Series LB
Standard Size Pushbuttons

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
- Electrical Life: 200,000 operations minimum for maintained circuit
- Nominal Operating Force: 4.41N
- Contact Timing: Nonshorting (break-before-make)
  Travel: Pretravel .059” (1.5mm); Overtravel .059” (1.5mm); Total Travel .118” (3.0mm)

Materials & Finishes
- Housing: Glass fiber reinforced polyamide (UL94V-0)
- Snap-in Frame: Stainless steel
- Movable Contact: Silver alloy or copper with gold plating
- Stationary Contacts: Silver alloy or copper with gold plating
- Base: Liquid crystal polymer (UL94V-0)
- Switch Terminals: Phosphor bronze with silver or gold plating
- Lamp Terminals: Brass with silver 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
Note: When used with a polyvinyl chloride splash cover, the lowest limit is 0°C (32°F)
- 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/s²) acceleration (tested in 6 right angled directions, with 5 shocks in each direction)
- Sealing: Not available for snap-in; see next section for panel seal.

Installation
- Cap Installation Force: 3.92N maximum downward force on cap
- Quick Connect Force: 52.95N maximum downward force on connector

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 models recognized at 3A @ 125V or 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 models certified at 3A @ 125V or 250V AC or 0.4VA @ 28V AC/DC maximum.
**Distinctive Characteristics**

Carefully designed light diffusion and filtering system produces bright, full surface illumination with front panel relamping.

Spot illumination available in single and bicolor LEDs.

Choice of super bright LEDs in white, green, and blue in addition to standard or bright red, amber, and green LEDs.

Stainless steel clips provide secure mounting with a wide range of panel thicknesses.

Latchdown feature gives indication of circuit status. Audible and tactile feedback with smooth and responsive operation.

Snap-action contact mechanism gives long electrical life and sensitivity of actuation.

Combination solder lug and .110” quick connect terminals are epoxy sealed to prevent entry of flux, dust, and other contaminants.

Panel sealed model meets IP65 of IEC60529 specifications (similar to NEMA 4 & 13).

Compact switch design minimizes behind panel depth.

Matching indicators available.
IMPORTANT:

Switches are supplied without UL, cULus and CSA marking unless specified.
UL, cULus & CSA recognized only when ordered with marking on the switch.
Specific models, ratings, and ordering instructions are noted on the General Specifications page.
### Ordering Example

![TYPICAL SWITCH ORDERING EXAMPLE](image)

#### Lamps

<table>
<thead>
<tr>
<th>Incandescent Lamp Used with Solid Cap</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>05 5-volt</td>
<td></td>
</tr>
<tr>
<td>12 12-volt</td>
<td></td>
</tr>
<tr>
<td>No Code Nonilluminated</td>
<td></td>
</tr>
</tbody>
</table>

#### Cap Types & Colors

<table>
<thead>
<tr>
<th>Solid Cap: Lens/Filter Colors</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>BJ White/Clear</td>
<td></td>
</tr>
<tr>
<td>CJ Red/Clear</td>
<td></td>
</tr>
<tr>
<td>EJ Yellow/Clear</td>
<td></td>
</tr>
<tr>
<td>FJ Green/Clear</td>
<td></td>
</tr>
<tr>
<td>GJ Blue/Clear</td>
<td></td>
</tr>
</tbody>
</table>

#### Incandescent or Neon Used with Insert Cap

<table>
<thead>
<tr>
<th>Insert Cap: Lens/Filter Colors</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>JB Clear/White</td>
<td></td>
</tr>
<tr>
<td>JC Clear/Red</td>
<td></td>
</tr>
<tr>
<td>JE Clear/Yellow</td>
<td></td>
</tr>
<tr>
<td>*JF Clear/Green</td>
<td></td>
</tr>
<tr>
<td>*JG Clear/Blue</td>
<td></td>
</tr>
</tbody>
</table>

*JF & JG not suitable with neon.*

#### Bright LED Used with LED Cap

<table>
<thead>
<tr>
<th>Colors</th>
<th>Resistor</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>5C Red</td>
<td>No Code</td>
<td>No Resistor</td>
</tr>
<tr>
<td>5D Amber</td>
<td>05 5-volt</td>
<td>No Resistor</td>
</tr>
<tr>
<td>5F Green</td>
<td>12 12-volt</td>
<td>No Resistor</td>
</tr>
</tbody>
</table>

#### Super Bright LED Used with LED Cap

<table>
<thead>
<tr>
<th>Colors</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>6B White</td>
<td></td>
</tr>
<tr>
<td>6F Green</td>
<td></td>
</tr>
<tr>
<td>6G Blue</td>
<td></td>
</tr>
</tbody>
</table>

