

133-5302-401	3
133-5302-406	3
133-5303-401	3
133-5303-406	3
133-5304-401	3
133-5304-406	3
133-5402-001	3
133-5402-006	3
133-5402-101	3
133-5402-106	3
133-5403-001	3
133-5403-006	3
133-5403-101	3
133-5403-106	3
133-5404-001	3
133-5404-006	3
133-5404-101	3
133-5404-106	3
133-5701-201	4
133-5701-206	4
133-5701-501	4
133-5701-506	4
133-5701-801	4
133-5701-806	4
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FCC regulation (Part 15.203) stipulates that wireless devices with removable antennas require a non-standard antenna connection to the hand-held device. To meet this requirement, Johnson Components® designs and manufactures non-standard mating MCX connectors.

### **Reverse Polarity:**

Reverse polarity connectors employ female contacts in the plug connector and male contacts in the jack connector. Johnson Components® manufactures straight and right angle cabled plugs and bulkhead jacks; along with straight and right angle bulkhead jack receptacles and an end launch jack receptacle in the reverse polarity style.

# MCX Reverse Polarity- 50 Ohm

## Specifications



INCHES (MILLIMETERS)  
CUSTOMER DRAWINGS AVAILABLE UPON REQUEST

### ELECTRICAL RATINGS

**Impedance:** 50 Ohms

**Frequency Range:** 0-6 GHz

**VSWR:** (f = GHz)

	Straight Cabled Connectors	Right Angle Cabled Connectors
RG-178 cable	1.17 + .04f	1.07 + .06f
RG-316 cable	1.13 + .04f	1.07 + .04f
Uncabled receptacles		N/A

**Working Voltage:** (Vrms maximum)<sup>†</sup>

Connectors for Cable Type	Sea Level	70K Feet
RG-178	250	65
RG-316 uncabled receptacles	335	85

**Dielectric Withstanding Voltage:** (VRMS minimum at sea level)<sup>†</sup>

Connectors for RG-178	750
Connectors for RG-316 uncabled receptacles	1000

**Corona Level:** (Volts minimum at 70,000 feet)<sup>†</sup>

Connectors for RG-178	190
Connectors for RG-316 uncabled receptacles	250

**Insertion Loss:** (dB maximum, tested at 1 GHz)

Straight cable connectors	0.1 dB
Right angle cable connectors	0.2 dB
Uncabled receptacles	N/A

**Insulation Resistance:** 10000 megohms minimum

**Contact Resistance:** (milliohms maximum)

	Initial	After Environmental
Center contact (straight cabled connectors, uncabled receptacles)	5.0	8.0
Center contact (right angle cabled connectors)	5.0	15.0
Outer contact	1.0	1.5
Braid to body (gold plated connectors)	1.0	N/A
Braid to body (nickel plated connectors)	2.5	N/A

**RF Leakage:** (dB typical tested at 2.5 GHz)

Cable connectors	-70 dB
Uncabled receptacles	N/A

**RF High Potential Withstanding Voltage:** (Vrms minimum, tested at 4 and 7 MHz)<sup>†</sup>

Connectors for RG-178	500
Connectors for RG-316	700
Uncabled receptacles	600

### MECHANICAL RATINGS

**Engagement Force:** 5.6 pounds maximum axial force

**Disengagement Force:** 3 pounds typical axial force, 1.0 pound min.

**Contact Retention:** 4 lbs. min. axial force (captivated contacts)  
1 inch-ounce min. torque (uncabled receptacles)

Cable Retention:	Axial Force* (pounds)	Torque (in-oz)
Connectors for RG-178	10	N/A
Connectors for RG-316	20	N/A
Connectors for RG-316DS	25	N/A

\* or cable breaking strength whichever is less.

