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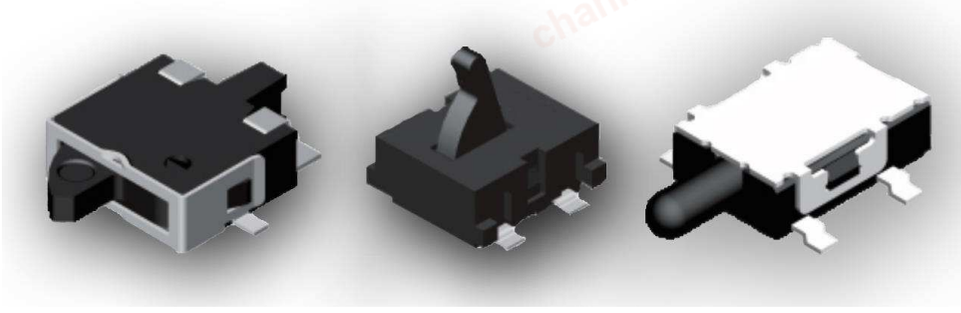
## Applications

- Automotive
- Instrumentation
- White goods
- Telecommunications

## Benefits

- RoHS Compliant
- Halogen and Lead Free
- Sharp detection feeling
- Compact Size

# JJ Series – Detector Switches



TE Connectivity is pleased to introduce its JJ Series of Detector Switches, suitable for a wide variety of applications given their several presentations ranging from horizontal or vertical actuated options as well as Gull-winged, J-leaded and Through-Hole mounting possibilities.

The Detector Switches will be offered in a wide range of sizes giving the possibility for countless applications going from automotive to telecommunications.

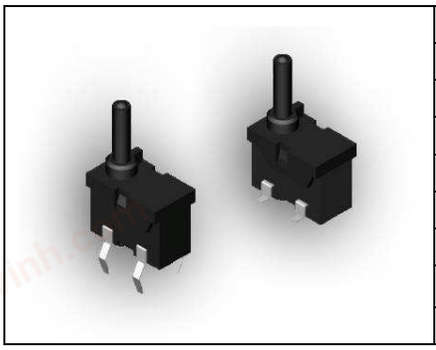
## JJ Series – Family Classification

| Series | Body Size |
|---|---|
| JJA | 3.5x2.8 mm |
| JJB | 3.5x2.98 mm |
| JJC | 3.5x3.3 mm |
| JJD | 4.2x3.6 mm |
| JJE | 4.7x3.5 mm |
| JJF | 4.7x3.8 mm |
| JJG | 5.7x4.0 mm (High-Rating) |
| JJH | 5.7x4.0 mm (Standard-Rating) |
| JJI | 5.0x4.4 mm |
| JJJ | 6.0x4.85 mm / 5.5x4.7 mm |
| JJK | 6.3x3.0 mm |
| JJL | 6.5x3.9 mm |
| JJM | 5.7x4.0 mm |
| JJN | 5.7x4.0 mm (Wedge) |
| JJO | 10.0x3.8 mm |
| JJP | 10.6x10.0 mm |

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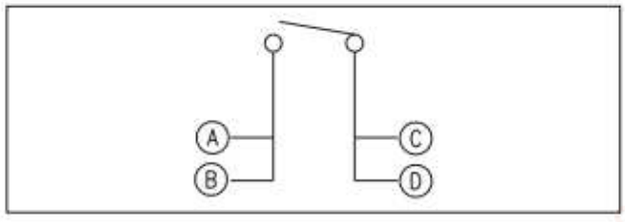
## JJL Family – *6.5x3.9 mm*



| | |
|---|---|
| Contact Rating | 5mA, 5VDC |
| Contact Resistance | 500mmΩ Max. |
| Insulation Resistance | 100MΩ Min. 250VDC |
| Dielectric Strength | 250VAC/1 minute |
| Operating Force | 35gF Max. |
| Travel | 2.00mm |
| Operating Life | 50,000 cycles |
| Operating Temperature | -20˚C to 70˚C |
| Storage Temperature | -30˚C to 80˚C |

| Features | Applications |
|---|---|
| • THT and SMT mounting available.<br>• Extended actuator option available.<br>• Easy orientation offered by guiding post. | • Automotive.<br>• Telecommunications.<br>• Measurement instrumentations. |

