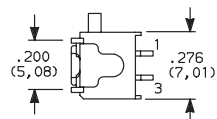
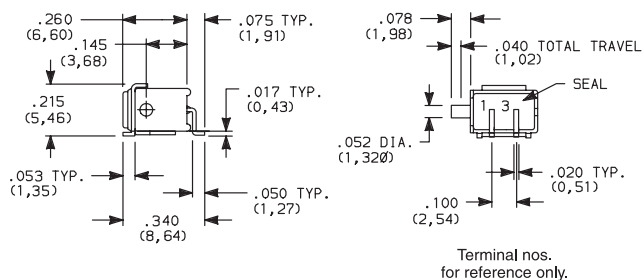
GP11- omit pad 2.

PART NUMBER	SWITCH FUNCTION		SCHEMATIC
	POS.1	POS. 2	
GP11MSABE	OFF	MOM.	
Conn. Terms	OPEN	1-3	
GP12MSABE	ON	MOM.	
Conn. Terms	2-1	2-3	

MOM. = Momentary



GP11MSA1BE
SPST



GP12 Model

GP11- omit pad 2.

PART NUMBER	SWITCH FUNCTION		SCHEMATIC
	POS.1	POS. 2	
GP11MSA1BE	OFF	MOM.	
Conn. Terms.	OPEN	1-3	
GP12MSA1BE	ON	MOM.	
Conn. Terms	2-1	2-3	

MOM. = Momentary



Third Angle
Projection

GP Series Sealed Ultraminiature Pushbutton Switches

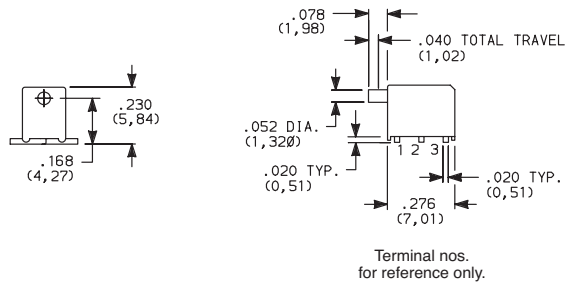


A

Pushbutton

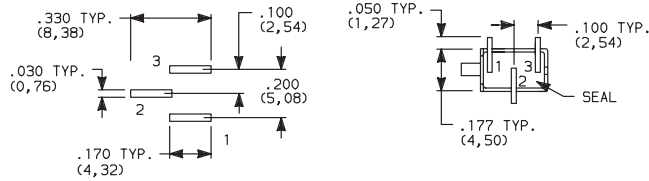
PART NUMBER	SWITCH FUNCTION		SCHEMATIC
	POS. 1	POS. 2	
GP12MSCBE	ON	MOM.	
Conn. Terms	2-1	2-3	

MOM. = Momentary

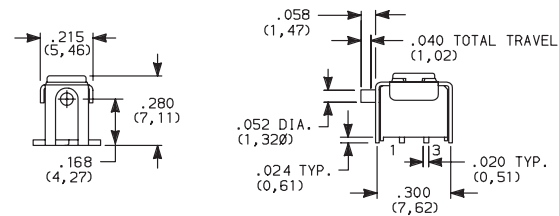


GP12MSCBE
SPDT

PC MOUNTING



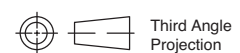
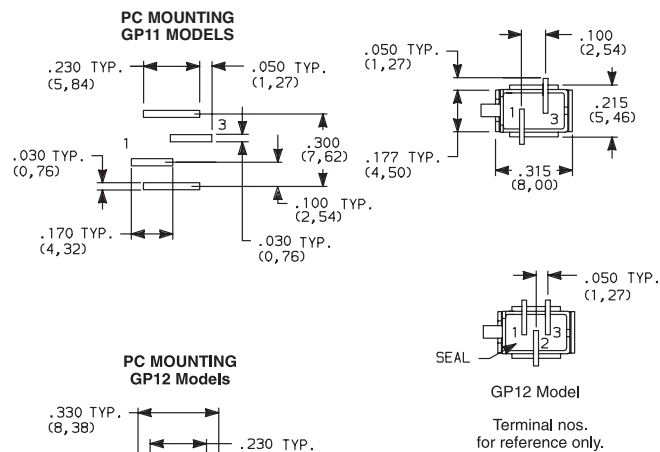
NOTE: Recommended for infrequent use applications only
For increased switch mounting strength, order, SV1 termination style with support bracket (see below).



GP11MSV1BE
SPST

PART NUMBER	SWITCH FUNCTION		SCHEMATIC
	POS. 1	POS. 2	
GP11MSV1BE	OFF	MOM.	
Conn. Terms.	OPEN	1-3	
GP12MSV1BE	ON	MOM.	
Conn. Terms.	2-1	2-3	

MOM. = Momentary



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

C&K

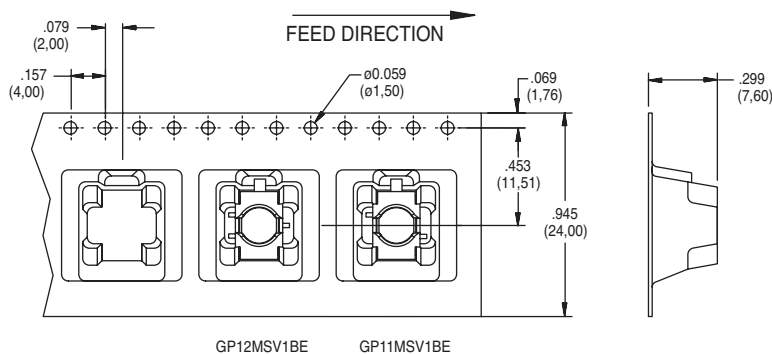


GP Series Sealed Ultraminiature Pushbutton Switches

TAPE & REEL

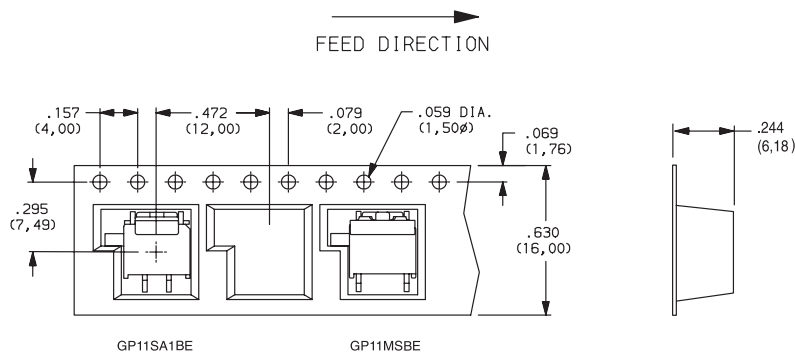
For part numbers GP11MSV1BE, GP12MSV1BE

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



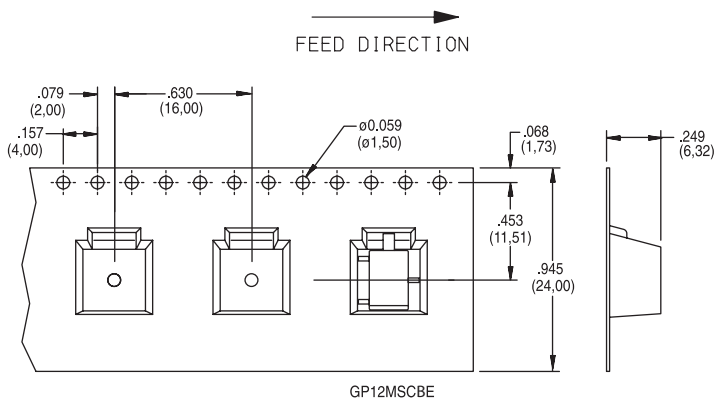
For part numbers GPXXSA1BE, GPXXMSABE

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



For part numbers GP12MSCBE

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



- **Computers and peripherals**
- **Instrumentation and measurement equipment**
- **Non-power, on-off switch applications**

FRAME: Tin plated steel.

ACTUATOR: PA 66 black.

BASE: Phenolic resin.

TERMINALS: Silver plated brass.

MOVABLE CONTACTS: Silver plated phosphor bronze.

RETURN SPRING: SWC

DETENT SPRING: Phosphor bronze.

DETENT SPRING PLATE: Phosphor bronze.

RETURN SPRING RETAINER RING: Nickel plated steel.

TERMINAL SEAL: Epoxy.

The diagram shows a 12-position terminal block with the following labels and options:

- Function**
 - 11** SPDT Mom.
 - 12** SPDT Locking
 - 21** DPDT Mom.
 - 22** DPDT Locking
- Actuator***
 - S** 2.8 mm square tip
 - L** 3.3 mm x 3.2 mm tip
- Actuation Force****
 - A** 50 g Typ
 - B** 100 g Typ
 - D** 180 g Typ
 - E** 250 g Typ
 - F** 100 g Typ
 - H** 250 g Typ
 - J** 350 g Typ
- Shorting/ Non-Shorting**
 - NA** Non-shorting
 - SA** Shorting
- Terminal Seal**
- Contact Material**
- Frame**

Full travel



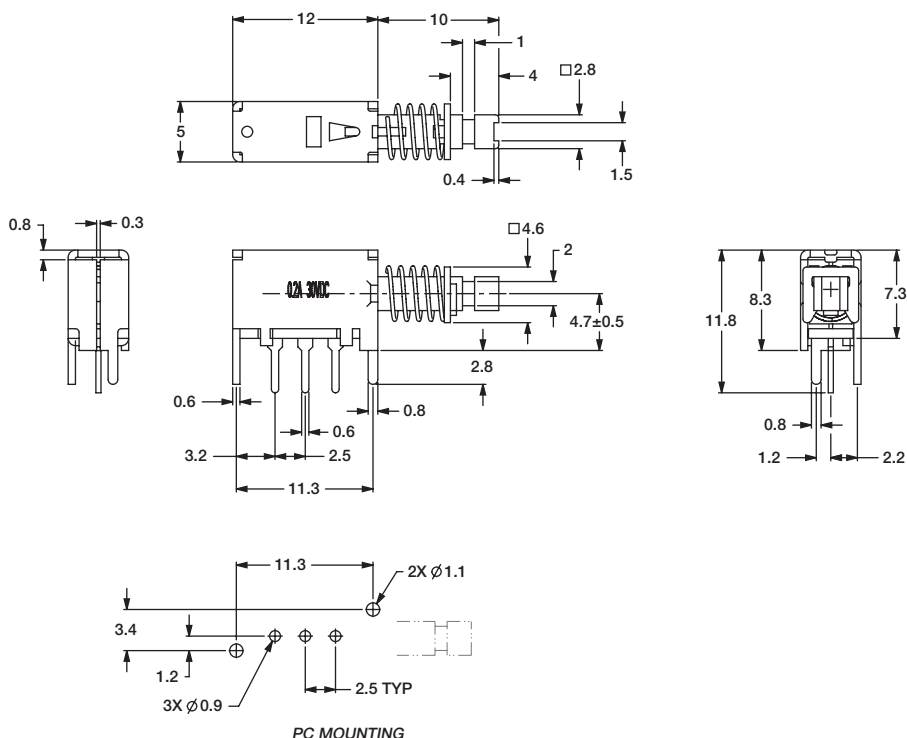
PN Series

Alternate & Momentary Action Pushbutton Switches

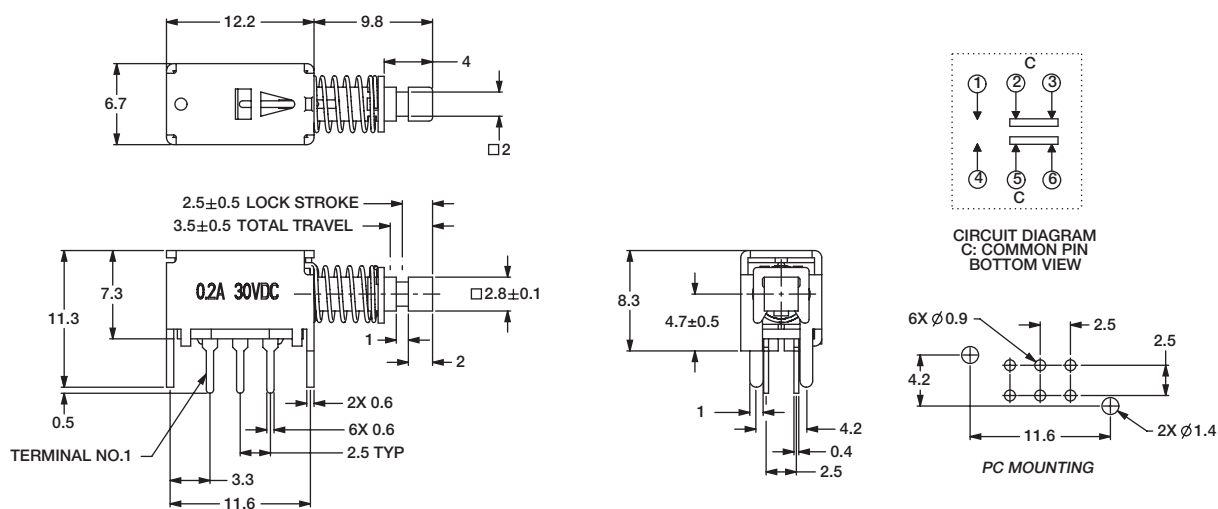
Pushbutton

A

PN 11 SPDT Mom.
PN 12 SPDT Locking



PN 21 DPDT Mom. with "S" Actuator
PN 22 DPDT Locking with "S" Actuator



Third Angle
Projection

Dimensions are shown: mm
Specifications and dimensions subject to change

C&K

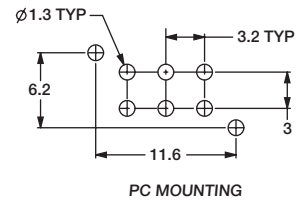
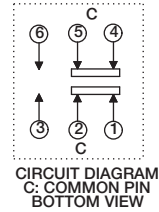
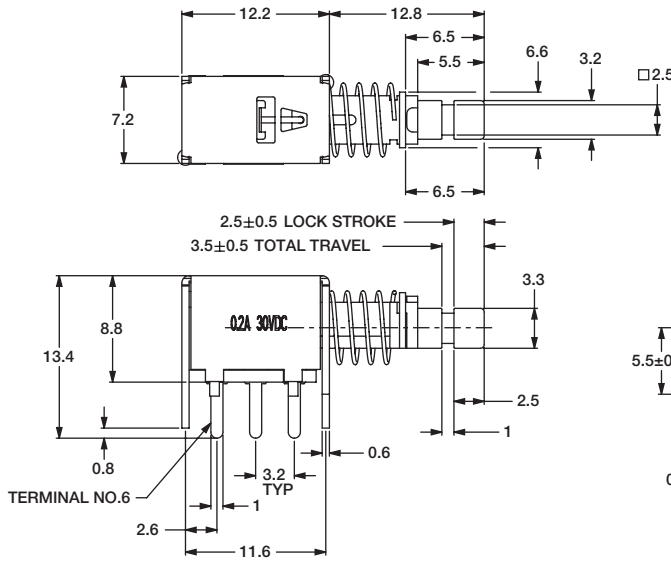
PN Series Alternate & Momentary Action Pushbutton Switches



A

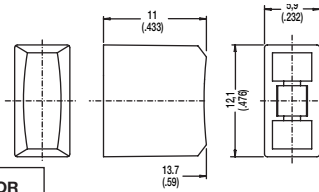
Pushbutton

PN 21 DPDT Mom. with "L" Actuator
PN 22 DPDT Locking with "L" Actuator



BUTTONS MUST BE ORDERED SEPARATELY. SHIPPED IN BULK.

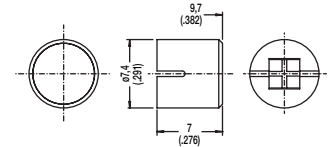
PE



OPTION CODE	COLOR
RD	Red
GY	Gray
BK	Black
WH	White

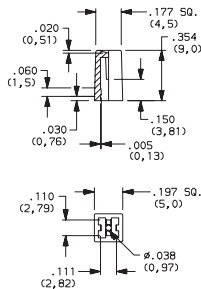
PE and PV buttons fit "L" actuators

PV



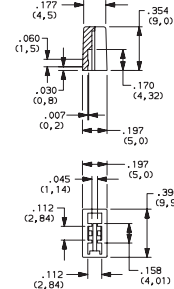
Indexed

G001A Black
G001G Gray
G001I Ivory
G001R Red



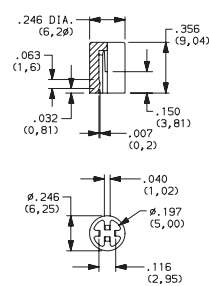
Rectangular

G002A Black
G002G Gray
G002I Ivory
G002R Red



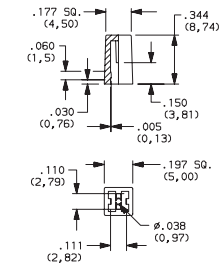
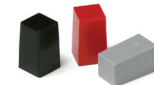
Round

G003A Black
G003G Gray
G003I Ivory
G003R Red

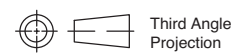


Square

G004A Black
G004G Gray
G004I Ivory
G004R Red



G001, G002, G003 and G004 buttons fit "S" actuators



C&K

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



PHB Series Short Stroke Pushbutton Switches

A

Pushbutton



Features/Benefits

- Momentary or latching action
- Low cost, reliable contact design
- 2 & 4 pole configurations
- Sealed contacts
- Optional buttons
- RoHS compliant

Typical Applications

- Computers and peripherals
- Instrumentation and measurement equipment
- Non-power, on-off switch applications

Specifications

RATING: 1 A @ 15 V DC

DIELECTRIC STRENGTH (50 Hz/1 min.): 500 V DC between terminals or between terminals and frame for 1 minute

OPERATING LIFE: 10,000 cycles at rated load

CONTACT RESISTANCE: 20 m Ω ohms initial

INSULATION RESISTANCE: 100 M Ω ohms

TOTAL TRAVEL/LATCHING TRAVEL: 2.5mm (\pm 0.5 mm) / 1.5mm (\pm 0.5 mm) to latch EE option (push-push)

OPERATING FORCE:

2U option: 170 grams \pm 100 grams (1.67 \pm 0.98N)

4U option: 230 grams \pm 100 grams (2.26 \pm 0.98N)

OPERATING TEMPERATURE: -10°C to 60°C

BOUNCE TIME: \leq 10 ms

SEALING: Sealed contacts.

PACKAGING: Switches; PHB2 models: 84 pcs per tray; PHB4 models 72 pcs per tray
Optional Caps; Bulk bag - 100 caps per bag

Materials

FIXED TERMINAL: Brass, silver plated

MOVABLE CONTACT: Phosphor bronze, silver plated

COVER: PA 66 Black

COVER TO BASE RETAINING CLIP: POM

ACTUATOR: POM

RETURN SPRING: Stainless steel

SPRING RETAINING RING: Steel, nickel plate

BASE: Phenolic resin

TERMINAL SEAL: Epoxy.

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

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. For additional options not shown in catalog, consult Customer Service Center.

Switch



Contact Arrangement

2U 2 Changeovers

4U 4 Changeovers

Mechanical Function

OA Momentary

EE Push-push

Termination

TS Straight

SN Kinked (plug in)

Electrical Rating

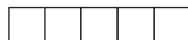
1A 1 Amp / 15 VDC

Contacts / Timing

Blank Shorting

NS Non Shorting

Caps (order separately)



INDEXED	COLOR
G001A	BLACK
G001G	GRAY
G001I	IVORY
G001R	RED

RECTANGULAR	COLOR
G002A	BLACK
G002G	GRAY
G002I	IVORY
G002R	RED

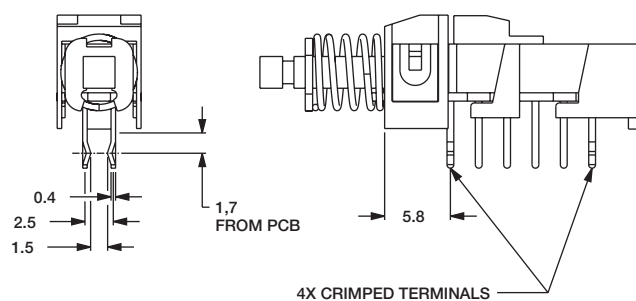
ROUND	COLOR
G003A	BLACK
G003G	GRAY
G003I	IVORY
G003R	RED

SQUARE	COLOR
G004A	BLACK
G004G	GRAY
G004I	IVORY
G004R	RED

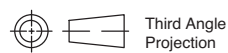
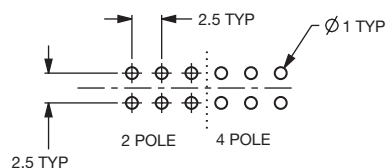
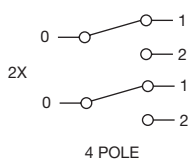
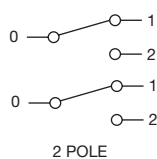


23 Aug 19

TS STRAIGHT



POLES	MODEL NO.	DIM 'A'	ACTION
4	PHB4UEE1A	22,5	PUSH/PUSH
	PHB4U0A1A	22,5	MOMENTARY
2	PHB2UEE1A	15,0	PUSH/PUSH
	PHB2U0A1A	15,0	MOMENTARY



Dimensions are shown: mm
Specifications and dimensions subject to change



PHB Series Short Stroke Pushbutton Switches

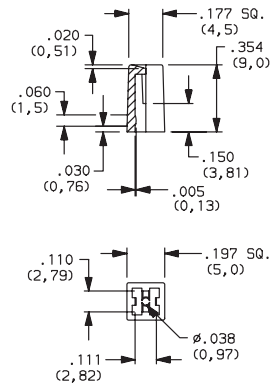
CAPS

A

Pushbutton

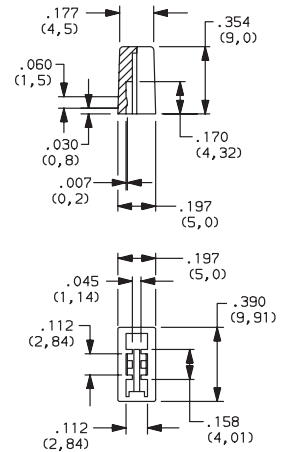
Indexed

- G001A** Black
- G001G** Gray
- G001I** Ivory
- G001R** Red



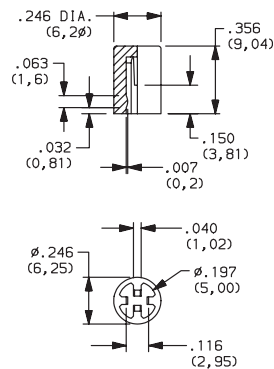
Rectangular

- G002A** Black
- G002G** Gray
- G002I** Ivory
- G002R** Red



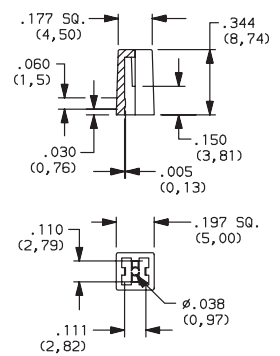
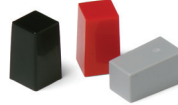
Round

- G003A** Black
- G003G** Gray
- G003I** Ivory
- G003R** Red



Square

- G004A** Black
- G004G** Gray
- G004I** Ivory
- G004R** Red



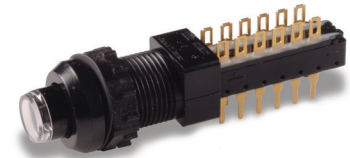


Features/Benefits

- Up to 10 poles per module
- Various contact terminals
- Various mounting & switch ganging configurations
- Mechanical indicator buttons
- RoHS compliant

Typical Applications

- Audio selection
- Digital equipment interface
- Medical equipment interface



Specifications

SWITCHING POWER: F module max. AC/DC: Silver: 50 VA/15W, Gold: 1 VA/300 mW.

SWITCHING VOLTAGE: F module max. AC/DC: Silver: 125/30V, Gold: 50/30 V.

SWITCHING CURRENT: F module max. AC/DC: Silver: 0.5A/0.5A, Gold: 0.04A/0.01A.

CARRYING CURRENT: Max at $\Delta u = 20^{\circ}\text{C}$: Silver: < 2A, Gold: <0.5A.

DIELECTRIC STRENGTH (50 Hz, 1 min.): Chassis/contact: $\geq 1500\text{V}$
Between contacts: $\geq 1500\text{V}$.

OPERATING LIFE "OA/EE" (24V/200mA): $> 10^5$ operations
"GR": $> 3.5 \times 10^4$ operations.

CONTACT RESISTANCE: Initial: Typical $\leq 10\text{ m}\Omega$, max. 20 m Ω
After operating life: $\leq 100\text{ m}\Omega$

INSULATION RESISTANCE: $\geq 10^9\ \Omega$ between open contacts,
 $\geq 10^9\ \Omega$ between chassis and contacts.

CAPACITANCE (at $f = 10\text{ kHz}$): $\leq 0.7\text{ pF}$ between 2 contacts.

TOTAL TRAVEL/LATCHING TRAVEL: 4.7mm/3.3mm (.185 inch/
.130 inch).

All models and options are RoHS compliant and compatible.

NOTE: All models and options are RoHS compliant and compatible.

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

TYPICAL F OPERATING FORCE: 2U: 6.5N (650 grams); 4U: 6.5N (650 grams); 6U: 7.5N (750 grams); 8U: 9.0N (900 grams); 10U: 9.0N (900 grams).

EUROPEAN TYPICAL SF OPERATING FORCE:

2U: $3.5\text{N} \pm 0.5\text{N}$ (350 grams ± 100 grams); 4U: $5\text{N} \pm 1\text{N}$ (500 grams ± 100 grams); 6U: $6.5\text{N} \pm 1\text{N}$ (650 grams ± 100 grams); 8U: $9.0\text{N} \pm 1\text{N}$ (900 grams ± 100 grams).

OPERATING TEMPERATURE RANGE: -40°C to 70°C .

Materials

HOUSING: Polycarbonate UL 94V-0 or polyester UL 94V-0.

ACTUATOR: Polyester UL 94V-0.

MOVABLE CONTACTS: Bimetal brass, silver plated, gold plate over nickel.

STATIONARY CONTACTS & TERMINALS: Brass, silver plated, gold plated.

TERMINAL BOARD: Polyester UL 94V-0.

RETURN SPRING: Music wire.

TERMINAL SEAL: RTV adhesive sealant.

CHASSIS: Steel.

LOCKOUT PIN: Steel.

BLOCKERS: Steel.

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-88 thru A-95. For additional options not shown in catalog, consult Customer Service Center.

If requesting only a switch, select either a North American or European switch as noted below. Chassis and buttons are sold separately. If multiple stations are selected, we will assume all switches are the same unless noted otherwise.

North American Order Code - Switch Only



Designation

- F** F Series
FLT Light touch F series
ZF Central mounted F series

Contact Arrangement

- 2U** 2PDT
4U 4PDT
6U 6PDT
8U 8PDT
10U 10PDT

Mechanical Function

- OA** Momentary
EE Alternate (push-push)
GR Interlock
AOR Central release
OASP Momentary with lockout
GRSP Interlock with lockout

Terminal Sealing

- (NONE)** None
TB Top/bottom

Terminal Style

- (NONE)** Solder lugs & PC pins
01A Cut solder lugs
01B Cut PC pins, for other configurations, consult factory

Electrical Function

- (NONE)** BBM Break-Before-Make
M MBB (special) Make-Before-Break

Contact Material

- (NONE)** Silver, AG
AU Gold

Dress nut*

*Central mounted F series only

- (NONE)** No dress nut
B Black
C Chrome



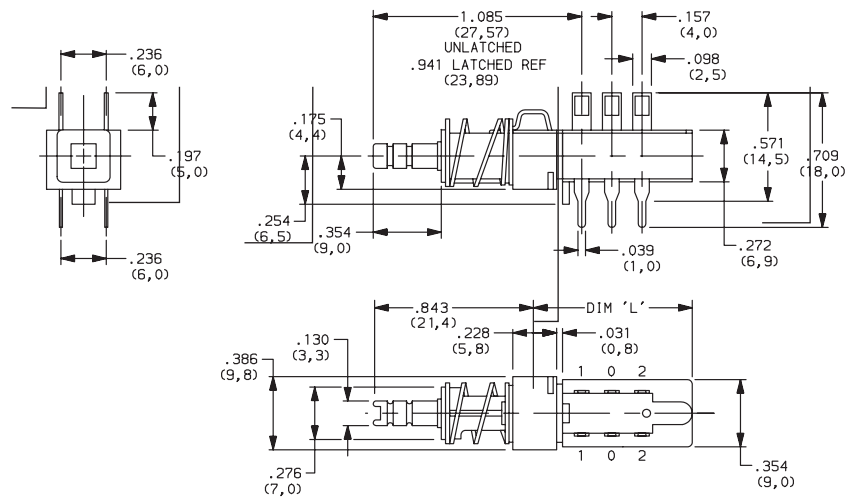
European Order Code - Switch Only



SWITCHES WITH STANDARD OPTIONS

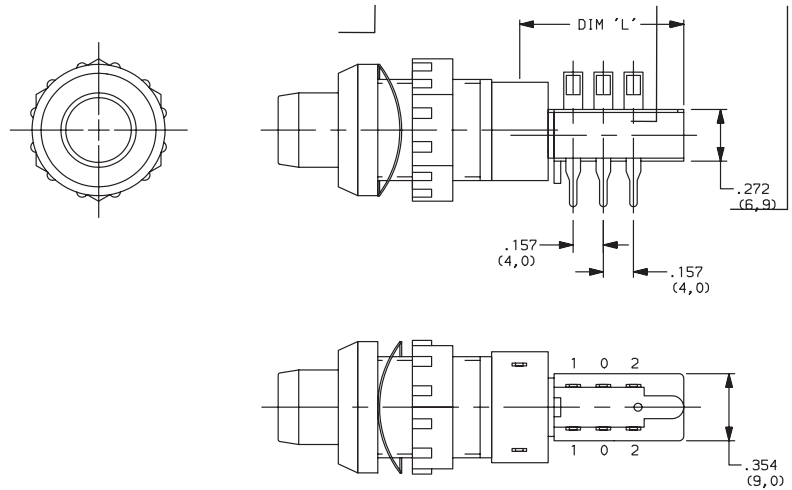
F2UEE

CONTACT ARRANGEMENT	LENGTH DIM 'L'
2U	0.827 (21,00)
4U	1.300 (33,00)
6U	1.770 (45,00)
8U	2.240 (57,00)
10U	2.720 (69,00)



ZF2UEEBF11010108

CONTACT ARRANGEMENT	LENGTH DIM 'L'
2U	0.827 (21,00)
4U	1.300 (33,00)
6U	1.770 (45,00)
8U	2.240 (57,00)
10U	2.720 (69,00)



DESIGNATION



Designation, North America

F F Series
FLT Light touch F series
ZF Central mounted F series

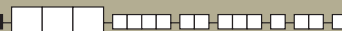
Designation, Europe

SF F Series
ZF Central mounted F series



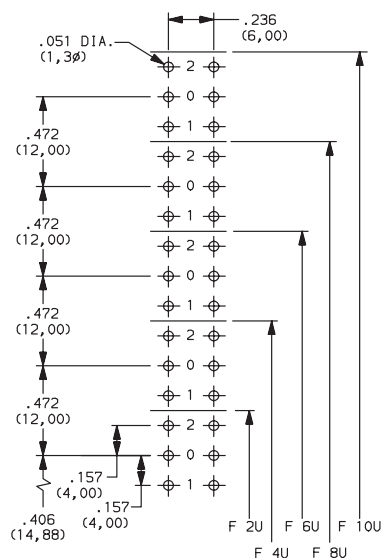
F Series Pushbutton Switches

CONTACT ARRANGEMENT



OPTION CODE	NO. OF POLES	SCHEMATIC
2U	2PDT	
4U	4PDT	
6U	6PDT	
8U	8PDT	
10U	10PDT	

PC MOUNTING



MECHANICAL FUNCTION



North America

OPTION CODE	FUNCTION
OA	Momentary
EE	Alternate (push-push)
GR	Interlock
AOR	Central release
OASP	Momentary with lockout
GRSP	Interlock with lockout

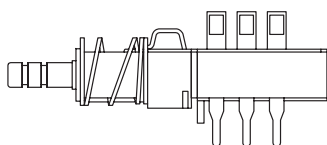
Europe

OPTION CODE	FUNCTION
OA	Momentary
EE	Alternate (push-push)
GR	Interlock

TERMINAL SEALING

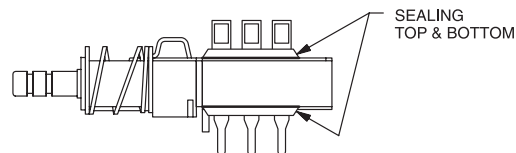


(NONE) NO SEAL



F2UEE shown in example above.

TB TOP & BOTTOM



SEALING
TOP & BOTTOM

NOTE: Available for North America only

F Series Pushbutton Switches

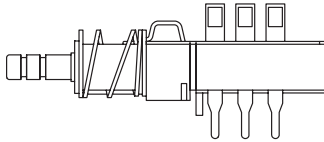


A
Pushbutton

TERMINAL STYLE

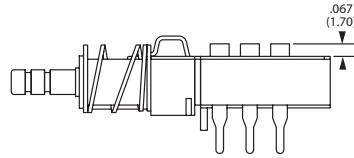


(NONE) SOLDER LUGS & PC PINS



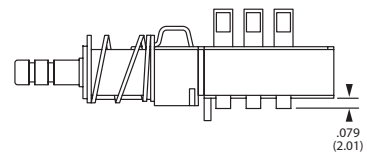
01A CUT SOLDER LUGS (North America)

LB CUT SOLDER LUGS (Europe)



01B CUT PC PINS (North America)

PB CUT PC PINS (Europe)



ELECTRICAL FUNCTION



OPTION CODE	FUNCTION
(NONE)	BBM Non-shorting
M	MBB Shorting (North America only)

CONTACT MATERIAL



NORTH AMERICA OPTION CODE	EUROPE OPTION CODE	RoHS COMPLIANT *	RoHS COMPATIBLE *	MATERIAL	RATING
(NONE)	(NONE)	YES	YES	SILVER, AG	50 VA/15 W; 125/30 V; 0.5/0.5 A
AU	P	YES	YES	GOLD	1 VA/300mW; 50/30 V; 0.04 A/0.01 A

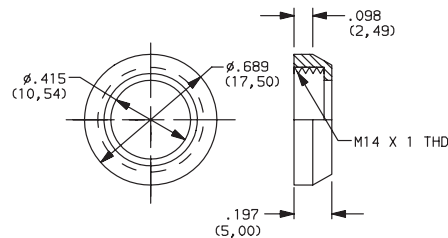
* Note: See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

DRESS NUT

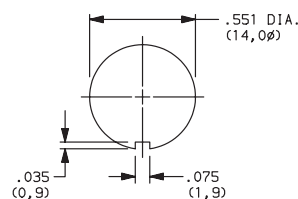


(NONE) NO DRESS NUT FOR F & F/LT DESIGNATIONS

B BLACK

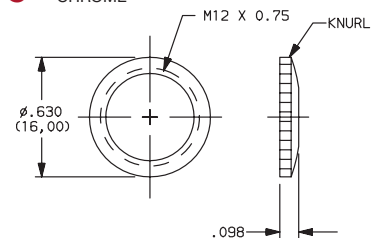


PANEL CUTOUT

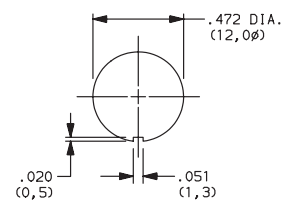


NOTE: Available with ZF designation and FA200 buttons.

C CHROME



PANEL CUTOUT



NOTE: Available with ZF designation and FG button.



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





F Series Pushbutton Switches

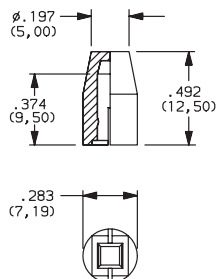
Pushbutton
A

SOLID BUTTON

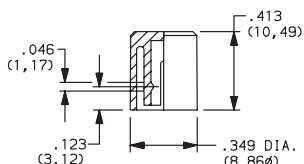


STYLE

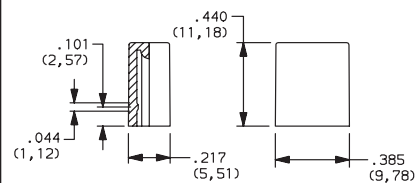
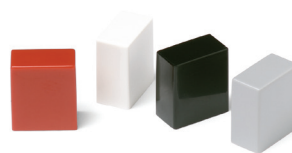
F01 FMR



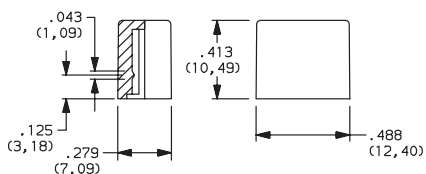
F02 FG



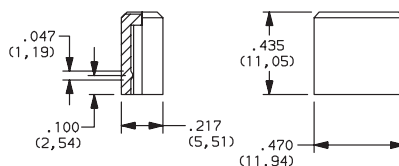
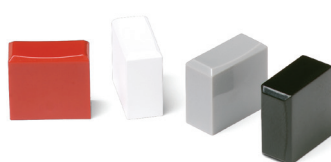
F12 FSC



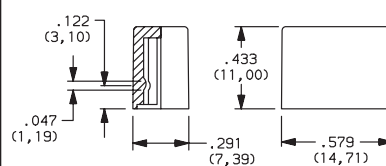
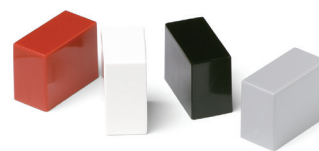
F13 FSD



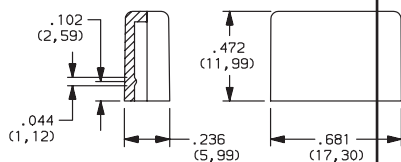
F14 FU12



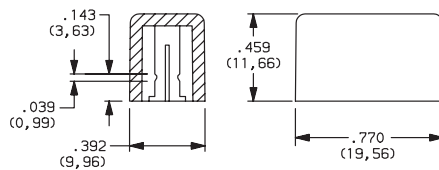
F15 FSB



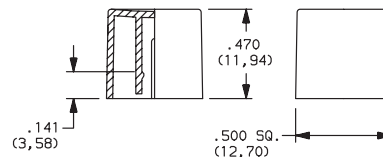
F16 FE



F19 FA



F21 F001



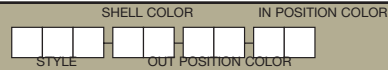
OPTION CODE	COLOR
01	BLACK
02	WHITE
03	RED
04	LT. GRAY

F Series Pushbutton Switches



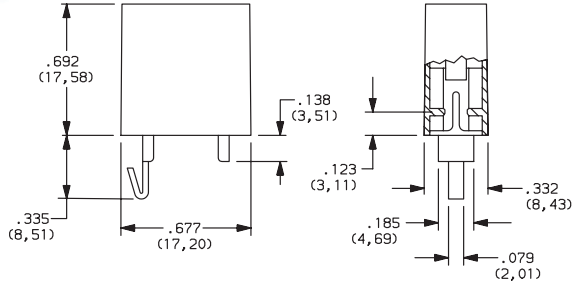
A
Pushbutton

MECHANICAL BUTTON

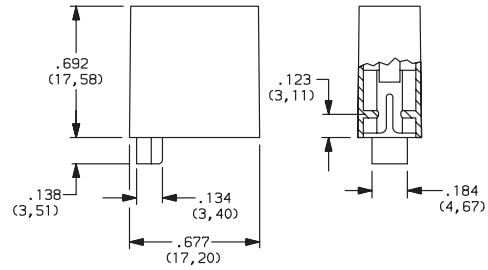


STYLE

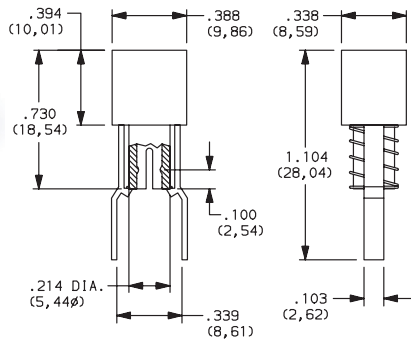
F01 FA100



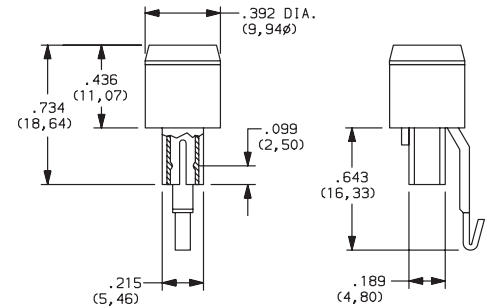
F02 FA101



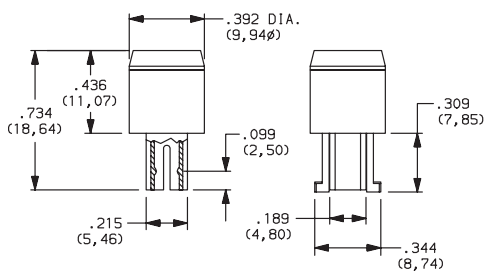
F07 FA120



F08 FA201



F11 FA200



SHELL COLOR

01 BLACK

OUT POSITION COLOR

01 BLACK

IN POSITION COLOR

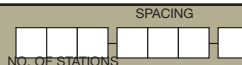
OPTION CODE	COLOR
02	WHITE
06	YELLOW
07	BLUE
08	GREEN
12	ORANGE



F Series Pushbutton Switches

Pushbutton
A

CHASSIS



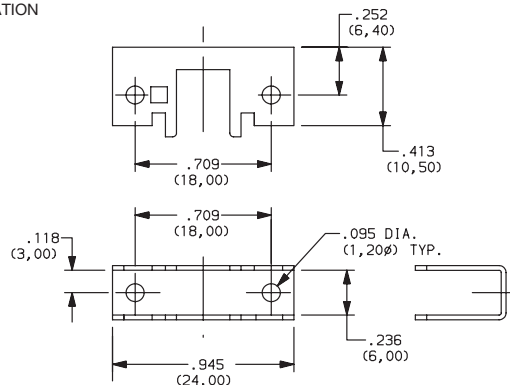
NUMBER OF STATIONS

C00 Thru C10 Comes with standard 0.094 (2,44mm) mounting holes

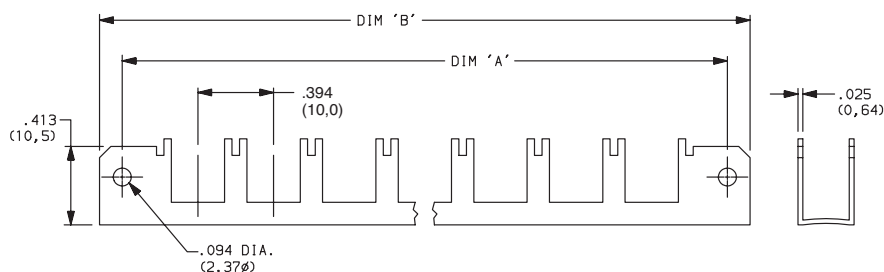
NOTE: Single station chassis available with mounting configurations, consult factory.