#### LED in Spot Illuminated Cap

<table>
<thead>
<tr>
<th>Colors</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1C Red Single Color</td>
<td></td>
</tr>
<tr>
<td>1D Amber Single Color</td>
<td></td>
</tr>
<tr>
<td>1F Green Single Color</td>
<td></td>
</tr>
<tr>
<td>CF Red/Green Bicolor</td>
<td></td>
</tr>
</tbody>
</table>

#### Nonilluminated Cap Colors

<table>
<thead>
<tr>
<th>Nonilluminated Cap Colors</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A Black</td>
<td></td>
</tr>
<tr>
<td>B White</td>
<td></td>
</tr>
<tr>
<td>C Red</td>
<td></td>
</tr>
<tr>
<td>F Green</td>
<td></td>
</tr>
</tbody>
</table>

Available in Square and Round only.

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Series LB

Standard Size Snap-in Pushbuttons

POLES & CIRCUITS

<table>
<thead>
<tr>
<th>Pole</th>
<th>Model</th>
<th>Normal</th>
<th>Connected Terminals</th>
<th>Throw &amp; Switch/Lamp Schematics</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP</td>
<td>LB15</td>
<td>ON</td>
<td>1-3 4-6</td>
<td>SPDT</td>
</tr>
<tr>
<td></td>
<td>*LB16</td>
<td>ON</td>
<td>1-2 4-5</td>
<td></td>
</tr>
<tr>
<td>DP</td>
<td>LB25</td>
<td>ON</td>
<td>1-3 4-6</td>
<td>DPDT</td>
</tr>
<tr>
<td></td>
<td>*LB26</td>
<td>ON</td>
<td>1-2 4-5</td>
<td></td>
</tr>
</tbody>
</table>

Notes: Switch is marked with NC, NO, COM, L+, L−. Lamp circuit is isolated and requires an external power source.

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

SHAPES & PANEL CUTOUTS

- **S**: .622” (15.8mm) Square
  - Cutout for 1 switch: .638” x .638” (16.2mm x 16.2mm)
  - Cutout for 1 switch with barriers: .638” x .815” (16.2mm x 20.7mm)

- **C**: .854” (21.7mm) Round
  - Cutout for 1 switch: .638” x .866” (16.2mm x 22.4mm)
  - Cutout for 1 switch with barriers: .638” x 1.059” (16.2mm x 26.9mm)

Panel Thickness for Switches & Barriers: .039” ~ .157” (1.0 ~ 4.0mm)
Panel Thickness for Protective Guards & Splash Covers: .039” ~ .138” (1.0 ~ 3.5mm)

HOUSING

Housing Colors Available:
- **K**: Black
- **G**: Gray

CONTACT MATERIALS, RATINGS & TERMINALS

- **W01**: Silver Contacts
  - Power Level: 3A @ 125V AC & 250V AC

- **G01**: Gold Contacts
  - Logic Level: 0.4VA max. @ 28V AC/DC max.

Complete explanation of operating range in Supplement section.

Solder Lug/Quick Connect

Optional PCB adaptors AT711 & AT712 available; illustrated in “Optional Accessories” immediately following “Typical Switch Dimensions.”

INCANDESCENT & NEON LAMP CODES & SPECIFICATIONS

<table>
<thead>
<tr>
<th>AT607 &amp; AT607N</th>
<th>05</th>
<th>12</th>
<th>01</th>
</tr>
</thead>
<tbody>
<tr>
<td>AT607 Incandescent 5-volt or 12-volt; AT607N Neon 110-volt</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voltage</td>
<td>V</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current</td>
<td>I</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Endurance Avg. Hours</td>
<td>10,000</td>
<td>10,000</td>
<td></td>
</tr>
<tr>
<td>Ambient Temp. Range</td>
<td>-25°C ~ +50°C</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The electrical specifications shown are determined at a basic temperature of 25°C. Lamp circuit is isolated and requires external power source.

* Recommended Resistors for Neon:
  - 33K ohms for 110V AC
  - 100K ohms for 220V AC
LED COLORS & SPECIFICATIONS

The electrical specifications shown are determined at a basic temperature of 25°C. LED circuit is isolated and requires external power source. Polarity marks are on the switch. 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. Additional lamp detail is shown in the Accessories & Hardware section.

