

# 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  
 (Applicable Range 0.1mA ~ 0.1A @ 20mV ~ 28V)  
 Note: Find additional explanation of operating range in Supplement section.

## 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 for 1 minute minimum;  
 1,500V AC minimum between contacts & case for 1 minute minimum  
**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:** Single pole: 1.47N for nonsealed; 1.67N for sealed  
 Double pole: 2.75N for nonsealed; 2.94N for sealed  
**Contact Timing:** Nonshorting (break-before-make)  
**Travel:** Pretravel .059" (1.5mm); Overtravel .059" (1.5mm); Total Travel .118" (3.0mm)

## Materials & Finishes

**Housing/Bezel:** Glass fiber reinforced polyamide (UL94V-0)  
**Snap-in Frame:** Stainless steel  
**Base:** Diallyl phthalate resin (UL94V-0)  
**Movable Contactor:** Phosphor bronze with silver or gold plating  
**Movable Contacts:** Silver alloy with silver plating or brass with gold plating  
**Stationary Contacts:** Silver alloy or copper with gold plating  
**Switch Terminals:** Phosphor bronze with tin plating  
**Lamp Terminals:** Phosphor bronze with tin plating

## Environmental Data

**Operating Temperature 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 (490m/s<sup>2</sup>) acceleration (tested in 6 right angled directions, with 5 shocks in each direction)  
**Sealing:** IP65 of IEC60529 standard for panel seal models

## Installation

**Mounting Torque:** 0.785Nm (6.95 lb•in) maximum  
**Quick Connect Force:** 24.5N maximum downward force on connector  
**Soldering Time & Temperature:** Manual Soldering: See Profile A in Supplement section.

## Standards & Certifications

**Flammability Standards:** UL94V-0 housing & base  
**UL:** **File No. E44145 - Recognized only when ordered with marking on switch.**  
 Add "/U" or "/CUL" before first dash in part number to order UL recognized switch.  
 All solder lug models recognized at 3A @ 125/250V AC or 0.4VA @ 28V AC/DC maximum.  
**CSA:** **File No. 023535\_0\_000 - Certified only when ordered with marking on switch.**  
 Add "/C" before first dash in part number to order CSA certified switch.  
 All solder lug models certified at 3A @ 125/250V AC or 0.4VA @ 28V AC/DC maximum.

# Distinctive Characteristics

Full face or spot illumination with incandescent lamps or multi-element LEDs, with or without resistors.

Choice of super bright LEDs in white, green, and blue as well as bright LEDs in red, amber, and green.

Combination bezel-barrier is an integral part of the switch and prevents accidental actuation.

Unique thermoplastic elastomer seal inside caps plus rolled sleeve of nitrile butadiene rubber at joining of housing and inner case, all for added protection to interior mechanism.

Dust and oil tight as well as splashproof panel seal models qualify to IP65 of IEC60529 Standards (similar to NEMA 4 and 13). Panel seal models provided with exterior o-ring.

Distinctive design of snap-action contacts for shock resistance, long life, and sensitive actuation.

High density design to give behind panel depth of less than one inch.

Terminals are epoxy sealed to lock out flux, dust, solvents, and other contaminants.

Latchdown for indication of circuit status, plus audible, tactile feedback with smooth, responsive operation.

