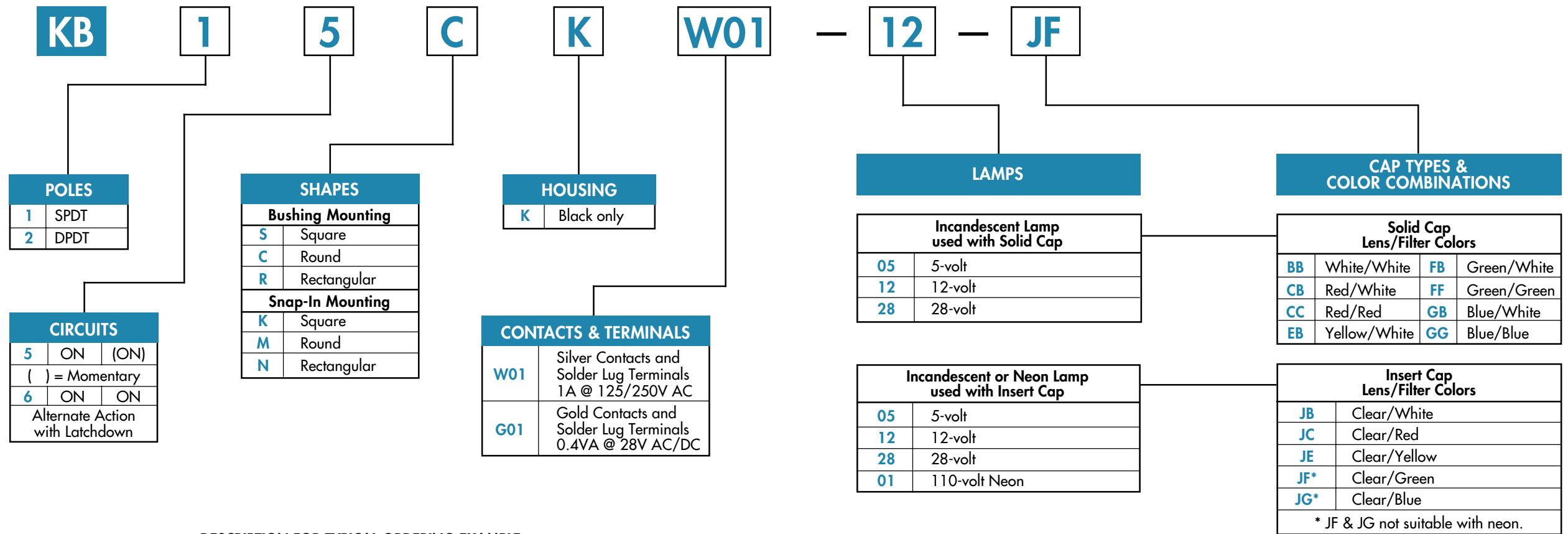
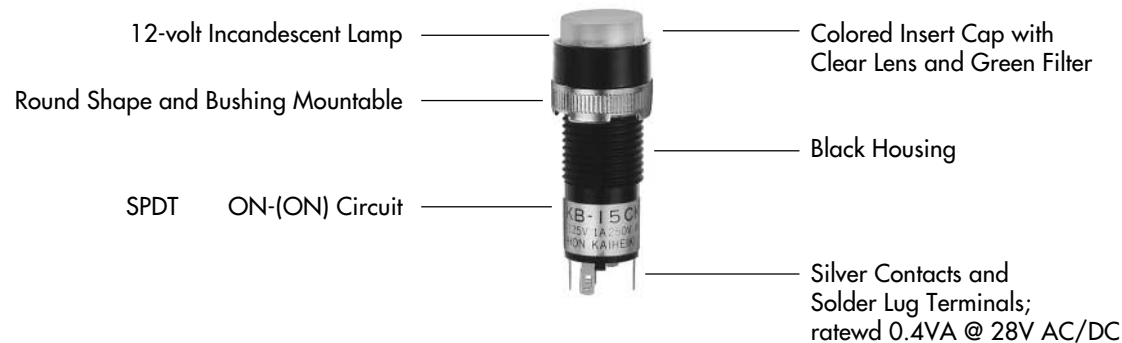


## TYPICAL SWITCH ORDERING EXAMPLE



### DESCRIPTION FOR TYPICAL ORDERING EXAMPLE

**KB15CKW01-12-JF**



#### IMPORTANT:



Switches are supplied without UL & CSA marking unless specified. Specific models & ratings noted on General Specifications page.



