SV MICROWAVE®

Blindmate Connectors & Components

BLINDMATE CONNECTORS AND COMPONENTS

SV Microwave, Inc. is a world leader in the RF/microwave industry. We design and manufacture coaxial connectors, cable assemblies, attenuators, terminations, and custom signal processing components. We control virtually all of our processes with in-house machining, fabrication, assembly and testing.

SV Microwave is committed to helping customers meet their RF and microwave performance goals. We have invested in a talented engineering staff supported by state-of-the-art design, high-frequency software for 3-dimensional RF simulations and network measurement test equipment, and can provide detailed design assistance for unique applications from DC through millimeter wave frequencies.

SV Microwave supplies products that are electrically and mechanically optimized. We meet cost requirements either by customizing connectors and components for new applications, by supplying products discontinued by other manufacturers or by manufacturing high-volume components.

SV Microwave is a global leader in the development and application of Blindmate connector technology and has been spearheading the use of these connectors in advanced packaging concepts for the defense and telecommunication industries. We are the only manufacturer to obtain DSCC M31031 QPL status.

Selection Guide

Specification	Blindmate Interface			
	BMA	**BMMA**	**BMZ**	**BZ**
Frequency	DC - 22 GHz*	DC - 28 GHz	DC - 18 GHz	DC - 2 GHz**
VSWR (f = Frequency GHz)	1.02 + .008f	1.05 + .01f	1.05 + .01f	1.02 + .05f
Insertion Loss (f = GHz)	$.03(f)^{1/2}$	$.04(f)^{1/2}$	$.06(f)^{1/2}$	$.15(f)^{1/2}$
RF Leakage Min.	–(90–fGHz) dB	–(90–fGHz) dB	–(80–fGHz) dB	–(80–fGHz) dB
RF High Potential @ 5 MHz	1,000 VRMS	675 VRMS	500 VRMS	1,500 VRMS
Radial Float inches (mm)	.020 (.51)	.020 (.51)	.020 (.51)	.020 (.51)
Axial Float inches (mm)	.060 (1.5)	.060 (1.5)	.060 (1.5)	.150 (3.8)
Connector Durability	5,000 Cycles	1,000 Cycles	500 Cycles	500 Cycles
Spring Load: Preload – Minimum Travel	.010 inch (.25 mm)	.010 inch (.25 mm)	.004 inch (.10 mm)	.010 inch (.25 mm)
Preload Force	3.7 lbs. (1.68 kg)	3.7 lbs. (1.68 kg)	1.28 lbs. min. (.5 kg min)	3 lbs. (1.36 kg)
Max. Travel Force	4.5 lbs. (2.04 kg)	4.5 lbs. (2.04 kg)	2.8 lbs. (1.27 kg)	.150 in. travel/ 5 lbs. (3.81 mm travel/ 2.27 kg))
Force to Engage	48 oz. Max. (1361 g)	48 oz. Max. (1361 g)	12 oz. Max. (340 g)	32 oz. Max. (907 g)
Force to Disengage	1.5 lbs. Max. (.675 kg)	1.5 lbs. Max. (.675 kg)	2 oz. Min. (57 g)	2 oz. Min. (57 g)

* 26.5 GHz available for semi-rigid cable and receptacles.
** 12.4 and 18 GHz units available.

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BLINDMATE CONNECTOR SYSTEM

Applied Technology

Blindmate connectors are often the solution when mating modular components in rack-and-panel, module-to-module or module-to-motherboard applications. Identifying the appropriate connector for the job is as crucial as pinpointing mounting features such as:

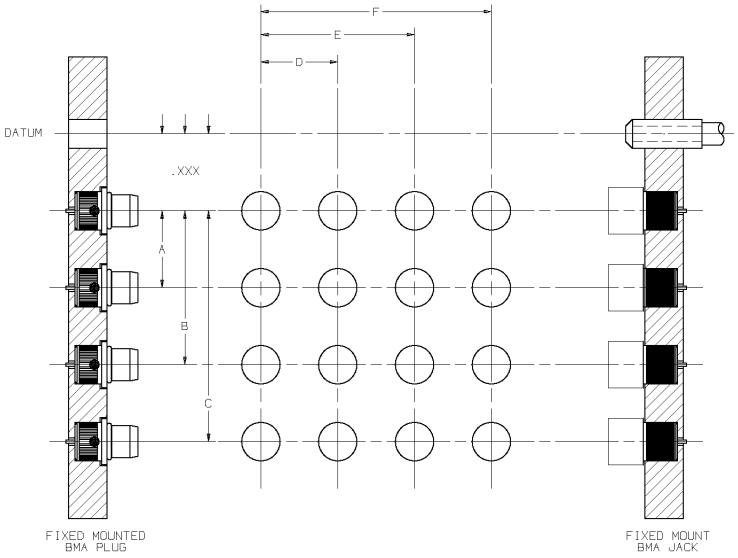
- Fixed and float tolerances, connector-to-connector
- Float mount spring loading and mating forces
- Density of connectors in multi-connector arrays
- Panel deflection

Blindmate connectors are ideally suited for OEMs who need modularity to integrate subsystems and components such as power amplifiers, transceivers and combiners into common racks in wireless/ broadcast and communications systems. Blindmate connectors are also commonly found in satellites, radar and sensor equipment, avionics, missile systems, military electronics, electronic countermeasure systems, navigation and air traffic control, as well automated test equipment.

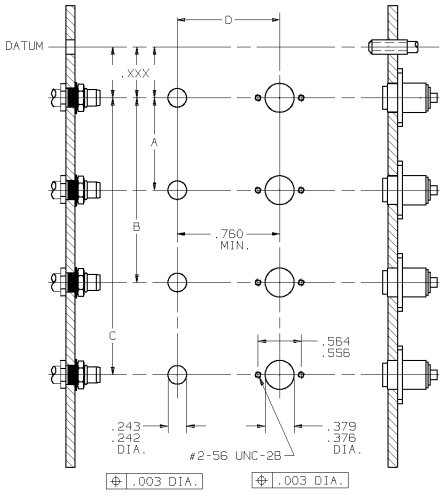
To adapt to this wide assortment of applications, SV Microwave blindmate connectors are configured in various ways:

- Fixed, floating, high-power and hermetic versions
- Flexible and semi-rigid cable connectors
- Low-profile styles
- Stripline and microstrip launchers
- Hermetic launchers
- Between-series adapters
- Terminations

Our blindmates also offer efficiencies in the areas of higher package densities, effective real estate and lower applied cost. They connect and disconnect quickly and offer slide-on mating without sacrificing superior microwave performance. Our unique spring-loading mechanism allows for both axial and radial misalignment.



Fixed-Mount Blindmate



Float-Mount Blindmate

Module-Module and Module-Motherboard Misalignment Tolerances: Fixed Mount

When using fixed mount blindmate connectors, axial and radial float tolerances of the interface accommodate misalignment.

Fixed mount blindmate connectors also tolerate a certain degree of radial misalignment without electrical or mechanical performance degradation.

Axial Misalignment

Interface	Maximum Separation	Design Limit
BMA	.030 in. (.76 mm)	.015 in. (.38 mm)
BMMA	.020 in. (.51 mm)	.010 in. (.25 mm)
BMZ	.020 in. (.51 mm)	.010 in. (.25 mm)
BZ	.030 in. (.76 mm)	.015 in. (.38 mm)

Radial Misalignment

Interface	True Position Mounting Hole Centerline Tolerance	Total Connector Misalignment*
BMA	.003 in. (.08 mm)	.008 in. (.20 mm)
BMMA	.002 in. (.05 mm)	.004 in. (.10 mm)
BMZ	.002 in. (.05 mm)	.004 in. (.10 mm)
BZ	.003 in. (.08 mm)	.008 in. (.20 mm)

*per mated pair, any direction

Rack-and-Panel and Module-Motherboard Misalignment Tolerances: Float Mount

Blindmate float mount jack connectors are ideal for applications, such as multiple mate rack-and-panel, requiring higher axial and radial misalignment tolerances. The external float device provides connection protection beyond the normal blindmate interface misalignment tolerance

Axial Misalignment

Assuming a 0.010-inch min. preload, the float mount design accommodates up to a .050-inch longitudinal misalignment (mounting surface to mounting surface). If semi-rigid cable is needed, a service loop should be used to fully enable the connector's float features.

Radial Misalignment

Our floating connectors accommodate ±.020 radial misalignment with a mounting hole centerline dimensioned from a predesignated datum of ⌖ .006 Dia.. The radial tolerance accommodates mating package misalignment and mounting hole tolerance.

Recommended Preload

Interface	Recommend Preload
BMA	.010 in (.25 mm)
BMMA	.010 in (.25 mm)
BMZ	.004 in (.10 mm)
BZ	.010 in (.25 mm)

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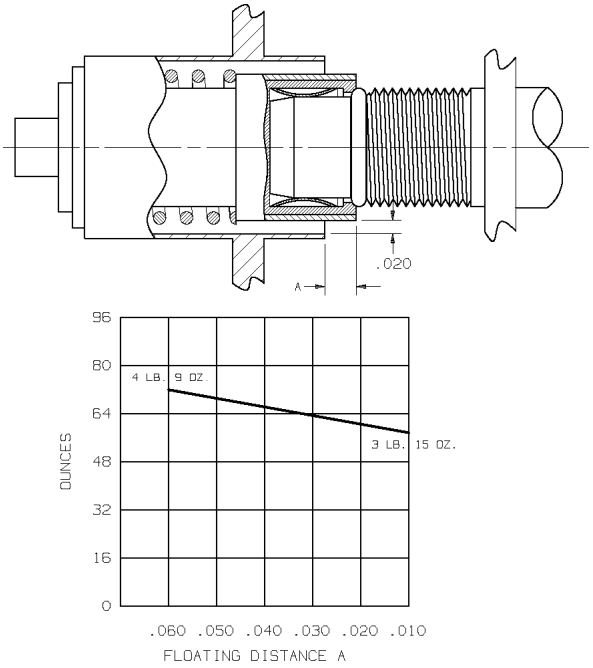
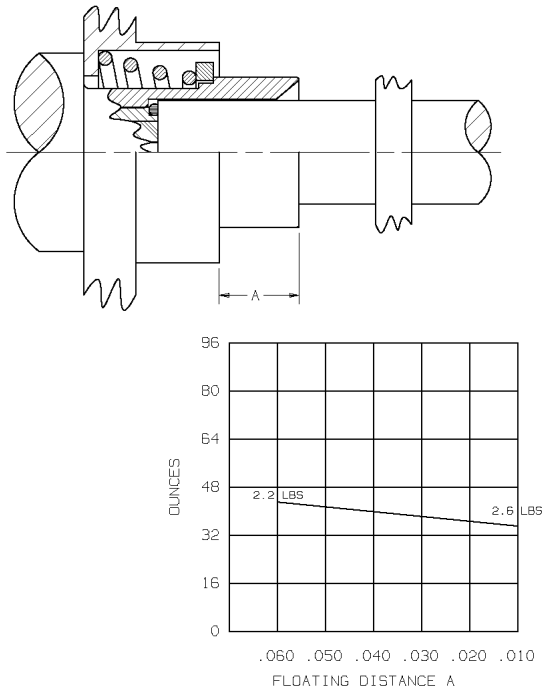
Spring Load Forces

A spring mechanism separates the blindmate connector interface from the flange housing. The floating action that results provides the misalignment tolerance and maintains a solid mating connection. Bear in mind that the spring forces are communicated to the mounting panel; in an extreme, mismate situation, the force of several connectors, without sufficient reinforcement, can cause panels to bow. Illustrated below are the forces commonly exerted upon a mated connector pair in an extreme scenario.

