JJ SERIES DETECTOR SWITCHES

TYPE JJF SERIES

INTRODUCTION

TE Connectivity (TE)'s JJF Series of Detector Switches are suitable for a wide variety of applications, offering 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 ranging from automotive to telecommunications.







BENEFITS

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

RoHS

APPLICATIONS

- Automotive
- Instrumentation
- White goods
- Telecommunications
- Digital Still Cameras
- Detection of disc loading

FAMILY CLASSIFICATION

Series	Body Size
JJA	3.5mm x 2.8mm
JJB	3.5mm x 2.98mm
JJC	3.5mm x 3.3mm
JJD	4.2mm x 3.6mm
JJE	4.7mm x 3.5mm
JJF	**4.7mm x 3.8mm**
JJG	5.7mm x 4.0mm (High-Rating)
JJH	5.7mm x 4.0mm (Standard-Rating)
JJI	5.0mm x 4.4mm
JJJ	6.0mm x 4.85mm / 5.5mm x 4.7mm
JJK	6.3mm x 3.0mm
JJL	6.5mm x 3.9mm
JJM	5.7mm x 4.0mm
JJN	5.7mm x 4.0mm (Wedge)
JJO	10.0mm x 3.8mm
JJP	10.6mm x 10.6mm

JJF FAMILY – 4.7mm X 3.8mm

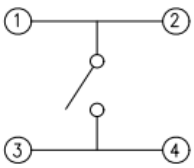


Parameter	Specification
Contact Rating	1mA, 5VDC Max.
Contact Resistance	1Ω Max.
Insulation Resistance	100MΩ Min. 100VDC
Dielectric Strength	100VAC / 1 minute
Operating Force	40gF Max.
Travel	5.30mm Stem: 3.9mm 3.80mm Stem: 2.6mm
Operating Life	Upto 100,000 cycles
Operating Temperature	-10°C to 60°C
Storage Temperature	-20°C to 70°C

FEATURES

- Guiding post for easy orientation.
- 3.80mm & 5.30mm stem height.