**ENVIRONMENTAL RATINGS** (Meets or exceeds the applicable paragraph of MIL-C-39012)

**Durability:** 500 cycles minimum

**Temperature Range:** - 65°C to + 165°C

**Thermal Shock:** MIL-STD-202, Method 107, Condition F

**Corrosion:** MIL-STD-202, Method 101, Condition B

**Shock:** MIL-STD-202, Method 213, Condition B

**Vibration:** MIL-STD-202, Method 204, Condition B

**Moisture Resistance:** MIL-STD-202, Method 106

### MATERIAL SPECIFICATIONS

**Bodies:** Brass per QQ-B-626 or zinc per ASTM B86-71, gold plated\*\* per MIL-G-45204 .00001" min or nickel plated per QQ-N-290

**Contacts:** Male - brass per QQ-B-626, gold plated per MIL-G-45204 .00003" min.

Female - beryllium copper per QQ-C-530, gold plated per MIL-G-45204 .00003" min.

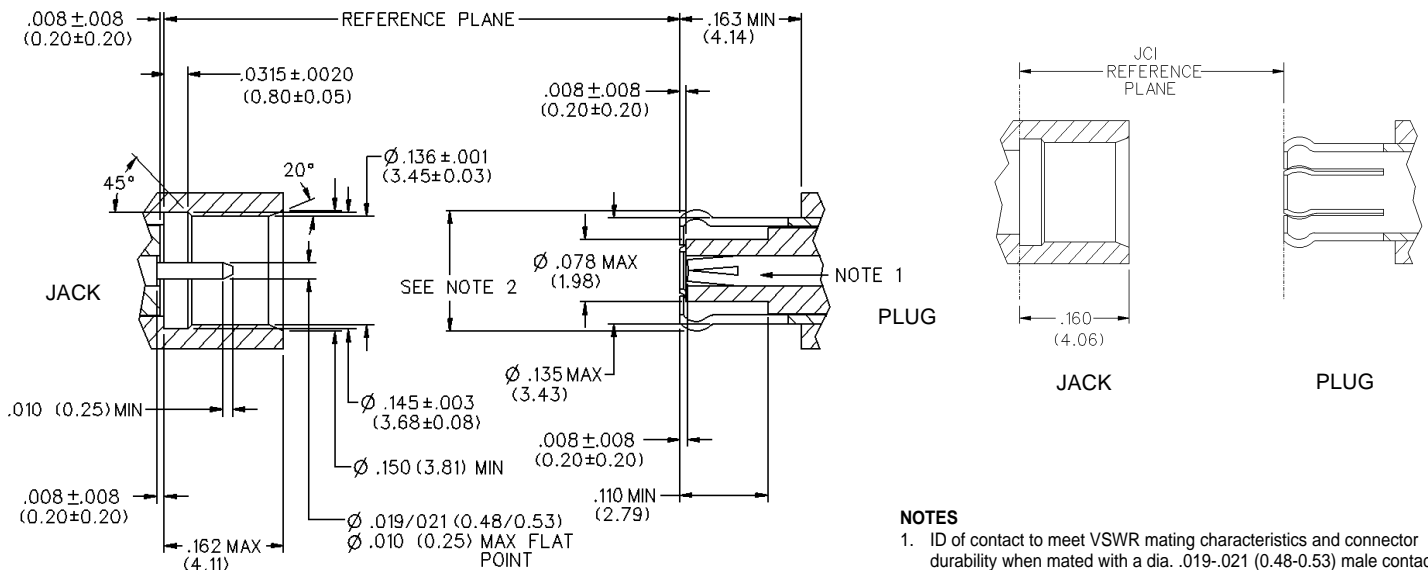
**Insulators:** PTFE fluorocarbon per ASTM D 1710 and ASTM D 1457

**Expansion Caps:** Brass per QQ-B-613, gold plated per MIL-G-45204 .00001" min. or nickel plated per QQ-N-290

**Crimp Sleeves:** Copper per WW-T-799, gold plated per MIL-G-45204 .00001" min. or nickel plated per QQ-N-290

**Mounting Hardware:** Brass (nuts) per QQ-B-626 or phosphor bronze (lockwashers) QQ-B-750, gold plated per MIL-G-45204 .00001" min. or nickel plated per QQ-N-290

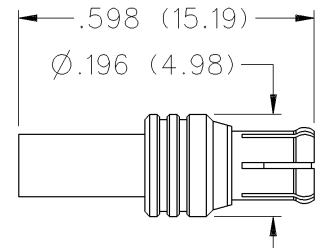
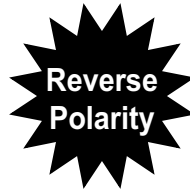
### MATING ENGAGEMENT FOR MCX REVERSE POLARITY SERIES PER FCC RULE 15 NON-STANDARD INTERFACE



<sup>†</sup>Avoid user injury due to misapplication. See safety advisory definitions on page 2.

