



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



## Contact us

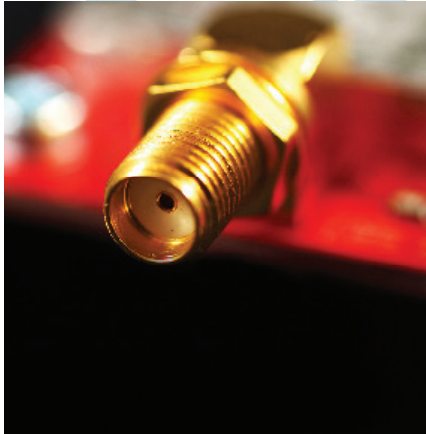
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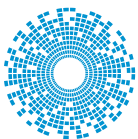


JOHNSON®



## RF & Microwave Connectors & Cable Assemblies

Product Catalog



**cinch**  
CONNECTIVITY SOLUTIONS  
a bel group

[cinch.com](http://cinch.com)

**Cinch Connectivity Solutions** has a wide range of cable assemblies and connectors suited for RF, Microwave and Fiber Optic signal transmission. Connectivity Solutions is a vertically integrated supplier of custom, fixed length and semi-rigid cable assemblies from DC to 50 GHz. Our product lines deliver custom-engineered products and solutions to satisfy the most demanding and complex requirements.

### AIM CAMBRIDGE



AIM-Cambridge has a universal line of products that offer cost effective, high quality solutions for connectivity. Our connectors are available in BNC, Type N, F Type, RCA, UHF, Mini-UHF, TNC, D-Sub and Modular Plugs for Data/Telecom applications. In addition, we stock a wide variety of cables for A/V, SATV, CATV, computer and LAN applications, as well as a complete line of termination tools and structured cabling products. AIM-Cambridge promises that its product will provide you with unmatched consistency, quality, reliability and ease of use.

### JOHNSON®



Johnson designs and manufactures an industry leading line of RF coaxial connectors and adapters, which are available in both 50 and 75 ohm versions. Johnson connectors are designed to provide the highest quality data transmission for audio, video and data applications. The Johnson line of products can address frequency ranges from DC to 46GHz and all sizes from Ultra-miniature interfaces (UMC), Micro-miniature, (MCX, MMCX, SMP), Subminiature (SMA, SMB, SMK, kwiQMate™), Medium connectors (Type N connectors) through to large connectors (DIN7/16). The breadth of products available within the Johnson range includes board and cable mount connectors as well as semi-rigid, conformable, and flexible RF coaxial cables.

### MIDWEST MICROWAVE



Midwest Microwave manufactures passive coaxial microwave components that are known for their precision performance and high quality that meets the precise requirements of the RF/Microwave industry. Our broad product portfolio includes: Attenuators, Precision Adapters, Terminations, DC Blocks, Power Dividers, Couplers, Equalizers, Phase Shifters, Connectors, Custom Cable Assemblies and Test Cables that are designed and manufactured for both military and commercial applications.

Midwest also offers a wide variety of Qualified Product List (QPL) approved products in the M3933, M39030 and M39012 series, as well as many DESC/DSCC approved models.

### Semflex microwave solutions



Semflex designs and manufactures low loss, flexible, microwave coaxial cable and custom cable assemblies for the military/aerospace, commercial OEM and test instrumentation markets. Semflex offers cables ranging from DC to 50 GHz, available with ultra low insertion loss, power ratings up to 21 KW, and available with all popular connectors.

### STRATOS optical technologies



Stratos optical connectivity products is globally recognized as highly reliable, cost-effective, and provides optical connectivity solutions that are virtually immune to dust, mud, oil, water, and other contaminants.

Our expanded beam connectivity products are ideal for harsh environment applications in the broadcast, industrial, petrochemical and military/aerospace markets where high reliability, low maintenance and quick serviceability are critical requirements. Our optical active products are used mainly in military, aerospace and industrial markets where high speed/high reliable performance is mission critical. The active product line includes optical transceivers, optical media converters and custom devices tailored to your application.

### TROMPETER RF connectivity



Trompeter is recognized as a global leader in delivering best in class RF connectivity products. The Trompeter line of patch jacks, RF connectors, cable assemblies, HDTV digital technology and DS3 connectivity solutions is unrivalled. Our mission is to provide products that continually deliver the highest quality signal integrity for the most demanding applications in Telecom, Central Office, Broadcast, Military Aerospace, and Instrumentation markets worldwide. Our extensive line of cost-effective products are rigorously designed and tested to provide the critically engineered solutions necessary to enhance the end-user's overall experience.

### VITELEC® ELECTRONICS



Vitelec provides a comprehensive range of RF coaxial interconnect products and cable assemblies. The company has a long established reputation for offering quality and innovation with a wide range of both standard and custom designed products for the electronic and communication industries.

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While every precaution has been taken to ensure accuracy and completeness herein, Cinch Connectivity Solutions assumes no responsibility, and disclaims all liability for damages resulting from use of this information or for any errors or omissions. Specifications subject to change without notice.

# Specifications

## Electrical Specifications

**Impedance:** 50 Ohms

**Frequency Range:**

Connectors.....	0-6 GHz
Dummy loads.....	0-1 GHz

**VSWR (max):** (f = GHz)

	Straight Cable Connectors	Right Angle Cable Connectors
.047 OD .....	1.20	1.14 + .07f
RG-178, RG-316, RG-316 DS.....	1.20	1.25
RG-405.....	1.15	1.15
Uncabled receptacles, dummy loads.....	N/A	

**Working Voltage:**

Connectors .....	170 VRMS at sea level†
Dummy loads.....	N/A

**Dielectric Withstanding Voltage:**

Connectors.....	500 VRMS at sea level†
Dummy loads.....	N/A

**Insulation Resistance:** 1000 megohms min

**Contact Resistance:** (milliohms max)

	Initial	After Environmental
Center contact (straight cabled connectors and uncabled receptacles).....	5.0	8.0
Center contact (right angle cabled connectors).....	5.0	15.0
Outer contact (all connectors).....	1.0	1.5
Braid to body .....	1.5	N/A

**Corona Level:**

Connectors .....	190 volts min at 70,000 feet†
Dummy loads.....	N/A

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

Straight cabled connectors .....	0.1
Right angle cabled connectors .....	0.2
Uncabled receptacles, dummy loads.....	N/A

**RF Leakage:** (dB min, tested at 2.5 GHz)

Flexible cable .....	-60 dB
RG-405 .....	-70 dB
Dummy loads .....	N/A

**RF High Potential Withstanding Voltage:** (400 VRMS at 4 and 7 MHz)†

**Power Rating (Dummy Load):** 0.5 watt @ +25°C, derated to 0.25 watt @ +125° C

†Avoid user injury due to misapplication. See safety advisory definitions inside front cover.

## Mechanical Specifications

**Engagement Design:** Series MMCX

**Engagement/Disengagement Force:** 8 lbs max axial engagement  
1.4 lbs min axial disengagement

**Contact Retention:** 2.0 lbs min axial force

**Cable Retention:**

	Axial Force* (lbs)	Torque (oz-in)
.047 flexible .....	3.5	N/A
RG-178.....	7.0	N/A
RG-316.....	20.0	N/A
RG-316 DS.....	25.0	N/A
RG-405.....	30.0	16

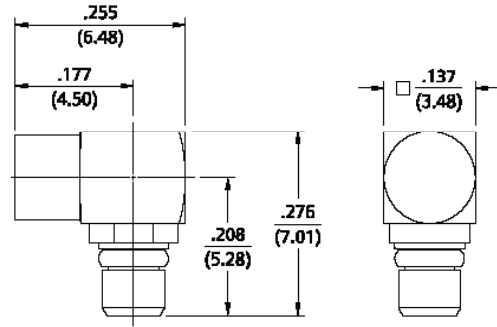
\*Or cable breaking strength whichever is less.

