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 megoohms 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

Standards & Certifications
- UL: UL94V-0 housing & base
- 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.
### Series LB

**Standard Size Panel Seal Pushbuttons**

#### TYPICAL SWITCH

<table>
<thead>
<tr>
<th>Poles</th>
<th>Circuits</th>
<th>Shape</th>
<th>Housing</th>
<th>Contacts &amp; Terminals</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 SPDT</td>
<td>5 ON (ON)</td>
<td>W Round</td>
<td>K Black</td>
<td>W01 Silver Contacts&lt;br&gt;Solder Lug/Quick Connect Terminals</td>
</tr>
<tr>
<td>2 DPDT</td>
<td>6 ON ON</td>
<td></td>
<td>G Gray</td>
<td>G01 Gold Contacts&lt;br&gt;Solder Lug/Quick Connect Terminals</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pole</th>
<th>Circuit</th>
<th>Contacts &amp; Terminals</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>SPDT</td>
<td>Silver Contacts&lt;br&gt;Rated 3A @ 125/250V AC&lt;br&gt;Solder Lug/Quick Connect Terminals</td>
</tr>
<tr>
<td>2</td>
<td>DPDT</td>
<td>Gold Contacts&lt;br&gt;Rated 0.4VA @ 28V AC/DC&lt;br&gt;Solder Lug/Quick Connect Terminals</td>
</tr>
</tbody>
</table>

---

**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.

---

**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<br>Rated 3A @ 125/250V AC<br>Solder Lug/Quick Connect Terminals
### Ordering Example

**TYPICAL SWITCH ORDERING EXAMPLE**

<table>
<thead>
<tr>
<th>Lamps</th>
<th>Cap Types &amp; Colors</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Incandescent Lamp Used with Solid Cap</strong></td>
<td><strong>Solid Cap: Lens/Filter Colors</strong></td>
</tr>
<tr>
<td>05</td>
<td>BJ</td>
</tr>
<tr>
<td>12</td>
<td>CJ</td>
</tr>
<tr>
<td>No Code</td>
<td>EJ</td>
</tr>
<tr>
<td></td>
<td>FJ</td>
</tr>
<tr>
<td></td>
<td>GJ</td>
</tr>
</tbody>
</table>

| **Incandescent or Neon Used with Insert Cap** | **Insert Cap: Lens/Filter Colors** |
| 01 | JB | Clear/White |
| 05 | JC | Clear/Red |
| 12 | JE | Clear/Yellow |
| No Code | *JF | Clear/Green |
| | *JG | Clear/Blue |
| | *JF & JG not suitable with neon. |

<p>| <strong>Bright LED Used with LED Cap</strong> | <strong>LED Cap: Lens/Diffuser Colors</strong> |</p>
<table>
<thead>
<tr>
<th>Colors</th>
<th>Resistor</th>
<th>JB</th>
<th>Clear/White</th>
</tr>
</thead>
<tbody>
<tr>
<td>5C Red</td>
<td>No Code</td>
<td>5D Amber</td>
<td>05 5-volt</td>
</tr>
<tr>
<td>5F Green</td>
<td>12 12-volt</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| **Super Bright LED Used with LED Cap** | **LED Cap: Lens/Diffuser Colors** |
| 6B White | JB | Clear/White |
| 6F Green | | |
| 6G Blue | | |
**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>Connected Terminals</th>
<th>Thrown &amp; Switch/Lamp Schematics</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP</td>
<td>LB15</td>
<td>ON</td>
<td>ON</td>
<td>1-3 1-2</td>
<td>SPDT</td>
</tr>
<tr>
<td></td>
<td>LB16</td>
<td>ON</td>
<td>(ON)</td>
<td>1-3 4-6</td>
<td>DPDT</td>
</tr>
<tr>
<td>DP</td>
<td>LB25</td>
<td>ON</td>
<td>(ON)</td>
<td>1-3 1-2 4-5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LB26</td>
<td>ON</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

- **Round**
  - .866” (22.0mm)

Recommended Panel Thickness: .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.

Optional PCB adaptors AT711 & AT712 available; illustrated in previous snap-in subsection.

### 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>Color Codes</th>
<th>Red</th>
<th>Amber</th>
<th>Green</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>5C</td>
<td>5D</td>
<td>5F</td>
</tr>
</tbody>
</table>

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

#### Bright LED with Resistor

<table>
<thead>
<tr>
<th>AT627 with Resistor</th>
<th>Color Codes:</th>
<th>Red</th>
<th>Amber</th>
<th>Green</th>
<th>Resistor Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>5C</td>
<td>5D</td>
<td>5F</td>
<td>05 12 24</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>LED Color</th>
<th>Maximum Forward Current $I_{FM}$</th>
<th>Typical Forward Current $I_F$</th>
<th>Forward Voltage $V_F$</th>
<th>Maximum Reverse Voltage $V_{RM}$</th>
<th>Current Reduction Rate Above 25°C $\Delta I_f$</th>
<th>Ambient Temperature Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amber</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Green</td>
<td></td>
<td></td>
<td></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>5-volt 4-element with Resistor</td>
<td>12-volt 4-element with Resistor</td>
<td>24-volt 4-element with Resistor</td>
</tr>
</tbody>
</table>

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

(+) (-) Electrostatic Sensitive Devices

Attention: No Code No Lamp

www.nkkswitches.com
**Series LB**  
**Standard Size Panel Seal Pushbuttons**

### 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

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

- **Lens/Filter**
- **Colors Available:**
  - JB
  - JF
  - JC
  - JG
  - JE

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

- **Notes:** JF and JG not suitable with neon lamp.

#### Cap for Bright LED without Resistor

- **Lens/Filter**
- **Colors Available:**
  - JB
  - JC
  - JD
  - JF

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

#### Cap for Bright LED with Resistor

- **Lens/Filter**
- **Colors Available:**
  - JB
  - JC
  - JD
  - JF

- **Material:** Polycarbonate
- **Finish:** Glossy
CAP TYPES & COLOR COMBINATIONS

Clear Lens
White Diffuser

Material:
Polycarbonate
Finish: Glossy

AT4131

TYPICAL SWITCH DIMENSIONS

Single & Double Pole

Panel Seal

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)
**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.

---

**Attention**

- Electrostatic Sensitive Devices

---

**www.nkkswitches.com**
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.

Shaded areas are printable areas.

**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.