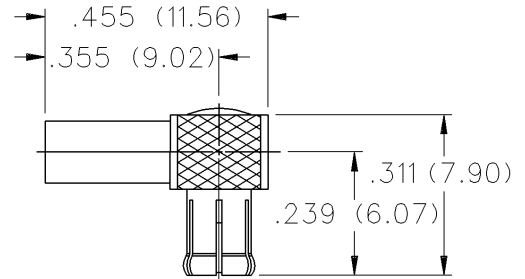
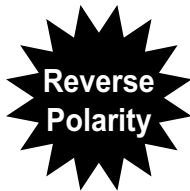
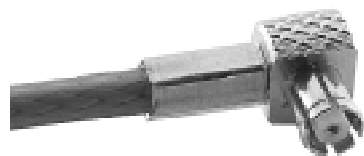
\*\* All gold plated parts include a .00005" min. nickel underplate barrier layer.

### Straight Crimp Type Plug - Solder or Crimp Contact



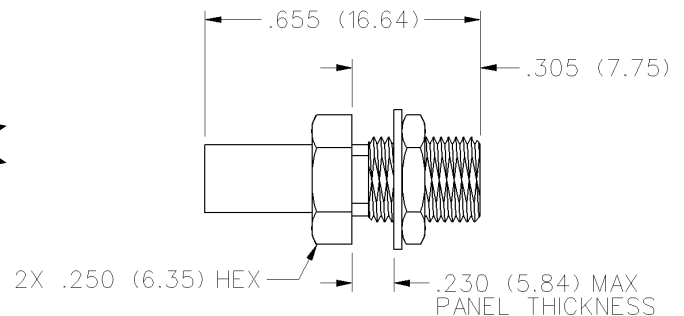
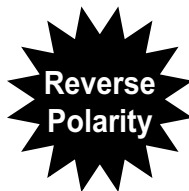
CABLE TYPE	GOLD PLATED	NICKEL PLATED	CAPTIVATED CONTACT
RG 178/U, 196	133-5402-001	133-5402-006	No
RG 316/U, 188, 161, 174	133-5403-001	133-5403-006	Yes
RG 316 DS, 188DS	133-5404-001	133-5404-006	Yes

### Right Angle Crimp Type Plug - Captivated Contact

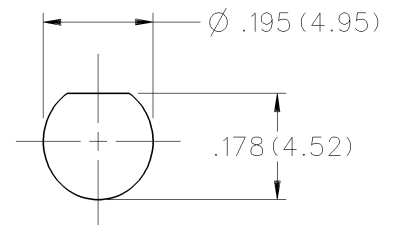


CABLE TYPE	GOLD PLATED	NICKEL PLATED
RG 178/U, 196	133-5402-101	133-5402-106
RG 316/U, 188, 161, 174	133-5403-101	133-5403-106
RG 316 DS, 188DS	133-5404-101	133-5404-106

### Bulkhead Jack Receptacle - Solder or Crimp Contact



CABLE TYPE	GOLD PLATED	NICKEL PLATED	CAPTIVATED CONTACT
RG 178/U, 196	133-5302-401	133-5302-406	No
RG 316/U, 188, 161, 174	133-5303-401	133-5303-406	Yes
RG 316 DS, 188DS	133-5304-401	133-5304-406	Yes