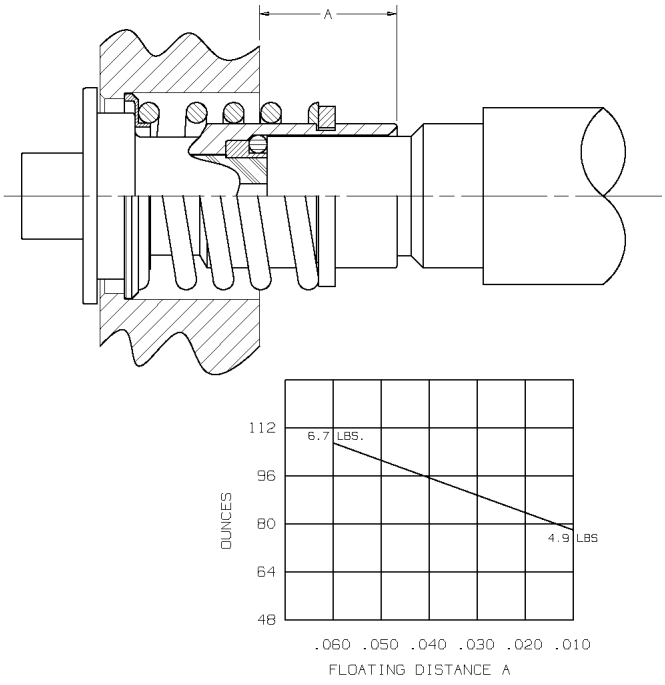
Note: Dimensions are in decimal inches.



BMA Spring Load Forces



BMZ Spring Load Forces



BZ Spring Load Forces

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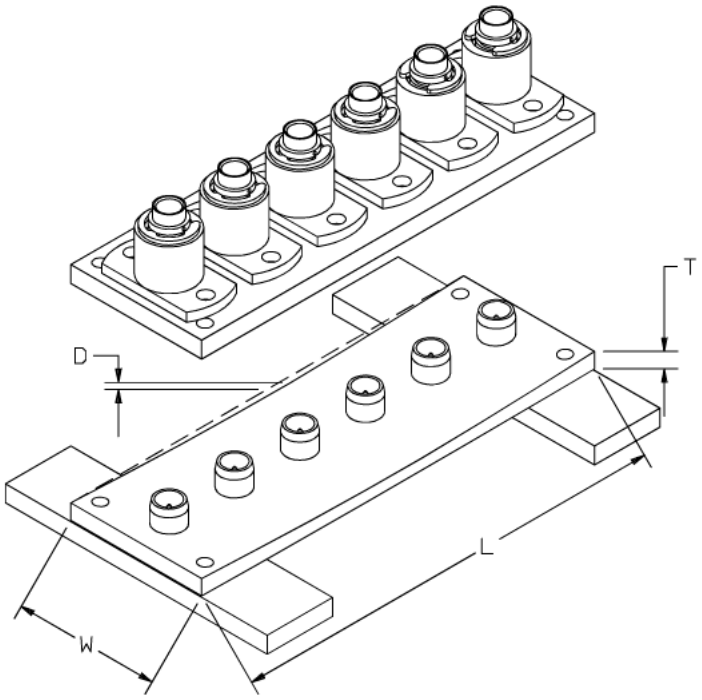
Deflection Calculation

Interface mating forces and, in the case of float mount connectors, spring preload forces must be considered when mounting several blindmate connectors on a panel. Taking these forces into account in the design stage will prevent distortion (deflection) of the panel and, through proper mating, insure optimum performance. One technique used to estimate the amount of potential distortion is to view the panel as a beam under deflection. These examples illustrate this technique using 6 BMA float mount connectors on an aluminum and a stainless steel panel.



Deflection: $D = \frac{FL^3}{384\ EI}$

Moment of a Beam: $I = \frac{WT^3}{12}$

Material: 6061T6 Aluminum
Modulus of Elasticity: $E = 10 \times 10^6$ PSI

Float Mount Connector Example:

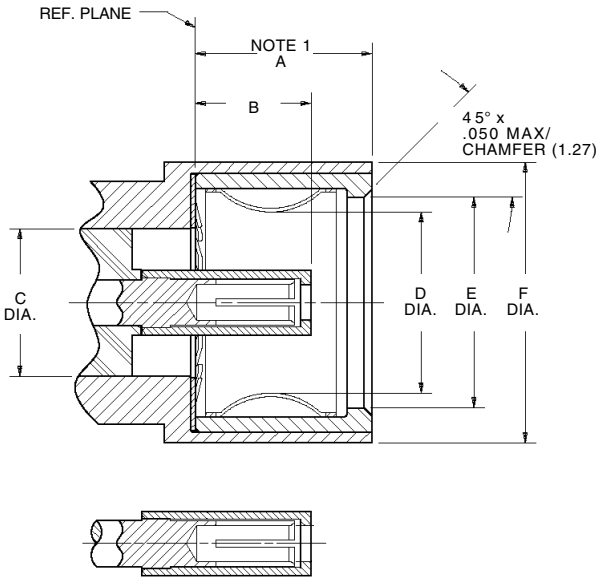
- 6 float mount BMAs with a maximum compression load of 4 lbs. 8 oz. each (F = 27 lbs.)
- Aluminum mounting plate 6061T6
  .090 inch thick (T) x .750 inch wide (W) x 2.00 inch long (L)

$I = 4.56 \times 10^{-5}$ inch^4

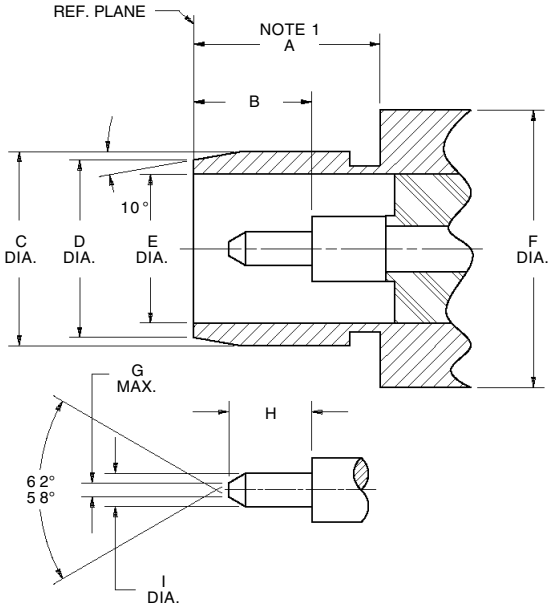
$$D = \frac{(27)\ (2.00)^3}{(384)\ (10 \times 10^6)\ (4.56 \times 10^{-5})} = .00123 \text{ inch}$$

Material: Stainless Steel 18-8
Modulus of Elasticity: $E = 27.6 \times 10^6$ PSI
D = .00045 inch

Interface Mating Dimensions



CLOSED TO MEET VSWR, MATING CHARACTERISTICS AND CONNECTOR DURABILITY WHEN MATED WITH APPROPRIATE MALE CONTACT.



Jack

Letter	Inches (Millimeters)
A	.195 Max. (5.03)
B	.127 Max. (3.23)
C	.161 Nom. (4.09)
D	.200 Max. (5.08)
E	.225 Min. (5.72)
F	.290 Min. (7.37)

NOTES:
1. With spring finger bottomed.

Plug

Letter	Inches (Millimeters)
A	.198 Min. (5.03)
B	.128 Min. (3.25)
C	.211 Max. (5.36)
D	.192 Nom. (4.88)
E	.161 Nom. (4.09)
F	.300 Nom. (7.62)
G	.015 Max. (0.38)
H	.090 Nom. (2.29)
I	.037 Max. (.94)

NOTES:
1. Clearance for mating connector coupling nut.

Dimensions are in inches.
Metric equivalents are given for general information only.

Specifications

General

Materials	Body, Stainless steel per AMS-5640, UNS S30300, Type I. Brass is also available. Contact, Beryllium copper per ASTM-B-196. PTFE per ASTM-D-1710
Finish	Body, Gold plated per ASTM-B-488 over nickel per SAE AMS-QQ-N-290, Class 1 or passivate. Center Contact, Gold plated per ASTM-B-488 over nickel per SAE AMS-QQ-N-290, Class 1
Design	Interface dimensions per MIL-STD-348.

Electrical

	RG 402 (.141) Semi-Rigid	RG 405 (.085) Semi-Rigid
Frequency	DC to 22 GHz (DC to 26.5 GHz available for semi-rigid cable and receptacles)	DC to 22 GHz
Nominal Impedance	50 Ohms	50 Ohms
VSWR		
DC to 18 GHz	1.02 + .005f (GHz)	1.05 + .005f (GHz)
18 to 22 GHz	1.02 + .008f (GHz)	1.05 + .009f (GHz)
RF Transmission Loss	$.03x\sqrt{f}$ (GHz)	$.03x\sqrt{f}$ (GHz)
Insulation Resistance	5,000 Megohms Min.	5,000 Megohms Min.
Contact Resistance		
Center Contact	2.0 Milliohms Max.	2.0 Milliohms Max.
Outer Contact	2.0 Milliohms Max.	2.0 Milliohms Max.
Dielectric Withstanding Voltage	1500 Volts RMS	1000 Volts RMS
Corona Extinction Voltage at 70,000 Ft.	375 Volts Min.	335 Volts Min.
RF High Potential at 5 MHz	1,000 Volts RMS	670 Volts RMS
RF Leakage Interface Only	–(90-fGHz) dB Min. (fully mated)	–(90-fGHz) dB min. (fully mated)

Mechanical

Force to Engage	48 Ounces Max.
Force to Disengage	1.5 Pounds Max.
Center Contact Retention	6 Pounds Min.
Durability	5,000 Cycles
Radial Misalignment	
Rigid Mount	± .004 Inch
Float Mount	± .020 Inch

Environmental

Temperature Rating	–65°C to +125°C (Semi-Rigid)
Corrosion (Salt Spray)	MIL-STD-202, Method 101, Condition B
Vibration	MIL-STD-202, Method 204, Condition D, 20 Gs
Shock	MIL-STD-202, Method 213, Condition I, 100 Gs
Thermal Shock	MIL-STD-202, Method 107, Condition B, -65°C to +125°C
Moisture Resistance	MIL-STD-202, Method 106, Less Step 7B
Barometric Pressure (Altitude)	MIL-STD-202, Method 105, Condition C, 70,000 Ft.

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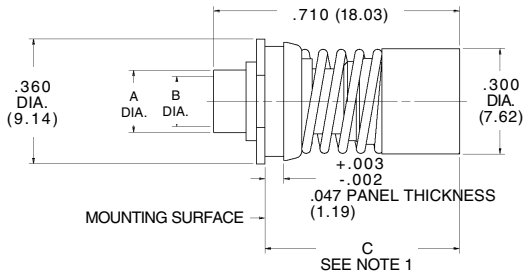
Semi-Rigid Cable • Direct Solder Attachment

Low Profile • Panel Feedthrough Cable Jack Floating Rear Mount

Cable	RG-405/U (.085)		RG-402/U (.141)	
Part Number	1740-6001		1742-6002	
	Inches	(mm)	Inches	(mm)
Dim. A	.120	(3.05)	.180	(4.57)
Dim. B	.089 Min.	(2.26)	.144 Min.	(3.66)
Dim. C	.580	(14.73)	.580	(14.73)

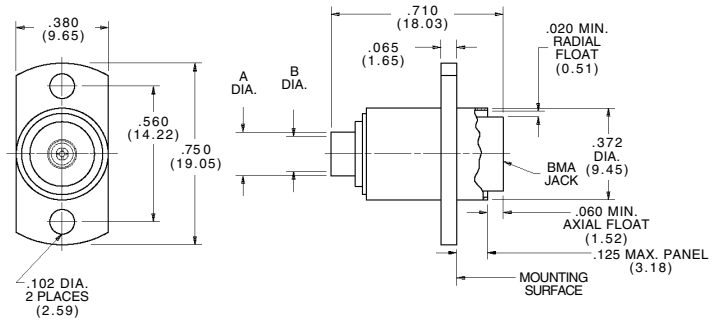
Finish: Housing that is soldered to cable outer conductor is gold plated.
Refer to Recommended Mounting Hole Detail E in Appendix A.
NOTE 1: With .060 Min. (1.52) axial float.



