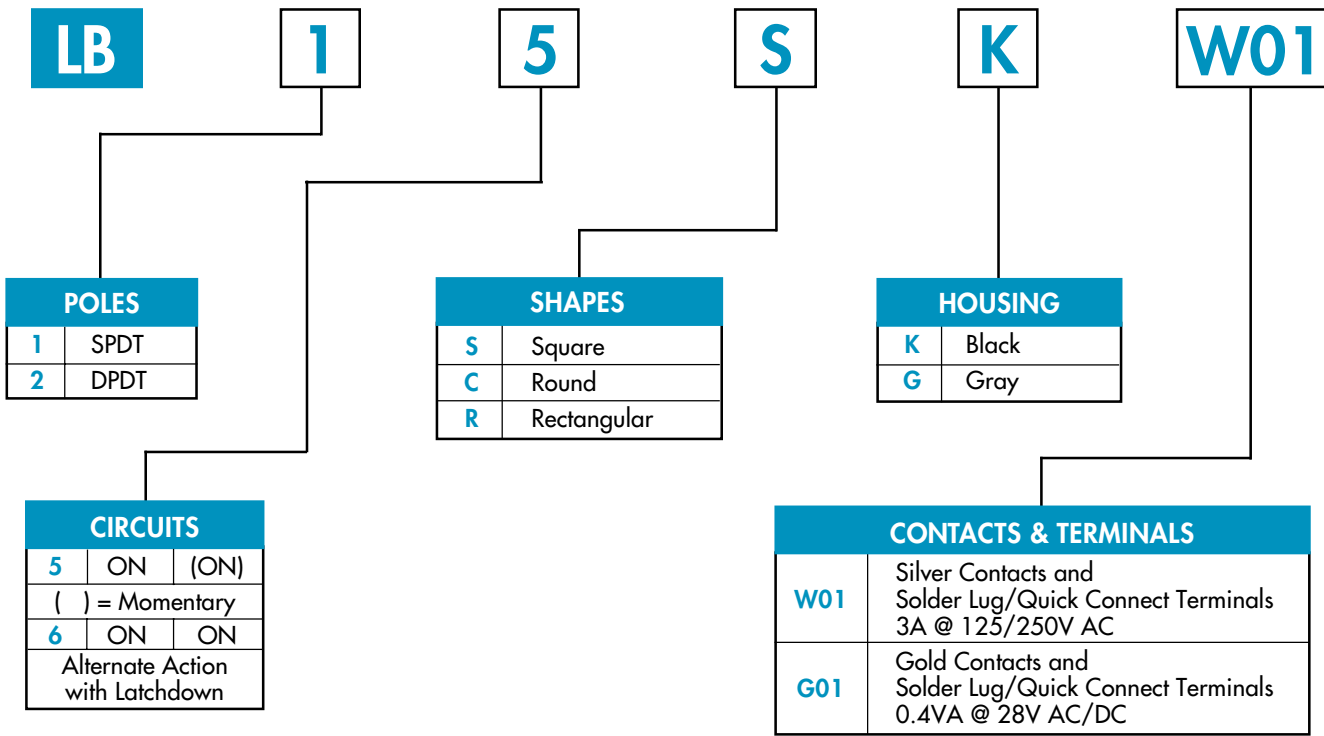


TYPICAL SWITCH ORDERING EXAMPLE



5C12

JC

LAMPS

CAP TYPES & COLORS

Incandescent Lamp used with Solid Cap

00	No Lamp
05	5-volt
12	12-volt
28	28-volt

Solid Cap: Lens/Filter Colors

BJ	White/Clear
CJ	Red/Clear
EJ	Yellow/Clear
FJ	Green/Clear
GJ	Blue/Clear

Incandescent or Neon used w/Insert Cap

00	No Lamp
01	110-volt Neon
05	5-volt Incandescent
12	12-volt Incandescent
28	28-volt Incandescent

Insert Cap: Lens/Filter Colors

JB	Clear/White
JC	Clear/Red
JE	Clear/Yellow
*JF	Clear/Green
*JG	Clear/Blue
* JF & JG not suitable with neon.	

Standard LED used w/LED Cap

C	Red
D	Amber
F	Green

LED Cap: Lens/Diffuser Colors

JB	Clear/White
JC	Clear/Red
JD	Clear/Amber
JF	Clear/Green

Bright LED used w/LED Cap

Colors		Resistor	
5C	Red	No Code	No Resistor
5D	Amber	05	5-volt
5F	Green	12	12-volt
		24	24-volt

LED Cap: Lens/Diffuser Colors

JB	Clear/White
JC	Clear/Red
JD	Clear/Amber
JF	Clear/Green

Super Bright LED used w/LED Cap

6B	White
6F	Green
6G	Blue

LED Cap: Lens/Diffuser Colors

JB	Clear/White
----	-------------

LED used with Spot Illuminated Cap

1C	Red Single Color
1D	Amber Single Color
1F	Green Single Color
CF	Red/Green Bicolor

