

SMPM Micro-Miniature Push-on Coaxial Connectors

Product Facts

- Push-on style interconnect, allowing control of the mating forces when mating multiple connectors
- 30% smaller than SMP interconnects
- Complies with MIL-STD-348A



Description

A high performance micro-miniature, push-on coaxial interconnect system.

Extremely small size interconnection that offers a versatile solution for high density packaging, allowing center-to-center spacing of 0.135".

Applications

Military and Aerospace applications for communications, radar systems, antennas.

Industrial applications that require a rugged, densely packaged RF interconnect system.

Product Offering

- Shrouds; flange mount, thread-in and press-in (full detent and smooth bore)
- Hermetic shrouds (single and dual positions)
- Edge mount PCB shrouds
- Thru-hole mount PCB shrouds
- Surface mount PCB shrouds (full detent, smooth bore and catcher's mitt designs)
- Adapters, custom lengths and spring loaded options
- Straight and right-angle jacks for .047 cable

Electrical Performance

- VSWR** — 1.50:1 max to 40 GHz
- Impedance** — 50 ohm
- Contact Resistance** — Center - 6 milliohms max, Outer - 2 milliohms max.
- Insulation Resistance** — 5000 megohms min.
- Dielectric Withstanding Voltage** — 225 Vrms min.
- Insertion Loss** — 0.12 dB max. typical

Mechanical

- Force to Engage** — 4.5 lbs. typical full detent; 2.5 lbs. typical smooth bore
- Force to Disengage** — 6.5 lbs. typical full detent; 1.5 lbs. typical smooth bore
- Radial Misalignment** — $\pm 0.10^\circ$
- Vibration** — EIA-364-28, Test condition III
- Mechanical Shock** — EIA-364-27, Method G
- Durability** — EIA-364-9, 100 cycles min.
- Material and Finish**
- Housings and Center Contacts** — Beryllium Copper per ASTM-B-196; gold plate over nickel plate
- Dielectric** — PTFE Fluorocarbon per ASTM-D-1457
- Shrouds** — Stainless steel per ASTM-A582 Type 303; passivate per ASTM-A380
- Hermetic Seal** — Glass bead

Standards and Specifications

MIL-STD-348A

General Specifications

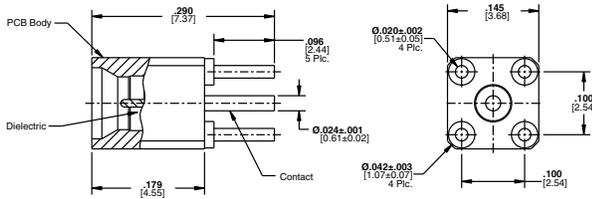
- Temperature Range** — -55 to +125 °C
- Voltage Rating** — 150 volts AC

Environmental Performance

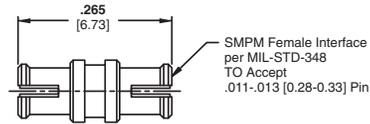
- Thermal Shock** — EIA-364-32, 5 cycles
- Humidity-temperature** — EIA-364-31 Method III, 10 cycles
- Salt Spray Corrosion** — EIA-364-26, Condition B
- Temperature Life** — EIA-364-17, Method A, test condition 5

SMPM Micro-Miniature Push-on Coaxial Connectors (Continued)

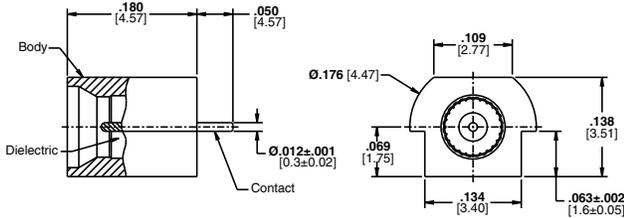
Vertical Through-Hole PCB Mount — Part No. 1757644-1



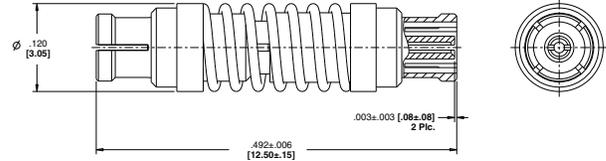
Female Bullet Adapter — Part No. 1757256-1



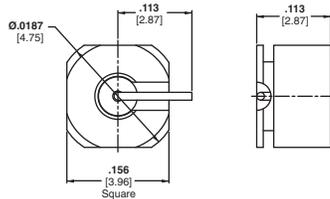
**PCB Edge Mount — Part No. 1757640-1 Full Detent
1757640-2 Smooth Bore**



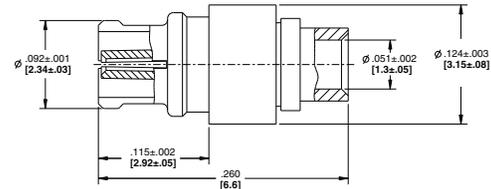
Jack to Jack, Adapter, Spring Bullet — Part No. 1757257-1



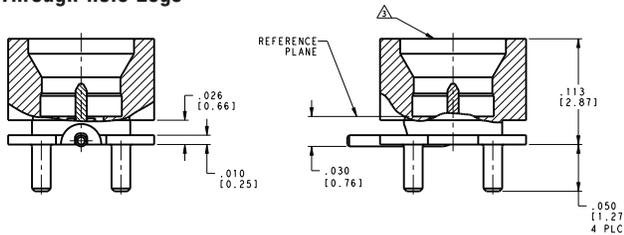
**PCB Surface Mount, Smooth Bore — Part No. 1757253-1 Smooth Bore
1757254-1 Full Detent**



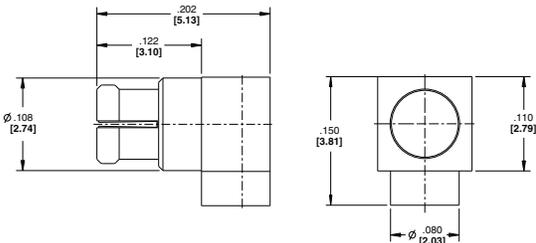
**Cable Jack, Straight — Part No. 1757642-1 — .047 dia. cable
1996328-1 — .086 dia. cable**



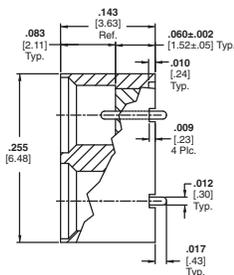
**PCB Surface Mount, — Part No. 1757639-1 Full Detent
Through-hole Legs**



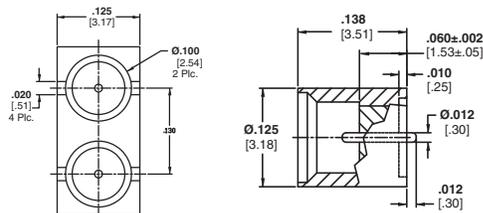
Cable Jack, Right-Angle — Part No. 1757643-1 — .047 dia. cable



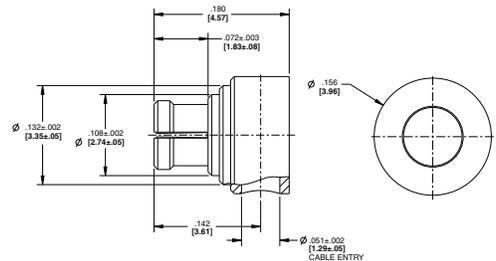
**Hermetic, Smooth Bore, 2 Pos.
Part No. 1663434-1**



**Hermetic Smooth Bore
Part No. 1663433-1**



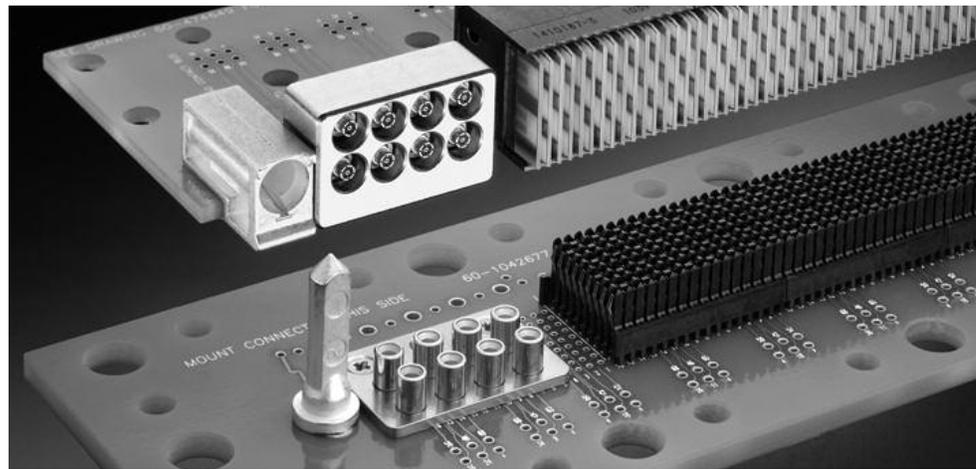
Cable Jack, Right-Angle — Part No. 1757638-1 — .047 dia. cable



Multi-position Backplane RF Modules

Product Facts

- Modular design permits application specific configuration with high RF contact count
 - Float mounted jack maintains positive RF ground
 - .240 center-to-center spacing
 - High channel to channel isolation
 - 4 and 8 position modules are designed to meet the requirements of VITA 67.1 and VITA 67.2
 - RF contacts are available for a variety of low loss cables
- Compliant pin backplane contacts are available**
- RF cable assemblies



Description

Modular, high density, blind-mate RF backplane connection system combining a high performance, broad bandwidth multi-position RF interconnect in a customer configurable platform.