**Durability:** ..... 500 cycles min



# Semi-Rigid and Flexible Cable

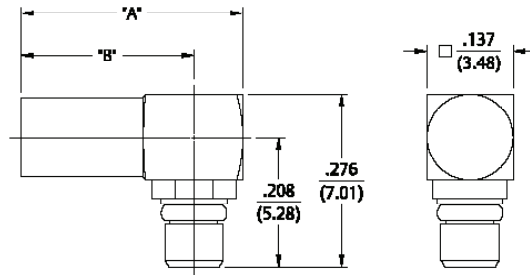
## Right Angle Solder Type Plug – Captivated Contact



Cable Type	Gold Plated
RG-405	135-3693-101

Assembly instructions page 198.

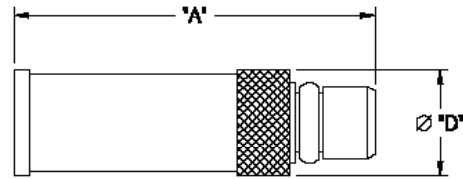
## Right Angle Crimp Type Plug – Captivated Contact



Cable Type	Gold Plated	"A"	"B"	Termination
.047" OD Flexible	135-3436-101	.354 (8.99)	.276 (7.01)	Crimp Insert
RG-178, 196	135-3402-101	.354 (8.99)	.276 (7.01)	Crimp Insert
RG-178, 196	135-3402-111	.412 (10.46)	.334 (8.48)	Crimp Sleeve
RG-316, 188, 161, 174, 179, 187	135-3403-101	.412 (10.46)	.334 (8.48)	Crimp Sleeve
RG-316 DS, 188 DS	135-3404-101	.412 (10.46)	.334 (8.48)	Crimp Sleeve

Assembly instructions page 200 and 201.

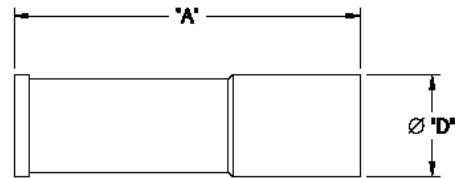
## Straight Crimp Type Plug – Solder or Crimp Captivated Contact



Cable Type	Gold Plated	"A"	"D"	Termination
.047" OD Flexible	135-3436-001	.462 (11.73)	.137 (3.48)	Crimp Insert
RG-178, 196	135-3402-001	.462 (11.73)	.137 (3.48)	Crimp Insert
RG-316, 188, 161, 174	135-3403-001	.509 (12.93)	.173 (4.39)	Crimp Sleeve
RG-316 DS, 188 DS	135-3404-001	.509 (12.93)	.173 (4.39)	Crimp Sleeve
RG-179, 187	135-3433-001	.509 (12.93)	.173 (4.39)	Crimp Sleeve

Assembly instructions page 202 and 203.

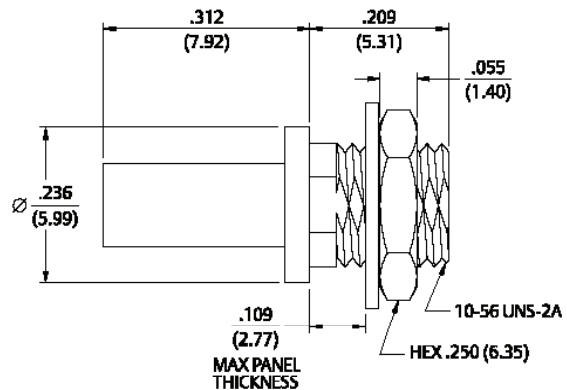
## Straight Crimp Type Jack – Solder or Crimp Captivated Contact



Cable Type	Part No.	"A"	"D"	Termination
.047" OD Flexible	135-3336-001	.462 (11.73)	.137 (3.48)	Crimp Insert
RG-178, 196	135-3302-001	.462 (11.73)	.137 (3.48)	Crimp Insert
RG-316, 188, 161, 174	135-3303-001	.545 (13.84)	.173 (4.39)	Crimp Sleeve
RG-316 DS, 188 DS	135-3304-001	.545 (13.84)	.173 (4.39)	Crimp Sleeve
RG-179, 187	135-3333-001	.545 (13.84))	.173 (4.39)	Crimp Sleeve

Assembly instructions page 204 and 205.

## Straight Crimp Type Bulkhead Jack – Solder or Crimp Captivated Contact



Cable Type	Gold Plated	Termination
.047" OD Flexible	135-3336-401	Crimp Insert
RG-178, 196	135-3302-401	Crimp Insert

Assembly instructions page 205.

Mounting Hole layout figure 5 page 194.

For more information, please contact customer service at (507) 833-8822 or (800) 247-8256 • cinch.com

Illustrations are shown in inches (millimeters).



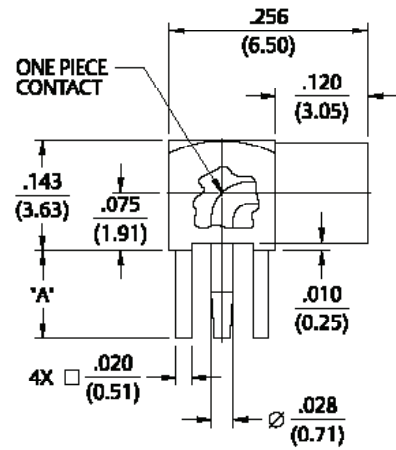
# PC Mount

## Right Angle Jack Receptacle



Gold Plated	"A"
135-3701-301	.115 (2.92)
135-3701-311	.068 (1.73)

Mounting Hole layout figure 12 page 194.

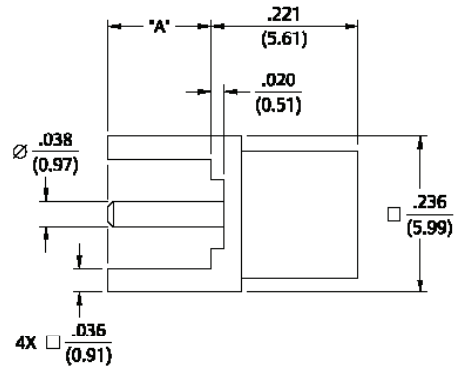


## Straight Jack Receptacle



Gold Plated	"A"
135-3701-201	.115 (2.92)
135-3701-211	.068 (1.73)

Mounting Hole layout figure 12 page 194.

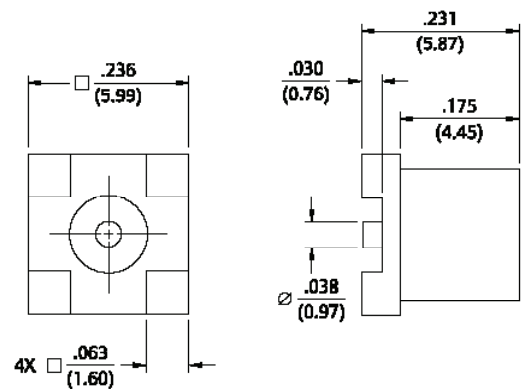


## Straight Surface Mount Jack Receptacle



Gold Plated	Packaging
135-3711-201	Stock
135-3711-202	Tape and Reel, 1500 pcs/reel

Recommended Land Pattern figure 15 page 195.  
Tape and Reel .315 (8.0) component pitch .630 (16.0) wide.

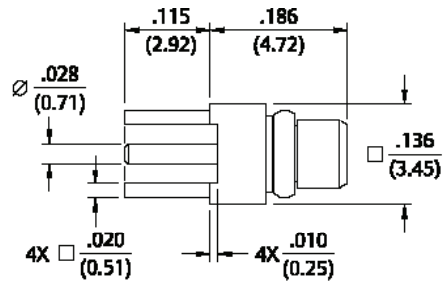


### Straight Plug Receptacle



Gold Plated
135-3801-201

Mounting Hole layout figure 12 page 194.