SPACING

00 SINGLE STATION

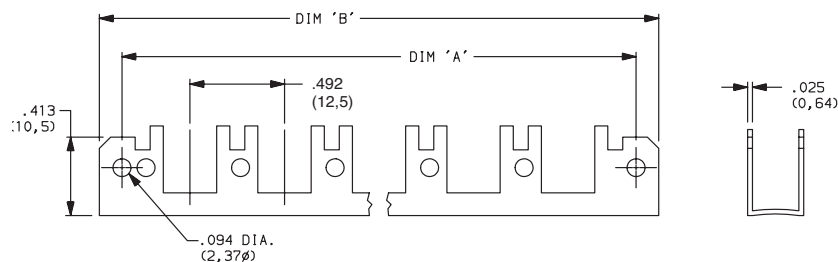


10 10mm



No. of Stations	Dim. 'A'	Dim. 'B'	Tolerance
2	1.182 (30,02)	1.418 (36,02)	0.005
3	1.575 (40,01)	1.811 (46,00)	0.010
4	1.969 (50,01)	2.205 (56,01)	0.010
5	2.363 (60,02)	2.599 (66,01)	0.010
6	2.757 (70,03)	2.993 (76,02)	0.015
7	3.150 (80,01)	3.386 (86,00)	0.015
8	3.544 (90,02)	3.780 (96,01)	0.015
9	3.938 (100,03)	4.174 (106,02)	0.015
10	4.331 (110,01)	4.567 (116,00)	0.015

12.5 12.5mm



No. of Stations	Dim. 'A'	Dim. 'B'	Tolerance
2	1.200 (30,48)	1.436 (36,47)	0.005
3	1.692 (42,98)	1.928 (48,97)	0.010
4	2.184 (55,47)	2.420 (61,47)	0.010
5	2.676 (67,97)	2.912 (73,96)	0.010
6	3.169 (80,49)	3.405 (86,49)	0.015
7	3.661 (92,99)	3.897 (98,98)	0.015
8	4.153 (105,49)	4.389 (111,48)	0.015
9	4.645 (117,98)	4.881 (123,98)	0.015
10	5.137 (130,48)	5.373 (136,47)	0.015



Third Angle
Projection

C&K

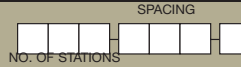
29 may 19

F Series Pushbutton Switches



A
Pushbutton

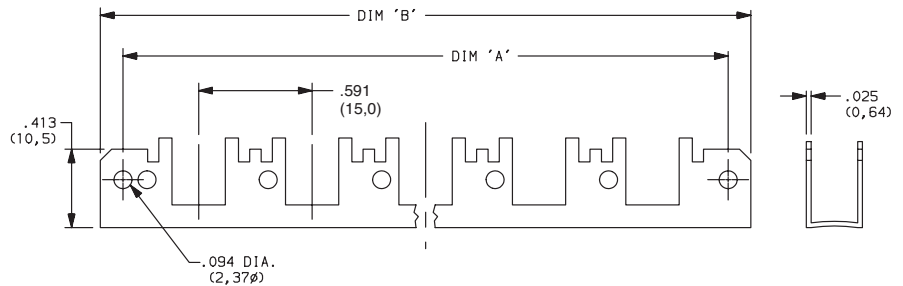
CHASSIS



SPACING

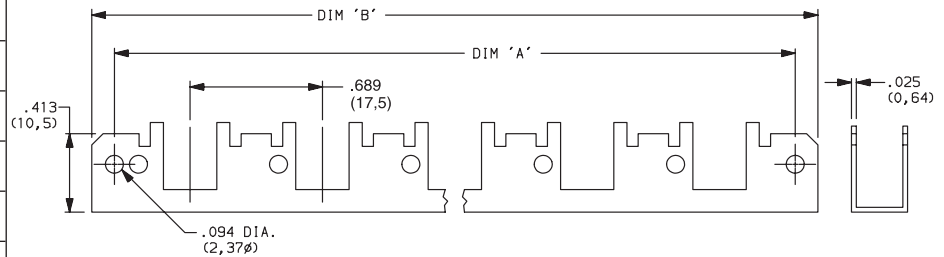
15 15mm

No. of Stations	Dim. 'A'	Dim. 'B'	Tolerance
2	1.374 (34,90)	1.615 (41,02)	0.005
3	1.969 (50,01)	2.205 (56,01)	0.010
4	2.560 (65,02)	2.796 (71,02)	0.010
5	3.150 (80,01)	3.386 (86,00)	0.010
6	3.741 (95,02)	3.977 (101,02)	0.015
7	4.332 (110,03)	4.568 (116,03)	0.015
8	4.922 (125,02)	5.158 (131,01)	0.015
9	5.513 (140,03)	5.749 (146,02)	0.015
10	6.103 (155,02)	6.339 (161,01)	0.015



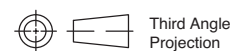
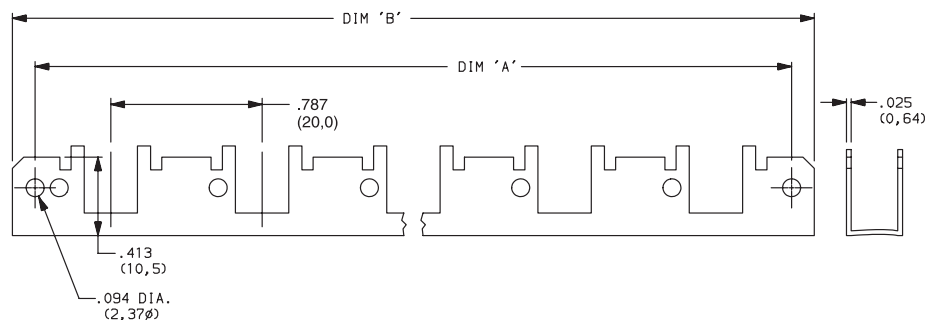
17.5 17.5mm

No. of Stations	Dim. 'A'	Dim. 'B'	Tolerance
2	1.477 (37,52)	1.713 (43,51)	0.005
3	2.166 (55,02)	2.402 (61,01)	0.010
4	2.855 (75,52)	3.091 (78,51)	0.010
5	3.544 (90,02)	3.780 (96,01)	0.010
6	4.233 (107,52)	4.469 (113,51)	0.015
7	4.922 (125,02)	5.158 (131,01)	0.015
8	5.611 (142,52)	5.847 (148,51)	0.015
9	6.300 (160,02)	6.536 (166,01)	0.015
10	6.989 (177,52)	7.225 (183,52)	0.015



20 20mm

No. of Stations	Dim. 'A'	Dim. 'B'	Tolerance
2	1.575 (40,01)	1.811 (46,00)	0.005
3	2.363 (60,02)	2.599 (66,01)	0.010
4	3.150 (80,01)	3.386 (86,00)	0.010
5	3.938 (100,03)	4.174 (106,02)	0.010
6	4.725 (120,02)	4.961 (126,01)	0.015
7	5.512 (140,00)	5.748 (146,00)	0.015
8	6.300 (160,02)	6.536 (166,01)	0.015
9	7.087 (180,01)	7.323 (186,00)	0.015
10	7.875 (200,03)	8.111 (206,02)	0.015



Third Angle
Projection

C&K

29 may 19

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



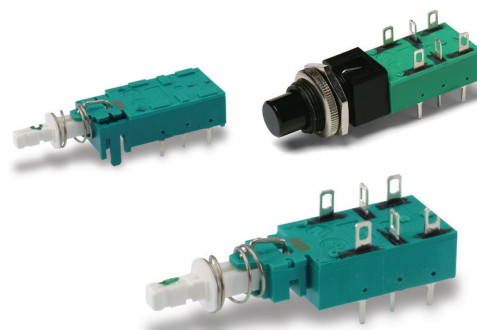
NE-18 Series Mains / Power Switches

Features/Benefits

- Chassis or panel mount
- Various buttons
- Various contact configurations
- RoHS compliant

Typical Applications

- Mains/power switching
- Consumer electronics
- Audio equipment
- Digital products



UL61058-1



Specifications

ELECTRICAL RATING:

NE18 Series:

- 8A GP, 125 VAC, 50/60 Hz, 1E4, T70
- 6A GP, 250 VAC, 50/60 Hz, 1E4, T70
- 6(4)A RM, 250 VAC, 50/60 Hz, 1E4, T70
- 6/48A RC, 250 VAC, 50/60 Hz, 1E4, T70
- 1RA, 100 VDC, 1E4, T70
- 8RA, 30VDC, 1E4, T70

NE18CTII Series:

- 4A GP, 250 VAC, 50/60 Hz, 1E4, T70
- 4/48A RC, 250 VAC, 50/60 Hz, 1E4, T70
- 1RA, 100 VDC, 1E4, T70
- 4RA, 30VDC, 1E4, T70

DIELECTRIC STRENGTH (50 Hz, 1 min.): 2000 V

OPERATING LIFE AT MAX. LOAD AND AT MAX. INRUSH
CURRENT: $\wedge 10^4$ operations⁵CONTACT RESISTANCE: Initial: 50m Ω ; After 10^4 operations: 70m Ω .INSULATION RESISTANCE: $\wedge 10^{12}$ Ω chassis – nearest contact;
 $\wedge 10^{12}$ Ω mains contact – mains contact; $\wedge 10^{12}$ Ω mains contact –
mains contact after 10^4 operations.

LOW VOLTAGE CONTACT:

SWITCHING POWER MAX.: 12W

SWITCHING VOLTAGE MAX.: 24V

SWITCHING CURRENT MAX.: 0.5A

TOTAL TRAVEL: 4.7mm (.185 inch)

LATCHING TRAVEL: 3.3mm (.130 inch)

OPERATING FORCE: Without auxiliary low voltage contacts:

NE18: 7N (700 grams); NE18CTII: 9.5N (950 grams).

With auxiliary low voltage contacts: NE18: 8N (800 grams);

NE18CTII: 11N (1100 grams).

SEALING: Dust proof.

Materials

HOUSING, ACTUATOR & TERMINAL BOARD: Thermoplastic polyester (UL 94V-0).

MOVABLE CONTACT: Silver nickel alloy, silver plated.

FIXED CONTACTS: Silver nickel alloy, silver plated.

COMMON CONTACTS & TERMINALS: Copper alloy, silver plated.

RETURN SPRING: Music wire.

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

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-97 thru A-104. For additional options not shown in catalog, consult Customer Service Center.

If requesting only a switch, select the switch as noted below. Buttons are sold separately.

<p>Designation</p> <p>NE18 NE1B</p> <p>ZNE18 Central mounted NE1B</p>	<p>Contact Arrangement</p> <p>NE18 code # - see list</p>	<p>Mechanical Function</p> <p>OA Momentary</p> <p>EE Alternate (push-push)</p>	<p>Single Station Chassis</p> <p>01 With .094 mounting holes</p> <p>(NONE) No chassis</p> <p>02 With 4-40 tapped mounting holes</p> <p>03 Special chassis (consult factory)</p>	<p>Dress nut*</p> <p>*Central mounted</p> <p>ZNE18 series only</p> <p>(NONE) No dress nut</p> <p>B Black</p> <p>C Chrome</p>
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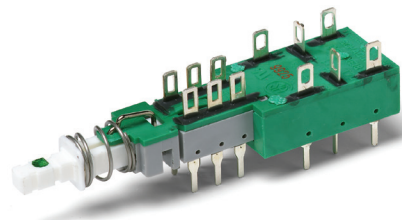
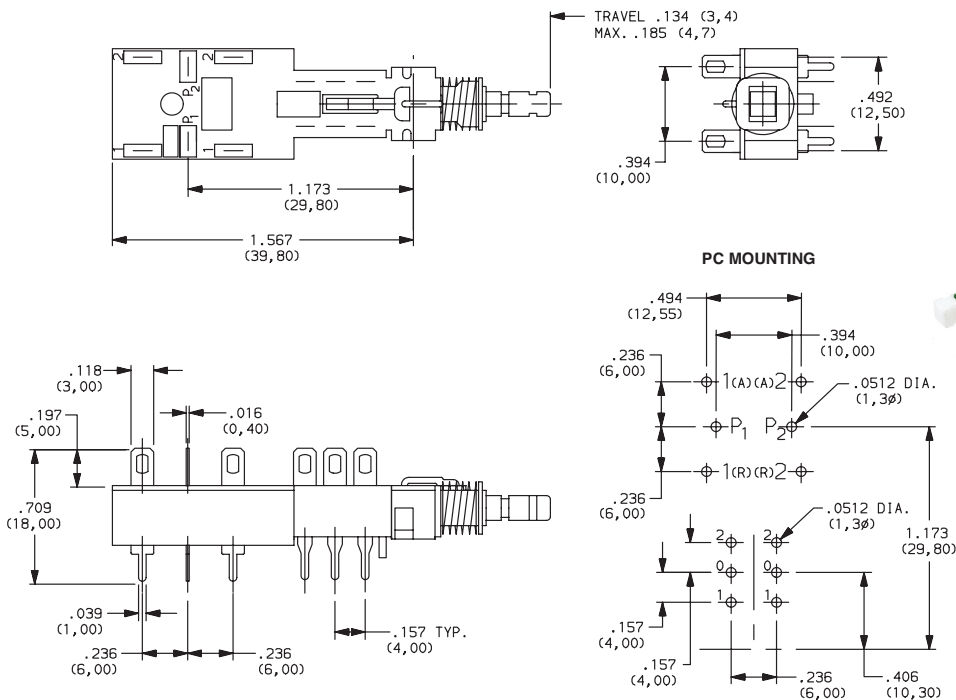


NE-18 Series Mains / Power Switches

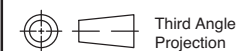
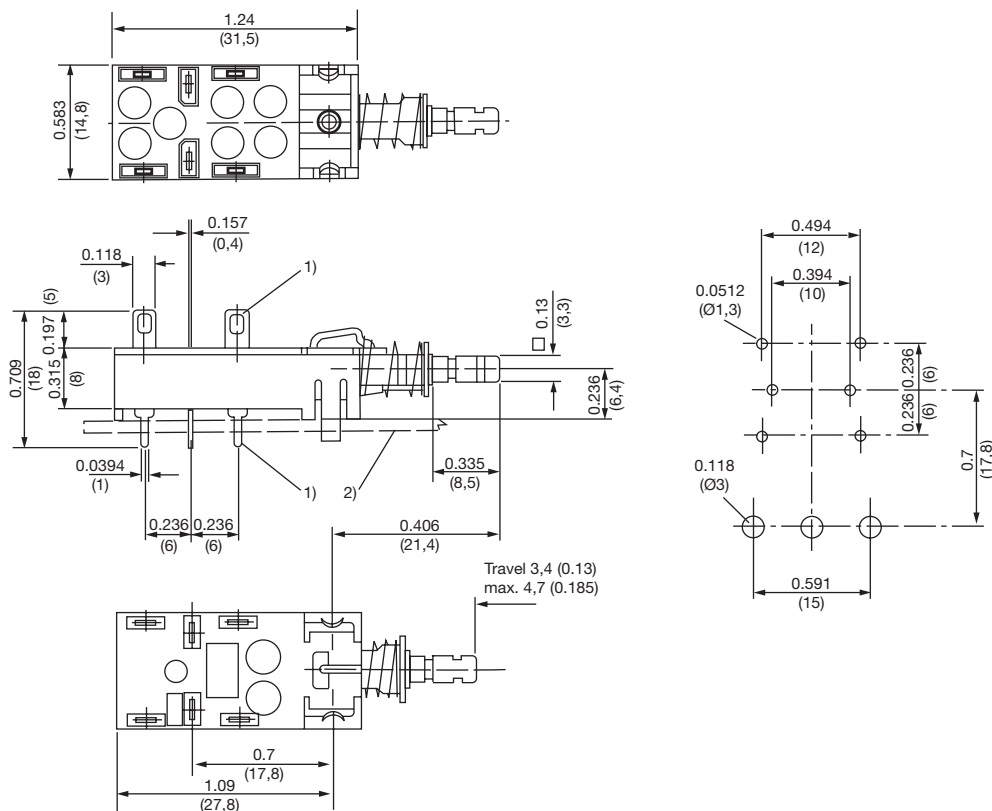
DESIGNATION & SWITCHES WITH STANDARD OPTIONS



NE1839EE



NE1846EE



Third Angle
Projection

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



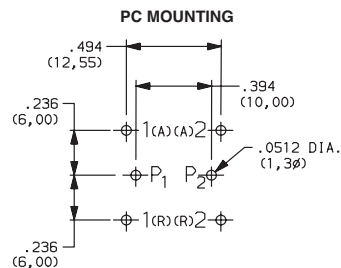
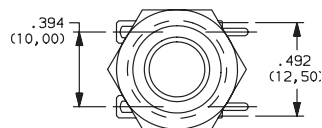
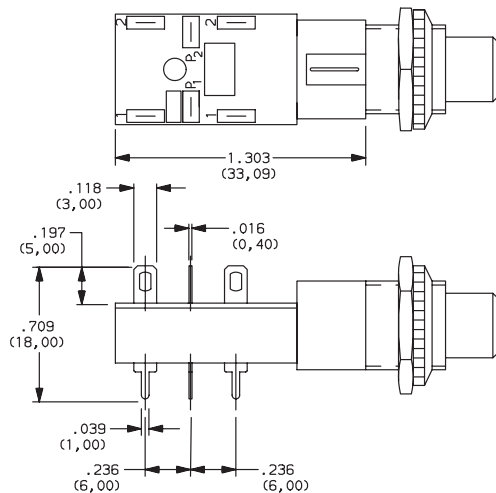
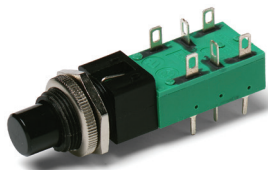
A

Pushbutton

DESIGNATION & SWITCHES WITH STANDARD OPTIONS



ZNE1838EECF0201





A

Pushbutton

NE-18 Series Mains / Power Switches

CONTACT ARRANGEMENT









OPTION CODE Contact capacity and availability	STYLE	ELECTRICAL CIRCUIT
37	NE18 — 2AX	DPST
38	NE18 — 2UX	DPDT
51	2U + NE18 — 2AX	DPST*
52 (4A/64)	NE18CTII — 2AX	DPST
39	2U + NE18 — 2UX	DPDT*
41	NE18 — 2AP	DPST
42	NE18 — 2UP	DPDT
43	NE18 — 2AW	DPST
44	NE18 — 2UW	DPDT
45	NE18 — 2ASX	DPST

* 2U + Denotes auxiliary set of low current contacts DPDT
 2A = DPST
 2U = DPDT
 S = Snap-in mounting
 X = Solder lug/PC pins
 W = Solder lugs only
 P = PC pins only

OPTION CODE Contact capacity and availability	STYLE	ELECTRICAL CIRCUIT
46	NE18 — 2USX	DPDT
47	NE18 — 2ASP	DPST
48	NE18 — 2USP	DPDT
49	NE18 — 2ASW	DPST
50	NE18 — 2USW	DPDT
53 (4A/64)	2U + NE18CTII — 2AX	DPST
54	2U + NE18 — 2AW	DPST
55	2U + NE18 — 2AP	DPST
56	2U + NE18 — 2UW	DPDT
57	2U + NE18 — 2UP	DPDT

NOTES

1. Contact plating is silver on all Power Switches.
2. The electrical function is Break Before Make (BBM) on all Power Switches.
3. The terminals will be epoxy sealed.

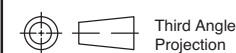
TYPE	POSSIBLE CONTACT ARRANGEMENT		CONTACT SPACING	PROTECTION CLASS (CEE 24)	APPROVALS
	POWER CONTACTS ¹	AUXILIARY CONTACTS			
NE18	2A ²	2U	> 3mm (.118 inch)	II	  ¹⁵ UL61058-1
NE18	2A ² 2U	2U	> 3mm (.118 inch)	I	  ¹⁵ UL61058-1
NE18CTII	2A ²	2U	> 3mm (.118 inch)	II	  ¹⁵ UL61058-1

- 1) A = make contact, U = changeover contact
 2) With 2A mains contacts: Mounting only by PC pins is not sufficient.

MECHANICAL FUNCTION



OPTION CODE	FUNCTION
OA	Momentary
EE	Alternate (push-push)



Third Angle
Projection



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



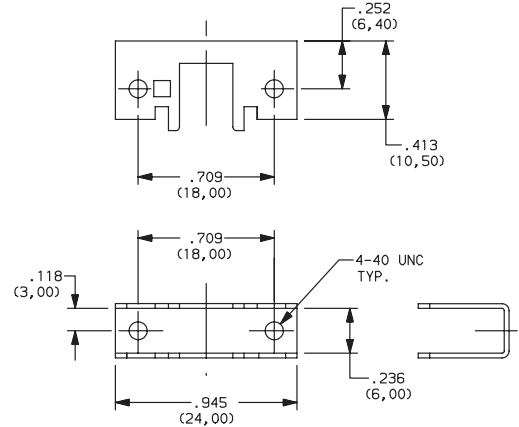
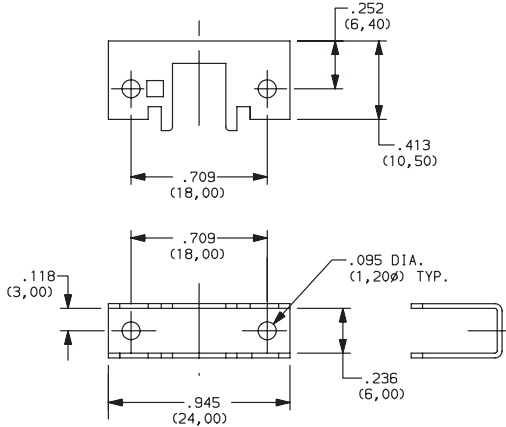
SINGLE STATION CHASSIS



01 WITH .094 MOUNTING HOLES

(NONE) NO CHASSIS

02 WITH 4-40 TAPPED MOUNTING HOLES



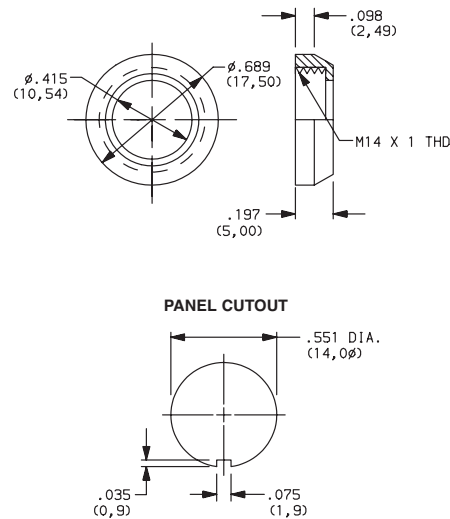
03 SPECIAL CHASSIS (CONSULT FACTORY)

DRESS NUT



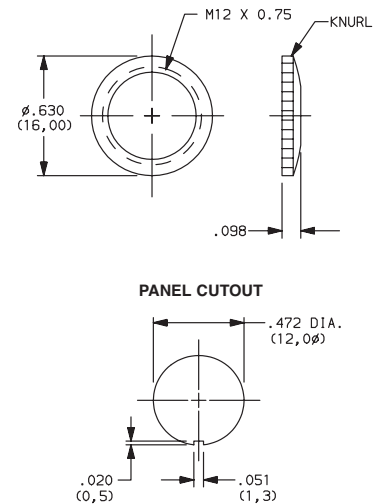
(NONE) NO DRESS NUT

B BLACK



NOTE: Available with ZNE18 designation and FA200 buttons.

C CHROME



NOTE: Available with ZNE18 designation and FG button.



NE-18 Series Mains / Power Switches

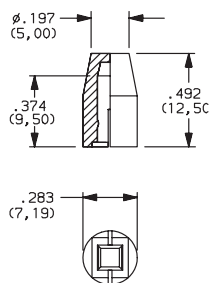
SOLID BUTTON



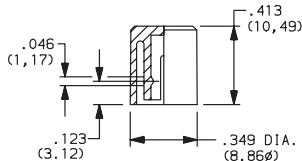
Pushbutton
A

STYLE

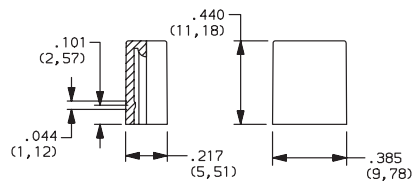
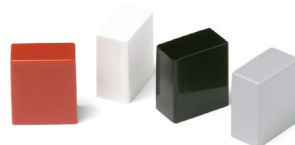
F01 FMR



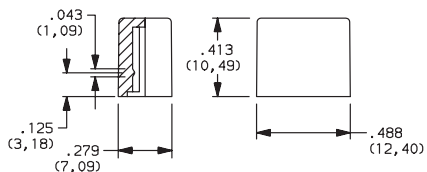
F02 FG



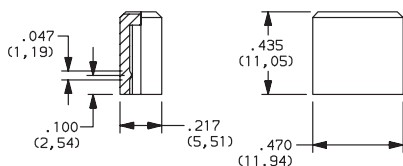
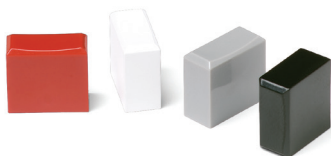
F12 FSC



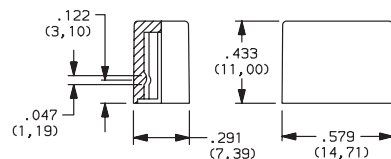
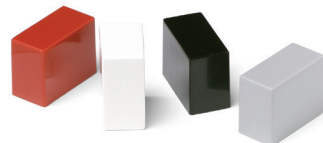
F13 FSD



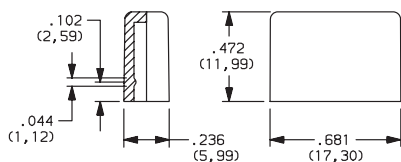
F14 FU12



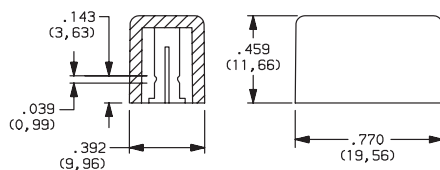
F15 FSB



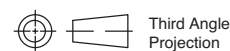
F16 FE



F19 FA



OPTION CODE	COLOR
01	BLACK
02	WHITE
03	RED
04	LT. GRAY



Third Angle
Projection

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

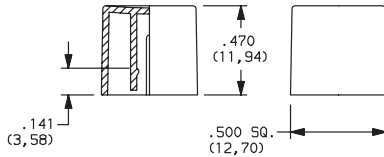


SOLID BUTTON



STYLE

F21 F001



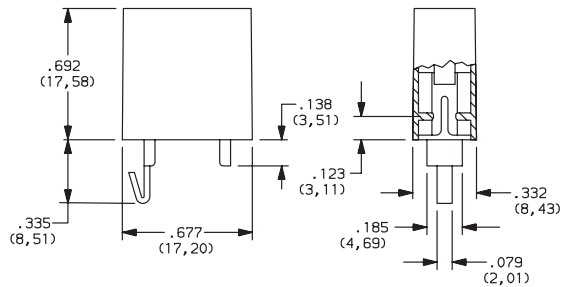
OPTION CODE	COLOR
01	BLACK
02	WHITE
03	RED
04	LT. GRAY
09	BLACK/CHROME (F03, F06 & F07 buttons only)

MECHANICAL BUTTON

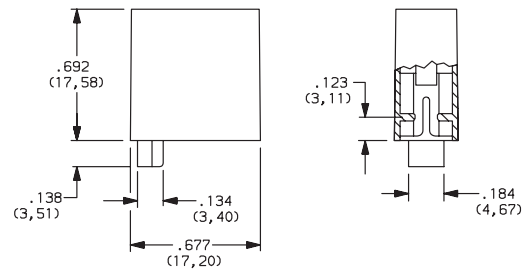


STYLE

F01 FA100



F02 FA101





NE-18 Series Mains / Power Switches

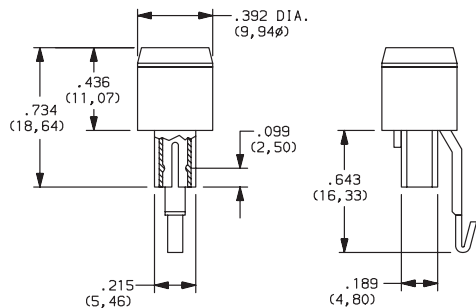
Pushbutton
A

MECHANICAL BUTTON

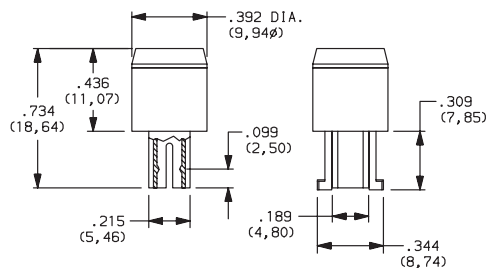
SHELL COLOR		IN POSITION COLOR	
STYLE	OUT POSITION COLOR		

STYLE

F08 FA201



F11 FA200



SHELL COLOR

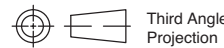
01 BLACK

OUT POSITION COLOR

01 BLACK

IN POSITION COLOR

OPTION CODE	COLOR
02	WHITE
06	YELLOW
07	BLUE
08	GREEN
12	ORANGE



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

NEW

Sealed Ultra Miniature Pushbutton Switches

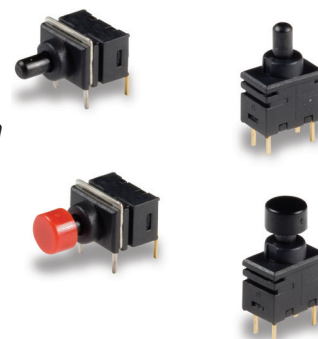
FP Series**A****Pushbutton**

Features/Benefits

- Ultra-miniature pushbutton
- Multiple poles and throws
- Long life 100,000 cycles
- Vertical and right angle mount
- Sealed against soldering and cleaning processes
- Optional caps
- RoHS compliant

Typical Applications

- Networking equipment
- High-end consumer
- Professional instrumentation
- Computer, Server, Modem & Data storage



Specifications

CONTACT RATING: Max. 0.4 VA (28 V DC or V AC)

ELECTRICAL LIFE: 50,000 cycles (FP11 & FP21)
10,000 cycles (FP12 & FP22)

CONTACT RESISTANCE: (10mA @ 2 V DC) 80 mΩ max. initial

INSULATION RESISTANCE: 500MΩ min. @ 500 V DC - 1 minute

OPERATING TEMPERATURE: -20°C to 80°C

SOLDERABILITY: Per MIL-STD-202F method 208D, or
EIA RS-186E method 9

PACKAGING:

- Tray pack - 25 pcs per tray (A1 type terminal)
- 100 pcs per tray (C1 type terminal)
- Caps (optional) - Bulk bag; 100 caps per bag.

Materials

MOVABLE CONTACTS:

Base metal: Phosphor bronze

Plating: Gold over nickel plate

FIXED CONTACTS:

Base metal: Brass

Plating: Gold over nickel plate

COVER: PA66 - Black

ACTUATOR: PPS - Black

BASE: PPS - Black

SUPPORT BRACKET: Steel with tin plate
(A1 type terminal only)

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

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-106 thru A-107. For additional options not shown in catalog, consult Customer Service Center.

Designation FP11 SPST N.O. FP12 SPDT N.O. FP21 DPST N.O. FP22 DPDT N.O.	Actuator Length SP Standard plunger 3.3mm	Terminal Style C1 Vertical A1 Right Angle	Contact Plating B1 Gold over nickel plate	Packaging TP Tray packaging	Cap 00 No cap 01 White cap - bulk bagged 02 Black cap - bulk bagged 03 Red cap - bulk bagged
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13 Mar 20

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



FP Series Sealed Ultra Miniature Pushbutton Switches

NEW

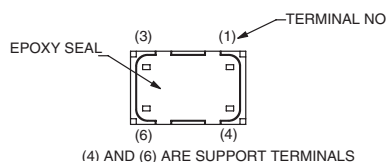
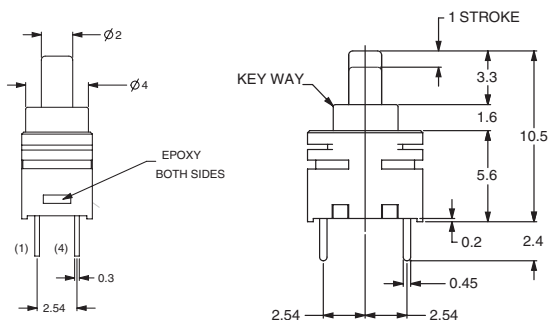
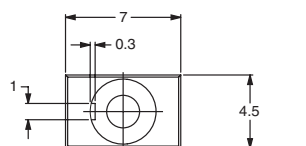
Pushbutton
A

SWITCH CIRCUIT

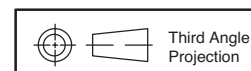
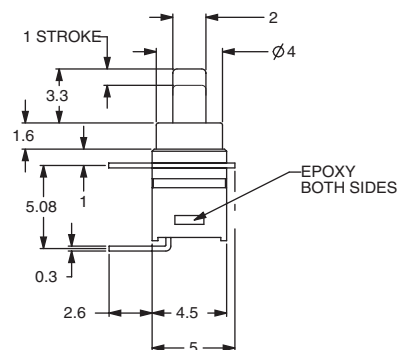
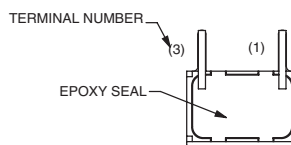
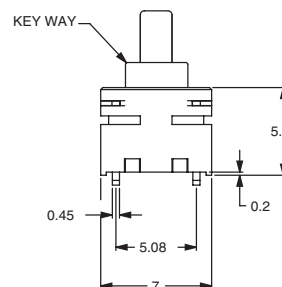
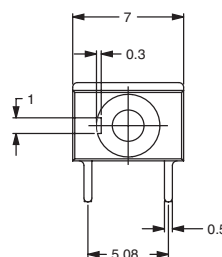
CIRCUIT	MODEL NO.	SWITCH FUNCTION		SCHEMATIC
		POS. 1	POS. 2	
SPST	FP11	OFF	MOM	
		CONNECTED TERMINALS		
		OPEN	1-3	
SPDT	FP12	ON	MOM	
		CONNECTED TERMINALS		
		2-3	2-1	
DPST	FP21	OFF	MOM	
		CONNECTED TERMINALS		
		OPEN	1-3,4-6	
DPDT	FP22	ON	MOM	
		CONNECTED TERMINALS		
		2-3,5-6	2-1,5-4	

TERMINAL STYLE

C1 VERTICAL



A1 RIGHT ANGLE



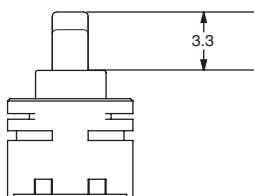
NEW

FP Series Sealed Ultra Miniature Pushbutton Switches

**A**

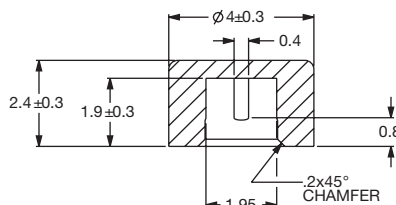
Pushbutton

ACTUATOR LENGTH

SP STANDARD PLUNGER 3.3MM


CAPS

OPTION CODE	DESCRIPTION
00	NO CAP
01	WHITE CAP, BULK BAGGED
02	BLACK CAP, BULK BAGGED
03	RED CAP, BULK BAGGED

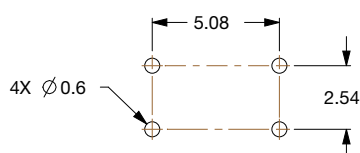
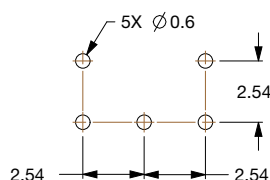
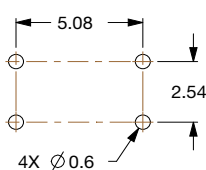
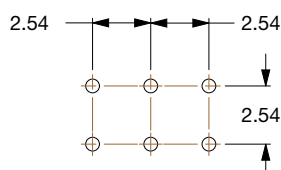
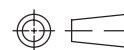
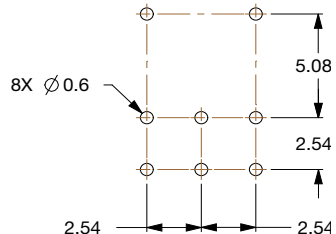
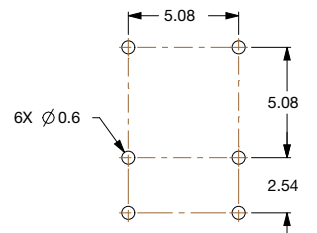
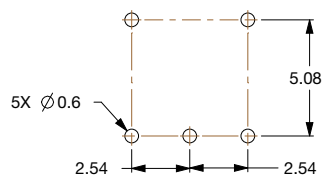
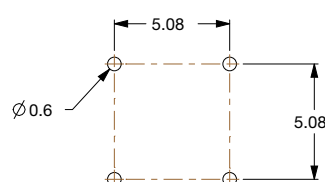


To purchase Caps separately without switch, please use these part numbers

PART #	COLOR
798D01000	WHITE
798D02000	BLACK
798D03000	RED

MOUNTING HOLE

C1 VERTICAL

FP11

FP12

FP21

FP22

A1 RIGHT ANGLE

 Third Angle
Projection

Dimensions are shown: mm

Specifications and dimensions subject to change

C&K

13 Mar 20



AP Series Industrial Pushbutton Switch

Features/Benefits

- IP67 sealed
- 1,000,000 life cycle
- Illumination / non-illumination
- Multiple colored caps
- Threaded or snap-in mounting
- Caps available separately
- RoHS compliant

Typical Applications

- Harsh environments
- Off-Road
- Industrial
- Medical
- Transportation
- Joystick control modules
- Gaming
- Military



Specifications

FUNCTION: SPST Momentary
CONTACT ARRANGEMENT: N.O.
MOUNTING TYPE:
Snap-in (no panel seal)
Threaded body (hex nut, lock washer, and panel seal gasket provided)
Torque spec for threaded body: Do not exceed 8-9 in-lbs (0.9-1.0 N.m)

Mechanical

OPERATING LIFE: 1,000,000 cycles
TOTAL TRAVEL: 2.1 ± 0.2 mm
OPERATING POINT 1.55 ± 0.25 mm
OVER TRAVEL: 0.6 min.
OPERATING FORCE: $4N \pm 1N$ standard configuration; other force
option $2N \pm 0.5N$
VIBRATION: 10-500 Hz 10g Max
SHOCK: 60g 11ms sawtooth wave

Electrical

CONTACT RATING:
200mA @ 24 V DC resistive (500,000 cycles)
100mA @ 50 V DC resistive (500,000 cycles)
400mA @ 32 V AC resistive (500,000 cycles)
125mA @ 125 V AC resistive (1,000,000 cycles)

DIELECTRIC STRENGTH: 1000 V AC min.
INSULATION RESISTANCE: $1 \text{ G } \Omega$ @ 500 VDC
INITIAL CONTACT RESISTANCE 50 m Ω max (without wire leads)
BOUNCE TIME: <5 ms

Materials

HOUSING: PBT
BASE: PBT
CAP: PBT
ACTUATOR:
Illuminated: Clear polycarbonate
Non-illuminated: PBT
INTERNAL SEAL: Silicone rubber
TERMINALS: Copper alloy, gold over silver plating
MOVABLE CONTACT: Copper alloy, gold over silver plating
TERMINAL SEAL: Epoxy
WIRE LEADS: UL1569 Black 22 AWG

Operating Environment

OPERATING TEMPERATURE: -40°C to 85°C (+105°C non-illuminated)
ESD PROTECTION: 20 KV min.

Process Environment

SEALING: IP67 for threaded body
IP65 for snap-in version (no panel seal)

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

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box.