Flange Mount Cable Jack Floating Rear Mount

Cable	RG-405/U (.085)		RG-402/U (.141)	
Commercial Part No.	SF1733-6006		SF1732-6004	
MIL Part Number	M31031/11-E5N02		M31031/11-E5N01	
	Inches	(mm)	Inches	(mm)
Dim. A	.120	(3.05)	.180	(4.57)
Dim. B	.089 Min.	(2.26)	.144 Min.	(3.66)

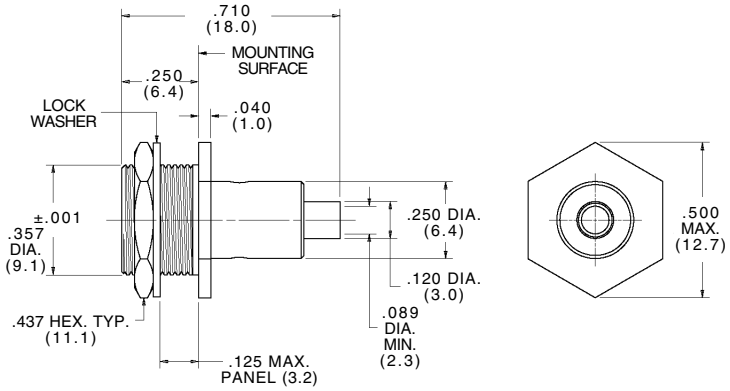
Flange shroud will rotate a full 360° for optimum adjustment prior to mounting.
Finish: Inner housing that is soldered to cable is gold plated. Outer housing is passivated stainless steel.
Refer to Recommended Mounting Hole Detail A in Appendix A.
A semi-rigid cable service loop is recommended.



Bulkhead Feedthrough Cable Jack Rear Mount

Cable	RG-405/U (.085)
Part Number	1733-6008

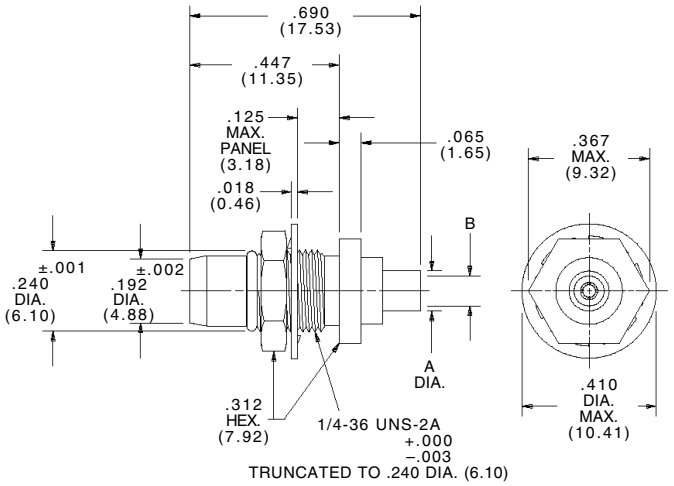
Finish: Gold plated.
Refer to Recommended Mounting Hole Detail O in Appendix A.



Bulkhead Feedthrough Cable Plug Rear Mount

Cable	RG-405/U (.085)		RG-402/U (.141)	
Commercial Part No.	1708-6003		1709-6002	
MIL Part Number	M31031/12-E5N02		M31031/12-E5N01	
Brass Body Part No.	1708-0001		—	
	Inches	(mm)	Inches	(mm)
Dim. A	.120	(3.05)	.180	(4.57)
Dim. B	.089 Min.	(2.26)	.144 Min.	(3.66)

Finish: Gold plated.
Refer to Recommended Mounting Hole Detail C in Appendix A.



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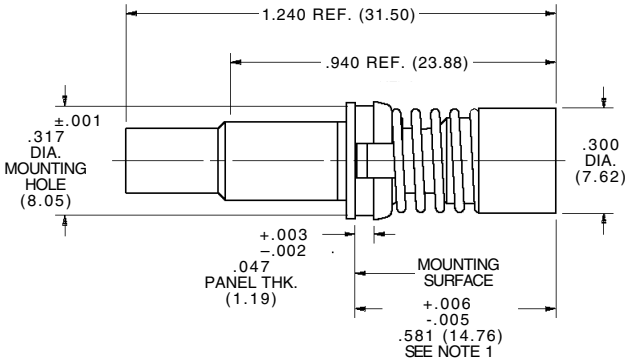
Flexible Cable • Crimp Attachment

Low Profile • Panel Feedthrough Cable Jack Floating Rear Mount • DC to 12.4 GHz

Cable	RG-316
Part Number	SF1721-6002

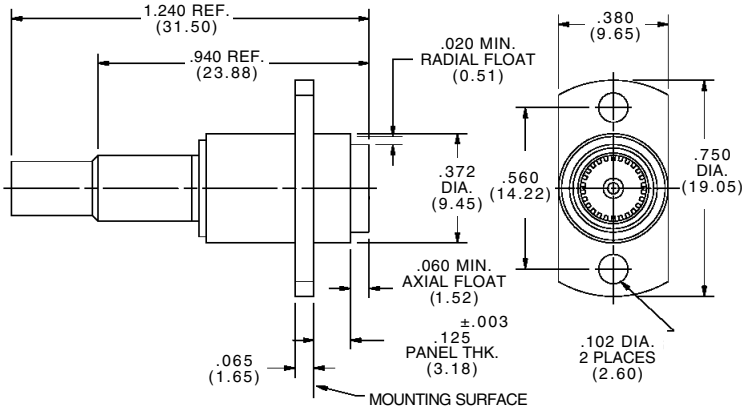
Finish: Passivated stainless steel.
See Recommended Mounting Hole Detail E in Appendix A.
NOTE 1: With .060 Min. (1.52) axial float.



Flange Mount Cable Jack • Floating Rear Mount DC to 12.4 GHz

Cable	RG-400	RG-316
Commrcial Part No.	SF1738-6001	SF1738-6002
MIL Part Number	M31031/01-A5N02	M31031/01-A5N01

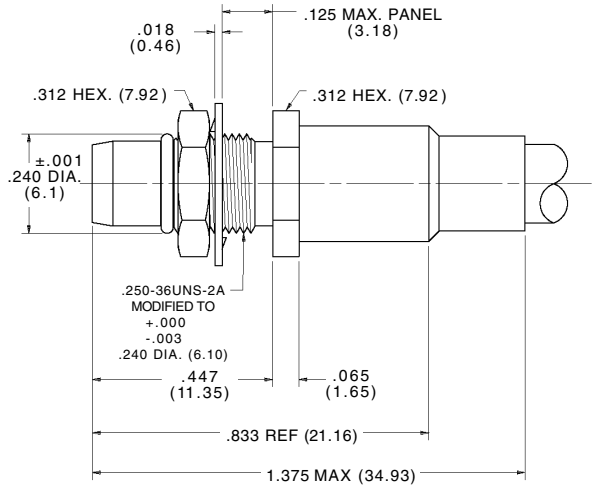
Flange shroud will rotate a full 360° for optimum adjustment prior to mounting.
Finish: Passivated stainless steel.
See Recommended Mounting Hole Detail A in Appendix A.



Bulkhead Feedthrough Cable Plug Rear Mount • DC to 12.4 GHz

Cable	RG-400	RG-316
Commercial Part No.	SF1708-6301	SF1708-6302
MIL Part Number	M31031/02-E5N02	M31031/02-E5N01

Finish: Passivated stainless steel.
See Recommended Mounting Hole Detail C in Appendix A.

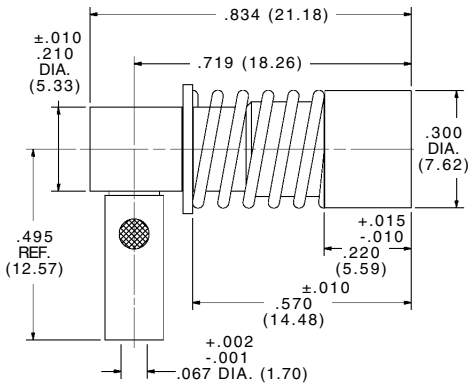


Flexible Cable • Solder Attachment

Low Profile • Panel Feedthrough Right Angle Cable Jack • Floating Rear Mount DC to 12.4 GHz

Cable	RG-316
Part Number	SF1769-6501

Finish: Gold plate.
See Recommended Mounting Hole Detail P in Appendix A.



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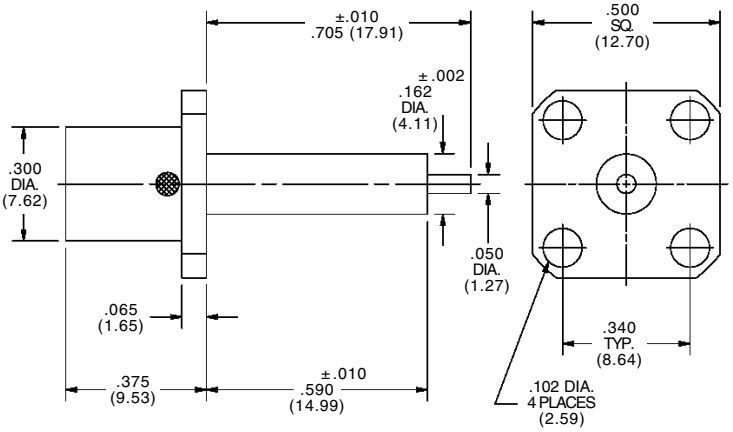
Panel Mount • Straight Terminal

Flange Mount Jack Receptacle

Part Number	SF1750-6101

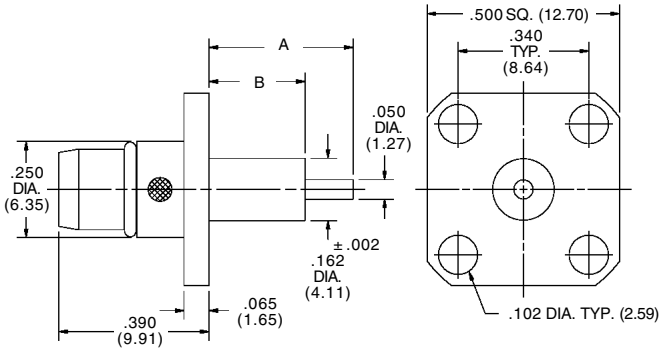
Finish: Passivated stainless steel.
See Recommended Mounting Hole Detail J in Appendix A.



Flange Mount Plug Receptacle

Part Number	SF1755-6104		SF1755-6105	
	Inches	(mm)	Inches	(mm)
Dim. A	.488	(12.40)	.375	(9.53)
Dim. B	.330	(8.38)	.250	(6.35)

Finish: Passivated stainless steel.
See Recommended Mounting Hole Detail J in Appendix A.

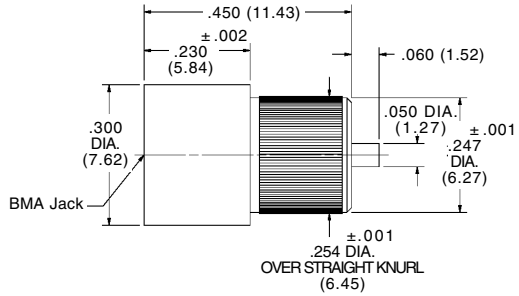


Press-In Receptacles

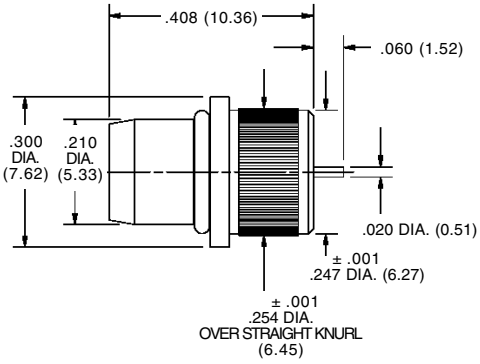
Jack Part Number	SF1772-6005
Plug Part Number	SF1774-6001

Finish: Passivated stainless steel. For jack, see Recommended Mounting Hole K in Appendix A. For plug, see Recommended Mounting Hole D in Appendix A.

Jack



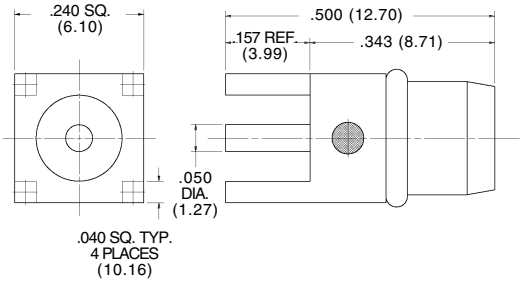
Plug



Straight Plug Receptacle Printed Circuit Board

Part Number	1785-6001

Finish: Gold plate.
See Recommended Mounting Hole L in Appendix A.