### GENERAL SPECIFICATIONS

#### Electrical Capacity (Resistive Load)

**Power Level (code W):** 1A @ 125/250V AC or 1A @ 30V DC  
**Logic Level (code G):** 0.4VA maximum @ 28V AC/DC maximum  
Note: See [Supplement Index](#) to find explanation of operating range.

#### Other Ratings

**Contact Resistance:** 50 milliohms maximum  
**Insulation Resistance:** 1,000 megohms minimum @ 500V DC  
**Dielectric Strength:** 1,000V AC minimum between contacts & 1,500 minimum between contacts & case (silver); 750V AC minimum between contacts & 1,500 minimum between contacts & case (gold);  
**Mechanical Life:** 100,000 operations minimum  
**Electrical Life:** 50,000 operations minimum for silver; 100,000 operations minimum for gold  
**Nominal Operating Force:** Single pole 100 ~ 250 grams for maintained & 100 ~ 200 grams for momentary; Double pole 150 ~ 350 grams for maintained & 150 ~ 300 grams for momentary  
**Contact Timing:** Nonshorting (break-before-make)  
**Travel:** 2.2mm (.087") pretravel; 0.80mm (.031") overtravel; 3.0mm (.118") total travel

#### Materials & Finishes

**Housing:** Polyamide  
**Movable Contactor:** Silver for power circuit; copper with gold plating for logic level circuit  
**Stationary Contacts:** Silver for power circuit; copper with gold plating for logic level circuit  
**Housing Base:** Polyamide  
**Terminal Base:** Polyester  
**Common Terminal:** Phosphor bronze with silver flash plating for power circuit; Phosphor bronze with gold flash plating for logic level circuit  
**End Terminals:** Brass with silver flash plating for power circuit; Brass with gold flash plating for logic level circuit  
**Lamp Terminals:** Phosphor bronze with nickel flash plating

#### Environmental Data

**Operating Temp Range:** -25°C through +50°C (-13°F through +122°F) for Illuminated  
-25°C through +70°C (-13°F through +158°F) for Nonilluminated  
**Humidity:** 90 ~ 95% humidity for 96 hours @ 40°C (104°F)  
**Vibration:** 10 ~ 55Hz with peak-to-peak amplitude of 1.5mm traversing the frequency range & returning in 1 minute; 3 right angled directions for 2 hours  
**Shock:** 50g acceleration (tested in 6 right angled directions, with 3 shocks in each direction)

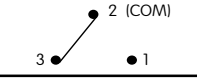
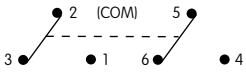
#### Installation

**Mounting Torque:** 8.0 kgf/cm (6.9 lb/in) downward force on actuator  
**Cap Installation Force:** 0.46 kg (1.0 lb)  
**Soldering Time & Temperature:** 3 seconds @ 350°C or 5 seconds @ 270°C  
**Process Seal:** Not available

#### Standards & Certifications

**Flammability Standards:** UL94V-0 housing and base  
**UL Recognized:** Single & double pole models recognized at 1A @ 125/250V AC, 1A @ 30V DC, & 0.4VA @ 28V AC/DC; UL File No. E44145  
**CSA Certified:** Single & double pole models recognized at 1A @ 125/250V AC, 1A @ 30V DC, & 0.4VA @ 28V AC/DC; CSA File No. LR23535

### POLES & CIRCUITS

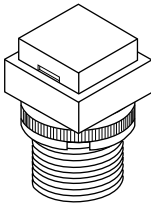
		Plunger Position ( ) = Momentary		Connected Terminals		Throw & Power/Lamp Schematics
Pole	Model	Normal	Down	Normal	Down	
SP	KB15 KB16*	ON ON	(ON) ON	2-3	2-1	Notes: Switch is marked with "+" and "-". Lamp circuit is isolated and requires external power source. SPDT  L(+) - (-) L
DP	KB25 KB26*	ON ON	(ON) ON	2-3 5-6	2-1 5-4	DPDT  L(+) - (-) L

\* When in latchdown position for the alternate circuit, cap position is 1.4mm (.055") above the built-in shroud.