Designation _____ AP AP Series		Operating Force _____ 2 2 Newtons 4 4 Newtons		Actuator Style _____ D Dome / Convex C Concave E Extended Dome N None		Actuator Color _____ 0 No Cap 2 Black 3 Red 4 Orange 5 Yellow 6 Green 7 Blue 9 Gray		Illumination _____ 00 No LED* 01 Super White 02 Bi-color; Red (Green) 03 Red 05 Amber 06 Green 07 Super Blue 08 Bi-color; Amber (Green)		Terminal Seal _____ E Epoxy All models are epoxy sealed		Contact Material _____ B Gold		Termination _____ Z Solder Lug W 12" Wire Leads 22 AWG C*** PC Terminals		Bushing Style** _____ S** Snap-in plastic T Threaded plastic	
---	--	--	--	--	--	--	--	--	--	---	--	--	--	---	--	---	--

Please contact Customer Service for additional colors and paint / laser etched button options.

** No panel seal option
*** PC terminals not available with illumination

Contact Customer Service for additional hardware options.

* No LED available in short body only

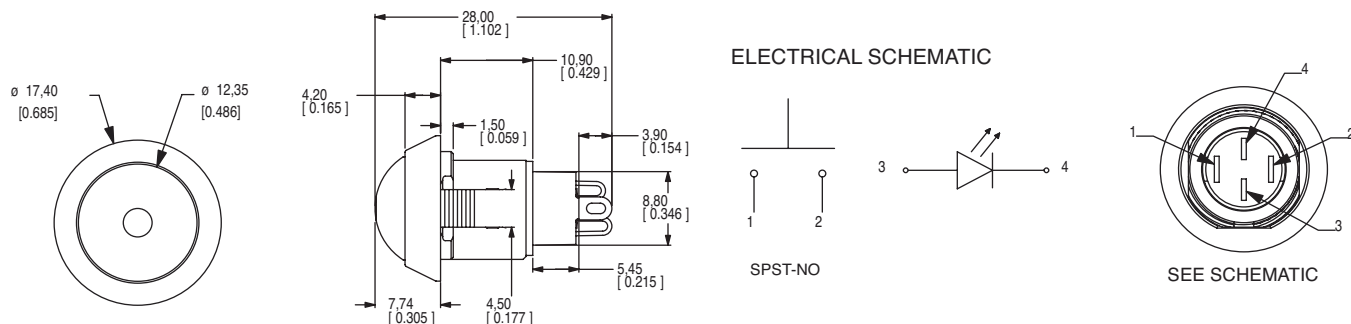
AP Series Industrial Pushbutton Switch



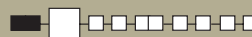
A

Pushbutton

STANDARD VIEW

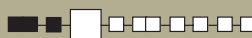


OPERATING FORCE

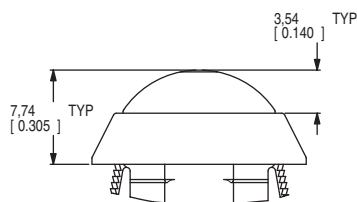


OPTION CODE	OPERATING FORCE
2	2 N, 200 g
4	4 N, 400 g

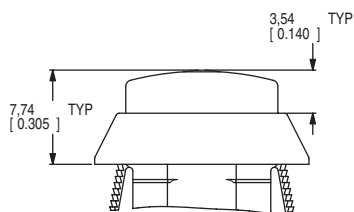
ACTUATOR STYLE



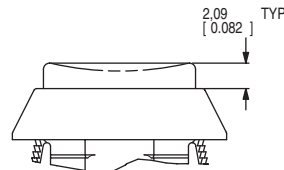
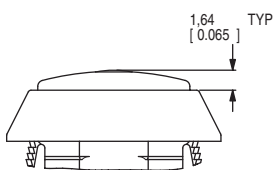
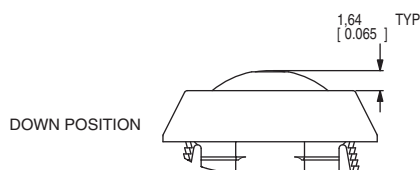
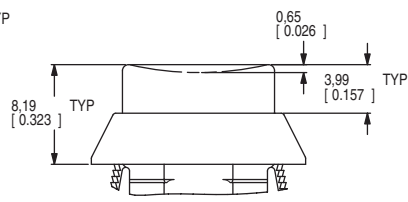
D DOME / CONVEX



E EXTENDED DOME



C CONCAVE

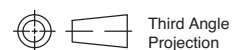


ACTUATOR COLOR



OPTION CODE	ACTUATOR COLOR
0	No Cap
2	Black
3	Red
4	Orange
5	Yellow
6	Green
7	Blue
9	Gray

For additional colors please contact Customer Service.



Third Angle
Projection



A

Pushbutton

AP Series Industrial Pushbutton Switch

ILLUMINATION



OPTION CODE	ILLUMINATION TYPE	TYPICAL INTENSITY*		PEAK WAVELENGTH	Vf Forward Voltage
		MIN	MAX		
		(mcd)		(nm)	
00	Model without illumination	N/A		N/A	
01	LED Super White	4,000	5,000	N/A	3.5
02	LED Bi-Color – Red (Green)	10	20	635/565	2.0
03	LED Red	4	8	700	2.0
05	LED Amber	35	50	610	2.0
06	LED Green	35	50	565	2.0
07	LED Super Blue	800	1,500	470	3.8
08	LED Bi-Color – Amber (Green)	10	10	585/565	2.0

*LED FORWARD CURRENT: 20 mA

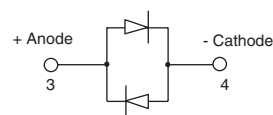
LED FORWARD VOLTAGE: see chart above

LED REVERSE VOLTAGE: 5.0 V MAX

* For information on specific and custom LED, please contact Customer Service.

NOTE:

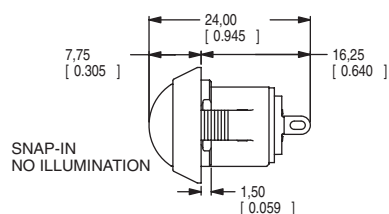
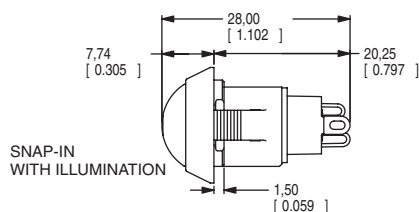
For bi-color LED's the polarity must be reversed to alternate the color



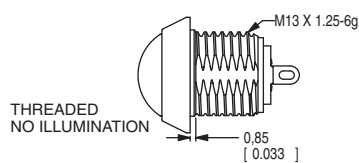
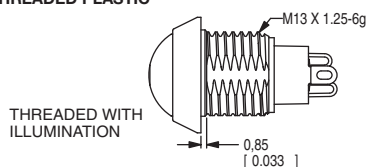
BUSHING STYLE



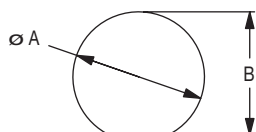
S SNAP-IN



T THREADED PLASTIC



PANEL CUTOUT



PANEL THICKNESS	DIM A (± 0.05 mm)	DIM B (± 0.05 mm)
1 mm [0.039 in]	13.70 mm [0.539 in]	13.00 mm [0.512 in]
2 mm [0.079 in]	13.80 mm [0.539 in]	13.00 mm [0.512 in]
3 mm [0.118 in]	13.90 mm [0.547 in]	13.10 mm [0.516 in]
THREADED BODY MIN PANEL THICKNESS 1 mm	13.70 mm [0.539 in]	13.00 mm [0.512 in]



A 0.1mm min. chamfer on the leading edge of the mounting hole is recommended for snap-in version.

are shown: mm (inches)
sions subject to change

ckswitches.com

AP Series Industrial Pushbutton Switch

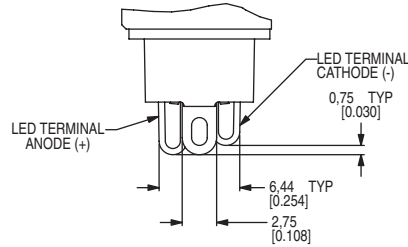
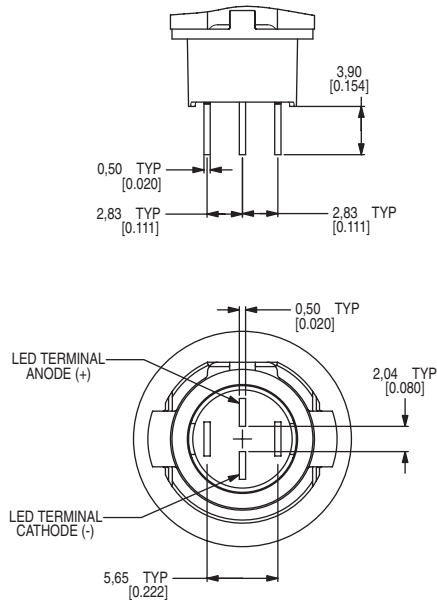


A
Pushbutton

TERMINATION



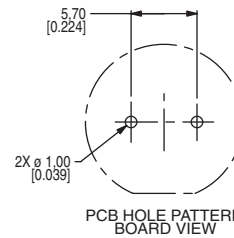
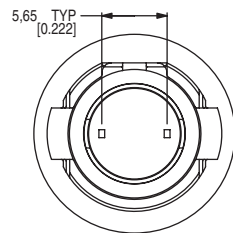
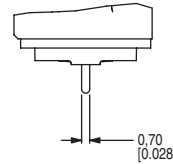
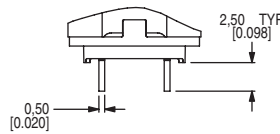
Z SOLDER LUG



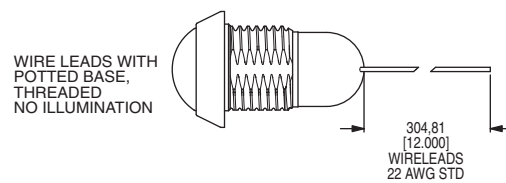
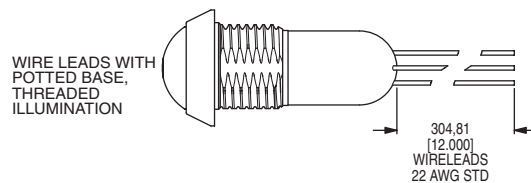
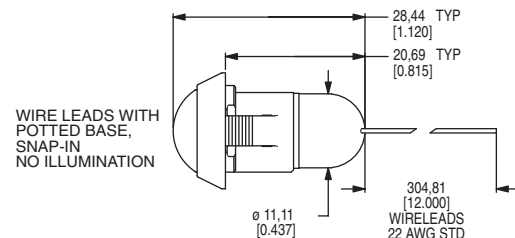
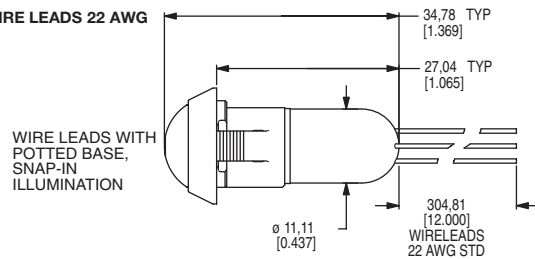
* Switching terminals are gold and LED terminals are silver

C PC TERMINALS

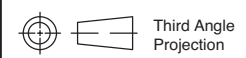
*** Illumination not available with PC Terminals



W 12" WIRE LEADS 22 AWG



Wires: Black wires - Terminals
Red wires - LED (+) Positive
White wire - LED (-) Negative



C&K

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



AP Series Industrial Pushbutton Switch

A

Pushbutton

CONTACT MATERIAL



B GOLD

OPTION CODE	CONTACT MATERIAL
B	Gold

TERMINAL SEAL



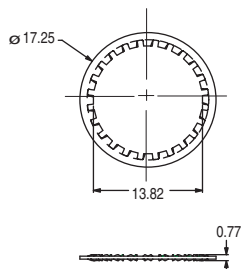
E EPOXY

All models are epoxy sealed

HARDWARE

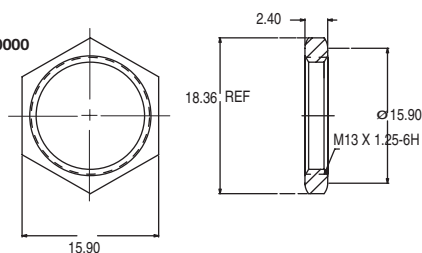
LOCK WASHER

Part Number 647D00000



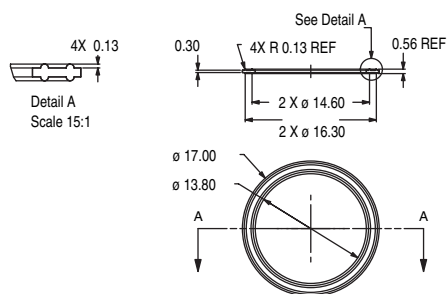
HEX NUT

Part number 515D00000



PANEL SEAL

Part Number 655D00000



Caps available on next page



Third Angle
Projection



AVAILABLE CAPS



481D **XX** **XXX**

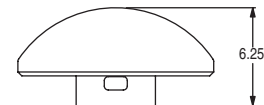
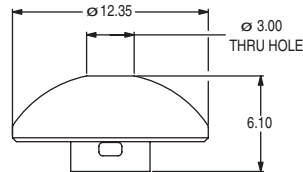
Cap Color ———
Style ———

OPTION	CAP COLOR
01	WHITE
02	BLACK
03	RED
04	ORANGE
05	YELLOW
06	GREEN
07	BLUE
08	BROWN
09	GRAY

PART NUMBER	HOLE	STYLE
481DXX000	NO	DOME
481DXX001	YES	DOME
481DXX002	NO	EXTENDED DOME
481DXX003	YES	EXTENDED DOME
481DXX004	NO	CONCAVE
481DXX005	YES	CONCAVE

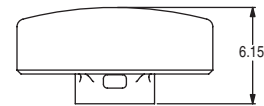
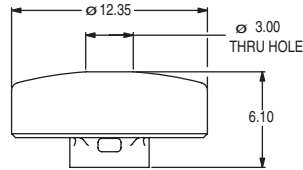
DOME

481DXX000 = NO HOLE
481DXX001 = HOLE



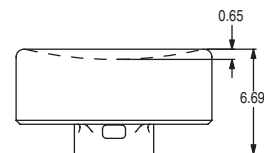
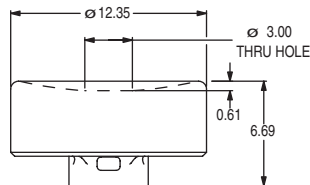
EXTENDED DOME

481DXX002 = NO HOLE
481DXX003 = HOLE



CONCAVE

481DXX004 = NO HOLE
481DXX005 = HOLE





APB Series Backlit Pushbutton Switch

Pushbutton
A

Features/Benefits

- IP67 sealed
- 1,000,000 life cycle
- Illumination
- Threaded or snap-in mounting
- RoHS compliant

Typical Applications

- Harsh environments
- Off-Road
- Industrial
- Medical
- Transportation
- Joystick control modules
- Gaming
- Military



Specifications

FUNCTION: SPST Momentary
CONTACT ARRANGEMENT: N.O.
MOUNTING TYPE:
Snap-in (no panel seal)
Threaded body (hex nut, lock washer, and panel seal gasket provided)
Torque spec for threaded body: Do not exceed 8-9 in-lbs (0.9-1.0 N.m)

Mechanical

OPERATING LIFE: 1,000,000 cycles
TOTAL TRAVEL: 2.1 ± 0.2 mm
OPERATING POINT 1.55 ± 0.25 mm
OVER TRAVEL: 0.6 min.
OPERATING FORCE: 4N ± 1N standard configuration; other force
option 2N ± 0.5N
VIBRATION: 10-500 Hz 10g Max
SHOCK: 60g 11ms sawtooth wave

Electrical

CONTACT RATING:
200mA @ 24 V DC resistive (500,000 cycles)
100mA @ 50 V DC resistive (500,000 cycles)
400mA @ 32 V AC resistive (500,000 cycles)
125mA @ 125 V AC resistive (1,000,000 cycles)

DIELECTRIC STRENGTH: 1000 V AC min.
INSULATION RESISTANCE: 1 G Ω @ 500 VDC
INITIAL CONTACT RESISTANCE 50 mΩ max (without wire leads)
BOUNCE TIME: <5 ms

Materials

HOUSING: PBT
BASE: PBT
CAP: Painted polycarbonate
ACTUATOR:
Illuminated: Clear polycarbonate
INTERNAL SEAL: Silicone rubber
TERMINALS: Copper alloy, gold over silver plating
MOVABLE CONTACT: Copper alloy, gold over silver plating
TERMINAL SEAL: Epoxy
WIRE LEADS: UL1569 Black 22 AWG

Operating Environment

OPERATING TEMPERATURE: -40°C to 85°C
ESD PROTECTION: 20 KV min.

Process Environment

SEALING: IP67 for threaded body
IP65 for snap-in version (no panel seal)

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

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box.

Designation _____ APB APB Series		Operating Force _____ 2 2 Newtons 4 4 Newtons		Cap _____ E Extended Dome (600E)		Illumination _____ 01 Super White 07 Super Blue		Bushing Style _____ S Snap-in plastic T Threaded plastic		Termination _____ Z Solder Lug W 12" Wire Leads 22 AWG		Cap Symbol _____ 000 Painted black over white without symbol* 001 Plus 002 Locked 003 Engine stop 004 Park brake release 005 Engine start 006 Fast 007 Slow 008 Unlocked 009 Rock shaft lower 010 Minus	
												Terminal Seal _____ E Epoxy	
												Contact Material _____ B Gold	

* cap painted black over white to allow customer laser etching

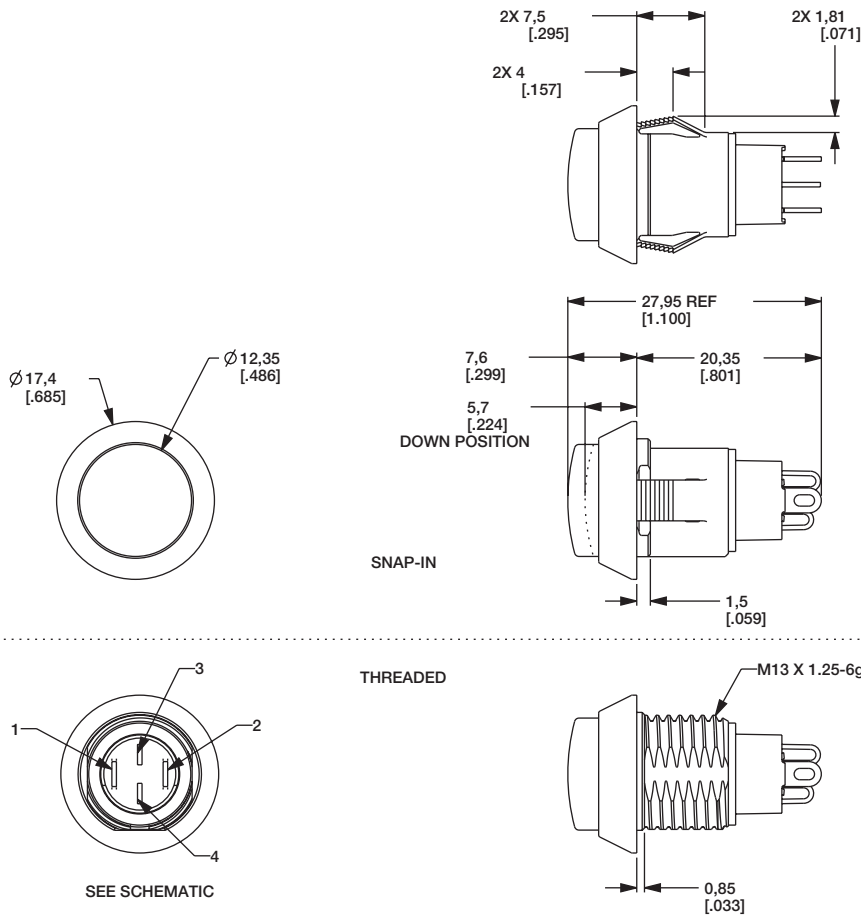


Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

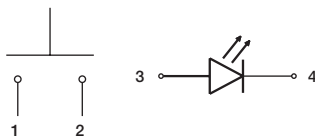
APB Series Backlit Pushbutton Switch



A
Pushbutton

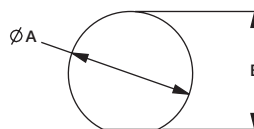


ELECTRICAL SCHEMATIC



SPST-NO-DB

PANEL CUTOUT



PANEL THICKNESS	DIM A (±0.05 MM)	DIM B (±0.05 MM)
1 MM [0.039 IN]	13.70 MM [0.539 IN]	13.00 MM [0.512 IN]
2 MM [0.079 IN]	13.80 MM [0.539 IN]	13.00 MM [0.512 IN]
3 MM [0.118 IN]	13.90 MM [0.547 IN]	13.10 MM [0.516 IN]
THREADED BODY MIN PANEL THICKNESS 1 MM	13.70 MM [0.539 IN]	13.00 MM [0.512 IN]

A 0.1 MM MIN CHAMFER ON THE LEADING EDGE OF MOUNTING HOLE IS RECOMMENDED FOR SNAP-IN VERSION.



Third Angle
Projection



APB Series Backlit Pushbutton Switch

TERMINATION

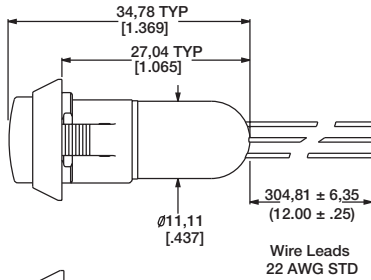
A

Pushbutton

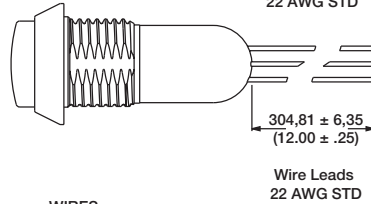
W 12" WIRE LEADS

Z SOLDER LUG

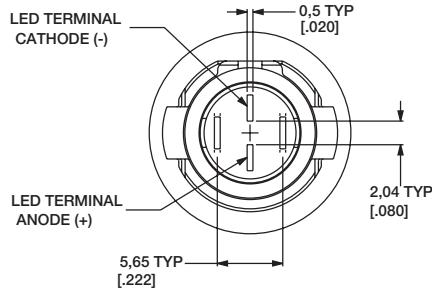
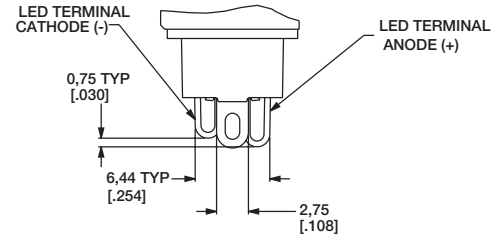
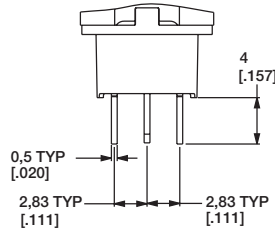
WIRE LEADS WITH
POTTED BASE,
SNAP-IN
ILLUMINATION



WIRE LEADS WITH
POTTED BASE,
THREADED
ILLUMINATION



WIRES:
BLACK - TERMINALS
RED - LED (+) POSITIVE
WHITE - LED (-) NEGATIVE



CONTACT MATERIAL



B GOLD

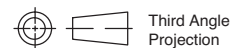
OPTION CODE	CONTACT MATERIAL
B	Gold

TERMINAL SEAL



E EPOXY

All models are epoxy sealed



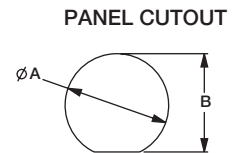
Third Angle
Projection



CAP SYMBOLS

	-000		NO SYMBOL
	-001		PLUS
	-002		LOCKED
	-003		ENGINE STOP
	-004		PARK BRAKE RELEASE
	-005		ENGINE START

	-006		FAST
	-007		SLOW
	-008		UNLOCKED
	-009		ROCK SHAFT LOWER
	-010		MINUS



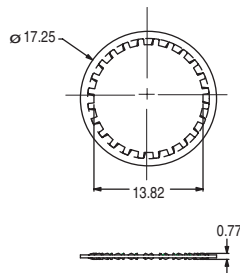
Panel Orientation
Flat indicates bottom

See chart on previous page
for dimensions

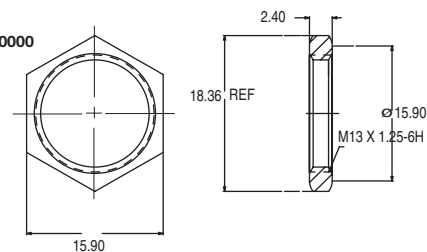
NOTES:
1. ALL GRAPHICS MUST BE POSITIONED AS SHOWN, PERPENDICULAR TO ALIGNMENT FEATURE ON UNDERSIDE OF CAP.
2. GRAPHIC MARKING MUST BE ALIGNED WITH THE FLAT FEATURE ON THE UNDERSIDE OF THE CAP AS SHOWN, TOLERANCE $\pm 3^\circ$

HARDWARE

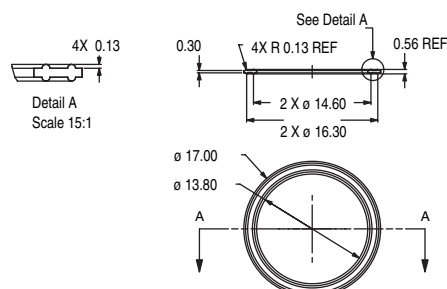
LOCK WASHER
Part Number 647D00000



HEX NUT
Part number 515D00000



PANEL SEAL
Part Number 655D00000





NP Series Sealed Industrial Pushbutton Switch

Features/Benefits

- IP68 sealed
- 1,000,000 life cycle
- Multiple housing styles
- Capable of up to 5A resistive load
- Wirelead options available
- RoHS compliant

Typical Applications

- Harsh environments
- Off-Road
- Industrial
- Transportation
- Military



Specifications

FUNCTION: SPDT Double Break (Form Z) Momentary
CONTACT ARRANGEMENT: N.O. and N.C.
MOUNTING TYPE: Threaded front or rear mount and slot mount
TORQUE SPEC FOR THREADED BODY: Do not exceed 50 in-lbs (5.65 N-m)

Mechanical

OPERATING LIFE: 1,000,000 cycles
TOTAL TRAVEL: 1.6 ± 0.15 mm
OPERATING POINT 0.9 ± 0.25 mm
OVER TRAVEL: 0.45 min.
OPERATING FORCE: 8N ± 1.5N
VIBRATION: 10-500 Hz 10g Max
SHOCK: 50g 11ms sawtooth wave

Electrical

CONTACT RATING:
Option G - Gold over Silver
10mA/5 VDC (1,000,000 cycles)
Option Q - Silver
1A/32 VDC resistive (100,000 cycles)
5A/32 VDC resistive (25,000 cycles)
3A/32 VDC resistive (25,000 cycles)

Electrical (cont.)

DIELECTRIC STRENGTH: 1000 V AC for 1 min.
INSULATION RESISTANCE: 1 G Ω @ 500 VDC
INITIAL CONTACT RESISTANCE 50 mΩ max (without wire leads)
BOUNCE TIME: <5 ms

Materials

HOUSING: 6061-T6 Aluminum, black or clear anodized
BASE: PBT
CAP: PBT
ACTUATOR: PBT
INTERNAL SEAL: Silicone rubber
TERMINALS: Copper with silver nickel inlay, silver plating
MOVABLE CONTACT: Copper alloy, gold over silver plating
TERMINAL SEAL: Epoxy

Operating Environment

OPERATING TEMPERATURE: -40°C to +85°C
ESD PROTECTION: 15KV min.

Process Environment

SEALING: IP68

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

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box.

Designation <u>NP</u> NP Series		Operating Force <u>8</u> 8 Newtons		Actuator Style <u>S</u> Standard <u>E</u> Extended (D housing style only)		Actuator Color* <u>1</u> White <u>2</u> Black (STD) <u>3</u> Red <u>4</u> Orange <u>5</u> Yellow <u>6</u> Green <u>7</u> Blue <u>9</u> Gray		Housing Style <u>T</u> Standard threaded mount <u>L</u> Long threaded mount <u>H</u> Short threaded mount <u>S</u> Slot mount <u>R</u> Rear mount <u>D</u> Dome bezel <u>P</u> Tapered bezel		Terminal Seal <u>E</u> Epoxy All models are epoxy sealed		Contact Material <u>Q</u> Silver (STD) <u>G</u> Gold over silver		Termination <u>03</u> Solder Lug (STD) <u>02</u> PC Pin (G Contact Material) <u>W4</u> 4x 12" 22 AWG UL1569 wire (overmolded) <u>W3</u> 3x 12" 22 AWG UL1569 wire (overmolded)		Housing Anodizing Color <u>1</u> Clear anodized <u>2</u> Black anodized (STD)	
--	--	---	--	--	--	--	--	--	--	---	--	---	--	---	--	--	--

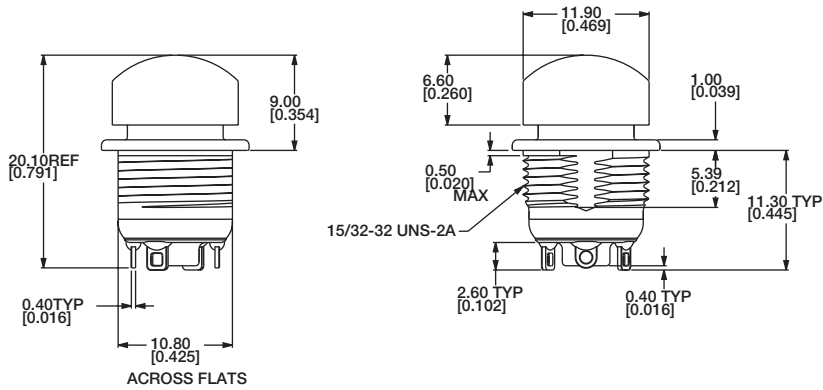
* Please contact Customer Service
for additional colors.

NP Series Sealed Industrial Pushbutton Switch

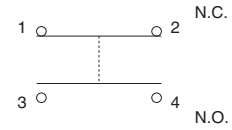


A
Pushbutton

STANDARD VIEW



ELECTRICAL SCHEMATIC



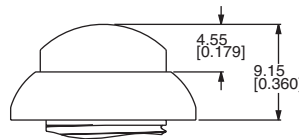
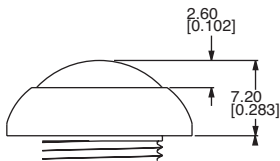
OPERATING FORCE

OPTION CODE	OPERATING FORCE
8	8 N

ACTUATOR STYLE

S STANDARD

E EXTENDED (D HOUSING STYLE ONLY)



ACTUATOR COLOR

OPTION CODE	ACTUATOR COLOR
1	White
2	Black
3	Red
4	Orange
5	Yellow
6	Green
7	Blue
9	Gray

For additional colors please contact Customer Service.



Third Angle
Projection



4 May 20

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

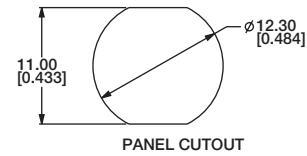
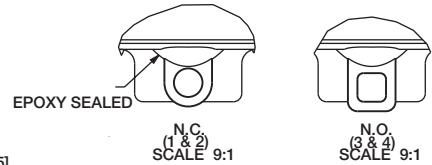
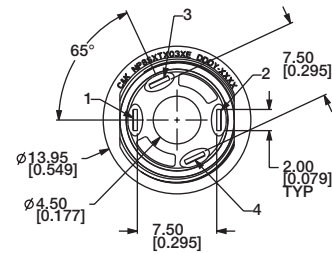
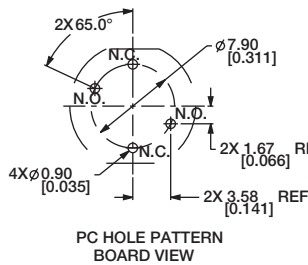
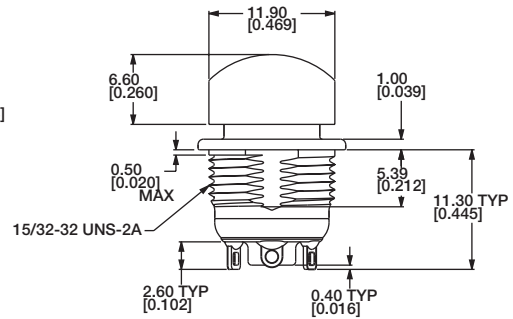
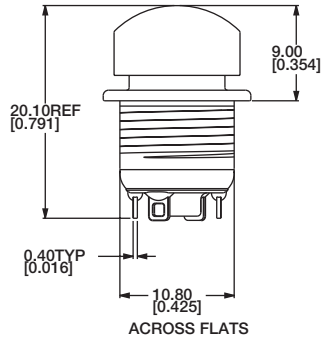
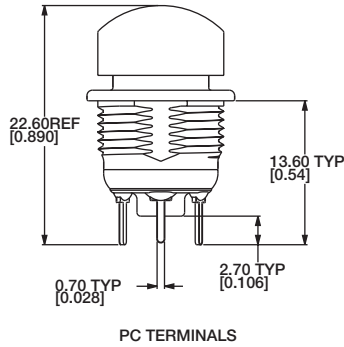


NP Series Sealed Industrial Pushbutton Switch

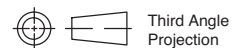
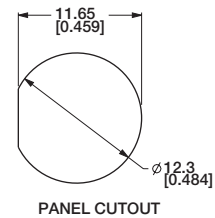
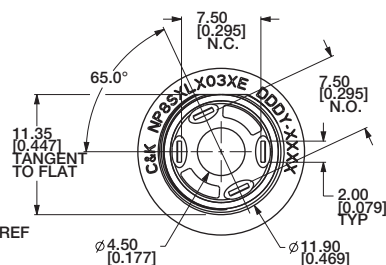
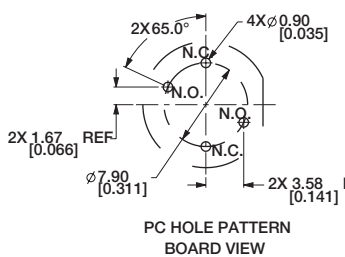
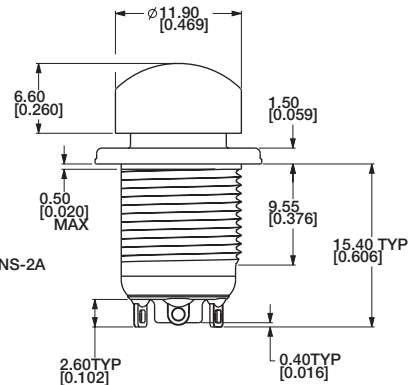
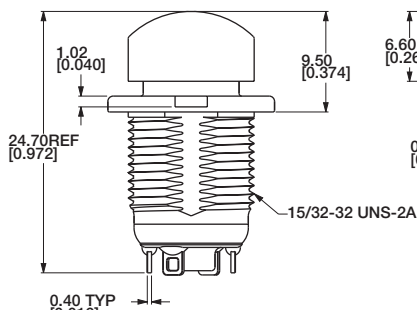
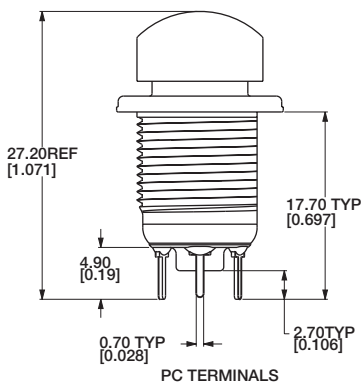
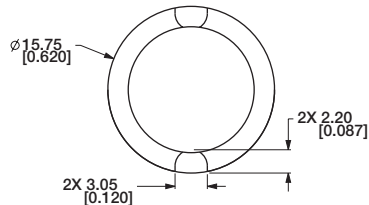
HOUSING STYLE

Pushbutton

T STANDARD THREADED MOUNT



L LONG THREADED MOUNT



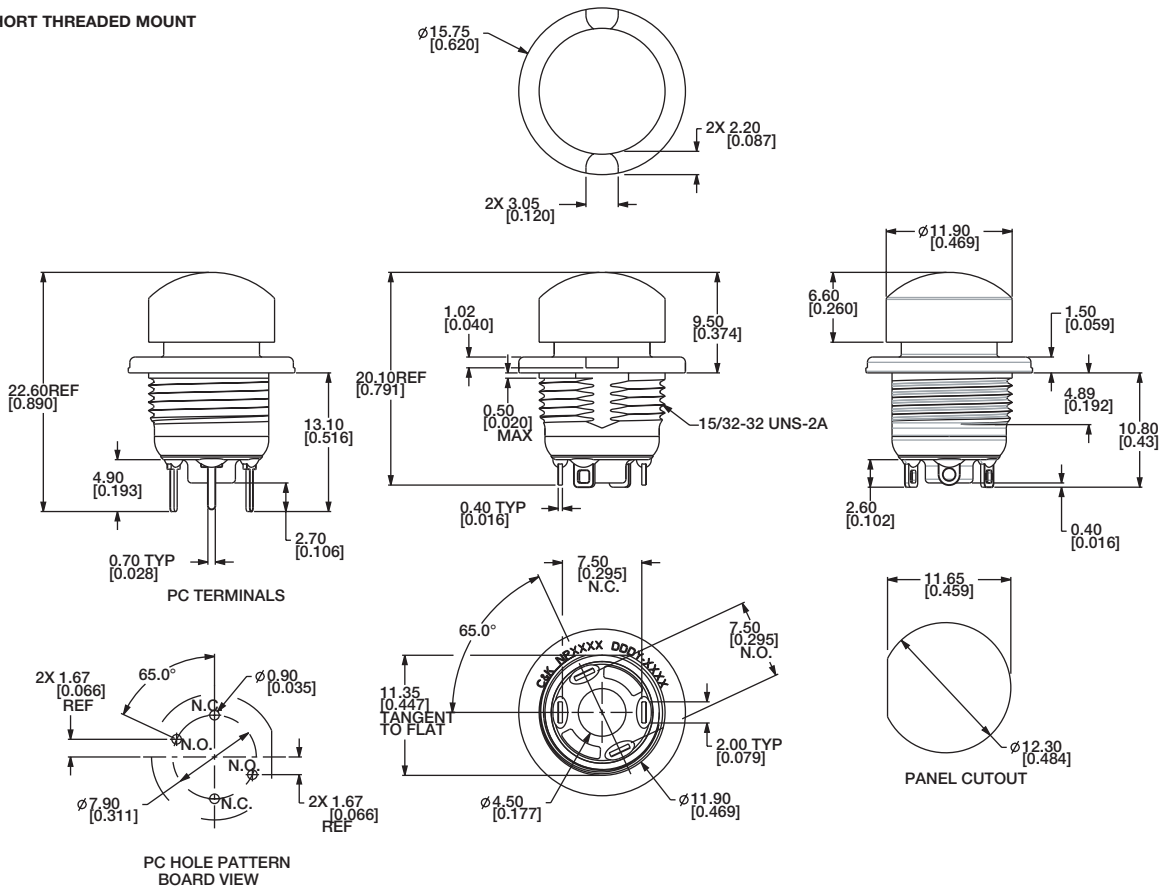
NP Series Sealed Industrial Pushbutton Switch



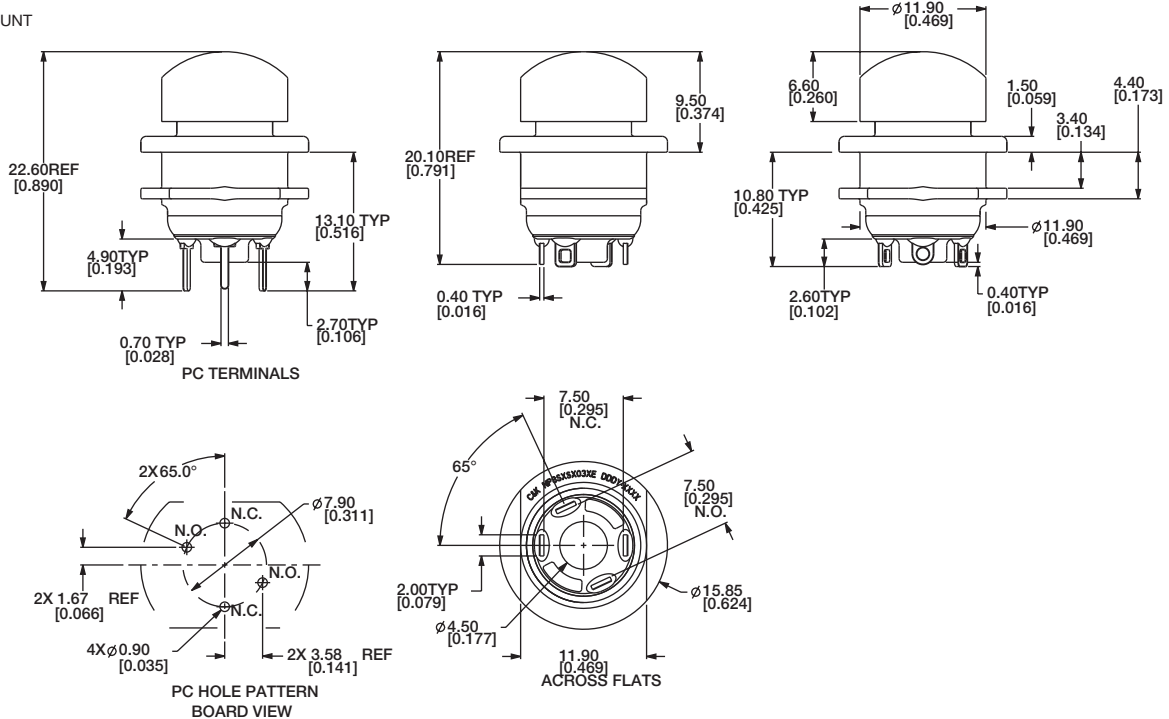
A
Pushbutton

HOUSING STYLE

H SHORT THREADED MOUNT



S SLOT MOUNT



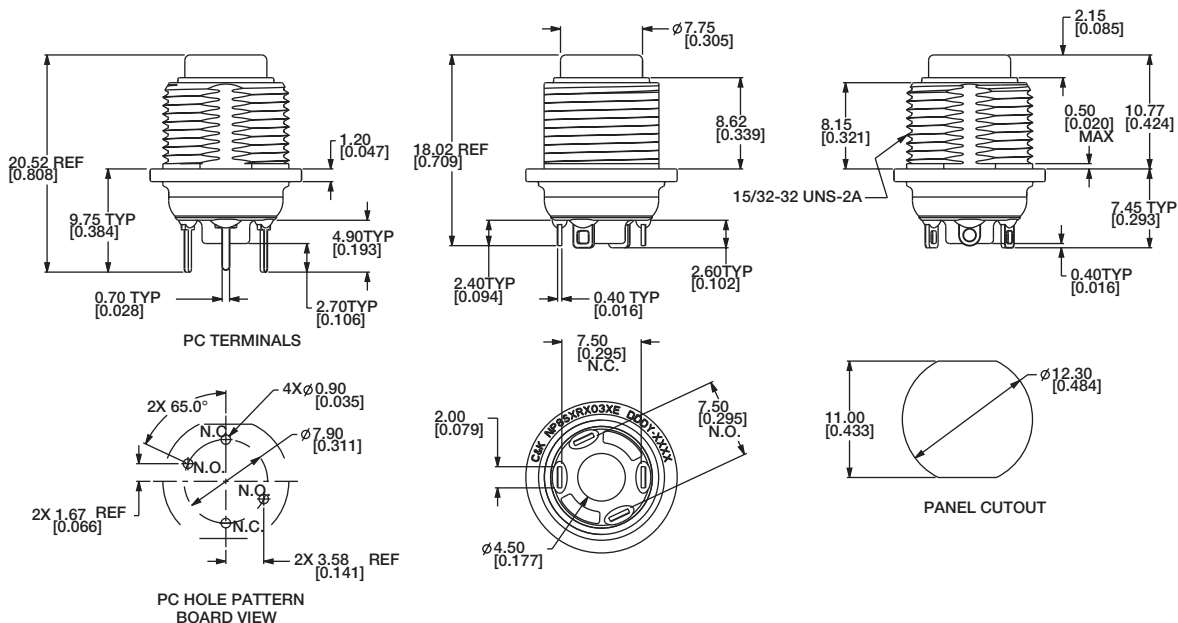
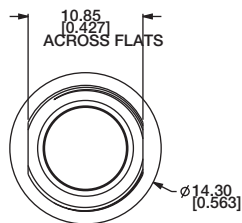
Third Angle
Projection



