

SMA Connectors

Product Facts

- Performance to 12.4 GHz and beyond
- Available in various base metal options, including stainless steel, brass and zinc diecast
- Uses industry standard crimp tools and processes
- Available with corrosion resistant, non-magnetic White Bronze plating
- Meets all performance requirements for MIL-C-39012.



Tyco Electronics offers a complete line of SMA connectors designed for performance to 18 GHz to satisfy the growing demand for SMA connectors in the wireless communications industry. The SMA product line offers stainless steel bodies, as well as non-ferrous metals. Various plating options are available, including Gold and White Bronze. The SMA interface is fully compatible with Mil-C-39012.

While still offering various options on military (QPL) approved connectors, Tyco Electronics has developed a complete offering tailored to the commercial Communications industry. This includes 3 piece flexible cable products for popular RG 316, 142 and RD

316 cable utilizing industry standard HEX crimps.

The SMA series meets the performance, quality and application requirements of the commercial marketplace. This includes White Bronze plating, a unique finish developed by Tyco Electronics to address the performance needs of the telecommunications market. This plating is highly resistant to wear, and contains no ferrous metals, thus displaying excellent inter-modulation characteristics.

To satisfy the broad range of commercial applications, SMA connectors are available in a broad range of standard configurations including; straight and right-angle cable applied plugs, bulkhead cable jacks, two and four hole

flange mount panel jacks, straight and right-angle pcb mount jacks and various between and in series adapters. Numerous packaging and testing options are also available to meet specific system criteria as well.

Additionally, standard military approved (QPL) interfaces are offered as well. Including connectors for semi-rigid cable and micro strip applications.

The 3 Piece SMA offering is designed especially for applications in cellular infrastructure where InterModulation Products (IMP) must be minimized. By limiting non-linearities within the connectors, IMP is reduced and increased channel capacity can be offered.

Between Series Adapters

For SMA Between Series Adapters, see pages 251-260.

SMA Connectors (Continued)

Specifications

MIL-C-39012 Applicable Paragraph		
General		
Material	3.3	Steel corrosion resistant per ASTM-A-582 and ASTM-A-484, Type 303. Beryllium copper per ASTM-B-196. PTFE Fluorocarbon per ASTM-D-1710.
Finish	3.3.1	Center contacts shall be gold plated to a min. thickness of .00127 [.00005] in accordance with MIL-G-45204, ASTM-B-488. All other metal parts shall be finished as to provide a connector which meets the corrosion requirements.
Design	3.4	The design shall be such that the outline shown in this catalog and the interface dimensions of MIL-STD-348A are met.
Electrical		
Insulation Resistance	3.11	The insulation resistance shall not be less than 10,000 megohms.
Corona Level	3.22	Refer to applicable military slash sheet, product drawing or spec.
Dielectric Withstanding Voltage	3.17	Refer to applicable military slash sheet, product drawing or spec.
RF High Potential	3.23	Refer to applicable military slash sheet, product drawing or spec.
Contact Resistance	3.16	Refer to applicable military slash sheet, product drawing or spec.
VSWR	3.14	Refer to applicable military slash sheet, product drawing or spec. Frequency range dependent on cable used.
RF Leakage	3.26	Refer to applicable military slash sheet, product drawing or spec.
Insertion Loss	3.27	Refer to applicable military slash sheet, product drawing or spec. Frequency range dependent on cable used.
Mechanical		
Force to Engage	3.5.1	The torque required to engage and disengage shall not exceed 2 in.-lbs. The longitudinal force is not applicable.
Coupling Nut Retention	3.25	60 lbs. min. Applicable for plug connectors only.
Coupling Proof Torque	3.6	15 in.-lbs. min. Applicable for plug connectors only.
Cable Retention	3.24	Refer to applicable military slash sheet or consult factory.
Mating Characteristics	3.7	Applicable to jack connectors only. Reference MIL-STD-348A for dimensions; oversize test pin .953 [.0375] min. dia., .76 - 1.14 [.030-.045] deep, insertion force 3 lbs. max. with .940 [.0370] min. dia. pin, withdrawal force 1 oz. min. with .902 [.0355] max. dia. pin.
Connector Durability	3.15	The connector to be tested and its mating connector shall be subjected to 500 insertion and withdrawal cycles at 12 cycles per minute max. The connector shall show no evidence of mechanical failure and shall meet the mating characteristic requirements.
Recommended Mating Torque	—	7 to 10 in.-lbs.
Environmental		
Vibration	3.18	Specification MIL-STD-202, method 204, test condition D
Shock	3.19	Specification MIL-STD-202, method 213, test condition I
Thermal Shock	3.20	Refer to applicable military slash sheet or consult factory.
Corrosion (Salt Spray)	3.13	Specification MIL-STD-202, method 101, test condition B.
Moisture Resistance	3.21	Specification MIL-STD-202, method 106. No measurements at high humidity. Insulation resistance shall be at least 200 megohms within 5 minutes of removal from humidity.