Spot Illuminated Cap Colors

A	Black	Available in square and round only.
B	White	
C	Red	
F	Green	

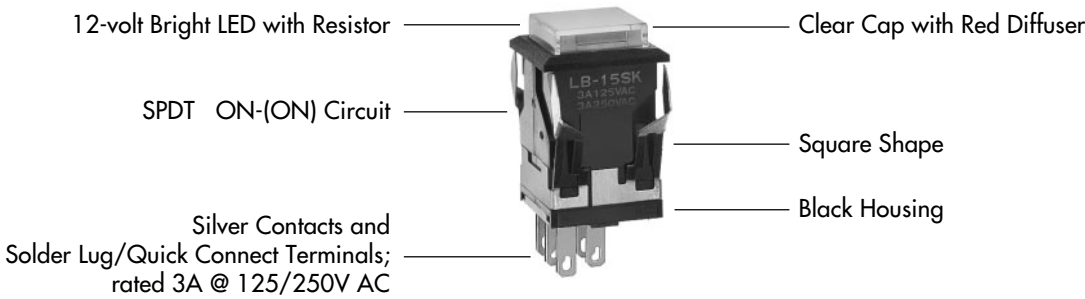
Nonilluminated

00	No Lamp
----	---------

Nonilluminated Cap Colors

A	Black	E	Yellow	G	Blue
B	White	F	Green	H	Gray
C	Red				

DESCRIPTION FOR TYPICAL ORDERING EXAMPLE  
LB15SKW01-5C12-JC



**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 (silver):** 3A @ 125V AC or 3A @ 250V AC or 3A @ 30V DC  
**Logic Level (gold):** 0.4VA maximum @ 28V AC/DC maximum  
 Note: See [Supplement Index](#) to find explanation of operating range.

#### Other Ratings

**Contact Resistance:** 50 milliohms maximum for silver; 100 milliohms maximum for gold  
**Insulation Resistance:** 200 megohms minimum @ 500V DC  
**Dielectric Strength:** 1,000V AC minimum between contacts; 1,500V AC minimum between contacts & case  
**Mechanical Life:** 1,000,000 operations minimum for momentary circuit  
 200,000 operations minimum for maintained circuit  
**Electrical Life:** 100,000 operations minimum  
**Nominal Operating Force:** 450 grams  
**Contact Timing:** Nonshorting (break-before-make)  
**Travel for Momentary Circuit:** 1.9mm (.075") pretravel; 1.1mm (.043") overtravel; 3.0mm (.118") total travel  
**Travel for Maintained Circuit:** 2.2mm (.087") pretravel; 0.8mm (.031") overtravel; 3.0mm (.118") total travel

#### Materials & Finishes

**Housing:** Glass fiber reinforced polyamide  
**Snap-in Frame:** Stainless steel  
**Movable Contact:** Silver alloy or copper with gold plating over nickel plating  
**Stationary Contacts:** Silver alloy or copper with gold plating over nickel plating  
**Base:** Diallyl phthalate  
**Common Terminals:** Phosphor bronze with silver or gold plating  
**End Terminals:** Phosphor bronze with silver or gold plating  
**Lamp Terminals:** Phosphor bronze with silver 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  
 Note: When used with a polyvinyl chloride splash cover, the lowest limit is 0°C (32°F)  
**Humidity:** 93% 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 5 shocks in each direction)  
**Sealing:** Not available for snap-in; see panel seal section.

#### Installation

**Cap Installation Force:** 0.4 kg (.88 lb) maximum downward force on actuator  
**Quick Connect Force:** 5.4 kg (11.9 lbs) maximum downward force on connector  
**Soldering Time & Temperature:** 3 seconds @ 350°C or 5 seconds @ 270°C  
**Process Seal:** Not available

#### Standards & Certifications

**Flammability Standards:** UL94V-0 base  
**UL Recognized:** All models recognized at 3A @ 125V or 250V AC or  
 0.4VA maximum @ 28V AC/DC maximum; UL File No. E44145  
**CSA Certified:** All models certified at 3A @ 125V or 250V AC or  
 0.4VA maximum @ 28V AC/DC maximum; CSA File Nos. LR23535

### POLES & CIRCUITS

		Plunger Position ( ) = Momentary		Connected Terminals		Throw & Power/Lamp Schematics
Pole	Model	Normal	Down	Normal	Down	
SP	LB15 *LB16	ON ON	(ON) ON	1-3	1-2	SPDT Notes: (1) Switch is marked with NC, NO, COM, L+, L-. (2) Lamp circuit is isolated & requires external power source.
DP	LB25 *LB26	ON ON	(ON) ON	1-3 4-6	1-2 4-5	DPDT

\* When in latchdown position for the alternate circuit, cap position is 1.0mm (.039") above the built-in bezel.

### SHAPES & PANEL CUTOUTS

**S** .622" Square

Cutout for 1 switch: .638" x .638"  
Cutout for 1 switch with barriers: .638" x .815".

**C** .854" Dia. Round

**R** .622" x .866" Rectangular

Cutout for 1 switch: .638" x .882"  
Cutout for 1 switch with barriers: .638" x 1.059".