Applications

- Backplane/daughter card applications
- Electronic countermeasure systems
- Land & sea anti-ballistic signal processing
- UAV electronic sensing and processing
- Avionics & ground based radar systems
- Ground base stations & communication systems
- Central computing, satellite on-board & ship-board computing

Standards & Specs

Materials and plating meet the requirements of MIL-PRF-39012

SMPM RF contact interfaces IAW MIL-STD-348

Designed to meet the vibration, environmental and corrosion resistance requirements of ANSI/VITA 47

Designed and qualified IAW VITA 67.0; VITA 67.1 and VITA 67.2

Product Specification: 108-2443

IS Sheet: 408-10387

Test Report: 501-748

Materials

Center Contacts: Beryllium copper, gold plated

Connector Housings: Beryllium copper, gold plated

Module Body: Type 303 Corrosion resistant steel, with passivation treatment and aluminum alloy 6061-T6, with Trivalent chromate conversion coating

Springs: Nickel plated music wire or Type 316 corrosion resistant steel, with passivation treatment

Insulators: PTFE

Mechanical

Durability: EIA-364-9, 500 mating cycles (smooth bore)

Vibration: EIA-364-28, Test Condition III

Mechanical Shock: EIA-364-27, Method G

Operating Temperature: -55°C to +85°C

Humidity/Temperature Cycling: EIA-364-31, Method III

Physical or Other Properties

Misalignment: Axial float: .079 (2.0mm) min.

Radial Misalignment: +/- .010 min.

Force to Engage: 18.75 N (4.2 lbf) typical

Force to Disengage: 3.25 N (0.73 lbf) typical

Float Mount Preload: 0.52 N (2.3 lbf) lbs. typical

Float Mount Force at Full Deflection: 20.0 N (5.0 lbf) lbs. typical

Note: all values are typical for a single RF contact.

Multi-position Backplane RF Modules (Continued)

Electrical

- Impedance** — 50 ohm
- Frequency** — P.C.B. Mounted
Contacts - DC — 6.0 GHz
Semi-Rigid Cable Contacts - DC — 26.5 GHz
Flexible Cable Contacts - DC — 20 GHz
- VSWR** — 1.15:1 to 20 GHz; 1.25 max. to 26.5 GHz
- Insertion Loss** — .12 sqrt f (GHz) dB max.
- Insulation Resistance** — 5000 megaohms min.
- DWV @ Sea Level** — 325 Vrms min.
- Contact Resistance** — Center 6 milliohms max., outer 2 milliohms max.
- Isolation (Channel to Channel)** —
SHF (3-30 GHz): >100 dB
VHF/UHF (30 MHz-3 GHz): >120 dB
HF (3-30 MHz): >140 dB
- RF Power @ 105 C (C.W. Ave.)** —
VHF/UHF/SHF (30 MHz-30GHz): >20 dBm
HF (3-30 MHz): >30 dBm

Note: The maximum operating frequency is limited by the specifications of the selected cable.

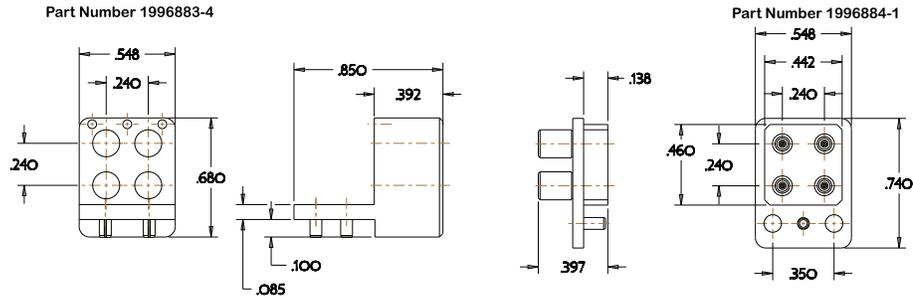


Part Dimensions

Dimensions are in inches

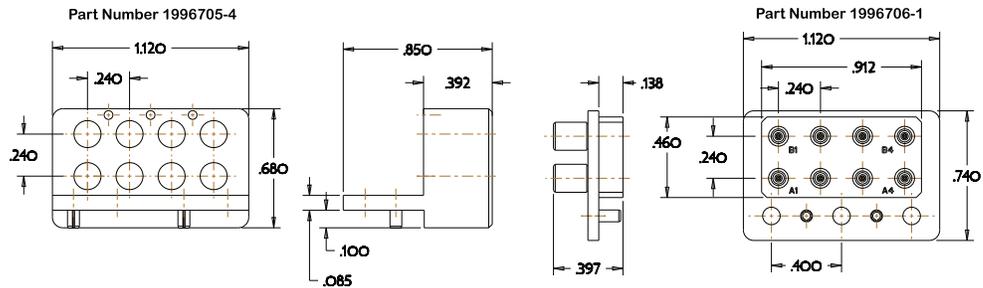
4 Position

- Part Number 1996883-4 — VITA 67.1 Daughter Card Module
- Part Number 1996884-1 — VITA 67.1 Backplane Module



8 Position

- Part Number 1996705-4 — VITA 67.2 Daughter Card Module
- Part Number 1996706-1 — VITA 67.2 Backplane Module



SMPM Contacts for Daughtercard modules:

- .047 semi-rigid cable: 1996771-1
- .086 semi-rigid cable: 1996390-1

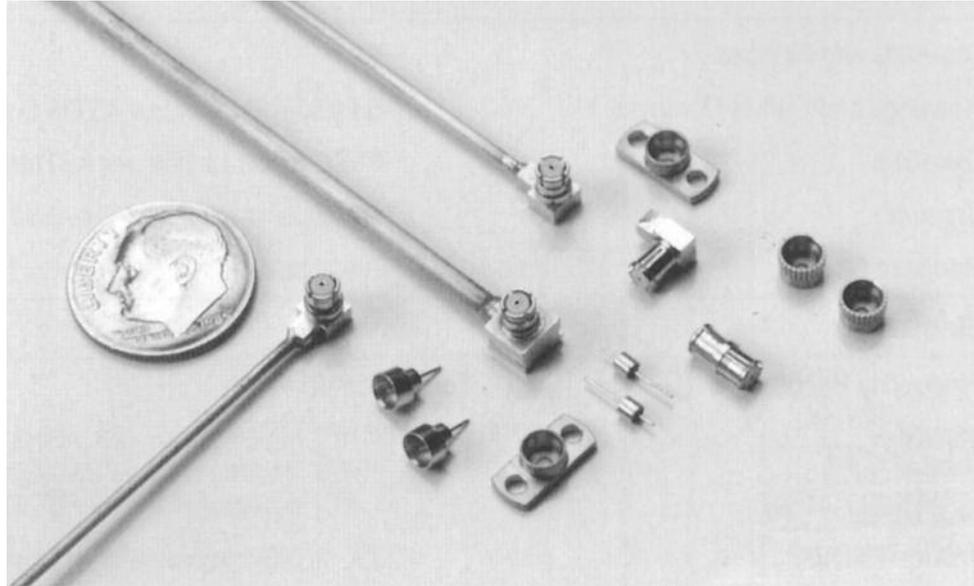
Consult TE for flexible cable/contact compatibility

Note: Other configurations and options are available, contact TE.

SMP Micro-Miniature Push-On Coaxial Connectors

Features

- Intermateable with Gilbert GPO™ Series
- Enhanced performance features
- Simplified Assembly
- DSCC Approved



SMP micro-miniature push-on coaxial connectors provide solutions for today's modular designs with denser packaging requirements. The extremely small size of the SMP offers a versatile solution for high density packaging allowing connector center-to-center spacing of 0.17 [4.32]. The push-on interface facilitates easier assembly and test with a positive snap-in feature to indicate a fully mated connection. The rugged SMP interface can better withstand harsh environments of mechanical shock and vibration, typically found in military or aerospace related applications. This SMP connector

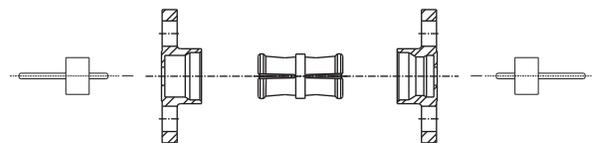
interface is the standard used by Defense Electronics Supply Center (DSCC) to generate the SMP push-on connector series. For DSCC Part Numbers, see page 2-31.

SMP connectors can be your design solution for mechanical packaging and frequency response. The SMP interface provides 0.010" of radial misalignment for critical blindmate applications. Mating forces are strictly controlled for reliable connections per mated pair or when simultaneously mating multiple connectors. Cable jacks include an anti-rocking ring for reliable mechanical performance for harsh

operating environments. SMP connectors offer enhanced broadband VSWR performance of 1.15:1 max thru 26.5GHz and 1.70:1 max thru 40GHz.

Standard design SMP configurations include cable connectors, straight and right-angle, for 0.047 and 0.085 semi-rigid cable, full detent, limited detent and smooth bore mating shrouds that can be bulk-head or flange mounted and glass feedthroughs for coax to circuit launchers. In-series adapters for module-to-module intermating and between series adapters for integrating or testing systems or components parameters.