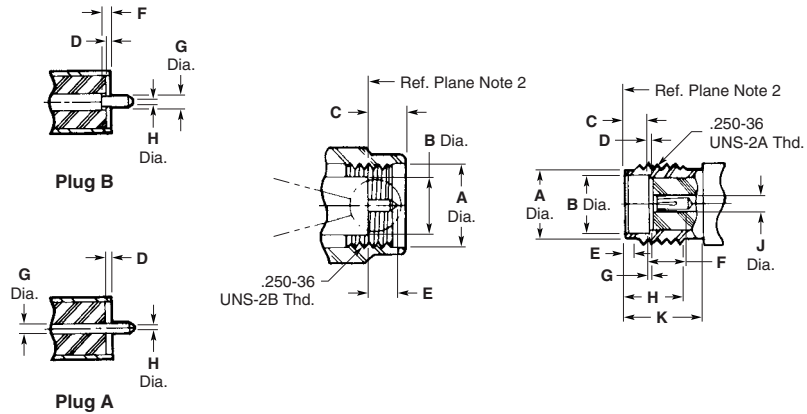
SMA Connectors (Continued)
Electrical

Connector Type	Cable	Frequency Max. (GHz)	VSWR x (fGHz)	Contact Resistance (milliohms max.)		Insulation Resistance (megohms min.)	Dielectric Withstanding Voltage (Volts RMS)	Corona Extinction Voltage at 70,000 Ft. (V RMS min.)	RF Transmission Loss	RF High Potential at 5 MHz (V RMS)	RF Leakage (dB min.)
				Center Contact	Outer Contact						
Straight Cable Plug without Contact	RG 402 (3.58 [.141])	Note 1	1.02 + .005	N/A	2.0	10,000	N/A	250	N/A	670	-(90-fGHz)
	RG 405 (2.16 [.085])	18.0	1.05 + .005	2.0	2.0	10,000	1000	250	.03 \sqrt{f} (GHz)	670	-(90-fGHz)
Straight Cable Plugs & Jacks Solder Attachment	RG 402 (3.58 [.141])	18.0	1.05 + .005	2.0	2.0	10,000	1500	375	.03 \sqrt{f} (GHz)	1000	-(90-fGHz)
	3.58 [.141] Microporous	18.0	1.05 + .005	2.0	2.0	10,000	1500	375	.03 \sqrt{f} (GHz)	1000	-(90-fGHz)
	RG 401 (6.35 [.250])	18.0	1.07 + .007	2.0	2.0	10,000	1500	375	.03 \sqrt{f} (GHz)	1000	-(90-fGHz)
	RG 174, 188, 316	Note 1	1.15 + .01	2.0	2.0	10,000	750	190	.06 \sqrt{f} (GHz)	500	-(60-fGHz)
Straight Cable Plugs & Jacks Solder Clamp Attachment	RG 55, 58, 141, 142, 223, 303, 400	Note 1	1.10 + .005	2.0	2.0	10,000	1000	250	.06 \sqrt{f} (GHz)	670	-(60-fGHz)
	RG 405 (2.16 [.085])	12.4	1.10 + .015	2.0	2.0	10,000	1000	250	.03 \sqrt{f} (GHz)	670	-(90-fGHz)
Straight Cable Plugs & Jacks Solder Clamp Attachment	RG 402 (3.58 [.141])	12.4	1.07 + .01	2.0	2.0	10,000	1500	375	.03 \sqrt{f} (GHz)	1000	-(90-fGHz)
	RG 55, 58, 141, 142, 223, 400	Note 1	1.10 + .005	2.0	2.0	10,000	1000	250	.06 \sqrt{f} (GHz)	670	-(60-fGHz)
Straight Cable Plugs & Jacks Clamp Attachment	RG 174, 188, 316	Note 1	1.15 + .01	2.0	2.0	10,000	750	190	.06 \sqrt{f} (GHz)	500	-(60-fGHz)
	RG 180, 195	Note 1	—	2.0	2.0	10,000	750	190	—	500	-(60-fGHz)
	RG 55, 142, 223, 400	Note 1	1.10 + .005	2.0	2.0	10,000	1000	250	.06 \sqrt{f} (GHz)	670	-(60-fGHz)
Straight Cable Plugs & Jacks Crimp Attachment	RG 58, 141, 303	Note 1	1.10 + .005	2.0	2.0	10,000	1000	250	.06 \sqrt{f} (GHz)	670	-(60-fGHz)
	RG 174, 188, 316	Note 1	1.15 + .01	2.0	2.0	10,000	750	190	.06 \sqrt{f} (GHz)	500	-(60-fGHz)
	RG 180, 195	Note 1	—	2.0	2.0	10,000	750	190	—	500	-(60-fGHz)
	RG 178, 196	Note 1	1.2 + .02	2.0	2.0	10,000	500	125	.06 \sqrt{f} (GHz)	335	-(60-fGHz)
Straight Cable Plugs & Jacks Compression Clamp Attachment	RG 401 (6.35 [.250])	18.0	1.07 + .01	2.0	2.0	10,000	1500	375	.05 \sqrt{f} (GHz)	1000	-70 dB min.
	6.35 [.250] Microporous	18.0	1.07 + .01	2.0	2.0	10,000	1500	375	.05 \sqrt{f} (GHz)	1000	-70 dB min.
	6.35 [.250] 3 Spline	18.0	1.07 + .01	2.0	2.0	10,000	1500	375	.05 \sqrt{f} (GHz)	1000	-70 dB min.
	6.35 [.250] 5 Spline	18.0	1.07 + .01	2.0	2.0	10,000	1500	375	.05 \sqrt{f} (GHz)	1000	-70 dB min.
Right-Angle Cable Plugs Solder Attachment	RG 405 (2.16 [.085])	12.4	1.18 + .015	2.0	2.0	10,000	1000	250	.04 \sqrt{f} (GHz)	670	-(90-fGHz)
	RG 405 (2.16 [.085])	18.0	1.18 + .015	2.0	2.0	10,000	1000	250	.04 \sqrt{f} (GHz)	670	-(90-fGHz)
	RG 402 (3.58 [.141])	12.4	1.15 + .015	2.0	2.0	10,000	1500	325	.04 \sqrt{f} (GHz)	1000	-(90-fGHz)
	RG 402 (3.58 [.141])	18.0	1.10 + .010	2.0	2.0	10,000	1500	250	.05 \sqrt{f} (GHz)	1000	-(90-fGHz)
	RG 55, 58, 141, 142, 223, 303, 400	Note 1	1.15 + .01	2.0	2.0	10,000	1000	250	.07 \sqrt{f} (GHz)	670	-(60-fGHz)
	RG 174, 188, 316	Note 1	1.15 + .02	2.0	2.0	10,000	750	190	.07 \sqrt{f} (GHz)	500	-(60-fGHz)
Right-Angle Cable Plugs Crimp Attachment	RG 55, 142, 223, 400	Note 1	1.15 + .02	2.0	2.0	10,000	1000	250	.07 \sqrt{f} (GHz)	670	-(60-fGHz)
	RG 58, 141, 303	Note 1	1.15 + .02	2.0	2.0	10,000	1000	250	.07 \sqrt{f} (GHz)	670	-(60-fGHz)
	RG 174, 188, 316	Note 1	1.18 + .02	2.0	2.0	10,000	750	190	.07 \sqrt{f} (GHz)	500	-(60-fGHz)
	RG 180, 195	Note 1	—	2.0	2.0	10,000	750	190	—	500	-(60-fGHz)
	RG 178, 196	Note 1	1.25 + .025	2.0	2.0	10,000	500	125	.07 \sqrt{f} (GHz)	335	-(60-fGHz)
Right-Angle Cable Plugs Clamp Attachment	RG 55, 58, 141, 142, 223, 303	Note 1	1.10 + .005	2.0	2.0	10,000	1000	250	.08 \sqrt{f} (GHz)	670	-(60-fGHz)
	RG 174, 188, 316	Note 1	1.15 + .01	2.0	2.0	10,000	750	190	.08 \sqrt{f} (GHz)	500	-(60-fGHz)
	RG 180, 195	Note 1	—	2.0	2.0	10,000	750	190	—	500	-(60-fGHz)
Flange Mount Plugs & Jacks Panel or Bulkhead Mount	Non-Captured	18.0	1.03 + .004	2.0	2.0	10,000	1000	250	.03 \sqrt{f} (GHz)	670	-(100-fGHz)
	Epoxy Captured	18.0	1.05 + .005	2.0	2.0	10,000	1000	250	.03 \sqrt{f} (GHz)	670	-(60-fGHz)
	Mechanical Capture	18.0	1.04 + .004	2.0	2.0	10,000	1000	250	.03 \sqrt{f} (GHz)	670	-(100-fGHz)
	Field Replaceable Hermetic Launchers	18.0	1.04 + .006	2.0	2.0	10,000	1000	250	.04 \sqrt{f} (GHz)	670	-(100-fGHz)
Bulkhead Feedthrough Jacks	Epoxy Captured	18.0	1.07 + .010	2.0	2.0	10,000	1000	250	.04 \sqrt{f} (GHz)	670	-(60-fGHz)
	Mechanical Capture	18.0	1.07 + .010	2.0	2.0	10,000	1000	250	.04 \sqrt{f} (GHz)	670	-(100-fGHz)
Right-Angle Flange Mount Jacks	N/A	18.0	1.07 + .015	2.0	2.0	10,000	1000	250	.08 \sqrt{f} (GHz)	670	-(90-fGHz)
	N/A	12.4	1.15 + .015	2.0	2.0	10,000	1000	250	.08 \sqrt{f} (GHz)	670	-(90-fGHz)
Printed Circuit Board Mount Straight Terminal	N/A	18.0	N/A	2.0	2.0	10,000	1000	250	N/A	670	N/A
Right-Angle Printed Circuit	N/A	12.4	N/A	2.0	2.0	10,000	1000	250	N/A	670	N/A
End Launch Stripline Circuit	N/A	18.0	1.05 + .005	2.0	2.0	10,000	1000	250	.03 \sqrt{f} (GHz)	670	-(60-fGHz)
Surface Launch Stripline Circuit	N/A	18.0	1.05 + .005	2.0	2.0	10,000	1000	250	.03 \sqrt{f} (GHz)	670	-(60-fGHz)
Right-Angle Surface Launch Stripline Circuit	N/A	12.4	1.15 + .015	2.0	2.0	10,000	1000	250	.08 \sqrt{f} (GHz)	670	-(60-fGHz)
	N/A	18.0	1.07 + .015	2.0	2.0	10,000	1000	250	.08 \sqrt{f} (GHz)	670	-(60-fGHz)

1. Maximum operating frequency of cable per MIL-C-17.
2. Specifications do not apply to hermetic or compression crimp connectors.
3. For Brass SMA: Frequency Range DC-6GHz, Impedance 50 Ohms, Insulation Resistance.

SMA Connectors (Continued)

Interface Mating Dimensions



Plug

Dimension	Minimum	Maximum
A	6.35 .250	—
B	—	4.59 .1808
C	—	3.43 .135
D	0.00 .000	0.25 .010
E	—	2.54 .100
F	0.00 .000	0.25 .010
G	0.90 .0355	0.94 .037
H	0.00 .000	0.38 .015

Jack

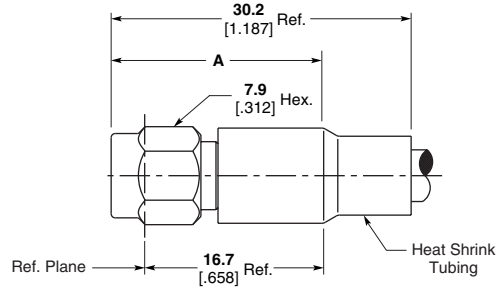
Dimension	Minimum	Maximum
A	5.28 .208	5.49 .216
B	4.60 .181	—
C	1.91 .075	1.98 .078
D	0.00 .000	0.25 .010
E	0.38 .015	1.43 .045
F	2.92 .115	—
G	0.00 .000	0.25 .010
H	4.32 .170	—
J	1.24 .049	1.30 .051
K	5.54 .218	—

Notes:

1. ID to meet VSWR and contact resistance when mated with 0.51 +.025/-.013 [.036 +.0010/-.0005] Dia. Pin.
2. When fully engaged, the two reference planes must coincide with metal to metal contact.
3. Metric equivalents (to the nearest 0.01mm) are given for general information only.

SMA Connectors (Continued)
Flexible Cable

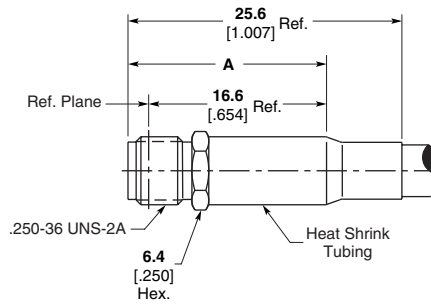
Straight Cable Plug, Solder



Cable Type RG/U	Body Material & Finish	Contact Captivation	Contact Attachment	Dimension A	Instruction Sheet	Part No.
55, 58, 141, 142, 223, 303, 400	Stainless, Gold ¹	No	Solder	19.7 .775	408-4821	1051638-1
174, 188, 316	Stainless, Gold ¹	No	Solder	17.5 .690	408-4756	1051644-1

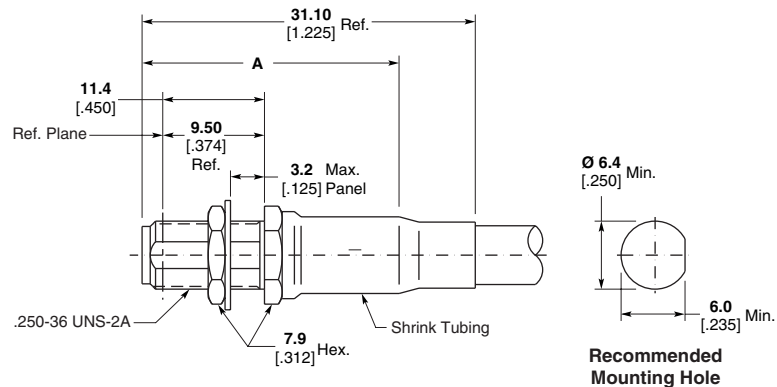
¹Coupling nut is passivated stainless steel.