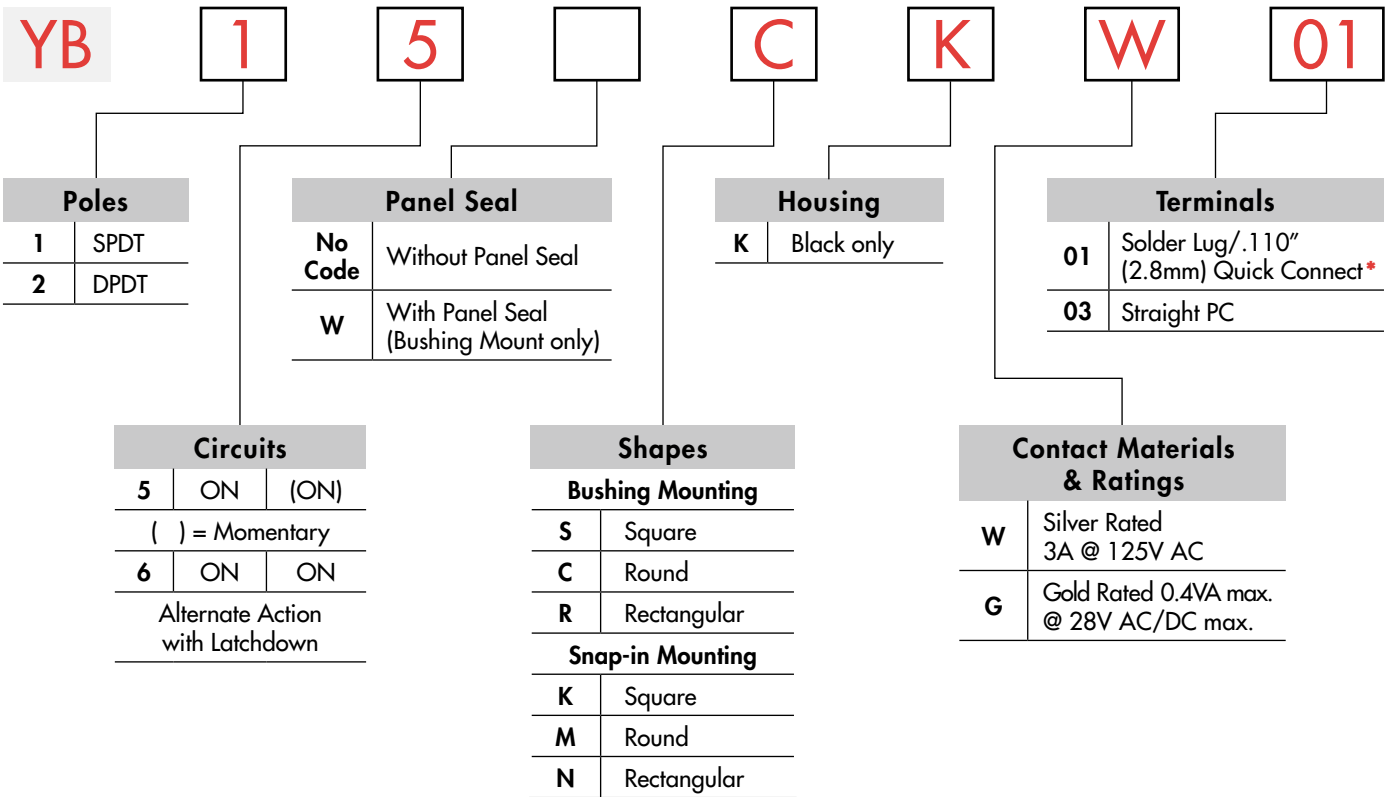
Matching indicators available.



Actual Size



TYPICAL SWITCH ORDERING EXAMPLE



Toggles

Rockers

Pushbuttons

Illuminated PB

Programmable

Keylocks

Rotaries

Slides

Tactiles

Tilt

Touch

Indicators

Accessories

Supplement

POLES & CIRCUITS

| Pole | Model         | Plunger Position<br>( ) = Momentary |            | Connected Terminals |         | Throw & Switch/Lamp Schematics                                                                                                |
|------|---------------|-------------------------------------|------------|---------------------|---------|-------------------------------------------------------------------------------------------------------------------------------|
|      |               | Normal                              | Down       | Normal              | Down    |                                                                                                                               |
| SP   | YB15<br>*YB16 | ON<br>ON                            | (ON)<br>ON | 1-3                 | 1-2     | SPDT<br>Notes: Switch is marked with NC, NO, COM, L+, L-.<br>Lamp circuit is isolated and requires external power source.<br> |
| DP   | YB25<br>*YB26 | ON<br>ON                            | (ON)<br>ON | 1-3 4-6             | 1-2 4-5 | DPDT<br>                                                                                                                      |

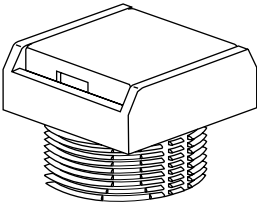
\* When in latchdown position for the alternate circuit, cap position is .020" (0.5mm) above the built-in bezel.

PANEL SEAL

No Code

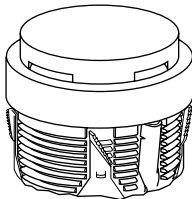
Without Panel Seal

Bushing  
Mounting



Supplied with  
mounting nut.

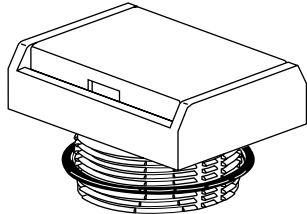
Snap-in  
Mounting



W

With Panel Seal

Bushing  
Mounting  
only



Supplied with  
mounting nut  
and o-ring AT089.