Panel Thickness for Switches & Barriers: 1 ~ 4mm (.039" ~ .157")  
Panel Thickness for Protective Guards & Splash Covers: 1 ~ 3.5mm (.039" ~ .138")

### HOUSING

Housing Colors Available:

**K** Black

**G** Gray

### CONTACT MATERIALS, RATINGS, & TERMINALS

<b>W01</b> Silver Contacts	<b>Power Level</b> 3A @ 125V AC & 250V AC	<b>Solder Lug/Quick Connect</b> The .047" x .079" oblong hole accommodates one solid 18-gauge wire or two solid or stranded 20-gauge wires.
<b>G01</b> Gold Contacts	<b>Logic Level</b> 0.4VA max. @ 28V AC/DC max.	

See Supplement for complete explanation of operating range.

### INCANDESCENT & NEON LAMP CODES & SPECIFICATIONS

<b>AT607 &amp; AT607N</b> 	AT607 Incandescent 5-, 12-, 28-volt; AT607N Neon 110-volt	<b>05</b>	<b>12</b>	<b>28</b> *	<b>01</b> **	* Lamp life is significantly reduced in applications with DC current, high shock, vibration, or continuous illumination.  ** Recommended Resistors: 33K ohms for 110V AC; 100K ohms for 220V AC.
	Voltage V	5V AC	12V AC	28V AC	110V AC	
	Current I	115mA	60mA	24mA	1.5mA	
	Endurance Avg. Hrs.	7,000			10,000	

Electrical specifications are determined at a basic temperature of 25°C. Lamp circuit is independent of switch operation.

### LED CODES & SPECIFICATIONS


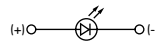
Electrical specifications are determined at a basic temperature of 25°C. Lamp circuit is independent of switch operation. Single color LEDs are colored in OFF state. Bicolor LED is translucent white in OFF state.

For dimension drawings of lamps see [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](#).

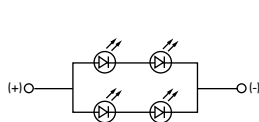
#### Standard Single Element LED

<b>AT614</b>   T-1 Bi-pin	Color	<b>C</b> Red	<b>D</b> Amber	<b>F</b> Green
	Forward Peak Current $I_{FM}$	50mA	50mA	50mA
	Continuous Forward Current $I_F$	40mA	40mA	40mA
	Forward Voltage $V_F$	1.75V	2.35V	2.35V
	Reverse Peak Voltage $V_{RM}$	4V	4V	4V
	Current Reduction Rate Above 25°C $\Delta I_F$	0.67mA/°C		

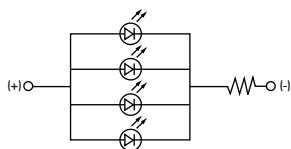
#### Bright Quad Element LED

<b>AT626</b> <b>No Resistor</b>  <b>AT627</b> <b>with Resistor</b>  T-1 Bi-pin	Color Codes	<b>5C</b> Red	<b>5D</b> Amber	<b>5F</b> Green			
		No Resistor (AT626)			With Resistor (AT627)		
		Red <b>No Code</b>	Amber <b>No Code</b>	Green <b>No Code</b>	<b>05</b>	<b>12</b>	<b>24</b>
	Forward Peak Current $I_{FM}$	40mA	40mA	40mA	—	—	—
	Continuous Forward Current $I_F$	26mA	26mA	26mA	52mA	26mA	13mA
	Forward Voltage $V_F$	3.8V	4.0V	4.4V	5V	12V	24V
	Reverse Peak Voltage $V_{RM}$	8V	8V	8V	4V	8V	16V
	Current Reduction Rate Above 25°C $\Delta I_F$	0.50mA/°C			0.50mA/°C		

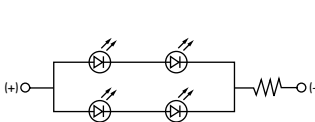
AT626 4-Element without Resistor



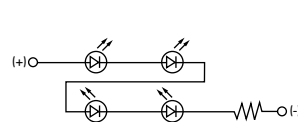
AT627 5 volt, 4-Element with Resistor




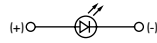

AT627 12 volt, 4-Element with Resistor



AT627 24 volt, 4-Element with Resistor



#### Super Bright Single Element LED

<b>AT625</b> <b>Blue</b>  <b>AT631</b> <b>White</b>  <b>AT632</b> <b>Green</b>   T-1 Bi-pin		Color	<b>6B</b> White	<b>6F</b> Green	<b>6G</b> Blue
	Forward Peak Current $I_{FM}$		30mA	30mA	30mA
	Continuous Forward Current $I_F$		20mA	20mA	20mA
	Forward Voltage $V_F$		3.6V	3.5V	3.6
	Reverse Peak Voltage $V_{RM}$		5V	5V	5V
	Current Reduction Rate Above 25°C $\Delta I_F$		0.50mA/°C		