### Bright LED without Resistor

**AT635**

- **Color Codes**: Red (5C), Amber (5D), Green (5F)
- **No Code**: No Resistor

<table>
<thead>
<tr>
<th></th>
<th>Red</th>
<th>Amber</th>
<th>Green</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Forward Current $I_{FM}$</td>
<td>30mA</td>
<td>30mA</td>
<td>30mA</td>
</tr>
<tr>
<td>Typical Forward Current $I_F$</td>
<td>20mA</td>
<td>20mA</td>
<td>20mA</td>
</tr>
<tr>
<td>Forward Voltage $V_F$</td>
<td>1.9V</td>
<td>2.0V</td>
<td>2.1V</td>
</tr>
<tr>
<td>Maximum Reverse Voltage $V_{RA}$</td>
<td>5V</td>
<td>5V</td>
<td>5V</td>
</tr>
<tr>
<td>Current Reduction Rate Above 25°C $\Delta I_f$</td>
<td>0.42mA/°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambient Temperature Range</td>
<td>–25°C ~ +50°C</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- LEDs are colored in OFF state.

### Bright LED with Resistor

**AT627**

- **Color Codes**: Red (5C), Amber (5D), Green (5F), Resistor Code (05, 12, 24)

<table>
<thead>
<tr>
<th></th>
<th>Red</th>
<th>Amber</th>
<th>Green</th>
<th>Resistor Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Forward Current $I_{FM}$</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Typical Forward Current $I_F$</td>
<td>52mA</td>
<td>26mA</td>
<td>13mA</td>
<td></td>
</tr>
<tr>
<td>Forward Voltage $V_F$</td>
<td>5V</td>
<td>12V</td>
<td>24V</td>
<td></td>
</tr>
<tr>
<td>Maximum Reverse Voltage $V_{RA}$</td>
<td>4V</td>
<td>8V</td>
<td>16V</td>
<td></td>
</tr>
<tr>
<td>Current Reduction Rate Above 25°C $\Delta I_f$</td>
<td>0.50mA/°C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambient Temperature Range</td>
<td>–25°C ~ +50°C</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **AT627** 5-volt 4-element with Resistor

### Super Bright Single Element LED

**AT625G Blue**

- **Color**: White (6B), Green (6F), Blue (6G)

<table>
<thead>
<tr>
<th></th>
<th>Color</th>
<th>6B</th>
<th>6F</th>
<th>6G</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Forward Current $I_{FM}$</td>
<td>30mA</td>
<td>30mA</td>
<td>30mA</td>
<td></td>
</tr>
<tr>
<td>Typical Forward Current $I_F$</td>
<td>20mA</td>
<td>20mA</td>
<td>20mA</td>
<td></td>
</tr>
<tr>
<td>Forward Voltage $V_F$</td>
<td>3.3V</td>
<td>3.3V</td>
<td>3.3V</td>
<td></td>
</tr>
<tr>
<td>Maximum Reverse Voltage $V_{RA}$</td>
<td>7V</td>
<td>7V</td>
<td>7V</td>
<td></td>
</tr>
<tr>
<td>Current Reduction Rate Above 25°C $\Delta I_f$</td>
<td>0.40mA/°C</td>
<td>0.40mA/°C</td>
<td>0.40mA/°C</td>
<td></td>
</tr>
<tr>
<td>Ambient Temperature Range</td>
<td>–25°C ~ +50°C</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **AT631B White**
- **AT632F Green**

---

**ATTENTION ELECTROSTATIC SENSITIVE DEVICES**

**No Code** No Lamp

---

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### CAP TYPES & COLOR COMBINATIONS

**Series LB**

**Standard Size Snap-in Pushbuttons**

<table>
<thead>
<tr>
<th>Color Codes</th>
<th>B White</th>
<th>C Red</th>
<th>D Amber</th>
<th>E Yellow</th>
<th>F Green</th>
<th>G Blue</th>
<th>J Clear</th>
</tr>
</thead>
</table>

#### Solid Cap for Incandescent Lamp & Nonilluminated

**Lens/Filter Colors Available:**
- AT476 Square
- AT4012 Round
- AT4026 Rectangular

<table>
<thead>
<tr>
<th>BJ</th>
<th>FJ</th>
</tr>
</thead>
<tbody>
<tr>
<td>CJ</td>
<td>GJ</td>
</tr>
<tr>
<td>EJ</td>
<td></td>
</tr>
</tbody>
</table>