## Circuit




## How To Order

**JJL – V0 – U – ▢ – ▢ – NO – P – P – R - T▢**

**Family: JJL**

**Orientation:**
V0 – Vertical (Push)

**Grounding:**
U – Ungrounded

**Mounting:**
G – Gull-winged
T – Through-Hole

**Height:**
1070 – 10.7mm
840 – 8.40mm

**Packaging:**
TB – Tube
TR – Tape and Reel

**Contact/Terminal Plating:**
R – Silver Plating

**Cover:**
P – Plastic Cover

**Guiding post:**
P – Post

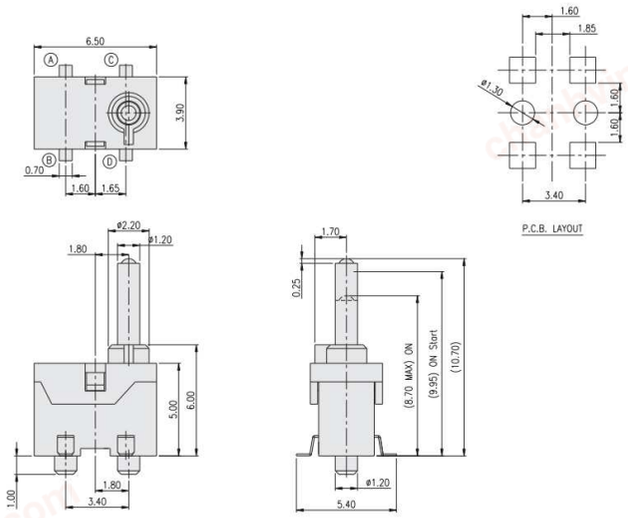
**Circuit:**
NO – Normal Open

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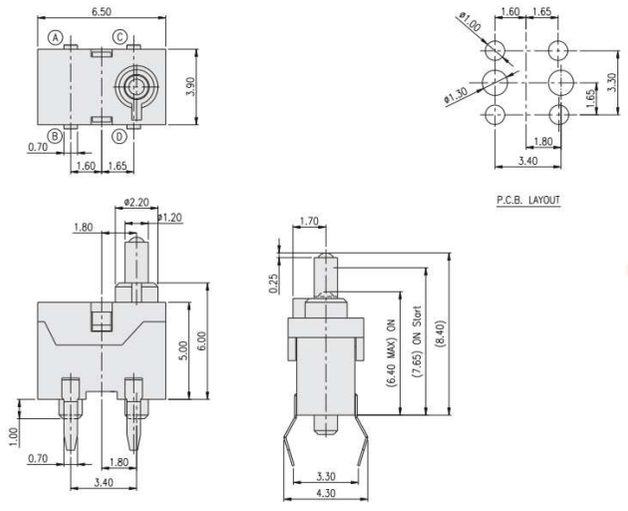


## Diagrams

-SMT + High Actuator (10.70mm)




-THT + Standard Actuator (8.40mm)