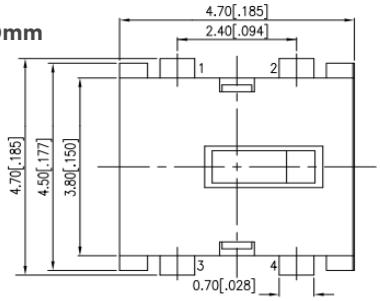
CIRCUIT

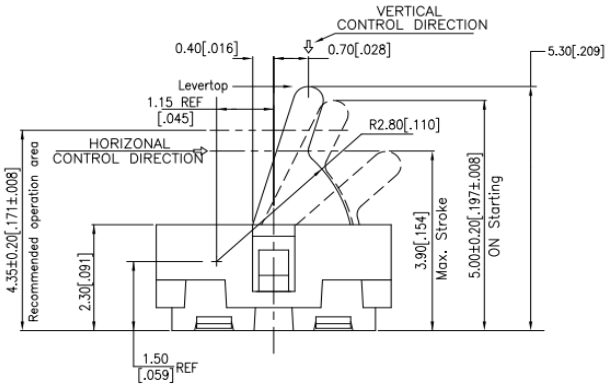


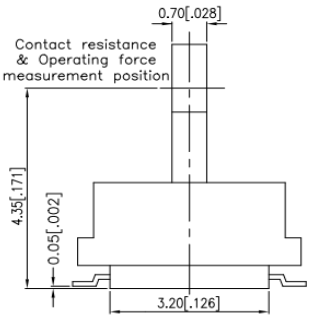
CIRCUIT DIAGRAM

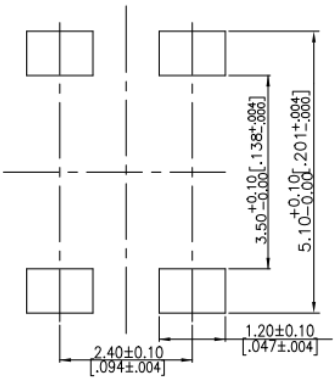
DIAGRAMS

* **5.30mm**





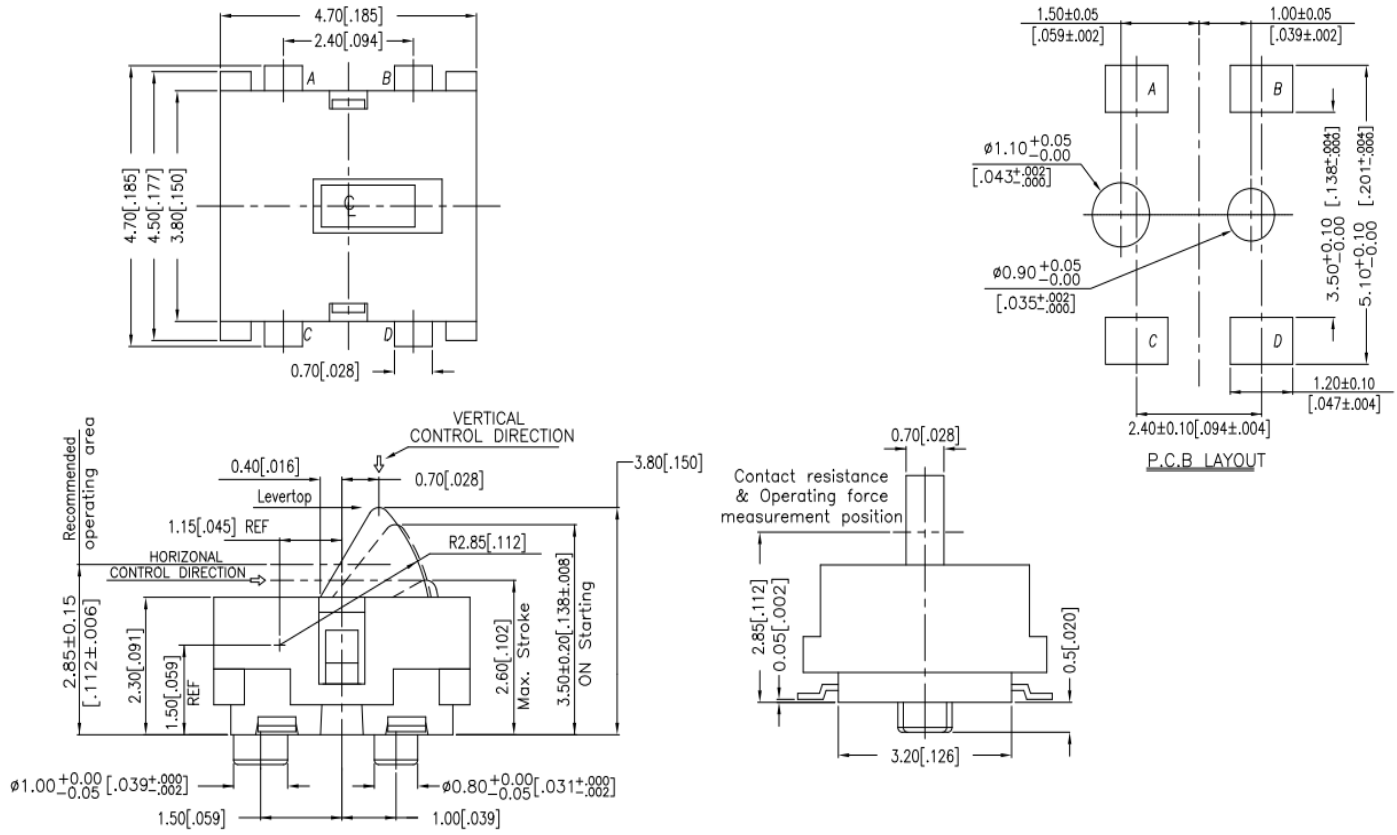




P.C.B LAYOUT

Note: All dimensions are in mm.

- **3.80mm**



Note: All dimensions are in mm.