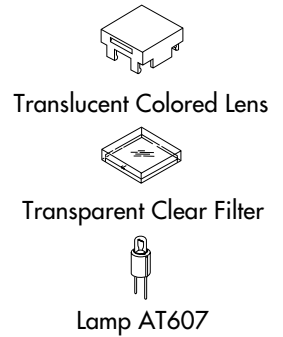
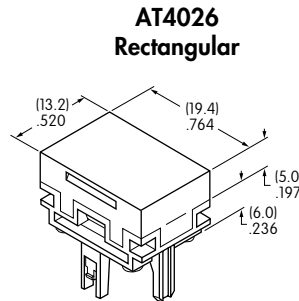
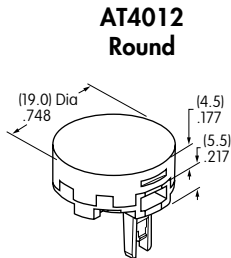
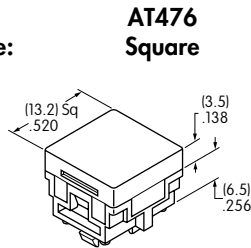
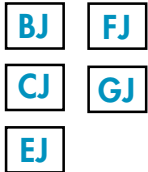
**00** **No Lamp** Code 00 indicates that no lamp is used.

### CAP TYPES & COLOR COMBINATIONS

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

#### Solid Cap for Incandescent Lamp

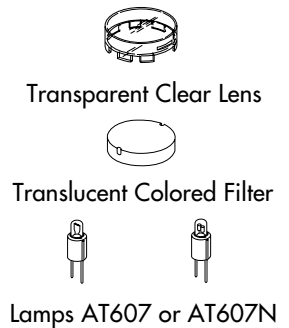
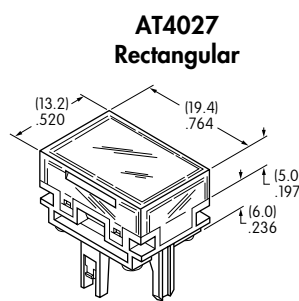
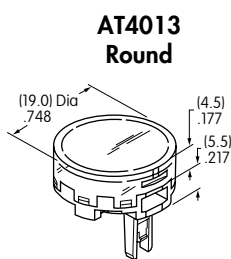
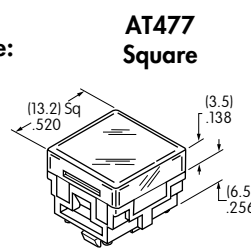
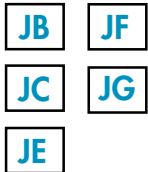
Lens/Filter  
Colors Available:



Material: Polycarbonate    Finish: Glossy

#### Insert Cap for Incandescent or Neon Lamp

Lens/Filter  
Colors Available:

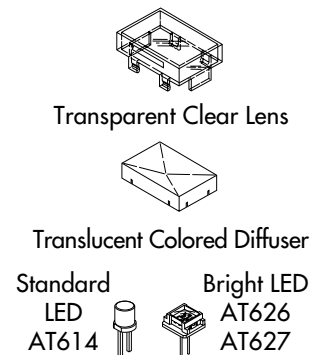
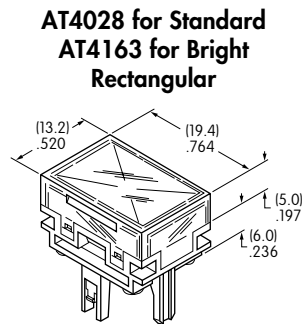
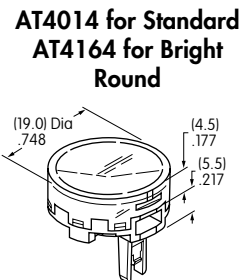
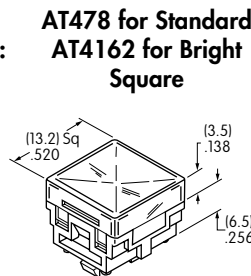


JF & JG not suitable with neon.

Material: Polycarbonate    Finish: Glossy

#### LED Cap for Standard & Bright LEDs

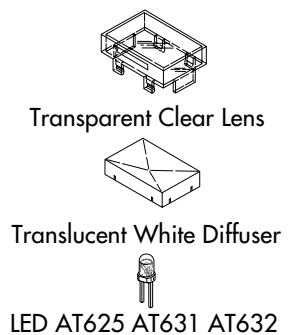
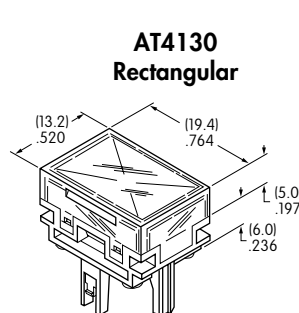
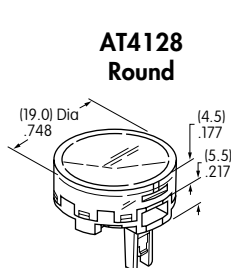
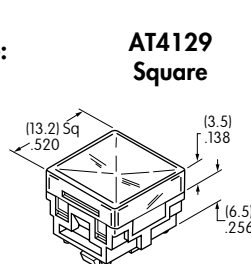
Diffuser  
Colors Available:



Material: Polycarbonate    Finish: Glossy

#### LED Cap for Super Bright LED

Lens/Diffuser  
Colors Available:



Material: Polycarbonate    Finish: Glossy

### CAP TYPES & COLOR COMBINATIONS

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



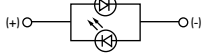
#### Spot Illuminated Cap with LED

Electrical specifications are determined at a basic temperature of 25°C. Lamp circuit is independent of switch operation. Single color LEDs are colored in OFF state. Bicolor LED is translucent white in OFF state.