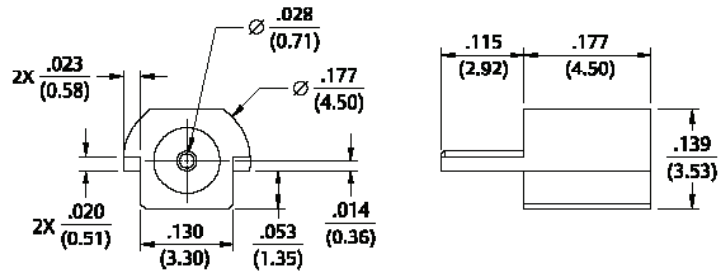


### End Launch Surface Mount Jack Receptacle



Gold Plated	Packaging
135-3711-801	Stock
135-3711-802	Tape and Reel, 1000 pcs/reel

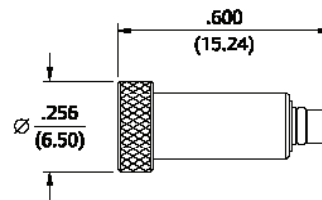
Recommended Land Pattern and Board Notch figure 14 page 195.  
Tape and Reel .316 (8.0) component pitch .630 (16.0) wide.



### Plug Dummy Load



Gold Plated	Resistance
135-3801-811	50 Ohms



For more information, please contact customer service at (507) 833-8822 or (800) 247-8256 • cinch.com  
Illustrations are shown in inches (millimeters).

# Non-Magnetic RF Connectors

## Non-Magnetic Connectors

Our line of non-magnetic connectors is one of many successful examples of how Johnson® commercializes the high-end, custom application into the cost-sensitive solution that maintains the original Mil-Spec performance. As MRI and other magnetically sensitive technologies grow and evolve so to must the Johnson connector portfolio. Stronger magnetic fields, demands for better signal-to-noise ratios, custom-sized and modular flex coils for increasingly smaller machines: the RF connectors within the equipment have to bear an increasingly tricky role of delivering higher through-put while creating less interference.

With SMA, SMB, MCX, MMCX and soon SMP interfaces made available in a variety of PC and Cable-Mount designs, we can deliver the imaging performance your customers count on.

- The materials and finishes of our connectors meet the stringent limits of image and magnetic field distortion in an MR environment.
- The connector electrical performance exceeds the frequency requirements of the Receive/Transmit RF Coils in MR equipment (typically DC-6 GHz).
- The copper alloys of the body, springs and contact parts are designed to provide uniformity and maintain low permeability and magnetic susceptibility.
- Gold finishes are altered to eliminate magnetic barrier layers and provide excellent corrosion resistance and wear characteristics.
- Plugs maintain their electrical and mechanical performances in the environments of high-vibration common with MRI machines.
- A robust connector assembly design allows for a high count of mating cycles.
- As a helpful visual cue the connectors are marked "NM".



**Cinch Connectivity Solutions Non-Magnetic design capabilities expand beyond the parts and interfaces listed in this catalog. Please contact technical support to discuss the options for manufacturing your customized interconnects.**

## Electrical Specifications

**Impedance:** 50 Ohms

**Frequency Range:** ..... 0-6 GHz

<b>VSWR (max):</b> (max) (f = GHz)	<u>Straight</u>	<u>Right Angle</u>
	<u>Cabled Connectors</u>	<u>Cabled Connectors</u>
.047 dia.....	1.20	1.14 + .07f
RG-178, RG-316, RG-316 DS .....	1.20	1.25

**Working Voltage:**

Connectors ..... 170 VRMS at sea level†

**Dielectric Withstanding Voltage:**

Connectors ..... 500 VRMS at sea level†

**Insulation Resistance:** 1000 megohms min

<b>Contact Resistance:</b> (milliohms max)	<u>Initial</u>	<u>After Environmental</u>
Center contact (straight cabled connectors and uncabled receptacles) .....	5.0	8.0
Center contact (right angle cabled connectors) .....	5.0	15.0
Outer contact (all connectors) .....	1.0	1.5
Braid to body .....	1.5	N/A

**Corona Level:**

Connectors ..... 190 volts min at 70,000 feet†

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

Straight cabled connectors.....	0.1
Right angle cabled connectors.....	0.2
Uncabled receptacles.....	N/A

**RF Leakage:** (dB min, tested at 2.5 GHz)

Flexible cable..... -60 dB

**RF High Potential Withstanding Voltage:** 400 VRMS min (tested at 4 and 7 MHz)†

## Mechanical Specifications

**Engagement Design:** Series MMCX

**Engagement/Disengagement Force:** 8 lbs max axial engagement  
1.4 lbs min axial disengagement

**Contact Retention:** 2.0 lbs min axial force

<b>Cable Retention:</b>	<u>Axial Force* (lbs)</u>	<u>Torque (oz-in)</u>
.047 flexible .....	3.5	N/A
RG-178 .....	7.0	N/A
RG-316 .....	20.0	N/A
RG-316 DS .....	25.0	N/A
RG-405 .....	30.0	16

\*Or cable breaking strength whichever is less.

**Durability:** ..... 500 cycles min

## Environmental Specifications

(Meets or Exceeds the Applicable Paragraph of MIL-PRF-39012)

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

**Thermal Shock:** MIL-STD-202, Method 107, Condition C (except -55° C to +155° C)

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

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

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

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

## Material Specifications

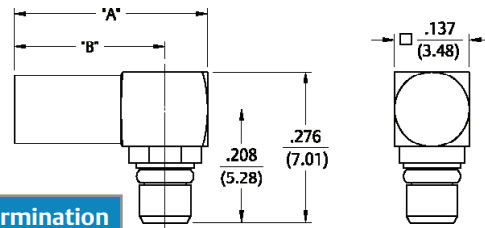
(See non-magnetic materials page 10)

For more information, please contact customer service at (507) 833-8822 or (800) 247-8256 • cinch.com

Illustrations are shown in inches (millimeters).

# Flexible Cable and PC Mount

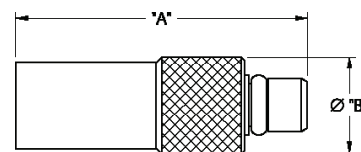
## Right Angle Crimp Type Plug – Captivated Contact



Cable Type	Gold Plated	"A"	"B"	Termination
RG-316, 188, 187, 179, 161, 174	135-9403-101	.412 (10.46)	.334 (8.48)	Crimp Sleeve
RG-178, 196	135-9402-111	.412 (10.46)	.334 (8.48)	Crimp Sleeve
.047 OD Flexible	135-9436-101	.354 (8.99)	.276 (6.98)	Crimp Insert

Assembly instructions page 199 and 200.

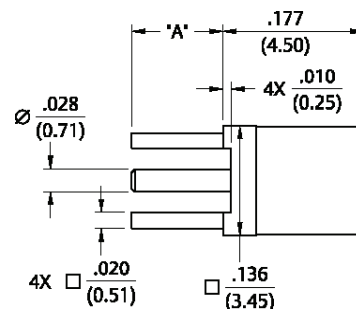
## Straight Crimp Type Plug – Solder or Crimp Contact – Captivated Contact



Cable Type	Gold Plated	"A"	"B"	Termination
RG-316, 188, 161, 174	135-9403-001	.509 (12.93)	.173 (4.39)	Crimp Sleeve
RG-178, 196	135-9402-001	.462 (11.73)	.137 (3.48)	Crimp Insert
.047 OD Flexible	135-9436-001	.462 (11.73)	.137 (7.01)	Crimp Insert

Assembly instructions page 204 and 205.

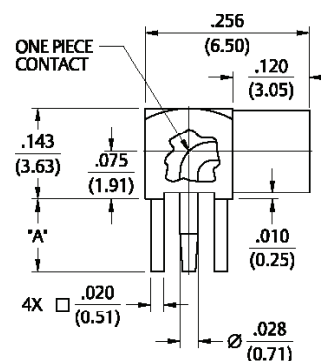
## Straight Jack Receptacle



Gold Plated	"A"
135-9701-201	.115 (2.92)
135-9701-211	.068 (1.73)

Mounting hole layout figure 12 on page 195.

