General Specifications

Electrical Capacity (Resistive Load)

Low/Logic Level: 50mA @ 24V DC maximum for Standard Operating Force models
125mA @ 24V DC maximum for High Operating Force models

Other Ratings

<table>
<thead>
<tr>
<th></th>
<th>Standard Operating Force</th>
<th>High Operating Force</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact Resistance:</td>
<td>50 milliohms maximum</td>
<td>50 milliohms maximum</td>
</tr>
<tr>
<td>Insulation Resistance:</td>
<td>500 megohms minimum @ 250V DC</td>
<td>500 megohms minimum @ 250V DC</td>
</tr>
<tr>
<td>Dielectric Strength:</td>
<td>250V AC minimum for 1 minute minimum</td>
<td>250V AC minimum for 1 minute minimum</td>
</tr>
<tr>
<td>Mechanical Life:</td>
<td>5,000,000 operations minimum</td>
<td>1,000,000 operations minimum</td>
</tr>
<tr>
<td>Electrical Life:</td>
<td>5,000,000 operations minimum</td>
<td>1,000,000 operations minimum</td>
</tr>
<tr>
<td>Nominal Operating Force:</td>
<td>1.76N for JB15</td>
<td>2.65N for JB15H</td>
</tr>
<tr>
<td>Total Travel:</td>
<td>.010” (.250mm)</td>
<td>.012” (.300mm)</td>
</tr>
</tbody>
</table>

Materials & Finishes

Actuator: Glass fiber reinforced PBT for Extended actuator; PBT for Flat; Polyacetal for Short
Case: Glass fiber reinforced polyamide (UL94V-0)
Seal: Nitrile butadiene rubber
Base: Glass fiber reinforced PBT (UL94V-0)
Movable Contacts: Stainless steel
Stationary Contacts: Brass with silver plating
Terminals: Brass with silver plating
Mounting Bracket: Phosphor bronze with tin plating

Environmental Data

Operating Temperature Range: –25°C through +70°C (–13°F through +158°F)
Humidity: 90 ~ 95% humidity for 240 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)

PCB Processing

Soldering: Wave Soldering Recommended. See Profile A in Supplement section.
Manual Soldering: See Profile A in Supplement section.

Standards & Certifications

Flammability Standards: UL94V-0 rated case & base
The JB Series tactiles have not been tested for UL recognition or CSA certification. These switches are designed for use in a low-voltage, low-current, logic-level circuit. When used as intended in a logic-level circuit, the results do not produce hazardous energy.
Distinctive Characteristics

Special bracket for right angle mounting provides added design variations.

Higher operating force type provides more pronounced operating feel.

Rubber seal construction prevents contact contamination and allows automated soldering and cleaning.

Choice of dimensions from PCB to top of cap allows design flexibility.

Dome contact gives crisp tactile feedback to positively indicate circuit transfer and assures high reliability and long life of up to 5,000,000 operations.

Slanted terminals provide a spring type action which ensures secure mounting and prevents dislodging during wave soldering.

Molded-in terminals are part of the sealed construction which allows automated soldering and washing.

Terminal spacing conforms to standard .100" (2.54mm) PCB grid.

Common Bus Matrix

These single pole, single throw switches can be used in a key-
board matrix and, using strapped terminals, achieve a com-
mon bus electrical configuration on a single-sided PC board.

X-Y Matrix

These single pole, single throw switches can be arranged on a single-sided PC board matrix with strapped terminals to achieve an X-Y type electrical interconnection.
**TYPICAL SWITCH ORDERING EXAMPLE**

- **Pole & Circuit**: 15 SPST OFF (ON) ( ) = Momentary
- **Operating Force**
  - **No Code**: Standard for Actuators F & K
  - **H**: High for Actuators F, K & A
- **Actuators**
  - **F**: Flat Blue Button
  - **K**: Short
  - **A**: Extended (H operating force only; not for Right Angle)
- **Snap-On Caps**
  - **For Straight & Right Angle PC**
  - **No Code**: No Cap for F Actuator
- **Cap Colors**
  - **For Straight PC**
    - 1: Sculptured
    - 2: Flat
    - 4: Framed
  - **Button** | **Frame**
    | A | Black
    | B | White
    | C | Red
    | E | Yellow
    | F | Green
    | G | Blue
    | H | Gray
- **For Right Angle PC**
  - 5: Cap with Black Mounter
  - **Button** | **Frame**
    | A | Black
    | B | White
    | C | Red
    | H | Gray
  - **6** | **Flat**
    | A | Black
    | B | White
    | C | Red
    | H | Gray
### POLE & CIRCUIT

<table>
<thead>
<tr>
<th>Pole</th>
<th>Model</th>
<th>Normal</th>
<th>Down</th>
<th>Switch Throw &amp; Schematic</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP</td>
<td>JB15</td>
<td>OFF</td>
<td>(ON)</td>
<td>SPST 1 2 3 4</td>
</tr>
</tbody>
</table>

Note: Terminal numbers are shown on the switch.