TECHNICAL SPECIFICATION

- Orientation : Vertical Push
- Grounding : Ungrounded
- Mounting : Gull-winged

STYLE

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

Operating Temperature Range : -10°C to 60°C

Storage Temperature Range : -20°C to 70°C

The shelf life of product is approx 6 months.

CURRENT RANGE : 1mA, 5 VDC

TYPE OF ACTUATION : Tactile Feedback

TEST SEQUENCE

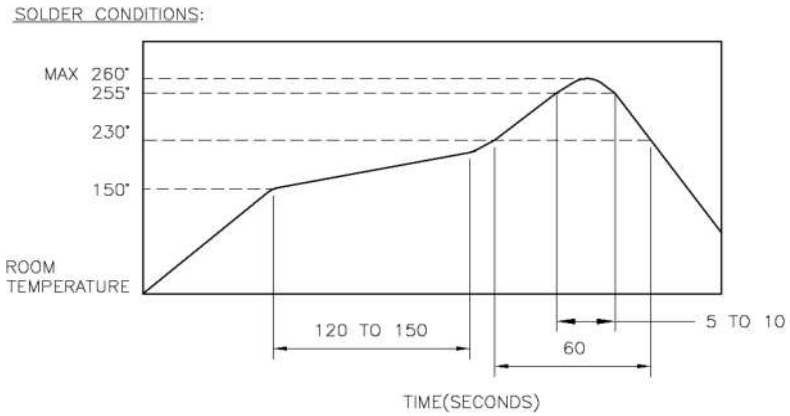
<table>
<tr><th></th><th>Item</th><th>Description</th><th>Test Conditions</th><th>Requirements</th></tr>
<tr><td>Appearance</td><td>1</td><td>Visual Examination</td><td>Physical inspection without applying any external forces.</td><td>There shall be no defects that affect the serviceability of the product</td></tr>
<tr><td rowspan="5">Electrical Performance</td><td>2</td><td>Contact Resistance</td><td>Actuate the switch 4.35mm (5.30mm Stem); 2.85mm (3.80mm Stem) and measure contact resistance using a micro-Ohmmeter.</td><td>1Ω Max.</td></tr>
<tr><td>3</td><td>Insulation Resistance</td><td>Measurements shall be made at 100 VDC potential between terminals and cover.</td><td>100MΩ Min.</td></tr>
<tr><td>4</td><td>Dielectric Withstanding Voltage</td><td>100 VAC (50Hz or 60Hz) shall be applied across terminals and cover for 1 minute</td><td>There shall be no breakdown or flashover</td></tr>
<tr><td>5</td><td>Capacitance</td><td>Capacitance shall be measured at 1 MHz between terminals.</td><td>5 pF Max</td></tr>
<tr><td>6</td><td>Operating Force</td><td>As the specification shows operating force is measured</td><td>40gF Max (.4N Max)</td></tr>
<tr><td rowspan="6">Mechanical Performance</td><td>7</td><td>Contact (On) point</td><td>----------</td><td>As the specification shows ON start position</td></tr>
<tr><td>8</td><td>Stop Strength</td><td>A vertical static load of 1KgF(9.8N) shall be applied in the direction of stem operation for a period of 60 seconds</td><td>As shown in items 2 through 7.</td></tr>
<tr><td>9</td><td>Solder Heat Resistance</td><td>(See chart below)
ON starting before reflow:<table><tr><th colspan="2">5.30mm Stem</th><th colspan="2">3.80mm Stem</th></tr><tr><td rowspan="2">5.00mm</td><td>+0.2mm</td><td rowspan="2">3.50mm</td><td>+0.2mm</td></tr><tr><td>-0.3mm</td><td>-0.3mm</td></tr></table></td><td>1) Shall be free from pronounced backlash and falling-off or breakage terminals
2) As shown in items 2 through 8.</td></tr>
<tr><td>10</td><td>Vibration</td><td>Test per Method 201A of MIL-STD-202F
1) Swing distance=1.5mm
2) Frequency: 10-55-10Hz in 1-min/cycle.
3) Direction: 3 vertical directions including the directions of operation
4)Test time: 2 hours each direction</td><td>As shown in items 2 through 8.</td></tr>
<tr><td>11</td><td>Shock</td><td>Test per Method 213B condition a of MIL-STD-202F
1) Acceleration; 50G
2) Action time: 11±1ms (milliseconds)
3) Testing Direction: 6 sides
4) Test Cycle: 3 times in each direction</td><td>As shown in items 2 through 8.</td></tr>
<tr><td>12</td><td>Solderability</td><td>1) Temperature: 245±3°C Lead-Free solder: M705E JIS Z 3282 A (Tin 96.5%, Silver 3%, Copper 0.5%)
2) Flux: 5-10 sec.
3) Duration of solder Immersion: 3±0.5sec.</td><td>No anti-soldering, and the solder dipping coverage must be more than 75%</td></tr>
</table>