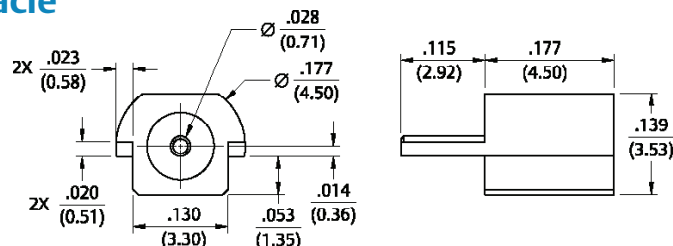
## Right Angle Jack Receptacle



Gold Plated	"A"
135-9701-301	.155 (3.94)
135-9701-311	.068 (1.73)

Mounting hole layout figure 12 on page 195.

## End Launch Surface Mount Jack Receptacle



Gold Plated	Packaging
135-9711-801	Stock
135-9711-802	Tape and Reel 1000 pcs/reel

Recommended land pattern figure 14 on page 195.  
Tape and Reel .316 (8.0) component pitch .630 (16.0) wide.

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# Specifications

## Electrical Specifications

**Impedance:** 50 Ohms

**Frequency Range:**

Connectors .....	0-6 GHz
Dummy loads .....	0-1 GHz

**VSWR:** (max) (f = GHz)

	Straight Cabled Connectors	Right Angle Cabled Connectors
RG-178 .....	1.17 + .04f	1.07 + .06f
RG-316 and RG-405 .....	1.13 + .04f	1.07 + .04f
Adapters .....		1.13 + .04f
Uncabled receptacles, Dummy loads .....		N/A

**Working Voltage:** (VRMS max)†

	Sea Level	70K Feet
RG-178 .....	250	65
RG-316, RG-405, uncabled receptacles, adapters .....	335	85
Dummy loads .....		N/A

**Dielectric Withstanding Voltage:** (VRMS min at sea level)†

RG-178 .....	750
RG-316, RG-405, uncabled receptacles, adapters .....	1000
Dummy loads .....	N/A

**Insulation Resistance:** 1,000 megohms min

**Contact Resistance:** (milliohms max)

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

**Corona Level:** (Volts min at 70,000 feet)

RG-178 .....	190
RG-316, RG-405 uncabled receptacles, adapters .....	250
Dummy loads .....	N/A

**Insertion Loss:** (dB max tested at 1 GHz)

Straight cabled connectors, adapters .....	0.1 dB
Right angle cabled connectors .....	0.2 dB
Uncabled receptacles, dummy loads .....	N/A

**RF Leakage:** (dB min, tested at 2.5 GHz)

Cable connectors .....	-55 dB
Uncabled receptacles and adapters, dummy load .....	N/A

**RF High Potential Withstanding Voltage:** (VRMS min, tested at 4 and 7 MHz)†

RG-178 .....	500
RG-316 and adapters .....	700
RG-405 .....	670
Uncabled receptacles .....	600
Dummy loads .....	N/A

**Power Rating (Dummy Load):** 0.5 watt @ +25°C, derated to 0.25 watt @ +125°C

† Avoid user injury due to misapplication. See safety advisory definitions inside front cover.

## Mechanical Specifications

**Engagement Design:** Compatible with CECC 22220, Series MCX

**Engagement Force:** 5.6 lbs max axial force

**Disengagement Force:** 8 lbs max axial force, 1 lb min

**Contact Retention:** 2.3lbs min axial force (captivated contacts) 1 oz-in min torque (uncabled receptacles)

	Axial Force* (lbs)	Torque (oz-in)
RG-178 .....	10.0	N/A
RG-316 .....	20.0	N/A
RG-316 DS .....	25.0	N/A
RG-405 .....	30.0	16

\*Or cable breaking strength whichever is less.

**Durability:** .....500 cycles min

## Environmental Specifications

(Meets or Exceeds the Applicable Paragraph of MIL-PRF-39012)

### Temperature Range:

Connectors..... - 65°C to + 165°C  
 Dummy loads ..... - 65°C to + 125°C

**Thermal Shock:** MIL-STD-202, Method 107, Condition F (N/A dummy loads)

**Corrosion:** MIL-STD-202, Method 101, Condition B (N/A dummy loads)

**Shock:** MIL-STD-202, Method 213, Condition B (N/A dummy loads)

**Vibration:** MIL-STD-202, Method 204, Condition B (N/A dummy loads)

**Moisture Resistance:** MIL-STD-202, Method 106 (N/A dummy loads)

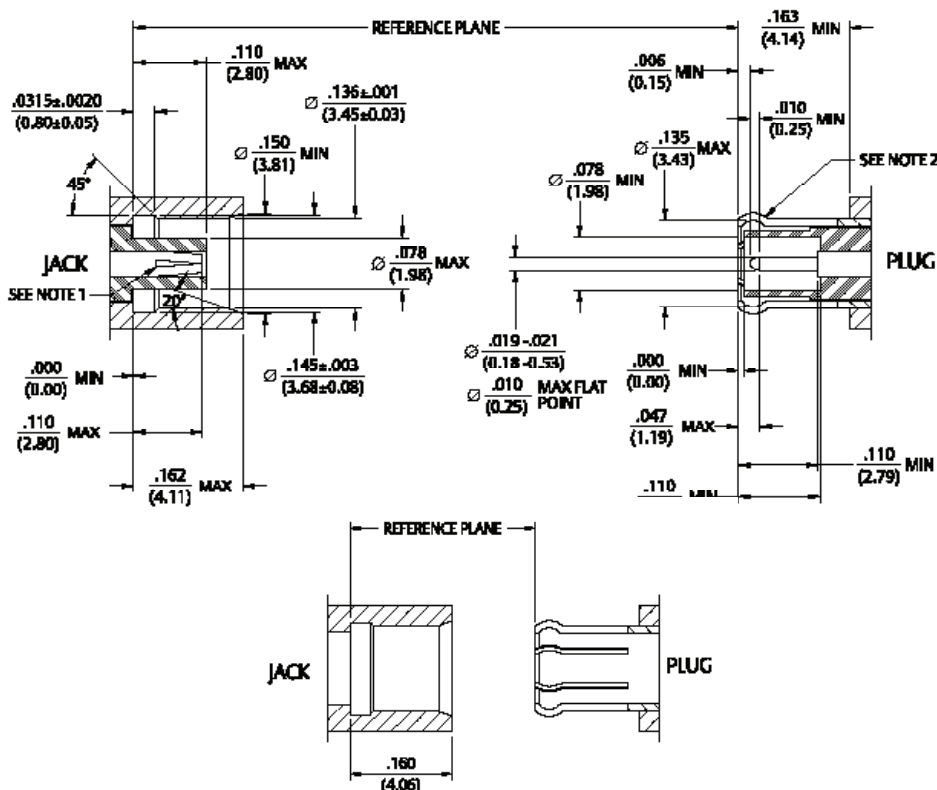
## Material Specifications

- Bodies:** Brass per ASTM B16, gold plated\*\* per MIL-DTL-45204 .00001" min or nickel plated per AMS-QQ-N-290
- Contacts:** Male - brass per ASTM B16, gold plated per MIL-DTL-45204 .00003" min  
 Female - beryllium copper per ASTM B196, gold plated per MIL-DTL-45204 .00003" min
- Insulators:** PTFE fluorocarbon per ASTM D 1710 and ASTM D 1457
- Expansion Caps:** Brass per ASTM B16, gold plated per MIL-DTL-45204 .00001" min or nickel plated per AMS-QQ-N-290
- Crimp Sleeves:** Copper per ASTM B301, gold plated per MIL-DTL-45204 .00001" min or nickel plated per AMS-QQ-N-290
- Mounting Hardware:** Brass (nuts) per ASTM B16 or phosphor bronze (lockwashers) per ASTM B139, gold plated per MIL-DTL-45204 .00001" min or nickel plated per AMS-QQ-N-290

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

## Mating Engagement for MCX Series Compatible with CECC 22220

1. ID of contact to meet VSWR mating characteristics and connector durability when mated with a dia. .019-.021 (0.48-0.53) male contact.
2. Must meet the force to engage and disengage when mated with mating part.