Straight Cable Jack, Solder



Cable Type RG/U	Body Material & Finish	Contact Captivation	Contact Attachment	Dimension A	Instruction Sheet	Part No.
55, 58, 141, 142, 223, 303, 400	Stainless, Gold	No	Solder	18.5 .730	408-4820	1051852-1

Bulkhead Cable Jack, Solder

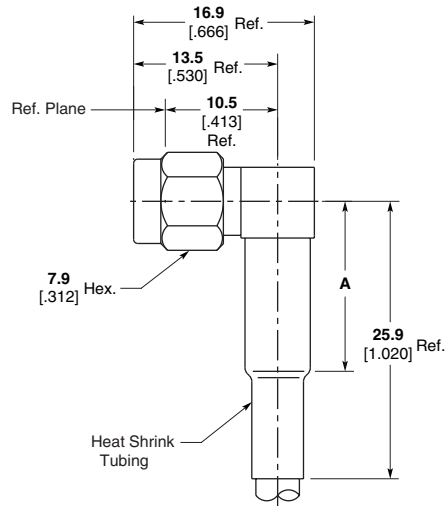


Cable Type RG/U	Body Material & Finish	Contact Captivation	Contact Attachment	Dimension A	Instruction Sheet	Part No.
RG 55, 58, 141, 142, 300	Stainless, Gold	No	Solder	24.0 .945	408-4817	1051861-1
174, 188, 316	Stainless, Gold	No	Solder	21.0 .825	408-4817	1051942-1

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

SMA Connectors (Continued)
Flexible Cable (Continued)

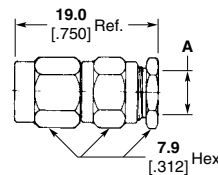
Right-Angle Cable Plug, Solder



Cable Type RG/U	Body Material & Finish	Contact Captivation	Contact Attachment	Dimension A	Instruction Sheet	Part No.
55, 58, 141, 142, 223, 303, 400	Stainless, Gold ¹	Yes	Solder	16.0 .630	408-4816	1052063-1
174, 188, 316	Stainless, Gold ¹	Yes	Solder	11.2 .440	408-4815	1052067-1

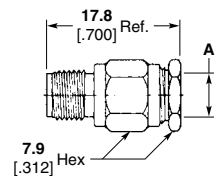
¹Coupling nut is passivated stainless steel.

Straight Cable Plug, Clamp



Cable Type RG/U	Body Material & Finish	Contact Captivation	Contact Attachment	Dimension A	Instruction Sheet	Part No.
174, 188, 316	Stainless, Pass.	Yes	Solder	2.9 .116	408-4906	1050721-1

Straight Cable Jack, Clamp

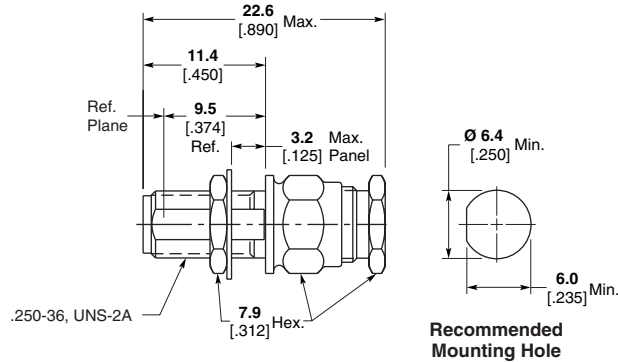


Cable Type RG/U	Body Material & Finish	Contact Captivation	Contact Attachment	Dimension A	Instruction Sheet	Part No.
174, 188, 316	Stainless, Pass.	Yes	Solder	2.9 .116	408-4906	1050903-1

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

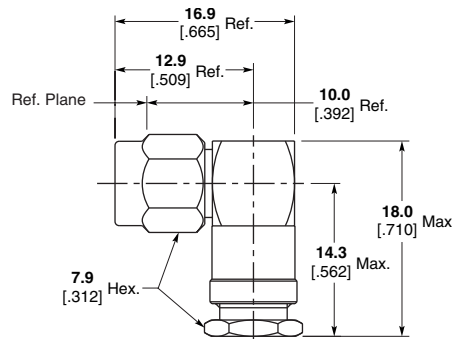
SMA Connectors (Continued)
Flexible Cable (Continued)

Bulkhead Feedthrough Cable Jack, Clamp



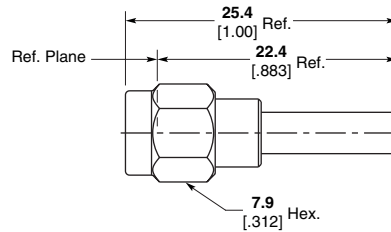
Cable Type RG/U	Body Material & Finish	Contact Captivation	Contact Attachment	Instruction Sheet	Part No.
174, 188, 316	Stainless, Pass.	Yes	Solder	408-4704	1050996-1

Right-Angle Cable Plug, Clamp



Cable Type RG/U	Body Material & Finish	Contact Captivation	Contact Attachment	Instruction Sheet	Part No.
174, 188, 316	Stainless, Pass.	Mechanical	Solder	408-4965	1051140-1

Straight Cable Plug, Crimp



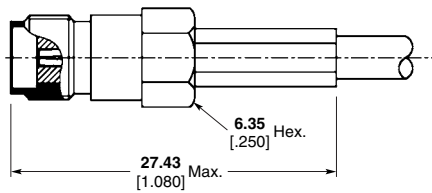
Cable Type RG/U	Body Material & Finish	Contact Captivation	Contact Attachment	Crimp Tooling Part No.	Instruction Sheet	Part No.
174, 179, 187, 188, 316	Stainless, Pass.	Mechanical	Solder/Crimp ²	1055236-1	408-4661	1056443-1
RD316	Stainless, Pass.	Mechanical	Solder/Crimp ²	1055236-1 ¹	408-4661	1056436-1
55, 142, 223, 400	Stainless, Pass.	Mechanical	Solder/Crimp ²	1055236-1	408-4661	1056438-1
174, 179, 187, 188, 316	Brass, White Bronze	Mechanical	Solder/Crimp ²	1055236-1	408-4661	1082034-1

¹Use die 1055270-1 to crimp RD316 ferrule.
²Use die 1055880-1 to crimp center contact.

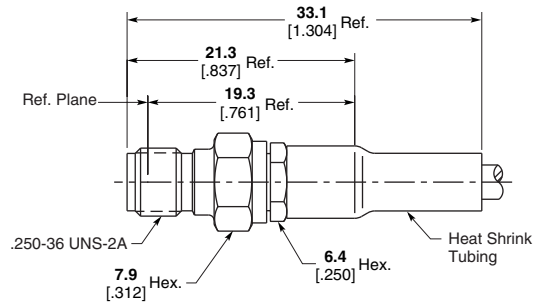
Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

SMA Connectors (Continued)
Flexible Cable (Continued)

Straight Cable Jack, Crimp



Style A

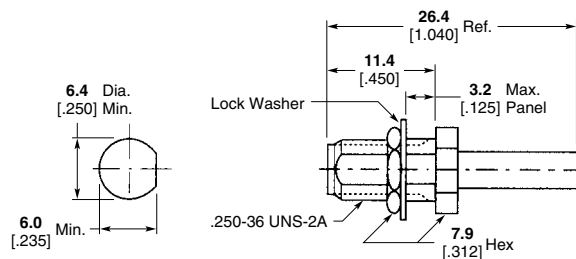


Style B

Cable Type RG/U	Body Material & Finish	Contact Captivation	Contact Attachment	Crimp Tooling Part No.	Instruction Sheet	Style	Part No.
174, 316	Brass, Nickel	Mechanical	Solder	1	408-4032	A	5447648-3
58, 141, 303	Stainless, Pass.	Mechanical	Solder	1055236-1	408-4704	B	1051867-1
174, 188, 316	Stainless, Pass.	Mechanical	Solder	1055236-1	408-4708	B	1051855-1
178, 196	Stainless, Pass.	Mechanical	Solder	1055236-1	408-4806	B	1051869-1

¹Refer to Tyco Electronics Customer Print for tooling requirement. DANIELS Mil Tooling used for contact and ferrule crimp.

**Bulkhead Feedthrough
Cable Jack, Crimp**



**Recommended
Mounting Hole**

Cable Type RG/U	Body Material & Finish	Contact Captivation	Contact Attachment	Crimp Tooling Part No.	Instruction Sheet	Part No.
174, 179, 187, 188, 316	Stainless, Pass.	Mechanical	Solder/Crimp ²	1055236-1	408-4661	1056452-1
RD316	Stainless, Pass.	Mechanical	Solder/Crimp ²	1055236-1 ³	408-4661	1056445-1
58, 141, 303	Stainless, Pass.	Mechanical	Solder/Crimp ²	1055236-1	408-4661	1056450-1
55, 142, 223, 400	Stainless, Pass.	Mechanical	Solder/Crimp ²	1055236-1	408-4661	1056447-1
174, 188, 316	Brass, Nickel	Mechanical	Crimp	1	408-4032	5448103-2

¹Refer to Tyco Electronics Customer Print for tooling requirement. DANIELS Mil Tooling used for contact and ferrule crimp.

²Use die 1055880-1 to crimp center contact.