- **Material:** Polycarbonate
- **Finish:** Glossy
- **Lamp:** AT607

#### Insert Cap for Incandescent or Neon Lamp & Nonilluminated

**Lens/Filter Colors Available:**
- AT477 Square
- AT4013 Round
- AT4027 Rectangular

<table>
<thead>
<tr>
<th>JB</th>
<th>JF</th>
</tr>
</thead>
<tbody>
<tr>
<td>JC</td>
<td>JG</td>
</tr>
<tr>
<td>JE</td>
<td></td>
</tr>
</tbody>
</table>

- **JF and JG not suitable with neon lamp.**
- **Material:** Polycarbonate
- **Finish:** Glossy
- **Lamp:** AT607 or 607N

#### Cap for Bright LED without Resistor

**Lens/Diffuser Colors Available:**
- AT4176 Square
- AT4178 Round
- AT4177 Rectangular

<table>
<thead>
<tr>
<th>JB</th>
</tr>
</thead>
<tbody>
<tr>
<td>JC</td>
</tr>
<tr>
<td>JD</td>
</tr>
<tr>
<td>JF</td>
</tr>
</tbody>
</table>

- **Material:** Polycarbonate
- **Finish:** Glossy
- **Bright LED:** AT635

#### Cap for Bright LED with Resistor

**Lens/Diffuser Colors Available:**
- AT4162 Square
- AT4164 Round
- AT4163 Rectangular

<table>
<thead>
<tr>
<th>JB</th>
</tr>
</thead>
<tbody>
<tr>
<td>JC</td>
</tr>
<tr>
<td>JD</td>
</tr>
<tr>
<td>JF</td>
</tr>
</tbody>
</table>

- **Material:** Polycarbonate
- **Finish:** Glossy
- **Bright LED:** AT627
Standard Size Snap-in Pushbuttons

Series LB

CAP TYPES & COLOR COMBINATIONS

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

Cap for Super Bright LEDs

<table>
<thead>
<tr>
<th>Cap for Super Bright LEDs</th>
<th>AT4129 Square</th>
<th>AT4128 Round</th>
<th>AT4130 Rectangular</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clear Lens</td>
<td>Transparent Clear Lens</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White Diffuser</td>
<td>Translucent White Diffuser</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Material: Polycarbonate
Finish: Glossy

Spot Illuminated Cap with LED

The electrical specifications shown are determined at a basic temperature of 25°C. LED circuit is isolated and requires an external power source. Single color LEDs are colored in OFF state; bicolor LEDs are translucent white in OFF state. Polarity marks are on the switch. 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. Additional lamp detail is shown in the Accessories & Hardware section.

LED Specifications

<table>
<thead>
<tr>
<th></th>
<th>Single Color LED with 1 Element</th>
<th>Bicolor LED with 2 Elements</th>
<th>Single Color</th>
<th>Bicolor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1C Red</td>
<td>1D Amber</td>
<td>1F Green</td>
<td>CF Red/Green</td>
</tr>
<tr>
<td>Maximum Forward Current</td>
<td>$I_{FM}$ 25mA</td>
<td>$I_{FM}$ 30mA</td>
<td>$I_{FM}$ 25mA</td>
<td>$I_{FM}$ 30/25mA</td>
</tr>
<tr>
<td>Typical Forward Current</td>
<td>$I_{F}$ 20mA</td>
<td>$I_{F}$ 20mA</td>
<td>$I_{F}$ 20mA</td>
<td>$I_{F}$ 20mA</td>
</tr>
<tr>
<td>Forward Voltage</td>
<td>$V_{F}$ 2.25V</td>
<td>$V_{F}$ 2.1V</td>
<td>$V_{F}$ 2.2V</td>
<td>$V_{F}$ 2.0/2.2V</td>
</tr>
<tr>
<td>Maximum Reverse Voltage</td>
<td>$V_{RM}$ 5V</td>
<td>$V_{RM}$ 5V</td>
<td>$V_{RM}$ 5V</td>
<td>—</td>
</tr>
<tr>
<td>Current Reduction Rate Above 25°C</td>
<td>$\Delta I_f$ 0.33mA/°C</td>
<td>$\Delta I_f$ 0.40mA/°C</td>
<td>$\Delta I_f$ 0.33mA/°C</td>
<td>$\Delta I_f$ 0.43/0.38mA/°C</td>
</tr>
<tr>
<td>Ambient Temperature Range</td>
<td>—25° ~ +70°C</td>
<td>—25° ~ +70°C</td>
<td>—25° ~ +70°C</td>
<td>—25° ~ +70°C</td>
</tr>
</tbody>
</table>