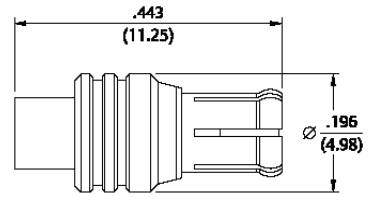
For more information, please contact customer service at (507) 833-8822 or (800) 247-8256 • cinch.com

Illustrations are shown in inches (millimeters).



# Semi-Rigid Cable & Flexible Cable

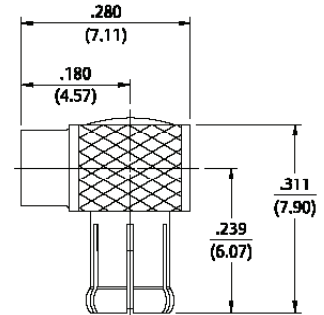
## Straight Solder Type Plug



Cable Type	Gold Plated	Nickel Plated
RG-405	133-3693-001	133-3693-006

Assembly instructions page 206.

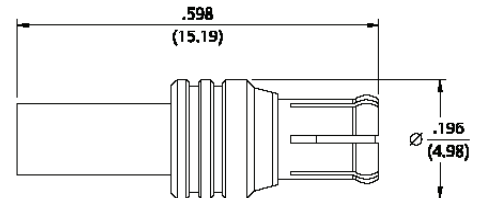
## Right Angle Solder Type Plug – Captivated Contact



Cable Type	Gold Plated	Nickel Plated
RG-405	133-3693-101	133-3693-106

Assembly instructions page 206.

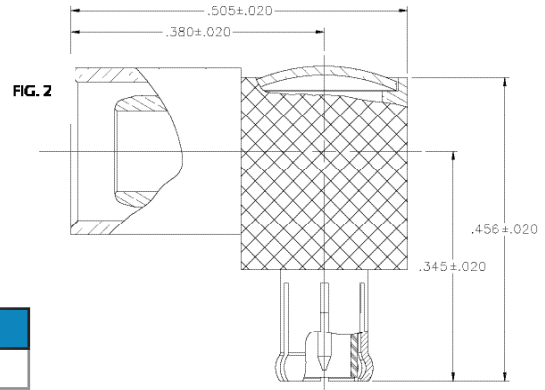
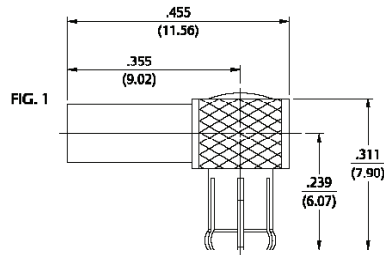
## Straight Crimp Type Plug – Solder or Crimp Contact



Cable Type	Gold Plated	Nickel Plated	Captivated Contact
RG-178, 196	133-3402-001	133-3402-006	No
RG-316, 188, 161, 174	133-3403-001	133-3403-006	Yes
RG-316 DS, 188DS	133-3404-001	133-3404-006	Yes
RG-179, 187	133-3433-001	133-3433-006	Yes

Assembly instructions page 207.

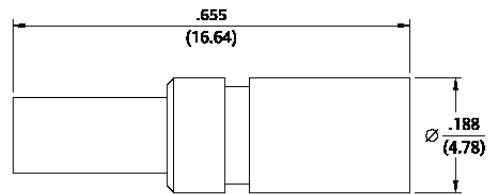
## Right Angle Crimp Type Plug – Captivated Contact



Cable Type	Gold Plated	Nickel Plated	Fig.
RG-178, 196	133-3402-101	133-3402-106	1
RG-316, 188, 161, 174	133-3403-101	133-3403-106	1
RG-316 DS, 188 DS	133-3404-101	133-3404-106	1
RG-58, 303, 141	133-3407-101	133-3407-106	2
RG-179, 187	133-3433-101	133-3433-106	1

Assembly instructions page 210.

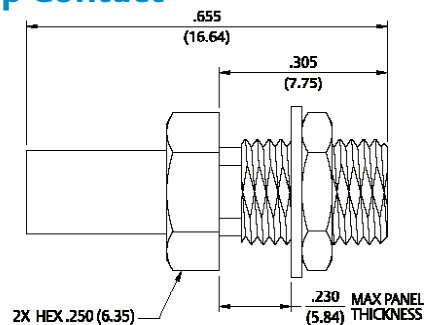
## Straight Crimp Type Jack – Solder or Crimp Contact



Cable Type	Gold Plated	Nickel Plated	Captivated Contact
RG-178, 196	133-3302-001	133-3302-006	No
RG-316, 188, 161, 174, 179, 187	133-3303-001	133-3303-006	Yes
RG-316 DS, 188 DS	133-3304-001	133-3304-006	Yes

Assembly instructions page 207.

## Straight Crimp Type Bulkhead Jack – Solder or Crimp Contact



Cable Type	Gold Plated	Nickel Plated	Captivated Contact
RG-178, 196	133-3302-401	133-3302-406	No
RG-316, 188, 161, 174, 179, 187	133-3303-401	133-3303-406	Yes
RG-316 DS, 188 DS	133-3304-401	133-3304-406	Yes

Assembly instructions page 207. Mounting hole layout figure 5 page 194.

For more information, please contact customer service at (507) 833-8822 or (800) 247-8256 • cinch.com

Illustrations are shown in inches (millimeters).

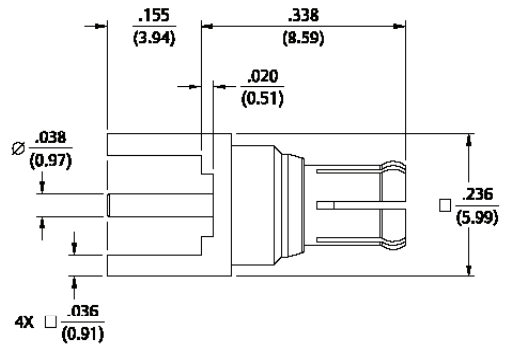
# PC Mount

## Straight Plug Receptacle



Gold Plated	Nickel Plated
133-3801-201	133-3801-206

Mounting hole layout figure 4 page 194.

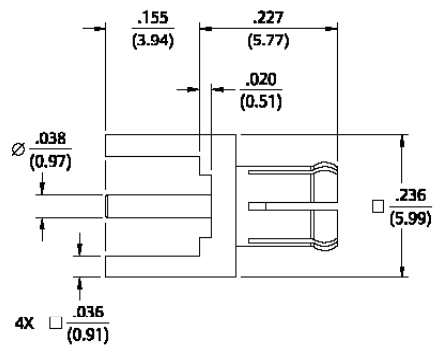


## Straight Plug Receptacle – Low Profile



Gold Plated	Nickel Plated
133-3801-211	133-3801-216

Mounting hole layout figure 4 page 194.



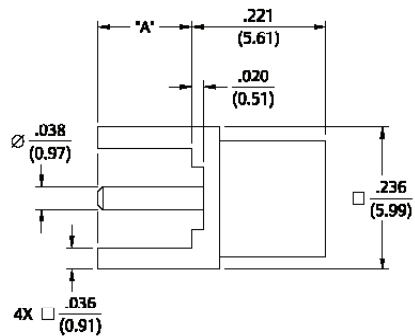
## Straight Jack Receptacle



Gold Plated	Nickel Plated	"A"
133-3701-201	133-3701-206	.155 (3.94)
133-3701-211	133-3701-216	.110 (2.79)
133-3701-221	133-3701-226	.068 (1.73)

Mounting hole layout figure 4 page 194.

Four and six connector ganged receptacles available. See page 190.

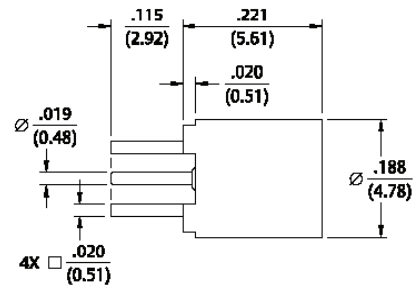


### Straight Jack Receptacle – .100” Layout



Gold Plated	Nickel Plated
133-3701-231	133-3701-236

Mounting hole layout figure 12 page 194.