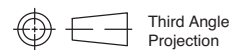
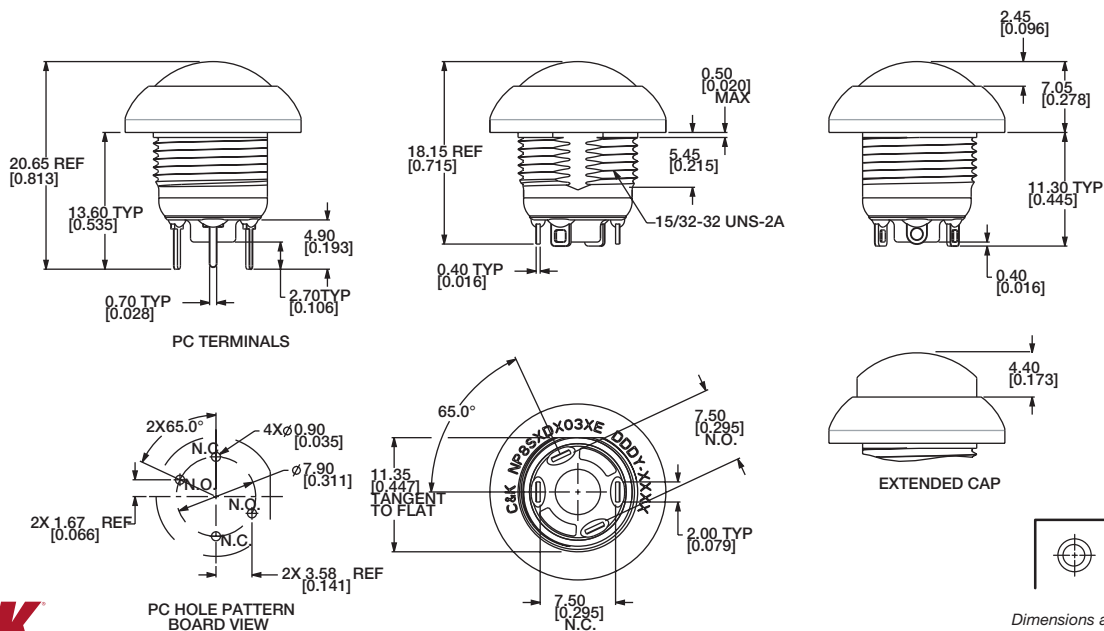
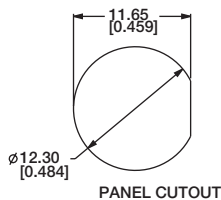
NP Series Sealed Industrial Pushbutton Switch

HOUSING STYLE

R REAR MOUNT



D DOME BEZEL



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

C&K

Pushbutton



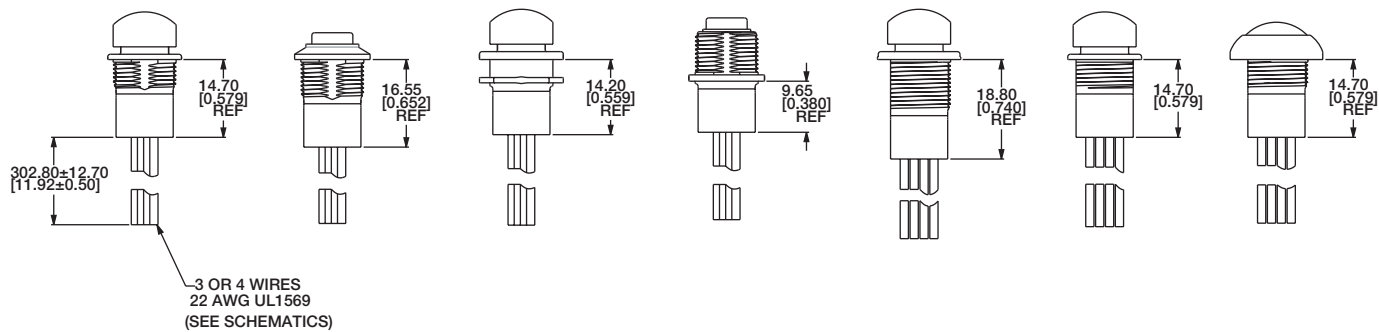


NP Series Sealed Industrial Pushbutton Switch

A

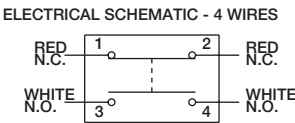
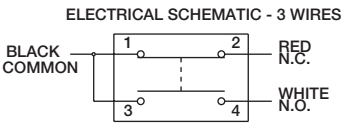
Pushbutton

TERMINATION



W3 3X 12" 22 AWG UL1569 WIRE (OVERMOLDED)

W4 4X 12" 22 AWG UL1569 WIRE (OVERMOLDED)



CONTACT MATERIAL

OPTION CODE	CONTACT MATERIAL
Q	Silver (STD)
G	Gold over Silver

TERMINAL SEAL

E EPOXY

All models are epoxy sealed

HARDWARE

HEX NUT

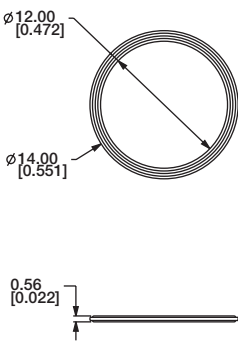
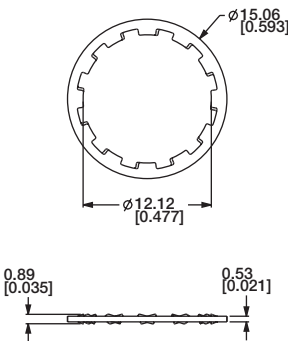
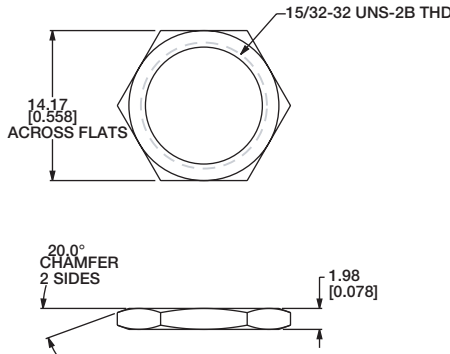
707100201 Nickel-plated

LOCKWASHER

700302202

PANEL GASKET

851D02000



4 May 20



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

PNP Series Sealed Pushbutton Switch



A
Pushbutton

Features/Benefits

- Snap-Action provides positive tactile feedback
- IP68 sealed to endure harsh environments
- 1,000,000 life cycle
- Up to 5A resistive load
- Multiple housing styles
- Various termination types and wirelead options are also available
- RoHS compliant

Typical Applications

- Control Grips
- Off-Road Panels
- Heavy Equipment
- Industrial Instruments
- Lifts
- Conveyor Controls



Specifications

FUNCTION: SPST, SPDT Double Break (Form Z) Momentary
CONTACT ARRANGEMENT: N.O. and N.C.
MOUNTING TYPE: Threaded front mount
TORQUE SPEC FOR THREADED BODY: Do not exceed 10 in-lbs (1.35 N-m)

Mechanical

OPERATING LIFE: 1,000,000 cycles
TOTAL TRAVEL: 2 mm max.
OPERATING POINT 0.9 ± 0.25 mm
OVER TRAVEL: 0.25 mm min.
OPERATING FORCE: $3N \pm 1.5N$
 $8N \pm 1.5N$
VIBRATION: 10-500 Hz 10g Max
SHOCK: 50g 11ms sawtooth wave

Electrical

CONTACT RATING:
Option "Q" Silver
5A/32 VDC resistive (25,000 cycles)
3A/32 VDC resistive (25,000 cycles)
Option "G" Gold over Silver
10mA/5 VDC resistive (1,000,000 cycles)

DIELECTRIC STRENGTH: 1000 V AC for 1 min.
INSULATION RESISTANCE: $1 \text{ G } \Omega$ @ 500 VDC
INITIAL CONTACT RESISTANCE $50 \text{ m}\Omega$ max (without wire leads)
BOUNCE TIME: <5 ms

Materials

HOUSING: PBT/PC
BASE: PBT
CAP: PBT
ACTUATOR: PBT
INTERNAL SEAL: Silicone rubber
TERMINALS: Copper with silver nickel inlay, silver plating
MOVABLE CONTACT: Copper alloy, gold over silver plating
TERMINAL SEAL: Epoxy

Operating Environment

OPERATING TEMPERATURE: -40°C to $+85^{\circ}\text{C}$
ESD PROTECTION: 15KV min.
SEALING: IP68

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

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box.



Designation
PNP PNP Series

Operating Force
3 3 Newtons
8 8 Newtons

Actuator Style
S Standard
E Extended (D housing style only)
N None

Actuator Color *
0 No Cap
1 White
2 Black (STD)
3 Red
4 Orange
5 Yellow
6 Green
7 Blue
9 Gray

Housing Style
T Standard threaded mount
D Dome bezel

Housing Color
2 Black (STD)

Terminal Seal
E Epoxy
All models are epoxy sealed

Contact Material
Q Silver (STD)
G Gold over silver

Termination
02 PC Pin (G contact material only)
03 Solder Lug (STD)
W2 2 x 12" 22 AWG UL1569 wire (overmolded)
W3 3 x 12" 22 AWG UL1569 wire (overmolded)
W4 4 x 12" 22 AWG UL1569 wire (overmolded)

Circuit
C SPDT - Double Break
W SPST NC - Double Break
Y SPST NO - Double Break

* Additional colors available, please contact Customer Service



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

C&K

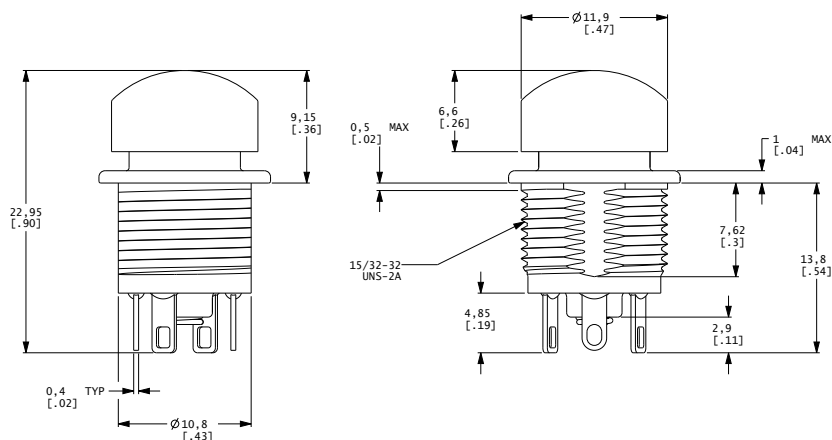
3 Dec 20



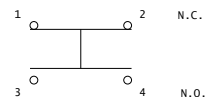
PNP Series Sealed Pushbutton Switch

Pushbutton
A

STANDARD VIEW



ELECTRICAL SCHEMATIC



OPERATING FORCE

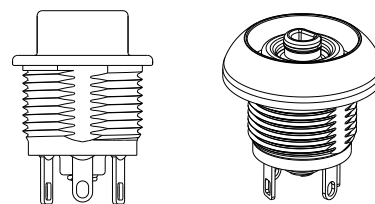
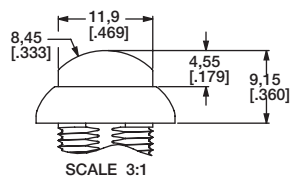
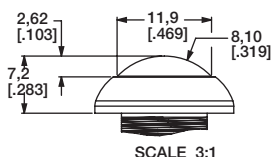
OPTION CODE	OPERATING FORCE
3	3 N
8	8 N

ACTUATOR STYLE

S STANDARD

E EXTENDED (D HOUSING STYLE ONLY)

N NO CAP



ACTUATOR COLOR

OPTION CODE	ACTUATOR COLOR
0	No color
1	White
2	Black
3	Red
4	Orange
5	Yellow
6	Green
7	Blue
9	Gray

* Cap may be ordered separately

PART NUMBER

285E01000
285E02000
285E03000
285E04000
285E05000
285E06000
285E07000
285E09000

COLOR

White
Black
Red
Orange
Yellow
Green
Blue
Gray

824D01000
824D02000
824D03000
824D04000
824D05000
824D06000
824D07000
824D09000

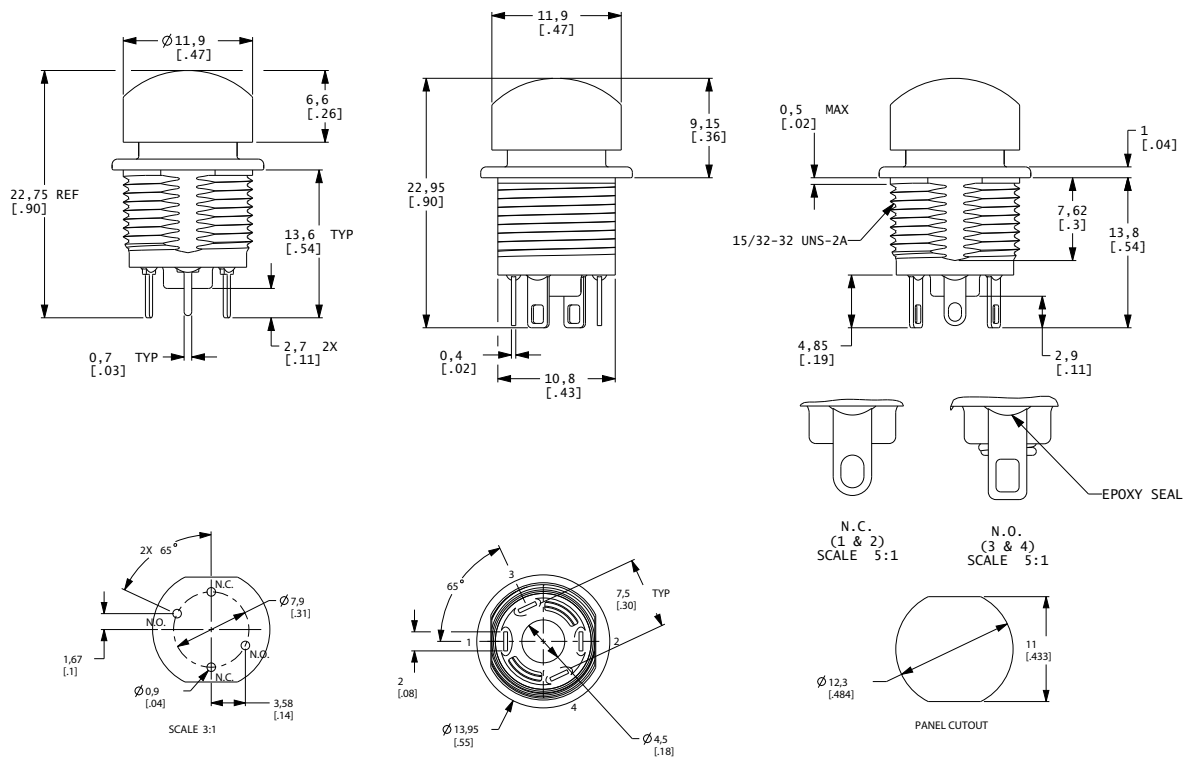
White
Black
Red
Orange
Yellow
Green
Blue
Gray



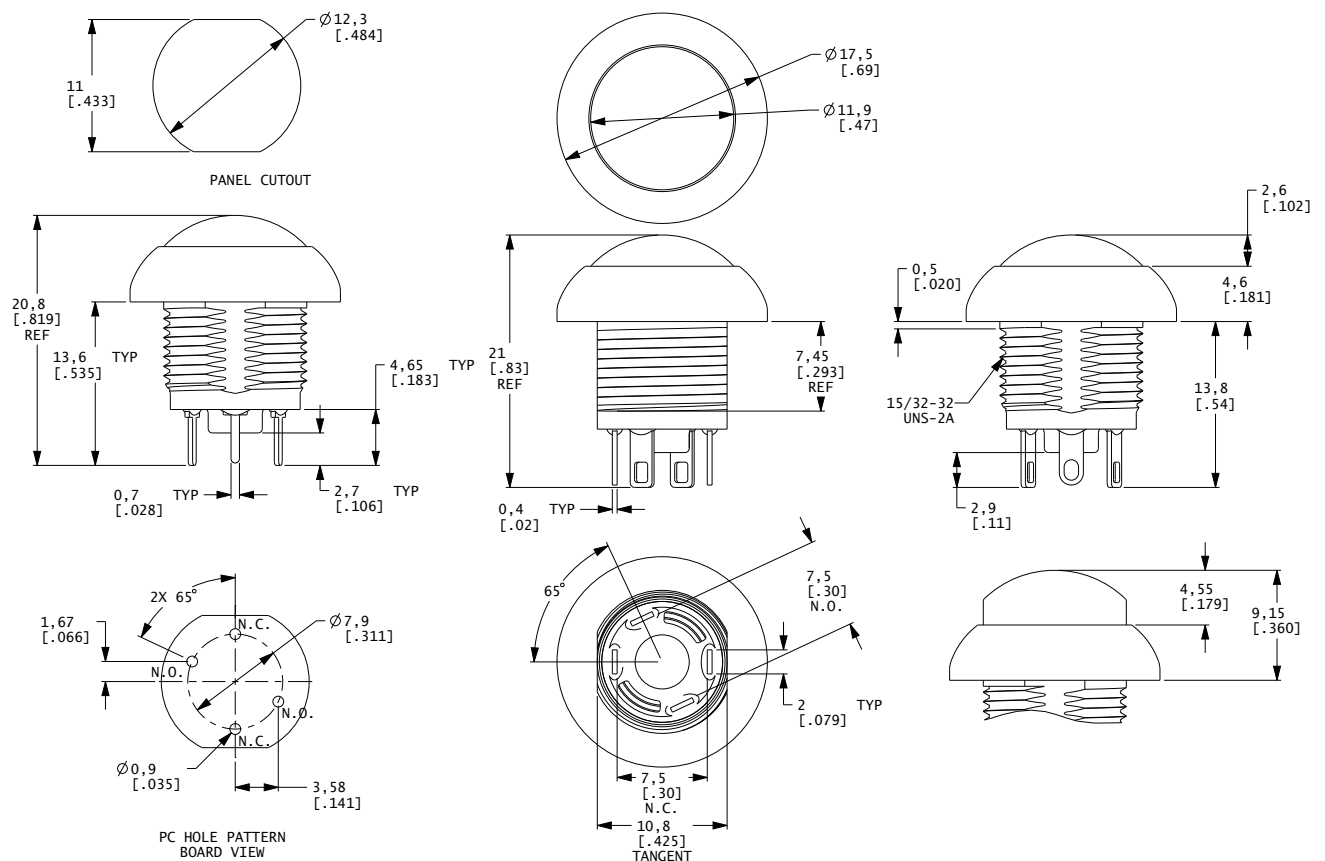


HOUSING STYLE

T STANDARD THREADED MOUNT



D DOME BEZEL





PNP Series Sealed Pushbutton Switch

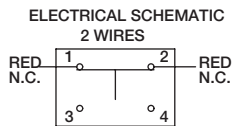
Pushbutton
A

HOUSING COLOR

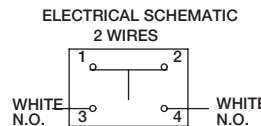
OPTION CODE	COLOR
2	Black (STD)

CIRCUIT

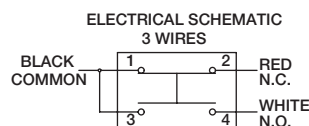
W SPST NC - Double Break



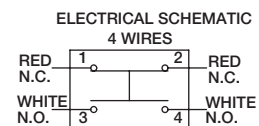
Y SPST NO - Double Break



C SPDT - Double Break

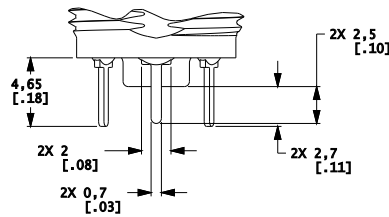


C SPDT - Double Break

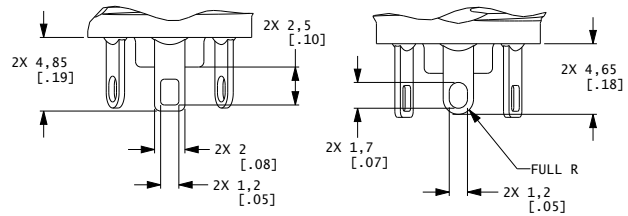


TERMINATION

02 PC PIN



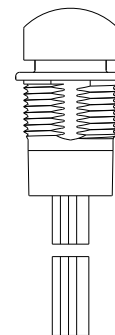
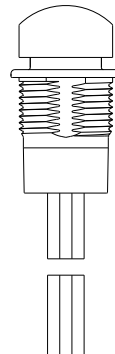
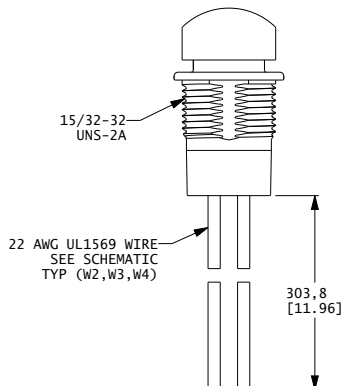
03 SOLDER LUG (STD)



W2 2 x 12" 22 AWG UL1569 wire (overmolded)

W3 3 x 12" 22 AWG UL1569 wire (overmolded)

W4 4 x 12" 22 AWG UL1569 wire (overmolded)



PNP Series Sealed Pushbutton Switch



A
Pushbutton

CONTACT MATERIAL

OPTION CODE	CONTACT MATERIAL
Q	Silver (STD)
G	Gold over silver

TERMINAL SEAL

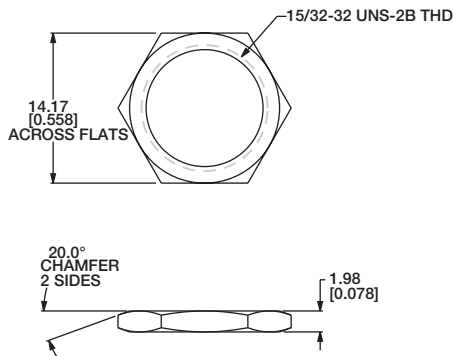
E EPOXY

All models are epoxy sealed

HARDWARE

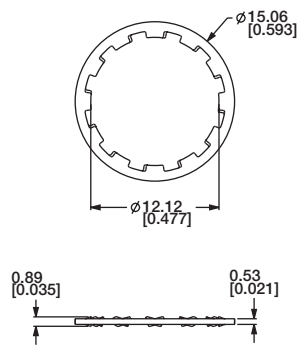
HEX NUT

707100201 Nickel-plated



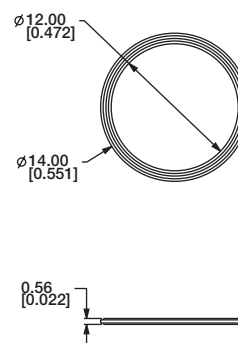
LOCKWASHER

700302202



PANEL GASKET

851D02000





ATP16 Series Anti-Vandal Sealed Pushbutton Switch

NEW

Features/Benefits

- Momentary or Lock version
- IP67 sealed
- Rated at 2A / 36 Vdc
- 1,000,000 life cycle
- Various colors of LED illuminate indicator
- Choices of actuator with ring or power logo
- RoHS compliant

Typical Applications

- Alarm, safety and security systems
- Intercom "push-to-talk" devices
- Automatic food and drink vending machines
- Parking lot ticket machines & ticket paying stations
- Industrial Instruments



Specifications

FUNCTION: SPST
CONTACT ARRANGEMENT: N.O.
MOUNTING TYPE: Threaded front panel mount
TORQUE FOR THREADED BODY: 11.5 kgf/cm

Mechanical

OPERATING LIFE: Momentary 1,000,000 cycles
Lock 100,000 cycles
TOTAL TRAVEL: Momentary 2.0 mm; Lock 2.3 mm
OPERATING FORCE: 4.5 ± 1.5N

Electrical

CONTACT RATING: 2A / 36Vdc
OPERATING LIFE: Make-and-break cycles at full load
200,000 (Momentary)
100,000 (Lock)
DIELECTRIC STRENGTH: 2,000 V RMS @ sea level
INSULATION RESISTANCE: 1,000 MΩ min. @ 500 VDC
INITIAL CONTACT RESISTANCE : 50 mΩ max @1A 12VDC

Materials

BUSHING: Stainless steel / Aluminum alloy, anodized
BASE: PBT (UL 94-A0), Nylon 6/6 (lock version)
ACTUATOR: PC (UL 94-V2); POM (lock version)
INTERNAL ASSEMBLY: POM / PA66
SPRING: Steel
SEALING / O-ring: Silicone (Translucent) / Silicone
TERMINALS / CONTACT: Brass, Silver or gold plated
HEX NUT: Brass (Nickel plated)

Operating Environment

OPERATING TEMPERATURE: -20°C to +70°C
SEALING / PROTECTION: IP67

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

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box.

A	T	P	1	6							S				G
----------	----------	----------	----------	----------	--	--	--	--	--	--	----------	--	--	--	----------

Designation
ATP16 Series

Actuator Style
D Dome*
S Standard**

Actuator Indicator
L1 Ring
L5 Ring & Power logo

LED Illumination

Color	Dual color
0 Without LED	A Red & Green
2 White	R RGB***
3 Red	
4 Orange***	
5 Yellow	
6 Green	
7 Blue	

LED voltage DC

00 0V without resistor
03 3V
06 6V
12 12V
24 24V

Terminal plating
G Gold flash

Termination
04 Solder lug
W1 Wire lead 500mm ****

Mechanical function
A Momentary (Double D bushing)
E Lock (D shape bushing)

Contact arrangement
S SPST

Bushing type

B3 Al alloy (Black anodized)
B4 Al alloy (Natural anodized)
M0 Stainless (Natural), Round***
M4 Stainless (Natural), Double D***

* For bushing type B3 and B4 only.

** Available on bushing type M0 & M4 only.

*** Available on momentary function only.

**** Available upon request, please consult your sales representative for details.

NEW

ATP16 Series Anti-Vandal Sealed Pushbutton Switch

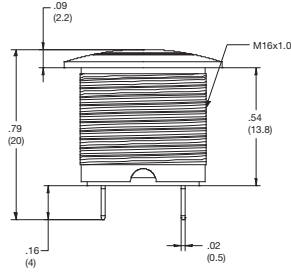


A
Pushbutton

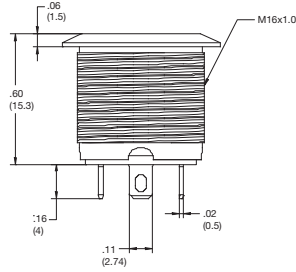
STANDARD VIEW

MOMENTARY

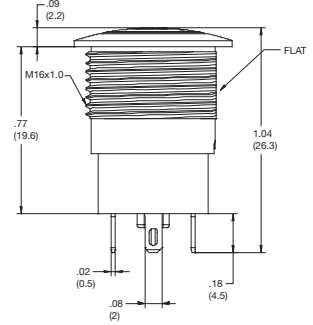
DOME



STANDARD / FLAT

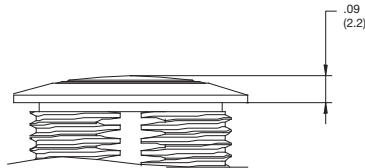


LOCK

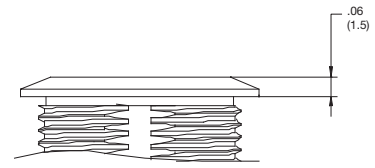


ACTUATOR STYLE

D DOME

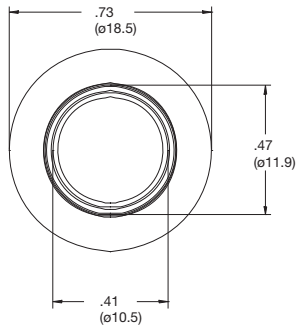


S STANDARD / FLAT

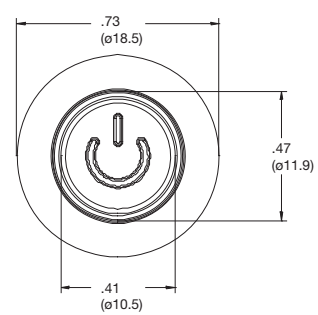


ACTUATOR INDICATOR

L1 RING



L5 RING & POWER



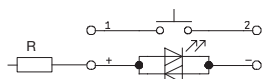


ATP16 Series Anti-Vandal Sealed Pushbutton Switch

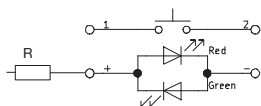
NEW

CIRCUIT

SINGLE COLOR LED

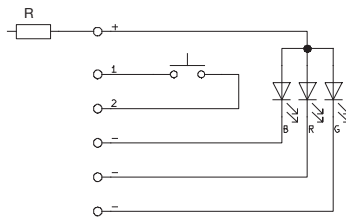


DUAL COLOR LED

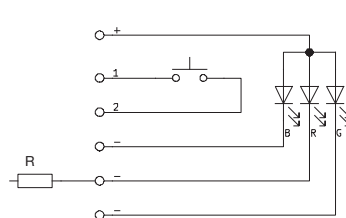


MOMENTARY

RGB LED



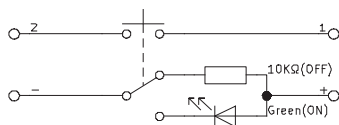
6 / 12 / 24V LED



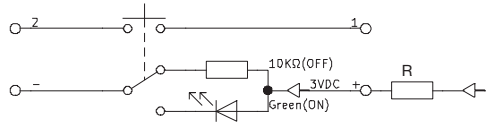
3V LED

LOCK

SINGLE COLOR LED

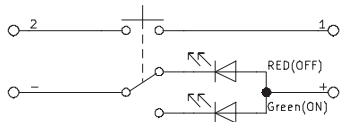


3V LED

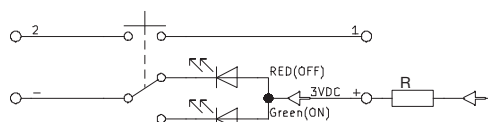


6 / 12 / 24V LED

DUAL COLOR LED



3V LED



6 / 12 / 24V LED

R: Resistor value is according to the LED voltage applied.

Resistor value (Apply LED Voltage)
LED input 3 VDC, 47 ohms (Red/Yellow/Orange LED type only)
LED input 6 VDC, 180 ohms
LED input 12 VDC, 470 ohms
LED input 24 VDC, 1000 ohms

Ohms value of resistance tolerance: $\pm 5\%$

NEW

ATP16 Series Anti-Vandal Sealed Pushbutton Switch



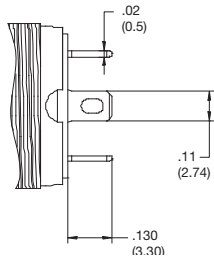
A

Pushbutton

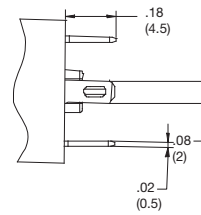
TERMINATION

04 SOLDER LUG

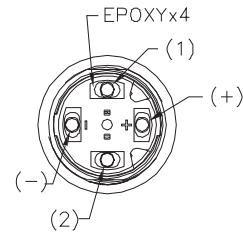
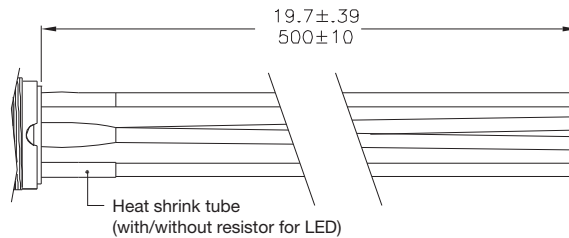
MOMENTARY



LOCK



W1 WIRE LEAD 500MM*

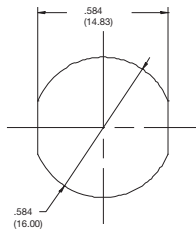


* Available upon request, please consult your sales representative for details.

PANEL CUTOUT

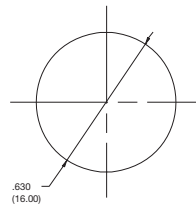
B3, B4 & M4

DOUBLE D



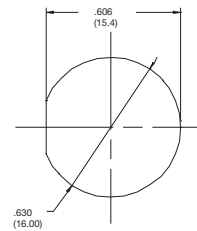
M0

ROUND



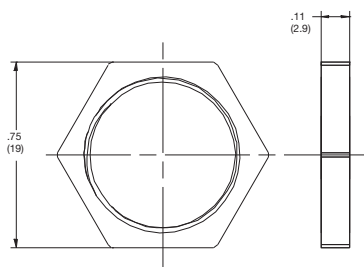
B3 & B4

D SHAPE

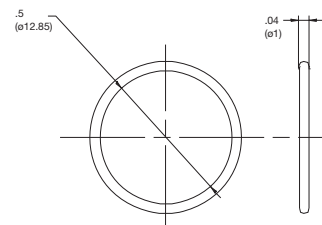


HARDWARE

HEX NUT



O RING



28 Oct 20

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



ATPS19 Series Anti-Vandal Short-Body Sealed Pushbutton Switch

NEW

Features/Benefits

- **Momentary**
- **IP67 sealed & IK10 (Stainless steel bushing)**
- **Rated at 2A / 36 Vdc**
- **1,000,000 mechanical lifecycles**
- **Various colors of LED illuminate indicator**
- **Choices of actuator with ring or power logo**
- **RoHS compliant**

Typical Applications

- **Alarm, safety & security systems**
- **Intercom "push-to-talk" devices**
- **Automatic food & drink vending machines**
- **Parking lot ticket machines & ticket paying stations**
- **Industrial instruments**



Specifications

FUNCTION: SPST
CONTACT ARRANGEMENT: N.O.
MOUNTING TYPE: Threaded front panel mount
TORQUE FOR THREADED BODY: 11.5 kgf/cm

Mechanical

MECHANICAL LIFE: 1,000,000 cycles
TOTAL TRAVEL: 1.8 ± 0.2 mm
OPERATING FORCE: 4.5 ± 1.5N

Electrical

CONTACT RATING: 2A / 36Vdc
ELECTRICAL LIFE: Make-and-break cycles at full load
200,000
DIELECTRIC STRENGTH: 2,000 V RMS @ sea level
INSULATION RESISTANCE: 1,000 MΩ min. @ 500 VDC
INITIAL CONTACT RESISTANCE : 50 mΩ max @1A 12VDC

Materials

BUSHING: Stainless steel
BASE: PA66, white (UL 94-V0)
ACTUATOR: PC, translucent (UL 94-V2), std steel
INTERNAL ASSEMBLY: PC, transparent (UL 94V2)
SPRING: Steel
SEALING / O-ring: Silicone (Translucent) / Silicone
TERMINALS / CONTACT: Brass, gold flash plated / Brass, silver alloy
HEX NUT: Brass (Nickel plated)

Operating Environment

OPERATING TEMPERATURE: -20°C to +70°C
SEALING / PROTECTION: IP67

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

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box.

A T P S 1 9 **S** **S** **A** **G**

Designation
ATPS19 Series

Actuator Style
S Standard

Actuator Indicator
L0 Without LED
L1 Ring
L5 Ring & Power logo

LED Illumination

Color	Dual Color
0 Without LED	A Red & Green
2 White	B Red & Blue
3 Red	
5 Yellow	
6 Green	
7 Blue	

LED Voltage DC

00 0V without resistor
03 3V (47Ω with red/yellow LED)
06 6V (180Ω)
12 12V (470Ω)
24 24V (1000Ω)

Bushing type

M0 Stainless (Natural), Round
M2 Stainless (Natural), D shape
M4 Stainless (Natural), Double D

Terminal Plating
G Gold flash

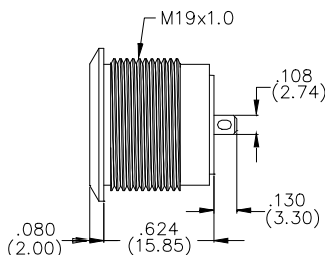
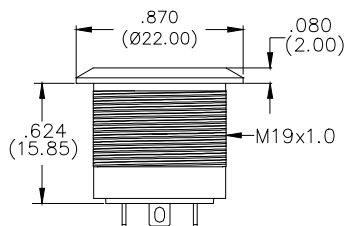
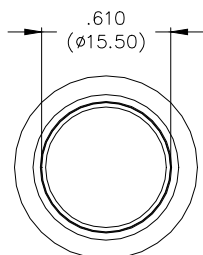
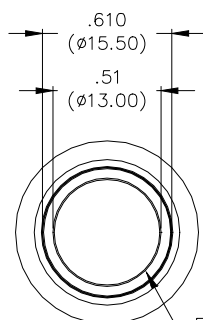
Termination
04 Solder lug
W1 Wire lead 500mm

Mechanical Function
A Momentary

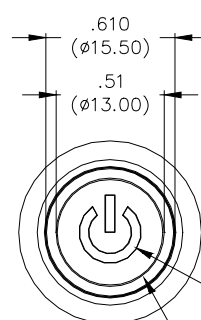
Contact Arrangement
S SPST

NEW

ATPS19 Series Anti-Vandal Short-Body Sealed Pushbutton Switch

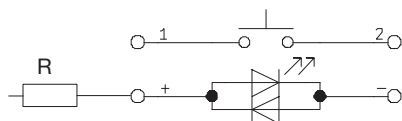
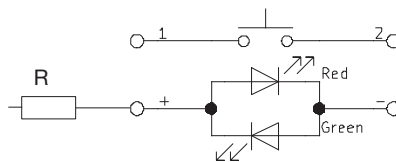
**A****Pushbutton****STANDARD VIEW****STANDARD****ACTUATOR INDICATOR****L0** WITHOUT LED**L1** RING

Ring illuminated

L5 RING & POWER

Power logo illuminated

Ring illuminated

CIRCUIT**MOMENTARY****SINGLE COLOR LED****DUAL COLOR LED**

R: Resistor value is according to the LED voltage applied.

Resistor value (Apply LED Voltage)
LED input 3 VDC, 47 ohms (Red/Yellow LED type only)
LED input 6 VDC, 180 ohms
LED input 12 VDC, 470 ohms
LED input 24 VDC, 1000 ohms

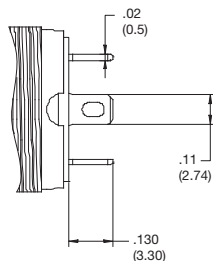
Ohms value of resistance tolerance: $\pm 5\%$



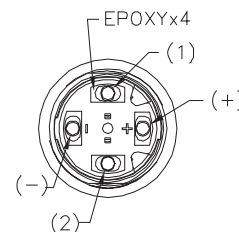
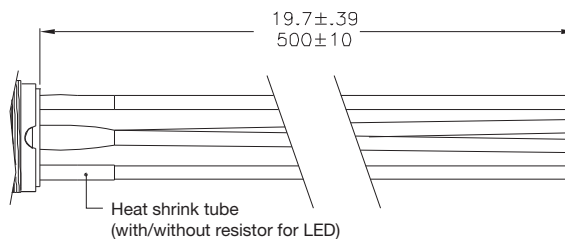
ATPS19 Series Anti-Vandal Short-Body Sealed Pushbutton Switch NEW

TERMINATION

04 SOLDER LUG



W1 WIRE LEAD 500MM* (Multi-wire lead AWG20, Section 0.6 mm², UL approved)

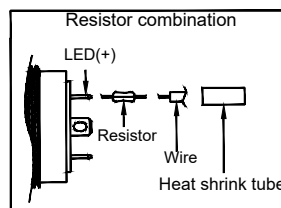


Non-LED

Description	Wire color
Terminal 1	Black
Terminal 2	Black

With LED

Description	Wire color
Terminal 1	Black
Terminal 2	Black
LED+	Red
LED-	Green

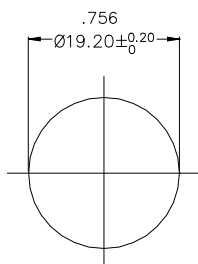


* Special length, please consult your sales representative for details.