SHAPES & MOUNTING TYPES

Bushing Mounting

Snap-in Mounting

S

Square

C

Round

R

Rectangular

K

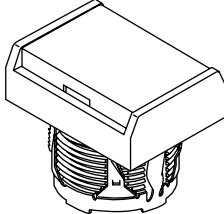
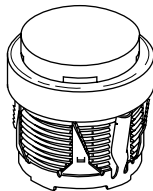
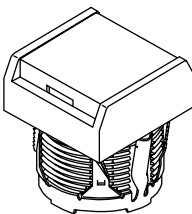
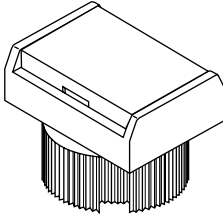
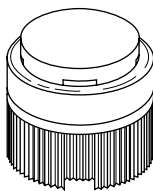
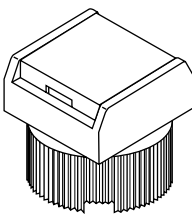
Square

M

Round

N

Rectangular



Bezel-barrier is an integral part of the switch body.

HOUSING

K

Black

Housing available in black only. The 1-piece body and bezel-barrier have a matte finish.

CONTACT MATERIALS & RATINGS

W

Silver Contacts

Power Level

3A @ 125/250V AC

G

Gold Contacts

Logic Level

0.4VA max. @ 28V AC/DC max.

Complete explanation of operating range in Supplement section.

TERMINALS

**01** Solder Lug/  
.110" (2.8mm) Quick Connect



**03** Straight PC



Single Pole



Double Pole



INCANDESCENT LAMP & SOLID CAP

Electrical specifications are determined at a basic temperature of 25°C. Lamp circuit is independent of switch operation.  
For dimension drawing of lamp see the Accessories & Hardware section.

|                                                                                                                                      |                           |               |               |        |
|--------------------------------------------------------------------------------------------------------------------------------------|---------------------------|---------------|---------------|--------|
| <div>AT611</div> <div></div> <div>T-1 Bi-pin</div> |                           | <div>05</div> | <div>12</div> |        |
|                                                                                                                                      | Voltage                   | V             | 5V AC         | 12V AC |
|                                                                                                                                      | Current                   | I             | 115mA         | 60mA   |
|                                                                                                                                      | MSCP                      |               | .150          | .150   |
|                                                                                                                                      | Endurance                 | Hours         | 7,000 average |        |
|                                                                                                                                      | Ambient Temperature Range |               | -25°C ~ +50°C |        |

**No Code** No Lamp

Solid Cap for Incandescent Lamp & Nonilluminated

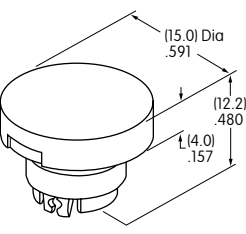
Lens/Insert  
Colors Available:

- BB** White/White
- CB** Red/White
- EB** Yellow/White
- FB** Green/White
- GB** Blue/White

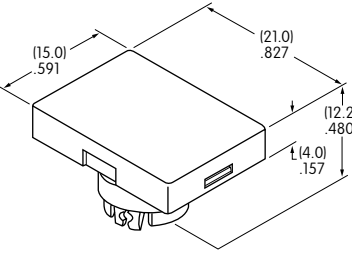
**AT3001**  
Square



**AT3002**  
Round



**AT3003**  
Rectangular



-  Translucent Colored Lens
-  Translucent White Insert
-  Translucent White Seal/Filter
-  Incandescent Lamp AT611

**Materials:**  
Lens & Insert: Polycarbonate Seal/Filter: Thermoplastic Elastomer

SPOT ILLUMINATED CAP WITH BUILT-IN LED

This spot-illuminated cap is factory assembled.

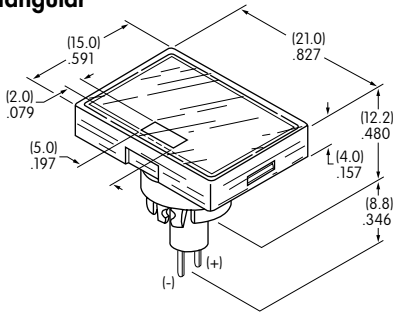
AT3010  
Square



AT3011  
Round



AT3012  
Rectangular



Colors Available:

1C

Red

1D

Amber

1F

Green

1CF

Red/Green

02

Without Resistor

05

With Resistor

12

With Resistor

24

With Resistor

Unit

Forward Peak Current

$I_{FM}$

20

15

15

12

mA

Typical Forward Current

$I_F$

15

12.5

12.5

10

mA

Forward Voltage

$V_F$

2.1

5

12

24

V

Reverse Peak Voltage (not applicable to bicolor)

$V_{RM}$

5

5

5

5

V

Current Reduction Rate Above 25°C

$\Delta I_F$

0.27

—

—

—

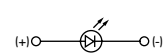
mA/°C

Ambient Temperature Range

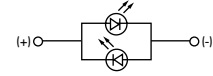
-25 ~ +50

°C

Without Resistor 2-volt

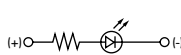


Single Color

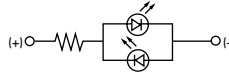


Bicolor

With Resistor 5, 12, 24-volt



Single Color



Bicolor

The electrical specifications shown are determined at a basic temperature of 25°C. LED circuit is isolated and requires external power source. Single color LEDs are colored in OFF state. Bicolor LED is translucent white in OFF state.

If the source voltage exceeds the rated voltage, a ballast resistor is required.  
The resistor value can be calculated by using the formula in the Supplement section.

Lens/Insert  
Colors Available:

JA

Clear/Black

JB

Clear/White

JC

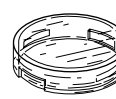
Clear/Red

JE

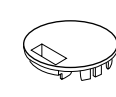
Clear/Yellow

JF

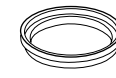
Clear/Green



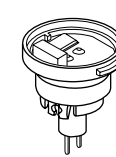
Clear Lens



Colored Insert



Seal



Built-in LED  
(integral part  
of the cap)

Example part number  
when cap is ordered separate  
from switch:

**AT3010F02JA**

for a  
Square Spot Illuminated Cap  
with Green 2-volt LED  
without resistor  
Clear Lens and Black Insert

Materials:

Lens & Insert: Polycarbonate  
Seal: Thermoplastic Elastomer

## BRIGHT LED & LED CAPS

The electrical specifications shown are determined at a basic temperature of 25°C.  
LED circuit is isolated and requires external power source.  
If the source voltage exceeds the rated voltage, a ballast resistor is required.  
The resistor value can be calculated by using the formula in the Supplement section.

### Electrical Specifications for Bright LED without Resistor

| <b>Bright AT628</b><br><br><br><br><br><br>T-1 Bi-pin | Colors Available:                 | 5C Red       | 5D Amber | 5F Green | No Code No Resistor | Unit  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|--------------|----------|----------|---------------------|-------|
|                                                                                                                                                                                                                         | LED Colors                        | Red          | Amber    | Green    |                     |       |
|                                                                                                                                                                                                                         | Forward Peak Current              | $I_{FM}$     | 40       | 40       | 40                  | mA    |
|                                                                                                                                                                                                                         | Typical Forward Current           | $I_F$        | 26       | 26       | 26                  | mA    |
|                                                                                                                                                                                                                         | Forward Voltage                   | $V_F$        | 1.9      | 2.0      | 2.0                 | V     |
|                                                                                                                                                                                                                         | Reverse Peak Voltage              | $V_{RM}$     | 4        | 4        | 4                   | V     |
|                                                                                                                                                                                                                         | Current Reduction Rate Above 25°C | $\Delta I_F$ | 0.50     |          |                     | mA/°C |
|                                                                                                                                                                                                                         | Ambient Temperature Range         | -25 ~ +50    |          |          |                     | °C    |

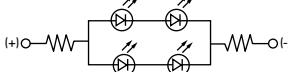
### Electrical Specifications for Bright LED with Resistor

| <b>Bright AT634</b><br><br><br><br>T-1 1/4 Bi-pin | Colors Available:                 | 5C Red       | 5D Amber | 5F Green | 05 | 12 | 24 | Unit  |
|--------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|--------------|----------|----------|----|----|----|-------|
|                                                                                                                                      | Forward Peak Current              | $I_{FM}$     | —        | —        | —  | —  | —  | mA    |
|                                                                                                                                      | Typical Forward Current           | $I_F$        | 25       | 20       | 10 | —  | —  | mA    |
|                                                                                                                                      | Forward Voltage                   | $V_F$        | 5        | 12       | 24 | —  | —  | V     |
|                                                                                                                                      | Reverse Peak Voltage              | $V_{RM}$     | 4        | 8        | 16 | —  | —  | V     |
|                                                                                                                                      | Current Reduction Rate Above 25°C | $\Delta I_F$ | —        | —        | —  | —  | —  | mA/°C |
|                                                                                                                                      | Ambient Temperature Range         | -25 ~ +50    |          |          |    |    |    | °C    |