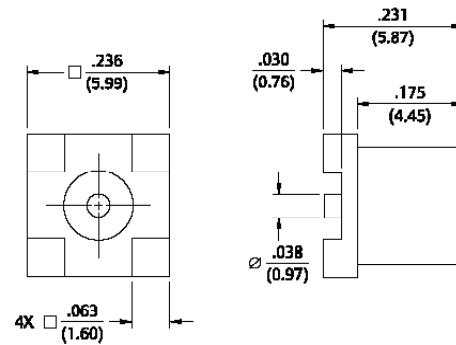


### Straight Surface Mount Jack Receptacle



Gold Plated	Packaging
133-3711-201	Stock
133-3711-202	Tape and Reel 750 pcs/reel

Recommended land pattern figure 13 on page 195.  
Tape and Reel .315 (8.0) component pitch .630 (16.0) wide.

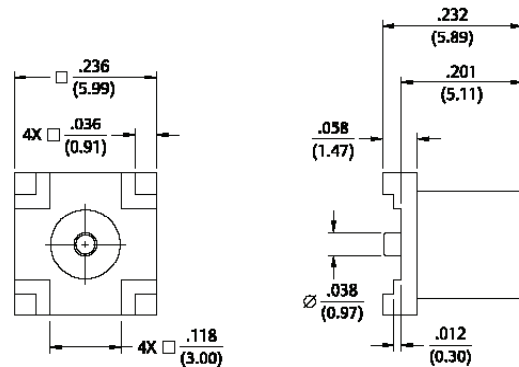


### Straight Surface Mount Jack Receptacle



Gold Plated	Packaging
133-3711-211	Stock
133-3711-212	Tape and Reel 750 pcs/reel

Recommended land pattern figure 13 on page 195.  
Tape and Reel .472 (12.0) component pitch .630 (16.0) wide.



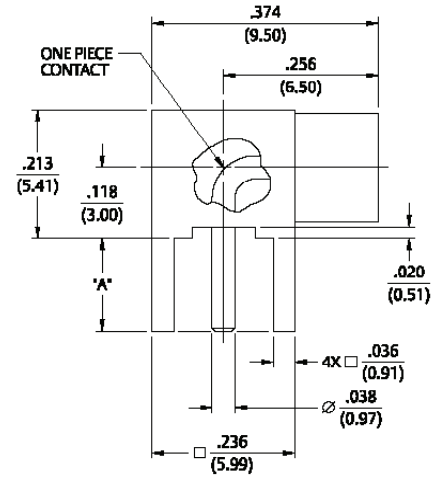
# PC Mount

## Right Angle Jack Receptacle



Gold Plated	Nickel Plated	"A"
133-3701-301	133-3701-306	.155 (3.94)
133-3701-311	133-3701-316	.110 (2.79)
133-3701-321	133-3701-326	.068 (1.73)

Mounting hole layout figure 4 page 194.

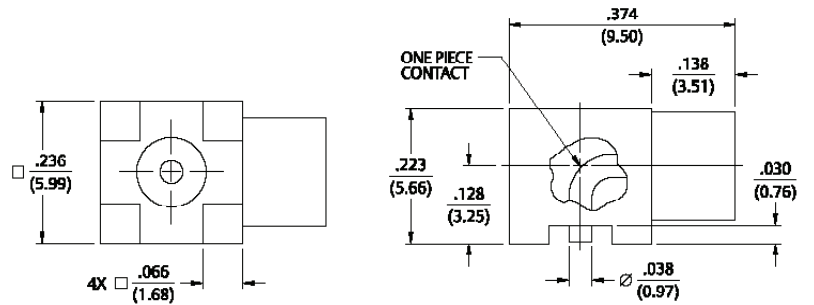


## Right Angle Surface Mount Jack Receptacle



Gold Plated	Packaging
133-3711-301	Stock
133-3711-302	Tape and Reel 750 pcs/reel

Recommended land pattern figure 13 on page 195.  
Tape and Reel .472 (12.0) component pitch .945 (24.0) wide.

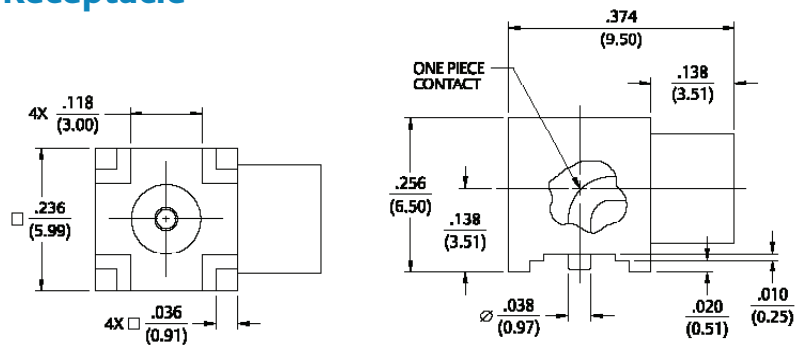


## Right Angle Surface Mount Jack Receptacle

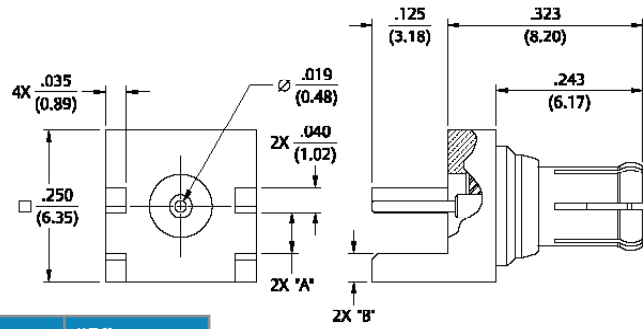


Gold Plated	Packaging
133-3711-311	Stock
133-3711-312	Tape and Reel 750 pcs/reel

Recommended land pattern figure 4 on page 194.  
Tape and Reel .472 (12.0) component pitch .945 (24.0) wide.

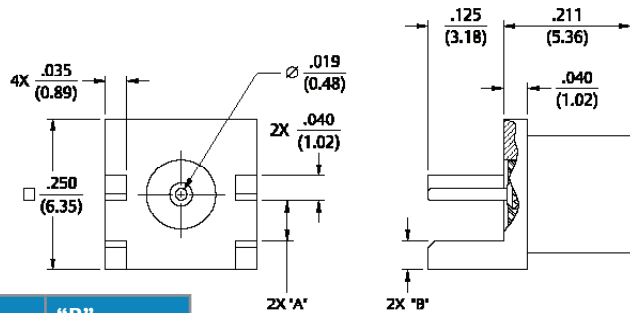


### End Launch Plug Receptacle



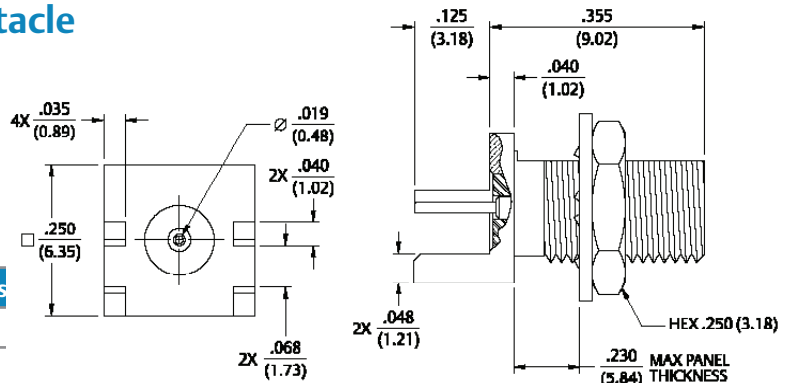
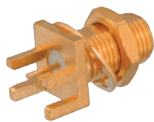
Gold Plated	Nickel Plated	Board Thickness	"A"	"B"
133-3801-841	133-3801-846	.062 (1.57)	.068 (1.73)	.048 (1.22)
133-3801-851	133-3801-856	.042 (1.07)	.048 (1.22)	.068 (1.73)

### End Launch Jack Receptacle



Gold Plated	Nickel Plated	Board Thickness	"A"	"B"
133-3701-801	133-3701-806	.062 (1.57)	.068 (1.73)	.048 (1.22)
133-3701-811	133-3701-816	.042 (1.07)	.048 (1.22)	.068 (1.73)

### End Launch Bulkhead Jack Receptacle



Gold Plated	Nickel Plated	Board Thickness
133-3701-821	133-3701-826	.062 (1.57)

For more information, please contact customer service at (507) 833-8822 or (800) 247-8256 • cinch.com

Illustrations are shown in inches (millimeters).