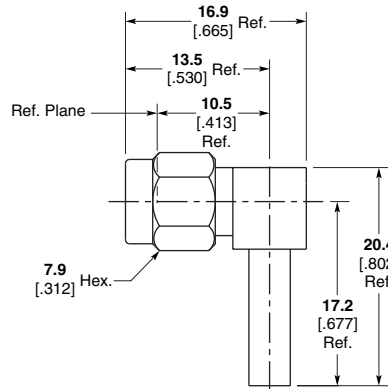
³Use die 1055270-1 to crimp RD316 ferrule.

DANIELS is a trademark of Daniels Manufacturing Corporation.

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

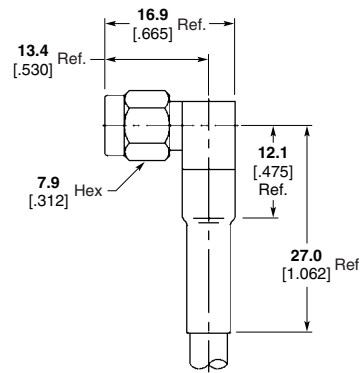
SMA Connectors (Continued)
Flexible Cable (Continued)

Right-Angle Cable Plug, Crimp



Cable Type RG/U	Body Material & Finish	Contact Captivation	Contact Attachment	Crimp Tooling Part No.	Instruction Sheet	Part No.
174, 179, 187, 188, 316	Stainless, Pass.	Mechanical	Solder	1055236-1	408-4659	1056462-1
58, 141, 303	Stainless, Pass.	Mechanical	Solder	1055236-1	408-4659	1056456-1

Right-Angle Cable Plug, Crimp

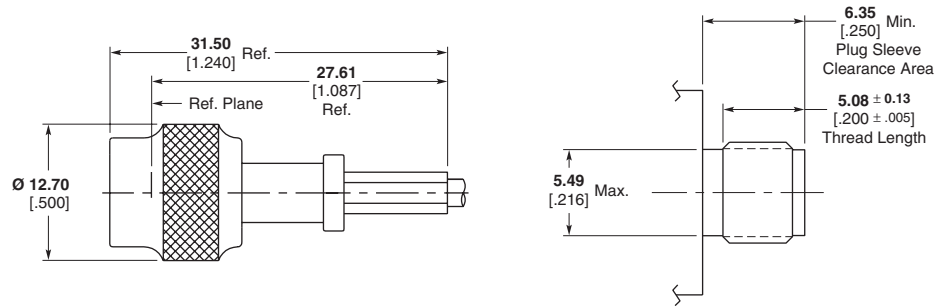


Cable Type RG/U	Body Material & Finish	Contact Captivation	Contact Attachment	Crimp Tooling Part No.	Instruction Sheet	Part No.
55, 142, 223, 400	Stainless, Pass.	Epoxy	Solder	1055236-1	408-4681	1052072-1
174, 188, 316	Stainless, Pass.	Epoxy	Solder	1055236-1	408-4683	1052076-1
178, 196	Stainless, Pass.	Epoxy	Solder	1055236-1	408-4801	1052098-1

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

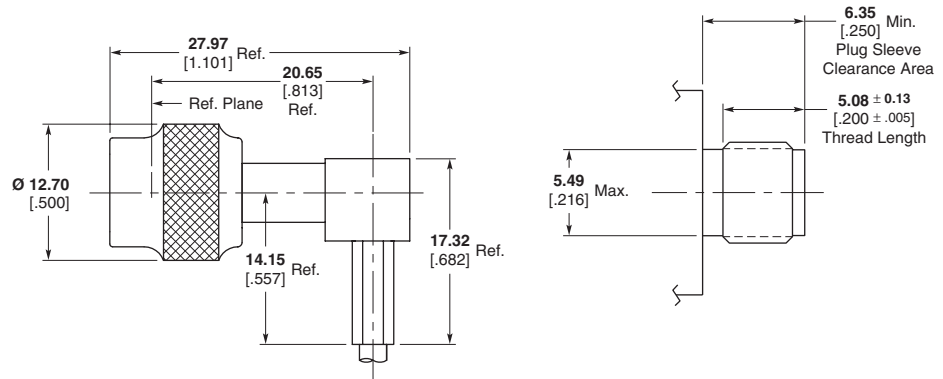
SMA Connectors (Continued)
Flexible Cable (Continued)

Straight Push-On



Cable Type RG/U	Body Material & Finish	Contact Captivation	Contact Attachment	Part No.
316	Beryllium Copper, Gold	Mechanical	Crimp	1408541-1

Right-Angle Push-On

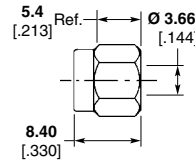


Cable Type RG/U	Body Material & Finish	Contact Captivation	Contact Attachment	Part No.
316	Beryllium Copper, Gold	Mechanical	Solder/Crimp	1274694-1

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

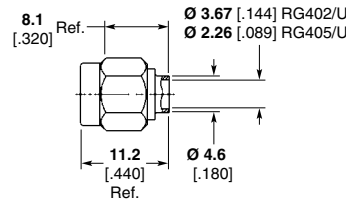
SMA Connectors (Continued)
Direct Solder Attachment, Semi-Rigid Cable

Straight Cable Plug



Cable Type RG/U	Body Material & Finish	Contact Captivation	Contact Attachment	Solder Assembly Kit Part No.	Instruction Sheet	Part No.
402 (3.58 [0.141])	Stainless, Pass.	No Center Contact	No Center Contact	1055420-1	408-4761	1050757-1

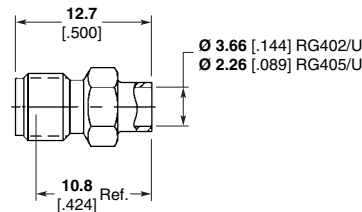
Straight Cable Plug



Cable Type RG/U	Body Material & Finish	Contact Captivation	Contact Attachment	Solder Assembly Kit Part No.	Instruction Sheet	Part No.
402 (3.58 [0.141])	Stainless, Gold ¹	No	Solder	1055420-1	408-4764	1050525-1
405 (2.16 [0.085])	Stainless, Gold ¹	No	Solder	1055420-1	408-4765	1050770-1
402 (3.58 [0.141])	Stainless, Gold ¹	No Center Contact	No Center Contact	N/A	—	1050542-1
405 (2.16 [0.085])	Stainless, Gold ¹	No	Solder	1055420-1	—	1050548-1

¹Coupling nut is passivated stainless steel.

Straight Cable Jack

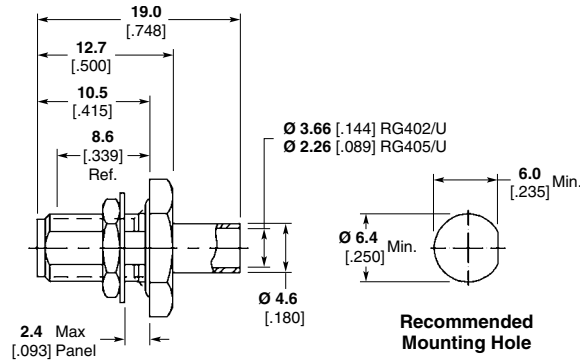


Cable Type RG/U	Body Material & Finish	Contact Captivation	Contact Attachment	Solder Assembly Kit Part No.	Instruction Sheet	Part No.
402 (3.58 [0.141])	Stainless, Gold	No	Solder	1055420-1	408-4767	1050854-1
405 (2.16 [0.085])	Stainless, Gold	No	Solder	1055420-1	408-4833	1050859-1

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

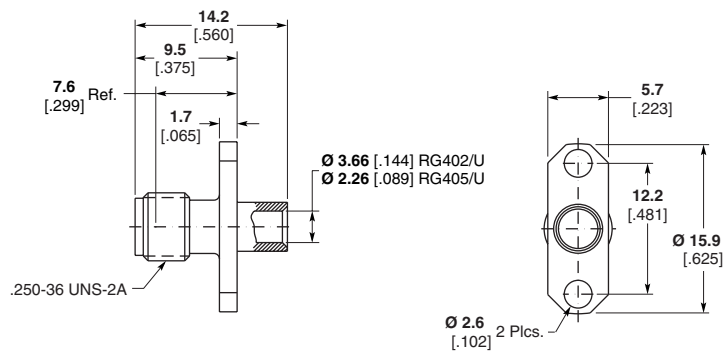
SMA Connectors (Continued)
Direct Solder Attachment, Semi-Rigid Cable (Continued)

Bulkhead Cable Jack



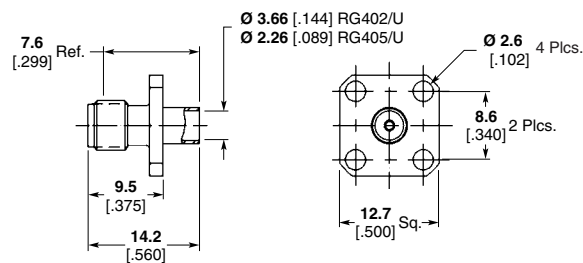
Cable Type RG/U	Body Material & Finish	Contact Captivation	Contact Attachment	Solder Assembly Kit Part No.	Instruction Sheet	Part No.
402 (3.58 [.141])	Brass, Gold	No	Solder	1055420-1	408-4768	1082029-1