SMP Shroud and Jack-to-Jack Adapter Assembly



Gilbert GPO Series — Trademark of Corning Incorporated

SMP Micro-Miniature Push-On Coaxial Connectors (Continued)

Specifications

General

Materials and Finishes	
Housings and Center Contacts	Beryllium Copper per ASTM-B-196; gold plate over nickel plate
Dielectric	PTFE Fluorocarbon per ASTM-D-1457
Shrouds	Stainless steel per ASTM-A582 Type 303; passivate per ASTM-A380
Hermetic Seal	Glass bead

Electrical

Frequency Range	dc - 40.0 GHz
VSWR	1.10:1 Maximum dc - 23.0 GHz 1.15:1 Maximum 23.0 - 26.5 GHz 1.70:1 Maximum 40.0 GHz
Voltage Rating	335 Vrms maximum at sea level
Insertion Loss	$0.10 f \sqrt{(GHz)}$ dB
Insulation Resistance	5000 megohms minimum
Dielectric Withstanding Voltage	500 volts (VRMS minimum)
RF High Potential	325 volts (VRMS minimum) @ 5 MHz
Impedance	50 ohms nominal
RF Leakage	-80dB to 3 GHz, -65dB from 3 to 26.5 GHz minimum
Contact Resistance	Initial center contact 6.0 milliohms maximum Outer contact 2.0 milliohms maximum

Mechanical

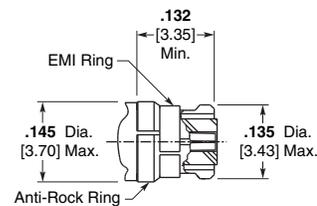
Durability	100 mating cycles minimum - (full detent)
Radial Misalignment	±0.010 minimum
Axial Misalignment	.000/.010
Force to Engage	full detent 15.0 lbs. maximum limited detent 10.0 lbs. maximum smooth bore 2.0 lbs. maximum
Force to Disengage	full detent 5.0 lbs. minimum limited detent 2.0 lbs. minimum smooth bore 0.5 lbs. minimum
Center Contact Retention	1.5 lbs. minimum axial force

Environmental

Operating Temperature	-85°F to +329°F [-65°C to +165°C]
Vibration	per MIL-STD-202, method 204, test condition D
Shock	per MIL-STD-202, method 213, test condition I
Thermal Shock	per MIL-STD-202, method 107, test condition B
Moisture Resistance	per MIL-STD-202, method 106, except step 7b shall be omitted. Resistance shall be 1000 megohms within 5 minutes after removal from humidity.

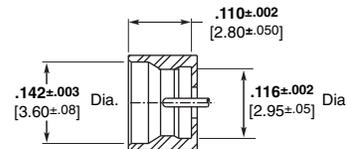
Interface Dimensions

Jack

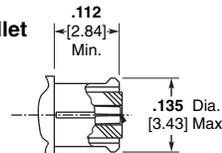


Shroud

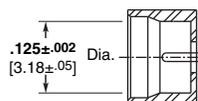
Full Detent



Bullet



Smooth Bore

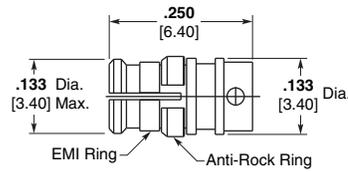


Note: These dimensions comply with MIL-STD-348.

SMP Micro-Miniature Push-On Coaxial Connectors (Continued)

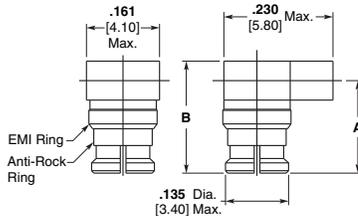
Jacks (Continued)

Straight Cable Jack, Solder Attachment



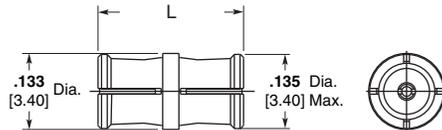
Cable	Reference Part No. (Ref. only)	Part No.	DSCC Part No.
.047 Semi-Rigid	2902-5005-62	1056521-1	94008ZCG-2
.085 Semi-Rigid (RG-405)	2902-5006-62	1056522-1	94008ZCG-1

Right-Angle Cable Jack, Solder Attachment



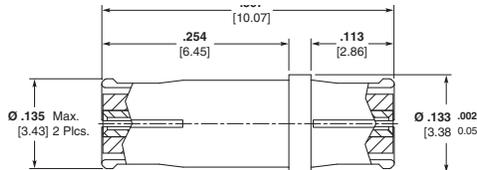
Cable	Dim. A	Dim. B	Reference Part No. (Ref. only)	Part No.	DSCC Part No.
.047 Semi-Rigid	.190 4.80	.230 5.80	2908-5006-62	1056550-1	94008ZCG-4
.085 Semi-Rigid (RG-405)	.209 5.30	.265 6.70	2908-5007-62	1056551-1	94008ZCG-3

Jack to Jack Adapter (Bullet)



Dim. L	Reference Part No. (Ref. only)	Part No.	DSCC Part No.
.254 6.45	2980-5004-62	1056703-1	94007ZCG-1
.397 10.07	2980-5005-62	1757023-1	94007ZCG-2

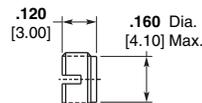
Jack to Jack Adapter (SMP)



DSCC Part No.	RG/U Cable	Part No.
94007ZCG-2	—	1757023-1

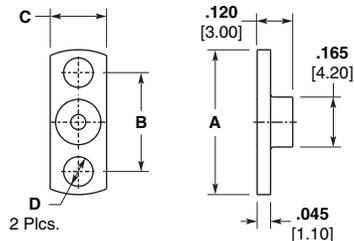
Shrouds

Shroud — Threaded



Description	Reference Part No. (Ref. only)	Part No.
Full Detent	2998-5045-02	1056745-1
Limited Detent	2998-5043-02	1056743-1
Smooth Bore	2998-5044-02	1056744-1

Shroud — 2 Hole Flange Surface Mount

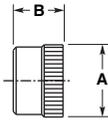


TE Part No.	Dimension				Shroud Design	DSCC Part No.
	A	B	C	D		
1056740-1					Full Detent	94007ZSP-3
1757024-1	.328 8.33	.187 4.75	.098 2.49	.480 12.19	Limited Detent	94007ZSP-3L
1757025-1					Smooth Bore	94007ZSP-3S
1056741-1					Full Detent	94007ZSP-4
1757026-1	.481 12.22	.223 5.66	.102 2.59	.625 15.88	Limited Detent	94007ZSP-4L
1757027-1					Smooth Bore	94007ZSP-4S
1056742-1					Full Detent	94007ZSP-5
1757028-1	.282 7.16	.165 4.19	.073 1.85	.400 10.16	Limited Detent	94007ZSP-5L
1757029-1					Smooth Bore	94007ZSP-5S
1757030-1	.352 8.94	.235 5.97	.073 1.85	.470 11.94	Smooth Bore	94007ZSP-6SC

SMP Micro-Miniature Push-On Coaxial Connectors (Continued)

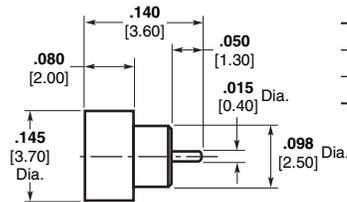
Shrouds (Continued)

Shroud — Press Fit



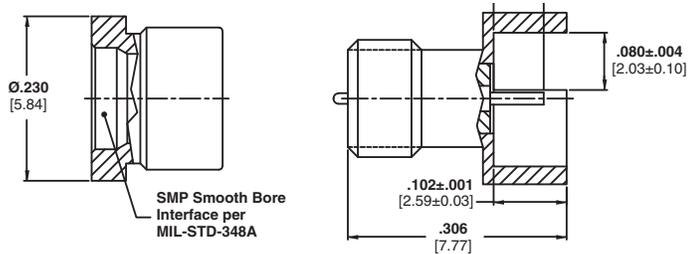
Description	Dim. A	Dim. B	Reference Part No. (Ref. only)	Part No.
Full Detent	.182	.115	2998-5005-02	1056726-1
	4.60	2.90		
Limited Detent	.174	.120	2998-5033-02	1056734-1
	4.40	3.00		
	.154	.080	2998-5035-02	1056736-1
	3.90	2.00		

Shroud — Solder-In Hermetic



Description	Reference Part No. (Ref. only)	Part No.
Full Detent	2998-5054-94	1056750-1
Limited Detent	2998-5055-94	1056751-1
Smooth Bore	2998-5056-94	1056752-1

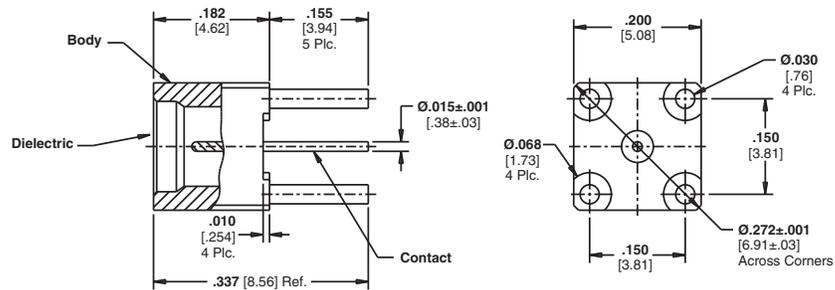
PCB Plug, Bulkhead Mount, Smooth Bore



SMP Smooth Bore Interface per MIL-STD-348A

Part No.
1663678-1

PCB Thru-Hole Mount, Smooth Bore



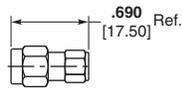
Part No.
1663679-1

SMP Micro-Miniature Push-On Coaxial Connectors (Continued)

Between Series Adapters

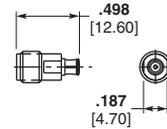
Between Series Coaxial Transmission Line Adapters provide convenient transitions between popular series coaxial connectors. The adapter design provides a minimum length consistent with good electrical performance. The small size, low VSWR, and broad frequency coverage permits a wide range of applications in both measurement and systems use.