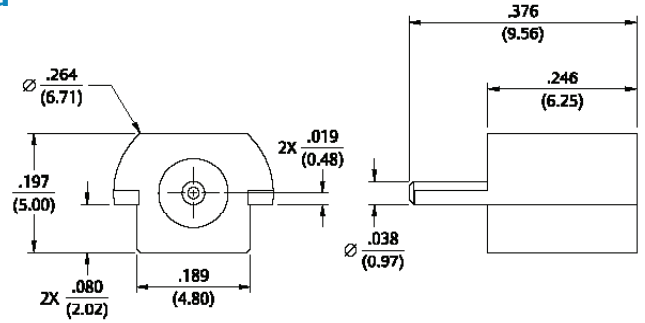
# PC Mount, Bulkhead Mount & Panel Mount

## End Launch Surface Mount Jack Receptacle



Gold Plated	Packaging
133-3711-801	Stock
133-3711-802	Tape and Reel 1000 pcs/reel

Recommended land pattern figure 21 page 195.  
Tape and Reel .472 (12.0) component pitch .945 (24.0) wide

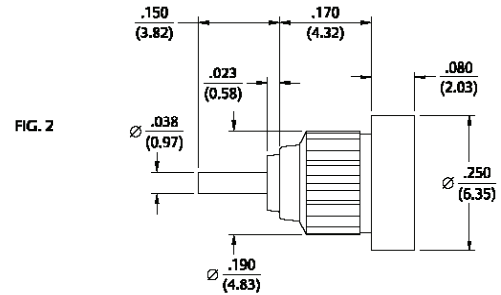
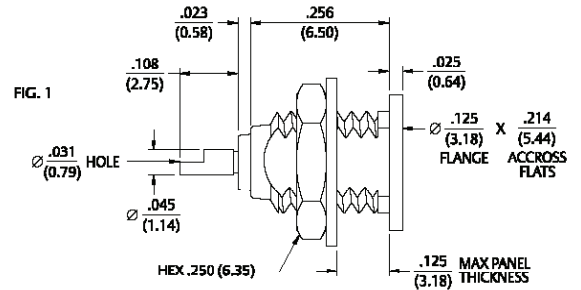


## Front Mount Bulkhead Jack Receptacle



Gold Plated	Nickel Plated	Mounting Style	Fig
133-3701-401	133-3701-406	D Flat Threaded	1
133-3701-411	133-3701-416	Press Fit Knurl	2

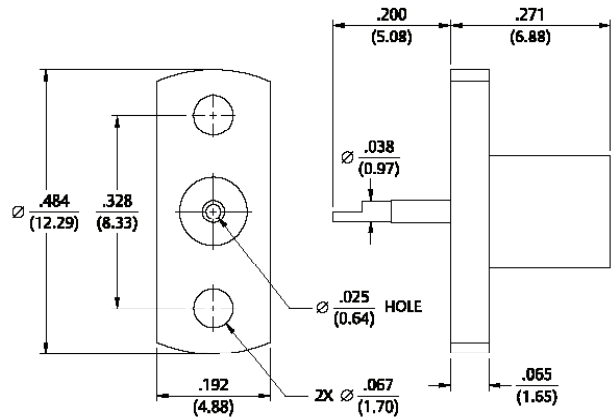
Mounting hole layout for 133-3701-401 figure 5 page 194.  
Mounting hole layout for 133-3701-406 figure 5 page 194.  
Mounting hole layout for 133-3701-411 figure 10 page 194.  
Mounting hole layout for 133-3701-416 figure 10 page 194.



## 2-Hole Flange Mount Jack Receptacle – Flush Dielectric



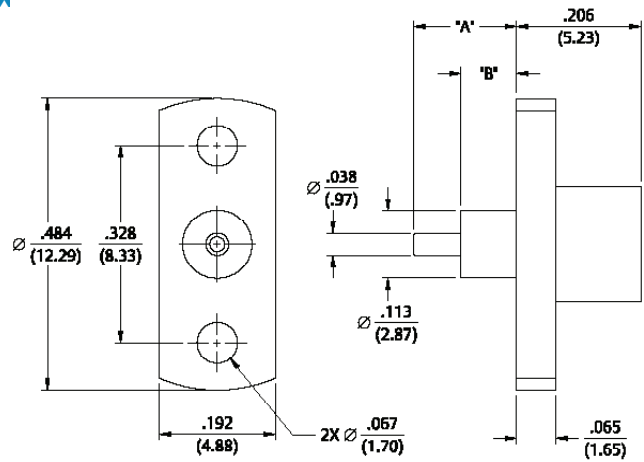
Gold Plated	Nickel Plated
133-3701-601	133-3701-606



## 2-Hole Flange Mount Jack Receptacle – Extended Dielectric



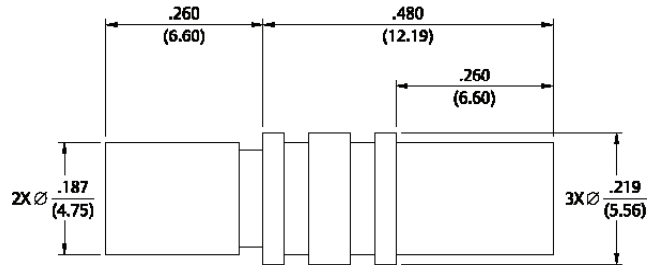
Gold Plated	Nickel Plated	"A"	"B"
133-3701-611	133-3701-616	.170 (4.32)	.092 (2.34)
133-3701-621	133-3701-626	.300 (7.62)	.200 (5.08)



## Jack to Jack Adapter



Gold Plated	Nickel Plated
133-3901-801	133-3901-806

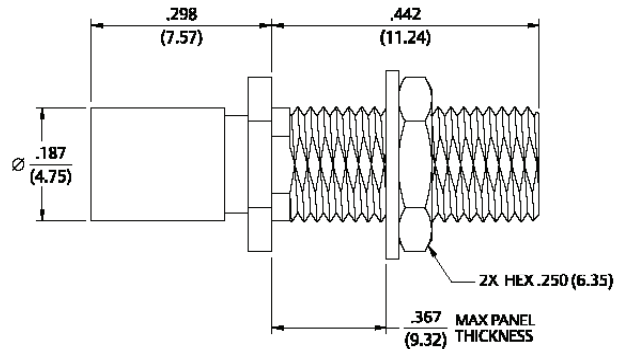


## Jack to Bulkhead Jack Adapter



Gold Plated	Nickel Plated
133-3901-401	133-3901-406

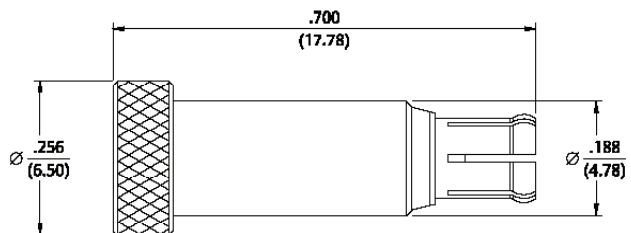
Mounting hole layout figure 5 page 194.



## Plug Dummy Load



Freq. Range	Gold Plated	Nickel Plated	Resistance
0-1 GHz	133-3801-801	133-3801-806	50 Ohm
0-1 GHz	133-3801-821	133-3801-826	75 Ohm



For more information, please contact customer service at (507) 833-8822 or (800) 247-8256 • cinch.com

Illustrations are shown in inches (millimeters).



