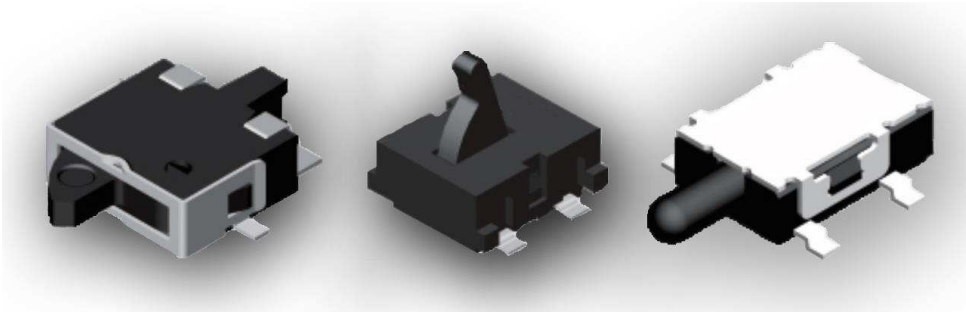
Applications

- 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

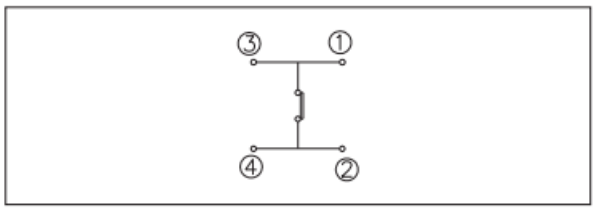
Series	Body Size
JJA	3.5x2.8 mm
JJB	3.5x2.98 mm
JJC	3.5x3.3 mm
JJD	4.2x3.6 mm
JJE	4.7x3.5 mm
JJF	4.7x3.8 mm
JJG	5.7x4.0 mm (High-Rating)
JJH	5.7x4.0 mm (Standard-Rating)
JJI	5.0x4.4 mm
JJJ	6.0x4.85 mm / 5.5x4.7 mm
JJK	6.3x3.0 mm
JJL	6.5x3.9 mm
JJM	5.7x4.0 mm
JJN	5.7x4.0 mm (Wedge)
JJO	10.0x3.8 mm
JJP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

JJD Family – *4.2x3.6 mm*

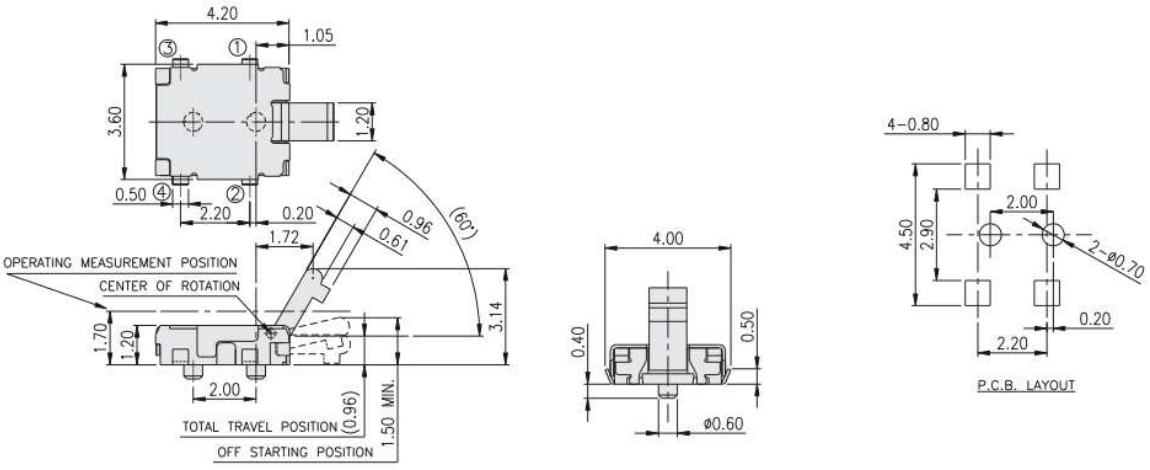
JJDVDUJ314		
	Contact Rating	100µA, 3VDV min. 1mA, 5VDC Max.
	Contact Resistance	3Ω Max.
	Insulation Resistance	100MΩ min. 100VDC
	Dielectric Strength	100VAC/1 minute
	Operating Force	35gF Max.
	Travel	2.50mm
	Operating Life	50,000 cycles
	Operating Temperature	-40˚C to 85˚C
	Storage Temperature	-20˚C to 70˚C