**2 Hole Flange Mount
Cable Jack**



Cable Type RG/U	Body Material & Finish	Contact Captivation	Contact Attachment	Solder Assembly Kit Part No.	Instruction Sheet	Part No.
402 (3.58 [.141])	Stainless, Gold	No	Solder	1055420-1	408-4767	1051052-1
405 (2.16 [.085])	Stainless, Gold	No	Solder	1055420-1	408-4883	1051046-1

**4 Hole Flange Mount
Cable Jack**

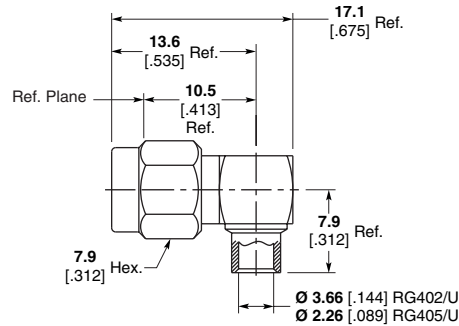


Cable Type RG/U	Body Material & Finish	Contact Captivation	Contact Attachment	Solder Assembly Kit Part No.	Instruction Sheet	Part No.
402 (3.58 [.141])	Stainless, Gold	No	Solder	1055420-1	408-4767	1051081-1
405 (2.16 [.085])	Stainless, Gold	No	Solder	1055420-1	408-4883	1051085-1

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

SMA Connectors (Continued)
Semi-Rigid Cable

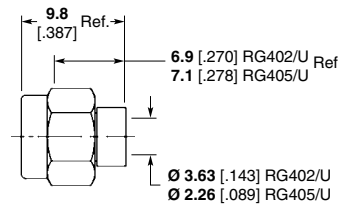
**Right-Angle Cable Plug,
Direct Solder Attachment**



Cable Type RG/U	Body Material & Finish	Contact Captivation	Contact Attachment	Solder Assembly Kit Part No.	Instruction Sheet	Part No.
402 (3.58 [0.141])	Stainless, Gold ¹	Epoxy	Solder	1055420-1	408-4831	1051151-1
405 (2.16 [0.085])	Stainless, Gold ¹	Epoxy	Solder	1055420-1	408-4831	1051157-1
405 (2.16 [0.085])	Brass, Gold	Mechanical	Solder	1055420-1	408-4831	1088312-1

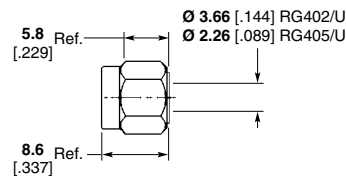
¹Coupling nut is passivated stainless steel.

Straight Cable Plug, Crimp



Cable Type RG/U	Body Material & Finish	Contact Captivation	Contact Attachment	Crimp Tooling Part No.	Instruction Sheet	Part No.
405 (2.16 [0.085])	Stainless, Pass.	Mechanical	Solderless	1055835-1	408-4695	1050598-1
402 (3.58 [0.141])	Stainless, Pass.	No Center Contact	Solderless	1055835-1	408-4690	1050740-1

**Straight Cable Plug —
Low Profile, Crimp**

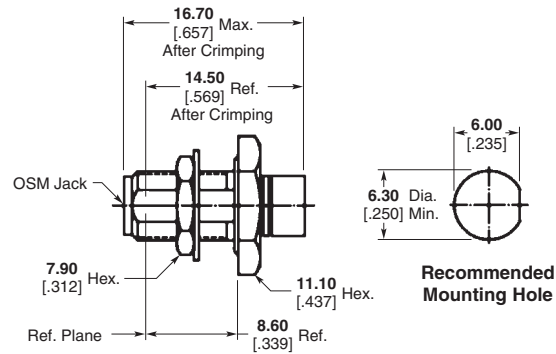


Cable Type RG/U	Body Material & Finish	Contact Captivation	Contact Attachment	Crimp Tooling Part No.	Instruction Sheet	Part No.
402 (3.58 [0.141])	Stainless, Pass.	Mechanical	Solderless	1055835-1	408-4696	1050602-1
405 (2.16 [0.085])	Stainless, Pass.	Mechanical	Solderless	1055835-1	408-4697	1050611-1

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

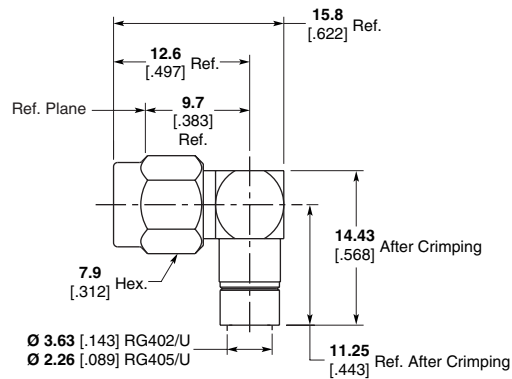
SMA Connectors (Continued)
Semi-Rigid Cable (Continued)

2 Hole Flange, Crimp



Cable Type RG/U	Body Material & Finish	Contact Captivation	Contact Attachment	Crimp Tooling Part No.	Instruction Sheet	Part No.
402 (3.58 [.141])	Stainless, Pass.	Mechanical	Solderless	1055835-1	408-4954	1051005-1
405 (2.16 [.085])	Stainless, Pass.	Mechanical	Solderless	1055835-1	408-4689	1051007-1

Right-Angle Cable Plug, Crimp

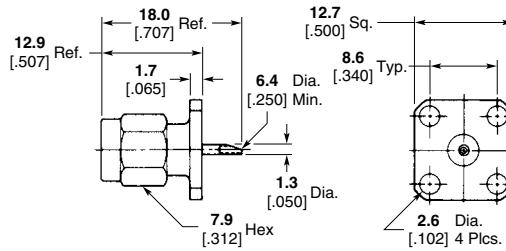


Cable Type RG/U	Body Material & Finish	Contact Captivation	Contact Attachment	Crimp Tooling Part No.	Instruction Sheet	Part No.
402 (3.58 [.141])	Stainless, Pass.	Mechanical	Solderless	1055835-1	408-4691	1051145-1
405 (2.16 [.085])	Stainless, Pass.	Mechanical	Solderless	1055835-1	408-4692	1051147-1

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

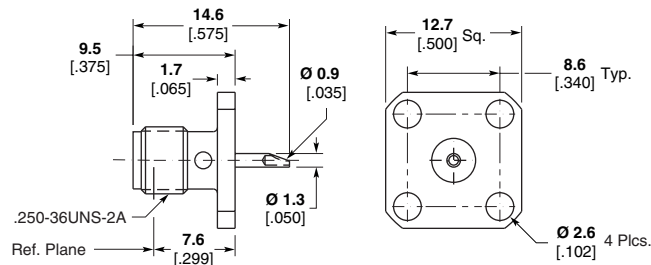
SMA Connectors (Continued)
Panel Mount, Solder Pot Terminal

4 Hole Flange Mount Plug Receptacle



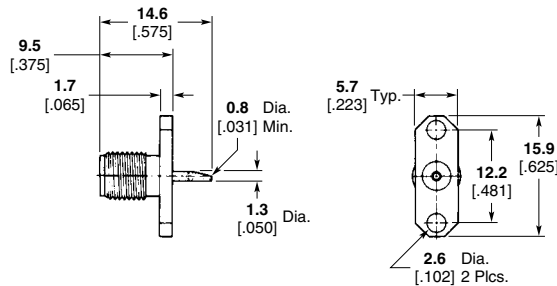
Body Material & Finish	Contact Captivation	RF Leakage db min.	Temperature Range	Part No.
Stainless, Passivated	Epoxy	N/A	-65 to 125° C	1052324-1

4 Hole Flange Mount Jack Receptacle



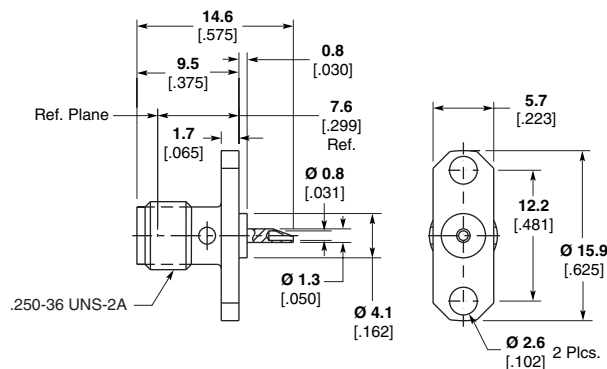
Body Material & Finish	Contact Captivation	RF Leakage db min.	Temperature Range	Part No.
Stainless, Passivated	Epoxy	-(60-fGHz)	-65 to 125° C	1052422-1

2 Hole Flange Mount Jack Receptacle



Body Material & Finish	Contact Captivation	RF Leakage db min.	Temperature Range	Part No.
Stainless, Passivated	Epoxy	-(60-fGHz)	-65 to 125° C	1052544-1

2 Hole Flange Mount Jack Receptacle

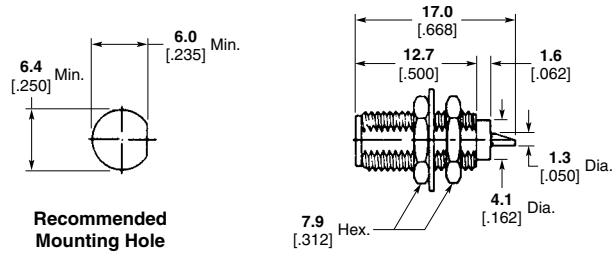


Body Material & Finish	Contact Captivation	RF Leakage db min.	Temperature Range	Part No.
Stainless, Passivated	Epoxy	-(60-fGHz)	-65 to 125° C	1052534-1