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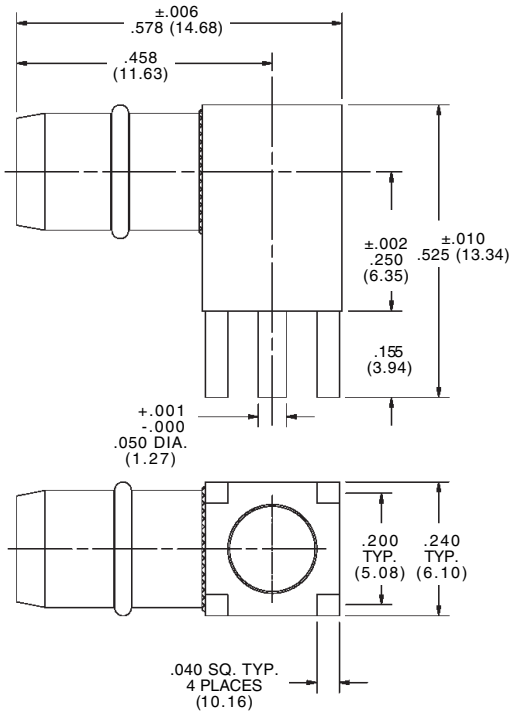
Panel Mount • Straight Terminal

Right Angle Plug Receptacle
Printed Circuit Board

Part Number	1789-6001

Finish: Gold plate.
See Recommended Mounting Hole Detail L in Appendix A.

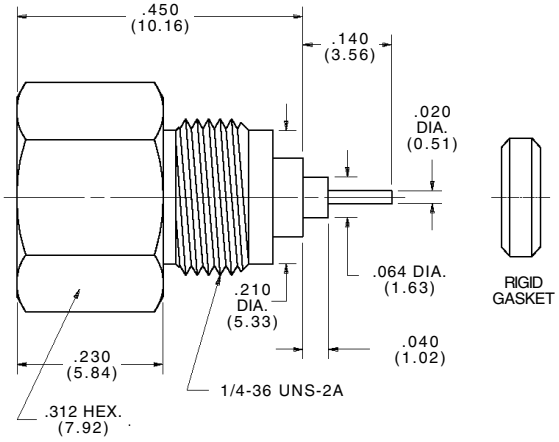


Metal-to-Metal Hermetic Seal

Rigid Gasket Seal
Panel Feedthrough Jack Receptacle

Part Number	SF1778-6000

Finish: Passivated stainless steel.
See Recommended Mounting Hole Detail M in Appendix A.

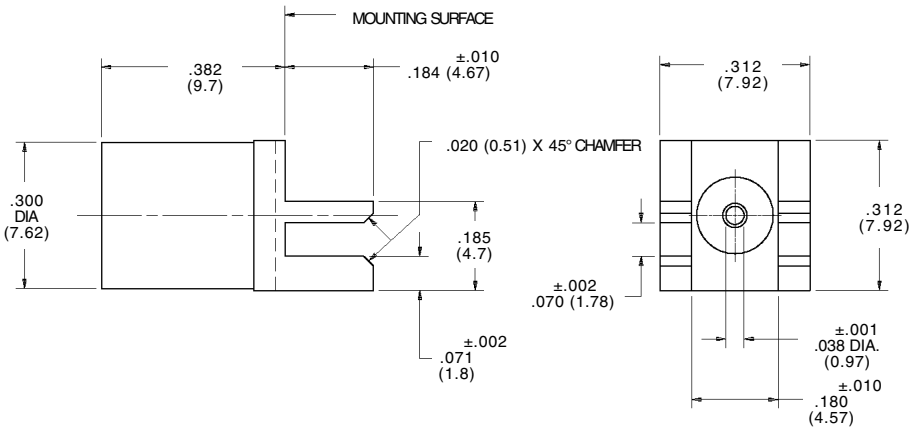


Panel Mount • End Launch

Jack Receptacle • Printed Circuit Board

Part Number	1785-0003

Finish: Tri-metal (copper, tin, zinc) plated brass body.



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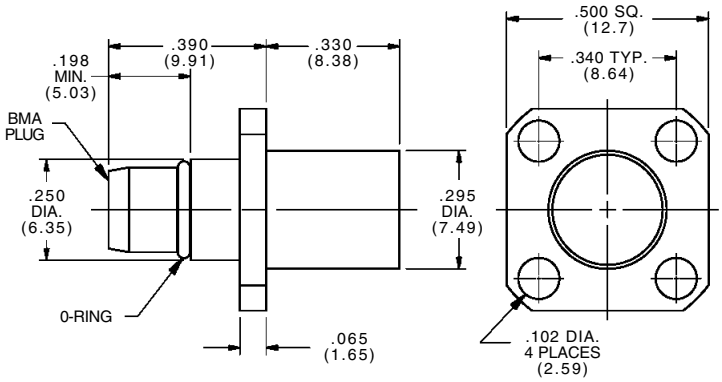
Flange Mount Plug Termination DC – 18 GHz

Part Number	SF8017-6001
Power Avg. (Watts)	1.0*

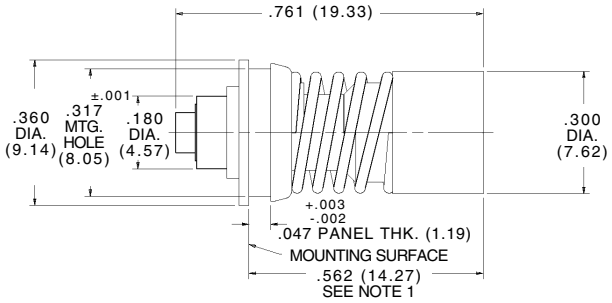
Finish: Passivated stainless steel.
See Recommended Mounting Hole Detail J in Appendix A.
*Power derated linearly to 10% power at 125°C.



Float Mount Jack Termination DC – 12 GHz

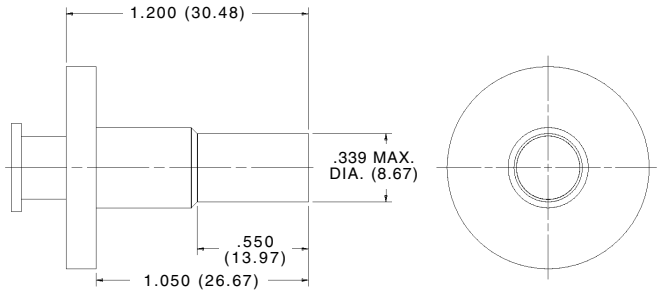
Part Number	8017-6002
Power Avg. (Watts)	1.0*

Finish: Gold plate.
See Recommended Mounting Hole Detail E in Appendix A.
*Power derated linearly to 10% power at 125°C
NOTE 1: With .060 Min. (1.52) axial float..



BMA Removal Tool

Part Number	500-17-000

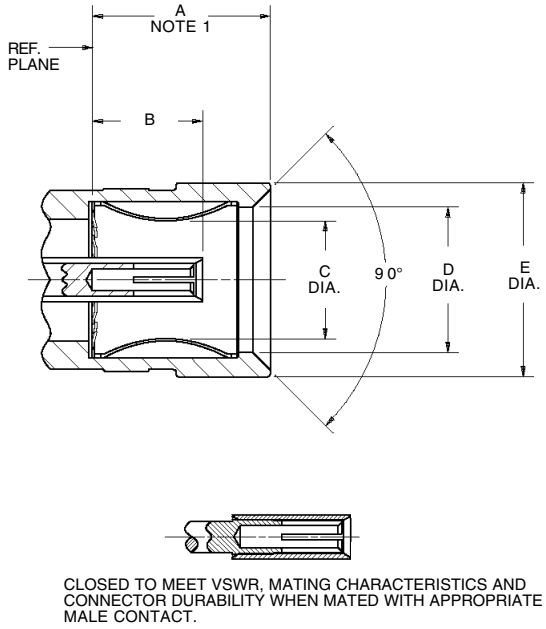


Between-Series Adapters

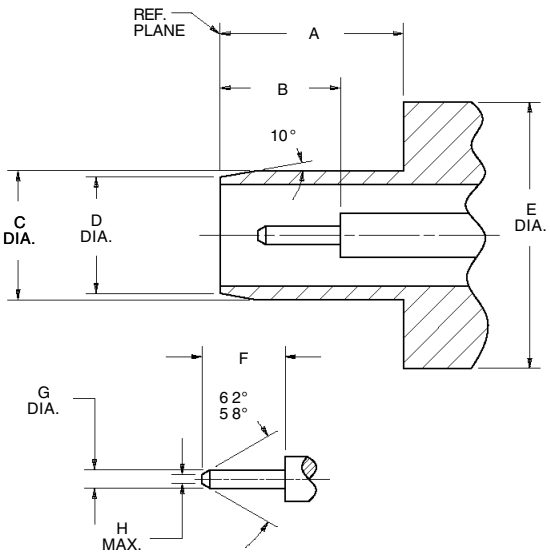
Description	Part Number
SMA Jack to BMA Jack	SF1157-6009
SMA Plug to BMA Jack	SF1157-6013
SMA Plug to BMA Plug	SF1157-6010
SMA Jack to BMA Plug	SF1158-6001
3.5mm Jack to BMA Jack	1139-6004
3.5mm Jack to BMA Plug	1139-6005

Finish: BMA to SMA are passivated stainless steel.
BMA to 3.5mm are gold plate.

Interface Mating Dimensions



CLOSED TO MEET VSWR, MATING CHARACTERISTICS AND CONNECTOR DURABILITY WHEN MATED WITH APPROPRIATE MALE CONTACT.



Jack

Letter	Inches (Millimeters)
A	.197 Nom. (5.00)
B	.127 Max. (3.23)
C	.132 Max. (3.35)
D	.154 Min. (3.91)
E	.210 Ref. (5.33)

NOTES:
1. With spring finger bottomed.

Plug

Letter	Inches (Millimeters)
A	.199 Min. (5.05)
B	.128 Min. (3.25)
C	.140 Nom. (3.56)
D	.126 Nom. (3.20)
E	.210 Ref. (5.33)
F	.090 Nom. (2.29)
G	.020 Nom. (.51)
H	.012 Max (.30)

Dimensions are in inches.
Metric equivalents are given for general information only.

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Specifications

General	
Materials	Body, Stainless steel per AMS-5640, UNS S30300, Type I. Contact, Beryllium copper per ASTM-B-196. PTFE per ASTM-D-1710.
Finish	Body, Gold plated per ASTM-B-488 over nickel per SAE AMS-QQ-N-290, Class 1 or passivate. Center Contact, Gold plated per ASTM-B-488 over nickel per SAE AMS-QQ-N-290, Class 1.
Design	Interface dimensions per MIL-STD-348.
Electrical	
	RG 405 (.085) Semi-Rigid
Frequency	DC to 28 GHz
Nominal Impedance	50 Ohms
VSWR	1.05 + .01f (GHz)
RF Transmission Loss	.040 x √f (GHz)
Insulation Resistance	5,000 Megohms Min.
Contact Resistance	
Center Contact	6.0 Milliohms Max.
Outer Contact	3.0 Milliohms Max.
Outer Contact to Cable	0.5 Milliohms Max.
Dielectric Withstanding Voltage	675 Volts RMS
Corona Extinction Voltage at 70,000 Ft.	250 Volts Min.
RF High Potential at 5 MHz	675 Volts RMS
RF Leakage Interface Only	–(90-fGHz) dB Min. (fully mated)
Mechanical	
Force to Engage	48 Ounces Max.
Force to Disengage	1.5 Pounds Max.
Center Contact Retention	4 Pounds Min.
Durability	5,000 Cycles
Radial Misalignment	
Rigid Mount	±.0025 Inch
Float Mount	±.020 Inch
Environmental	
Temperature Rating	–65°C to +125°C (Semi-Rigid)
Corrosion (Salt Spray)	MIL-STD-202, Method 101, Condition B
Vibration	MIL-STD-202, Method 204, Condition D, 20 Gs
Shock	MIL-STD-202, Method 213, Condition I, 100 Gs
Thermal Shock	MIL-STD-202, Method 107, Condition B, -65°C to +125°C
Moisture Resistance	MIL-STD-202, Method 106, Less Step 7B
Barometric Pressure (Altitude)	MIL-STD-202, Method 105, Condition C, 70,000 Ft.