## PN List

| Smart PN | Orientation | Grounding | Mounting | Height | Circuit | Guiding Post | Cover | Plating | Packaging | MOQ | TE PN |
|---|---|---|---|---|---|---|---|---|---|---|---|
| JJLV0UT1070NOPPRTB | Vertical Push | Ungrounded | Through-Hole | 10.70mm | NO | Post | Plastic | Silver | Tube | 700 | 2331396-1 |
| JJLV0UT840NOPPRTB | Vertical Push | Ungrounded | Through-Hole | 8.40mm | NO | Post | Plastic | Silver | Tube | 700 | 2331397-1 |
| JJLV0UG1070NOPPRTB | Vertical Push | Ungrounded | Gull-Winged | 10.70mm | NO | Post | Plastic | Silver | Tube | 500 | 2331398-1 |
| JJLV0UG1070NOPPRTR | Vertical Push | Ungrounded | Gull-Winged | 10.70mm | NO | Post | Plastic | Silver | Tape and Reel | 400 | 2331398-2 |
| JJLV0UG840NOPPRTB | Vertical Push | Ungrounded | Gull-Winged | 8.40mm | NO | Post | Plastic | Silver | Tube | 500 | 2331400-1 |
| JJLV0UG840NOPPRTR | Vertical Push | Ungrounded | Gull-Winged | 8.40mm | NO | Post | Plastic | Silver | Tape and Reel | 500 | 2331400-2 |

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**1. Style**

"Detector Switches" are mainly used as signal switches of electric devices, with the general requirements of mechanical and electrical characteristic.

1.1 Operating Temperature Range: -20℃ to 70℃

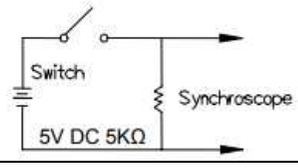
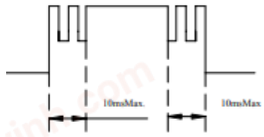
1.2 Storage Temperature Range: -30℃ to 80℃

1.3 The shelf life of product is within 6 months.

**2. Current Range:** 5mA, 5VDC

**3. Type of Actuation:** Momentary

**4. Test Sequence:**

| | Item | Description | Test Conditions | Requirements |
|---|---|---|---|---|
| Appearance | 1 | Visual Examination | Physical inspection without applying any external forces. | There shall be no defects that affect the serviceability of the product. |
| Electric Performance | 2 | Contact Resistance | Actuate the switch (0.75±0.2mm) and measure contact resistance using a micro-Ohmmeter. | 500mΩ Max. |
| | 3 | Insulation Resistance | Measurements shall be made at 250 VDC potential between terminals and cover. | 100MΩ Min. |
| | 4 | Dielectric Withstanding Voltage | Apply 250 VAC (50Hz or 60Hz) between terminals and cover for 1 minute. | There shall be no breakdown or flashover |
| | 5 | Capacitance | Capacitance shall be measured at 1 MHz between terminals. | 5 pF Max. |
| | 6 | Bounce | 3 to 4 operations at a rate of 1 cycles per second   | 5m seconds Max.   |

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| | | | | |
|---|---|---|---|---|
| Mechanical Performance | 7 | Operating Force | Applying in the direction of operating stroke is 2.00mm | 35gf Max.<br>(0.343N Max.) |
| | 8 | Contact (On) point | Measure contact resistance with a micro-Ohmmeter while gradually applying force to the top of the stem. Record distance when switch changes state. | 1) High Actuator: 10.3 to 9.75mm<br><br>2) Standard Actuator: 8 to 7.45mm |
| | 9 | Stop Strength | Apply vertical static load of 1KgF (High actuator with 500gF) for 1 minute. | As shown in item 2 to 5. |
| | 10 | Solder Heat Resistance | ■Through Hole Type<br>1) Soldering Temperature: 260±5℃<br>2) Duration of Solder Immersion: 5±1 seconds<br>3) Frequency of Soldering Process 2 times Max.<br>(PCB is 1.6mm in thickness)<br><br>(See chart below) | 1) Shall be free from pronounced backlash and falling-off or breakage terminals<br>2) As shown in item 2 to 5. |
| | 11 | Vibration | Test per Method 201A of MIL-STD-202F<br>1) Swing distance=1.5mm<br>2) Frequency: 10-55-10Hz in 1-min/cycle.<br>3) Direction: 3 vertical directions including the directions of operation<br>4) Test time: 2 hours each direction | As shown in item 2 to 7. |
| | 12 | Shock | Test per Method 213B condition A of MIL-STD-202F<br>1) Acceleration; 50G<br>2) Action time:11±1m seconds<br>3) Testing Direction: 6 sides<br>4) Test Cycle: 3 times in each direction | As shown in item 2 to 7. |
| | 13 | Solderability | 1) Through Hole Soldering Temperature：245℃±3℃<br>Lead-Free solder：M705E JIS Z 3282 A (Tin 96.5%, Silver 3%, Copper 0.5%)<br>2) Flux：5 to 10 sec.<br>3) Duration of solder Immersion: 5±1 Sec. | No anti-soldering and the coverage of dipping into solder must more than 66% were requested. |
| Durability | 14 | Operating Life | Tested as follows:<br>1) 5mA,5 VDC resistive load<br>2) Apply a static load in the direction of operation equal to the operating force to the center of the stem.<br>3) Rate of Operation: 1 operation per minute.<br>4) Cycle of Operation: 50,000 cycles Min. | 1) As shown in item 4 to 5.<br>2) Insulation resistance: 10MΩ Min.<br>3. Bounce: 10m seconds Max. |