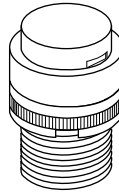
### SHAPES & MOUNTING TYPES

#### Bushing Mounting

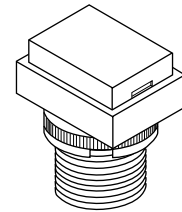
**S** 14mm Square Shroud



**C** 14mm Diameter Round Shroud

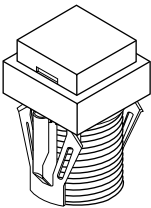


**R** 14mm x 18.5mm Rectangular Shroud

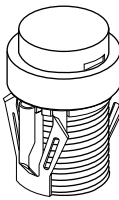


#### Snap-In Mounting

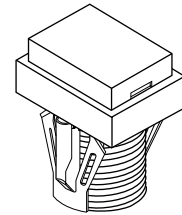
**K** 14mm Square Shroud



**M** 14mm Diameter Round Shroud



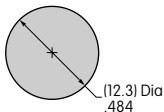
**N** 14mm x 18.5mm Rectangular Shroud



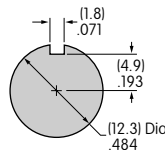
#### Panel Cutouts

##### Bushing Mounting

Without Keyway



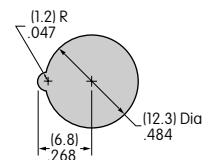
Panel Thickness:  
0.5 ~ 8mm  
(.020 ~ .315")



With Keyway

##### Snap-In Mounting

Panel Thickness:  
1.0 ~ 3.5mm  
(.039 ~ .138")



Panel thicknesses for optional accessories

### HOUSING

**K** Housing available in black only. Shroud is an integral part of the switch body.



### CONTACT MATERIALS, RATINGS, & TERMINALS

<b>W</b> Silver Contacts <b>G</b> Gold Contacts	<b>Power Level</b> <b>1A @ 125V AC &amp; 250V AC</b>	<b>01</b> Solder Lug The 1mm x 2mm oblong hole accommodates one solid 20-gauge wire or two solid or stranded 22-gauge wires.	
	<b>Logic Level</b> <b>0.4VA maximum @ 28V AC/DC</b>		
See <a href="#">Supplement Index</a> for complete explanation of operating range.			
A partitioned plastic guard is supplied with each switch to provide insulation between terminals. Installation steps:			
(1) Identify wire-to-terminal connections. (2) Thread wires through the guard.		(3) Solder the connections. (4) Push the guard fully onto the switch body.	

### LAMP CODES & SPECIFICATIONS

Electrical specifications are determined at a basic temperature of 25°C. Lamp circuit is independent of switch operation. For dimension drawings of lamps see the [Accessories & Hardware Index](#).

If the source voltage is greater than rated voltage, a ballast resistor is required. The ballast resistor calculation and more lamp detail are shown in the Supplement; see [Supplement Index](#).

#### Incandescent Lamp

<b>AT611</b>  T-1 Standard Bi-pin		<b>05</b>	<b>12</b>	<b>28</b> *	* Lamp life is significantly reduced in applications with DC current, high shock, vibration, or continuous illumination.	
	Voltage	V	5V AC	12V AC		28V AC
	Current	I	115mA	60mA		22mA
	Endurance	Hours	7,000 average			

#### Neon Lamp

<b>AT615</b>  T-1 Standard Bi-pin		<b>01</b>	
	Voltage	V	110V AC
	Current	I	1.5mA
	Endurance	Hours	10,000
	Recommended Resistors:		33K ohms for 110V AC