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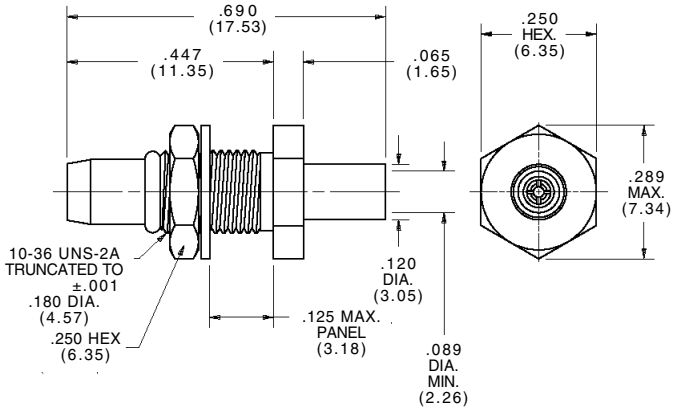
Semi-Rigid Cable • Direct Solder Attachment

Bulkhead Feedthrough Cable Plug Rear Mount

Cable	RG-405/U (.085)
Part Number	1408-6002

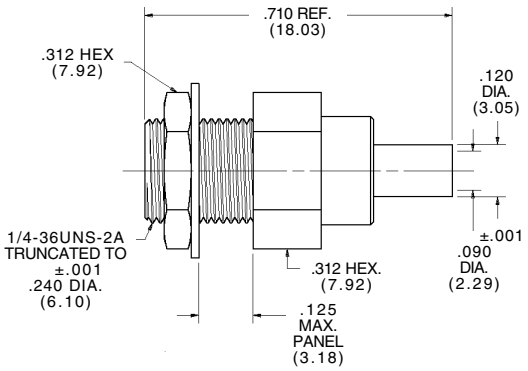
Finish: Gold plated.
See Recommended Mounting Hole Detail H in Appendix A.



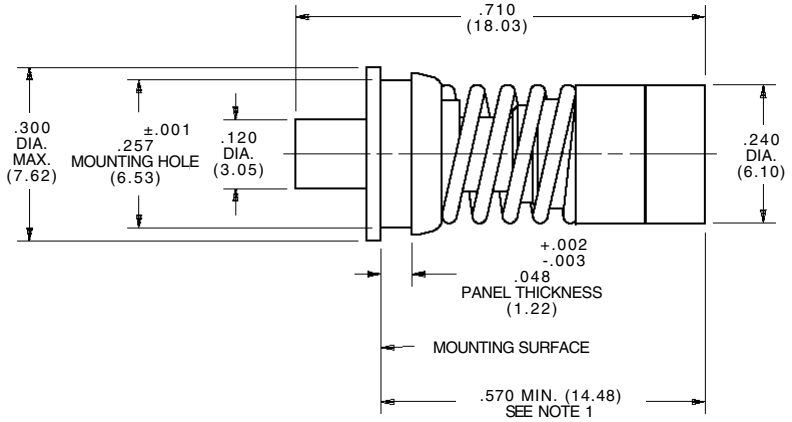
Bulkhead Feedthrough Cable Jack Rear Mount

Cable	RG-405/U (.085)
Part Number	1444-6001

Finish: Gold plated.
See Recommended Mounting Hole Detail C in Appendix A.



Low Profile • Panel Feedthrough Cable Jack • Floating Rear Mount



Cable	RG-405/U (.085)
Part Number	1440-6001

Finish: Gold plated.
See Recommended Mounting Hole Detail G in Appendix A.
NOTE 1: With .060 Min. (1.52) axial float.

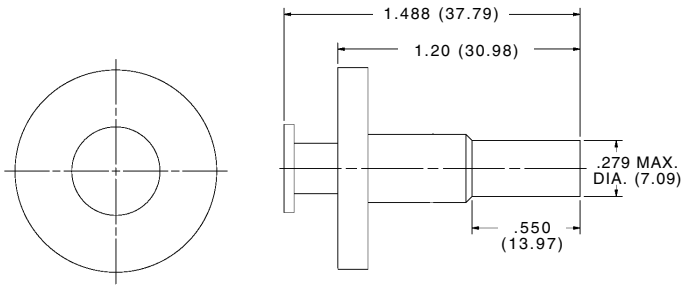
Between-Series Adapters

Description	Part Number
SMA Jack to BMMA Jack	SF1114-6005
SMA Plug to BMMA Jack	SF1114-6006
SMA Plug to BMMA Plug	SF1114-6007
SMA Jack to BMMA Plug	SF-1114-6008

Finish: BMMA and SMA are passivated stainless steel.

BMMA Removal Tool

Part Number	500-14-000



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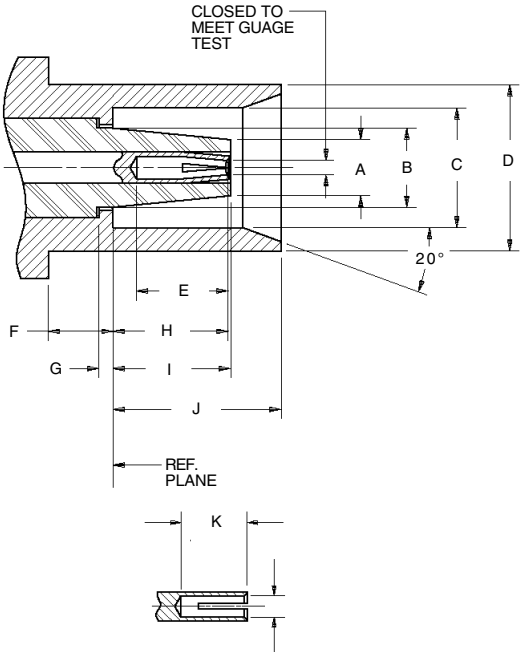
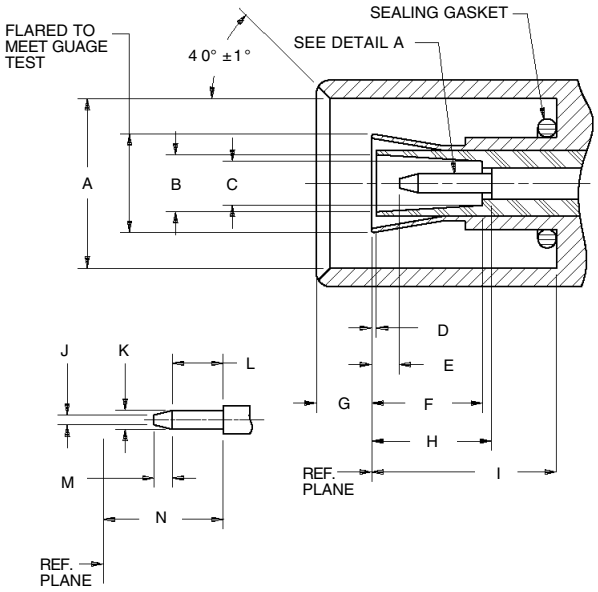
Interface Mating Dimensions





DETAIL A

CLOSED TO MEET VSWR, MATING CHARACTERISTICS AND CONNECTOR DURABILITY WHEN MATED WITH APPROPRIATE MALE CONTACT.

Jack

Letter	Inches (Millimeters)
A	.062 Max. (1.57)
B	.087 Max. (2.21)
C	.129 Min. (3.28)
D	.188 Max. (4.78)
E	.095 Min. (2.41)
F	.070 Min. (1.78)
G	.010 Max. (.25)
H	.130 Max. (3.30)
I	.130 Max. (3.30)
J	.188 Max. (4.78)
K	.105 Min. (2.63)

Plug

Letter	Inches (Millimeters)
A	.184 Min. (4.67)
B	.087 Min. (2.21)
C	.062 Min. (1.57)
D	.010 Max. (.25)
E	.030 Min. (.76)
F	.130 Min. (3.30)
G	.065 Min. (1.65)
H	.130 Min. (3.30)
I	.203 Max. (5.16)
J	.011 Max. (.28)
K	.021 Max. (.53)
L	.060 Min. (1.52)
M	.015 Min. (.38)
N	.130 Min. (3.30)

Dimensions are in inches.
Metric equivalents are given for general information only.

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Specifications

General	
Materials	Body, Stainless steel per AMS-5640, UNS S30300, Type I. Contact, Beryllium copper per ASTM-B-196. PFTE per ASTM-D-1710.
Finish	Body, Gold plated per ASTM-B-488 over nickel per SAE AMS-QQ-N-290, Class 1 or passivate. Center Contact, Gold plated per ASTM-B-488 over nickel per SAE AMS-QQ-N-290, Class 1.
Design	Interface dimensions per MIL-STD-348.
Electrical	
	RG 405 (.085) Semi-Rigid
Frequency	DC to 18 GHz
Nominal Impedance	50 Ohms
VSWR	1.05 + .01f (GHz)
RF Transmission Loss	.06 x $\sqrt{f}$ (GHz)
Insulation Resistance	10,000 Megohms Min.
Contact Resistance	
Center Contact	6.0 Milliohms Max.
Outer Contact	3.0 Milliohms Max.
Outer Contact to Cable	0.5 Milliohms Max.
Dielectric Withstanding Voltage	1,000 Volts RMS
Corona Extinction Voltage at 70,000 Ft.	250 Volts Min.
RF High Potential at 5 MHz	500 Volts RMS
RF Leakage Interface Only	–(80-fGHz) dB Min. (fully mated)
Mechanical	
Force to Engage	12 Ounces Max.
Force to Disengage	2 Ounces Min.
Center Contact Retention	6 Pounds Min.
Durability	500 Cycles
Radial Misalignment	
Rigid Mount	± .0025 Inch
Float Mount	± .020 Inch
Environmental	
Temperature Rating	–65°C to +125°C (Semi-Rigid)
Corrosion (Salt Spray)	MIL-STD-202, Method 101, Condition B
Vibration	MIL-STD-202, Method 204, Condition D, 20 Gs
Shock	MIL-STD-202, Method 213, Condition I, 100 Gs
Thermal Shock	MIL-STD-202, Method 107, Condition B, –65°C to +125°C
Moisture Resistance	MIL-STD-202, Method 106, Less Step 7B
Barometric Pressure (Altitude)	MIL-STD-202, Method 105, Condition C, 70,000 Ft.

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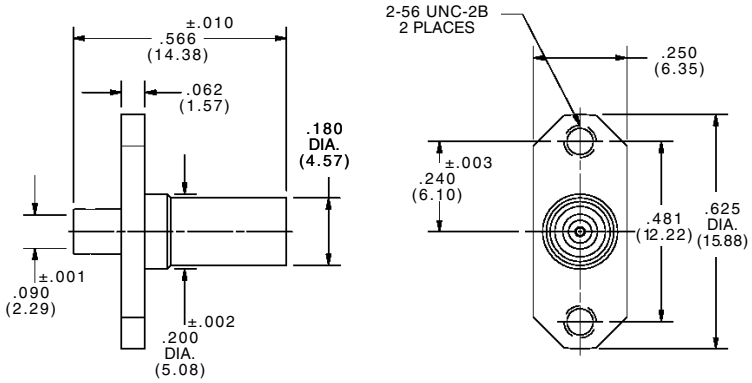
Semi-Rigid Cable • Direct Solder Attachment

Flange Mount Cable Jack • Rear Mount

Cable	RG-405/U (.085)
Part Number	SF8934-6001

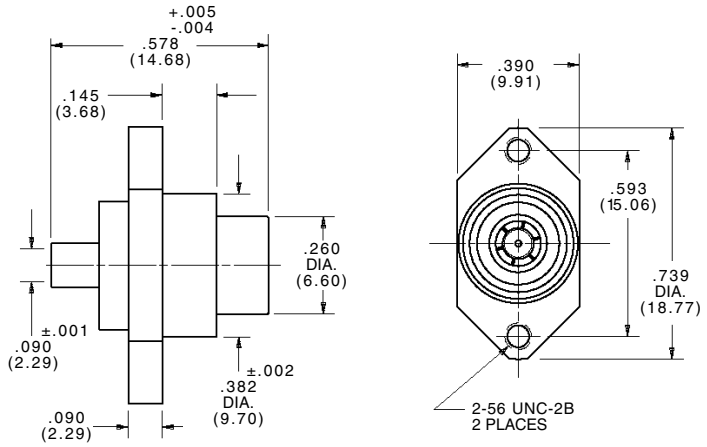
Finish: Inner housing that is soldered to cable is gold plated. Outer housing is passivated stainless steel.
Refer to Recommended Mounting Hole Detail N in Appendix A.