Features	Applications
• Compact Sized • Sharp detection feeling	• Consumer Electronics • Safety control devices • Heat energy regulators

Circuit



Diagram



1. Style

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

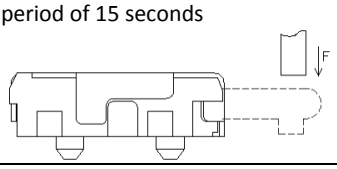
1.1 Operating Temperature Range: -40℃ to 85℃

1.2 Storage Temperature Range: -20℃ to 70℃

2. Current Range: Min. 100μA 3VDC // Max. 1mA 5VDC

3. Type of Actuation: Momentary

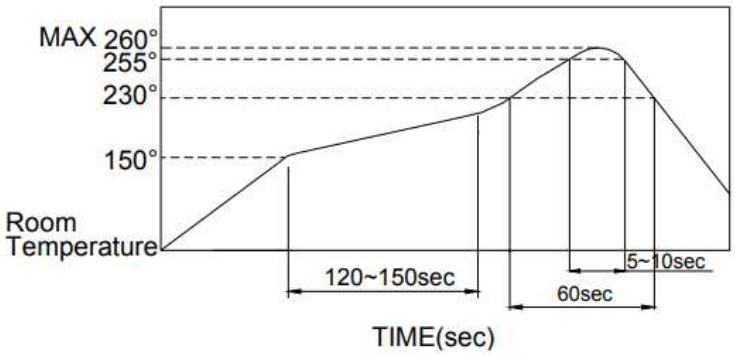
4. Test Sequence:

	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 (0.15mm) and measure contact resistance using a micro-Ohmmeter.	3Ω Max. (initial)
	3	Insulation Resistance	Measurements shall be made at 100VDC potential between terminals and cover.	100MΩ Min.
	4	Dielectric Withstanding Voltage	Apply 100V AC (50Hz or 60 Hz 2mA) between terminals and cover for 1 minute.	There shall be no breakdown or flashover
Mechanical Performance	5	Operation Force	As the specification shows operating force is measured	35gF Max. (.34N Max.)
	6	ON/OFF start position	----------	As the specification shows ON/OFF start position
	7	Control Strength	Placing the switch such that the direction of switch operation is vertical, a static load of 204.1gf(2.0N) shall be applied in the direction of stem operation for a period of 15 seconds 	As shown in item 2 to 6
	8	Solder Heat Resistance	(See chart below)	1) Shall be free from pronounced backlash and falling-off or breakage terminals 2) As shown in item 2 to 6
	9	Solderability	1) Soldering Temperature ： 245±5℃ 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 mmersion:5±1sec.	No anti-soldering and the coverage of dipping into solder must more than 75% was requested.