#### Single Element LED

<b>AT614</b> Red, Yellow, Green T-1½ Cylindrical 	LEDs are colored in OFF state.	Color	<b>10C</b> Red	<b>10E</b> Yellow	<b>10F</b> Green	<b>10G</b> Blue
	Forward Peak Current	$I_{FM}$	50mA	50mA	50mA	30mA
<b>AT625</b> Blue T-1 Standard Bi-pin 	Continuous Forward Current	$I_F$	40mA	40mA	40mA	20mA
	Forward Voltage	$V_F$	1.75V	2.35V	2.35V	3.6V
	Reverse Peak Voltage	$V_{RM}$	4V	4V	4V	5V
	Current Reduction Rate Above 25°C	$\Delta I_F$	0.67mA/°C	0.67mA/°C	0.67mA/°C	0.50mA/°C

**00** **No Lamp** Code 00 indicates that no lamp is used with the solid cap.



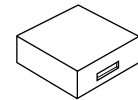
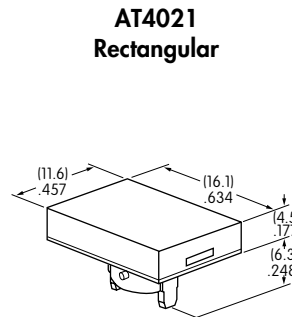
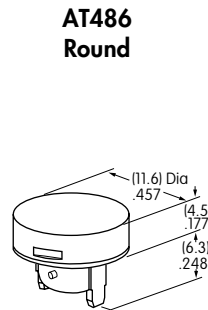
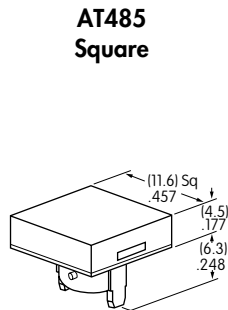
### CAP TYPES & COLOR COMBINATIONS

Color Codes: **A** Black **B** White **C** Red **E** Yellow **F** Green **G** Blue **J** Clear

#### Solid Cap for Incandescent Lamp

Lens/Filter  
Colors Available:

- BB**
- CB**
- CC**
- EB**
- FB**
- FF**
- GB**
- GG**



Translucent Colored Lens



Translucent Colored Filter



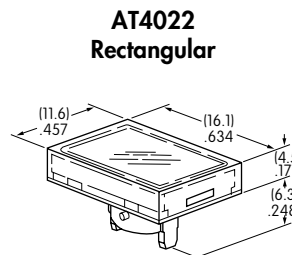
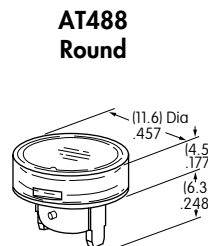
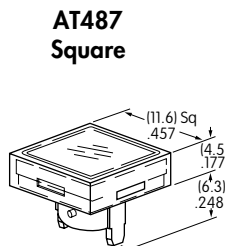
Lamp AT611

Material: Polycarbonate      Finish: Glossy

#### Insert Cap for Incandescent or Neon Lamp

Lens/Filter  
Colors Available:

- JB**
- JC**
- JE**
- JF**
- JG**



Transparent Clear Lens



Translucent Colored Filter



Lamp AT611



Lamp AT615

JF and JG not suitable with neon lamp.

Material: Polycarbonate      Finish: Glossy



# Series KB

Miniature Pushbutton Switches

## CAP TYPES & COLOR COMBINATIONS

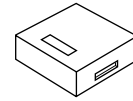
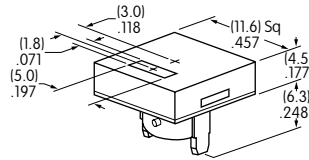
Color Codes: **A** Black **B** White **C** Red **E** Yellow **F** Green **G** Blue **J** Clear

### Spot Illuminated Cap for LED or Neon

Cap/Window  
Colors Available:

**AB**

**AT4051**  
Square



Opaque Black Cap with  
Translucent White Window



LED  
AT614



LED  
AT625



Lamp  
AT615

Material: Polycarbonate

Finish: Matte

### Cap for LED

Lens/Diffuser  
Colors Available:

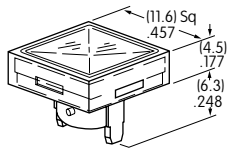
**JB**

**JC**

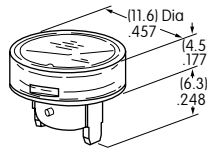
**JE**

**JF**

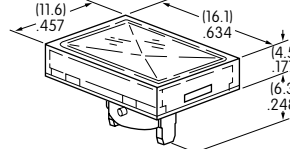
**AT489**  
Square



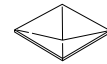
**AT490**  
Round



**AT4023**  
Rectangular



Transparent Clear Lens



Translucent Colored Diffuser



LED AT614



LED AT625

Material: Polycarbonate

Finish: Glossy

### Nonilluminated Cap

Lens/Filter  
Colors Available:

**A**

**EB**

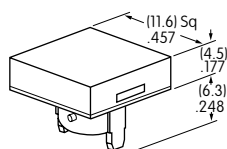
**BB**

**FF**

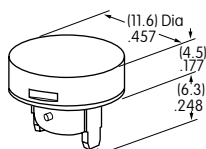
**CC**

**GG**

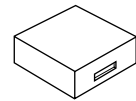
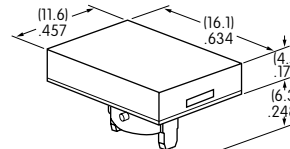
**AT485**  
Square



**AT486**  
Round



**AT4021**  
Rectangular



Translucent Colored Lens



Translucent Colored Filter

Material: Polycarbonate

Finish: Glossy; black is matte

Rectangular not  
available in black.

No Lamp



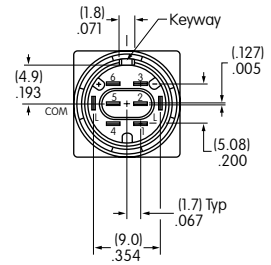
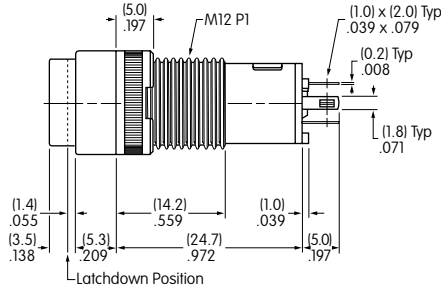
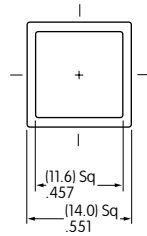
# Series KB

Miniature Pushbutton Switches

## TYPICAL SWITCH DIMENSIONS

### Square • Bushing Mounting

### Single & Double Pole

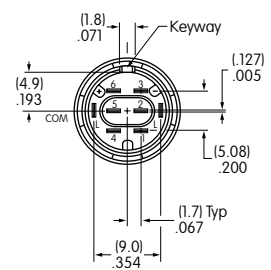
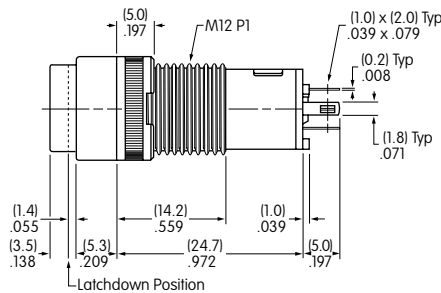
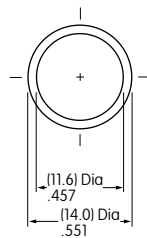


KB15KW01-05-GG

Terminals 4, 5, & 6 are not on single pole models.

### Round • Bushing Mounting

### Single & Double Pole

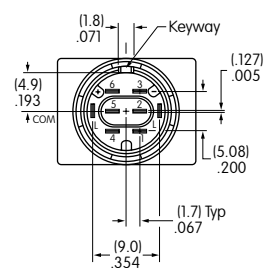
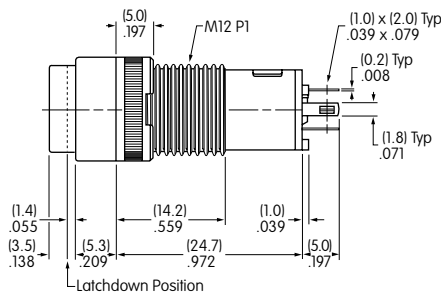
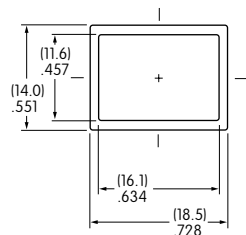


KB25CKW01-05-GG

Terminals 4, 5, & 6 are not on single pole models.

