## Applications JJ Series - Detector Switches

- Automotive
- Instrumentation
- White goods
- Telecommunications


## Benefits

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


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 | $3.5 \times 2.8 \mathrm{~mm}$ |
| JJB | $3.5 \times 2.98 \mathrm{~mm}$ |
| JJC | $3.5 \times 3.3 \mathrm{~mm}$ |
| JJD | $4.2 \times 3.6 \mathrm{~mm}$ |
| JJE | $4.7 \times 3.5 \mathrm{~mm}$ |
| JJF | $4.7 \times 3.8 \mathrm{~mm}$ |
| JJG | $5.7 \times 4.0 \mathrm{~mm}$ (High-Rating) |
| JJH | $5.7 \times 4.0 \mathrm{~mm}$ (Standard-Rating) |
| JJI | $5.0 \times 4.4 \mathrm{~mm}$ |
| JJJ | $6.0 \times 4.85 \mathrm{~mm} / 5.5 \times 4.7 \mathrm{~mm}$ |
| JJK | $6.3 \times 3.0 \mathrm{~mm}$ |
| JJL | $6.5 \times 3.9 \mathrm{~mm}$ |
| JJM | $5.7 \times 4.0 \mathrm{~mm}$ |
| JJN | $5.7 \times 4.0 \mathrm{~mm}(\mathrm{Wedge})$ |
| JJO | $10.0 \times 3.8 \mathrm{~mm}$ |
| JJP | $10.6 \times 10.0 \mathrm{~mm}$ |

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## JJC Family - 3.4x3.3 mm

| Contact Rating | $50 \mu \mathrm{~A}, 3 \mathrm{VDV}$ Min. <br> $1 \mathrm{~mA}, 5 \mathrm{VDC}$ Max. |  |
| :---: | :---: | :--- |
|  | Contact Resistance | $2 \Omega \mathrm{Max}$. |
|  | Insulation Resistance | $100 \mathrm{M} \Omega \mathrm{Min} .100 \mathrm{VDC}$ |
|  | Dielectric Strength | $100 \mathrm{VAC} / 1$ minute |
|  | Operating Force | 35 gF Max. |
|  | Travel | 1.15 mm |
|  | Operating Life | 50,000 cycles |
|  | Operating Temperature | $-10^{\circ} \mathrm{C}$ to $60^{\circ} \mathrm{C}$ |
|  | Storage Temperature | $-40^{\circ} \mathrm{C}$ to $85^{\circ} \mathrm{C}$ |

## Features Applications

- Compact size
- Tow-way operation
- Halogen Free
- Digital camera
- Notebook
- Automotive


## Circuit




How To Order


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## Diagrams

-Posted


PN List

| Smart PN | Orientation | Grounding | Mounting | Height | Circuit | Guiding <br> Post | Cover | Plating | Packaging | MOQ | TE PN |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| JJCHLUJ100NCPMRTR | Horizontal (Side Stem Left) | Ungrounded | J-Bend | 1.0 mm | NC | Post | Metal | Silver | Tape and Reel | 3,500 | 2331384-1 |
| JJCHLUJ100NCNMRTR | Horizontal (Side Stem Left) | Ungrounded | J-Bend | 1.0 mm | NC | No Post | Metal | Silver | Tape and Reel | 3,500 | 2331386-1 |
| JJCHLUJ100NOPMRTR | Horizontal (Side Stem Left) | Ungrounded | J-Bend | 1.0 mm | NO | Post | Metal | Silver | Tape and Reel | 3,500 | 2331387-1 |
| JJCHLUJ100NONMRTR | Horizontal (Side Stem Left) | Ungrounded | J-Bend | 1.0 mm | NO | No Post | Metal | Silver | Tape and Reel | 3,500 | 2331388-1 |

## 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: $-10^{\circ} \mathrm{C}$ to $60^{\circ} \mathrm{C}$
1.2 Storage Temperature Range: $-40^{\circ} \mathrm{C}$ to $85^{\circ} \mathrm{C}$
1.3 The shelf life of product is within 6 months
2. Current Range: Min. $50 \mu \mathrm{~A}, 3 \mathrm{VDC} / / \mathrm{Max} .1 \mathrm{~mA}, 5 \mathrm{VDC}$
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 $(2.3 \mathrm{~mm})$ and measure contact resistance using a microOhmmeter. | $2 \Omega \mathrm{Max}$ |
|  | 3 | Insulation <br> Resistance | Measurements shall be made at 100 VDC potential between terminals and cover. | 100M $\Omega$ Min |
|  | 4 | Dielectric Withstanding Voltage | Apply $100 \mathrm{VAC}(50 \mathrm{~Hz}$ or 60 Hz ) between terminals and cover for 1 minute. | There shall be no breakdown or flashover |
|  | 5 | Operating Force | Applying force to the center of the stem for 2.3 mm . | $\begin{gathered} 35 \mathrm{gf} \text { Max. } \\ \text { (.34N Max.) } \end{gathered}$ |
|  | 6 | OFF start position | --------------------------- | As the specification shows OFF start position |