For dimension drawings of lamps see [Accessories & Hardware Index](#).

If the source voltage is greater than rated voltage, a ballast resistor is required.

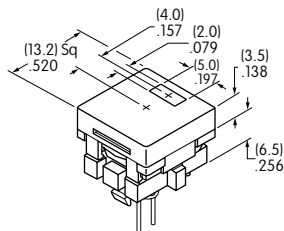
The ballast resistor calculation and more lamp detail are shown in the Supplement; see [Supplement Index](#).

LED Specifications						
 LED factory assembled in Spot Illuminated Caps  Not Available Separately	Single Color LED with 1 Element	Bicolor LED with 2 Elements	Single Color			Bicolor
			<b>1C</b> Red	<b>1D</b> Amber	<b>1F</b> Green	<b>CF</b> Red/Green
	Forward Peak Current	$I_{FM}$	10mA	30mA	30mA	30mA
	Continuous Forward Current	$I_F$	8mA	24mA	24mA	25mA
	Forward Voltage	$V_F$	1.9V	2.0V	2.1V	2.1V
	Reverse Peak Voltage	$V_{RM}$	5V	5V	5V	—
	Current Reduction Rate Above 25°C	$\Delta I_F$	0.13mA/°C	0.40mA/°C	0.40mA/°C	0.33mA/°C

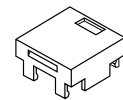
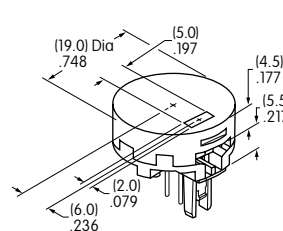
Cap Colors Available:



**AT480 Square**



**AT4016 Round**



Cap with Window



Factory Assembled LED

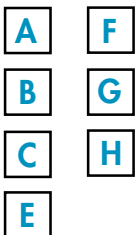
Material: Polycarbonate Finish: Glossy

When ordering spot illuminated cap separately, LED color must be specified.

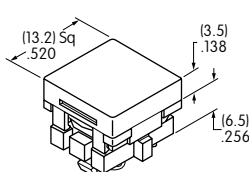
Examples: AT480CA (red LED, black cap); AT4016CFB (red/green bicolored LED, white cap)

#### Nonilluminated Cap

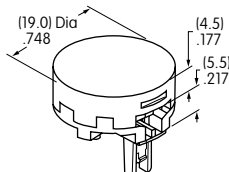
Cap Colors Available:



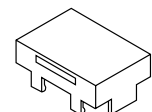
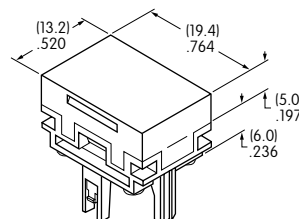
**AT484 Square**



**AT4017 Round**



**AT4030 Rectangular**



Cap

No Lamp

Material: Polycarbonate Finish: Glossy

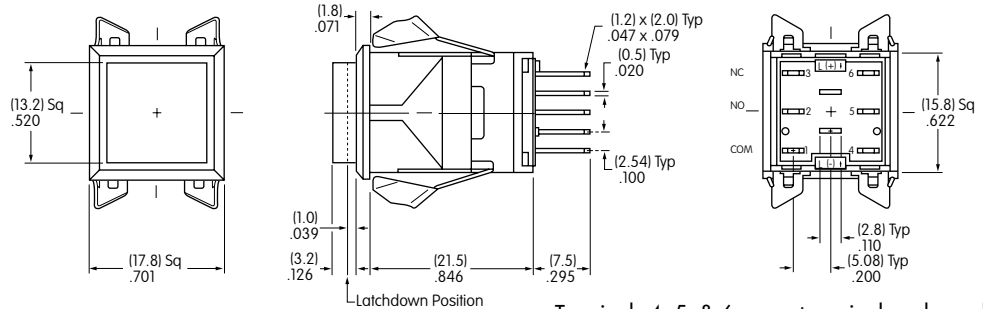
### TYPICAL SWITCH DIMENSIONS

#### Square



LB15KW01-12-CJ

#### Single & Double Pole



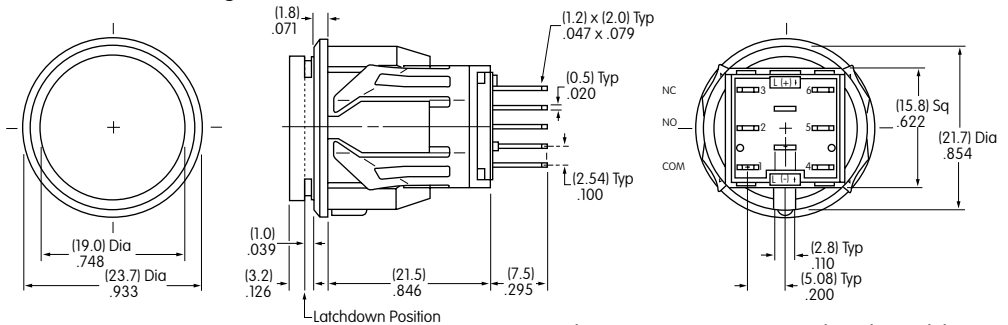
Terminals 4, 5, & 6 are not on single pole models.