Flange Mount Cable Plug • Floating Rear Mount

Cable	RG-405/U (.085)	RG-402/U (.141)
Part Number	SF8903-6001	SF8901-6003

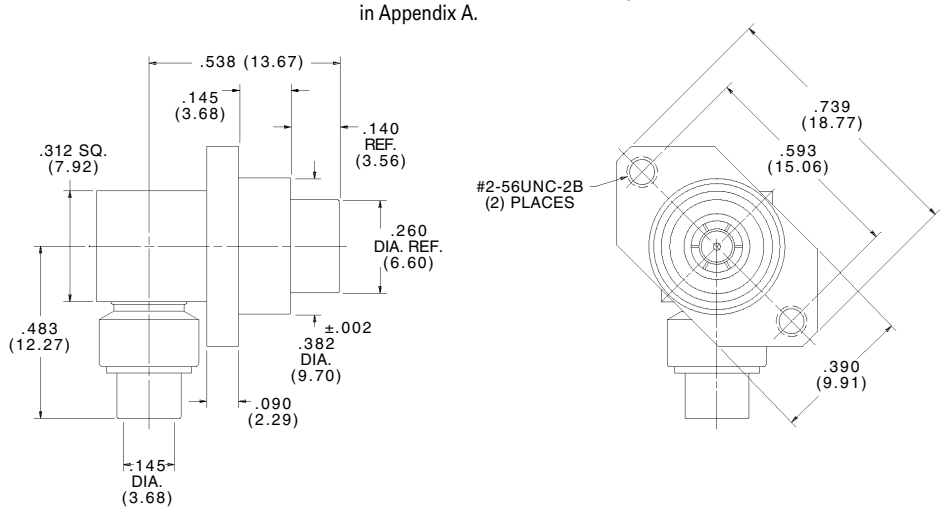
Flange shroud will rotate a full 360° for optimum alignment prior to mounting.
Finish: Inner housing that is soldered to cable is gold plated. Outer housing is passivated stainless steel.
Refer to Recommended Mounting Hole Detail B in Appendix A.



Flange Mount Right Angle Cable Plug
Floating Rear Mount

Cable	RG-402/U (.141)
Part Number	SF8958-6000

Flange shroud will rotate a full 360° for optimum alignment prior to mounting.
Finish: Inner housing that is soldered to cable is gold plated. Outer housing is passivated stainless steel.
Refer to Recommended Mounting Hole Detail B in Appendix A.



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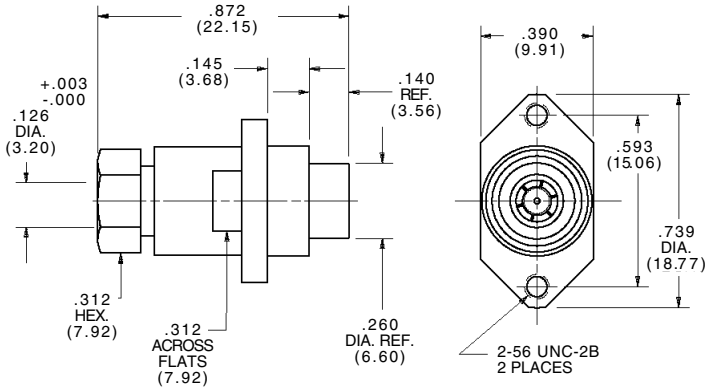
Flexible Cable • Clamp Attachment

Flange Mount Cable Plug • Floating Rear Mount

Cable	RD-316
Part Number	SF8961-6010

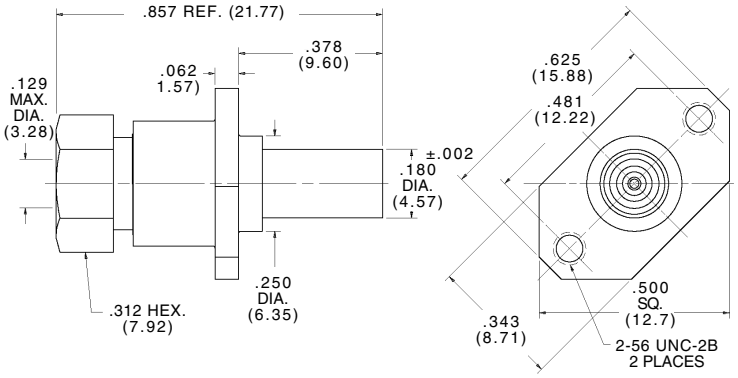
Flange shroud will rotate a full 360° for optimum alignment prior to mounting.
Finish: Passivated stainless steel.
Refer to Recommended Mounting Hole Detail B in Appendix A.



Flange Mount Cable Jack • Rear Mount

Cable	RD-316
Commercial Part No.	SF8931-6006
DSCC Drawing 91012ZSP-3	SF8931-6005

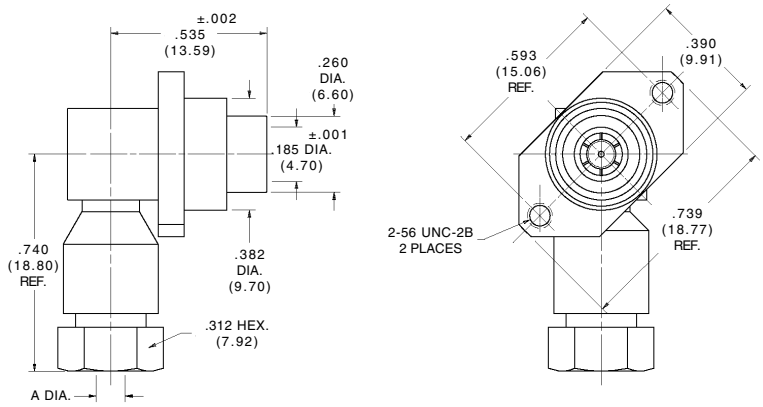
Finish: Passivated stainless steel.
Refer to Recommended Mounting Hole Detail N in Appendix A.



Flange Mount Right Angle Cable Plug
Floating Rear Mount

Cable	RG-178	RG-196	RD-316
Commercial Part No.	SF8961-6008	SF8961-6002	SF8961-6014
DSCC Drawing 91013ZSP-3	—	—	SF8961-6005
Dim. A	Inches(mm) .102 Max. (2.59)	Inches(mm) .118 Max. (2.30)	Inches(mm) .129 Max. (3.28)

Flange shroud will rotate a full 360° for optimum alignment prior to mounting.
Finish: Passivated stainless steel.
See Recommended Mounting Hole Detail B in Appendix A.



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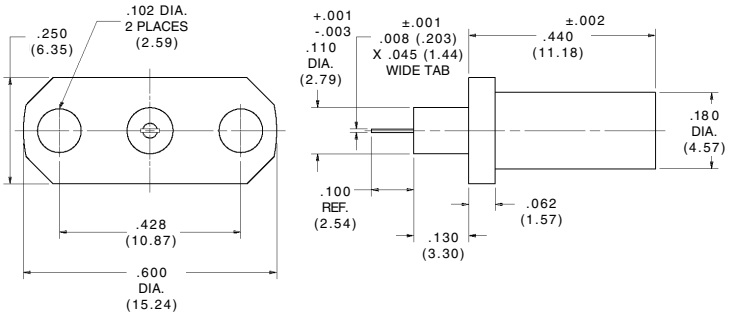
Panel Mount • Tab Terminal

Flange Mount Jack Receptacle

Part Number	SF8961-6006

Finish: Passivated stainless steel.
See Recommended Mounting Hole Detail N in Appendix A.

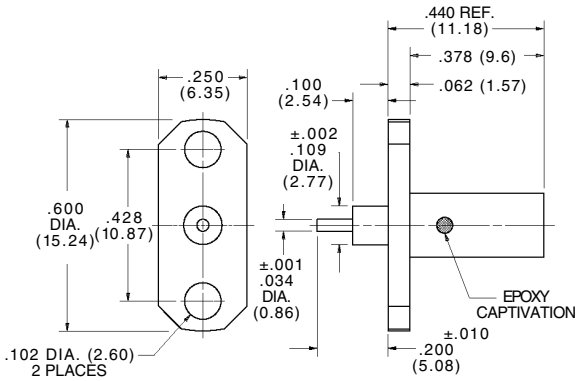


Panel Mount • Straight Terminal

Flange Mount Jack Receptacle

Part Number	SF8953-6100

Finish: Passivated stainless steel.
See Recommended Mounting Hole Detail N in Appendix A.

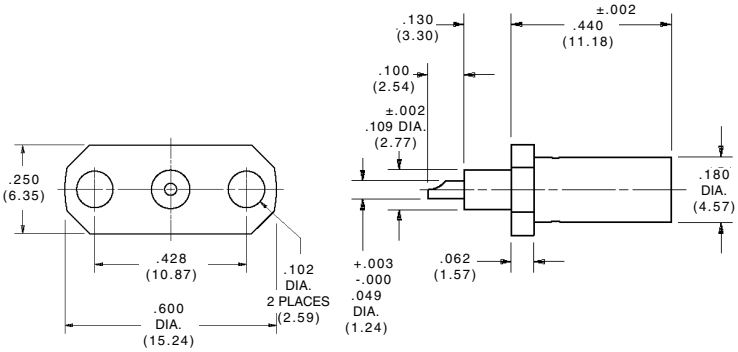


Panel Mount • Solder Pot Terminal

Flange Mount Jack Receptacle

Part Number	SF8950-6003

Finish: Passivated stainless steel.
See Recommended Mounting Hole Detail N in Appendix A



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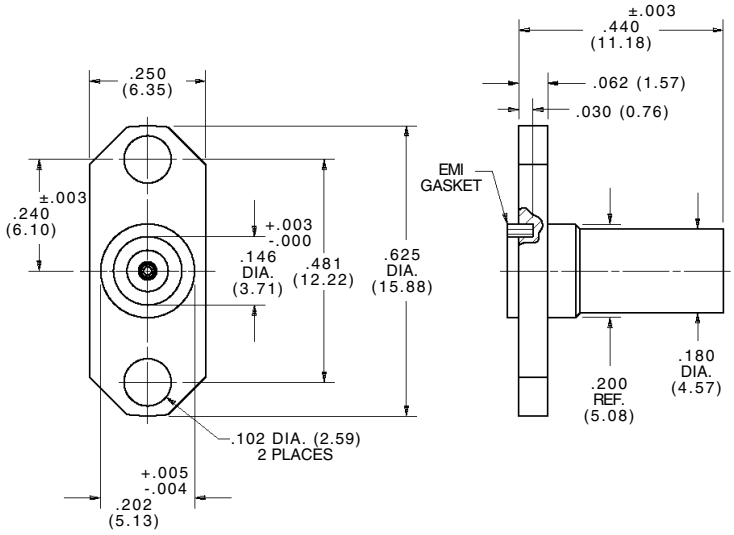
Panel Mount • EMI Gasket

Flange Mount Jack Receptacle
Accepts .014 – .017 Dia Pin

Part Number	SF8961-6012

Finish: Passivated stainless steel.
See Recommended Mounting Hole Detail R in Appendix A.



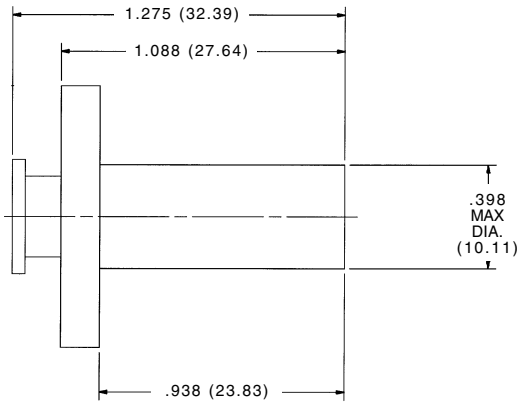
Between-Series Adapters

Description	Part Number
SMA Jack to BMZ Jack	SF1189-6001
SMA Plug to BMZ Jack	SF1189-6104
SMA Plug to BMZ Plug	SF1189-6009
SMA Jack to BMZ Plug	SF1189-6103

Finish: BMZ and SMA are passivated stainless steel.