### Rectangular • Bushing Mounting

### Single & Double Pole



KB15RKW01-05-GG

Terminals 4, 5, & 6 are not on single pole models.



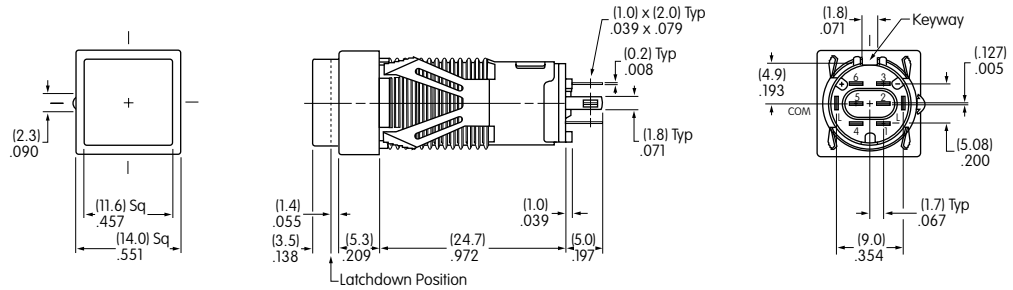
# Series KB

Miniature Pushbutton Switches

## TYPICAL SWITCH DIMENSIONS

### Square • Snap-In Mounting

### Single & Double Pole

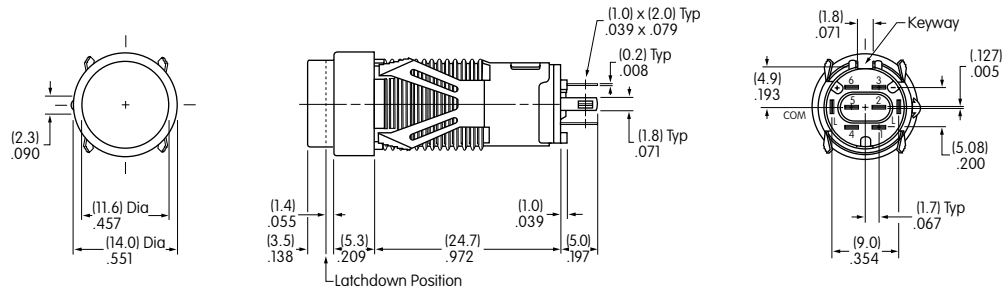


KB16KKW01-05-CB

Terminals 4, 5, & 6 are not on single pole models.

### Round • Snap-In Mounting

### Single & Double Pole

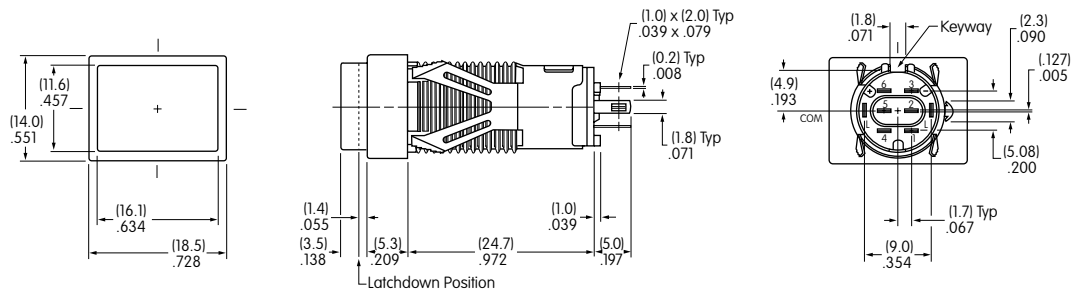


KB26MKW01-05-CB

Terminals 4, 5, & 6 are not on single pole models.