AT634  
5-volt,  
2-element  
with Resistor



AT634  
12-volt,  
4-element  
with Resistor



AT634  
24-volt,  
4-element  
with Resistor

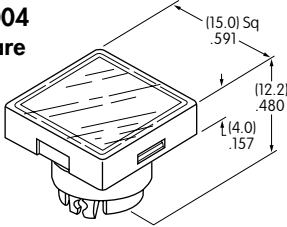


### Cap for Bright LED

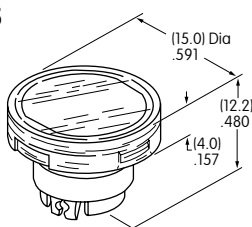
Lens/Insert  
Colors Available:

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

**AT3004 Square**



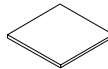
**AT3005 Round**



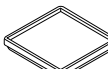
**AT3006 Rectangular**



Transparent Clear Lens



Translucent Colored Insert



Translucent White Seal/Diffuser



Bright LEDs  
AT628 AT634

**Materials:**

Lens & Insert: Polycarbonate Seal/Diffuser: Thermoplastic Elastomer

SUPER BRIGHT LED & LED CAPS

The electrical specifications shown are determined at a basic temperature of 25°C.  
LED circuit is isolated and requires external power source.  
If the source voltage exceeds the rated voltage, a ballast resistor is required.  
The resistor value can be calculated by using the formula in the Supplement section.

Electrical Specifications for Super Bright LED

|                                                                                                                                                                                              |                                                                                                                                                                                                              |                                          |                                          |                                         |      |       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|------------------------------------------|-----------------------------------------|------|-------|
| <div>Super Bright<br/>AT625G Blue<br/>AT631B White<br/>AT632F Green</div> <div></div> <div>T-1 Bi-pin</div> | <div></div> <div></div> <div>Colors:</div> | <div><div>6B</div><div>White</div></div> | <div><div>6F</div><div>Green</div></div> | <div><div>6G</div><div>Blue</div></div> | Unit |       |
|                                                                                                                                                                                              | Forward Peak Current                                                                                                                                                                                         | $I_{FM}$                                 | 30                                       | 30                                      | 30   | mA    |
|                                                                                                                                                                                              | Typical Forward Current                                                                                                                                                                                      | $I_F$                                    | 20                                       | 20                                      | 20   | mA    |
|                                                                                                                                                                                              | Forward Voltage                                                                                                                                                                                              | $V_F$                                    | 3.6                                      | 3.5                                     | 3.6  | V     |
|                                                                                                                                                                                              | Reverse Peak Voltage                                                                                                                                                                                         | $V_{RM}$                                 | 5                                        | 5                                       | 5    | V     |
|                                                                                                                                                                                              | Current Reduction Rate Above 25°C                                                                                                                                                                            | $\Delta I_F$                             | 0.50                                     |                                         |      | mA/°C |
|                                                                                                                                                                                              | Ambient Temperature Range                                                                                                                                                                                    |                                          | -25 ~ +50                                |                                         |      | °C    |

Cap for Super Bright LED

AT3014  
Square



AT3015  
Round



AT3016  
Rectangular



Lens/Insert  
Colors Available:

JB

 Clear/White

Materials:  
Lens & Insert: Polycarbonate    Seal/Diffuser: Thermoplastic Elastomer

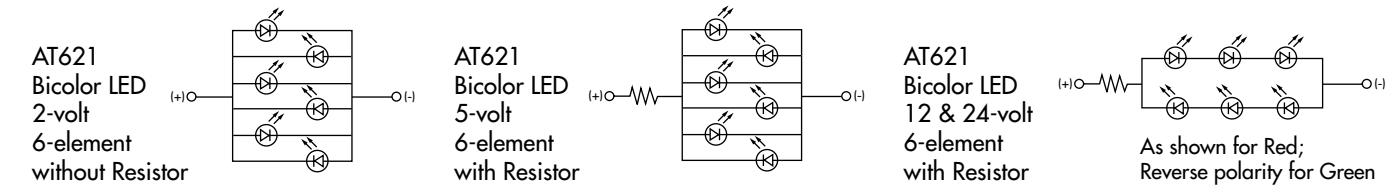


BICOLOR LED & LED CAPS

The electrical specifications shown are determined at a basic temperature of 25°C.  
LED circuit is isolated and requires external power source.  
If the source voltage exceeds the rated voltage, a ballast resistor is required.  
The resistor value can be calculated by using the formula in the Supplement section.