#### Round



LB16CKW01-12-CJ

#### Single & Double Pole



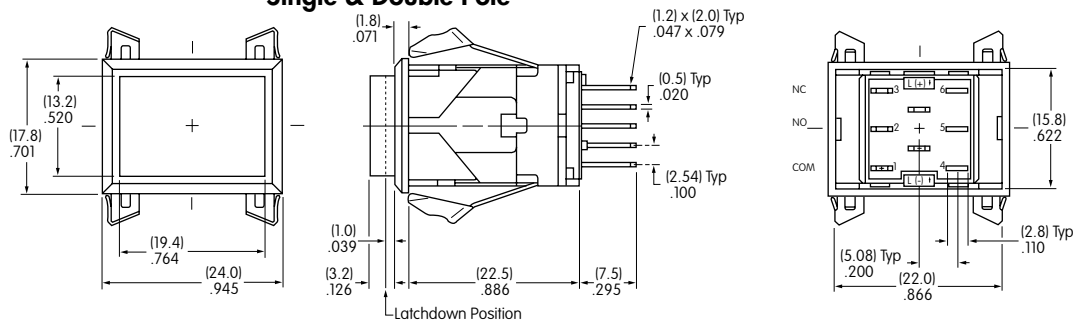
Terminals 4, 5, & 6 are not on single pole models.

#### Rectangular



LB26RGW01-12-CJ

#### Single & Double Pole

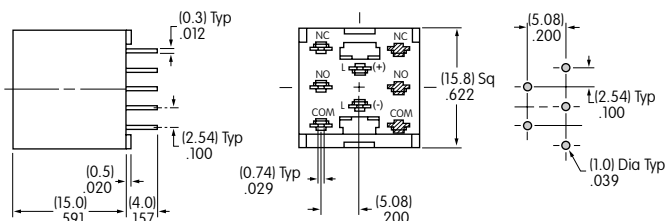


Terminals 4, 5, & 6 are not on single pole models.

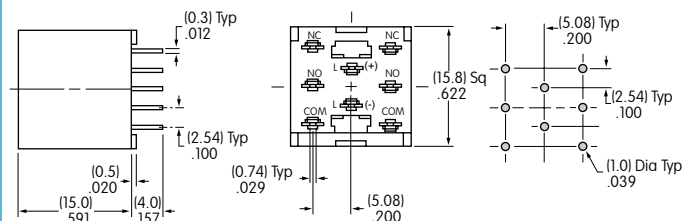
### OPTIONAL ACCESSORIES

#### PCB Adaptors

##### AT711 Single Pole • Straight PC Terminals



##### AT712 Double Pole • Straight PC Terminals



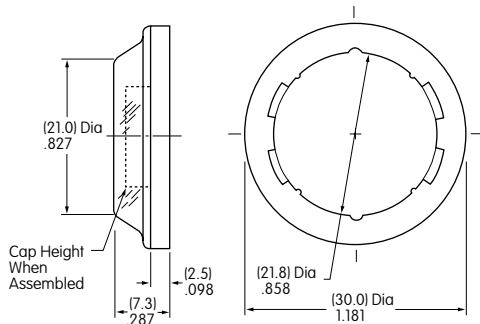
Note: Order adaptors separately.



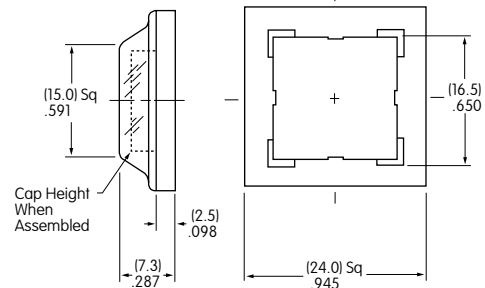
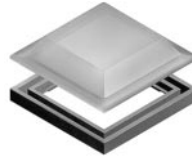
### OPTIONAL ACCESSORIES

#### Splash Covers

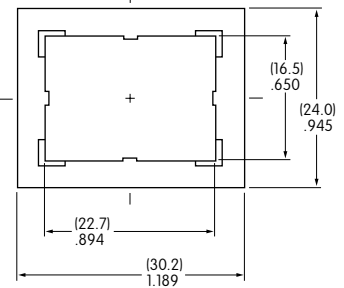
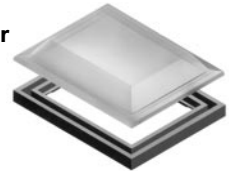
**AT4002  
Round**



**AT4001  
Square**



**AT4011 Rectangular**

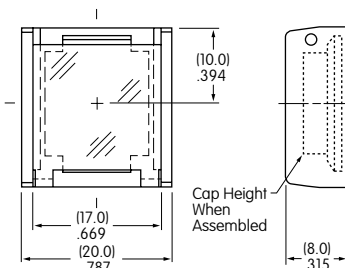


Material: PVC with polyethylene gasket  
PVC loses pliability below 0°C (32°F).