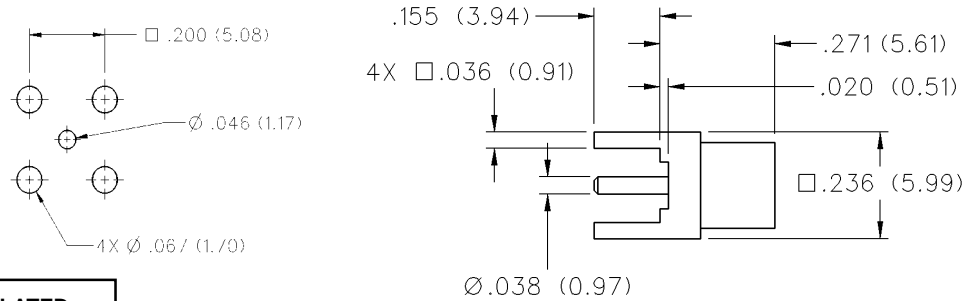
# MCX Reverse Polarity- 50 Ohm

PC Mount



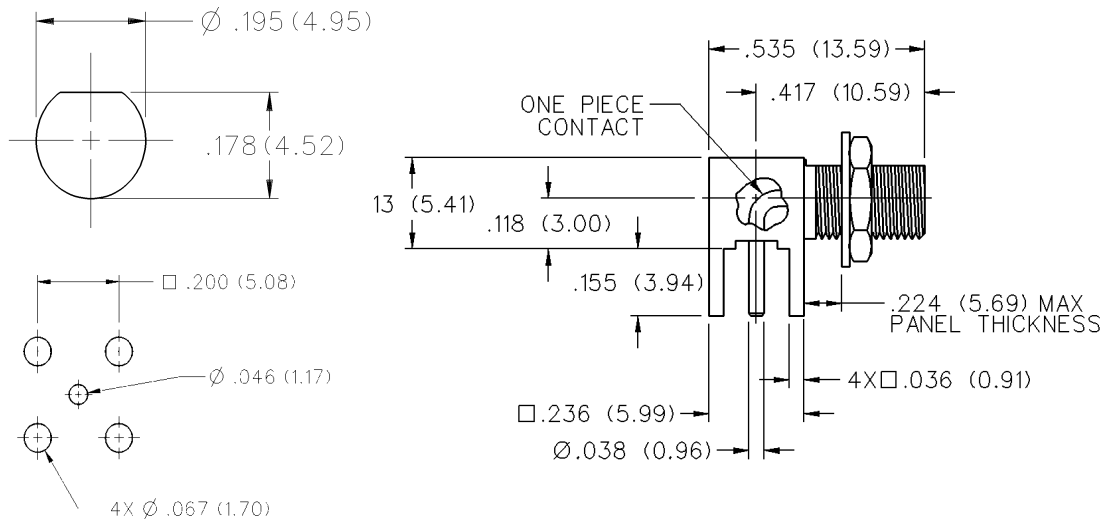
INCHES (MILLIMETERS)  
CUSTOMER DRAWINGS AVAILABLE UPON REQUEST

## Straight Jack Receptacle



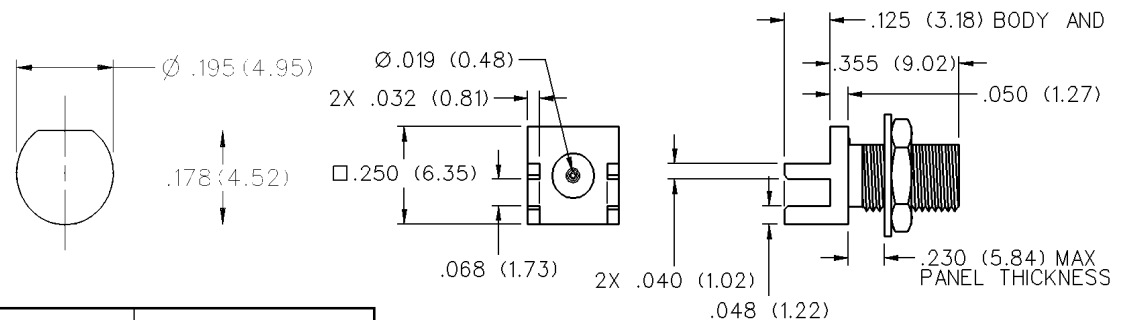
GOLD PLATED	NICKEL PLATED
133-5701-201	133-5701-206

## Right Angle Bulkhead Jack Receptacle



GOLD PLATED	NICKEL PLATED
133-5701-501	133-5701-506

## End Launch Bulkhead Jack Receptacle - Round Contact



GOLD PLATED	NICKEL PLATED	BOARD THICKNESS
133-5701-801	133-5701-806	.062 (1.57)