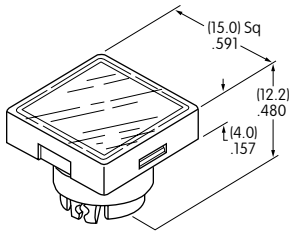
Electrical Specifications for Bicolor LED

|                                                                                                                                                     |                                                |              |           |           |           |           |       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|--------------|-----------|-----------|-----------|-----------|-------|
| <b>Bicolor AT621</b><br><b>2CF</b> Red/Green<br><br>T-1 1/2 Bi-pin | Bicolor LED is translucent white in OFF state. |              | <b>02</b> | <b>05</b> | <b>12</b> | <b>24</b> | Unit  |
|                                                                                                                                                     | Forward Peak Current                           | $I_{FM}$     | 60        | 60        | 20        | 12        | mA    |
|                                                                                                                                                     | Typical Forward Current                        | $I_F$        | 45        | 45        | 15        | 10        | mA    |
|                                                                                                                                                     | Forward Voltage                                | $V_F$        | 2.1       | 5         | 12        | 24        | V     |
|                                                                                                                                                     | Current Reduction Rate Above 25°C              | $\Delta I_F$ | 0.80      | —         | —         | —         | mA/°C |
|                                                                                                                                                     | Ambient Temperature Range                      | -25 ~ +50    |           |           |           |           | °C    |

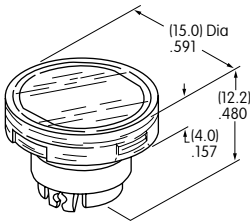


LED Caps

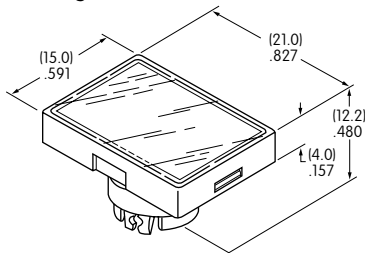
AT3004 Square



AT3005 Round



AT3006 Rectangular



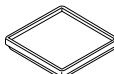
Lens/Insert  
Colors Available:

**JB** Clear/White

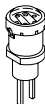
Transparent Clear Lens



Transparent White Insert



Translucent White Seal/Diffuser



Materials:

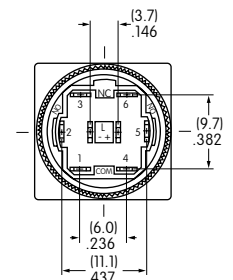
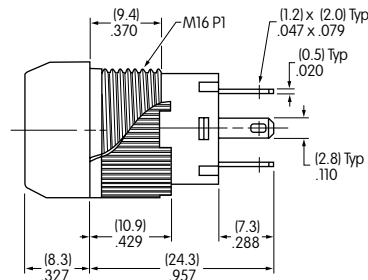
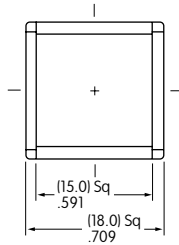
Lens & Insert: Polycarbonate Seal/Diffuser: Thermoplastic Elastomer

Bicolor LED AT621

### TYPICAL SWITCH DIMENSIONS

#### Square • Bushing Mounting

#### Single & Double Pole

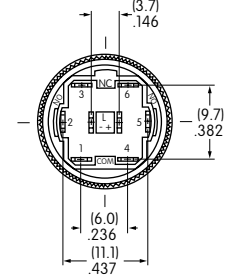
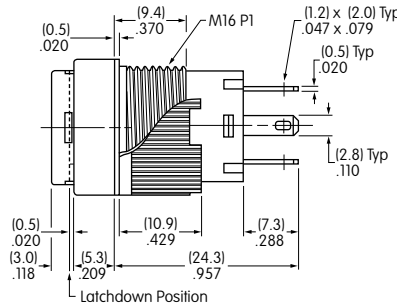


YB15SKW01-12-CB

Single pole models do not have terminals 4, 5, & 6.