PANEL CUTOUT

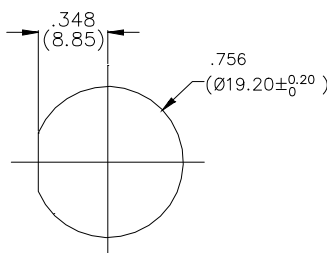
M0

ROUND



M2

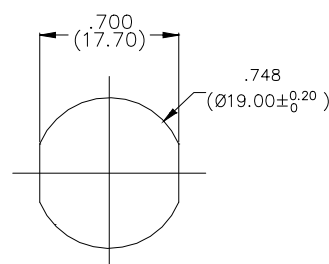
D SHAPE



M4

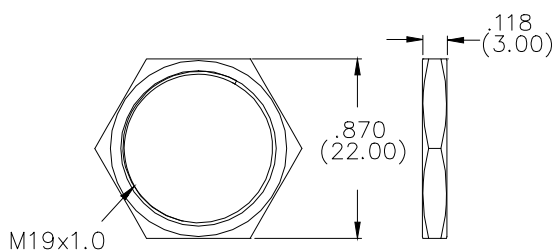
DOUBLE D

Thickness: 6.0mm (Max.)

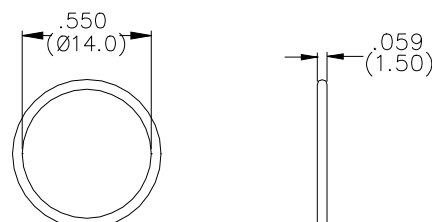


HARDWARE

HEX NUT



O RING



NEW

ATP19 Series Anti-Vandal Sealed Pushbutton Switch

A
Pushbutton

Features/Benefits

- Momentary or Lock version
- IP67 sealed & IK10 (Stainless steel bushing)
- Capable of up to 3A resistive load
- 50,000 life cycle at full load
- Various colors of LED illuminate indicator
- Choices of pushbutton with symbol on spot, ring or power logo

Typical Applications

- Control Panels including car park and traffic light
- Industrial Instruments
- Lifts / Escalator
- Communication equipment
- Alarm, safety and security systems



C&K US

Specifications

FUNCTION: Single pole and double poles
CONTACT ARRANGEMENT: N.O. and N.C.
MOUNTING TYPE: Threaded front panel mount
TORQUE FOR THREADED BODY: 5-14 Nm

Mechanical

OPERATING LIFE: Momentary 1,000,000 cycles
Self-lock 500,000 cycles
TOTAL TRAVEL: about 3.2 mm
OPERATING FORCE: 1 pole $2.5 \pm 1N$
2 pole $3.5 \pm 1N$

Electrical

CONTACT RATING: 1th 5A/250VAC
3A / 250VAC
3A / 28VDC
OPERATING LIFE: 50,000 make-and-break cycles at full load
DIELECTRIC STRENGTH: 2,000 V RMS @ sea level
INSULATION RESISTANCE: 1,000 M Ω min. @ 500 VDC
INITIAL CONTACT RESISTANCE : 50 m Ω max @1A 12VDC

Materials

BUSHING: Stainless steel / Nickel plated brass / Aluminum alloy
BASE: PBT (UL 94-A0), PC (UL 94-V2)
ACTUATOR: PC (UL 94-V2); Stainless steel / Nickel plated brass / Aluminum alloy
INTERNAL ASSEMBLY: POM / PA66
SPRING: Steel
SEALING / O-ring: Silicone
TERMINALS: Brass with silver or gold plated
CONTACT: Copper, silver plated

Operating Environment

OPERATING TEMPERATURE: -20°C to +55°C
SEALING / PROTECTION: IP67 / IK10 (Stainless steel bushing)

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

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box.



Designation
ATP19 Series

Actuator Style
S Standard
R Raised
D Dome without LED only

Actuator Indicator
L0 Without LED
L1 Fix ring
L2 Spot
L3 Moving ring (standard actuator only)
L4 Power logo*
L5 Moving ring & Power logo* (standard actuator only)

LED Illumination

Color	Dual color
0 Without LED	A Red & Green
2 White	B Red & Blue
3 Red	D Blue & Yellow
5 Yellow	G Red & Yellow
6 Green	H Green & Yellow
7 Blue	J Orange & Green

LED voltage (20mA)
00 Without LED
03 3V
06 6V
12 12V
24 24V
36 36V
A1 110V AC
A2 220V AC

Terminal plating
Q Silver
G Gold

Termination
03 STD solder lug
04 Short solder lug
W1 Wire lead 500mm **
W2 Wire lead 1,000mm **

Mechanical function
A Momentary
E Lock

Contact arrangement
S SPDT
D DPDT

Bushing type

Round	Double D shape
B0 Stainless (Natural)	M0 Stainless (Natural)
B1 Brass (Mirror Chrome Plated)	M1 Brass (Mirror Chrome plated)
B2 Brass (Nickel plated)	M2 Brass (Nickel plated)
B3 Al alloy (Black anodized)	M3 Al alloy (Black anodized)

* Available on double D-shape bushing only.
** Available upon request, please contact your sales representative for details.

C&K

11 Apr 19



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



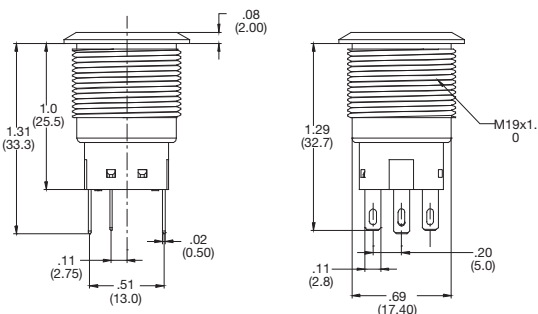
ATP19 Series Anti-Vandal Sealed Pushbutton Switch

NEW

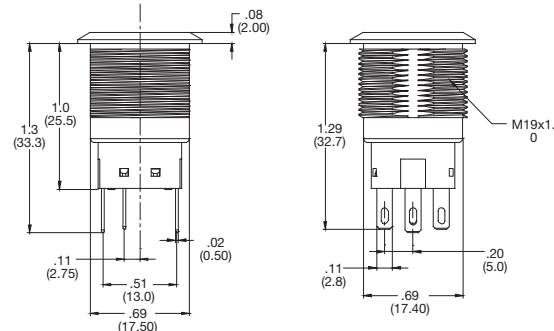
STANDARD VIEW

Pushbutton
A

ROUND BUSHING

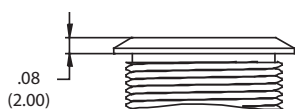


DOUBLE-D BUSHING

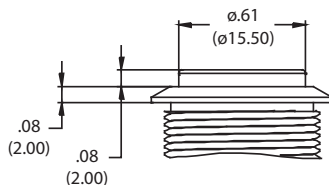


ACTUATOR STYLE

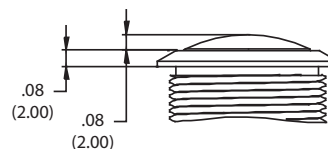
S STANDARD



R RAISED

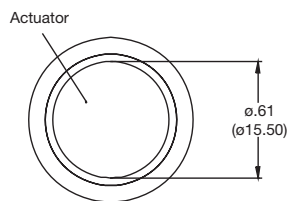


D DOME

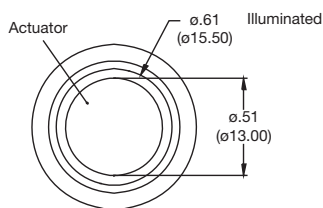


ACTUATOR INDICATOR

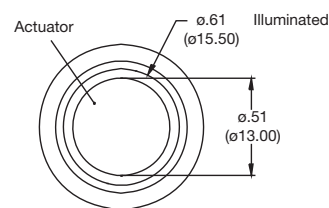
L0 WITHOUT LED



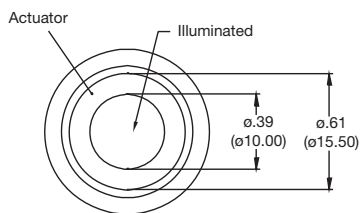
L1 FIX RING



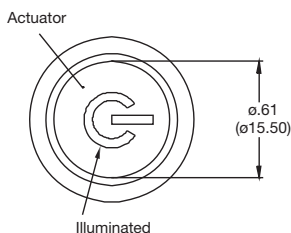
L3 MOVING RING



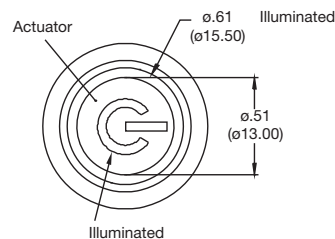
L2 SPOT



L4 POWER LOGO



L5 POWER & MOVING RING



NEW

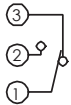
ATP19 Series Anti-Vandal Sealed Pushbutton Switch



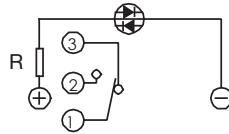
A
Pushbutton

CIRCUIT

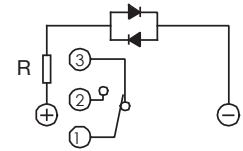
SPDT



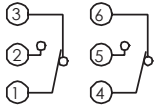
SPDT - SINGLE COLOR LED



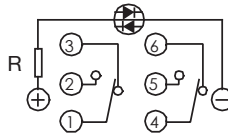
SPDT - DUAL COLOR LED



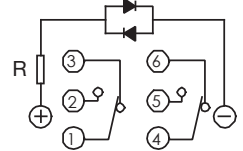
DPDT



DPDT - SINGLE COLOR LED

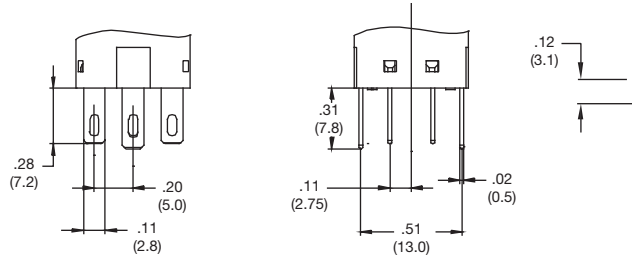


DPDT - DUAL COLOR LED

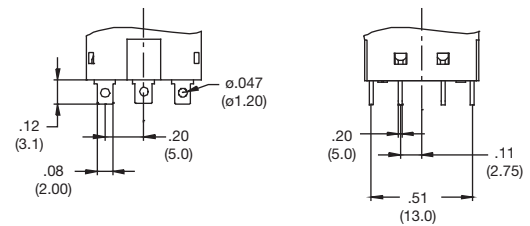


TERMINATION

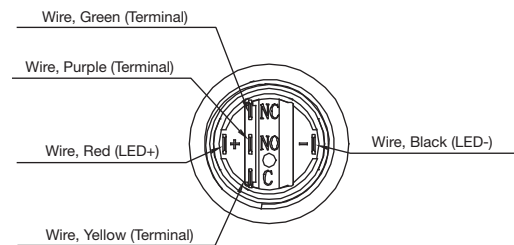
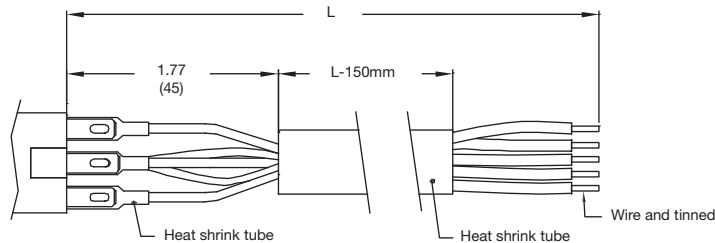
03 SOLDERLUG



04 SHORT SOLDER LUG

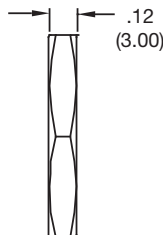
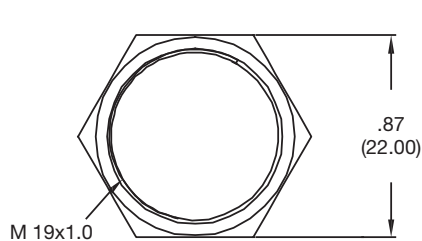


W1 OR W2 WIRE LEAD

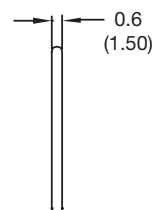
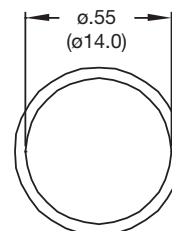


HARDWARE

HEX NUT



O - RING





ATP22 Series Anti-Vandal Sealed Pushbutton Switch

NEW

Pushbutton
A

Features/Benefits

- **Momentary or Lock version**
- **IP67 sealed & IK10 (Stainless steel bushing)**
- **Capable of up to 3A resistive load**
- **50,000 life cycle at full load**
- **Various colors of LED illuminate indicator**
- **Choices of pushbutton with symbol on spot, ring or power logo**

Typical Applications

- **Control Panels including car park and traffic light**
- **Industrial Instruments**
- **Lifts / Escalator**
- **Communication equipment**
- **Alarm, safety and security systems**



C&K US

Specifications

FUNCTION: Single pole and double poles
CONTACT ARRANGEMENT: N.O. and N.C.
MOUNTING TYPE: Threaded front panel mount
TORQUE FOR THREADED BODY: 5-14 Nm

Mechanical

OPERATING LIFE: Momentary 1,000,000 cycles
Self-lock 500,000 cycles
TOTAL TRAVEL: about 3.2 mm
OPERATING FORCE: 1 pole 2.5 ± 1N
2 pole 3.5 ± 1N

Electrical

CONTACT RATING: 1th 5A/250VAC
3A / 250VAC
3A / 28VDC
OPERATING LIFE: 50,000 make-and-break cycles at full load
DIELECTRIC STRENGTH: 2,000 V RMS @ sea level
INSULATION RESISTANCE: 1,000 MΩ min. @ 500 VDC
INITIAL CONTACT RESISTANCE : 50 mΩ max @1A 12VDC

Materials

BUSHING: Stainless steel / Aluminum alloy
BASE: PBT (UL 94-A0), PC (UL 94-V2)
ACTUATOR: PC; Stainless steel / Aluminum alloy
INTERNAL ASSEMBLY: POM / PA66
SPRING: Steel
SEALING / O-ring: Silicone
TERMINALS: Brass with silver or gold plated
CONTACT: Copper, silver plated

Operating Environment

OPERATING TEMPERATURE: -20°C to +55°C
SEALING / PROTECTION: IP67 / IK10 (Stainless steel bushing)

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

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box.

A **T** **P** **2** **2**

Designation
ATP22 Series

Actuator Style
S Standard

Actuator Indicator
L0 Without LED
L3 Moving ring
L6 Ring LED*
L7 Ring LED + power logo**
L8 Ring LED + power logo***

Illumination

Color	Dual color
0 Without LED	A Red & Green
2 White	B Red & Blue
3 Red	D Blue & Yellow
5 Yellow	G Red & Yellow
6 Green	H Green & Yellow
7 Blue	J Orange & Green

LED voltage (20mA)

00 Without LED
03 3V
06 6V
12 12V
24 24V
36 36V
A1 110V AC
A2 220V AC

Terminal plating
Q Silver
G Gold

Termination
03 STD solder lug
W1 Wire lead 500mm****
W2 Wire lead 1,000mm****

Mechanical function
A Momentary
E Lock

Contact arrangement
S SPDT
D DPDT

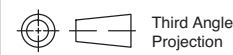
Bushing type
B0 Stainless (Round)
B3 Al alloy: black anodized (Round)
M0 Stainless (Double D-shape)

* Available on ring color CAP of red/green/blue only.

** Power logo and ring with clear color CAP available on double D-shape bushing only.

*** Power logo and ring with red/green/blue color CAP available on double D-shape bushing only.

**** Available upon request, please contact your sales representative for details.



C&K

11 Apr 19

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

www.ckswitches.com

NEW

ATP22 Series Anti-Vandal Sealed Pushbutton Switch

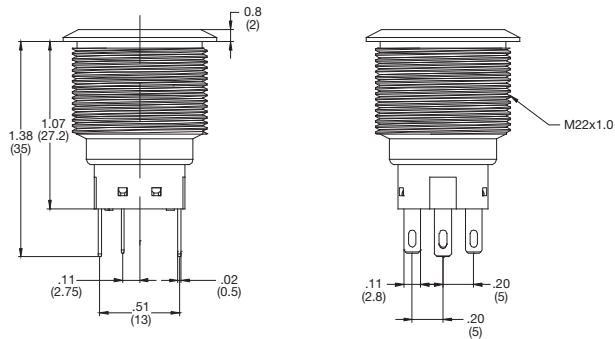


A

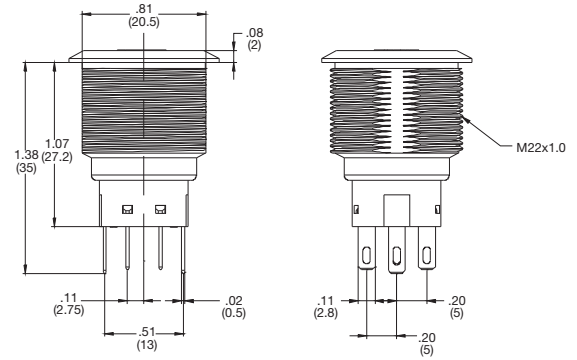
Pushbutton

STANDARD VIEW

ROUND BUSHING

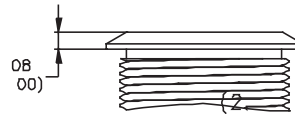


DOUBLE-D BUSHING



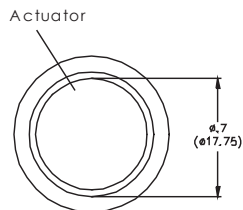
ACTUATOR STYLE

S STANDARD

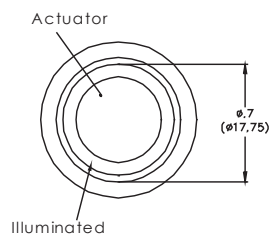


ACTUATOR INDICATOR

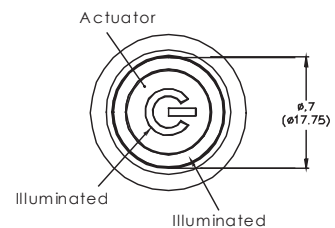
L0 WITHOUT LED



L3 & L6 RING LED



L7 & L8 POWER & RING





ATP22 Series Anti-Vandal Sealed Pushbutton Switch

NEW

Pushbutton

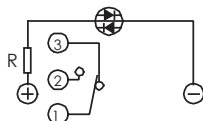
A

CIRCUIT

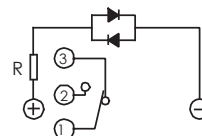
SPDT



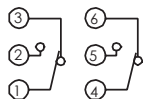
SPDT - SINGLE COLOR LED



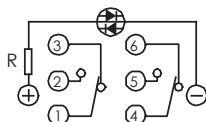
SPDT - DUAL COLOR LED



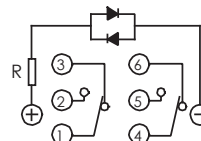
DPDT



DPDT - SINGLE COLOR LED

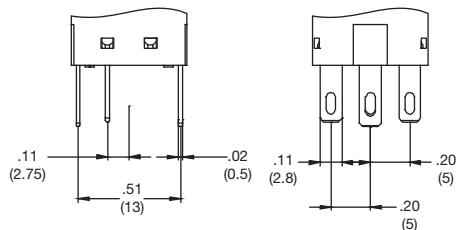


DPDT - DUAL COLOR LED

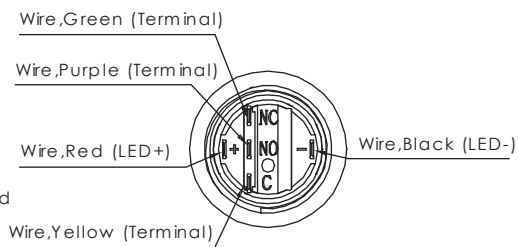
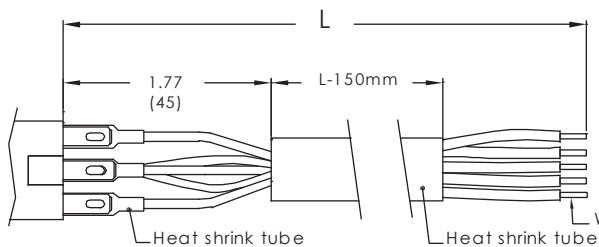


TERMINATION

03 SOLDERLUG

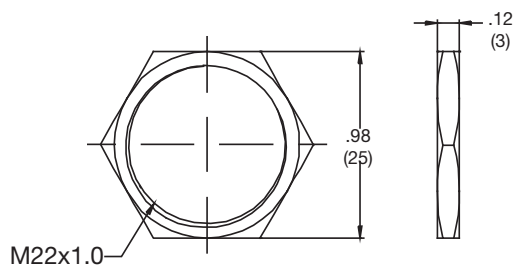


W1 OR W2 WIRE LEAD

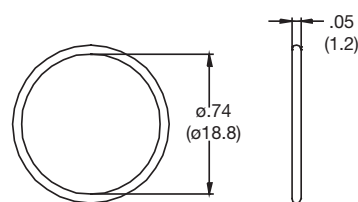


HARDWARE

HEX NUT



O - RING





PBA Series Illuminated Pushbutton

A

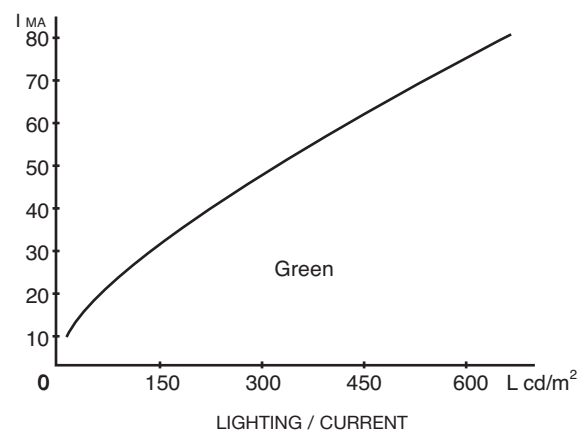
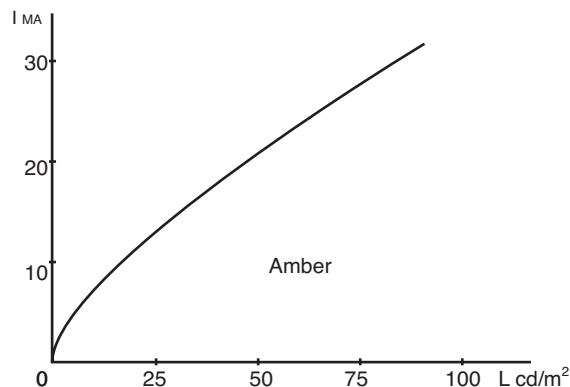
Pushbutton

LIGHTING DATA

The legends of function and the status indicator can be illuminated separately.

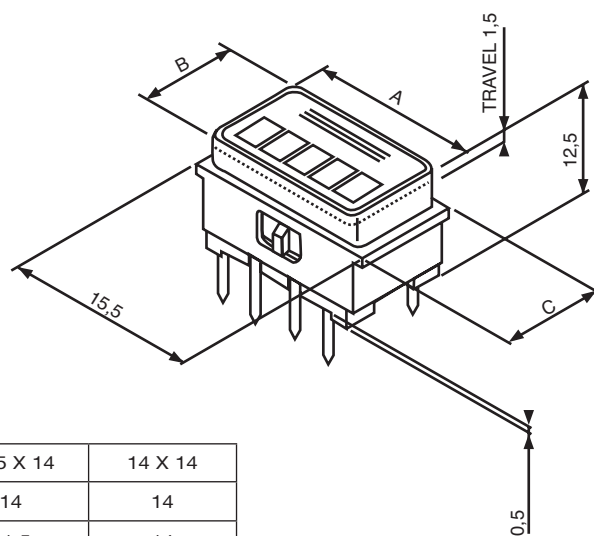
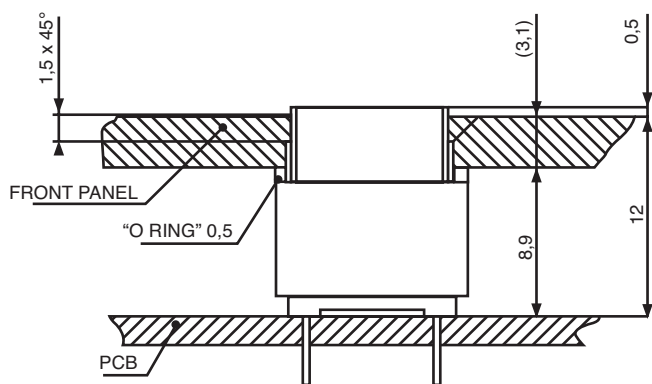
Color	Amber	Green
Wave Length	586 < λ < 592	555 < λ < 560
Current Max	80 mA	80 mA
Chromaticity	X Y	X Y
	0,54 < X < 0,58 0,40 < Y < 0,44	0,30 < X < 0,40 0,6 < Y
Contrast Min.	1,2	0,85

For other colors and displays, please contact Customer Service.



LIGHTING / CURRENT

DIMENSIONS (applicable for any size)

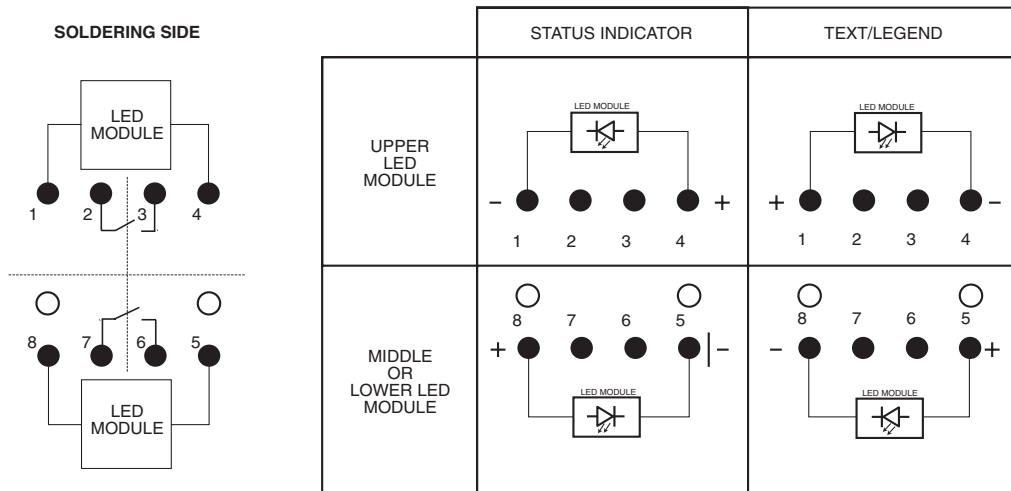


Tolerance: ± 0,1 mm

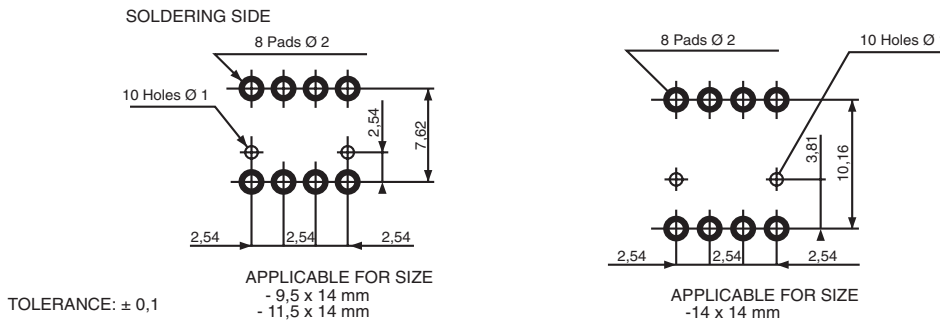
	9,5 X 14	11,5 X 14	14 X 14
A	14	14	14
B	9,5	11,5	14
C	11	11,5	15,5



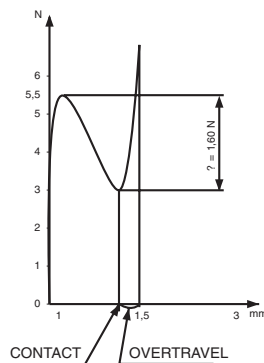
LED MODULE LAYOUT



PCB Layout



TACTILE EFFECT



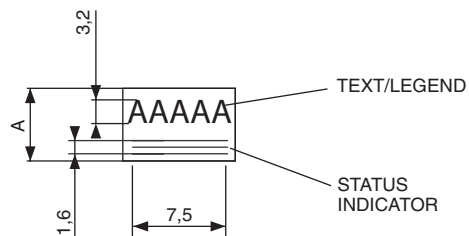
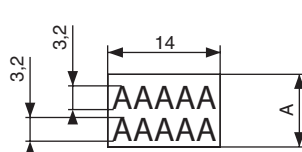
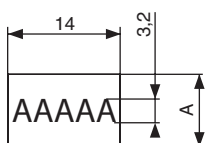
TRAVEL

- TRAVEL TO CONTACT: $1,2 \pm 0,1$ mm
- OVERTRAVEL: $> 0,3$ mm
- TOTAL TRAVEL: $1,5 \pm 0,1$ mm

FORCE

- ACTUATOR FORCE: $5,5 \text{ N} \pm 0,5 \text{ N}$
- TACTILE FEELING: 1,6 N

1 or 2 markings are available in any combination of text / legend or status indicator.



PB Series Single Pole and Multi-Key Pushbutton Switches



A

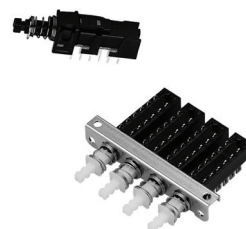
Pushbutton

Features/Benefits

- Momentary or latching options
- Reliable contact design
- 2, 4, and 6 pole configurations
- Long travel and extended life cycles

Typical Applications

- Appliances
- Audio and visual equipment
- Consumer electronics
- Industrial equipment



Specifications

CONTACT RATING: 0.3A @ 30 VDC

INITIAL CONTACT RESISTANCE: 30 m ohms max.

INSULATION RESISTANCE: 100 M ohms min.

DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.

OPERATING LIFE: 10,000 cycles without load

OPERATING FORCE:

250 ± 100 gf (2.45 ± 0.98N)

LOCK TRAVEL: 2 ± 0.3 mm

TOTAL TRAVEL: 3 ± 0.3 mm

OPERATING TEMPERATURE: -20°C to 70°C

Materials

CASE: PC (UL 94HB)

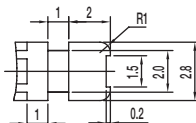
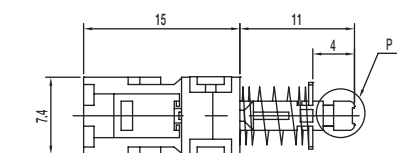
PLASTIC CLIP: POM (UL 94HB)

SPRING: SUS

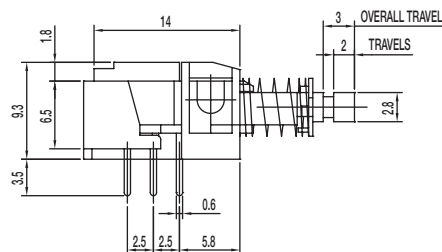
KNOB: POM

TERMINAL: Silver plated

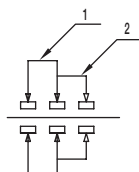
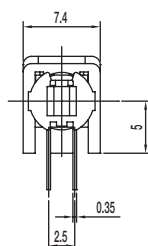
PB-22D01-L 2PDT LOCK / LATCHING



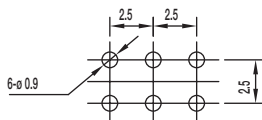
P DETAIL 2:1



2P — 2T



SCHEMATIC

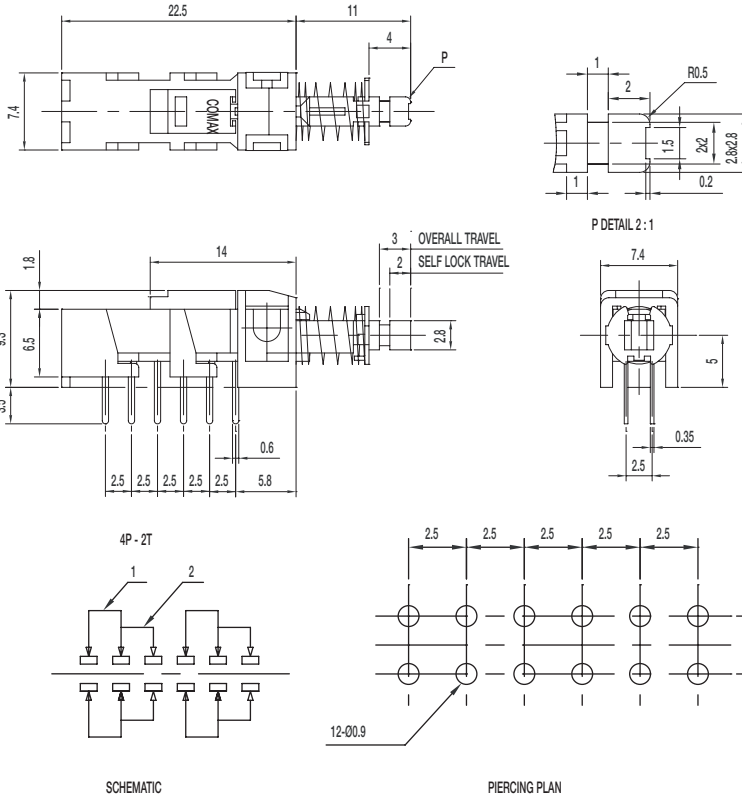


PIERCING PLAN



PB Series Single Pole and Multi-Key Pushbutton Switches

PB-42D01-L 4PDT LOCK / LATCHING



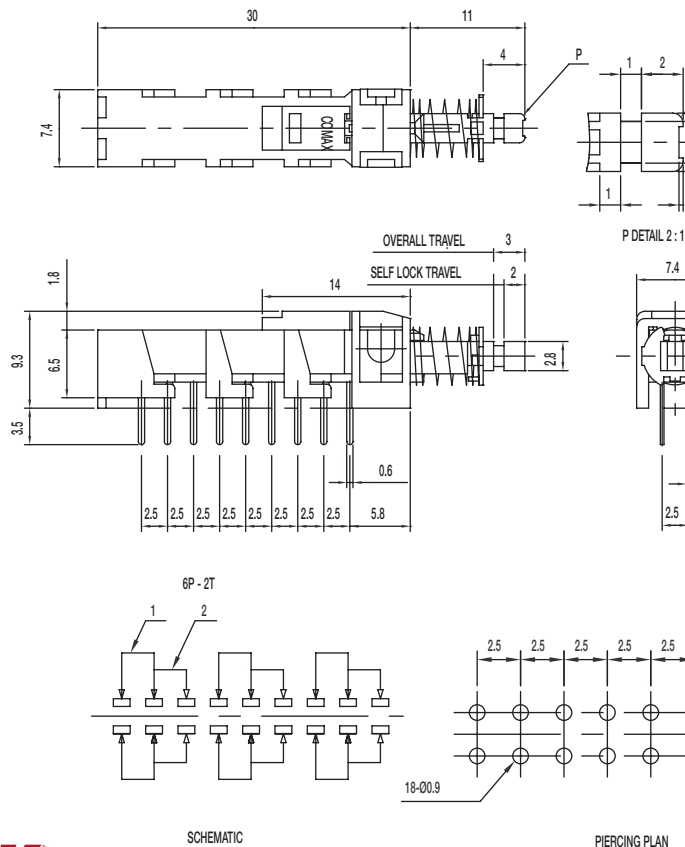
Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles without load
 OPERATING FORCE:
 280 ± 100 gf
 LOCK TRAVEL: 2 ± 0.3 mm
 TOTAL TRAVEL: 3 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

CASE: PC (UL 94HB)
 PLASTIC CLIP: POM (UL 94HB)
 SPRING: SUS
 KNOB: POM
 TERMINAL: Silver plated

PB-62D01-L 6PDT LOCK / LATCHING



Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles without load
 OPERATING FORCE:
 300 ± 100 gf (2.94 ± 0.98 N)
 LOCK TRAVEL: 2 ± 0.3 mm
 TOTAL TRAVEL: 3 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

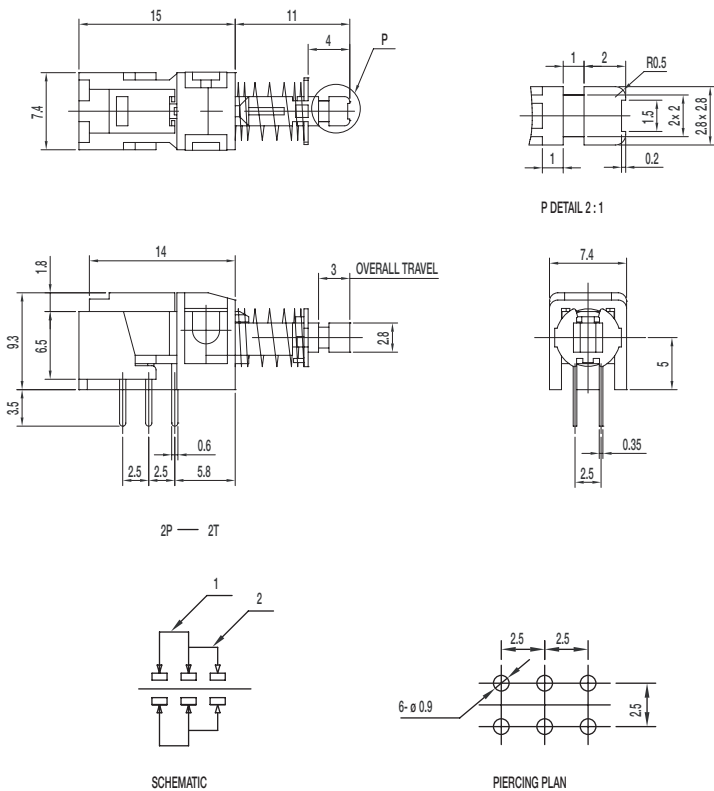
CASE: PC (UL 94HB)
 PLASTIC CLIP: POM (UL 94HB)
 SPRING: SUS
 KNOB: POM
 TERMINAL: Silver plated

PB Series Single Pole and Multi-Key Pushbutton Switches



A
Pushbutton

PB-22D01-F 2PDT NON-LOCK / MOMENTARY



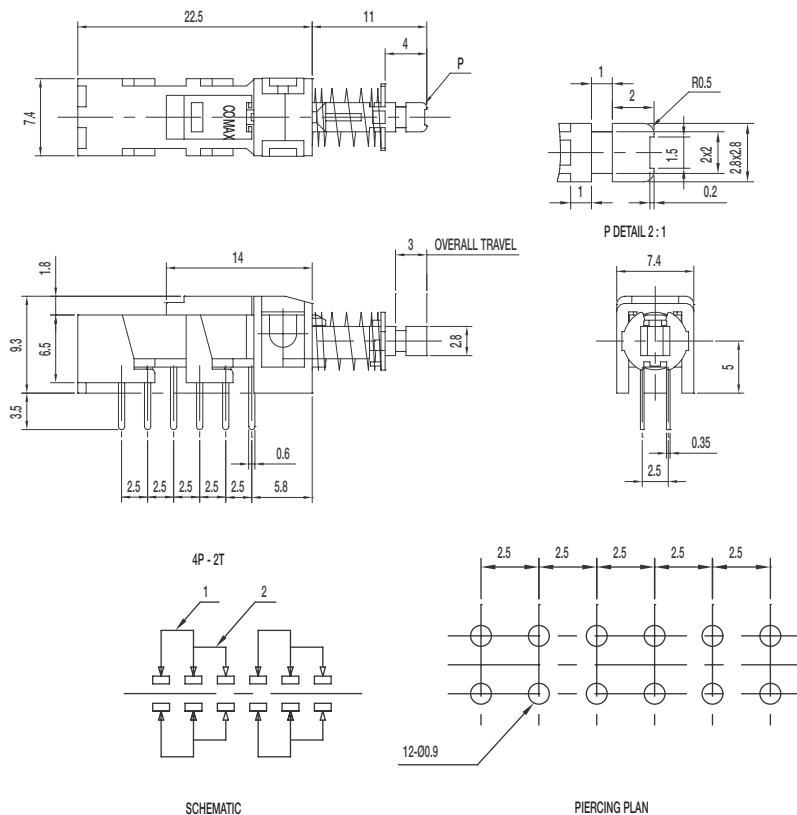
Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles without load
 OPERATING FORCE:
 $250 \pm 100 \text{ gf}$ ($2.45 \pm 0.98 \text{ N}$)
 TOTAL TRAVEL: $3 \pm 0.3 \text{ mm}$
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