SMA Plug – SMP Plug



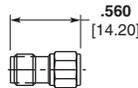
Part Number 1056706-1
Reference Part No. (Ref. only)
2981-2241-00

SMA Jack – SMP Jack



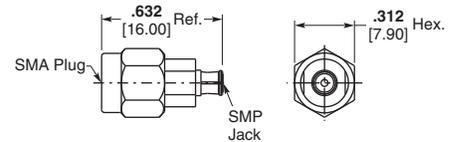
Part Number 1056702-1
Reference Part No. (Ref. only)
2980-2240-00

SMA Jack – OSMP Plug



Part Number 1056707-1
Reference Part No. (Ref. only)
2982-2240-00

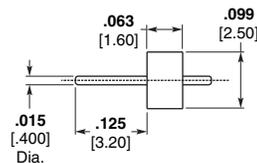
SMP Jack – SMA Plug



Part Number 1056708-1
Reference Part No. (Ref. only)
2982-2241-00

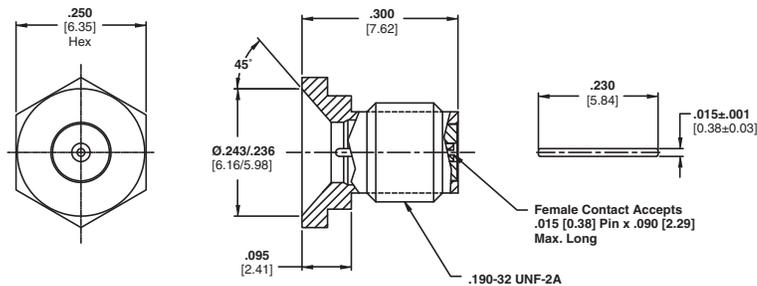
Miscellaneous

Glass Bead Assembly



Reference Part No. (Ref. only)	Part No.
2998-5022-94	1056728-1

Plug Assembly, Thread-In with Sliding Pin



Part No.
1663670-1

OSSP Subminiature Modular Blind Mate Connectors

Features

- Subminiature version of OSP (BMA) Blind Mate Connectors
- For space savings
- Family of connectors and adapters



METRIC

Dimensions in this OSSP section are millimeters over inches. All other pages are inches over millimeters.

OSSP connectors are a subminiature version of the OSP (BMA) blind mate series. Connectors in this series incorporate the design elements of the OSP (BMA) interface including the float and mismatch features. OSSP blind mates are about 40% smaller than OSP (BMA) connectors and

are designed to be used in applications where space is at a premium.

A complete family of OSSP connectors and adapters is available including cable connectors, fixed and float mount panel connectors and hermetic connectors. Rigid mount units will func-

tion to specifications up to $\pm .064$ [$\pm .0025$] radial misalignment with the mating plug connector. Applications requiring greater than $\pm .064$ [$\pm .0025$] radial misalignment can use either the float design or floating connector plates with guide pins.

Engineering Data

Impedance —	50 ohms
Frequency —	dc to 28.0 GHz
Temperature Rating —	-65° to 125° C

Electrical

VSWR —	1.05 + .01f (GHz)
RF Transmission Loss —	.040 x \sqrt{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)
Power Handling —	300W at 3 GHz (sea level) and room temperature

Environmental

Corrosion —	Method 101, Condition B, MIL-STD-202
Vibration —	Method 204, Condition D, 20G's, MIL-STD-202
Shock —	Method 213, Condition I, 100G's, MIL-STD-202
Temperature Cycling —	Method 107, Condition B, MIL-STD-202
Moisture Resistance —	Method 106, MIL-STD-202

Material

Housing —	Corrosion resistant steel Type 303 (stainless) per ASTM A484 and A582
Center Contact —	Beryllium copper per ASTM-B-196
Dielectric —	TFE fluorocarbon per ASTM-D-1457
Gasket (O'Ring) —	MIL-P-25732

RG-405 (.085) Semi-Rigid

Mechanical

Force to Engage —	3 pounds max.
Force to Disengage —	1.5 pounds max.
Center Contact Retention —	4 pounds min.
Durability —	1,000 Cycles
Radial Misalignment —	
Rigid Mount	$\pm .06$ [$\pm .0025$]
Float Mount	$\pm .51$ [$\pm .020$]

Mating Characteristics

Jack Connector —		
Center Contact Socket	Oversize test Pin —	.533 + .003 [.0210 + .0001] dia.
	Test Pin Finish —	16 micro inch max.
	Insertion Depth —	.76/1.14 [.030/.045]
	Number of Insertions —	3
Insertion Force	Test Pin —	.528 + .003 [.0208 + .0001] dia.
	Test Pin Finish —	16 micro inch
	Insertion Force —	3 pounds max.
Withdrawal Force	Test Pin —	.495 + .003 [.0195 - .0001] dia.
	Test Pin Finish —	16 micro inch max.
	Insertion Depth —	1.27/1.91 [.050/.075]
	Withdrawal —	1/2 ounce min.

Finish

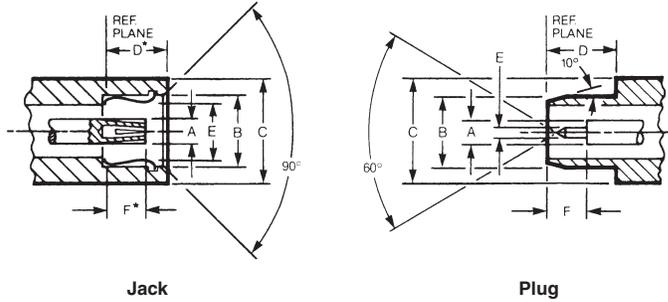
Center Contact —	Gold plate per MIL-G-45204, Type II, Class 0 over nickel plate per QQ-N-290, Class 2 or passivate per ASTM-A380
Housing —	Gold plate per MIL-G-45204, Type II, Class 0 over nickel plate per QQ-N-290, Class 2 or passivate per ASTM-A380

OSSP Subminiature Modular Blind Mate Connectors (Continued)

Interface Mating Dimensions

The connector interface, specifically designed for multiple interconnects, maintains reliable performance over the typical mechanical tolerance required in cost effective packaging.

The interface test data shows excellent performance is maintained with mating gaps up to .015 inch.



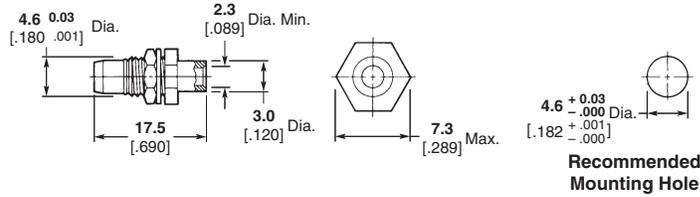
Description	Dimensions											
	A		B		C		D		E		F	
Jack	1.22	Nom.	3.91	Min.	5.33	Ref.	5.00	Nom.*	3.35	Max.	3.23	Max.*
	0.48		.154		.210		.197		.132		.127	
Plug	1.22	Nom.	3.56	Nom.	5.33	Ref.	5.00	Min.	0.51	Nom.	3.25	Min.
	0.48		.140		.210		.199		.020		.128	

*With spring bottomed.

OSSP Subminiature Modular Blind Mate Connectors (Continued)

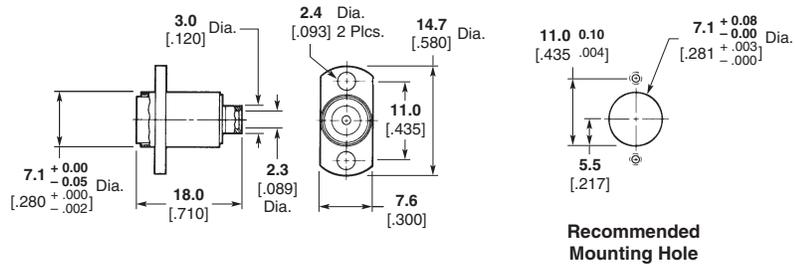
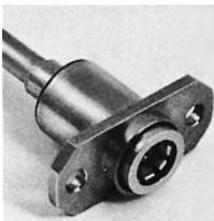
**For Semi-Rigid Cable, 2.16 [.085] Dia.,
Direct Solder Attachment**

**Bulkhead Feedthrough
Cable Plug — Rear Mount**



Cable	Plating	Reference Part No.	Part No.
RG-405/U, 2.16 [.085]	Gold	4703-7985-00	1255511-1

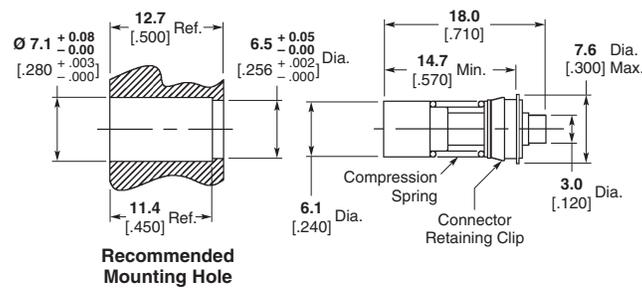
**Flange Mount Cable Jack —
Floating Rear Mount**



Cable	Reference Part No.	Part No.
RG-405/U, 2.16 [.085]	4706-7985-02	1059868-1

Finish: Inner housing that is soldered to cable is gold plated. Outer housing is passivated stainless steel.
When using semi-rigid cable, it is recommended that a service loop be used to facilitate the float features of the connector.