#### Round • Panel Seal

#### Single & Double Pole

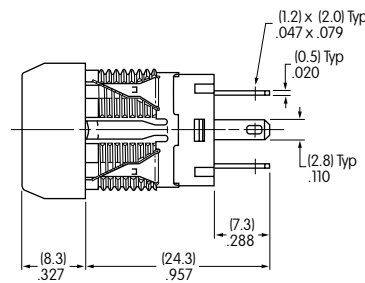
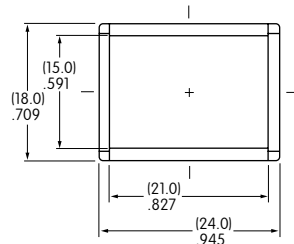


YB26WCKW01-12-EB

Single pole models do not have terminals 4, 5, & 6.

#### Rectangular • Snap-in Mounting

#### Single & Double Pole



YB15NkW01-5C-JC

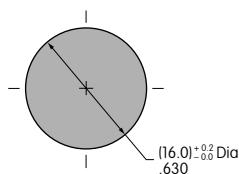
Single pole models do not have terminals 4, 5, & 6.

### PANEL THICKNESS & CUTOUTS

#### Bushing & Panel Seal Mount

#### Snap-in Mount

Panel Thickness  
.020" ~ .197"  
(0.5mm ~ 5.0mm)



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



## OPTIONAL ACCESSORIES

Dust Covers and Protective Guards reduce depth of switch behind panel by .047" (1.2mm).

**Panel Thickness Range with Dust Cover or Protective Guards:**

Bushing Mounting  
.020" ~ .150" (0.5mm ~ 3.8mm)

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

Panel Seal  
.020" ~ .118" (0.5mm ~ 3.0mm)

**AT4115 Dust Cover  
for Snap-in or  
Bushing Mount**

**AT4115 Splash Cover  
and AT541 O-ring  
for Bushing Mount**

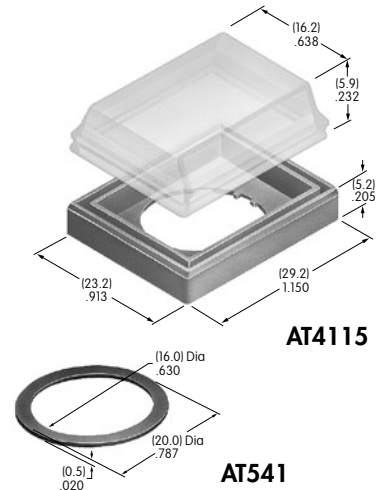
**Materials:**  
Lid: Polyvinyl Chloride  
Base: Polyamide  
O-ring: Nitrile butadiene rubber



Snap-in Mount

Panel Seal

Note: AT089 o-ring supplied  
with panel seal model.

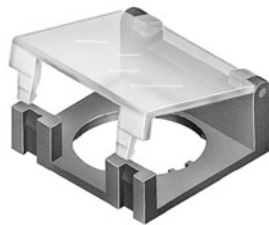


**AT4115**

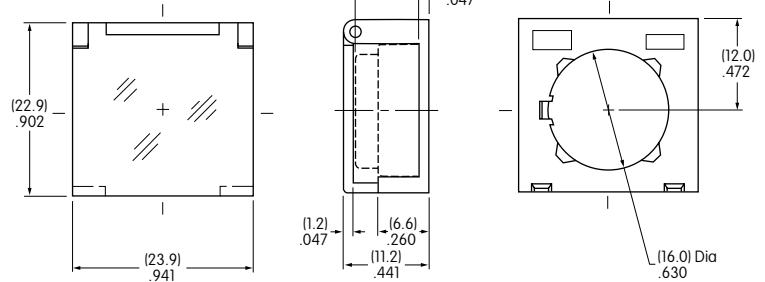
**AT541**

**AT4072 Protective Guard**  
Opens 90°  
Closes manually

**Materials:**  
Lid: Polycarbonate  
Base: Glass Fiber  
Reinforced Polycarbonate

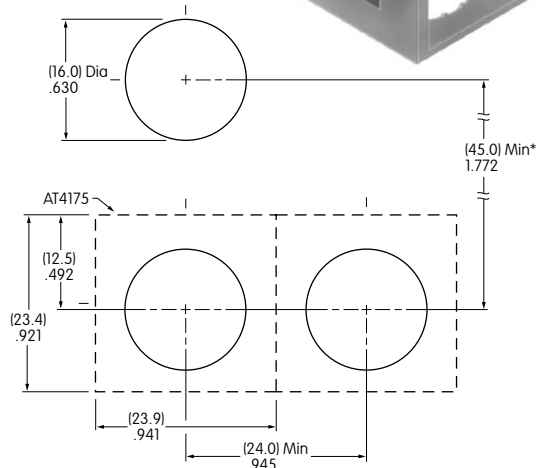
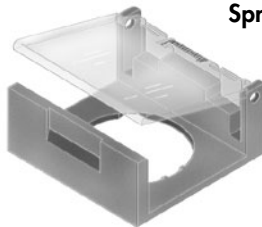