### Rectangular • Snap-In Mounting

### Single & Double Pole



KB16NKKW01-05-CB

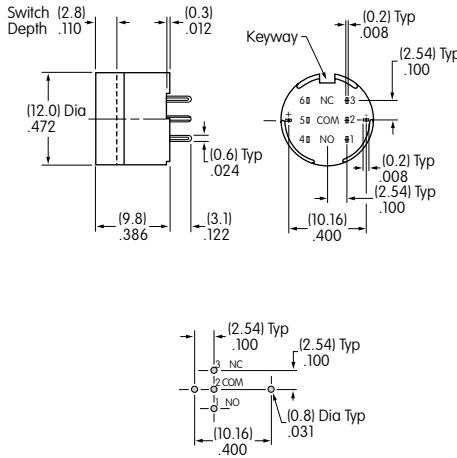
Terminals 4, 5, & 6 are not on single pole models.



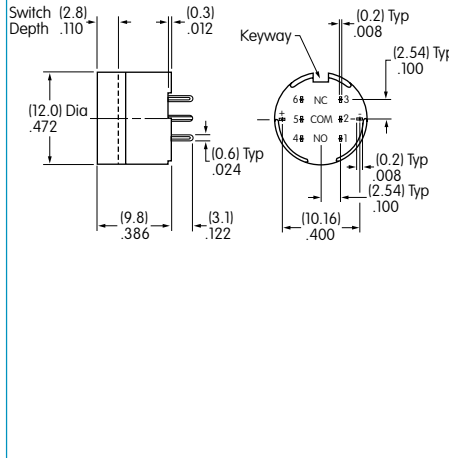
## OPTIONAL ACCESSORIES

### PCB Adaptors

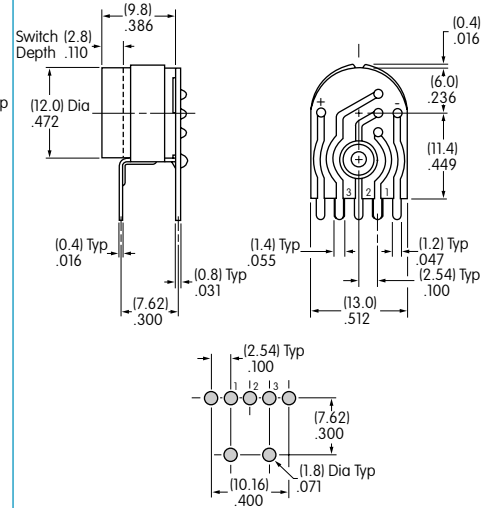
**AT701**  
Single Pole  
Straight PC  
Terminals



**AT702**  
Double Pole  
Straight PC  
Terminals



**AT077**  
Single Pole  
Right Angle PC  
Terminals

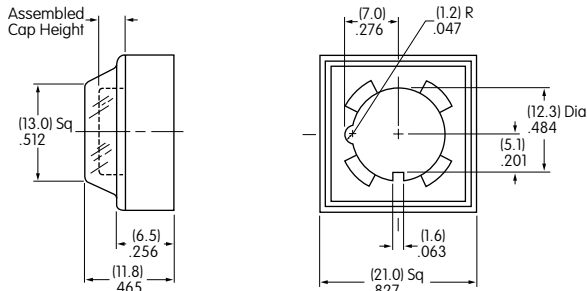
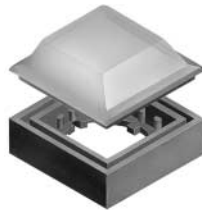


Material: Glass reinforced polyamide  
 Note: Order adaptors separately.