TEST SEQUENCE (CONTINUATION)

	Item	Description	Test Conditions	Requirements
Durability	13	Operating Life	Measurements shall be made following the test forth below: 1) 1mA,5 VDC resistive load 2) Apply a static load in the direction of operation equal to the operating force to the center of the stem. 3) Rate of Operation: 20 to 25 operations per minute. 4) Cycle of Operation: Minimum 100,000 cycles.	1) As shown in items 4 to 5 2) Insulation Resistance: 10MΩ Min. 3) Contact Resistance: 2Ω Max
Weather-resistance	14	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: 1) Temperature: -40±2°C 2) Time: 96 hours	As shown in items 2 to 8.
	15	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: 1) Temperature: 85±2°C 2) Time: 96 hours	
	16	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: 1) Temperature: 40±2°C 2) Relative Humidity: 90% to 95% 3) Time: 96 hours	1) As shown in items 4 to 8. 2) Insulation Resistance: 10MΩ Min.

SOLDERING CONDITIONS

Recommended Soldering Profile for the JJF 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°C.

MANUAL SOLDERING

Soldering Temperature : 350°C Max.
Continuous Soldering Time : 5 seconds 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.

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 outside the range -10°C to 40°C, or humidity above 85%.
2. Environment with corrosive gas
3. Storage over 6 months
4. Place in direct sunlight

ORDERING INFORMATION

Typical product code

JJF	V0	U	G	380	NO	P	P	R	TR

Type

JJF	Detector switches

Orientation

V0	Vertical (Push)

Grounding

U	Ungrounded

Mounting

G	Gull-winged

Height

380	3.80mm
530	5.30mm

Packaging

TR	Tape and Reel

Contact/ Terminal plating

R	Silver plating

Cover

P	Plastic Cover
M	Metal Cover

Guiding post

P	Post
N	No Post

Circuit

NO	Normal Open

PN LIST

Smart PN	Height mm	Circuit	Guide Post	Cover	Plating	Packaging	MOQ	TE PN
JJFVOUG530NOPMRTR	5.30	NO	Post	Metal	Silver	Tape and Reel	900pcs	2331364-1
JJFVOUG530NOPPRTR	5.30	NO	Post	Plastic	Silver	Tape and Reel	900pcs	2331365-1
JJFVOUG530NONMRTR	5.30	NO	No Post	Metal	Silver	Tape and Reel	900pcs	2331366-1
JJFVOUG530NONPRTR	5.30	NO	No Post	Plastic	Silver	Tape and Reel	900pcs	2331367-1
JJFVOUG380NOPMRTR	3.80	NO	Post	Metal	Silver	Tape and Reel	900pcs	2331368-1
JJFVOUG380NOPPRTR	3.80	NO	Post	Plastic	Silver	Tape and Reel	1000pcs	2331369-1
JJFVOUG380NONMRTR	3.80	NO	No Post	Metal	Silver	Tape and Reel	900pcs	2331370-1
JJFVOUG380NONPRTR	3.80	NO	No Post	Plastic	Silver	Tape and Reel	1000pcs	2331372-1

Note: MOQ = Minimum Order Quantity (pcs)

2331364-1 REV: B 07/26 HRM

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