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

SMA Connectors (Continued)
Panel Mount

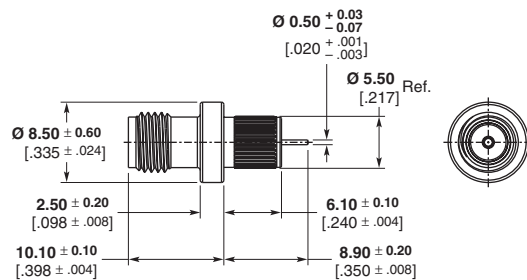
Bulkhead Feedthrough Jack Receptacle, Solder Pot Terminal



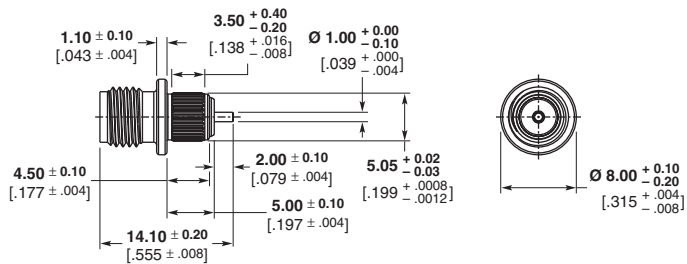
Recommended Mounting Hole

Body Material & Finish	Contact Captivation	RF Leakage db min.	Temperature Range	Part No.
Stainless, Passivated	Epoxy	N/A	-65 to 125° C	1053092-1

Press-In Jacks, Straight Terminal



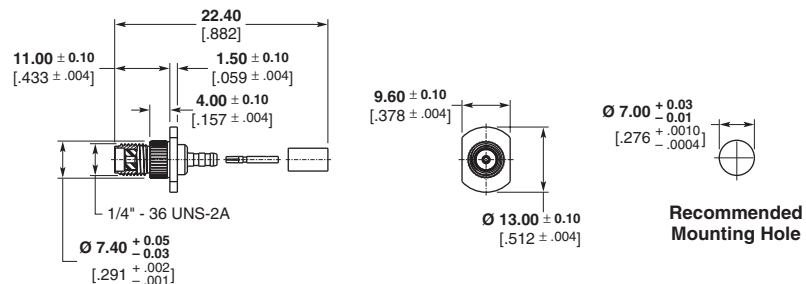
Part Number 1460468



Part Number 1460469

Body Material & Finish	Contact Captivation	RF Leakage db min.	Temperature Range	Part No.
Brass, White Bronze	Mechanical	N/A	-65 to 125° C	1460468-1
Brass, Gold	Mechanical	N/A	-65 to 125° C	1460469-1

Press-In Cable, Jack Panel



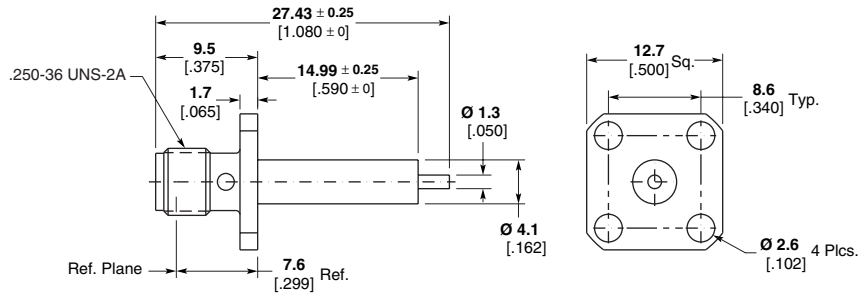
Recommended Mounting Hole

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

Cable Type RG/U	Body Material & Finish	Contact Captivation	Temperature Range	Part No.
316 D	Brass, Gold	Mechanical	-65 to 125° C	619115-1

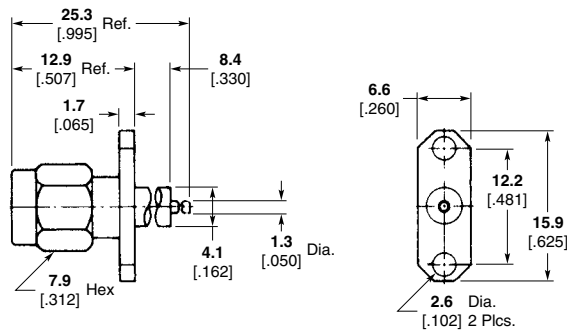
SMA Connectors (Continued)
Panel Mount, Straight Terminal

4 Hole Flange Mount Jack Receptacle



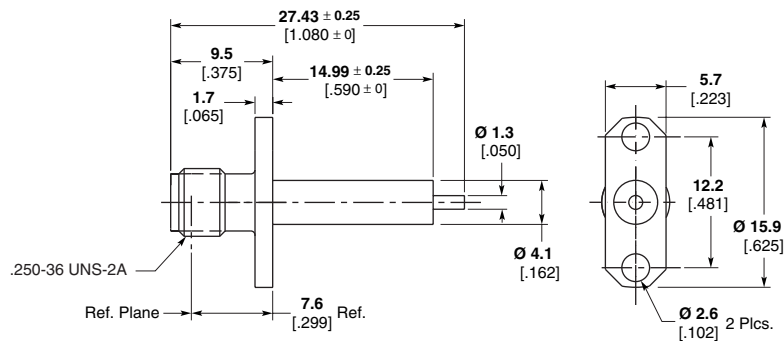
Body Material & Finish	Contact Captivation	RF Leakage db min.	Temperature Range	Part No.
Stainless, Passivated	None	-(100-fGHz)	-65 to 165° C	1052518-1
Stainless, Passivated	Epoxy	-(60-fGHz)	-65 to 125° C	1052523-1
Stainless, Gold	Epoxy	-(60-fGHz)	-65 to 125° C	1052522-1

2 Hole Flange Mount Plug Receptacle



Body Material & Finish	Contact Captivation	RF Leakage db min.	Temperature Range	Part No.
Stainless, Passivated	Epoxy	-(60-fGHz)	-65 to 125° C	1052349-1

2 Hole Flange Mount Jack Receptacle

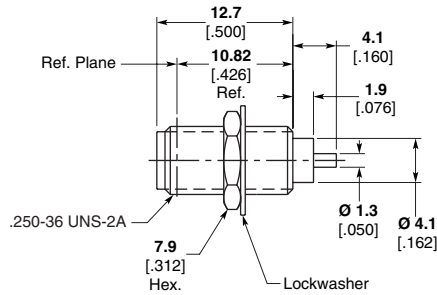


Body Material & Finish	Contact Captivation	RF Leakage db min.	Temperature Range	Part No.
Stainless, Passivated	Epoxy	-(60-fGHz)	-65 to 125° C	1052552-1

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

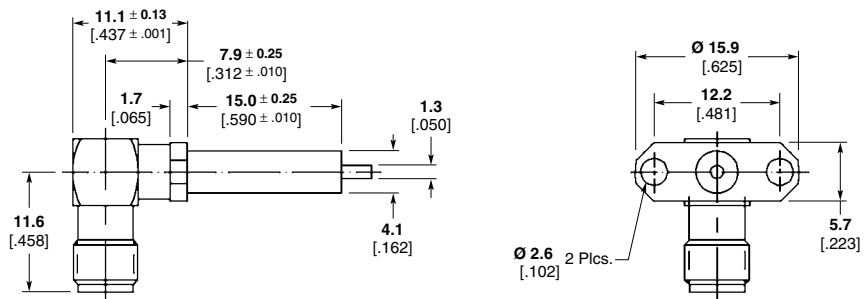
SMA Connectors (Continued)
Panel Mount, Straight Terminal (Continued)

Bulkhead Feedthrough Jack Receptacle



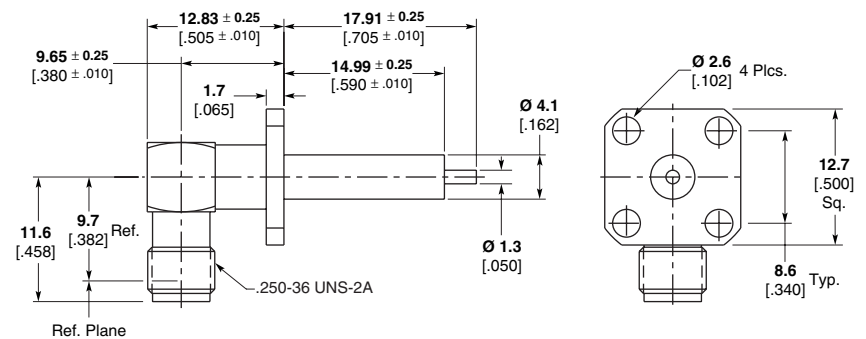
Body Material & Finish	Contact Captivation	RF Leakage db min.	Temperature Range	Part No.
Stainless, Passivated	Epoxy	-(60-fGHz)	-65 to 125° C	1053222-1

2 Hole Flange Mount Right-Angle Jack Receptacle



Body Material & Finish	Contact Captivation	RF Leakage db min.	Temperature Range	Part No.
Stainless, Passivated	Mechanical	-(90-fGHz)	-65 to 165° C	1052986-1