**Protective Guard**

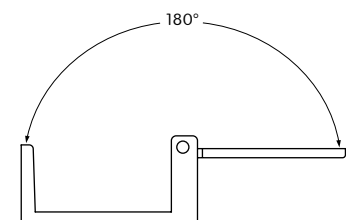


**Spring Loaded Protective Guard**

**AT4175 Spring Loaded  
Protective Guard**  
Opens 180°  
Closes automatically



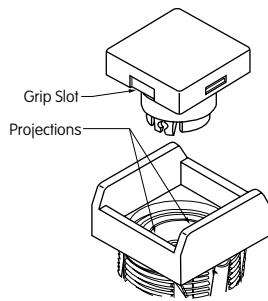
**Materials:**  
Lid: Polycarbonate  
Base: Glass Fiber Reinforced Polyamide  
Coil Spring: Stainless Steel



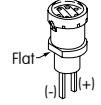
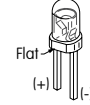
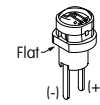
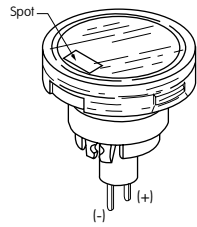
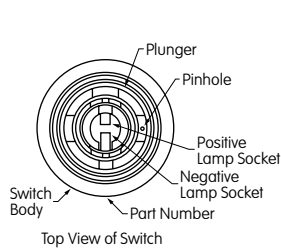
\* Minimum dimension allows opening of cover to 180°

### ASSEMBLY INSTRUCTIONS

#### Cap Assembly



#### LED Polarity & Orientation in Lamp Socket



Spot Illuminated Cap  
with Built-in LED

LED  
AT628  
AT634

LEDs  
AT625G  
AT631B AT632F

LED  
AT621

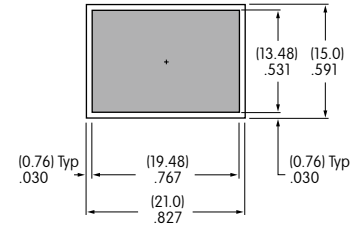
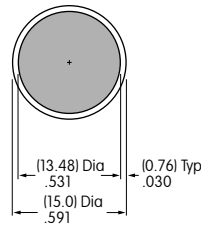
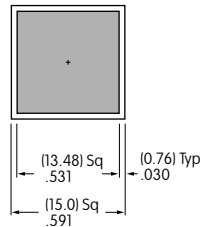
The following installation tools are available: AT106 Socket Wrench for bushing mounting (Overtightening the mounting nut AT092 may damage the switch housing.); AT109 Cap Extractor; AT111 Lamping Tool.  
Further details and dimensions are shown in the Accessories and Hardware section.

### LEGENDS

NKK Switches can provide custom legends for caps. Contact factory for more information.

#### Suggested Printable Area for YB Lens

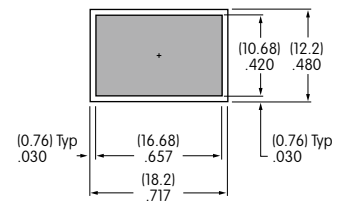
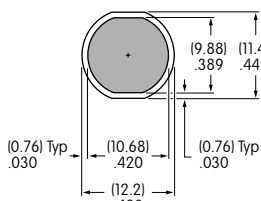
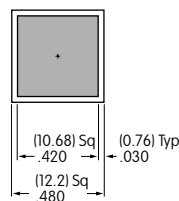
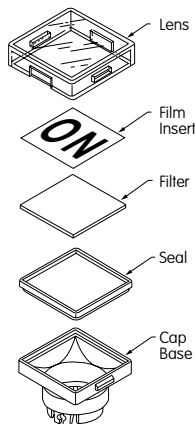
**Recommended Methods:** Laser Etch on clear lens, Screen Print or Pad Print on Lens.  
Epoxy based ink is recommended.



Shaded areas are printable areas.

#### Suggested Printable Area for Film Insert

**Recommended Print Method:** Laser Print  
Film Insert: Clear Polyester, 4 mil max. thickness



Shaded areas are printable areas.