Durability	10	Life Test	Tested as follows: 1) 10mA,5V DC 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: 50,000 cycles Min.	1)As shown in item 4 to 5 2)Contact Resistance: 5Ω Max. 3)Insulation Resistance: 10MΩ Min.
Environmental Endurance	11	Vibration	Shall be vibrated in accordance with Method 201A of MIL-STD-202F 1) Frequency: 10-55-10 Hz 1 minute/cycle. 2) Direction: 3 vertical directions including the direction of operation. 3) Test Time: 2 hours each direction. 4) Swing distance=1.5mm	As shown in item 2 to 5
	12	Shock	Shall be shocked in accordance with Method 213B condition A of MIL-STD-202F 1) Acceleration: 50G. 2) Action Time: 11±1 m sec. 3) Testing Direction: 6 sides. 4) Test cycle: 3 times in each direction	As shown in item 2 to 5
	13	Cold Resistance	Following the test set forth below the sample shall be left in normal temperature and humidity conditions for an hour before measurements are made: 1) Temperature: -40℃±2℃. 2) Time: 96 hours	1)As shown in item 4 to 7 2)Contact resistance: Less than 5Ω 3)Value insulation resistance: More than 10MΩ.
	14	Heat Resistance	Following the test set forth below the sample shall be left in normal temperature and humidity conditions for an hour before measurements are made: 1) Temperature: 85℃±2℃ 2) Time: 96 hours	1)As shown in item 4 to 7 2)Contact resistance: Less than 5Ω 3)Value insulation resistance: More than 10MΩ.
	15	Humidity Resistance	Following the test set forth below the sample shall be left in normal temperature and humidity conditions for an hour before measurements are made: 1) Temperature: 40℃±2℃ 2) Relative Humidity :90% to 95% 3) Time: 96 hours	1)As shown in item 4 to 7 2)Contact resistance: Less than 5Ω 3)Value insulation resistance: More than 10MΩ.

5. Soldering Conditions:

■ Recommended Soldering Profile for the JJD 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: Max. 350℃
Continuous Soldering Time: Max. 5 seconds

■ 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.

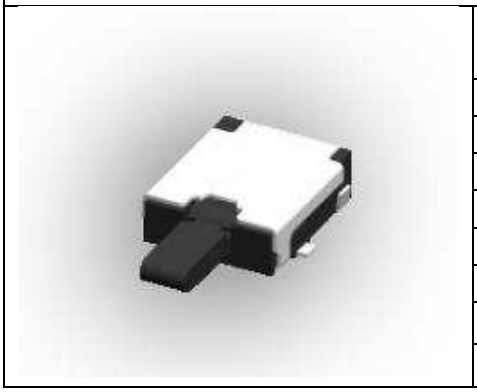
Do not store the switch in the following environment or it may affect performance and solderability:

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

2. environment with corrosive gas

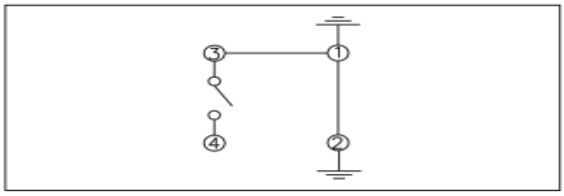
3. storage over 6 months

4. place in direct sunlight

JJDVUU□305		
	Contact Rating	50µA, 3VDV min. 10mA, 5VDC Max.
	Contact Resistance	1Ω Max.
	Insulation Resistance	100MΩ min.
	Dielectric Strength	100VAC/1 minute
	Operating Force	40gF Max.
	Travel	60˚
	Operating Life	50,000 cycles
	Operating Temperature	-10˚C to 60˚C
	Storage Temperature	-20˚C to 70˚C

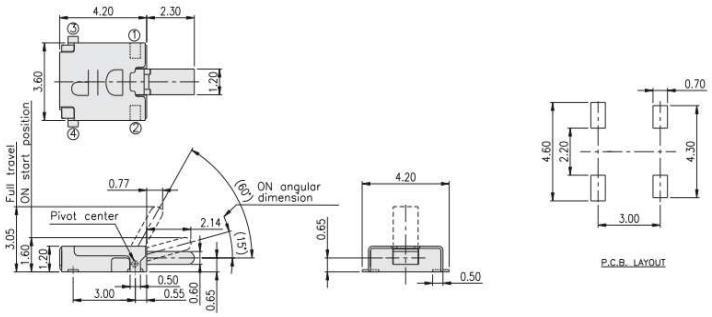
Features	Applications
• Gull-winged and J-bend mounting • Long travel type	• Consumer Electronics • Safety control devices • Heat energy regulators