Dimensions in millimetres unless otherwise specified

Dimensions Shown for reference purposes only. Specifications subject to change

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| Mechanical Performance | 7 | Stop <br> Strength | Static load of 500 gf (4.9N) can be vertical applied for 15 seconds. While 100gf ( 0.98 N ) /15 seconds horizontal. | As shown in items 2 to 6 |
| :---: | :---: | :---: | :---: | :---: |
|  | 8 | Solder Heat Resistance | (See chart below) | 1) Shall be free from pronounced backlash and falling-off or breakage terminals <br> 2) As shown in item 4 to 5 <br> 3) Contact Resistance: $5 \Omega$ Max. <br> 4) Insulation Resistance: $10 \mathrm{M} \Omega$ Min. |
|  | 9 | Vibration | Test per Method 201A of MIL-STD202F <br> 1) Swing distance $=1.5 \mathrm{~mm}$ <br> 2) Frequency: $10-55-10 \mathrm{~Hz}$ in 1 min/cycle. <br> 3) Direction: 3 vertical directions including the directions of operation <br> 4) Test time: 2 hours each direction | 1) As shown in items 4 to 5 <br> 2) Contact Resistance: $2 \Omega$ Max. <br> 3) Insulation Resistance: $10 \mathrm{M} \Omega$ Min. |
|  | 10 | Shock | Test per Method 213B condition A of MIL-STD-202F <br> 1) Acceleration; 50G <br> 2) Action time:11 $\pm 1 \mathrm{~m}$ seconds <br> 3) Testing Direction: 6 sides <br> 4) Test Cycle: 3 times in each direction | 1) As shown in items 4 to 5 <br> 2) Contact Resistance: $2 \Omega$ Max. <br> 3) Insulation Resistance: $10 \mathrm{M} \Omega \mathrm{Min}$. |
| Durability | 11 | Operating Life | Measurements shall be made following the test forth below: <br> 1) $1 \mathrm{~mA}, 5 \mathrm{VDC}$ resistive load <br> 2) Applying a static load in the direction of operation equal to the operation force to the center of the stem. <br> 3) Rate of Operation: 15 to 20 operations per minute. <br> 4) Cycle of Operation: 50,000 cycles Min. | 1) As shown in items 4 to 5 <br> 2) Insulation Resistance: <br> $10 \mathrm{M} \Omega \mathrm{Min}$. <br> 3) Contact Resistance: $5 \Omega$ Max. |
| Weather Proof | 12 | 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: $-40 \pm 2^{\circ} \mathrm{C}$ <br> 2) Time: 96 hours | 1) As shown in items 4 to 7 <br> 2) Insulation Resistance: <br> $10 \mathrm{M} \Omega \mathrm{Min}$ <br> 3) Contact Resistance: <br> $5 \Omega$ Max. |
|  | 13 | Heat <br> 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: $85 \pm 2^{\circ} \mathrm{C}$ <br> 2) Time: 96 hours | 1) As shown in items 4 to 7 <br> 2) Insulation Resistance: <br> $10 \mathrm{M} \Omega \mathrm{Min}$ <br> 3) Contact Resistance: <br> $5 \Omega$ Max. |

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|  | 14 | 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: $40 \pm 2^{\circ} \mathrm{C}$ <br> 2) Relative Humidity: 90 to $95 \%$ <br> 3) Time: 96 hours | 1) As shown in items 4 to 7 <br> 2) Insulation Resistance: <br> $10 \mathrm{M} \Omega \mathrm{Min}$ <br> 3) Contact Resistance: <br> $5 \Omega$ Max. |
| :---: | :---: | :---: | :---: | :---: |
| Weather Proof | 15 | Salt Spray | The switch shall be subjected to fine mist of solution at a temperature of $35 \pm 2^{\circ} \mathrm{C}$ for 48 hours continuously (salt solution concentration $5 \pm 1 \%$ by weight.) EIA-364-26 | Without excessive rust |
|  | 16 | Change of Temperature | After 5 cycles of following conditions, the switch shall be allowed to stand under normal room temperature, and Humidity condition for an hour, and measurement shall be made within an hour after that. | 1) As shown in items 4 to 5 <br> 2) Insulation Resistance: <br> $10 \mathrm{M} \Omega \mathrm{min}$ <br> 3) Contact Resistance: <br> $5 \Omega$ Max |
|  | 17 | Moisture Sensitivity levels | $2 \mathrm{a} \leq 30^{\circ} \mathrm{C}$ to $60 \% \mathrm{RH} 4$ Weeks | 1) As shown in items 1 to 7 |

## 5. Soldering Conditions:

- Recommended Soldering Profile for the JJC 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 $260^{\circ} \mathrm{C}$.

- Manual Soldering

Soldering Temperature: $350^{\circ} \mathrm{C} \pm 5^{\circ} \mathrm{C}$
Continuous Soldering Time: Max. 5 seconds

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- 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.

■ 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 $-10^{\circ} \mathrm{C}$ to $40^{\circ} \mathrm{C}$ \& humidity at $85 \%$ (min)
2. environment with corrosive gas
3. storage over 6 months
4. place in direct sunlight