4 Hole Flange Mount Right-Angle Jack Receptacle

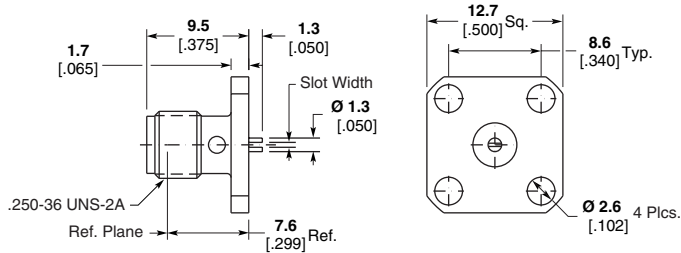


Body Material & Finish	Contact Captivation	RF Leakage db min.	Temperature Range	Part No.
Stainless, Passivated	Mechanical	-(90-fGHz)	-65 to 165° C	1052978-1
Stainless, Passivated	Mechanical	-(90-fGHz)	-65 to 165° C	1052982-1

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

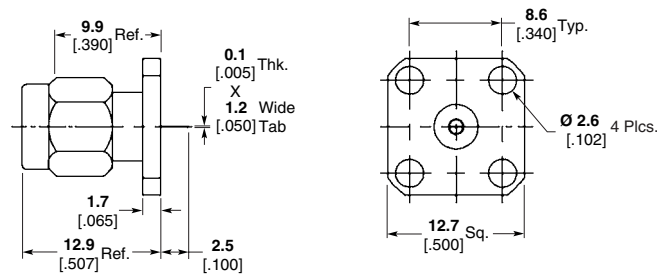
SMA Connectors (Continued)
Panel Mount

4 Hole Flange Mount Jack Receptacle, Straight Terminal



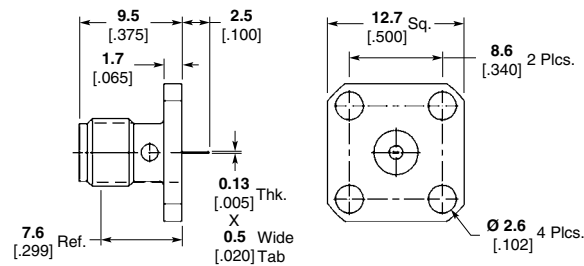
Body Material & Finish	Contact Captivation	Slot Width +.076/- .025 [+.003/- .001]	RF Leakage db min.	Temperature Range	Part No.
Stainless, Passivated	Epoxy	0.5 [.018]	-(60-fGHz)	-65 to 125° C	1052563-1

4 Hole Flange Mount Plug Receptacle, Tab Terminal



Body Material & Finish	Contact Captivation	Tab Width	RF Leakage db min.	Temperature Range	Part No.
Stainless, Passivated	Epoxy	1.3 [.050]	-(60-fGHz)	-65 to 125° C	1052360-1

4 Hole Flange Mount Jack Receptacle, Tab Terminal

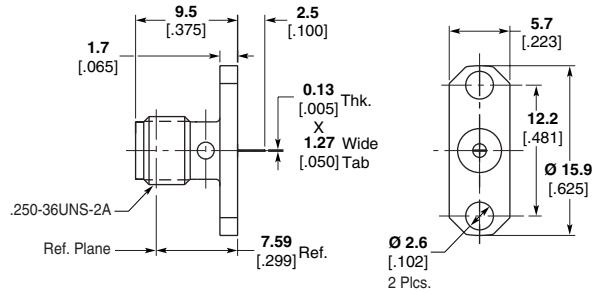


Body Material & Finish	Contact Captivation	Tab Width	RF Leakage db min.	Temperature Range	Part No.
Stainless, Passivated	Epoxy	.51 [.020]	-(60-fGHz)	-65 to 125° C	1052898-1

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

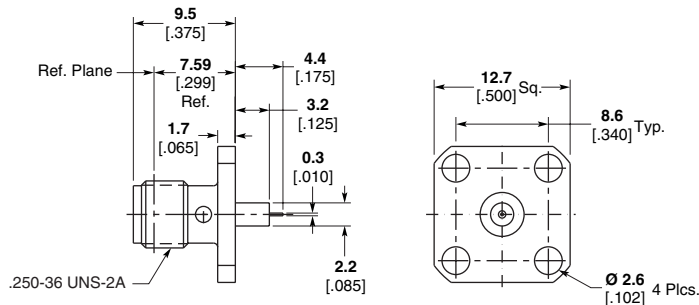
SMA Connectors (Continued)

2 Hole Flange Mount Jack Receptacle, Panel Mount, Tab Terminal



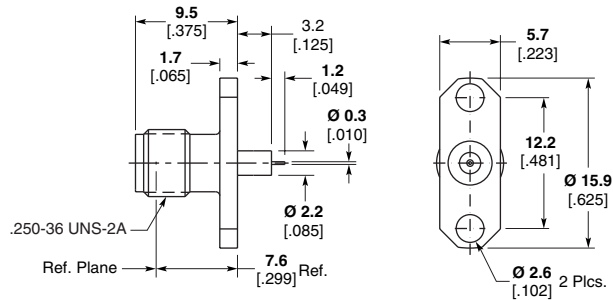
Body Material & Finish	Contact Captivation	Horizontal Tab	RF Leakage db min.	Temperature Range	Part No.
Stainless, Passivated	Epoxy	↙	-(60-fGHz)	-65 to 125° C	1052577-1

4 Hole Flange Mount Jack Receptacle, for Microstrip Transmission Line Circuits



Body Material & Finish	Contact Captivation	RF Leakage db min.	Temperature Range	Part No.
Stainless, Passivated	Epoxy	-(60-fGHz)	-65 to 125° C	1052528-1

2 Hole Flange Mount Jack Receptacle, for Microstrip Transmission Line Circuits

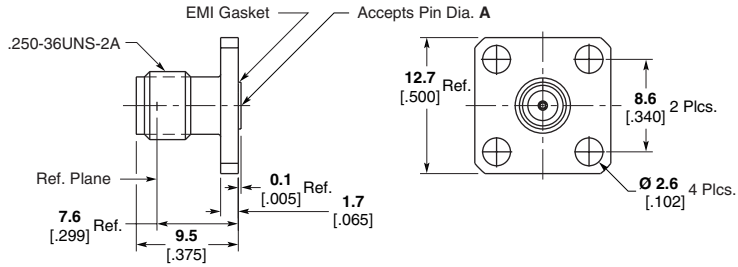


Body Material & Finish	Contact Captivation	RF Leakage db min.	Temperature Range	Part No.
Stainless, Passivated	Epoxy	-(60-fGHz)	-65 to 125° C	1052902-1

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

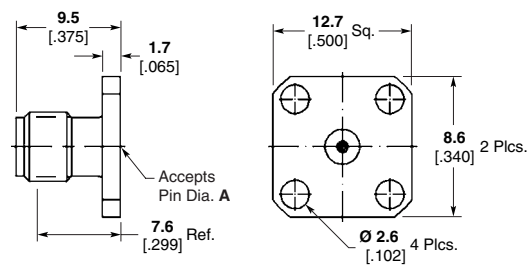
SMA Connectors (Continued)
Field Replaceable Hermetic Launchers (Continued)

4 Hole Flange Mount Jack Receptacle with EMI/RFI Gasket



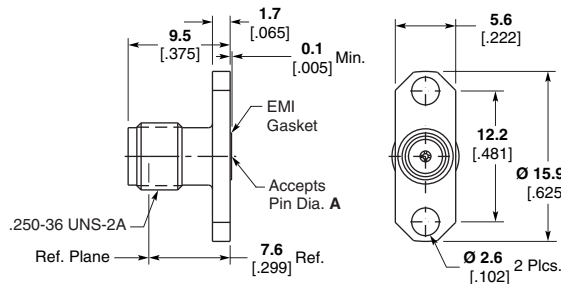
Material & Finish	Captivation	Pin Diameter A	Part No.
Stainless, Passivated	Mechanical	.38 [0.015]	1052684-1

4 Hole Flange Mount Jack Receptacle without EMI/RFI Gasket



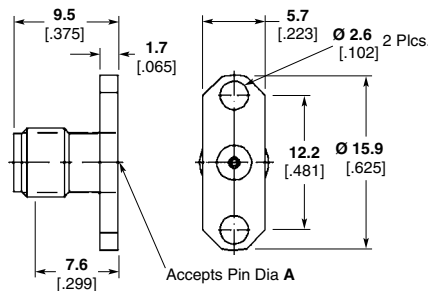
Material & Finish	Captivation	Pin Diameter A	Part No.
Stainless, Passivated	Mechanical	.91 [0.036]	1052643-1

2 Hole Flange Mount Jack Receptacle with EMI/RFI Gasket



Material & Finish	Captivation	Pin Diameter A	Part No.
Stainless, Passivated	Mechanical	.30 [0.012]	1052628-1
Stainless, Passivated	Mechanical	.38 [0.015]	1052689-1
Stainless, Passivated	Mechanical	.46 [0.018]	1052634-1

2 Hole Flange Mount Jack Receptacle without EMI/RFI Gasket, Field Replaceable Hermetic Launchers

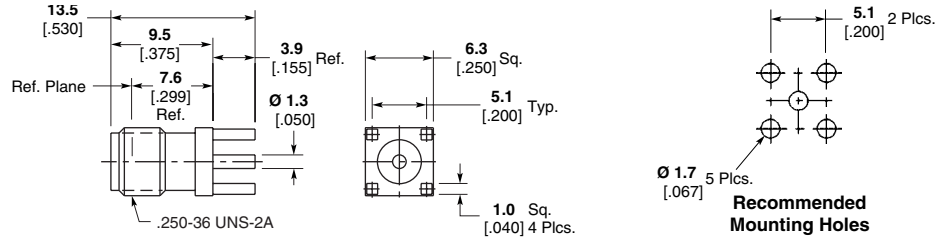


Material & Finish	Captivation	Pin Diameter A	Part No.
Stainless, Passivated	Mechanical	.51 [0.020]	1052652-1
Stainless, Passivated	Mechanical	.91 [0.036]	1052646-1