Circuit

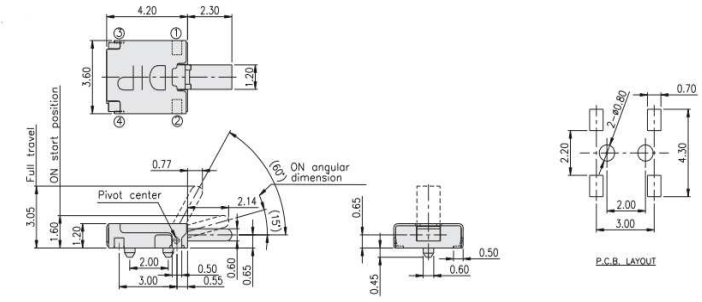


Diagrams

-Gull-winged



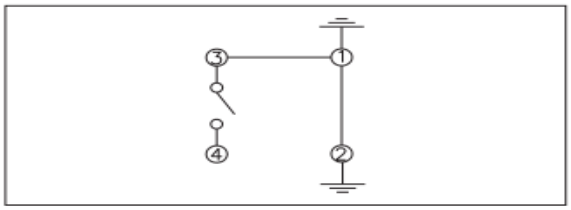
-J-Bend



JJDVDU□305		
	Contact Rating	50µA, 3VDV Min. 10mA, 5VDC Max.
	Contact Resistance	1Ω Max.
	Insulation Resistance	100MΩ Min.
	Dielectric Strength	100VAC/1 Minute
	Operating Force	40gF Max.
	Travel	60˚
	Operating Life	50,000 cycles
	Operating Temperature	-10˚C to 60˚C
	Storage Temperature	-20˚C to 70˚C

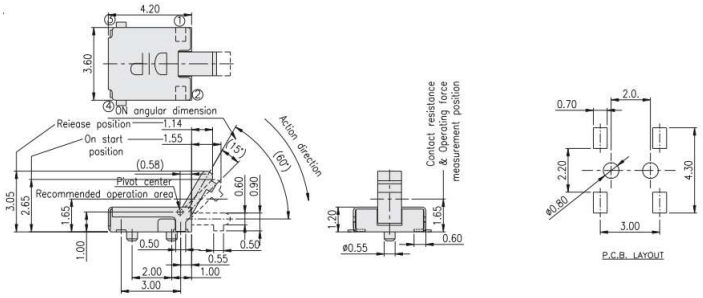
Features	Applications
• Gull-winged and J-bend mounting • Long travel type	• Consumer Electronics • Safety control devices • Heat energy regulators