Feedthru Snap-In

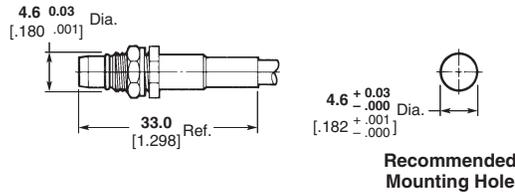


Cable	Reference Part No.	Part No.
RG-405/U, 2.16 [.085]	4710-7985-00	1059874-1

OSSP Subminiature Modular Blind Mate Connectors (Continued)

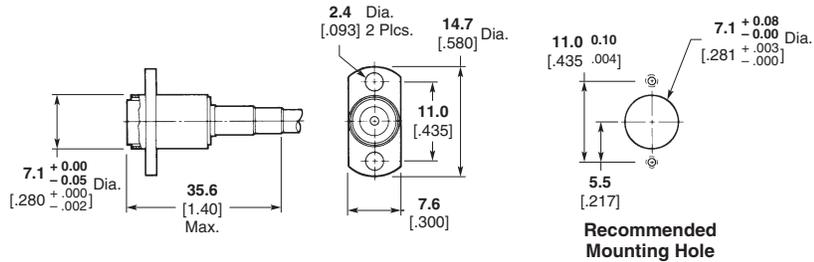
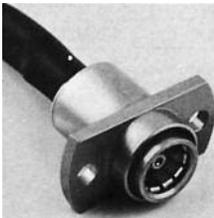
For Flexible Cable,
Crimp Attachment

**Bulkhead Feedthrough
Cable Plug — Rear Mount**



Cable	Plating	Reference Part No. (Ref. Only)	Part No.
RG-174/U, 188/U, 316U	Passivated Stainless Steel	4733-7388-02	1059886-1

**Flange Mount
Cable Jack —
Floating Rear Mount**



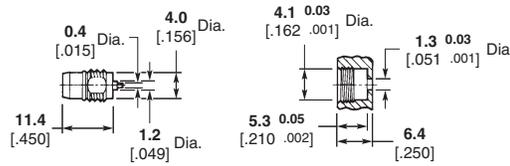
Cable	Plating	Reference Part No. (Ref. Only)	Part No.
RG-188/U, 316 Double Braided Only	Passivated Stainless Steel	4736-7316-02	1059888-1
RG-174/U, 188/U, 316U	Passivated Stainless Steel	4736-5001-02	1059887-1

OSSP Subminiature Modular Blind Mate Connectors (Continued)

For Panel Mount

Straight Terminal

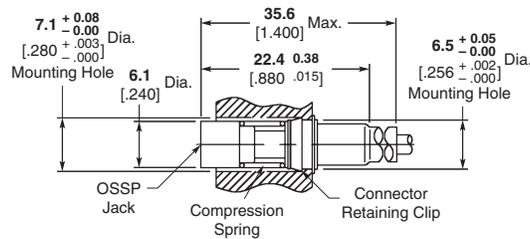
Threaded Installation — Panel Feedthrough Plug Receptacle



Recommended Mounting Hole

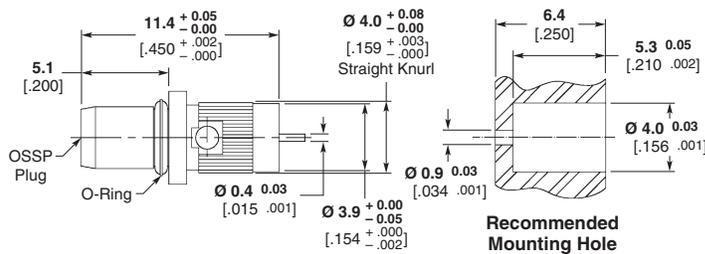
Plating	Reference Part No. (Ref. Only)	Part No.
Passivated Stainless Steel	4757-5006-02	1059903-1

Feedthru Snap-In Cable Jack



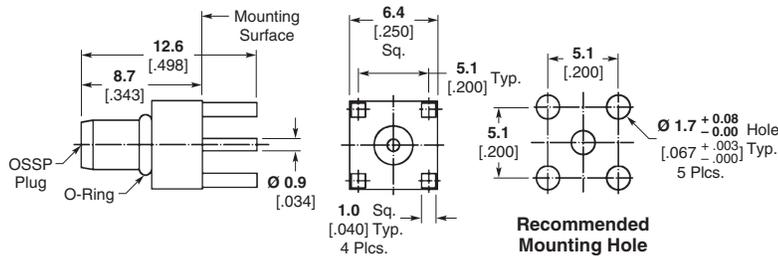
Reference Part No. (Ref. Only)	Part No.
4740-7388-00	1059889-1

PCB Vertical Plug



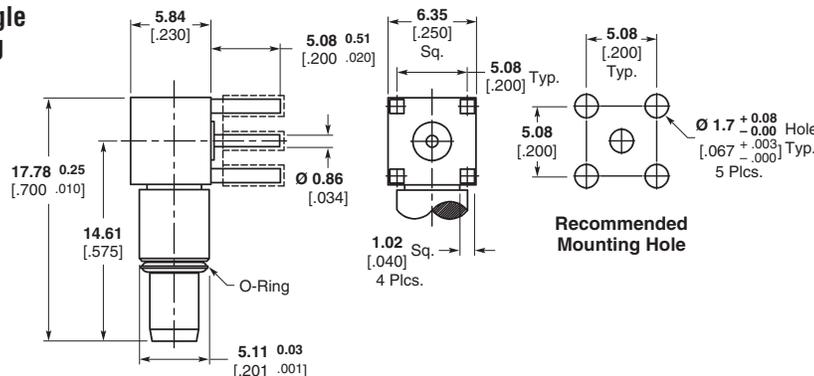
Reference Part No. (Ref. Only)	Part No.
4757-1154-02	1059901-1

Press-In Plug



Reference Part No. (Ref. Only)	Part No.
4763-0000-00	1059919-1

PCB Right Angle Bulkhead Plug

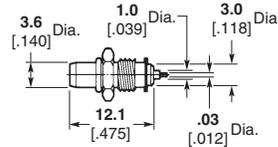


Part No.
1484546-1

OSSP Subminiature Modular Blind Mate Connectors (Continued)

Hermetically Sealed

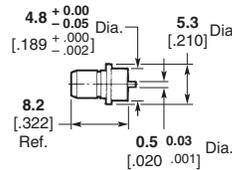
**Metal to Metal
Formable Gasket —
Panel Feedthrough Plug
Receptacle**



VSWR (GHz)	RF Leakage (dB)	Plating	Reference Part No. (Ref. Only)	Part No.
1.06 + .01f	-(85-fGHz)	Gold	4757-5014-00	1059905-1

Recommended Mounting Hole Detail A at bottom of this page.

**Solder and Braze-In
Panel Feedthrough Plug
Receptacle**

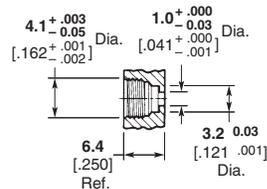


VSWR (GHz)	RF Leakage (dB)	Plating	Reference Part No. (Ref. Only)	Part No.
1.06 + .01f	-(85-fGHz)	Gold	4757-3204-00	1059902-1

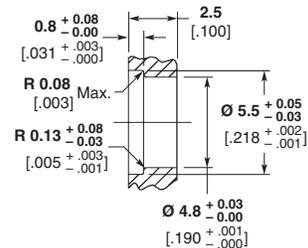
Recommended Mounting Hole Detail B at bottom of this page.

**Recommended
Mounting Hole Detail for
Hermetically Sealed**

Detail A*



Detail B*

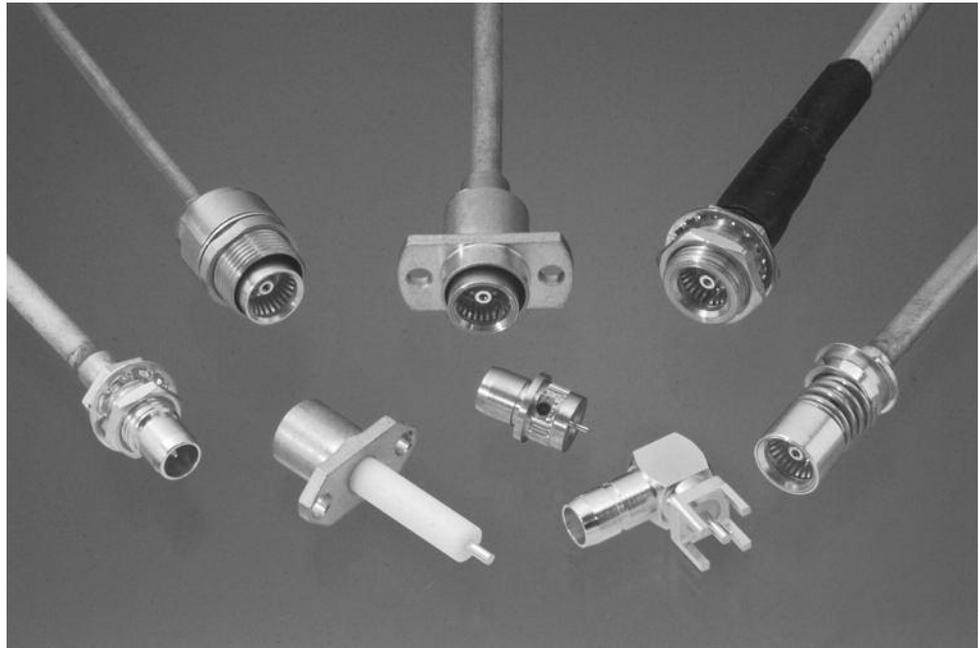


*Consult appropriate Instruction Sheet for complete mounting procedure.

OSP (BMA) Miniature Modular Blind Mate Connectors

Features

- Interface designed for multiple interconnects
- For high performance microwave system requirements
- Bulkhead or panel mount
- For semi-rigid cable



OSP (BMA) miniature connectors for semi-rigid cable meet high performance requirements for microwave multiple interconnects. Standard units are available in bulkhead or panel mount designs for either direct solder or OSCC solderless compression crimp attachment. Complete tooling for both versions is located in the Tool Section of this catalog.