BMZ Removal Tool

Part Number	500-89-000



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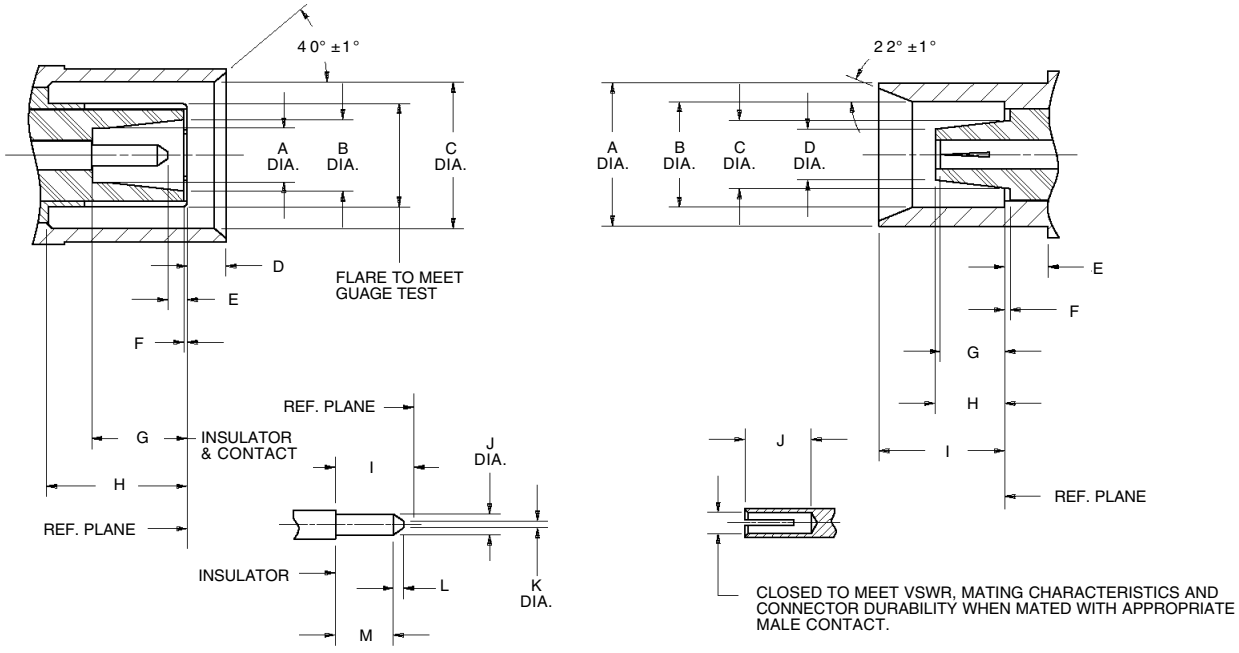
Interface Mating Dimensions



Plug

Letter	Inches (Millimeters)
A	.090 Min. (2.29)
B	.122 Min. (3.10)
C	.251 Min. (6.38)
D	.072 Max. (1.83)
E	.020 Min. (.51)
F	.010 Max. (.25)
G	.130 Min. (3.30)
H	.250 Max. (6.35)
I	.130 Min. (.70)
J	.037 Max. (.94)
K	.015 Max. (.38)
L	.015 Min. (3.8)
M	.060 Min. (1.52)

Jack

Letter	Inches (Millimeters)
A	.249 Max. (6.32)
B	.182 Min. (4.62)
C	.122 Max. (3.10)
D	.090 Max. (2.29)
E	.075 Min. (1.91)
F	.010 Max. (.25)
G	.132 Max. (3.35)
H	.132 Max. (3.35)
I	.221 Max. (5.61)
J	.105 Min. (2.63)

Dimensions are in inches.
Metric equivalents are given for general information only.

Specifications

General		
Materials	Body , Stainless steel per AMS-5640, UNS S30300, Type I. Contact, Beryllium copper per ASTM-B-196. PTFE per ASTM-D-17107	
Finish	Body, Gold plated per ASTM-B-488 over nickel per SAE AMS-QQ-N-290, Class or passivate. Center Contact, Gold plated per ASTM-B-488 over nickel per SAE AMS-QQ-N-290, Class 1.	
Design	Interface dimensions per MIL-STD-348.	
Electrical		
	RG 402 (.141) Semi-Rigid	**RG 405 (.085) Semi-Rigid**
Frequency	DC to 2 GHz (DC to 12.4 and 18 GHz units are available.)	DC to 2 GHz
Nominal Impedance	50 Ohms	50 Ohms
VSWR	1.02 + .005f (GHz)	1.05 + .005f (GHz)
RF Transmission Loss	.03x$\sqrt{f}$ (GHz)	.03x$\sqrt{f}$ (GHz)
Insulation Resistance	5,000 Megohms Min.	5,000 Megohms Min.
Contact Resistance Center Contact Outer Contact	 2.0 Milliohms Max. 2.0 Milliohms Max.	 2.0 Milliohms Max. 2.0 Milliohms Max.
Dielectric Withstanding Voltage	1500 Volts RMS	1000 Volts RMS
Corona Extinction Voltage at 70,000 Ft.	375 Volts Min.	335 Volts Min.
RF HighPotential at 5 MHz	1,000 Volts RMS	670 Volts RMS
RF Leakage Interface Only	–(90-fGHz) dB Min. (fully mated)	–(90-fGHz) dB min. (fully mated)
Mechanical		
Force to Engage	32 Ounces Max.	
Force to Disengage	20 Ounces Min.	
Center Contact Retention	6 Pounds Min.	
Durability	500 Cycles	
Radial Misalignment Rigid Mount Float Mount	 ± .004 Inch ± .020 Inch	
Environmental		
Temperature Rating	–65°C to +125°C (Semi-Rigid)	
Corrosion (Salt Spray)	MIL-STD-202, Method 101, Condition B	
Vibration	MIL-STD-202, Method 204, Condition D, 20 Gs	
Shock	MIL-STD-202, Method 213, Condition I, 100 Gs	
Thermal Shock	MIL-STD-202, Method 107, Condition B, -65°C to +125°C	
Moisture Resistance	MIL-STD-202, Method 106, Less Step 7B	
Barometric Pressure (Altitude)	MIL-STD-202, Method 105, Condition C, 70,000 Ft.	

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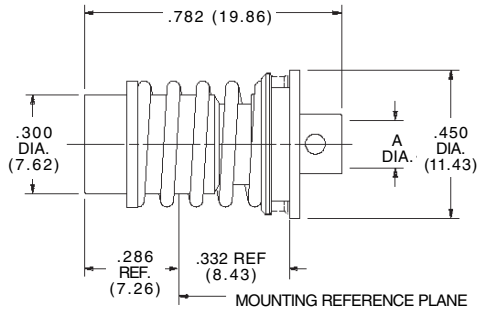
Semi-Rigid Cable • Direct Solder Attachment

Low Profile • Bulkhead Feedthrough Cable Plug
Floating Rear Mount

Cable	RG-405/U (.085)		RG-402/U (.141)	
Part Number	SF8806-6006		SF8802-6007	
	Inches	(mm)	Inches	(mm)
Dim. A	.090	(2.29)	.145	(3.68)

Finish: Housing that is soldered to cable outer conductor is gold plated.
Refer to Recommended Mounting Hole Detail F in Appendix A.

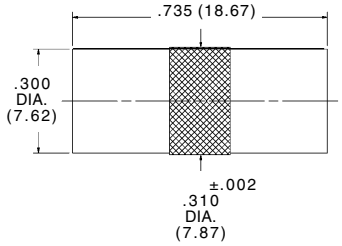


In-Series Adapters

Plug to Plug

Part Number	SF8890-6001
Power	7 kW

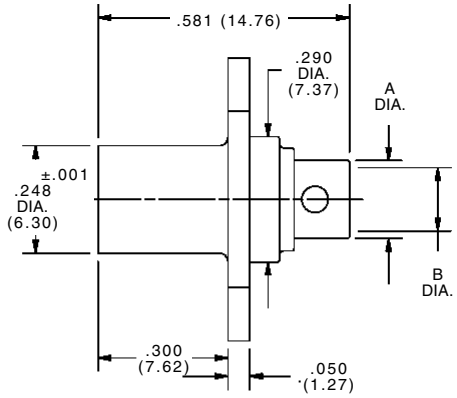
Finish: Passivated stainless steel

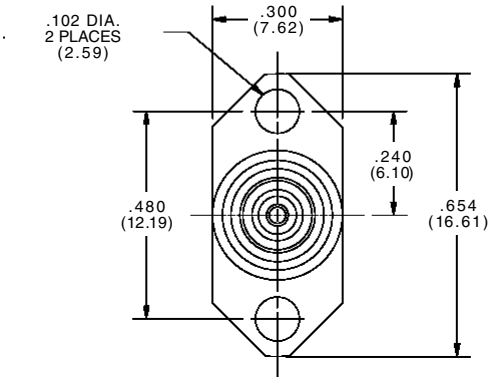


Flange Mount Cable Jack
Fixed Rear Mount

Cable	RG-405/U (.085)		RG-402/U (.141)	
Frequency	DC to 2 GHz		DC to 18 GHz	
Power	—		7 kW @ 2 GHz	
Part Number	SF8820-6001		SF8835-6000	
	Inches	(mm)	Inches	(mm)
Dim. A	.120	(3.05)	.180	(4.57)
Dim. B	.090	(2.29)	.146	(3.71)

Finish: Housing that is soldered to cable outer conductor is gold plated.
Refer to Recommended Mounting Hole Detail R in Appendix A.





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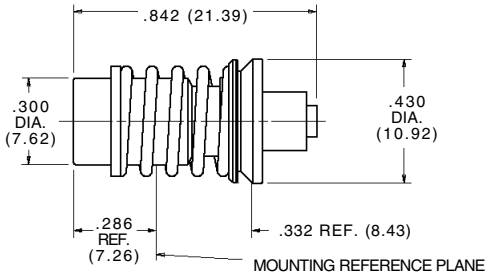
Snap-In Plug Termination

Part Number	SF8088-6001
Power Avg. (Watts)	1.0*

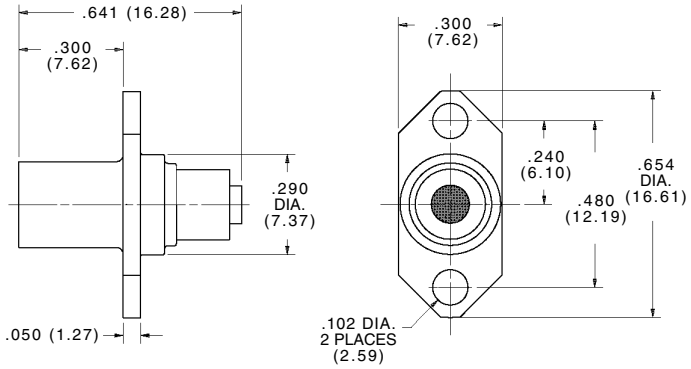
Finish: Passivated stainless steel.
See Recommended Mounting Hole Detail F in Appendix A.
*Power derated linearly to 10% power at 125°C.



Flange Mount Jack Termination

Part Number	SF8088-6002
Power Avg. (Watts)	1.0*

Finish: Passivated stainless steel.
See Recommended Mounting Hole Detail R in Appendix A.
*Power derated linearly to 10% power at 125°C.



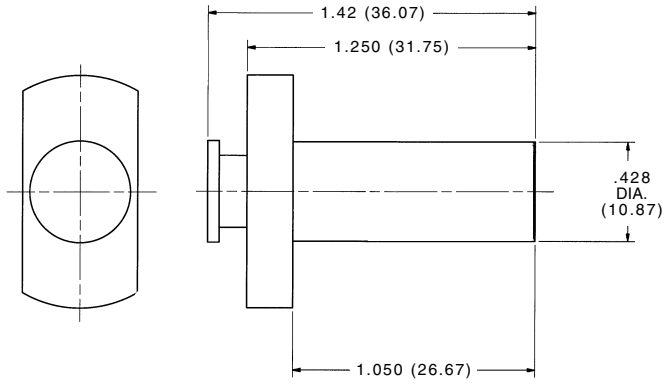
Between-Series Adapters

Description	Part Number
SMA Jack to BZ Jack	SF1122-6108
SMA Plug to BZ Jack	SF1122-6106
SMA Plug to BZ Plug	SF1122-6102
SMA Jack to BZ Plug	SF1122-6101
3.5mm Jack to BZ Jack	SF1188-6003
3.5mm Plug to BZ Jack	SF1188-6002

Finish: BZ to SMA are passivated stainless steel.
BZ to 3.5mm are gold plate.