Cap Colors Available:

| A | C |
| B | F |

Material: Polycarbonate
Finish: Glossy

Cap with Window

Factory Assembled LED; Not Available Separately

When ordering spot illuminated cap separately, LED color must be specified.
Examples: AT480CA (red LED, black cap); AT4016CFB (red/green bicolored LED, white cap)

Cap for Nonilluminated

<table>
<thead>
<tr>
<th>Cap for Nonilluminated</th>
<th>AT484 Square</th>
<th>AT4017 Round</th>
<th>AT4030 Rectangular</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cap</td>
<td>No Lamp</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Material: Polycarbonate
Finish: Glossy

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Series LB

Standard Size Snap-in Pushbuttons

TYPICAL SWITCH DIMENSIONS

Square

<table>
<thead>
<tr>
<th>LB15KW01-12-CJ</th>
</tr>
</thead>
</table>

Single & Double Pole

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

Round

<table>
<thead>
<tr>
<th>LB16CKW01-12-CJ</th>
</tr>
</thead>
</table>

Single & Double Pole

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

Rectangular

<table>
<thead>
<tr>
<th>LB26RGW01-12-CJ</th>
</tr>
</thead>
</table>

Single & Double Pole

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

OPTIONAL ACCESSORIES

PCB Adaptors

| AT711 Single Pole • Straight PC Terminals | AT712 Double Pole • Straight PC Terminals |

Note: Order adaptors separately.
OPTIONAL ACCESSORIES

AT497
End
AT498
Center

Barriers

Cutouts for More Than 1 Switch

Material: Polyamide

A = .752” (19.1mm) \times \text{Number of Switches} + .051” (1.3mm)

A = .996” (25.3mm) \times \text{Number of Switches} + .051” (1.3mm)

AT499
Square
Protective Guard

Opens 90°
Closes manually

Material: Polyamide

Protective Guards reduce depth of switch behind panel by .020” (0.5mm).

AT4171
Square
Protective Guard

Opens 180°
Closes automatically

Materials:
Cover: Clear Polycarbonate
Base: Black GFR Polyamide
Coil Spring: Stainless Steel

Recommended Panel Thickness:
.039” ~ .106” (1.0mm ~ 2.7mm)

AT499

AT498

AT4171

IN = Number of switches
* Minimum dimension allows opening of cover to 180°
**Series LB**

**Standard Size Snap-in Pushbuttons**

---

### OPTIONAL ACCESSORIES

**AT4057 Rectangular Protective Guard**
- Opens 90°
- Closes manually

**Material**: Polyamide

Protective Guards reduce depth of switch behind panel by .020" (0.5mm).

**AT4172 Rectangular Protective Guard**
- Opens 180°
- Closes automatically

**Materials**:
- **Cover**: Clear Polycarbonate
- **Base**: Black GFR Polyamide
- **Coil Spring**: Stainless Steel

**Recommended Panel Thickness**: .039" ~ .106" (1.0mm ~ 2.7mm)

---

**Dust Covers**

**AT4002 Round**

**AT4001 Square**

**AT4011 Rectangular**

**Materials**: PVC with polyethylene gasket; PVC loses pliability below 0°C (32°F). Dust Covers reduce depth of switch behind panel by .020" (0.5mm).
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 megarohms 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:** 5.39N
- **Contact Timing:** Nonshorting (break-before-make)
  - **Travel:** Pretravel .059” (1.5mm); Overtravel .059” (1.5mm); Total Travel .118” (3.0mm)

**Materials & Finishes**
- **Housing:** Glass fiber reinforced polyamide (UL94V-0)
- **O-ring:** Nitrile butadiene rubber
- **Inner Seal:** Silicone rubber
- **Movable Contact:** Silver alloy or copper with gold plating
- **Stationary Contacts:** Silver alloy or copper with gold plating
- **Base:** Liquid crystal polymer (UL94V-0)
- **Switch Terminals:** Phosphor bronze with silver or gold plating
- **Lamp Terminals:** Brass with silver plating

**Environmental Data**
- **Operating Temperature Range:**
  - Illuminated: –25°C through +50°C (-13°F through +122°F)
  - Nonilluminated: –25°C through +70°C (-13°F through +158°F)
- **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/s²) acceleration (tested in 6 right angled directions, with 5 shocks in each direction)
- **Sealing:** IP65 of IEC60529 standard (similar to NEMA 4 & 13)

**Installation**
- **Mounting Torque:** 1.96Nm (17.35 lb-in) maximum
- **Cap Installation Force:** 3.92N maximum downward force on cap
- **Quick Connect Force:** 52.95N maximum downward force on connector
- **Soldering Time & Temperature:** Manual Soldering: See Profile A in Supplement section.