Jack connectors are available in either float or rigid mount. Rigid mount units will function to specifications up to $\pm .10$ [.004] radial misalignment with the mating plug connector. Applications requiring greater than $\pm .10$ [.004] radial misalignment can use either the float design or floating connector plates with guide pins. The OSCC Solderless Compression Crimp attach-

ment meets high performance requirements for microwave system applications. The cable attachment is permanent and highly reliable. Ease of assembly permits users unskilled in soldering techniques to rapidly produce cable assemblies with consistently excellent mechanical and electrical performance.

METRIC

Dimensions in this OSP (BMA) section are millimeters over inches. All other pages are inches over millimeters.

OSP (BMA) Miniature Modular Blind Mate Connectors (Continued)

The specifications given refer specifically to mated pair of Part Numbers 1059410-1 and 1059402-1 (RG 402) and 1059412-1 and 1059404-1 (RG 405). Specifications on other connectors are available on request.

The general electrical, mechanical and environmental specifications in the following table are recommended for procurement documents or drawings.

Engineering Data

Impedance —	50 ohms
Frequency —	dc to 22.0 GHz
Temperature Rating —	-65° to 125° C

Electrical

	RG 402 (.141) Semi-Rigid	RG 405 (.085) Semi-Rigid
VSWR —		
dc - 18.0 GHz	1.02 + .005f (GHz)	1.05 + .005f (GHz)
18.0 - 22.0 GHz	1.02 + .008f (GHz)	1.05 + .009f (GHz)
RF Transmission Loss —	.03 x \sqrt{f} (GHz)	.03 x \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.
Outer Contact to Cable	0.5 milliohms max.	0.5 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)
Power Handling —	300W at 3 GHz (sea level) and room temperature	

Environmental

Corrosion —	Method 101, Condition B, MIL-STD-202
Vibration —	Method 204, Condition D, 20G's, MIL-STD-202
Shock —	Method 213, Condition I, 100G's, MIL-STD-202
Temperature Cycling —	Method 107, Condition B, MIL-STD-202
Moisture Resistance —	Method 106, MIL-STD-202

Material

Housing —	Corrosion resistant steel Type 303 (stainless) per ASTM A484 and A582
Center Contact —	Beryllium copper per ASTM-B-196
Dielectric —	TFE fluorocarbon per ASTM-D-1457
Gasket (O'Ring) —	MIL-P-25732

Mechanical

Force to Engage —	3 pounds max.
Force to Disengage —	1.5 pounds max.
Center Contact Retention —	6 pounds min.
Durability —	5,000 Cycles
Radial Misalignment —	
Rigid Mount	±.10 [±.004]
Float Mount	±.51 [±.020]

Mating Characteristics

Jack Connector —		
Center Contact Socket	Oversize test Pin —	.945 + .003 [.0372 + .0001] dia.
	Test Pin Finish —	16 micro inch
	Insertion Depth —	.76/1.14 [.030/.045]
	Number of Insertions —	3
Insertion Force	Test Pin —	.940 + .003 [.0370 + .0001] dia.
	Test Pin Finish —	16 micro inch
	Insertion Depth —	1.27/1.91 [.050/.075]
	Insertion Force —	3 pounds max.
Withdrawal Force	Test Pin —	.90 + .003 [.0355 - .0001] dia.
	Test Pin Finish —	16 micro inch
	Insertion Depth —	1.27/1.91 [.050/.075]
	Withdrawal —	1 ounce min.

Finish

Center Contact —	Gold plate per MIL-G-45204, Type II, Class 1 over copper plate per MIL-C-14550
Housing —	Gold plate per MIL-G-45204, Typ II, Class 0 over nickel plate per QQ-N-290, Class 2 or passivate per ASTM-A380

All dimensions shown are nominal. Contact the factory for specific tolerances.

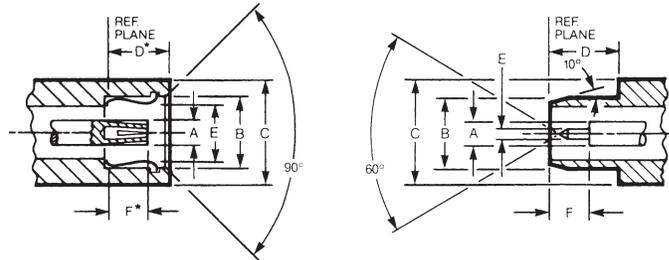
OSP (BMA) Miniature Modular Blind Mate Connectors (Continued)

Interface Mating Dimensions

The connector interface, specifically designed for multiple interconnects, maintains reliable performance over the typical mechanical tolerance required in cost effective packaging.

The interface test data shows excellent performance is maintained with mating gaps up to 0.38 [.015].

Meets MIL-STD-348 Figure 321. Intermateable to BMA Connectors.



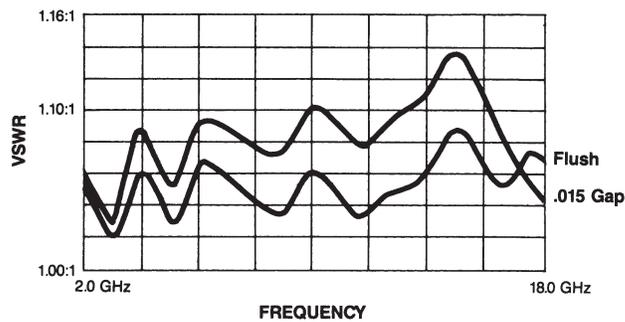
Jack

Plug

Letter	Dimensions
A	1.78 .070 Nom.
B	5.72 .225 Min.
C	7.62 .300 Ref.
D	5.00 .197 Nom.*
E	5.08 .200 Max.
F	3.23 .127 Max.*

Letter	Dimensions
A	1.78 .070 Nom.
B	5.33 .210 Nom.
C	7.62 .300 Ref.
D	5.05 .199 Min.
E	0.91 .036 Nom.
F	3.25 .128 Min.

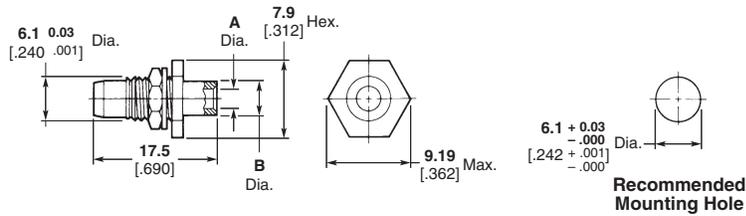
*With spring bottomed



OSP (BMA) Miniature Modular Blind Mate Connectors (Continued)

For Semi-Rigid Cable, 2.16 [.085] and 3.58 [.141] Dia., Direct Solder Attachment

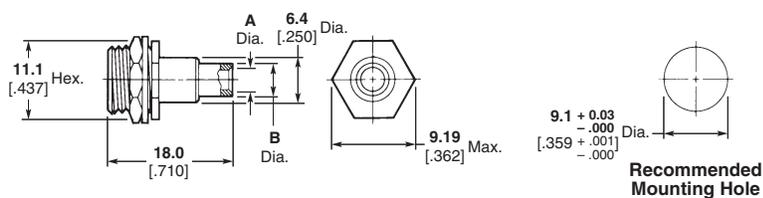
Bulkhead Feedthrough Cable Plug Rear Mount



Cable	Plating	Dimensions		Reference Part No. (Ref. Only)	Part No.
		A	B		
RG-402/U 3.58 .141	Gold	3.7 .144	4.6 .180	4503-7941-00	1059402-1
RG-405/U 2.16 .085	Gold	2.3 .089	3.0 .120	4503-7985-00	1059404-1*

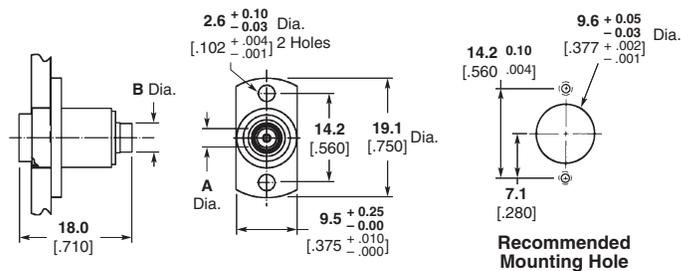
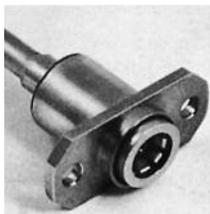
*Non-SCD.

Bulkhead Feedthrough Cable Jack Rigid Rear Mount



Cable	Plating	Dimensions		Reference Part No. (Ref. Only)	Part No.
		A	B		
RG-402/U 3.58 .141	Gold	3.7 .144	4.6 .180	4504-7941-00	1059410-1
RG-405/U 2.16 .085	Gold	2.3 .089	3.0 .120	4504-7985-00	1059412-1

Flange Mount Cable Jack Floating Rear Mount



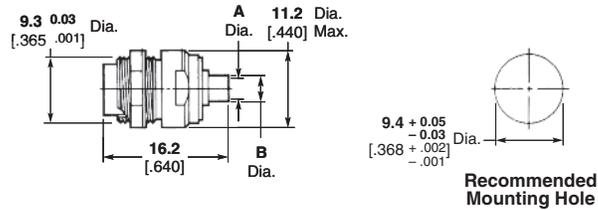
Cable	Dimensions		Reference Part No. (Ref. Only)	Part No.
	A	B		
RG-402/U 3.58 .141	3.7 .144	4.6 .180	4506-7941-02	1059453-1
RG-405/U 2.16 .085	2.3 .089	3.0 .120	4506-7985-02	1059456-1

Finish: Inner housing that is soldered to cable is gold plated. Outer housing is passivated stainless steel.
When using semi-rigid cable, it is recommended that a service loop be used to facilitate the float features of the connector.