BZ Removal Tool

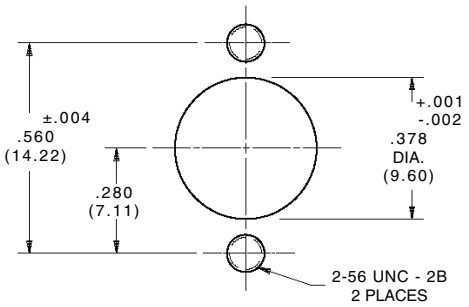
Part Number	500-88-002



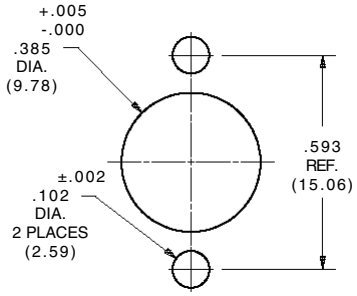
BZ Calibration Kit available. Contact factory.

Recommended Mounting Hole Details*

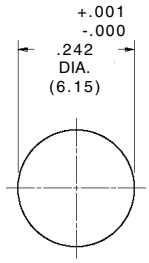
Detail A



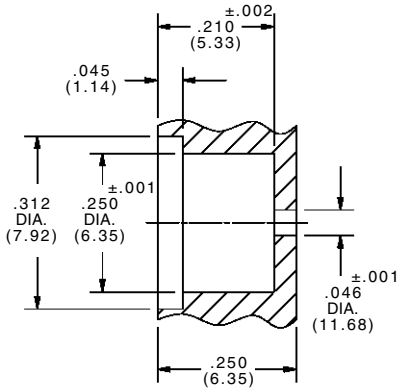
Detail B



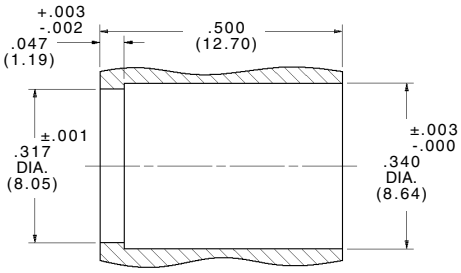
Detail C



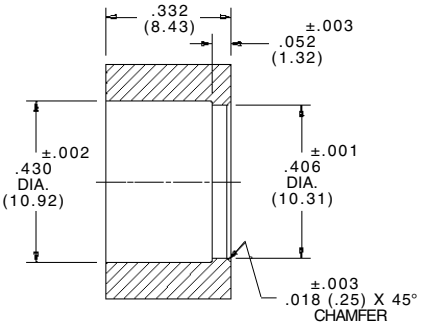
Detail D



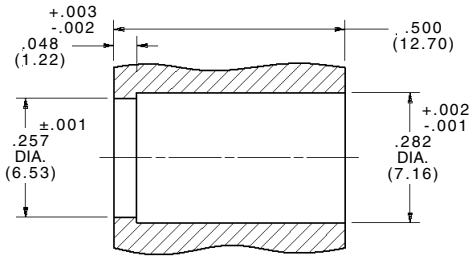
Detail E



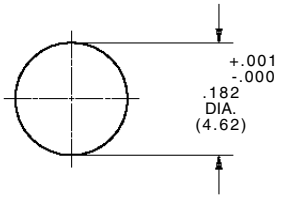
Detail F



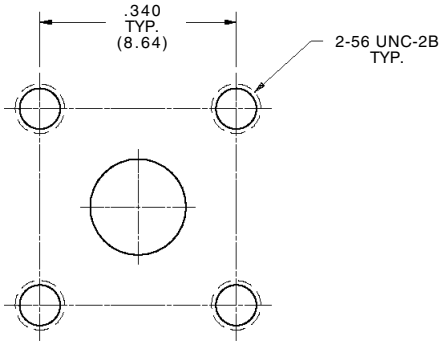
Detail G



Detail H



Detail J



*Consult factory for complete details.

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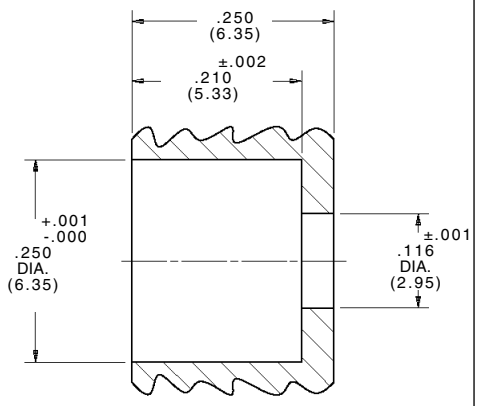
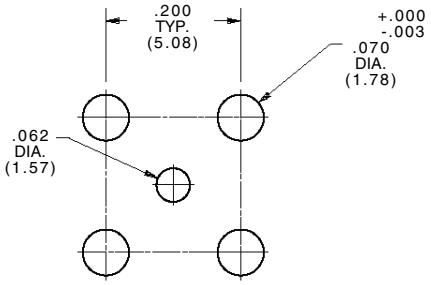
Recommended Mounting Hole Details*

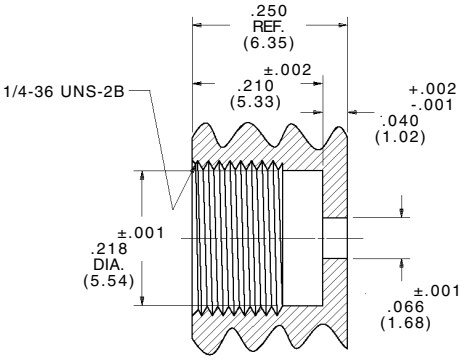
Detail K



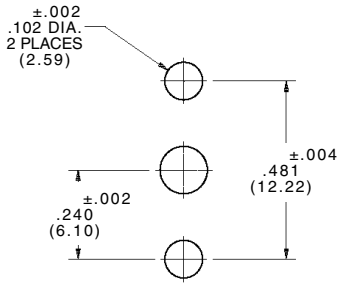
Detail L



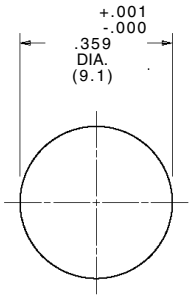
Detail M



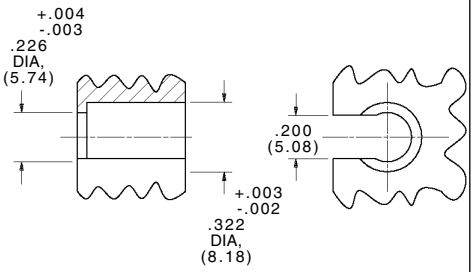
Detail N



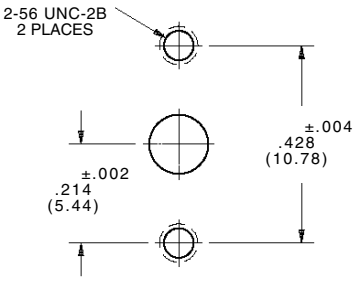
Detail O



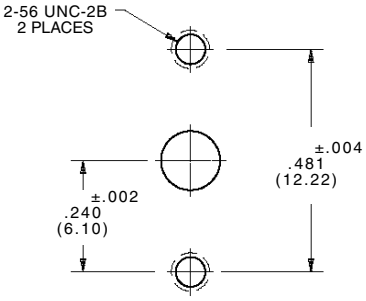
Detail P



Detail Q



Detail R



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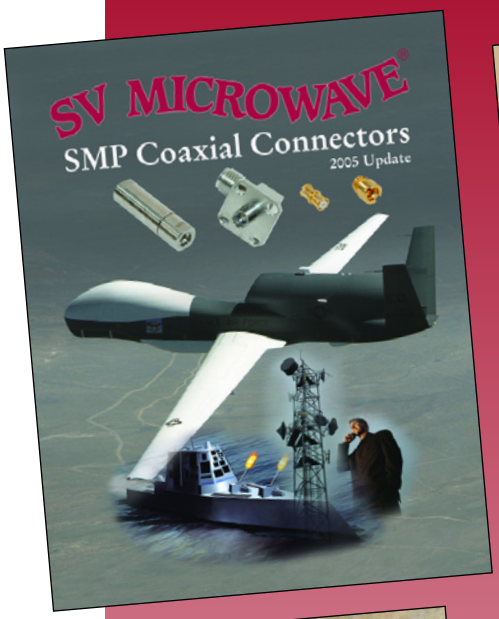

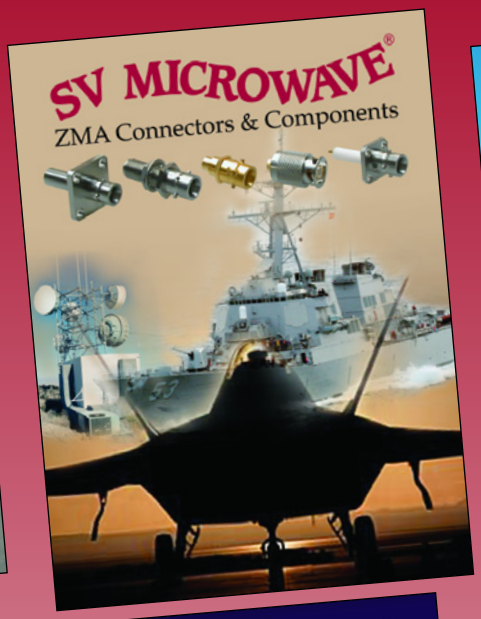

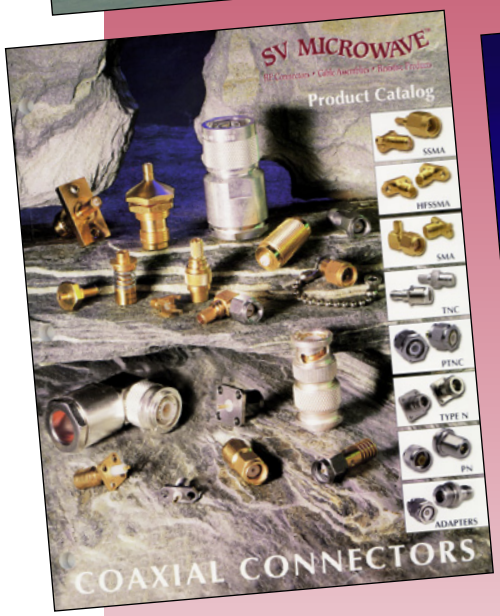

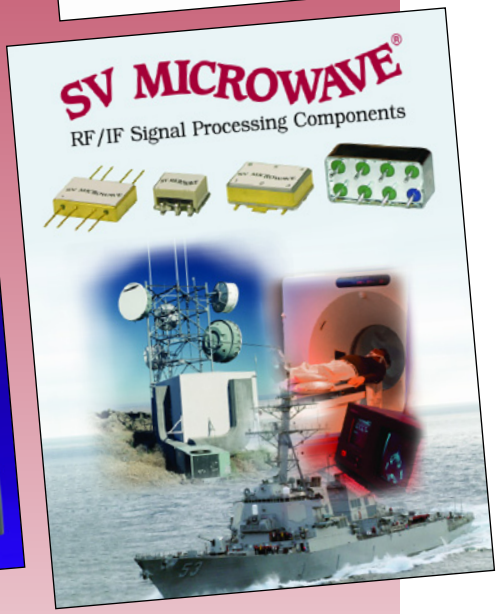

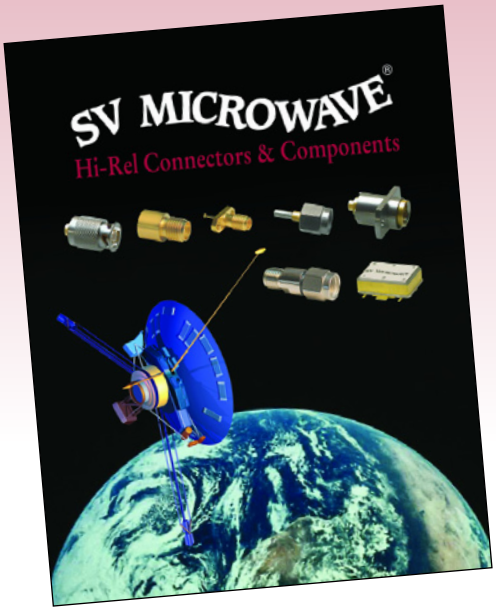

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