# Specifications

## Electrical Specifications

**Impedance:** 50 Ohms

**Frequency Range:** ..... 0-6 GHz

<b>VSWR (max):</b> (f = GHz)	Straight Cabled Connectors	Right Angle Cabled Connectors
RG-178 .....	1.17 + .04f	1.07 + .06f
RG-316 .....	1.13 + .04f	1.07 + .04f
Uncabled receptacles .....		N/A

<b>Working Voltage:</b> (VRMS max)†	Sea Level	70K Feet
RG-178 .....	.250	65
RG-316 .....	.335	85

<b>Dielectric Withstanding Voltage:</b> (VRMS min at sea level)†	
RG-178 .....	750
RG-316, uncabled receptacles .....	1000

<b>Corona Level:</b> (Volts min at 70,000 feet)	
RG-178 .....	190
RG-316, uncabled receptacles .....	250

<b>Insertion Loss:</b> (dB max tested at 1 GHz)	
Straight cabled connectors .....	0.1 dB
Right angle cabled connectors .....	0.2 dB
Uncabled receptacles .....	N/A

**Insulation Resistance:** 1000 megohms min

<b>Contact Resistance:</b> (milliohms max)	Initial	After Environmental
Center contact (straight cabled connectors and uncabled receptacles) .....	5.0	8.0
Center contact (right angle cabled connectors) .....	5.0	15.0
Outer contact (all connectors) .....	1.0	1.5
Braid to body (gold plated connectors) .....	1.0	N/A
Braid to body (nickel plated connectors) .....	2.5	N/A

<b>RF Leakage:</b> (dB min, tested at 2.5 GHz)	
Cable connectors .....	-55 dB
Uncabled receptacles .....	N/A

<b>RF High Potential Withstanding Voltage:</b> (VRMS min tested at 4 and 7 MHz) †	
RG-178 .....	500
RG-316 .....	700
Uncabled receptacles .....	600

† Avoid user injury due to misapplication. See safety advisory definitions.

## Mechanical Specifications

**Engagement Force:** 5.6 lbs max axial force

**Disengagement Force:** 8 lbs max axial force, 1 lbs min.

**Contact Retention:** 2.3 lbs min axial force (captivated contacts) 1 oz-in min torque (uncabled receptacles)

<b>Cable Retention:</b>	Axial Force* (lbs)	Torque (oz-in)
RG-178 .....	10.0	N/A
RG-316 .....	20.0	N/A
RG-316 DS .....	25.0	N/A

\*Or cable breaking strength whichever is less.

**Durability:** ..... 500 cycles min

## Environmental Specifications

(Meets or Exceeds the Applicable Paragraph of MIL-PRF-39012)

**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

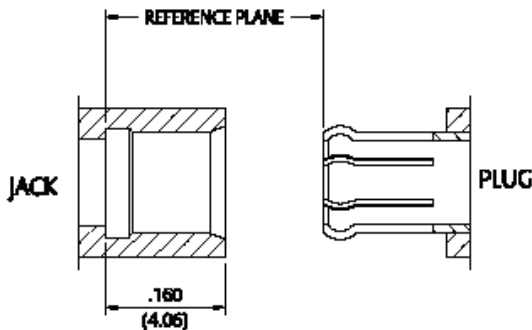
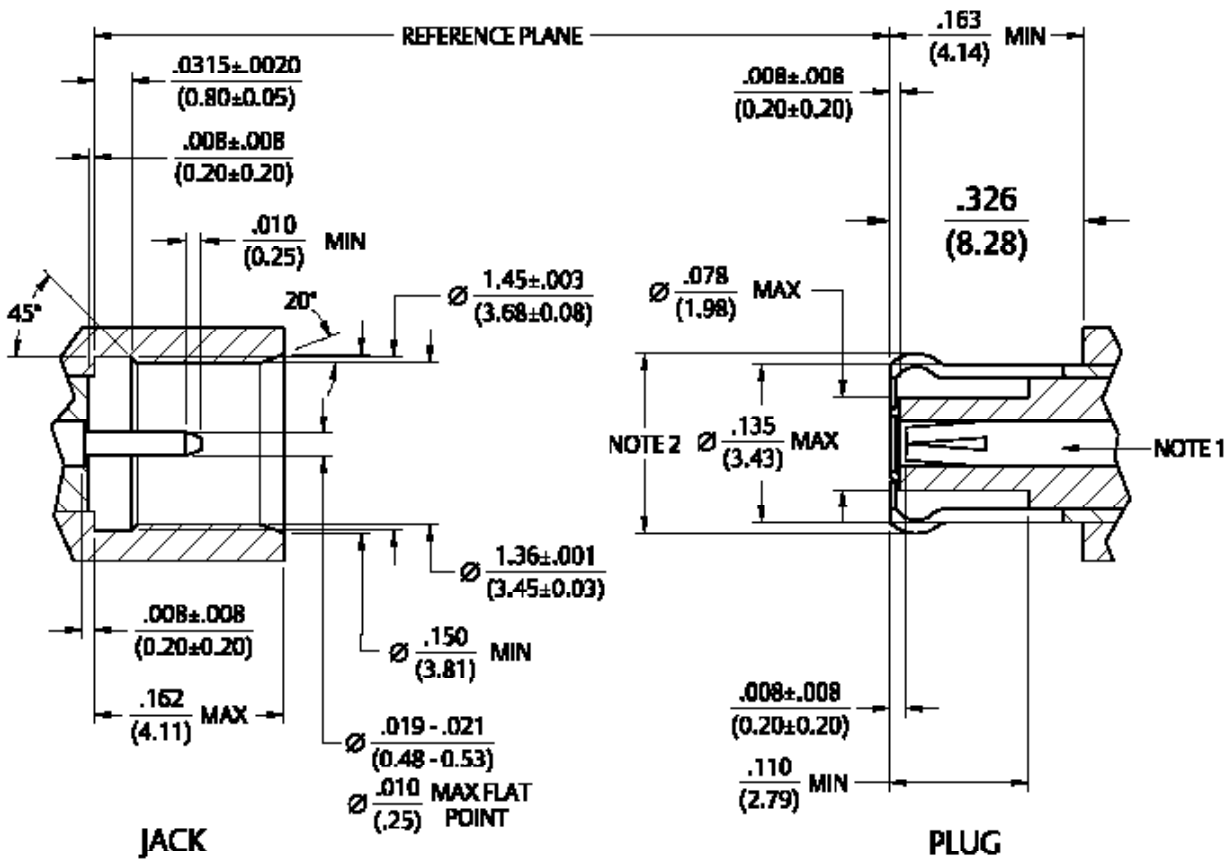
**Vibration:** MIL-STD-202, Method 204, Condition B

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

## Material Specifications

- Bodies:** Brass per ASTM B16 or zinc per ASTM B86-71, gold plated\*\* per MIL-DTL-45204 .00001" min or nickel plated per AMS-QQ-N-290
- Contacts:** Male - brass per ASTM B16, gold plated per MIL-DTL-45204 .00003" min  
Female - beryllium copper per ASTM B196, gold plated per MIL-DTL-45204 .00003" min
- Insulators:** PTFE fluorocarbon per ASTM D 1710 and ASTM D 1457
- Expansion Caps:** Brass per ASTM B16, gold plated per MIL-DTL-45204 .00001" min or nickel plated per AMS-QQ-N-290
- Crimp Sleeves:** Copper per ASTM B301, gold plated per MIL-DTL-45204 .00001" min or nickel plated per AMS-QQ-N-290
- Mounting Hardware:** Brass (nuts) per ASTM B16 or phosphor bronze (lockwashers) ASTM B139, gold plated per MIL-DTL-45204 .00001" min or nickel plated per AMS-QQ-N-290

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



Notes:

1. ID of contact to meet VSWR mating charac
2. Must meet the force to engage and disengage when mated with mating part.

For more information, please contact customer service at (507) 833-8822 or (800) 247-8256 • cinch.com  
Illustrations are shown in inches (millimeters).