OSP (BMA) Miniature Modular Blind Mate Connectors (Continued)

For Semi-Rigid Cable, 2.16 [.085] and 3.58 [.141] Dia., Direct Solder Attachment (Continued)

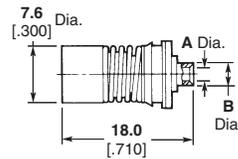
Low Profile – Bulkhead Feedthrough Cable Jack – Floating Rear Mount



Cable	Plating	Dimensions		Reference Part No. (Ref. Only)	Part No.
		A	B		
RG-402/U 3.58 .141	Gold	3.7 .144	4.6 .180	4522-7941-02	1059505-1
RG-405/U 2.16 .085	Gold	2.3 .089	3.0 .120	4522-7985-02	1059506-1

When using semi-rigid cable, it is recommended that a service loop be used to facilitate the float features of the connector.

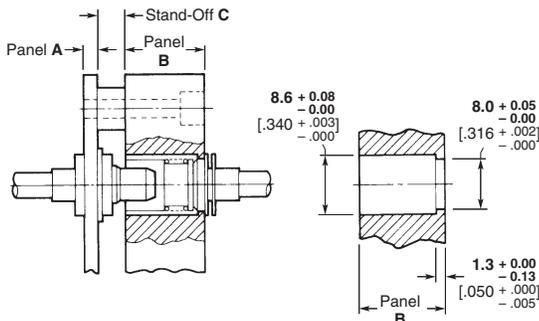
Low Profile – Panel Feedthrough Cable Jack – Floating Rear Mount



Cable	Plating	Dimensions		Reference Part No. (Ref. Only)	Part No.
		A	B		
RG-402/U 3.58 .141	Gold	3.7 .144	4.6 .180	4510-7941-00	1059465-1
RG-405/U 2.16 .085	Gold	2.3 .089	3.0 .120	4510-7985-00	1059467-1

Recommended removal tool part number 1059774-1 is described in Tool Section.

When using semi-rigid cable, it is recommended that a service loop be used to facilitate the float features of the connector.



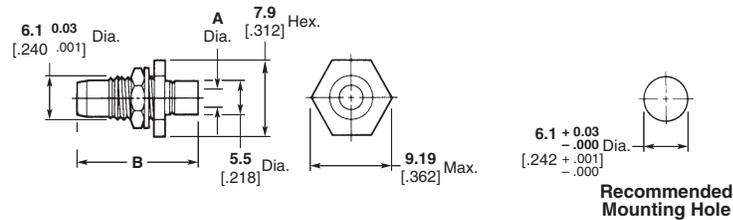
Recommended Mounting Detail

Panel A ±.003	Panel B ±.003	Stand-Off Panel C +.050/-.000
2.3 .090	9.5 .375	7.2 .285
2.3 .090	11.1 .438	5.6 .222
2.3 .090	12.7 .500	4.1 .160
3.2 .125	9.5 .375	6.4 .250
3.2 .125	11.1 .438	4.7 .187
3.2 .125	12.7 .500	3.2 .125

OSP (BMA) Miniature Modular Blind Mate Connectors (Continued)

For Semi-Rigid Cable, 2.16 [.085] and 3.58 [.141] Dia.,
OSCC Solderless Compression Crimp Attachment

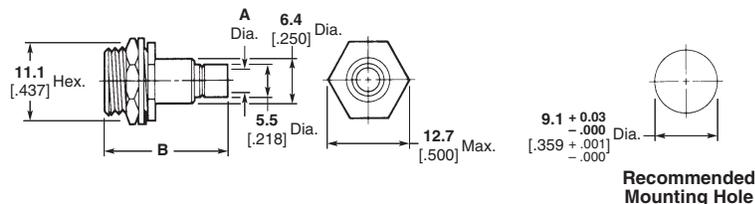
**Bulkhead Feedthrough
Cable Plug
Fixed Rear Mount**



Cable	Plating	Dim. A	Dim. B		Reference Part No. (Ref. Only)	Part No.
			Before Crimping	After Crimping		
RG-405/U 2.16 .085	Passivated Stainless Steel	2.2 .088	19.8 .782	17.2 .677	4503-7685-02	1059399-1

Outline drawing shows after crimp dimensions.

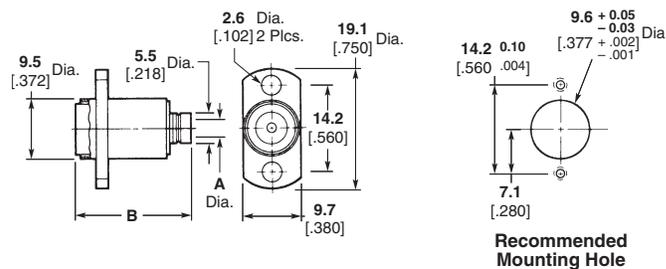
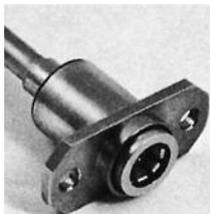
**Bulkhead Feedthrough
Cable Jack
Fixed Rear Mount**



Cable	Plating	Dim. A	Dim. B		Reference Part No. (Ref. Only)	Part No.
			Before Crimping	After Crimping		
RG-402/U 3.58 .141	Passivated Stainless Steel	3.6 .143	21.1 .830	18.2 .715	4504-7641-02	1059408-1

Outline drawing shows after crimp dimensions.

**Flange Mount Cable Jack
Floating Rear Mount**



Cable	Plating	Dim. A	Dim. B		Reference Part No. (Ref. Only)	Part No.
			Before Crimping	After Crimping		
RG-402/U 3.58 .141	Passivated Stainless Steel	3.6 .143	22.6 .891	19.8 .780	4506-7641-02	1059451-1
RG-405/U 2.16 .085	Passivated Stainless Steel	2.2 .088	22.6 .891	19.8 .780	4506-7685-02	1059452-1

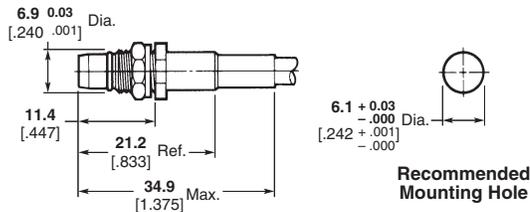
Outline drawing shows after crimp dimensions.

When using semi-rigid cable, it is recommended that a service loop be used to facilitate the float features of the connector.

OSP (BMA) Miniature Modular Blind Mate Connectors (Continued)

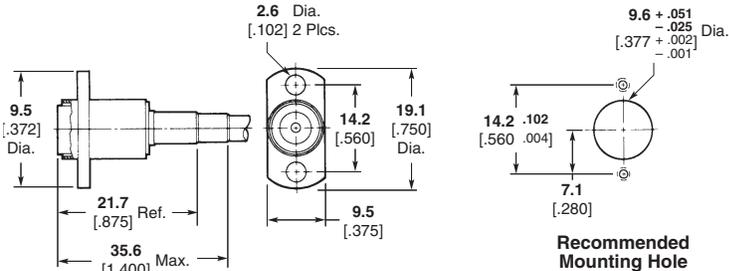
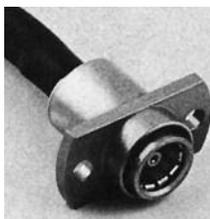
For Flexible Cable,
Crimp Attachment

**Bulkhead Feedthrough
Cable Plug
Rear Mount**



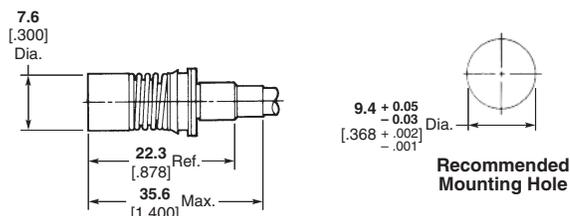
Cable	Plating	Reference Part No. (Ref. Only)	Part No.
RG-174/U, 179, 187, 188, 316	Passivated Stainless Steel	4533-7388-02	1059523-1

**Flange Mount Cable Jack
Floating Rear Mount**



Cable	Plating	Reference Part No. (Ref. Only)	Part No.
RG-55/U, 142, 223, 400	Passivated Stainless Steel	4536-7341-02	1059540-1
RG-174/U, 179, 187, 188, 316	Passivated Stainless Steel	4536-7388-02	1059541-1
RG-178, Double Braid	Passivated Stainless Steel	4536-5014-02	1058572-1

**Low Profile – Panel
Feedthrough Cable Jack –
Rear Mount**



Cable	Plating	Reference Part No. (Ref. Only)	Part No.
RG-174/U, 179, 187, 188, 316	Passivated Stainless Steel	4540-7388-02	1059551-1

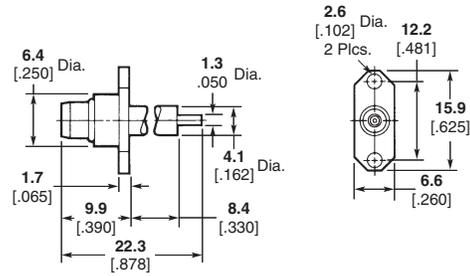
Refer to Recommended Mounting Hole Detail for Semi-Rigid Cable Low Profile Feedthrough Cable Jack. Recommended removal tool part number 1059774-1 is described in Tool Section.