**Standards & Certifications**
- **Flammability Standards:**
  - **UL:** File No. E44145 - Recognized only when ordered with marking on switch.
  - **CSA:** File No. 023535_0_000 - Certified only when ordered with marking on switch.

*Add “/U” or “/CUL” before first dash in part number to order UL recognized switch.*

*All models recognized at 3A @ 125V or 250V AC or 0.4VA @ 28V AC/DC maximum.*

*Add “/C” before first dash in part number to order CSA certified switch.*

*All models certified at 3A @ 125V or 250V AC or 0.4VA @ 28V AC/DC maximum.*
## Series LB

**Standard Size Panel Seal Pushbuttons**

### TYPICAL SWITCH

<table>
<thead>
<tr>
<th>Poles</th>
<th>Circuits</th>
<th>Shape</th>
<th>Housing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 SPDT</td>
<td>ON ON</td>
<td>W Round</td>
<td>K Black</td>
</tr>
<tr>
<td>2 DPDT</td>
<td>( ) = Momentary</td>
<td></td>
<td>G Gray</td>
</tr>
<tr>
<td>6 ON ON</td>
<td>Alternate Action with Latchdown</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Contacts & Terminals

- **W01**
  - Silver Contacts
  - Rated 3A @ 125/250V AC
  - Solder Lug/Quick Connect Terminals
- **G01**
  - Gold Contacts
  - Rated 0.4VA @ 28V AC/DC
  - Solder Lug/Quick Connect Terminals

### DESCRIPTION FOR TYPICAL ORDERING EXAMPLE

**LB16WKW01-5C12-JC**

- Red, 12-volt, Bright LED with Resistor
- Clear Cap with Red Diffuser
- Round Shape
- SPDT ON-ON Circuit
- Black Housing
- Silver Contacts
  - Rated 3A @ 125/250V AC
  - Solder Lug/Quick Connect Terminals

---

**IMPORTANT:**

Switches are supplied without UL, cULus & CSA marking unless specified. UL, cULus & CSA recognized only when ordered with marking on the switch. Specific models, ratings, & ordering instructions are noted on the General Specifications page.

---

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## ORDERING EXAMPLE

![Image of switch ordering example](image-url)

**Lamps**

<table>
<thead>
<tr>
<th>Incandescent Lamp Used with Solid Cap</th>
<th>Solid Cap: Lens/Filter Colors</th>
</tr>
</thead>
<tbody>
<tr>
<td>05 5-volt</td>
<td>BJ White/Clear</td>
</tr>
<tr>
<td>12 12-volt</td>
<td>CJ Red/Clear</td>
</tr>
<tr>
<td>No Code</td>
<td>EJ Yellow/Clear</td>
</tr>
<tr>
<td></td>
<td>FJ Green/Clear</td>
</tr>
<tr>
<td></td>
<td>GJ Blue/Clear</td>
</tr>
</tbody>
</table>

**Incandescent or Neon Used with Insert Cap**

<table>
<thead>
<tr>
<th>Incandescent or Neon Used with Insert Cap</th>
<th>Insert Cap: Lens/Filter Colors</th>
</tr>
</thead>
<tbody>
<tr>
<td>01 110-volt Neon</td>
<td>JB Clear/White</td>
</tr>
<tr>
<td>05 5-volt Incandescent</td>
<td>JC Clear/Red</td>
</tr>
<tr>
<td>12 12-volt Incandescent</td>
<td>JE Clear/Yellow</td>
</tr>
<tr>
<td>No Code</td>
<td>*JF Clear/Green</td>
</tr>
<tr>
<td></td>
<td>*JG Clear/Blue</td>
</tr>
<tr>
<td></td>
<td>*JF &amp; JG not suitable with neon.</td>
</tr>
</tbody>
</table>

**Bright LED Used with LED Cap**

<table>
<thead>
<tr>
<th>Bright LED Used with LED Cap</th>
<th>LED Cap: Lens/Diffuser Colors</th>
</tr>
</thead>
<tbody>
<tr>
<td>5C Red</td>
<td>JB Clear/White</td>
</tr>
<tr>
<td>5D Amber</td>
<td>JC Clear/Red</td>
</tr>
<tr>
<td>5F Green</td>
<td>JD Clear/Amber</td>
</tr>
<tr>
<td>6B White</td>
<td>JF Clear/Green</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Super Bright LED Used with LED Cap</th>
<th>LED Cap: Lens/Diffuser Colors</th>
</tr>
</thead>
<tbody>
<tr>
<td>6B White</td>
<td>JB Clear/White</td>
</tr>
</tbody>
</table>

| 6F Green                          |                             |
| 6G Blue                           |                             |