CASE: PC (UL 94HB)
 PLASTIC CLIP: POM (UL 94HB)
 SPRING: SUS
 KNOB: POM
 TERMINAL: Silver plated

PB-42D01-F 4PDT NON-LOCK / MOMENTARY



Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles without load
 OPERATING FORCE:
 $280 \pm 100 \text{ gf}$ ($2.477 \pm 0.98 \text{ N}$)
 TOTAL TRAVEL: $3 \pm 0.3 \text{ mm}$
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

CASE: PC (UL 94HB)
 PLASTIC CLIP: POM (UL 94HB)
 SPRING: SUS
 KNOB: POM
 TERMINAL: Silver plated

C&K

Dimensions are shown: mm
 Specifications and dimensions subject to change



PB Series Single Pole and Multi-Key Pushbutton Switches

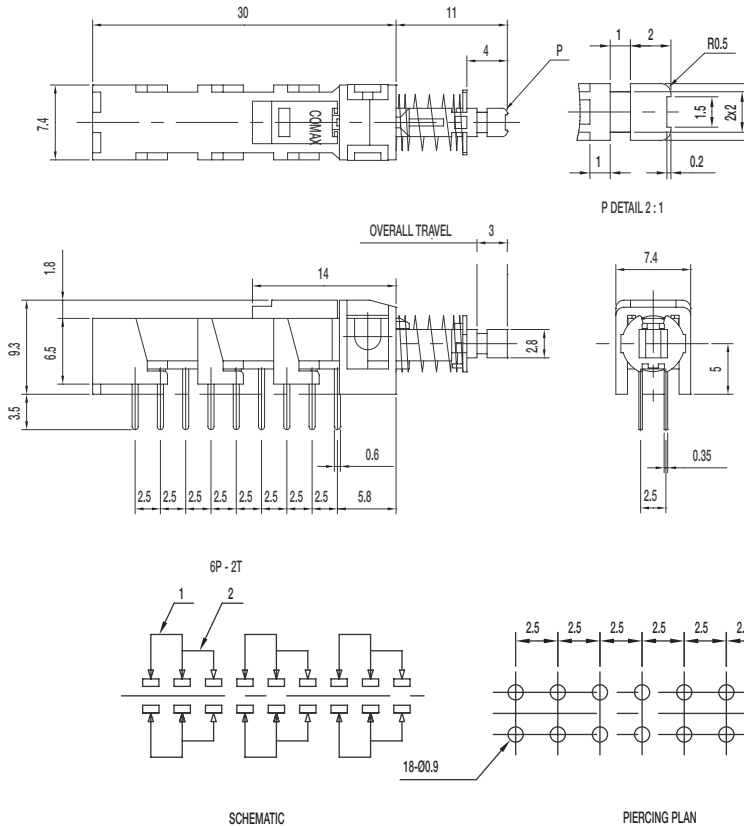
PB-62D01-F 6PDT NON-LOCK / MOMENTARY

Specifications

- CONTACT RATING: 0.3A @ 30 VDC
- INITIAL CONTACT RESISTANCE: 30 m ohms max.
- INSULATION RESISTANCE: 100 M ohms min.
- DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
- OPERATING LIFE: 10,000 cycles without load
- OPERATING FORCE:
300 ± 100 gf (2.94 ± 0.98N)
- TOTAL TRAVEL: 3 ± 0.3 mm
- OPERATING TEMPERATURE: -20°C to 70°C

Materials

- CASE: PC (UL 94HB)
- PLASTIC CLIP: POM (UL 94HB)
- SPRING: SUS
- KNOB: POM
- TERMINAL: Silver plated



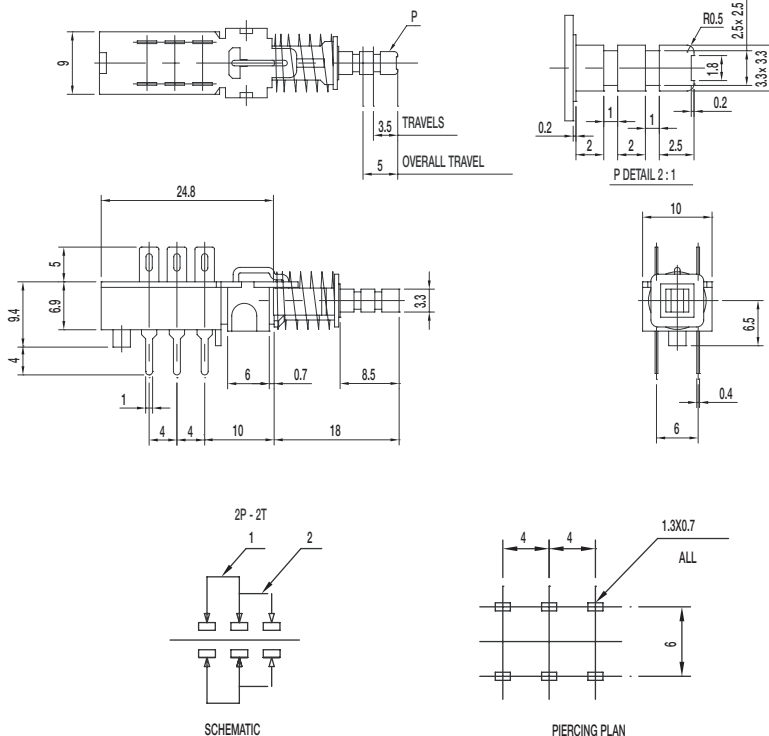
PB-22G02-L 2PDT LOCK / LATCHING

Specifications

- CONTACT RATING: 1A @ 25 VDC
- INITIAL CONTACT RESISTANCE: 30 m ohms max.
- INSULATION RESISTANCE: 100 M ohms min.
- DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
- OPERATING LIFE: 10,000 cycles without load
- OPERATING FORCE:
350 ± 150 gf (3.43 ± 1.47N)
- LOCK TRAVEL: 3.5 ± 0.3mm
- TOTAL TRAVEL: 5 ± 0.3 mm
- OPERATING TEMPERATURE: -20°C to 70°C

Materials

- CASE: PC (UL 94HB)
- SPRING: SUS
- KNOB: POM
- TERMINAL: Silver plated



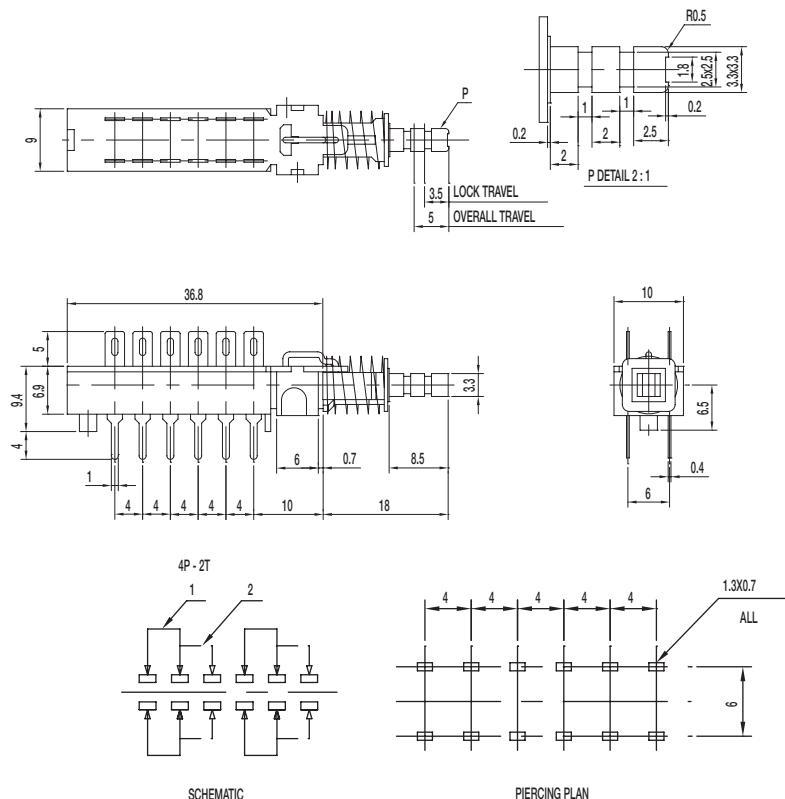
PB Series Single Pole and Multi-Key Pushbutton Switches



A

Pushbutton

PB-42G02-L 4PDT LOCK / LATCHING



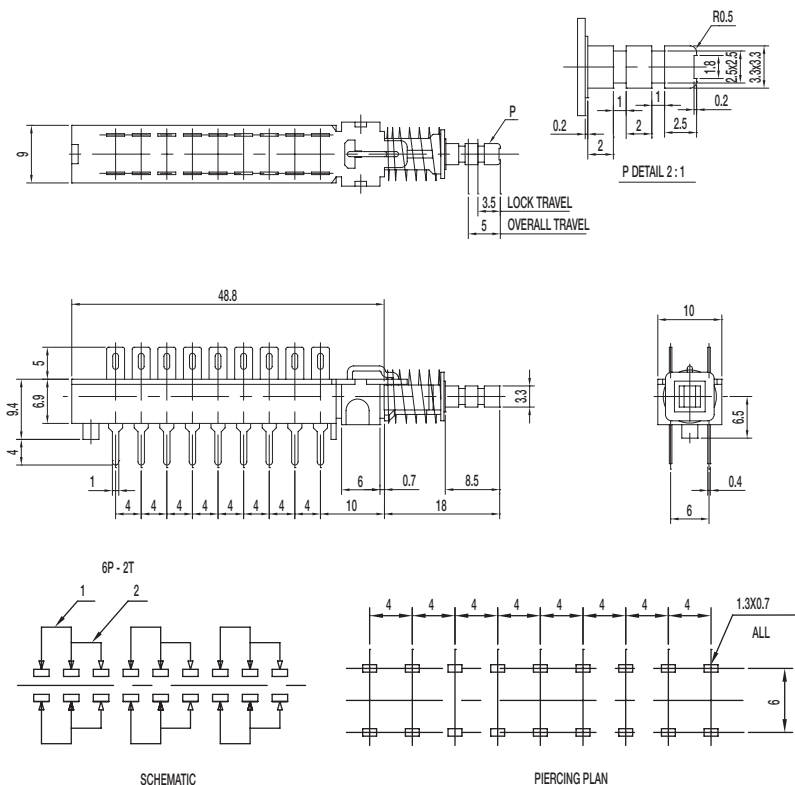
Specifications

CONTACT RATING: 1A @ 25 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles without load
 OPERATING FORCE:
 400 ± 150 gf (3.92 ± 1.47N)
 LOCK TRAVEL: 3.5 ± 0.3mm
 TOTAL TRAVEL: 5 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

HOUSING: PC (UL 94HB)
 SPRING: SUS
 KNOB: POM
 TERMINAL: Silver plated

PB-62G02-L 6PDT LOCK / LATCHING



Specifications

CONTACT RATING: 1A @ 25 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles without load
 OPERATING FORCE:
 450 ± 150 gf
 LOCK TRAVEL: 3.5 ± 0.3mm
 TOTAL TRAVEL: 5 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

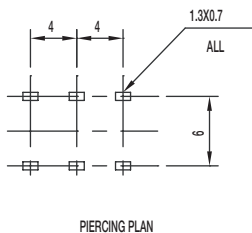
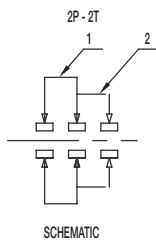
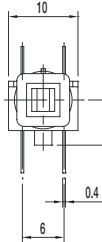
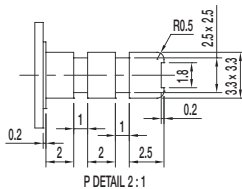
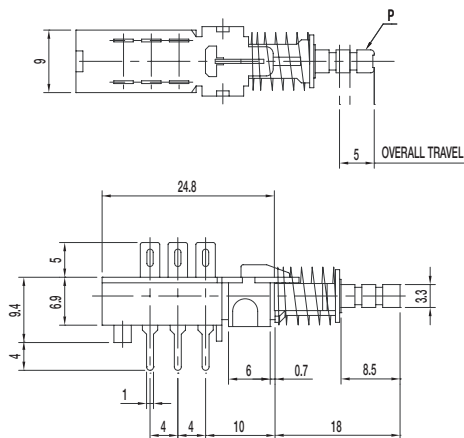
Materials

HOUSING: PC (UL 94HB)
 SPRING: SUS
 KNOB: POM
 TERMINAL: Silver plated

PB Series

Single Pole and Multi-Key Pushbutton Switches

PB-22G02-F DPDT NON-LOCK / MOMENTARY



Specifications

CONTACT RATING: 1A @ 25 VDC

INITIAL CONTACT RESISTANCE: 30 m ohms max.

- INSULATION RESISTANCE: 100 M ohms min.

DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.

OPERATING LIFE: 10,000 cycles without load

OPERATING FORCE:

 $350 \pm 150 \text{ gf} \quad (3.43 \pm 1.47 \text{ N})$

TOTAL TRAVEL: 5 ± 0.3 mm

OPERATING TEMPERATURE: -20°C to 70°C

Materials

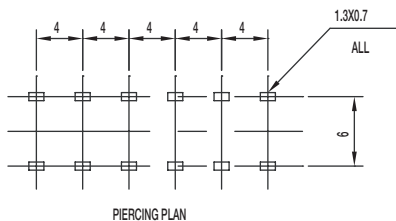
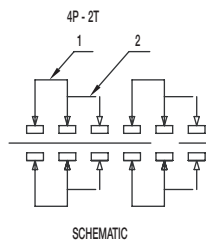
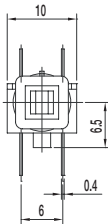
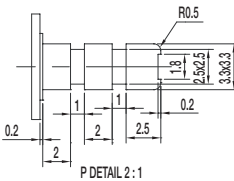
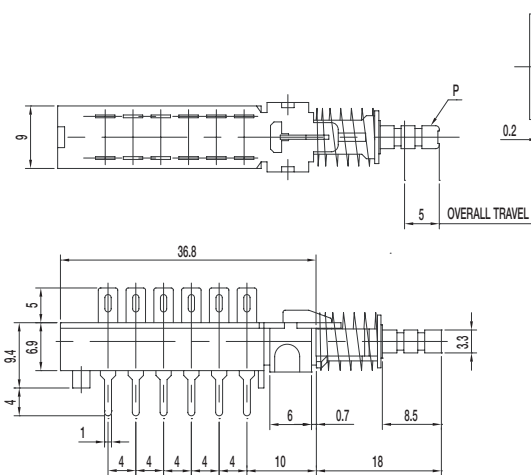
CASE: PC (UL 94HB)

SPRING: SUS

KNOB: POM

TERMINAL: Silver plated

PB-42G02-F 4PDT NON-LOCK / MOMENTARY



Specifications

CONTACT RATING: 1A @ 25 VDC

INITIAL CONTACT RESISTANCE: 30 m ohms max.

INSULATION RESISTANCE: 100 M ohms min.

DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.

OPERATING LIFE: 10,000 cycles without load

OPERATING FORCE:

 $400 \pm 150 \text{ gf } (3.92 \pm 1.47\text{N})$

TOTAL TRAVEL: 5 ± 0.3 mm

OPERATING TEMPERATURE: -20°C to 70°C

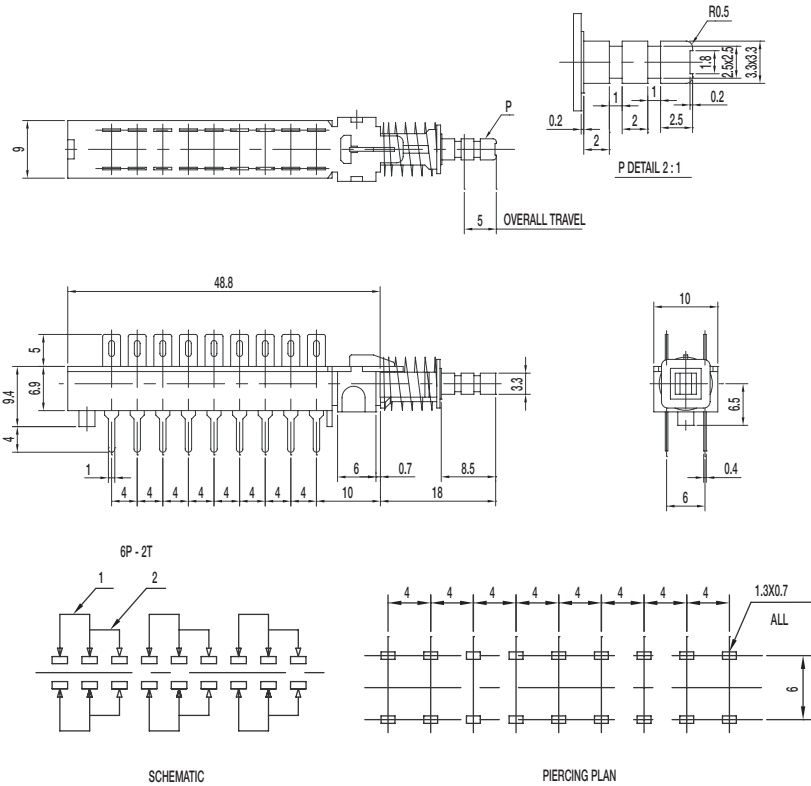
Materials

HOUSING: PC (UL 94HB)

SPRING: SUS

Knob: POM

TERMINAL: Silver plated

PB-62G02-F 6PDT NON-LOCK / MOMENTARY

Specifications

CONTACT RATING: 1A @ 25 VDC

INITIAL CONTACT RESISTANCE: 30 m ohms max.

INSULATION RESISTANCE: 100 M ohms min.

DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.

OPERATING LIFE: 10,000 cycles without load

OPERATING FORCE:

450 ± 150 gf (4.41 ± 1.47N)

TOTAL TRAVEL: 5 ± 0.3 mm

OPERATING TEMPERATURE: -20°C to 70°C

Materials

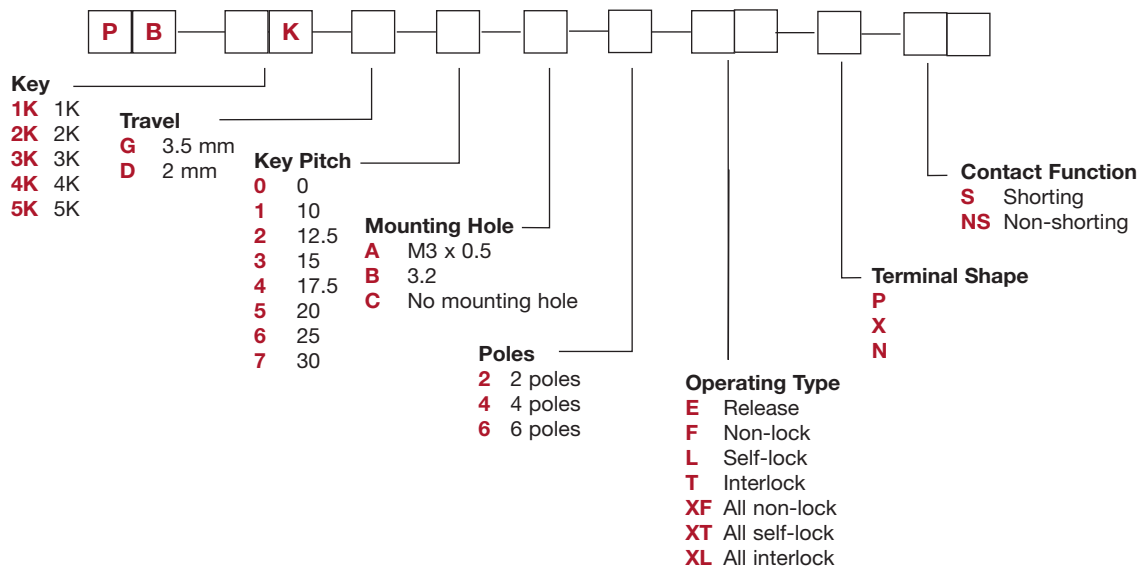
HOUSING: PC (UL 94HB)

SPRING: SUS

KNOB: POM

TERMINAL: Silver plated

PB Multi-Key Series

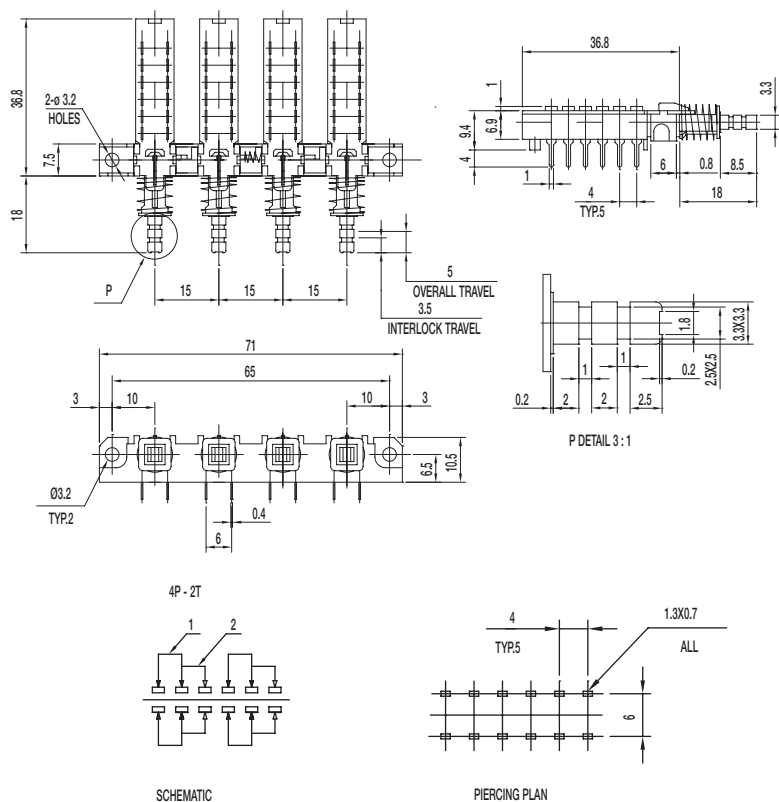




PB Series Single Pole and Multi-Key Pushbutton Switches

PB Multi-Key Series

Pushbutton
A



Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles without load
 OPERATING FORCE:
 250 ± 100 gf (2.45 ± 0.98 N)
 TOTAL TRAVEL: 3 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

CASE: PC (UL 94HB)
 PLASTIC CLIP: POM (UL 94HB)
 SPRING: SUS
 KNOB: POM
 TERMINAL: Silver plated

PS-12G Series Pushbutton Switches



A
Pushbutton

Features/Benefits

- Latching pushbutton
- Non-shorting with lock
- 5 mm travel
- SPDT

Typical Applications

- Automotive interior lighting
- Computer peripherals
- Appliances



PART NUMBER	PACKAGING	SCHEMATIC
PS-12G01	200 pieces	

Dimensions

FOOTPRINT: 14 X 16.8 mm

HEIGHT: 18 mm

Specifications

CONTACT RATING: 1A @ 14 VDC

INITIAL CONTACT RESISTANCE: 100 m ohms max.

INSULATION RESISTANCE: 100 M ohms min.

DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.

OPERATING LIFE: 20,000 cycles with load

OPERATING FORCE: 400 ± 100 gf

OPERATING POSITION: 3.6 ± 0.2 mm

TOTAL TRAVEL: 5 ± 0.3 mm

OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM (UL 94HB)

HOUSING: PBT (UL 94V-0)

COVER: PBT (UL 94V-0)

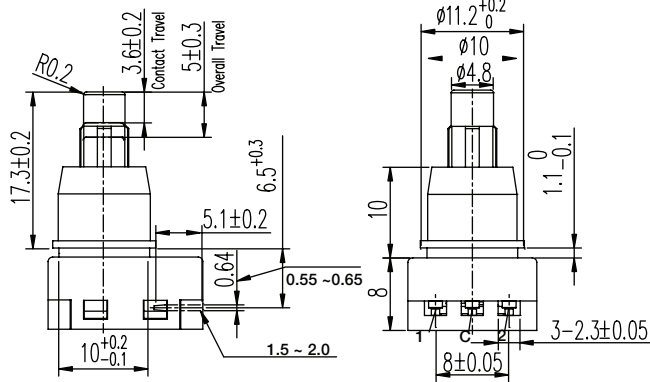
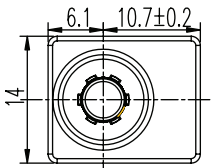
ROTOR: PBT (UL 94V-0)

SLIDER: POM (UL 94HB)

TERMINAL: Phosphor bronze, silver plated

SPRING: Stainless steel

CONTACT: Phosphor bronze, silver plated





PS-12G Series Pushbutton Switches

A

Pushbutton



PART NUMBER	PACKAGING	SCHEMATIC
PS-12G03	200 pieces	

Dimensions

FOOTPRINT: 14 X 16.8 mm

HEIGHT: 18.3 mm

Specifications

CONTACT RATING: 2.2A @ 14.5 VDC

INITIAL CONTACT RESISTANCE: 50 m ohms max.

INSULATION RESISTANCE: 100 M ohms min.

DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.

OPERATING LIFE: 20,000 cycles with load

OPERATING FORCE: 650 ± 300 gf

OPERATING POSITION: 4.00 ± 0.2 mm

TOTAL TRAVEL: 4.5 ± 0.3 mm

OPERATING TEMPERATURE: -40°C to 85°C

Materials

KNOB: POM (UL 94HB)

HOUSING: PBT & PA (UL 94V-0)

COVER: PBT (UL 94V-0)

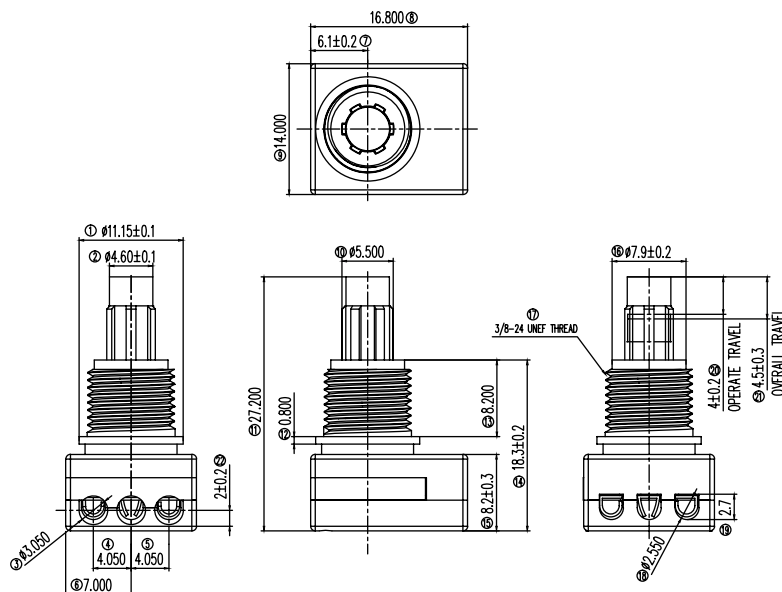
ROTOR: PBT (UL 94V-0)

SLIDER: POM (UL 94HB)

TERMINAL: Brass, silver plated

SPRING: Stainless steel

CONTACT: Phosphor bronze, silver plated



TYCO .062 Commercial Pin
and Socket Connector
PT# 770983-1

PS-22 Series Subminiature Pushbutton Switches



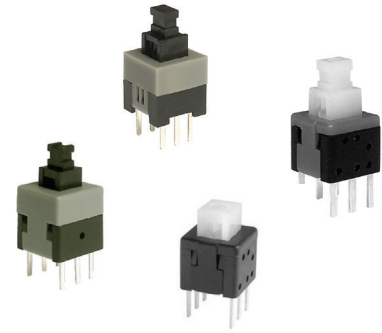
A
Pushbutton

Features/Benefits

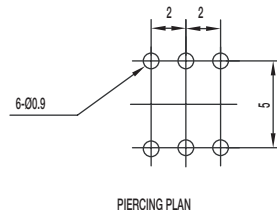
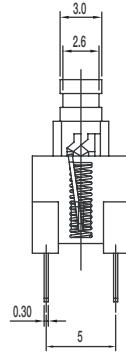
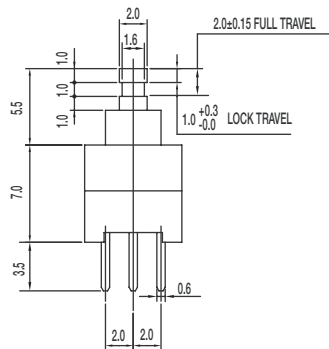
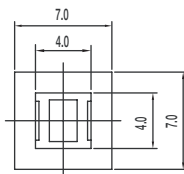
- Compact miniature push switch
- Momentary or latching options
- Shorting or non-shorting
- DPDT

Typical Applications

- Industrial
- Automotive
- Audio and visual equipment



PART NUMBER	PACKAGING	SCHEMATIC
PS-2203-L NS PA	1,000 pieces	
PS-2203-F NS PA	1,000 pieces	



Dimensions

FOOTPRINT: 7.0 x 7.0 mm

HEIGHT: 12.5 mm

Specifications

CONTACT RATING: 0.1A @ 30 VDC

INITIAL CONTACT RESISTANCE: 30 m ohms max.

INSULATION RESISTANCE: 100 M ohms min.

DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.

OPERATING LIFE: 10,000 cycles with load

OPERATING FORCE:

200 ± 100 gf (1.96 ± 0.98N)

LOCK TRAVEL: 1 mm

TOTAL TRAVEL: 2 mm

OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM Black

HOUSING: PA Black

COVER: POM Grey (latch) / White (Mom)

TERMINAL: Brass, silver plated

CONTACT CLIP: Phosphor bronze., silver plated

SPRING: Stainless steel

HOOK LOCK: Stainless steel (latch)



PS-22 Series Subminiature Pushbutton Switches

A

Pushbutton



PART NUMBER	PACKAGING	SCHEMATIC
PS-2206-L NS PA	1,000 pieces	
PS-2206-F NS PA	1,000 pieces	

Dimensions

FOOTPRINT: 8.0 x 8.0 mm

HEIGHT: 13.5 mm

Specifications

CONTACT RATING: 0.1A @ 30 VDC

INITIAL CONTACT RESISTANCE: 70 m ohms max.

INSULATION RESISTANCE: 100 M ohms min.

DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.

OPERATING LIFE: 10,000 cycles with load

OPERATING FORCE:

200 ± 100 gf (1.96 ± 0.98N)

LOCK TRAVEL: 1.5 mm

TOTAL TRAVEL: 2.5 mm

OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM Black

HOUSING: PA Black

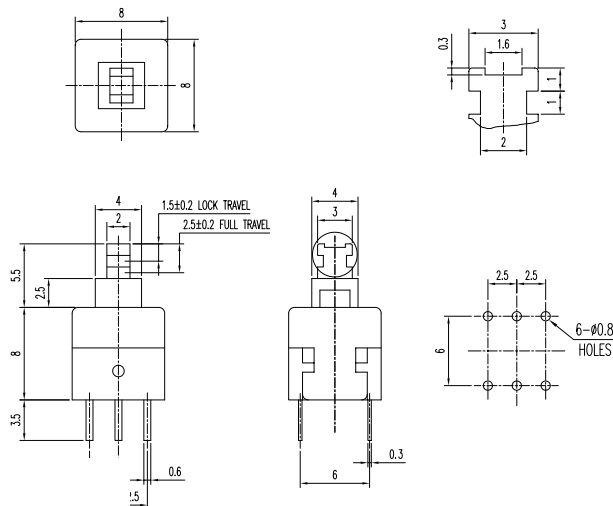
COVER: POM Grey (latch) / White (Mom)

TERMINAL: Brass, silver plated

CONTACT CLIP: Phosphor bronze, silver plated

SPRING: Stainless steel

HOOK LOCK: Stainless steel (latch)



PART NUMBER	PACKAGING	SCHEMATIC
PS-2214-L NS PA	1,000 pieces	
PS-2214-F NS PA	1,000 pieces	

Dimensions

FOOTPRINT: 5.8 x 5.8 mm

HEIGHT: 7.5 mm

Specifications

CONTACT RATING: 0.1A @ 30 VDC

INITIAL CONTACT RESISTANCE: 80 m ohms max.

INSULATION RESISTANCE: 100 M ohms min.

DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.

OPERATING LIFE: 10,000 cycles with load

OPERATING FORCE:

150 ± 50 gf (1.47 ± 0.49N)

LOCK TRAVEL: 1.45 mm

TOTAL TRAVEL: 2.3 mm

OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM Natural (latch) / PA black

HOUSING: PA Black

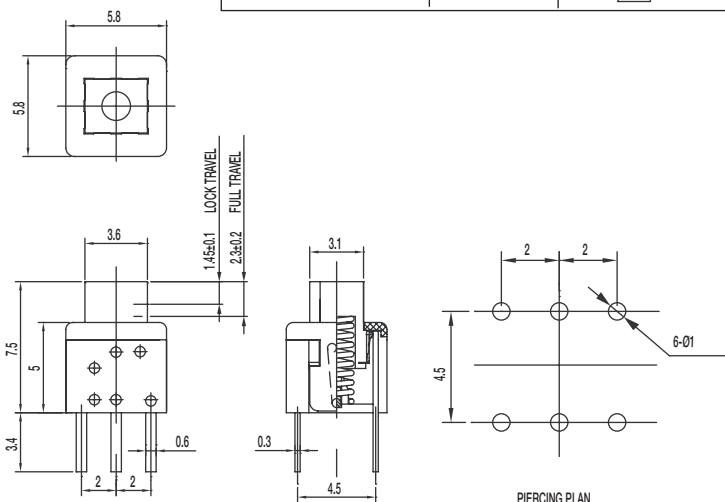
COVER: PA Black

TERMINAL: Brass, silver plated

CONTACT CLIP: Phosphor bronze, silver clad

SPRING: Stainless steel

HOOK LOCK: Stainless steel (latch)



PS-22 Series Subminiature Pushbutton Switches



A
Pushbutton



PART NUMBER	PACKAGING	SCHEMATIC
PS-221605-L NS	1,000 pieces	
PS-221605-F NS	1,000 pieces	

Dimensions

FOOTPRINT: 5.8 x 5.8 mm

HEIGHT: 10 mm

Specifications

CONTACT RATING: 0.1A @ 30 VDC / 2A @ 2 VDC

INITIAL CONTACT RESISTANCE: 80 m ohms max.

INSULATION RESISTANCE: 100 M ohms min.

DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.

OPERATING LIFE: 10,000 cycles with load

OPERATING FORCE:
150 ± 50 gf (1.47 ± 0.49N)

LOCK TRAVEL: 1.3 mm

TOTAL TRAVEL: 2.1 mm

OPERATING TEMPERATURE: -20°C to 70°C

Materials

KNOB: POM Natural

HOUSING: PA Black

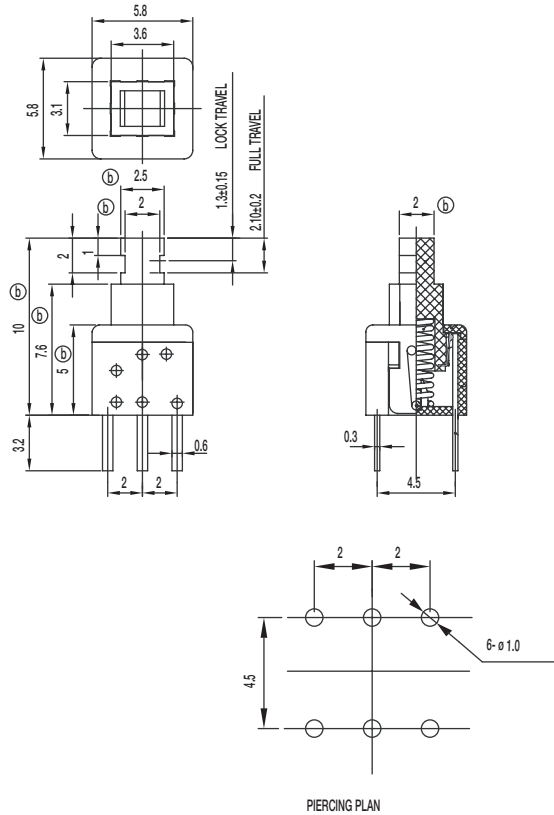
COVER: PC Grey

TERMINAL: Bras, silver plated

CONTACT CLIP: Phosphor bronze, silver clad

SPRING: Stainless steel

HOOK LOCK: Stainless steel (latch)

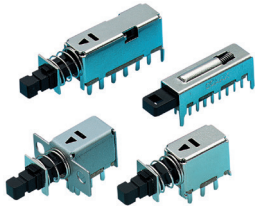




PS Series Miniature Pushbutton Switches

A

Pushbutton



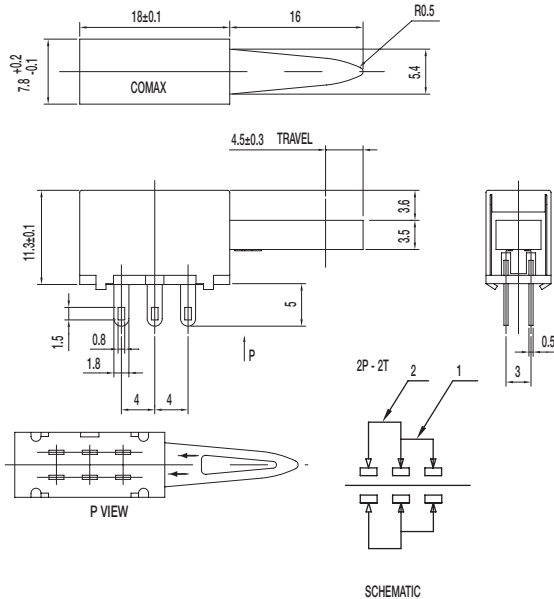
Features/Benefits

- Miniature size
- Momentary or latching options
- Broad range of products

Typical Applications

- Industrial
- Automotive
- Audio and visual equipment
- Telecommunications

PS-22105 DPDT NON-SHORTING



Specifications

CONTACT RATING: 0.3A @ 30 VDC

INITIAL CONTACT RESISTANCE: 30 m ohms max.

INSULATION RESISTANCE: 100 M ohms min.

DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.

OPERATING LIFE: 10,000 cycles with load

OPERATING FORCE: 400 ± 150 gf (3.92 ± 1.47N)

TOTAL TRAVEL: 4.5 ± 0.3 mm

OPERATING TEMPERATURE: -20°C to 70°C

Materials

FRAME: SECC

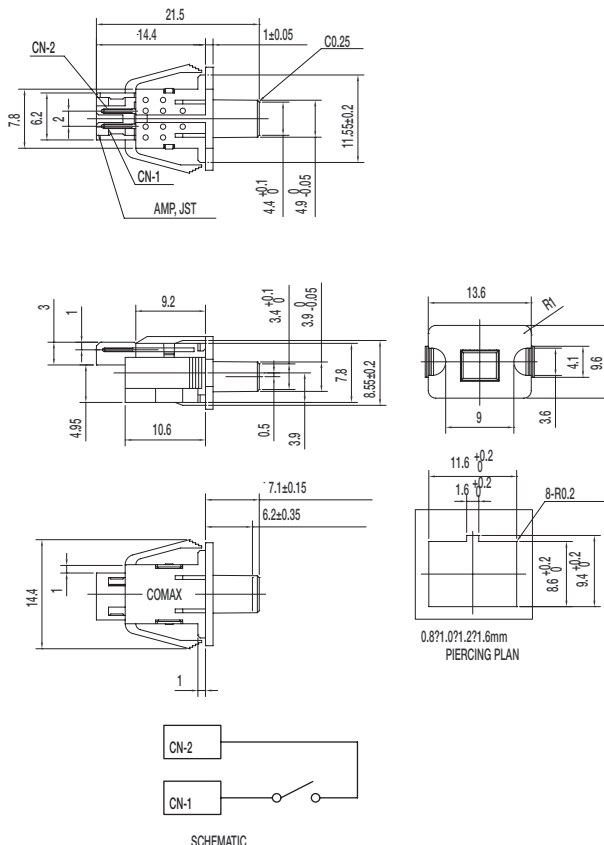
KNOB: POM (UL 94HB)

CONTACT PLATE: Silver clad

SPRING: SUS

TERMINAL: Silver plated

PS-12C02-F NS SPST NON-SHORTING



Specifications

CONTACT RATING: 100 μ A @ 3 VDC min. / 10mA @ 5 VDC max

INITIAL CONTACT RESISTANCE: 100 m ohms max.

INSULATION RESISTANCE: 100 M ohms min.

DIELECTRIC STRENGTH: 250 V AC (50-60 Hz) between open terminals and between the frame and terminal.