Circuit

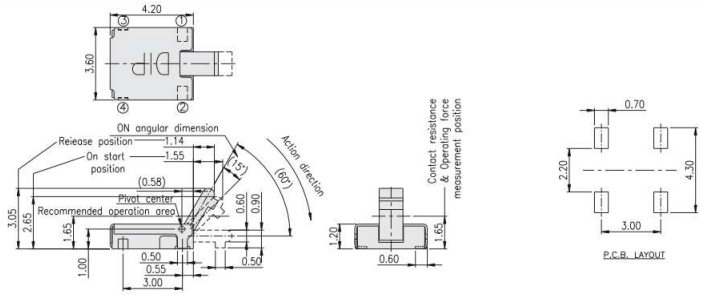


Diagrams

-Gull-winged



-J-Bend



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 ℃ to 60℃

1.2 Storage Temperature Range: -20℃ to 70℃

2. Current Range: Min. 50μA 3VDC // Max. 10mA 5VDC

3. Type of Actuation: Momentary

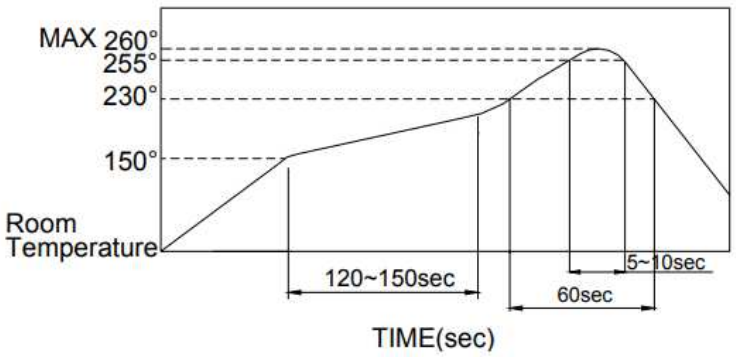
4. Test Sequence:

	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 (1.65mm) and measure contact resistance using a micro-Ohmmeter.	1Ω Max.
	3	Insulation Resistance	Measurements shall be made at 100 VDC potential between terminals and cover.	100MΩ Min.
	4	Dielectric Withstanding Voltage	Apply 100 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	Operation Force	As the specification shows operating force is measured.	40gf Max (.4N Max)
Mechanical Performance	7	ON start position	----------	As the specification shows ON start position
	8	Stop strength	Apply vertical static load of 1kgf (9.8N) the direction of stem operation for a period of 60 seconds.	As shown items 2 to 7
	9	Solder Heat Resistance	(See chart below)	1) Shall be free from pronounced backlash and falling-off or breakage terminals 2) As shown in item 2 to 7

Mechanical Performance	10	Vibration	Test per Method 201A of MIL-STD-202F 1) Swing distance=1.5mm 2) Frequency: 10-55-10 Hz 1 minute/cycle. 3) Direction: 3 vertical directions including the direction of operation. 4) Test Time: 2 hours each direction.	As shown in item 2 to 7
	11	Shock	Test per Method 213B condition A of MIL-STD-202F 1) Acceleration: 50G. 2) Action Time: 11 ± 1 m sec. 3) Testing Direction: 6 sides. 4) Test cycle: 3 times in each direction	As shown in item 2 to 7
	12	Solderability	1) JJD305 Soldering Temperature: 245±3℃ 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.	No anti-soldering and the coverage of dipping into solder must more than 75% was requested.
Durability	13	Operating Life	Tested as follows: 1) 10mA,5V DC 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: 50,000 cycles Min.	1) As shown in item 4 to 5 2) Insulation Resistance: 10MΩ Min 3) Contact Resistance: 2Ω Max
Weather Proof	14	Cold Resistance	Following the test set forth below the sample shall be left in normal temperature and humidity conditions for 1 hour before measurements are made: 1) Temperature: -40℃±2℃. 2) Time: 96 hours	As shown in item 2 to 7
	15	Heat Resistance	Following the test set forth below the sample shall be left in normal temperature and humidity conditions for 1 hour before measurements are made: 1) Temperature: 85℃±2℃ 2) Time: 96 hours	As shown in item 2 to 7
	16	Humidity Resistance	Following the test set forth below the sample shall be left in normal temperature and humidity conditions for 1 hour before measurements are made: 1) Temperature: 40℃±2℃ 2) Relative Humidity :90 to 95% 3) Time: 96 hours	1) As shown in item 4 to 7 2) Insulation Resistance: 10MΩ Min