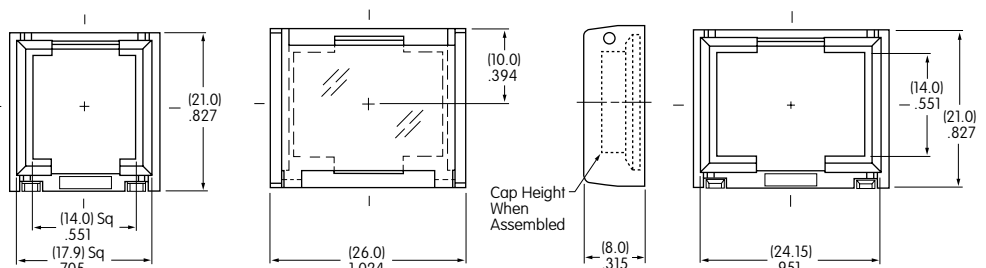
Splash Covers reduce depth of switch behind panel by .020".

#### Protective Guards

**AT499  
Square**



**AT4057  
Rectangular**



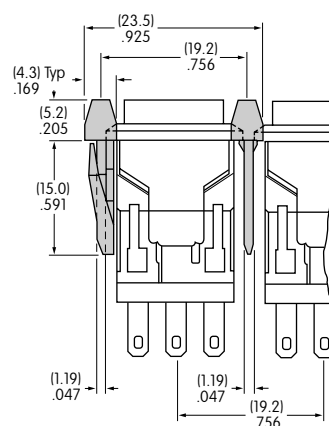
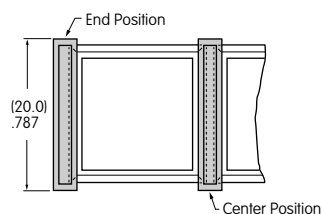
Material: Polyamide

Protective Guards reduce depth of switch behind panel by .020".

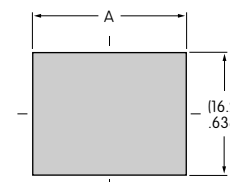
#### Barriers

**AT497  
End**

**AT498  
Center**



#### Cutouts for More Than 1 Switch



Square

$$A = .752" \times \text{Number of Switches} + .051"$$

Rectangular

$$A = .996" \times \text{Number of Switches} + .051"$$

Material: Polyamide

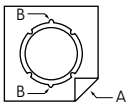
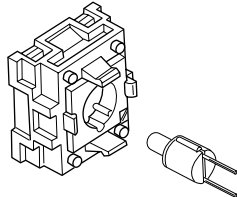


### ASSEMBLY INSTRUCTIONS

#### Lamp Installation & LED Orientation

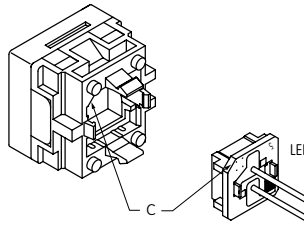
##### Incandescent & Neon Lamps AT607 & AT607N

Align projections on lamp with grooves (B) in holder when inserting lamp.  
To correctly join the lamp holder and cap base, match the cut corners (A).



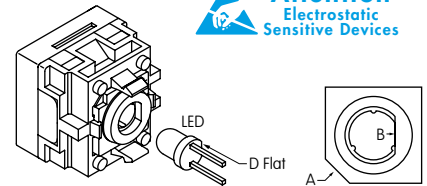
##### Bright LEDs AT626, AT627

Align cut corners (C) when inserting the LED.

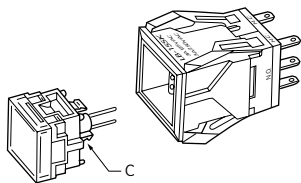
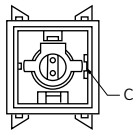


##### Super Bright LEDs AT625, AT631, AT632

Align D-flat on LED with flat (B) in holder when inserting the LED.  
To correctly join the lamp holder and cap base, match the cut corners (A).

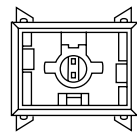
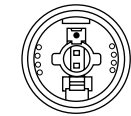


#### Switch & Cap Assembly



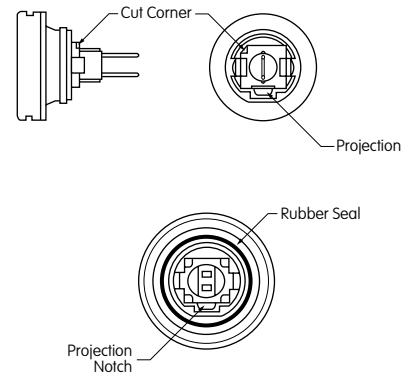
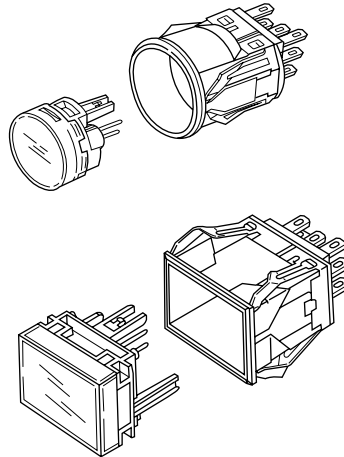
##### Square

Match projection (C) on cap assembly with groove (C) inside switch. Lamp terminals will then be aligned correctly with lamp socket.