OPERATING LIFE: 100,000 cycles with load

OPERATING FORCE: 50 ± 15 gf (0.49 ± 0.147N)

PRE-TRAVEL: 6.20 ± 0.35 mm

OPERATING TEMPERATURE: -40°C to 85°C

Materials

KNOB: POM (UL 94HB)

COVER: PA (UL 94V-0)

HOUSING: PA (UL 94V-0)

SPRING: SUS

TERMINAL: Silver plated



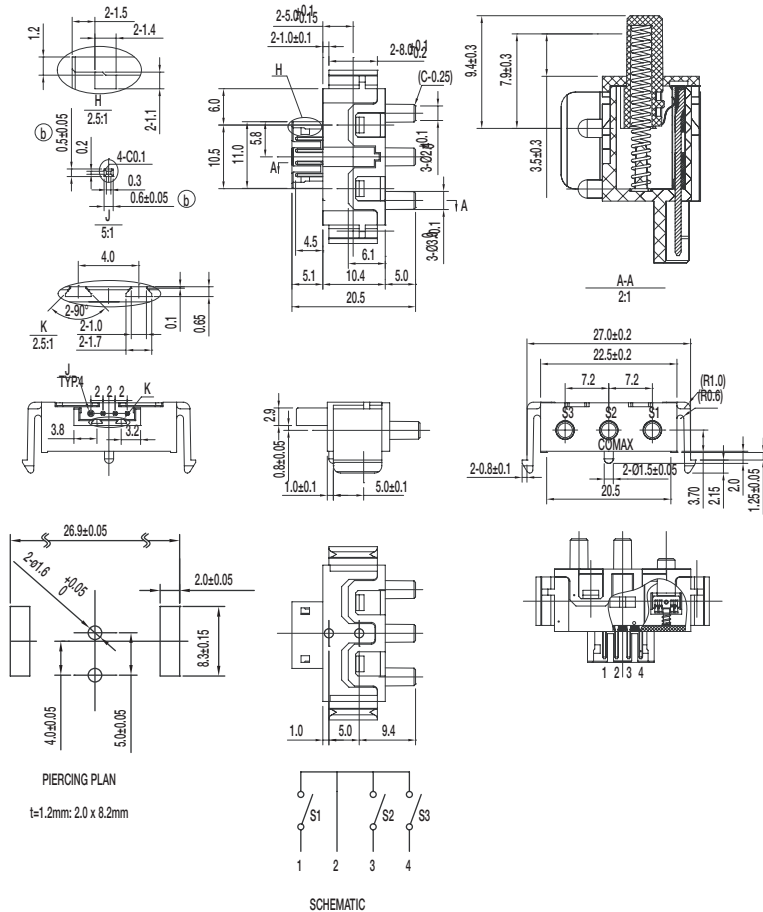
11 Jun 18

PS Series Miniature Pushbutton Switches



A
Pushbutton

PS-32C02-F NS 1P3T NON-SHORTING



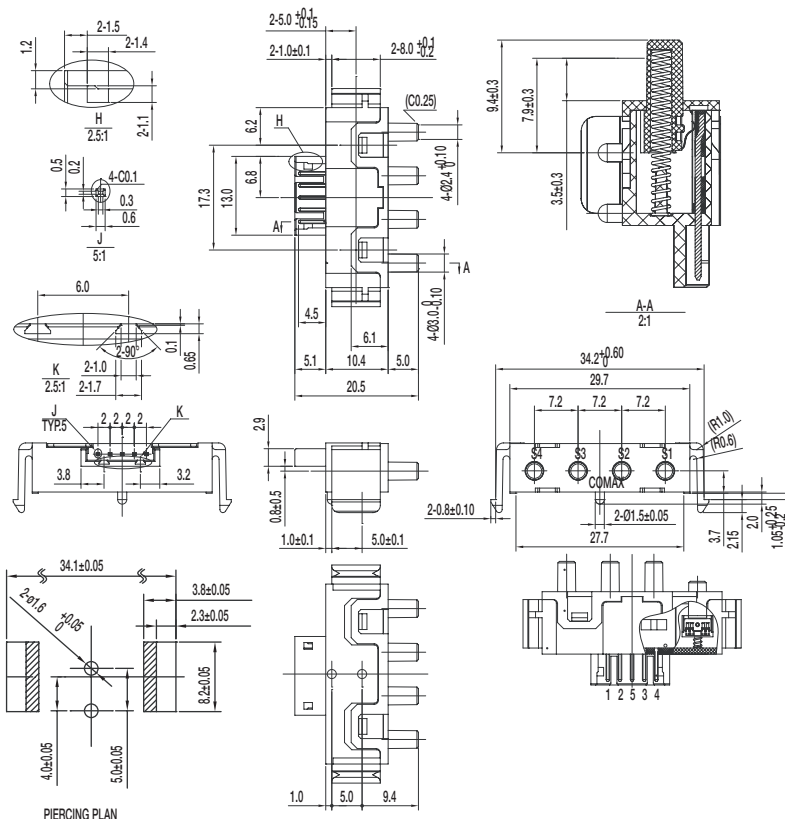
Specifications

CONTACT RATING: 100 μ A @ 3 VDC min. /
10mA @ 5 VDC max
INITIAL CONTACT RESISTANCE: 100 m ohms max.
INSULATION RESISTANCE: 100 M ohms min.
DIELECTRIC STRENGTH: 250 V AC (50-60 Hz)
between open terminals and between the
frame and terminal.
OPERATING LIFE: 100,000 cycles with load
OPERATING FORCE: 80 ± 20 gf (0.784 ± 0.196 N)
PRE-TRAVEL: 1.5 ± 0.3 mm
OVER-TRAVEL: 3.5 ± 0.3 mm
TOTAL TRAVEL: 5 ± 0.3 mm
OPERATING TEMPERATURE: -20°C to 65°C

Materials

KNOB: POM (UL 94HB)
COVER: PA (UL 94V-0)
HOUSING: PA (UL 94V-0)
SPRING: SUS
TERMINAL: Silver plated

PS-42C02-F NS 1P4T NON-SHORTING



Specifications

CONTACT RATING: 100 μ A @ 3 VDC min. /
10mA @ 5 VDC max
INITIAL CONTACT RESISTANCE: 100 m ohms max.
INSULATION RESISTANCE: 100 M ohms min.
DIELECTRIC STRENGTH: 250 V AC (50-60 Hz) between
open terminals and between the frame and terminal.
OPERATING LIFE: 100,000 cycles with load
OPERATING FORCE: 80 ± 20 gf (0.784 ± 0.196 N)
PRE-TRAVEL: 1.5 ± 0.3 mm
OVER-TRAVEL: 3.5 ± 0.3 mm
TOTAL TRAVEL: 5 ± 0.3 mm
OPERATING TEMPERATURE: -20°C to 65°C

Materials

KNOB: POM (UL 94HB)
COVER: PA (UL 94V-0)
HOUSING: PA (UL 94V-0)
SPRING: SUS
TERMINAL: Silver plated

Dimensions are shown: mm
Specifications and dimensions subject to change

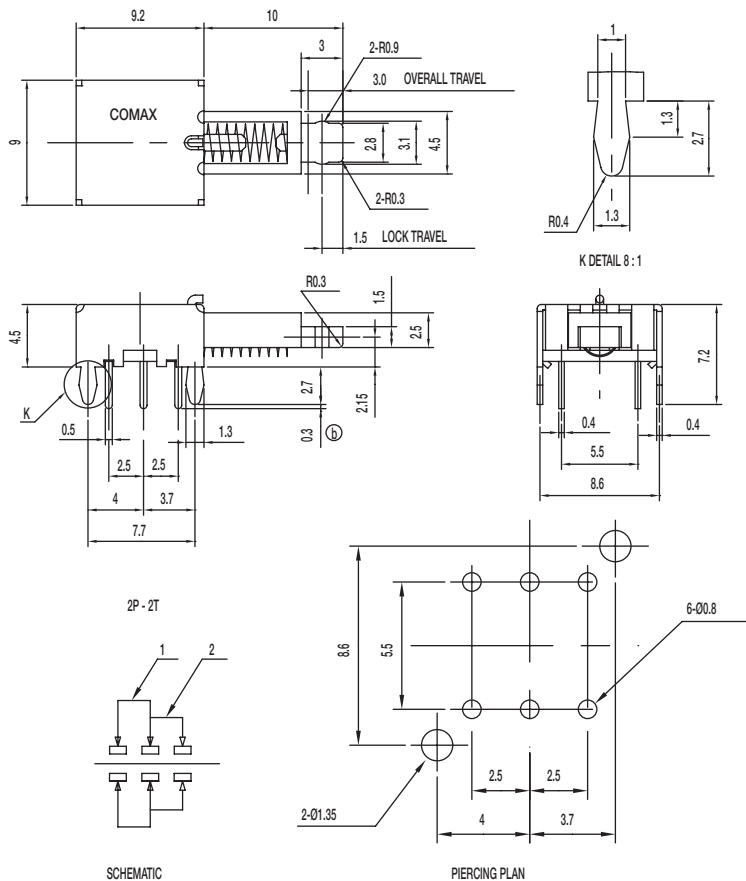
11 Jun 18



PS Series Miniature Pushbutton Switches

Pushbutton
A

PS-22C08-G10 NS DPDT NON-SHORTING



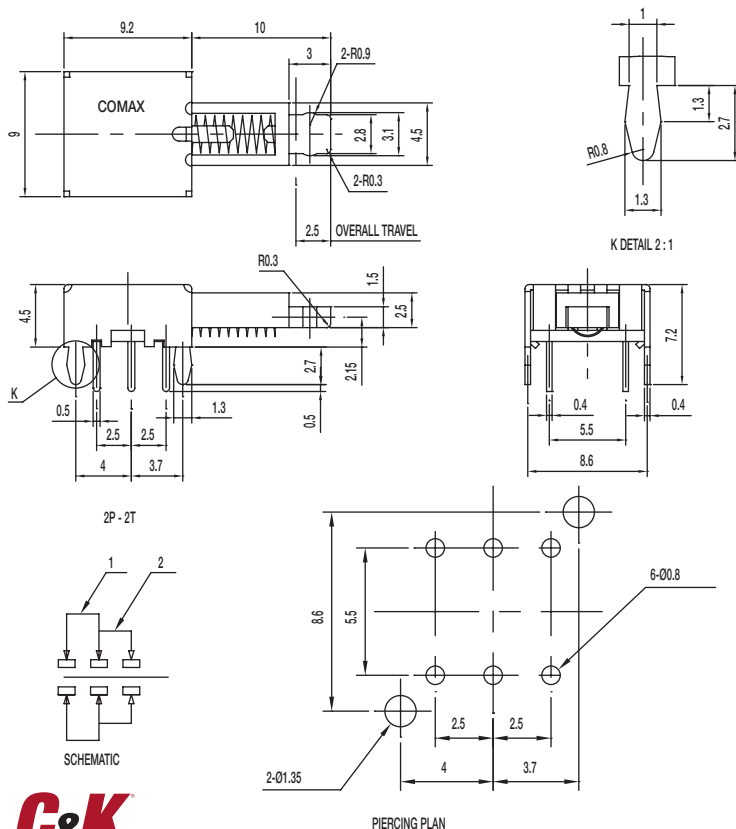
Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles without load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98 N)
 LOCK TRAVEL: 1.5 ± 0.3 mm
 OVER-TRAVEL: 3 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

FRAME: SPCC
 KNOB: POM (UL 94HB)
 CONTACT: Silver plated
 SPRING: SUS
 TERMINAL: Silver plated

PS-22E08-G10 NS DPDT NON-SHORTING



Specifications

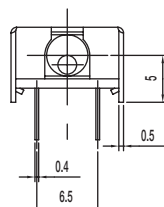
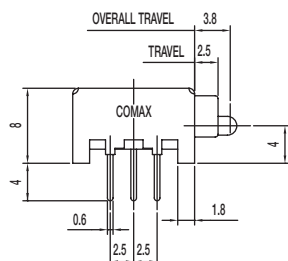
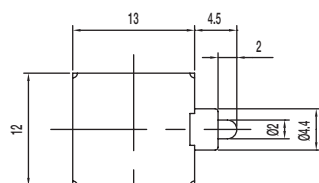
CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles without load
 OPERATING FORCE: 200 ± 100 gf (1.96 ± 0.98 N)
 TOTAL TRAVEL: 2.5 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

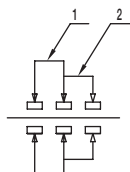
FRAME: SPCC
 KNOB: POM (UL 94HB)
 CONTACT: Silver plated
 SPRING: SUS
 TERMINAL: Silver plated



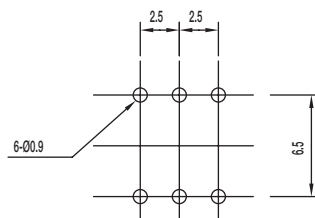
PS-22E09-G 4.5 NS DPDT NON-SHORTING



2P - 2T



SCHEMATIC



PIERCING PLAN

Specifications

CONTACT RATING: 0.3A @ 30 VDC

INITIAL CONTACT RESISTANCE: 30 m ohms max.

INSULATION RESISTANCE: 100 M ohms min.

DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.

OPERATING LIFE: 10,000 cycles with load

OPERATING FORCE: 70 ± 20 gf (0.686 ± 0.196 N)

TRAVEL: 2.5 ± 0.3 mm

TOTAL TRAVEL: 3.8 ± 0.3 mm

OPERATING TEMPERATURE: -20°C to 70°C

Materials

FRAME: SPCC

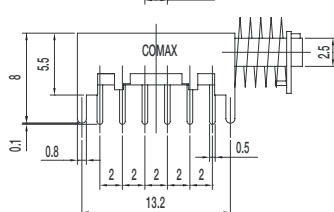
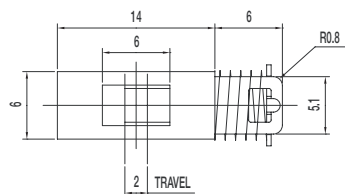
KNOB: POM (UL 94HB)

CONTACT: Silver plated

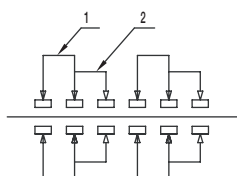
SPRING: SUS

TERMINAL: Silver plated

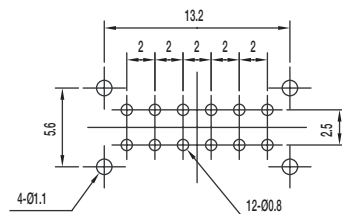
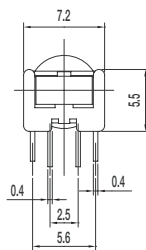
PS-42D09-NS 4P2T NON-SHORTING



4P - 2T



SCHEMATIC



PIERCING PLAN

Specifications

CONTACT RATING: 0.3A @ 30 VDC

INITIAL CONTACT RESISTANCE: 30 m ohms max.

INSULATION RESISTANCE: 100 M ohms min.

DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.

OPERATING LIFE: 10,000 cycles with load

OPERATING FORCE: 250 ± 100 gf (2.45 ± 0.98 N)

TRAVEL: 2 ± 0.3 mm

OPERATING TEMPERATURE: -20°C to 70°C

Materials

FRAME: SPCC

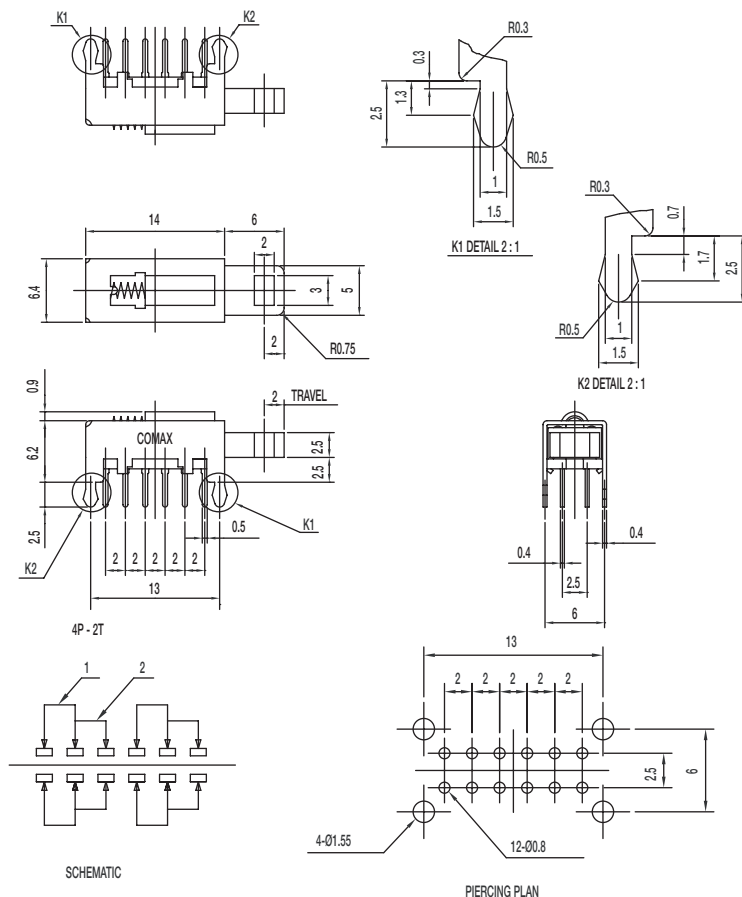
KNOB: POM (UL 94HB)

CONTACT PLATE: Silver plated

SPRING: Steel

TERMINAL: Silver plated

PS Series Miniature Pushbutton Switches

PS-42D13-NS 4P2T NON-SHORTING

Specifications

CONTACT RATING: 0.3A @ 30 VDC

INITIAL CONTACT RESISTANCE: 30 m ohms max.

INSULATION RESISTANCE: 100 M ohms min.

DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.

OPERATING LIFE: 10,000 cycles with load

OPERATING FORCE: 250 ± 100 gf (2.45 ± 0.98 N)

TRAVEL: 2 ± 0.3 mm

OPERATING TEMPERATURE: -20°C to 70°C

Materials

FRAME: SPCC

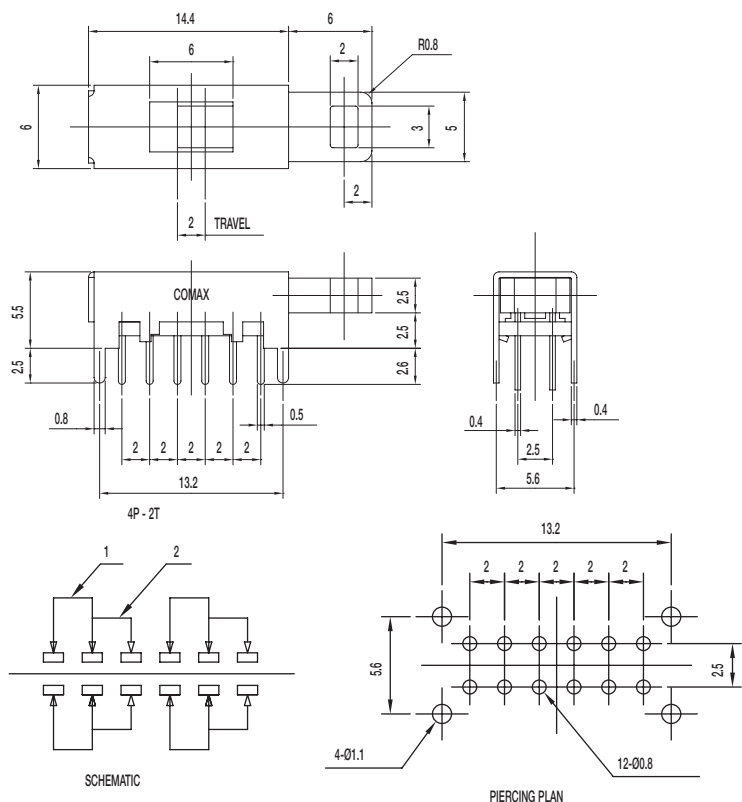
Knob: POM (UL 94HB)

CONTACT: Silver plated

SPRING: Steel

TERMINAL: Silver plated

PS-42D16-S 4P2T SHORTING



Specifications

CONTACT RATING: 0.3A @ 30 VDC

INITIAL CONTACT RESISTANCE: 30 m ohms max.

INSULATION RESISTANCE: 100 M ohms min.

DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.

OPERATING LIFE: 10,000 cycles with load

OPERATING FORCE: 60 ± 30 gf (0.59 ± 0.29 N)

TRAVEL: 2 ± 0.3 mm

OPERATING TEMPERATURE: -20°C to 70°C

Materials

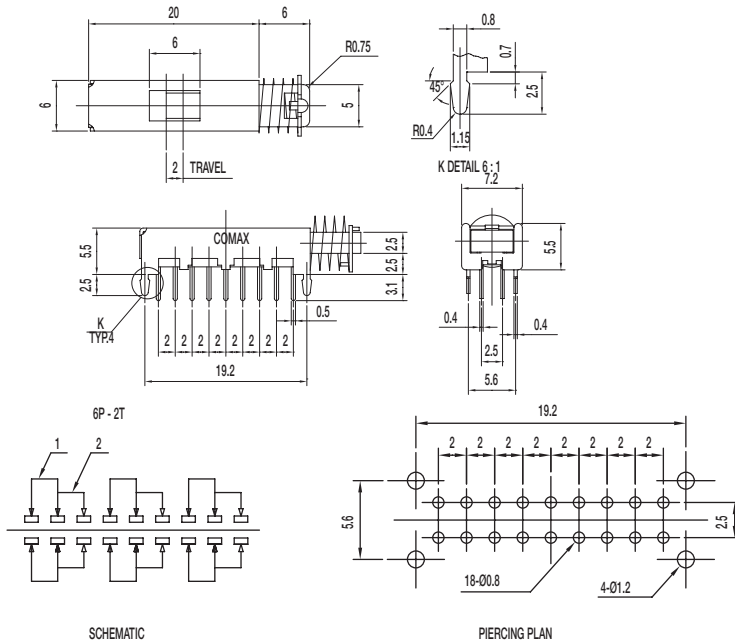
FRAME: SPCC

Knob: POM (UL 94HB)

CONTACT: Silver plated

TERMINAL: Silver plated

PS-62D10-S 6P2T SHORTING



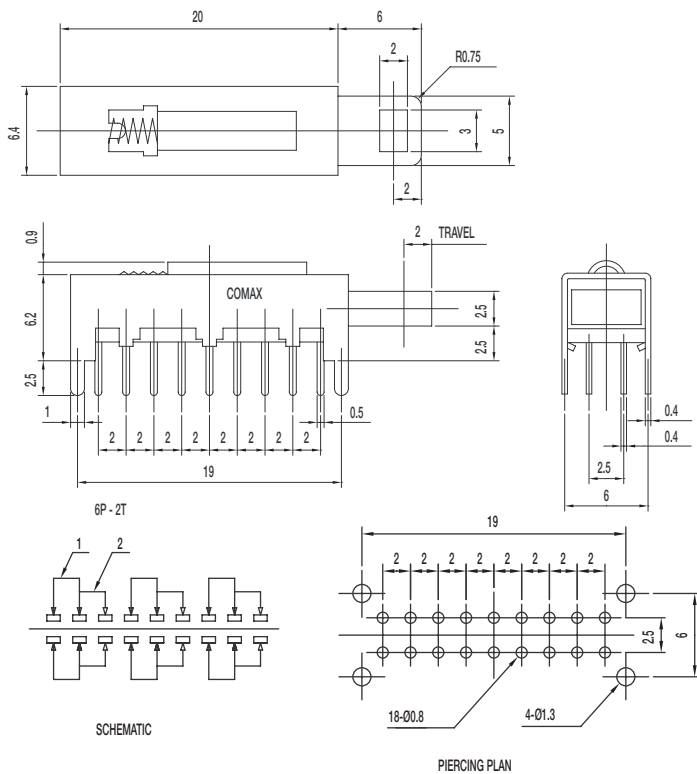
Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 250 ± 100 gf (2.45 ± 0.98 N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

FRAME: SPCC
 KNOB: POM (UL 94HB)
 CONTACT: Silver plated
 SPRING: Steel
 TERMINAL: Silver plated

PS-62D13-S 6P2T SHORTING



Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 300 ± 100 gf (2.94 ± 0.98 N)
 TRAVEL: 2 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

FRAME: SPCC
 KNOB: POM (UL 94HB)
 CONTACT PLATE: Silver plated
 SPRING: Steel
 TERMINAL: SUS

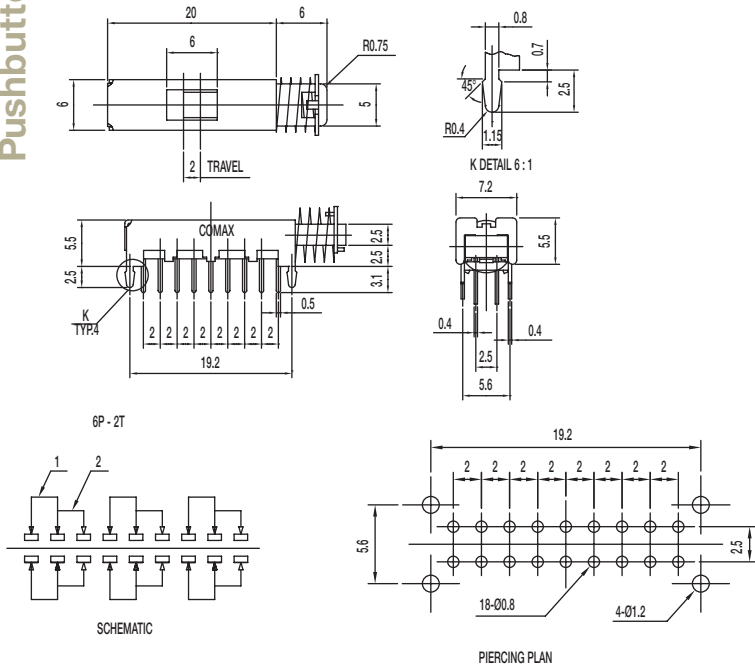


PS Series Miniature Pushbutton Switches

A

Pushbutton

PS-62D15-S 6P2T SHORTING



Specifications

CONTACT RATING: 0.3A @ 30 VDC

INITIAL CONTACT RESISTANCE: 30 m ohms max.

INSULATION RESISTANCE: 100 M ohms min.

DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.

OPERATING LIFE: 10,000 cycles with load

OPERATING FORCE: 250 ± 100 gf (2.45 ± 0.98N)

TRAVEL: 2 ± 0.3 mm

OPERATING TEMPERATURE: -20°C to 70°C

Materials

FRAME: SPCC

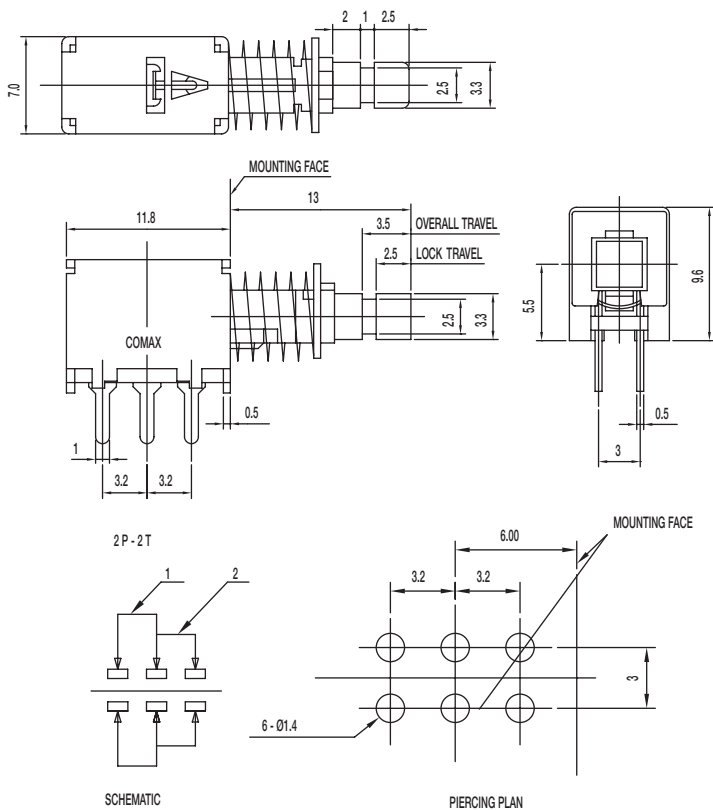
KNOB: POM (UL 94HB)

CONTACT: Silver plated

SPRING: Steel

TERMINAL: Silver plated

PS-22E02-G13 S DPDT SHORTING WITH LOCK



Specifications

CONTACT RATING: 0.3A @ 30 VDC

INITIAL CONTACT RESISTANCE: 30 m ohms max.

INSULATION RESISTANCE: 100 M ohms min.

DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.

OPERATING LIFE: 10,000 cycles with load

OPERATING FORCE: 300 ± 100 gf (2.94 ± 0.98N)

LOCK TRAVEL: 2.5 ± 0.3 mm

TOTAL TRAVEL: 3.5 ± 0.3 mm

OPERATING TEMPERATURE: -20°C to 70°C

Materials

FRAME: SPCC

KNOB: POM (UL 94HB)

CONTACT: Silver plated

SPRING: Steel

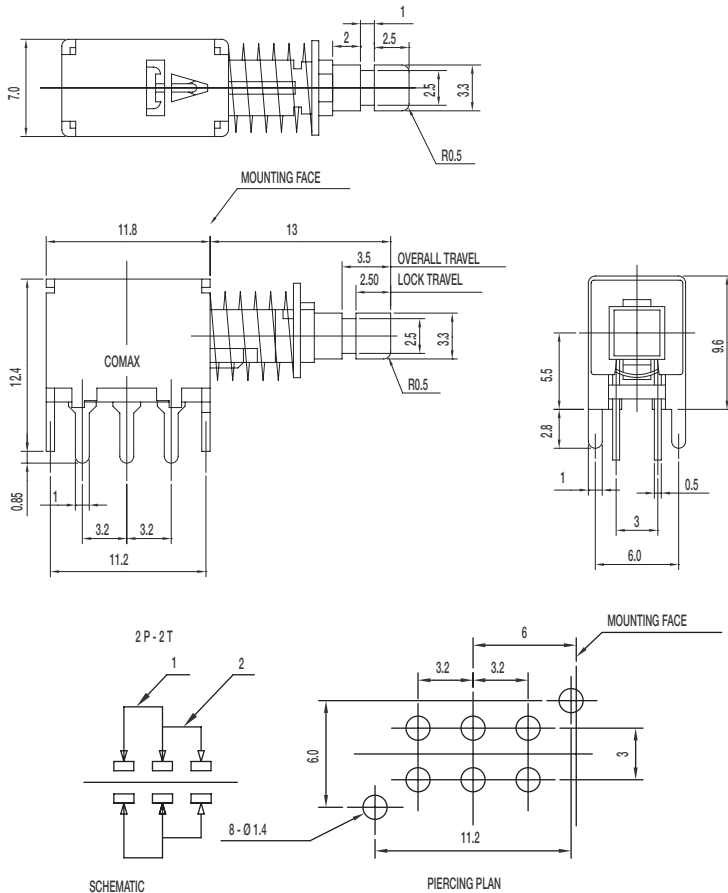
TERMINAL: Silver plated

PS Series Miniature Pushbutton Switches



A
Pushbutton

PS-22E04-G13 NS DPDT NON-SHORTING WITH LOCK



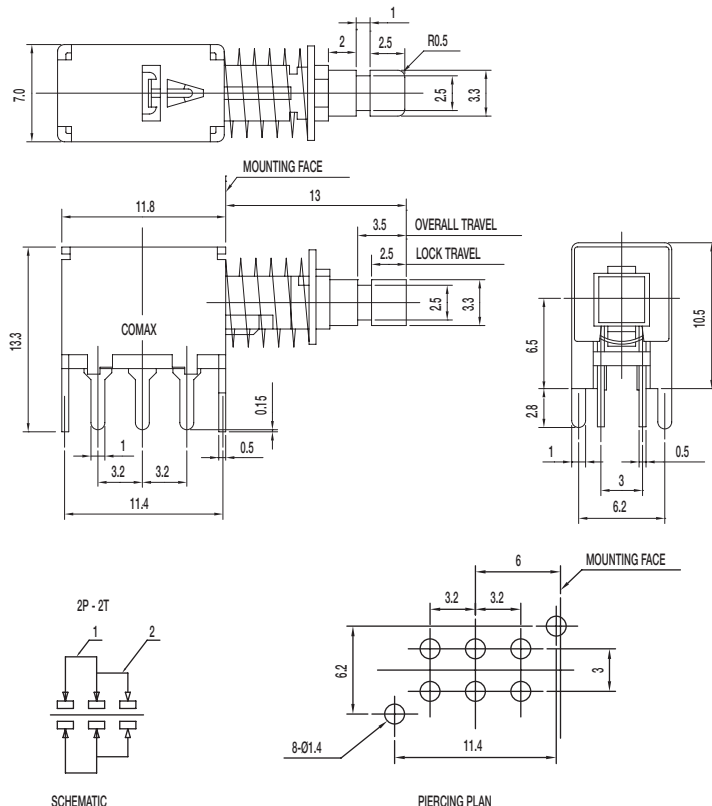
Specifications

CONTACT RATING: 0.3A @ 30 VDC
INITIAL CONTACT RESISTANCE: 30 m ohms max.
INSULATION RESISTANCE: 100 M ohms min.
DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
OPERATING LIFE: 10,000 cycles with load
OPERATING FORCE: 300 ± 100 gf (2.94 ± 0.98 N)
LOCK TRAVEL: 2.5 ± 0.3 mm
TOTAL TRAVEL: 3.5 ± 0.3 mm
OPERATING TEMPERATURE: -20°C to 70°C

Materials

FRAME: SPCC
KNOB: POM (UL 94HB)
CONTACT: Silver plated
SPRING: Steel
TERMINAL: Silver plated

PS-22E44-G13 NS DPDT NON-SHORTING WITH LOCK



Specifications

CONTACT RATING: 0.3A @ 30 VDC
INITIAL CONTACT RESISTANCE: 30 m ohms max.
INSULATION RESISTANCE: 100 M ohms min.
DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
OPERATING LIFE: 10,000 cycles with load
OPERATING FORCE: 300 ± 100 gf (2.94 ± 0.98 N)
LOCK TRAVEL: 2.5 ± 0.3 mm
TOTAL TRAVEL: 3.5 ± 0.3 mm
OPERATING TEMPERATURE: -20°C to 70°C

Materials

FRAME: SPCC
KNOB: POM (UL 94HB)
CONTACT: Silver plated
SPRING: Steel
TERMINAL: Silver plated

C&K

11 Jun 18

Dimensions are shown: mm
Specifications and dimensions subject to change

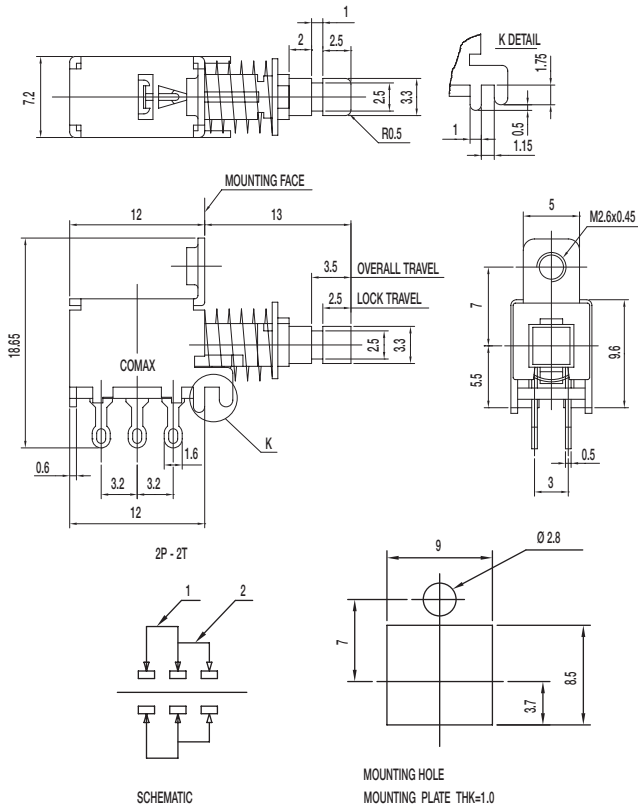


PS Series Miniature Pushbutton Switches

A

Pushbutton

PS-22E75-G13 NS DPDT NON-SHORTING WITH LOCK



Specifications

CONTACT RATING: 0.3A @ 30 VDC

INITIAL CONTACT RESISTANCE: 30 m ohms max.

INSULATION RESISTANCE: 100 M ohms min.

DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.

OPERATING LIFE: 10,000 cycles with load

OPERATING FORCE: 300 ± 100 gf (2.94 ± 0.98N)

LOCK TRAVEL: 2.5 ± 0.3 mm

TOTAL TRAVEL: 3.5 ± 0.3 mm

OPERATING TEMPERATURE: -20°C to 70°C

Materials

FRAME: SPCC

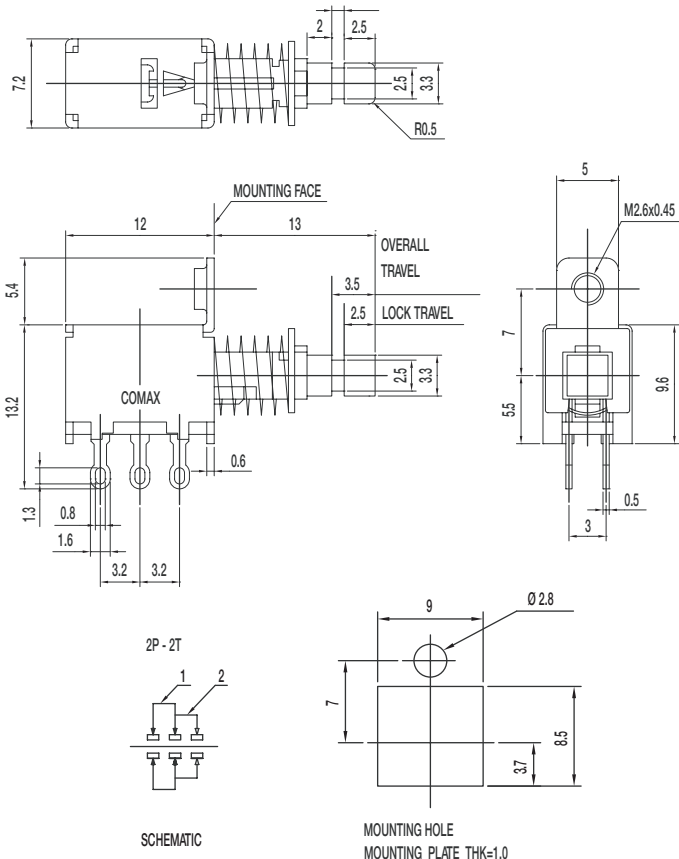
KNOB: POM (UL 94HB)

CONTACT: Silver plated

SPRING: Steel

TERMINAL: Silver plated

PS-22E95-G13 NS DPDT NON-SHORTING WITH LOCK



Specifications

CONTACT RATING: 0.3A @ 30 VDC

INITIAL CONTACT RESISTANCE: 30 m ohms max.

INSULATION RESISTANCE: 100 M ohms min.

DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.