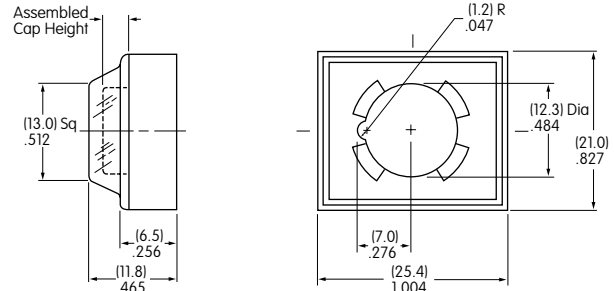
### Splash Covers

Panel Thickness Range: 0.5 ~ 6.8mm (.020 ~ .268") for Bushing Mounting 0.5 ~ 2.0mm (.020 ~ .079") for Snap-in Mounting  
 Splash Covers reduce the depth of switch behind panel by .047".

**AT495**  
For Square & Round



**AT4025**  
For Rectangular



Material: Lid: PVC PVC loses pliability below 0°C (32°F). Base: Polyamide

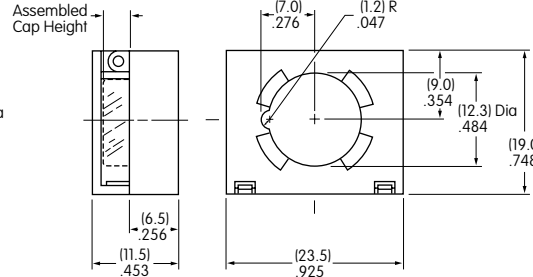
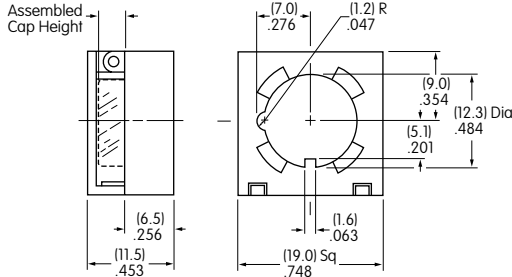
## OPTIONAL ACCESSORIES

### Protective Guards

**AT494**  
For Square & Round



**AT4024**  
For Rectangular



Panel Thickness Range:

0.5 ~ 6.8mm  
(.020 ~ .268")  
for Bushing Mounting

0.5 ~ 2.3mm  
(.020 ~ .091")  
for Snap-in Mounting

Protective Guards reduce the depth of switch behind panel by .047".

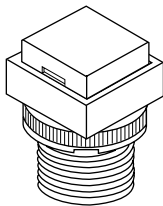
Material: Cover: Polycarbonate

Base: Polyamide

## ASSEMBLY INSTRUCTIONS

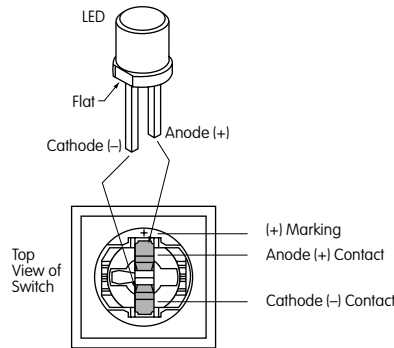
### Cap Removal & Installation

For alternate action models cap must be in UP position for cap removal. Indentations on opposite sides of the cap provide an easy way to lift the cap out of the holder, using either the finger nails, or cap extractor AT109.



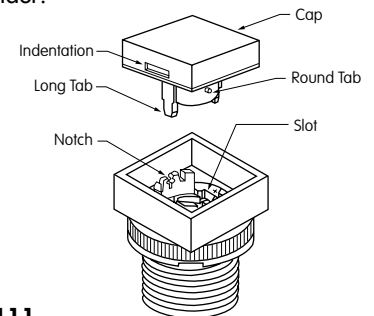
### LED Orientation

A "+" marking is molded in the lamp cavity of the switch. Insert lamp with the flat opposite that positive marking. Incandescent and neon lamps are not polarity sensitive.



### Cap Replacement

Note that the cap has a pair of round tabs and a pair of long tabs which should be used for correctly replacing the cap in its holder. Using the long tabs as guides, slide the cap with the long tabs moving into the slots on opposite sides of the cap holder. Then, the round tabs will snap into notches on the other two sides of the holder.



**AT108**  
Socket Wrench  
for Bushing Mounting



Overtightening the mounting nut may damage the switch housing.

**AT109**  
Cap Extractor



**AT111**  
Lamping Tool