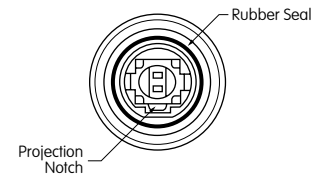
##### Round & Rectangular

Match clip on cap assembly with receptacle inside switch. Lamp terminals will then be aligned correctly with lamp socket.



##### Round Panel Seal

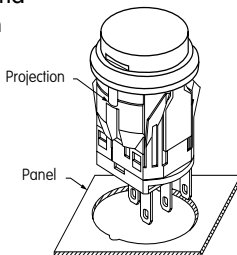
Match projection on cap assembly with notch inside switch. Lamp terminals will then be aligned correctly with lamp socket.



#### Installation & Maintenance

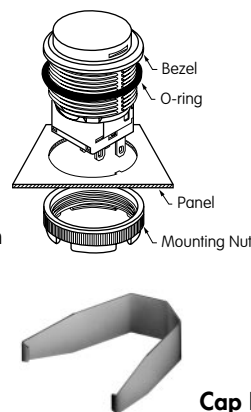
##### Snap-in Mount

Snap-in clip holds all switches firmly in place.  
To mount round switch, match the antirotation projection on switch with guide cut in panel. Snap into panel cutout.



##### Panel Seal Bushing Mount

Insert switch from the front of the panel with the o-ring between the built-in bezel and the panel. Install mounting nut AT074 (supplied with switch) from the rear of the panel.  
Overtightening mounting nut may damage the switch housing.



##### Lamp Replacement

Actuator must be in Up position.  
Pull off cap with cap extractor AT109.  
Replace lamp and reassemble as shown above.



AT109  
Cap Extractor

AT112  
Socket Wrench

### LEGENDS

General information and basic specifications are presented here for customers who want to do their own legends.

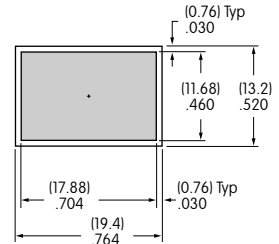
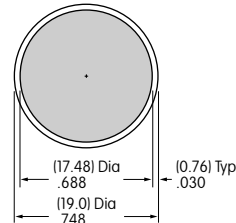
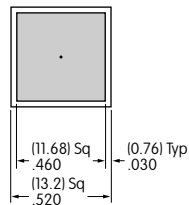
#### Suggested Printable Area for Lens



#### Recommended Print Method:

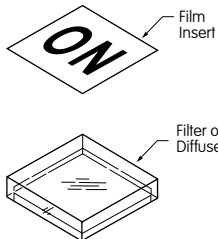
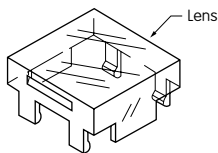
Screen Print or Pad Print

Epoxy based ink is recommended.



Shaded areas are printable areas.

#### Suggested Printable Area for Film Insert

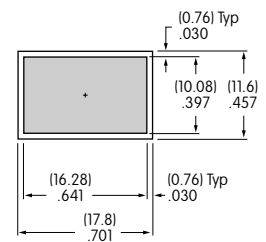
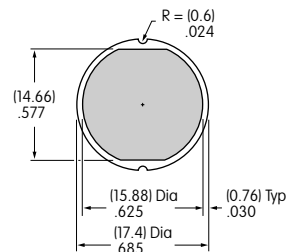
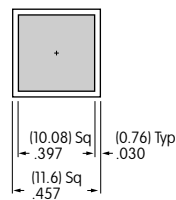


#### Film Material and Thickness:

Clear Polyester, 4 mil max.

#### Recommended Print Method:

Screen Print  
Epoxy based ink is recommended.

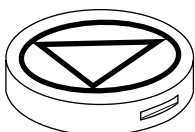


Shaded areas are printable areas.

#### Additional Methods

Additional methods for legends are engraving the lens and laser printing on film inserts.  
Maximum depth for engraving is 0.3 mm (.012") on the cap lens.  
Enamel paint is recommended to fill the engraved area.

### LEGEND PACKET FOR ORDERING CAPS WITH LEGENDS



1. To order caps with legends, contact the factory and request the LB Legend Packet.
2. Once you determine your desired legend, fill out the ordering work sheet included in the packet.
3. Return the completed work sheet to receive a quotation.

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## NKK Switches:

[AT478JC](#) [AT478JF](#) [AT4028JF](#) [AT4028JC](#) [AT4014JF](#) [AT4014JC](#) [AT4014JD](#) [AT4028JD](#)