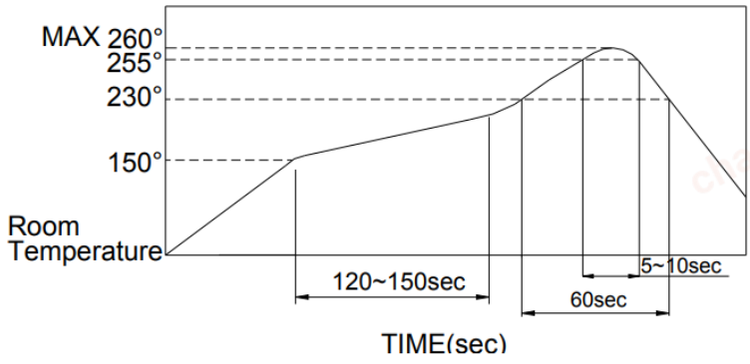
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| | | | | |
|---|---|---|---|---|
| Water-Proof | 15 | Resistance Low Temperature | Following the test set forth below the sample shall be left in normal temperature and humidity conditions for 1 hour before the measurements are made:<br>1) Temperature: -30±2℃<br>2) Time: 168 hours | As shown in item 2 to 7. |
| | 16 | Heat Resistance | Following the test set forth below the sample shall be left in normal temperature and humidity conditions for 1 hour before the measurements are made:<br>1) Temperature:80±2℃<br>2) Time: 96 hours | Ditto |
| | 17 | Humidity Resistance | Following the test set forth below the sample shall be left in normal temperature and humidity conditions for 1 hour before the measurements are made:<br>1) Temperature:40±2℃<br>2) Relative Humidity: 90 to 95%<br>3) Time: 168 hours | 1) As shown in item 4 to 7.<br>2) Contact resistance: 200mΩ Max.<br>3) Insulation resistance: 10MΩ Min. |

**5. Soldering Conditions:**

■ Recommended Soldering Profile for the JJL Series




■ The temperatures defined above are the temperatures measured on the surface of the Printed Circuit Board. There are cases where the printed circuit board's temperature differs greatly from the temperature of the switch. Critical note: the switch's surface temperature must not exceed 260℃.

■ Manual Soldering

Soldering Temperature: 350℃ Max.
Continuous Soldering Time: 5 second Max.

■ Precautions in Handling

1. Care must be taken to ensure excess flux on the top surface of the printed circuit board does not adhere to the switch.
2. Do not wash the switch

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■ Recommended storage conditions:

Store the products in the original packaging material. After opening the package, the remaining products must be stored in the appropriate moisture-proof & airtight environment.

Do not store the switch in the following environment or it may affect performance and solderability:

1. temperatures below -10°C to 40°C & humidity at 85% (min)

2. environment with corrosive gas

3. storage over 6 months

4. place in direct sunlight