OSP (BMA) Miniature Modular Blind Mate Connectors (Continued)

Panel Mount

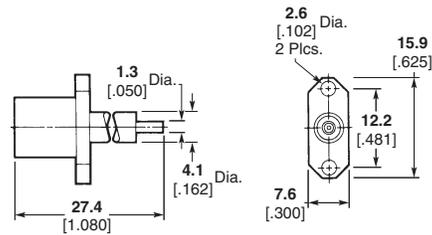
Straight Terminal

2-Hole Flange Mount Plug Receptacle



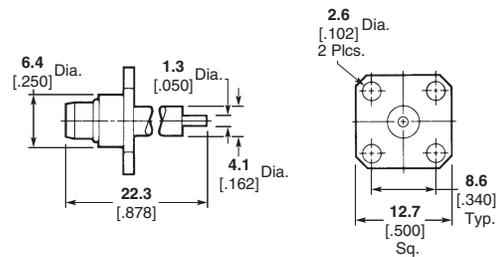
Plating	Reference Part No. (Ref. Only)	Part No.
Passivated Stainless Steel	4551-1352-02	1049678-1

2-Hole Flange Mount Jack Receptacle



Plating	Reference Part No. (Ref. Only)	Part No.
Passivated Stainless Steel	4552-1352-02	1059596-1

4-Hole Flange Mount Plug Receptacle



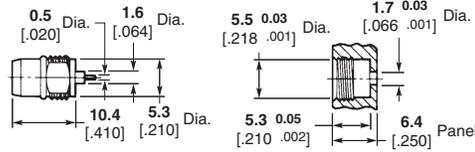
Plating	Reference Part No. (Ref. Only)	Part No.
Passivated Stainless Steel	4551-1201-02	1329846-1

OSP (BMA) Miniature Modular Blind Mate Connectors (Continued)

Panel Mount (Continued)

Straight Terminal

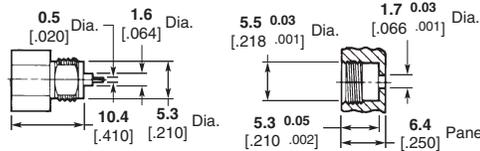
Threaded Installation – Panel Feedthrough Plug Receptacle



Recommended Mounting Hole

Plating	Reference Part No. (Ref. Only)	Part No.
Passivated Stainless Steel	4557-5009-02	1059617-1

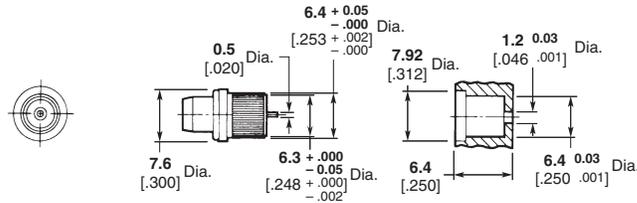
Threaded Installation – Panel Feedthrough Jack Receptacle



Recommended Mounting Hole

Plating	Reference Part No. (Ref. Only)	Part No.
Passivated Stainless Steel	4558-5009-02	1059657-1

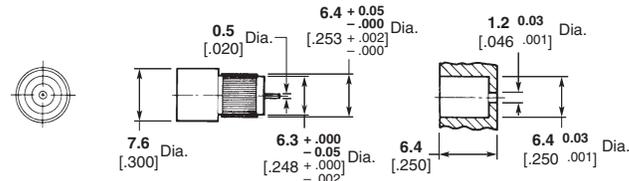
Press Fit Installation – Panel Feedthrough Plug Receptacle



Recommended Mounting Hole

Plating	Reference Part No. (Ref. Only)	Part No.
Passivated Stainless Steel	4557-5368-02	1059651-1

Press Fit Installation – Panel Feedthrough Jack Receptacle



Recommended Mounting Hole

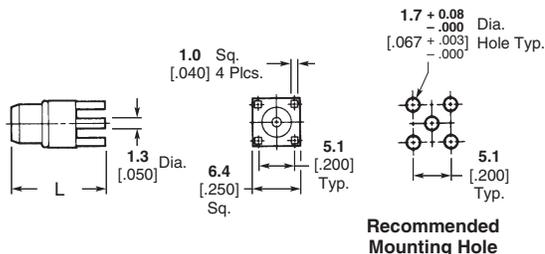
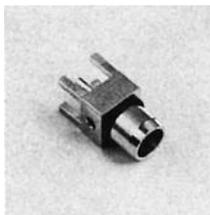
Plating	Reference Part No. (Ref. Only)	Part No.
Passivated Stainless Steel	4558-1154-02	1059654-1

OSP (BMA) Miniature Modular Blind Mate Connectors (Continued)

Panel Mount (Continued)

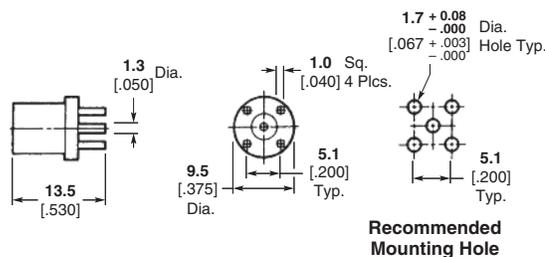
Straight Terminal Printed Circuit Board

Straight Plug Receptacle – Captured Contact



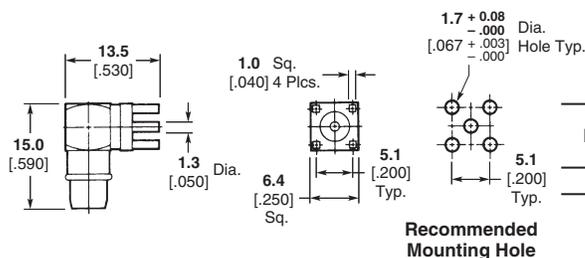
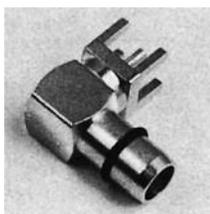
Plating	Reference Part No. (Ref. Only)	Part No.	Dim. L
Gold	4563-0000-00	1059684-1	12.7 .500
Gold	—	1663572-1	21.9 .862

Straight Jack Receptacle – Captured Contact



Plating	Reference Part No. (Ref. Only)	Part No.
Gold	4562-0000-00	1059681-1

Right Angle Plug Receptacle – Captured Contact

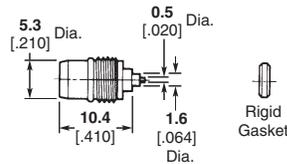


Plating	Reference Part No. (Ref. Only)	Part No.
Gold	4565-0000-00	1059691-1

OSP (BMA) Miniature Modular Blind Mate Connectors (Continued)

Hermetically Sealed

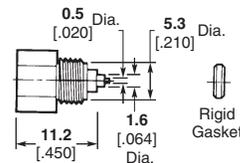
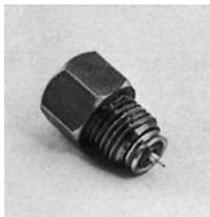
**Metal-To-Metal
Rigid Gasket Seal –
Panel Feedthrough Plug
Receptacle**



VSWR (GHz)	RF Leakage (dB)	Plating	Reference Part No. (Ref. Only)	Part No.
1.04 + .009f	–(90-fGHz)	Passivated stainless steel	4557-5119-02	1059632-1

Installation Thermal Limit: 250°C.
Recommended Mounting Hole Detail A follows, page 2-64.

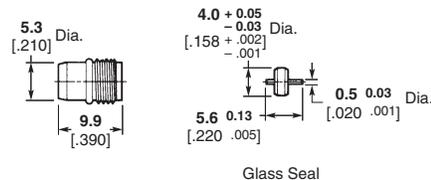
**Rigid Gasket Seal –
Panel Feedthrough Jack
Receptacle**



VSWR (GHz)	RF Leakage (dB)	Plating	Reference Part No. (Ref. Only)	Part No.
1.04 + .009f	–(90-fGHz)	Passivated stainless steel	4558-5119-02	1059665-1

Installation Thermal Limit: 250°C.
Recommended Mounting Hole Detail A follows, page 2-64.

**Field Replaceable
Solder and Braze-In
Panel Feedthrough Plug
Receptacle**



VSWR (GHz)	RF Leakage (dB)	Plating	Reference Part No. (Ref. Only)	Part No.
1.06 + .01f	–(90-fGHz)	Passivated stainless steel	4557-5329-02	1059637-1

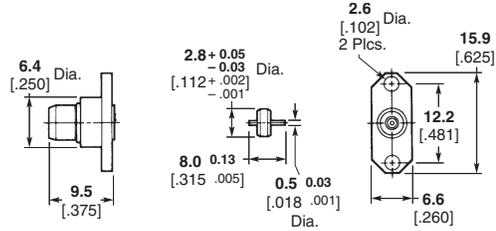
Recommended Mounting Detail B or E follows, page 2-64.

OSP (BMA) Miniature Modular Blind Mate Connectors (Continued)

Hermetically Sealed

(Continued)

2-Hole Flange Mount Plug Receptacle With EMI/RFI Gasket – 0.5 [.018] Dia. Contact

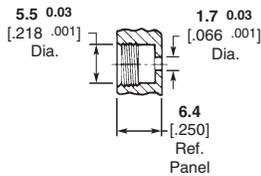


VSWR (GHz)	RF Leakage (dB)	Plating	Reference Part No. (Ref. Only)	Part No.
1.06 + .01f	–(90-fGHz)	Passivated stainless steel	4551-3357-02	1059572-1

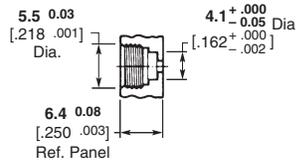
Recommended Mounting Detail D follows at bottom of this page.

Recommended Mounting Hole Detail

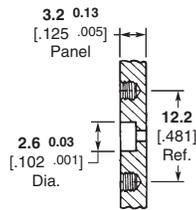
Detail A*



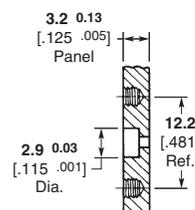
Detail B* (6.35 [.250] Panel Thickness)



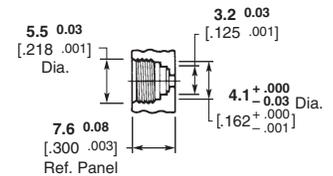
Detail C*



Detail D*



Detail E*



*Consult appropriate Instruction Sheet for complete mounting details.