---

**Null**

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Series LB

Standard Size Panel Seal Pushbuttons

**POLES & CIRCUITS**

<table>
<thead>
<tr>
<th>Pole</th>
<th>Model</th>
<th>Normal</th>
<th>Down</th>
<th>Normal</th>
<th>Down</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP</td>
<td>LB15</td>
<td>ON</td>
<td>(ON)</td>
<td>ON</td>
<td>1-3</td>
</tr>
<tr>
<td></td>
<td>LB16</td>
<td>ON</td>
<td>ON</td>
<td>ON</td>
<td>1-2</td>
</tr>
<tr>
<td>DP</td>
<td>LB25</td>
<td>ON</td>
<td>(ON)</td>
<td>ON</td>
<td>1-3</td>
</tr>
<tr>
<td></td>
<td>LB26</td>
<td>ON</td>
<td>ON</td>
<td>4-6</td>
<td>1-2</td>
</tr>
</tbody>
</table>

**Throw & Switch/Lamp Schematics**

Notes: Switch is marked with NC, NO, COM, L+, L-.
Lamp circuit is isolated and requires external power source.

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

**SHAPE & PANEL CUTOUT**

Recommended Panel Thickness:
- .866” (22.0mm) Round
- .039” – .157” (1.0mm – 4.0mm)

Recommended Panel Thickness with Splash Cover:
- .039” – .138” (1.0mm – 3.5mm)

Overtightening the mounting nut AT074 may damage the switch housing.

**HOUSING**

Housing Colors Available:
- K Black
- G Gray

**CONTACT MATERIALS, RATINGS & TERMINALS**

- **W01** Silver Contacts
  - Power Level: 3A @ 125V AC & 250V AC

- **G01** Gold Contacts
  - Logic Level: 0.4VA max. @ 28V AC/DC max.

Complete explanation of operating range in Supplement section.

**INCANDESCENT & NEON LAMP CODES & SPECIFICATIONS**

<table>
<thead>
<tr>
<th>AT607 &amp; AT607N</th>
<th>AT607 Incandescent 5-volt or 12-volt; AT607N Neon 110-volt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage</td>
<td>V 5V AC 12V AC 110V AC</td>
</tr>
<tr>
<td>Current</td>
<td>I 115mA 60mA 1.5mA</td>
</tr>
<tr>
<td>Endurance</td>
<td>Avg. Hours 10,000 10,000</td>
</tr>
<tr>
<td>Ambient Temp. Range</td>
<td>−25°C ~ +50°C</td>
</tr>
</tbody>
</table>

The electrical specifications shown are determined at a basic temperature of 25°C. Lamp circuit is isolated and requires external power source.

* Recommended Resistors for Neon:
- 33K ohms for 110V AC;
- 100K ohms for 220V AC
## LED COLORS & SPECIFICATIONS

The electrical specifications shown are determined at a basic temperature of 25°C. LED circuit is isolated and requires external power source. Polarity marks are on the switch. 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. Additional lamp detail is shown in the Accessories & Hardware section.

### Bright LED without Resistor

<table>
<thead>
<tr>
<th>AT635</th>
<th>Red</th>
<th>Amber</th>
<th>Green</th>
<th>No Code</th>
<th>No Resistor</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEDs are colored in OFF state.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Color Codes:</td>
<td>5C</td>
<td>5D</td>
<td>5F</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum Forward Current</td>
<td>30mA</td>
<td>30mA</td>
<td>30mA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Typical Forward Current</td>
<td>20mA</td>
<td>20mA</td>
<td>20mA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forward Voltage</td>
<td>1.9V</td>
<td>2.0V</td>
<td>2.1V</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maximum Reverse Voltage</td>
<td>5V</td>
<td>5V</td>
<td>5V</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current Reduction Rate Above 25°C</td>
<td>0.42mA/°C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambient Temperature Range</td>
<td>-25° ~ +50°C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Bright LED with Resistor