5. Soldering Conditions:

■ Recommended Soldering Profile for the JJD Series



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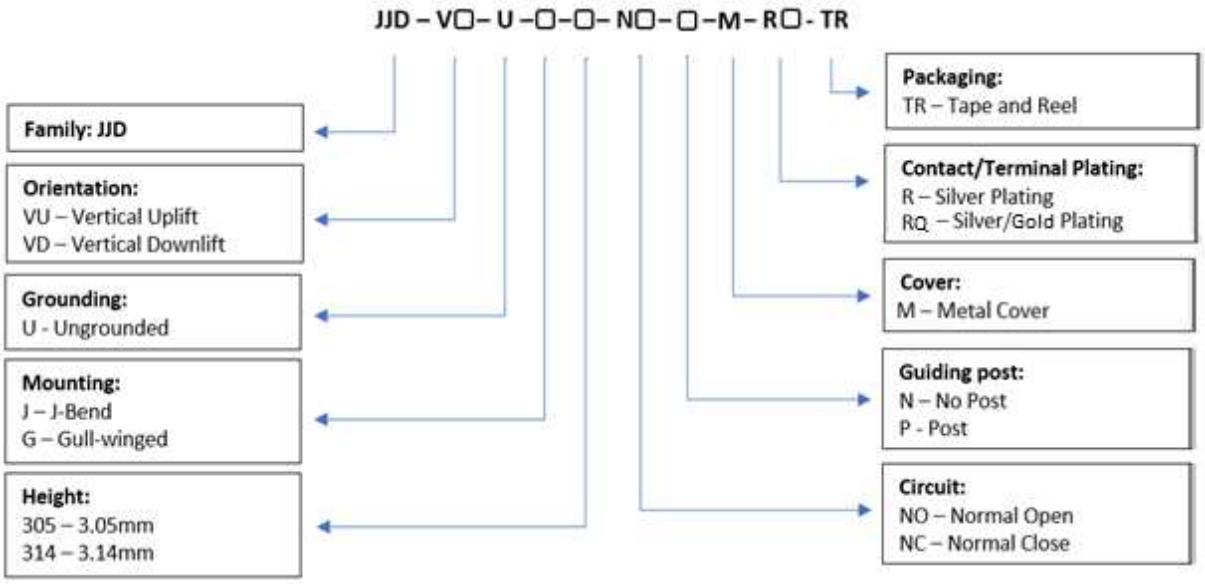
2. environment with corrosive gas

3. storage over 6 months

4. place in direct sunlight

How to order



PN List

Smart PN	Orientation	Grounding	Mounting	Height	Circuit	Guiding Post	Cover	Plating /Term.	Packaging	MOQ	TE PN
JJDVDUJ314NCPMRTR	Vertical Downlift	Ungrounded	J-Bend	3.14mm	NC	Post	Metal	Silver	Tape and Reel	2,000	2331389-1
JJDVUUG305NOPMRTR	Vertical Uplift	Ungrounded	Gull-winged	3.05mm	NO	Post	Metal	Silver	Tape and Reel	3,600	2331408-1
JJDVUUJ305NOPMRTR	Vertical Uplift	Ungrounded	J-Bend	3.05mm	NO	Post	Metal	Silver	Tape and Reel	3,600	2331409-1
JJDVUUG305NONMRTR	Vertical Uplift	Ungrounded	Gull-winged	3.05mm	NO	No Post	Metal	Silver	Tape and Reel	3,600	2331410-1
JJDVUUJ305NONMRTR	Vertical Uplift	Ungrounded	J-Bend	3.05mm	NO	No Post	Metal	Silver	Tape and Reel	3,600	2331411-1
JJDVDUG305NOPMRQTR	Vertical Downlift	Ungrounded	Gull-winged	3.05mm	NO	Post	Metal	Silver/ Gold	Tape and Reel	2,000	2331412-1
JJDVDUJ305NOPMRQTR	Vertical Downlift	Ungrounded	J-Bend	3.05mm	NO	Post	Metal	Silver/ Gold	Tape and Reel	2,000	2331413-1
JJDVDUG305NONMRQTR	Vertical Downlift	Ungrounded	Gull-winged	3.05mm	NO	No Post	Metal	Silver/ Gold	Tape and Reel	2,000	2331414-1
JJDVDUJ305NONMRQTR	Vertical Downlift	Ungrounded	J-Bend	3.05mm	NO	No Post	Metal	Silver/ Gold	Tape and Reel	2,000	2331415-1