OPERATING LIFE: 10,000 cycles with load

OPERATING FORCE: 300 ± 100 gf (2.94 ± 0.98N)

LOCK TRAVEL: 2.5 ± 0.3 mm

TOTAL TRAVEL: 3.5 ± 0.3 mm

OPERATING TEMPERATURE: -20°C to 70°C

Materials

FRAME: SPCC

KNOB: POM (UL 94HB)

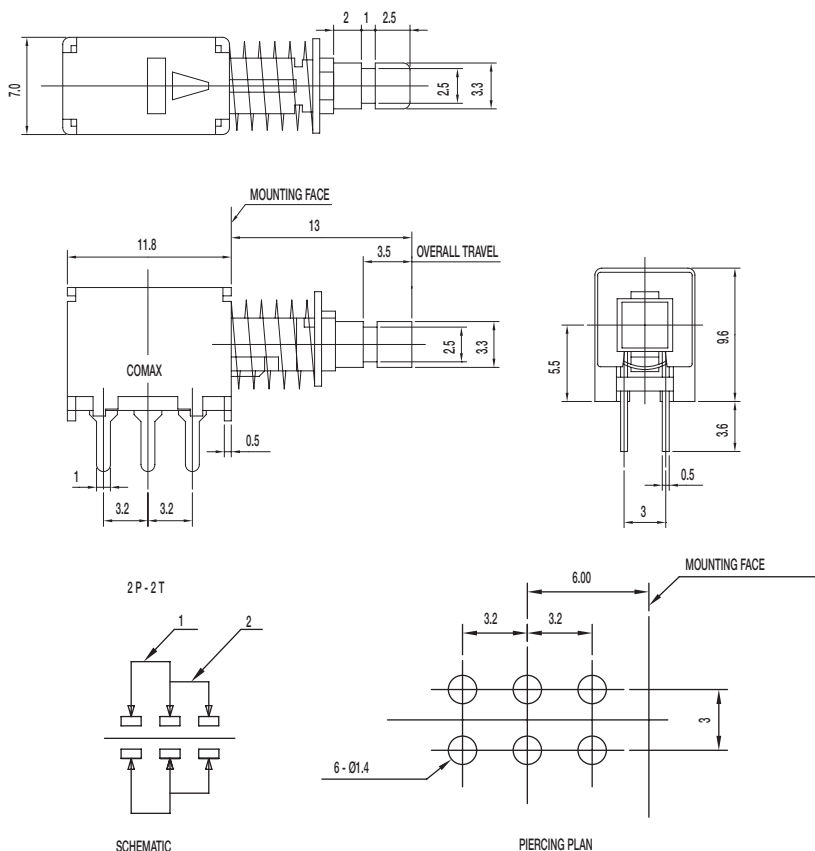
CONTACT: Silver plated

SPRING: Steel

TERMINAL: Silver plated



PS-22F02-G13 S DPDT SHORTING



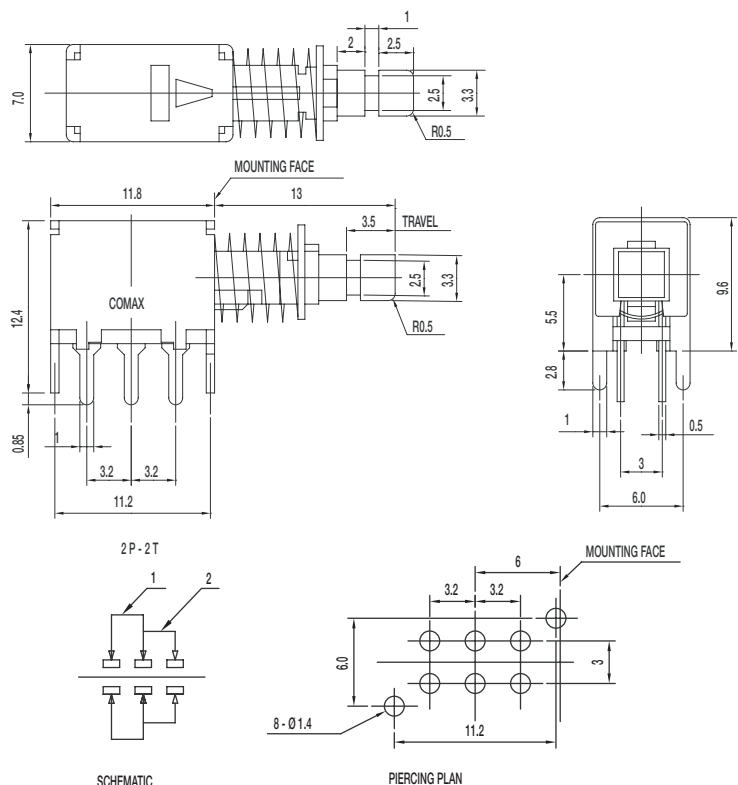
Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz)
 between openterminals and between the frame
 and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 300 ± 100 gf (2.94 ± 0.98N)
 TOTAL TRAVEL: 3.5 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

FRAME: SPCC
 KNOB: POM (UL 94HB)
 CONTACT: Silver plated
 SPRING: Steel
 TERMINAL: Silver plated

PS-22F04-G13 NS DPDT NON_SHORTING



Specifications

CONTACT RATING: 0.3A @ 30 VDC
 INITIAL CONTACT RESISTANCE: 30 m ohms max.
 INSULATION RESISTANCE: 100 M ohms min.
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open
 terminals and between the frame and terminal.
 OPERATING LIFE: 10,000 cycles with load
 OPERATING FORCE: 300 ± 100 gf (2.94 ± 0.98N)
 TOTAL TRAVEL: 3.5 ± 0.3 mm
 OPERATING TEMPERATURE: -20°C to 70°C

Materials

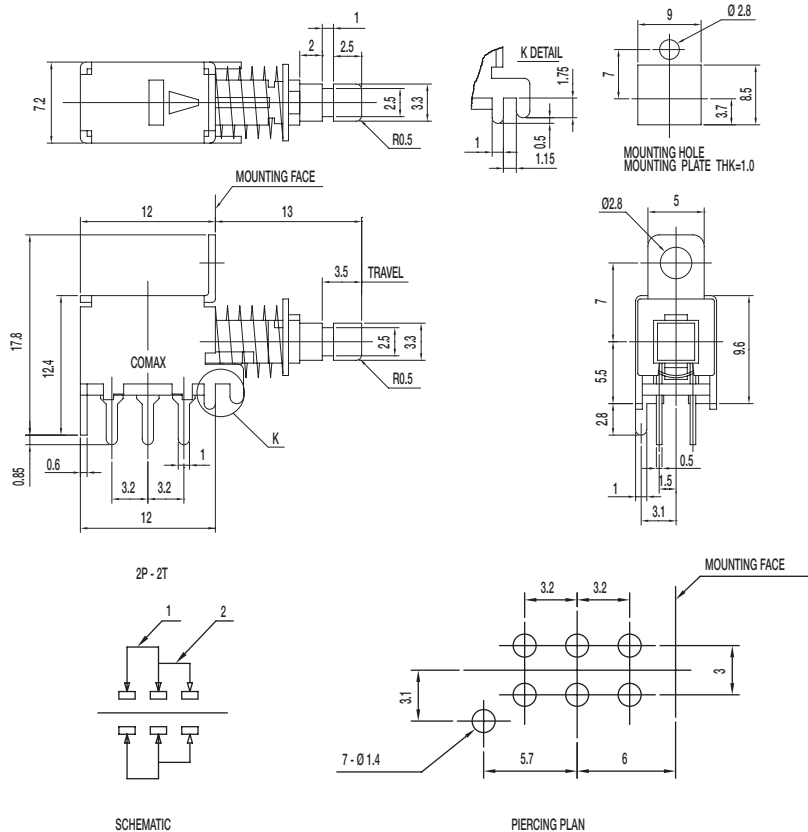
FRAME: SPCC
 KNOB: POM (UL 94HB)
 CONTACT: Silver plated
 SPRING: Steel
 TERMINAL: Silver plated

PS Series Miniature Pushbutton Switches

A

Pushbutton

PS-22F24-G13 NS DPDT NON_SHORTING



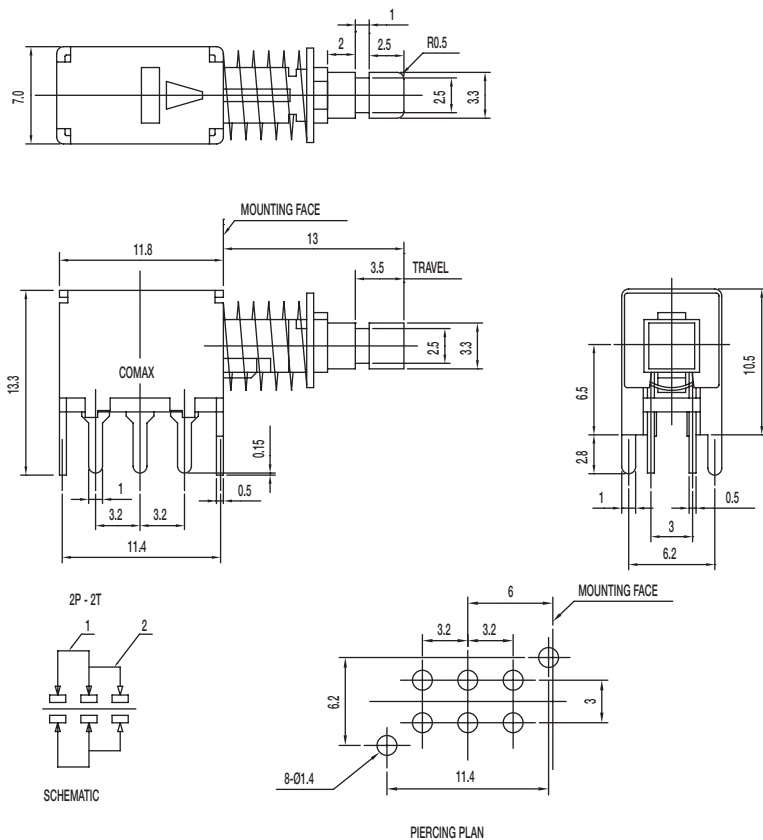
Specifications

CONTACT RATING: 0.3A @ 30 VDC
INITIAL CONTACT RESISTANCE: 30 m ohms max.
INSULATION RESISTANCE: 100 M ohms min.
DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
OPERATING LIFE: 10,000 cycles with load
OPERATING FORCE: 300 ± 100 gf (2.94 ± 0.98N)
TOTAL TRAVEL: 3.5 ± 0.3 mm
OPERATING TEMPERATURE: -20°C to 70°C

Materials

FRAME: SPCC
KNOB: POM (UL 94HB)
CONTACT: Silver plated
SPRING: Steel
TERMINAL: Silver plated

PS-22F44-G13 NS DPDT NON_SHORTING



Specifications

CONTACT RATING: 0.3A @ 30 VDC
INITIAL CONTACT RESISTANCE: 30 m ohms max.
INSULATION RESISTANCE: 100 M ohms min.
DIELECTRIC STRENGTH: 500 V AC (50-60 Hz) between open terminals and between the frame and terminal.
OPERATING LIFE: 10,000 cycles with load
OPERATING FORCE: 300 ± 100 gf (2.94 ± 0.98N)
TOTAL TRAVEL: 3.5 ± 0.3 mm
OPERATING TEMPERATURE: -20°C to 70°C

Materials

FRAME: SPCC
KNOB: POM (UL 94HB)
CONTACT: Silver plated
SPRING: Steel
TERMINAL: Silver plated

PVA Short Stroke Key Switches



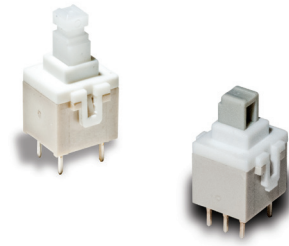
A
Pushbutton

Features/Benefits

- **Compact design**
- **Short stroke to latch**
- **Wide variety of actuator heights**
- **Adapted for medium power applications**
- **RoHS compliant and compatible**

Typical Applications

- **Automotive (air conditioning, lighting)**
- **Industrial**
- **Control panel**



Construction

FUNCTION: Momentary, Push-Push

CONTACT ARRANGEMENT:

PVA1: 2 make contacts (DPST)

PVA2: 2 change over contacts (DPDT)

SWITCHING MODE: Non-shorting

TERMINALS: PC pins¹

Mechanical

TOTAL TRAVEL / LATCHING TRAVEL:

OA: 2,4 mm

EE: 2,4 / 1,5 mm

ELECTRICAL TRAVEL: 0.8 mm (1.1 for PVA2 OA H5)

OPERATING FORCE: 1,2N; 1,7N; 3,5N

Process

SOLDERABILITY:

Wave soldering, compatible with lead free soldering profile

Hand soldering, 350°C for 3 seconds

Note: Specifications listed above are for switches with standard options.

For information on specific and custom switches, please contact technical support using the "Ask a Specialist" option on the PVA product web page.v

Electrical

SWITCHING POWER MAX.: 3 W DC

SWITCHING VOLTAGE MAX.: 32 V DC

SWITCHING CURRENT MAX.: 100 mA DC*

DIELECTRIC STRENGTH (50 Hz / 1 min):

1000 V between open contacts, PVA2: 750 V

OPERATING LIFE:

OA (momentary): $\geq 1 \times 10^5$ operations

EE (push-push): $\geq 1 \times 10^5$ operations

CONTACT RESISTANCE: Initial $\leq 100 \text{ m}\Omega$

INSULATION RESISTANCE: $\geq 10^{10} \Omega$

BOUNCE TIME: $\leq 3 \text{ ms}$

Environmental

OPERATING TEMPERATURE: -40°C to 85°C.²

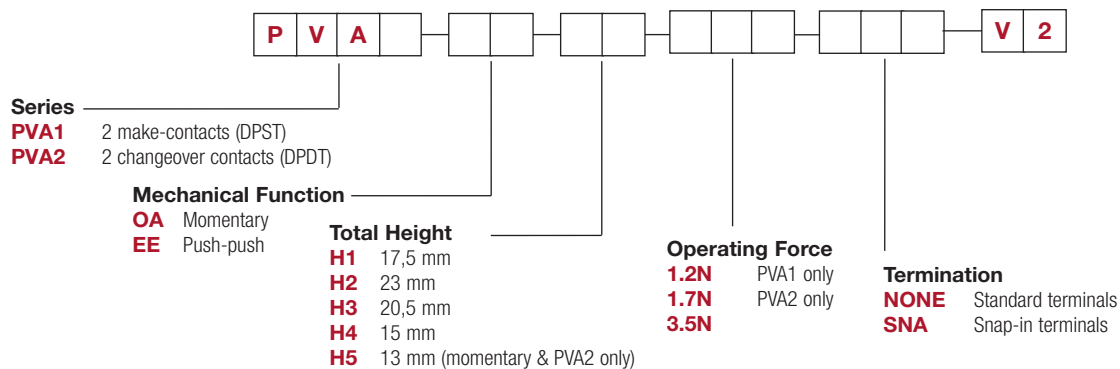
1) "Snap-in" contacts on request, Version SNA with pins bent inside (standard)

2) With button +70°C

How To Order

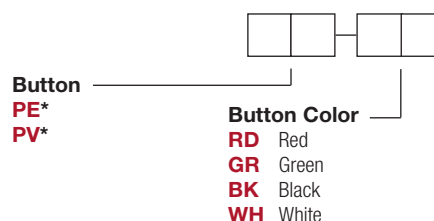
Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box. **Some of the configurations may not be available or could require some development.**

Switch



Button

Buttons must be ordered separately.
Shipped in bulk.



*Compatible with H1 and H3 actuator models only.



24 may 19

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

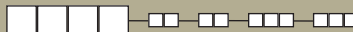


PVA Short Stroke Key Switches

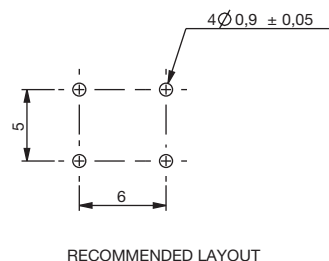
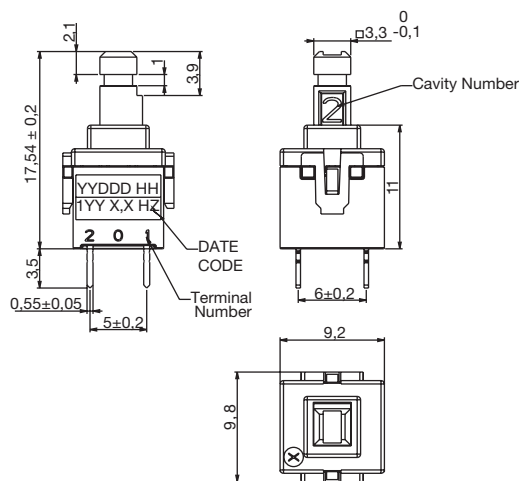
A

Pushbutton

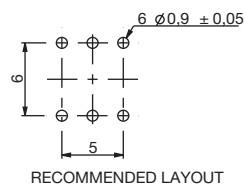
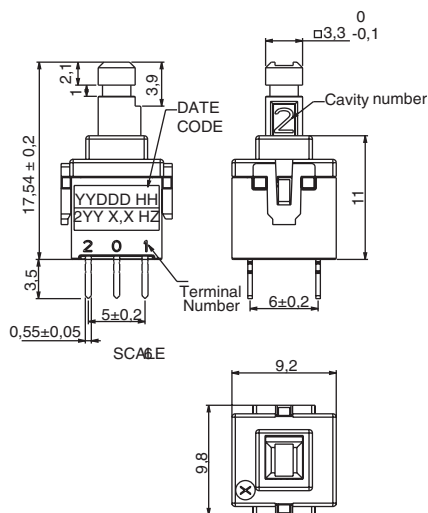
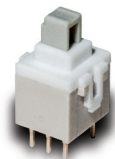
SERIES



PVA1 (DPST)



PVA2 (DPDT)

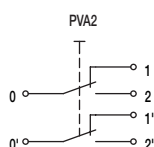
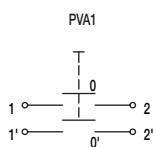


MECHANICAL FUNCTION

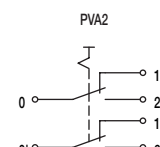
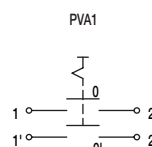


OPTION CODE	FUNCTION
OA	Momentary
EE	Push-Push

OA



EE



PVA Short Stroke Key Switches



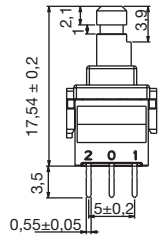
A

Pushbutton

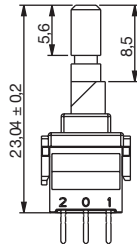
TOTAL HEIGHT



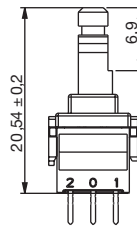
H1 17,5 MM



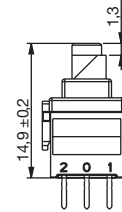
H2 23 MM



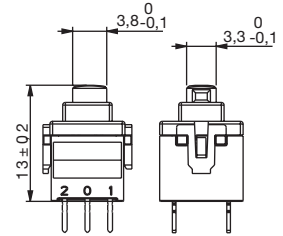
H3 20,5 MM



H4 15 MM



H5 13 MM
(MOMENTARY ONLY)



OPERATING FORCE

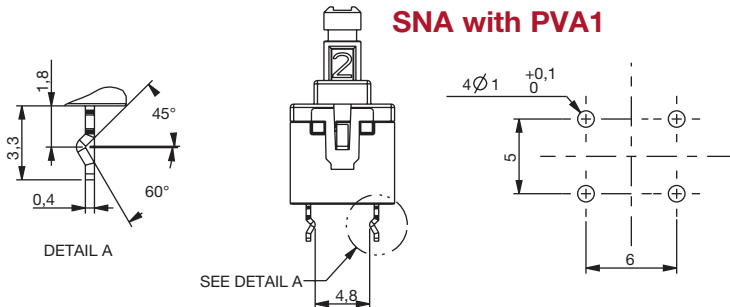


1.2N PVA1 ONLY
1.7N PVA2 ONLY
3.5N

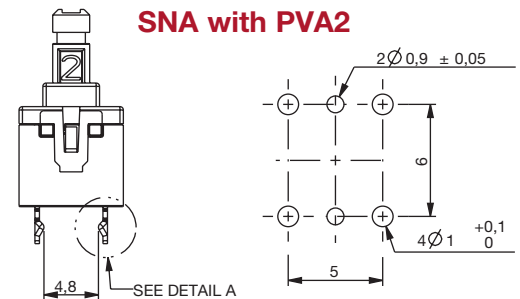
TERMINATION



SNA with PVA1



SNA with PVA2

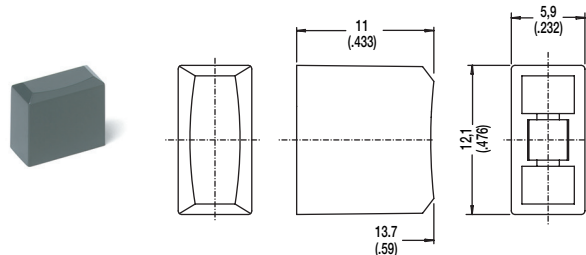


BUTTONS



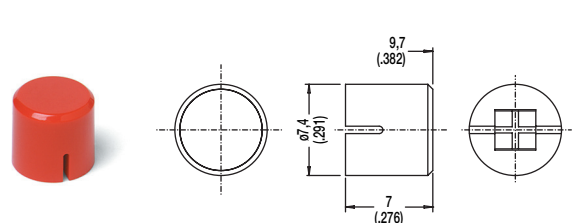
BUTTONS MUST BE ORDERED SEPARATELY. SHIPPED IN BULK.

PE



OPTION CODE	COLOR
RD	Red
GY	Gray
BK	Black
WH	White

PV





KLS Illuminated SPDT/DPDT Pushbutton

NEW

Pushbutton
A



Features/Benefits

- Positive tactile feedback
- Momentary or Lock version
- SPDT & DPDT configuration
- Gold or silver contact materials
- Choices of color on LED illumination
- 3 different CAP styles & sizes
- CAP with printed or etched logo*

Typical Applications

- Audio/video system
- Vending machine
- Kiosks
- Network equipment

Specifications

FUNCTION: SPDT, DPDT
CONTACT ARRANGEMENT: N.C.
MOUNTING TYPE: Straight PCB terminals

Mechanical

OPERATING LIFE: 1,000,000 cycles
TOTAL TRAVEL: 2.2 mm
OPERATING FORCE: 200 ± 100 gf (SPDT)
300 ± 150 gf (DPDT)

Electrical

CONTACT RATING; See table on contact material
OPERATING LIFE: 200,000 cycles on both gold & silver plating
DIELECTRIC STRENGTH: 1,000 V AC for 1 min.
INSULATION RESISTANCE: 100 MΩ min. @ 500 VDC
INITIAL CONTACT RESISTANCE: 50 mΩ max. (silver contact)
100 mΩ max/ (gold contact)

Materials

CASE: PA66+70G33L (Black)
ACTUATOR: POM (White)
CAP: PC
SPRING: Black wire / Stainless steel
SPRING PLATE: Phosphor bronze
TERMINALS / CONTACT: Brass / Copper with silver or gold plated
TERMINAL SEAL: Epoxy

Operating Environment

OPERATING TEMPERATURE: -40°C to +85°C

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

Build-A-Switch

To order, simply select desired option from each category and place it in the appropriate box.

<div style="border: 1px solid black; padding: 2px; display: inline-block;"> K L S </div>									
Series KLS12 SPDT KLS22 DPDT		Cap Style F Square flat C Square concave L Square large concave		Cap Color* 0 Transparent 2 Black 9 Silver		Contact Material Q Gold/Silver G Gold		Mechanical Function A Momentary E Lock	
LED Illumination (Pos. I) 0 Without 3 Red 5 Yellow 6 Green 7 Blue R RGB		LED Illumination (Pos. II) 0 Without 3 Red 5 Yellow 6 Green 7 Blue R RGB							

* For CAP with logo or symbol, please contact your sales representative.

NEW

KLS Illuminated SPDT/DPDT Pushbutton

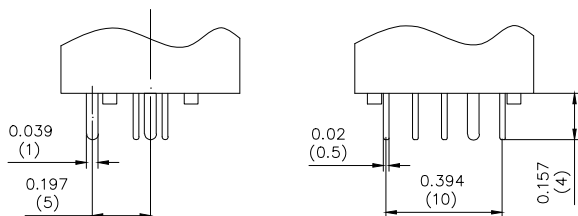


A

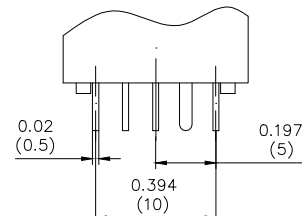
Pushbutton

SERIES

KLS12



KLS22

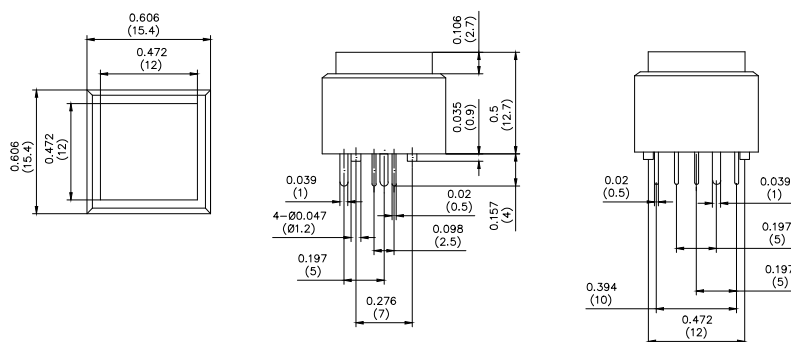


NO. POLES	MODEL NO.	SWITCH FUNCTION		CONNECTED TERMINALS		SCHEMATIC
		POS. 1	POS. 2	POS. 1	POS. 2	
SP	KLS12	ON	(ON)	1-3	1-2	
DP	KLS22	ON	(ON)	1-3,4-6	1-2,4-5	

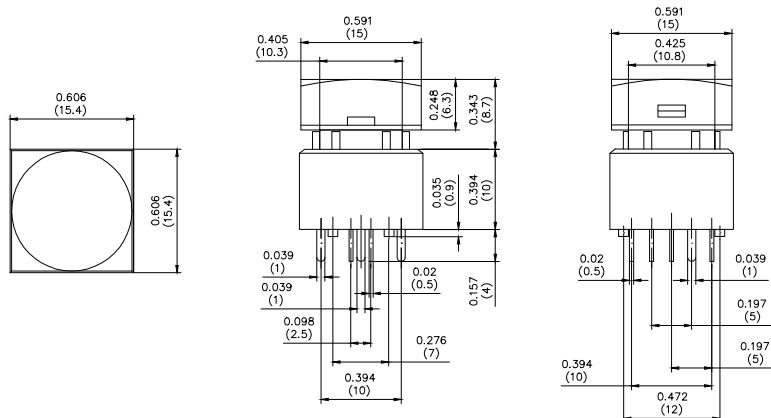
()=Momentary

CAP

F SQUARE FLAT



C SQUARE CONCAVE



Third Angle
Projection

Dimensions are shown: mm

Specifications and dimensions subject to change

C&K

8 Jul 20

D-175

www.ckswitches.com



KLS Illuminated SPDT/DPDT Pushbutton

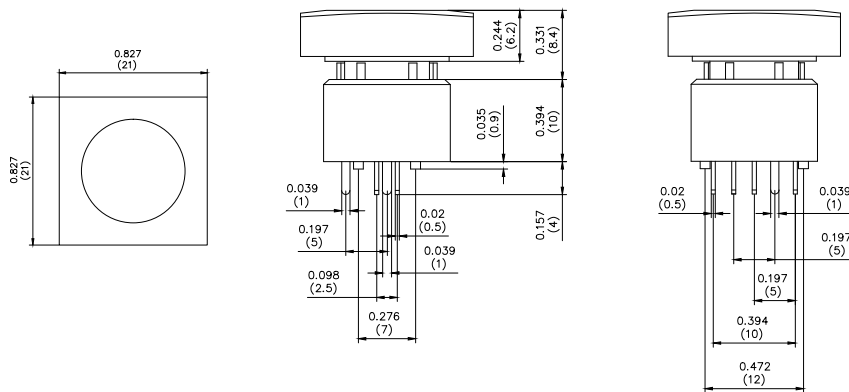
NEW

A

Pushbutton

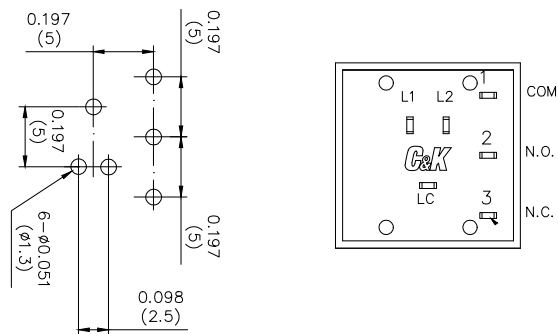
CAP

L SQUARE LARGE CONCAVE

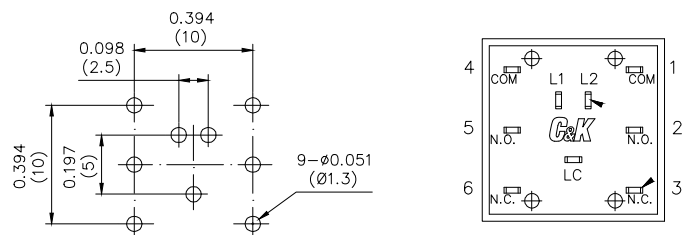


TERMINATION - PCB LAYOUT

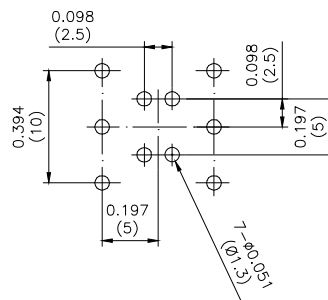
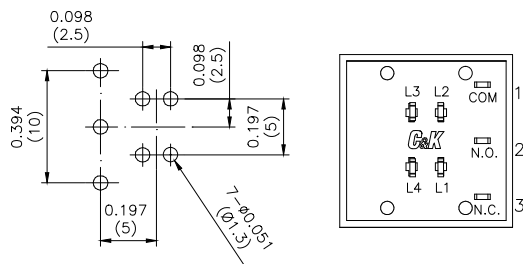
KLS12



KLS22



DUAL COLOUR



RGB



First Angle
Projection

C&K

8 Jul 20

A-176

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

www.ckswitches.com

NEW

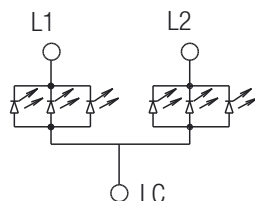
KLS Illuminated SPDT/DPDT Pushbutton



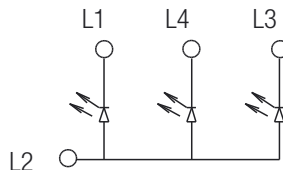
A

Pushbutton

LED CIRCUIT



DUAL COLOUR



RGB

CONTACT MATERIAL

OPTION CODE	CONTACT MATERIAL	TERMINAL PLATING	RATING
Q	Copper / Gold ¹ Brass / Silver ²	Silver	25VDC 500 mA
G	Copper, Gold	Copper, Gold	28 VDC 100 mA

¹ Movable contact

² Stationary contact



PLP16 Series

Panel Mount LED Sealed Pushbutton Switch

NEW

Features/Benefits

- **Illuminated & non-illuminated type**
- **Momentary or lock version**
- **IP65 or IP40 sealed**
- **1,000,000 life cycle**
- **Choices of colors on LED illumination**
- **Various actuator sizes and styles**
- **Withstand high shock and vibration application**

Typical Applications

- **Industrial control panel**
- **Off-road transportation**
- **Machine and equipment**
- **Production control indicator**



Specifications

FUNCTION: SPDT or DPDT
CONTACT ARRANGEMENT: N.O. AND N.C.
MOUNTING TYPE: Threaded front panel mount

Mechanical

OPERATING LIFE: Momentary 1,000,000 cycles
Lock 100,000 cycles
TOTAL TRAVEL: 1.2 ± 0.3 mm
OPERATING FORCE: 3.0 max.

Electrical

CONTACT RATING: 1th 5A / 250 VAC
3A / 250 VAC
1A / 30 VDC
OPERATING LIFE: Momentary 100,000 cycles
Lock 50,000 cycles
DIELECTRIC STRENGTH: 2,000 V RMS @ sea level
INSULATION RESISTANCE: 100 MΩ min. @ 500 VDC
INITIAL CONTACT RESISTANCE : 50 mΩ max. initial value

Materials

BUSHING: PEI
BASE / LED holder: PBT
ACTUATOR: PC
INTERNAL ASSEMBLY: POM / PC
SPRING: Steel (SUS304)
SEALING / O-ring: Silicone
TERMINALS / CONTACT: Brass (C2680) /
Phosphorus Bronze, Silver or Gold over Silver plated

Operating Environment

OPERATING TEMPERATURE: -25°C to 55°C
SEALING / PROTECTION: IP65 or IP40

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

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box.

P	L	P	1	6							
---	---	---	---	---	--	--	--	--	--	--	--

Switch Type

Illuminated PB / Pilot light (Apply voltage)		Non-illuminated PB (CAP options)	
00	Without LED	C1	Solid color
06	6 VAC/DC	C2	Transparent
12	12 VAC/DC		
24	24 VAC/DC		

IP Rating

4 IP40
6 IP65

Mechanical Function

A Momentary
E Lock
N Pilot light

Contact Arrangement

S SPDT
D DPDT
P Pilot light

Actuator Style *

RD Round
SQ Square
TA Rectangular
RV Round oversize
SV Square oversize
TV Rectangular oversize
TG Rectangular guard

Actuator Color

2 White
3 Red
4 Black **
5 Yellow
6 Green
7 Blue
8 Orange ***

* Pilot light & C2 CAP available on RD, SQ, or TA actuator style only

** For C1 CAP only

*** Not available on C1 CAP



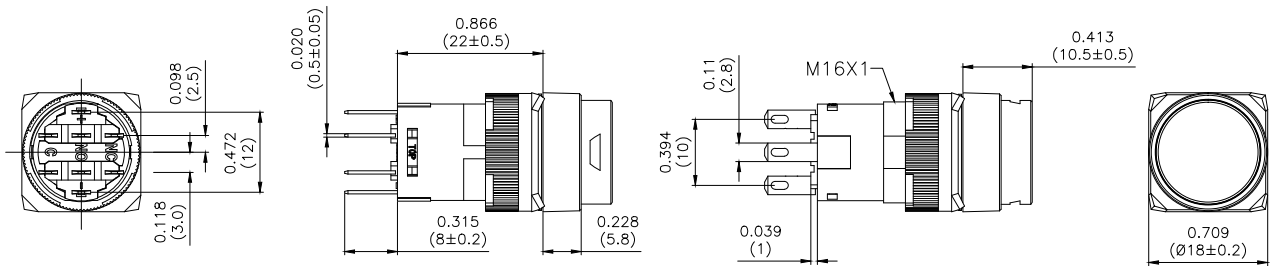
NEW

PLP16 Series Panel Mount LED Sealed Pushbutton Switch

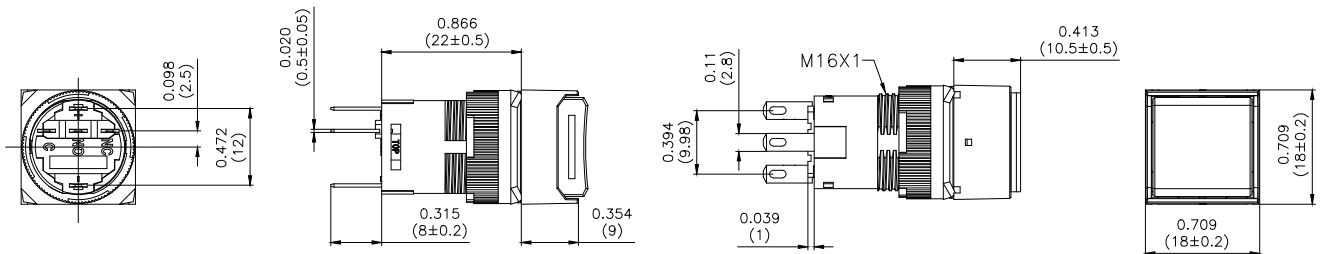
**A****Pushbutton**

STANDARD VIEW / SWITCH TYPE

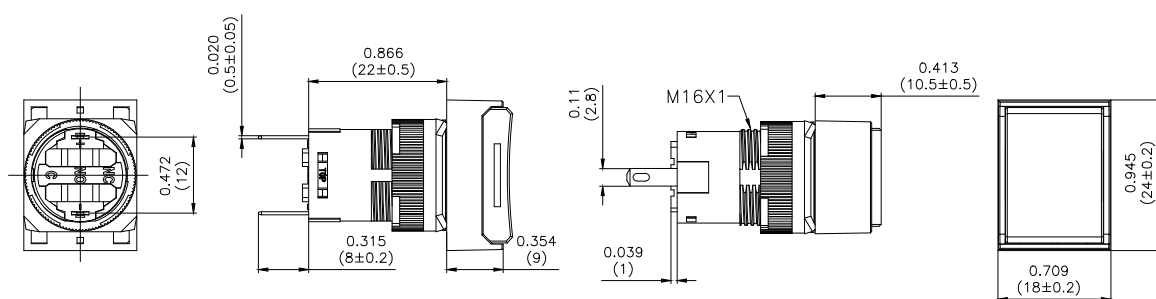
ILLUMINATED Ø 5/8" (16 MM)



PUSHBUTTON Ø 5/8" (16 MM)

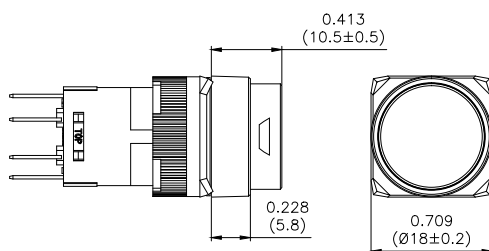


PILOT LAMP Ø 5/8" (16 MM)

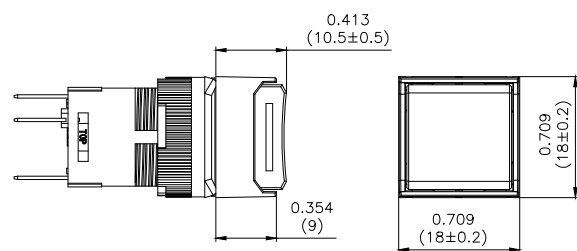


ACTUATOR STYLE / CAP SIZE

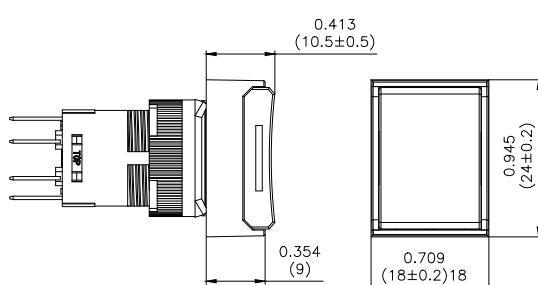
RD ROUND



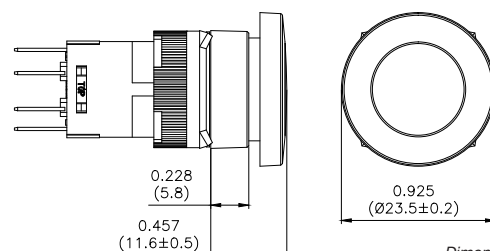
SQ SQUARE



TA RECTANGULAR



RV ROUND OVERSIZE

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



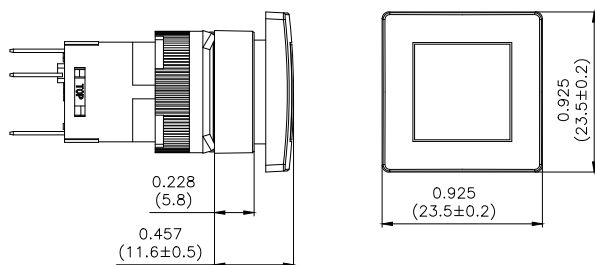
PLP16 Series Panel Mount LED Sealed Pushbutton Switch

NEW

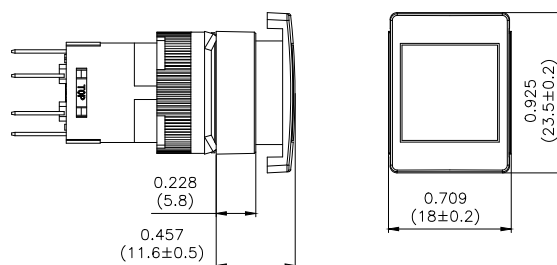
ACTUATOR STYLE / CAP SIZE

Pushbutton

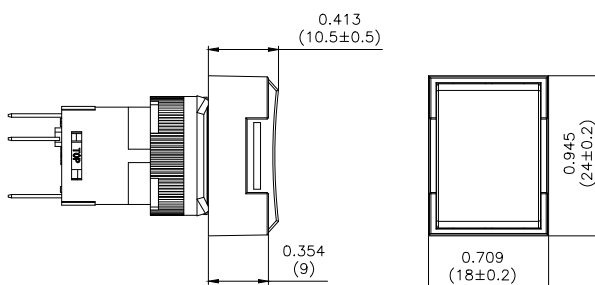
SV SQUARE OVERSIZE



TV RECTANGULAR OVERSIZE

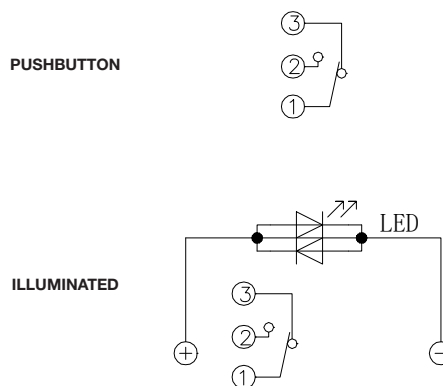


TG RECTANGULAR WITH GUARD

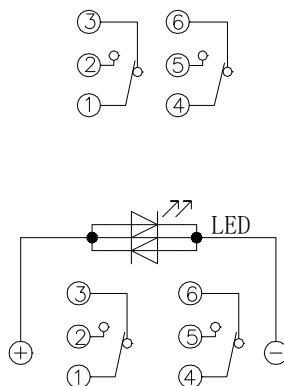


CONTACT ARRANGEMENT

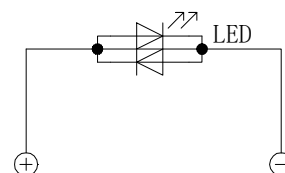
S SPDT



D DPDT

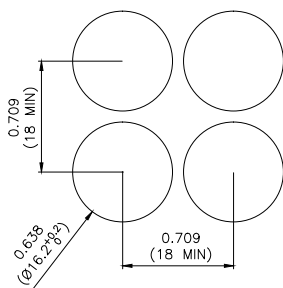


P PILOT LIGHT

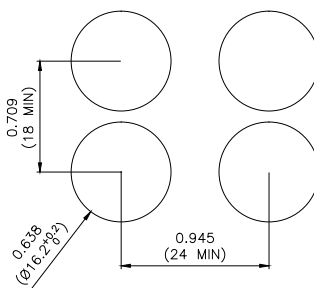


MOUNTING HOLES LAYOUT

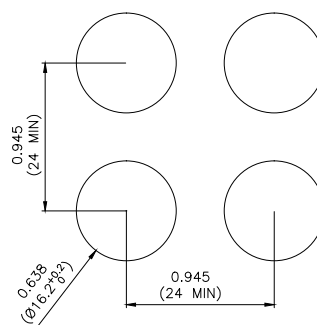
ROUND / SQUARE



RECTANGULAR (PLUS FULL GUARD & OVERSIZE)



OVERSIZE ROUND & SQUARE



Mounting panel thickness reference dia: 0.5-0.6 mm

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

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PLP16 Series Panel Mount LED Sealed Pushbutton Switch


A
Pushbutton

LED - LAMP RATING

Voltage Range		6V AC/DC \pm 5%	12V AC/DC \pm 10%	24V AC/DC \pm 10%
Rated Voltage		6V AC/DC	12V AC/DC	24V AC/DC
Current Draw	DC	8 mA	8 mA	8 mA
	AC	9 mA	9 mA	9 mA
Lamp Base Color / Lamp Body Resin Color		Illumination color / Porcelain white		
Life (reference value)		50,000 hours (brightness of LED lamp will half of the initial value when using DC only)		

ACCESSORY ORDERING INFORMATION

LED LAMP

	Rated Voltage	Ordering Code
	6V AC/DC	PL06X *
	12V AC/DC	PL12X *
	24V AC/DC	PL24X *

* X = choice of LED color

X	Color
2	White
3	Red
5	Yellow
6	Green
7	Blue
8	Orange

SWITCH PROTECTIVE GUARD FOR IP65 (180° SPRING RETURN COVER)#

**ROUND
PCS651**



**SQUARE
PCS652**



**RECTANGULAR
PCS653**



SWITCH PROTECTIVE GUARD FOR IP40 & IP65

Rated	Cover Opening	For Actuator Type	Ordering Code	Rated	Cover Opening	For Actuator Type	Ordering Code
	90°	Round / Square	PC401		90°	Round / Square	PC654
		Rectangular	PC402			Rectangular	PC655
	180°	Round / Square	PC403		180°	Round / Square	PC656
		Rectangular	PC404			Rectangular	PC657

Refer to spec for panel cutout dimensions and mounting instruction