<table>
<thead>
<tr>
<th>AT627</th>
<th>Red</th>
<th>Amber</th>
<th>Green</th>
<th>Resistor Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>with Resistor</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Color Codes:</td>
<td>5C</td>
<td>5D</td>
<td>5F</td>
<td>05</td>
</tr>
<tr>
<td>Maximum Forward Current</td>
<td>52mA</td>
<td>26mA</td>
<td>13mA</td>
<td></td>
</tr>
<tr>
<td>Typical Forward Current</td>
<td>5mA</td>
<td>12mA</td>
<td>24mA</td>
<td></td>
</tr>
<tr>
<td>Forward Voltage</td>
<td>4V</td>
<td>8V</td>
<td>16V</td>
<td></td>
</tr>
<tr>
<td>Maximum Reverse Voltage</td>
<td>0.50mA/°C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current Reduction Rate Above 25°C</td>
<td>0.50mA/°C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambient Temperature Range</td>
<td>-25° ~ +50°C</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Super Bright Single Element LED

<table>
<thead>
<tr>
<th>AT625G Blue</th>
<th>AT631B White</th>
<th>AT632F Green</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>6B</td>
<td>6F</td>
</tr>
<tr>
<td>White</td>
<td>Green</td>
<td>Blue</td>
</tr>
<tr>
<td>Maximum Forward Current</td>
<td>30mA</td>
<td>30mA</td>
</tr>
<tr>
<td>Typical Forward Current</td>
<td>20mA</td>
<td>20mA</td>
</tr>
<tr>
<td>Forward Voltage</td>
<td>3.3V</td>
<td>3.3V</td>
</tr>
<tr>
<td>Maximum Reverse Voltage</td>
<td>7V</td>
<td>7V</td>
</tr>
<tr>
<td>Current Reduction Rate Above 25°C</td>
<td>0.40mA/°C</td>
<td>0.40mA/°C</td>
</tr>
<tr>
<td>Ambient Temperature Range</td>
<td>-25° ~ +50°C</td>
<td></td>
</tr>
</tbody>
</table>

**ATTENTION ELECTROSTATIC SENSITIVE DEVICES**
## CAP TYPES & COLOR COMBINATIONS

<table>
<thead>
<tr>
<th>Color Codes</th>
<th>B White</th>
<th>C Red</th>
<th>D Amber</th>
<th>E Yellow</th>
<th>F Green</th>
<th>G Blue</th>
<th>J Clear</th>
</tr>
</thead>
</table>

### Solid Cap for Incandescent Lamp & Nonilluminated

**Lens/Filter Colors Available:**

- BJ
- FJ
- CJ
- GJ
- EJ

**Material:** Polycarbonate
**Finish:** Glossy

![Diagram of Solid Cap for Incandescent Lamp & Nonilluminated](#)

### Insert Cap for Incandescent or Neon Lamp & Nonilluminated

**Lens/Filter Colors Available:**

- JB
- JF
- JC
- JG
- JE

**Material:** Polycarbonate
**Finish:** Glossy

![Diagram of Insert Cap for Incandescent or Neon Lamp & Nonilluminated](#)

### Cap for Bright LED without Resistor

**Lens/Filter Colors Available:**

- JB
- JC
- JD
- JF

**Material:** Polycarbonate
**Finish:** Glossy

![Diagram of Cap for Bright LED without Resistor](#)

### Cap for Bright LED with Resistor

**Lens/Filter Colors Available:**

- JB
- JC
- JD
- JF

**Material:** Polycarbonate
**Finish:** Glossy

![Diagram of Cap for Bright LED with Resistor](#)
Standard Size Panel Seal Pushbuttons

Series LB

CAP TYPES & COLOR COMBINATIONS

Cap for Super Bright LEDs

Clear Lens
White Diffuser

Material: Polycarbonate
Finish: Glossy

AT4131

TYPICAL SWITCH DIMENSIONS

Single & Double Pole

Panel Seal

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

OPTIONAL ACCESSORIES

AT9410 Splash Cover for Panel Seal

Materials:
- Lid: PVC (loses pliability below 0°C/32°F)
- Base: Polyethylene
- O-ring: NBR

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

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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 LED AT627
Panel Seal Models
For panel seal models, Bright LED must first be inserted into the lamp socket which is built into the switch. The cap can then be placed on the switch.

Snap-in Models
For snap-in models, Bright LED must be inserted into the cap first. Align cut corners (C) when inserting the LED.

Bright & Super Bright LEDs
AT625, AT631, AT632, AT635
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

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

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

Panel Seal
With Lamps AT607, AT607N, and LEDs AT614, AT625, AT631, AT632: 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 AT075 (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.

Panel Seal
AT109 Cap Extractor
AT112 Socket Wrench
**LEGENDS**

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

**Suggested Printable Area for Lens**

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

**Suggested Printable Area for Film Insert**

**Recommended Print Method:** Laser Print or Screen Print with Epoxy based ink

Film Insert: Clear Polyester, 4 mil max. thickness

Shaded areas are printable areas.