### OPERATING FORCE

**No Code**
- Standard Operating Force
  - 1.76N
  - For F & K Actuators

**H**
- High Operating Force
  - 2.65N
  - For F, K & A Actuators

### ACTUATORS

#### F
- Flat Blue Button

Flat button is an integral part of the switch and cannot be ordered separately.

#### K
- Short Actuator

Custom keyboards can be designed with caps installed through a panel cutout (illustration with framed cap AT4078 and button AT4077). Not applicable for right angle mounting.

#### A
- Extended Actuator

Combines with high operating force only; not for right angle.

Custom keyboards can be designed with caps installed through a panel cutout (illustration with framed cap AT4078 and button AT4077).
Series JB
Low Profile Process Sealed Tactiles

TERMINALS

**P**
Straight PC

**H**
Right Angle PC

Further details shown in Typical Switch Dimensions

SNAP-ON CAPS

1. AT4058 Sculptured for Straight PC
   - Material: Polyamide
   - Finish: Matte
   - Colors: A B C E F G H

2. AT4059 Flat for Straight PC
   - Material: Polycarbonate
   - Finish: Glossy
   - Colors: A B C E F G H

3. AT4077 Button & AT4078 Frame for Straight PC
   - Material: Polycarbonate
   - Finish: Matte
   - Colors: B C E F G H

4. AT4139 Flat for Right Angle PC
   - Material: Polycarbonate
   - Finish: Glossy
   - Colors: A B C H

5. AT4140 Cap with AT547 Mounter for Straight PC
   - Cap
     - Material: Polycarbonate
     - Finish: Glossy
     - Colors: A B C E H
   - Mounter
     - Material: Polyamide
     - Finish: Matte
     - Color: A

Assembly Procedure

1. Solder switch to PCB.
2. Install PCB in equipment.
3. Snap mounter into panel. Dimension from top of panel to top of PCB is .386" (9.8mm).
4. Snap cap onto plunger.

Panel Mounting Dimensions

Panel Thickness:
- .039" ~ .079" (1.0mm ~ 2.0mm)

Cap Colors Available:
- A: Black
- B: White
- C: Red
- E: Yellow
- F: Green
- G: Blue
- H: Gray

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## TYPICAL SWITCH DIMENSIONS

### Flat Blue Button • Straight PC

- Flat Blue Button • Straight PC
- Spring action terminals conform to .100" (2.54mm) PCB spacing
- **JB15FP**

### Flat Blue Button • Right Angle PC

- Flat Blue Button • Right Angle PC
- Spring action terminals conform to .100" (2.54mm) PCB spacing
- **JB15FH**

### Short Actuator

- Short Actuator
- **JB15KP-1C**

### Extended Actuator

- Extended Actuator
- Spring action terminals conform to .100" (2.54mm) PCB spacing

### Sculptured Snap-on Cap • Straight PC

- Sculptured Snap-on Cap • Straight PC
- Spring action terminals conform to .100" (2.54mm) PCB spacing

### Flat Snap-on Cap • Straight PC

- Flat Snap-on Cap • Straight PC
- Spring action terminals conform to .100" (2.54mm) PCB spacing
- **JB15KP-2C**

### Framed Snap-on Cap • Straight PC

- Framed Snap-on Cap • Straight PC
- Spring action terminals conform to .100" (2.54mm) PCB spacing
- **JB15HAP-4BC**
Series JB
Low Profile Process Sealed Tactiles

TYPICAL SWITCH DIMENSIONS

Flat Snap-on Cap • Right Angle PC

JB15KH-6C

LEGENDS

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

Shaded Areas are Printable Areas

<table>
<thead>
<tr>
<th>Legend</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>AT4058</td>
<td>ON (10.16) 0.400</td>
</tr>
<tr>
<td>AT4059 &amp; AT4140</td>
<td>OFF (8.46) 0.333</td>
</tr>
<tr>
<td>AT4077 Button</td>
<td>ON (7.76) 0.306</td>
</tr>
<tr>
<td>AT4139</td>
<td>OFF (8.46) 0.333</td>
</tr>
</tbody>
</table>

Recommended Print Method: Screen Print or Pad Print. Epoxy based ink is recommended.