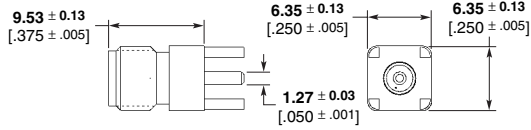
Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

SMA Connectors (Continued)

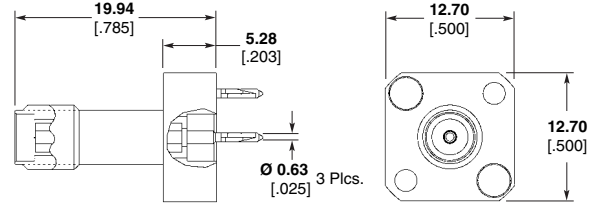
**PC Board Mount
Vertical Jack**



Style 1



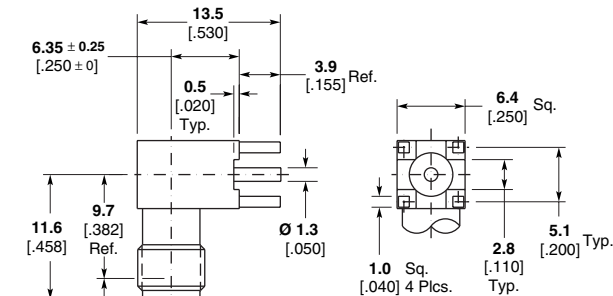
Style 2



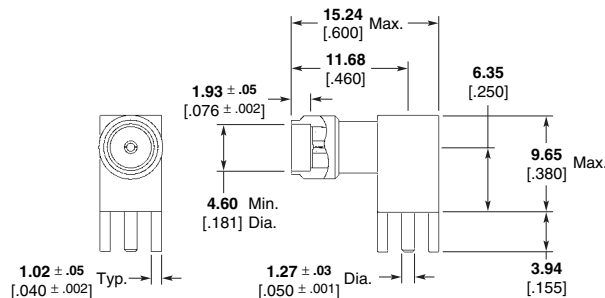
Style 3

Material & Finish	Style No.	Part No.
Stainless, Gold	1	1053354-1
Brass, Gold	2	221789-1
Brass, Gold	2	221789-3
Brass, Nickel Plate	3	6274096-1

**PC Board Mount
Right-Angle Jack**



Style 1



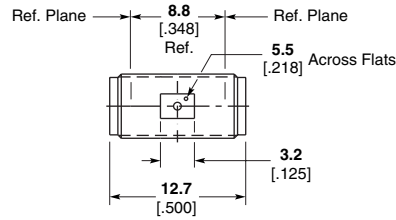
Style 2

Material & Finish	Style No.	Part No.
Stainless, Gold	1	1053378-1
Stainless, Gold	2	221790-1

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

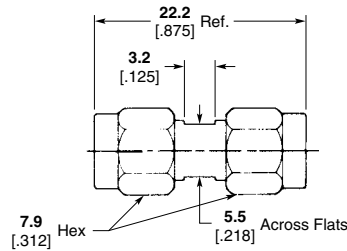
SMA Connectors (Continued)

**In-Series Adapter,
Jack to Jack**



Frequency	Material & Finish	Captivation	Part No.
DC-18.0GHz	Stainless, Gold	Epoxy*	1053488-1

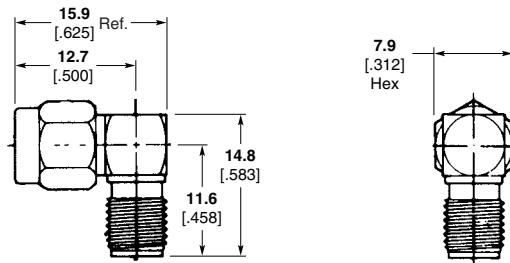
**In-Series Adapter,
Plug to Plug**



Frequency	Material & Finish	Captivation	Part No.
DC-18.0GHz	Stainless, Passivated	Epoxy*	1053635-1

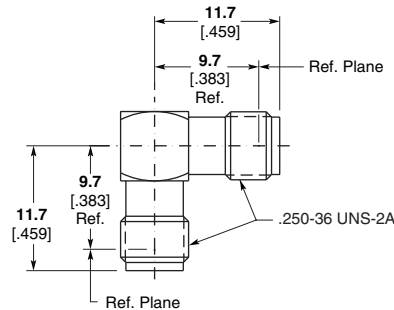
*All adapters listed above employ epoxy captivation. Mechanically captivated versions are also available. Please consult Tyco Electronics.

**In-Series Adapter,
Jack to Plug, Right-Angle**



Frequency	Material & Finish	Captivation	Part No.
DC-12.4GHz	Stainless, Passivated	Mechanical	1055065-1

**In-Series Adapter,
Jack to Jack, Right-Angle**

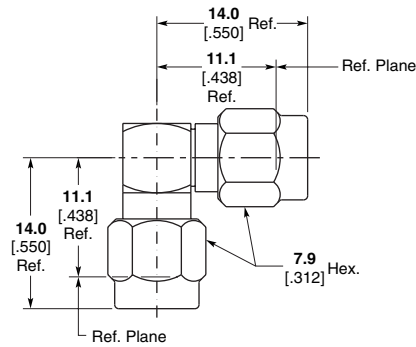


Frequency	Material & Finish	Captivation	Part No.
DC-12.4GHz	Stainless, Passivated	Mechanical	1055018-1

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

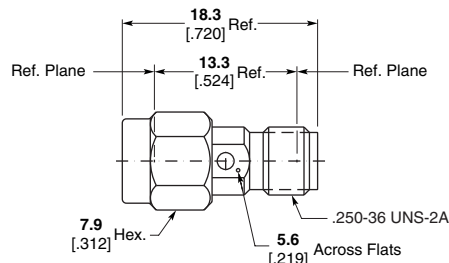
SMA Connectors (Continued)

**In-Series Adapter,
Plug to Plug, Right-Angle**



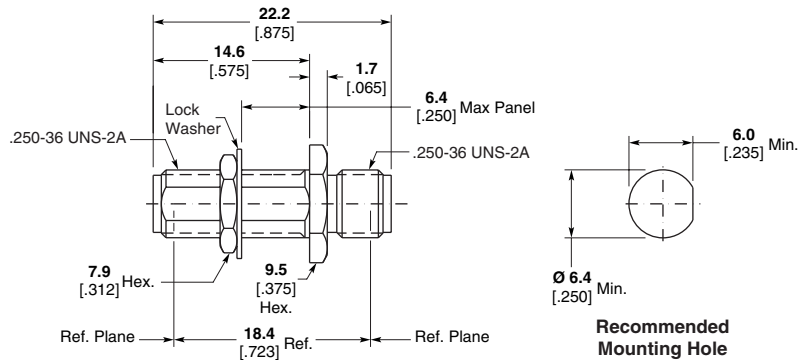
Frequency	Material & Finish	Captivation	Part No.
DC-18.0GHz	Stainless, Passivated	Mechanical	1055047-1

**In-Series Adapter,
Jack to Plug, Connector Saver**



Frequency	Material & Finish	Captivation	Part No.
DC-18.0GHz	Stainless, Passivated	Epoxy	1054426-1

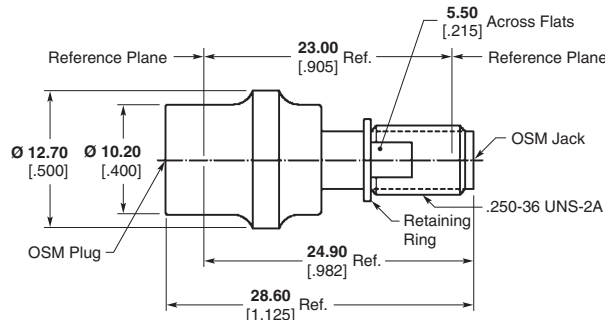
**In-Series Adapter,
Jack to Jack,
Bulkhead Feedthrough**



Frequency	Material & Finish	Captivation	Part No.
DC-18.0GHz	Stainless, Passivated	Epoxy*	1054869-1

*Mechanically captivated version available. Please consult Tyco Electronics.

**Test Adapter,
Plug to Jack,
Quick Release**



Frequency	Material & Finish	Captivation	Part No.
DC-18.0GHz	Stainless, Passivated	Epoxy	1053780-1

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

QMA Connectors

Snap-On SMA Series of RF Connectors

Product Facts

- Positive snap-on interface facilitates assembly
- Intermateable with competitor product
- Excellent RF performance to 6 GHz
- Ideal for Communications and Industrial Applications



Tyco Electronics' next generation high performance RF products QMA (Snap-On SMA) connectors series offers the same high quality and performance currently found in the standard Tyco Electronics SMA series but does not require the coupling nut torque.

By integrating a snap-on feature to the design, denser packaging can be achieved, and the overall applied cost is dramatically reduced. The QMA connector series is excellent for communications as well as industrial applications. The QMA offering is designed for 100 mating cycles, operates through 6 GHz, and is completely intermateable with competitive QMA offerings. This new QMA product is not intermateable with standard SMA interfaces.

QMA connectors are available in a broad range of standard configurations,

including PCB and panel mount, flexible and semi-rigid cable, and adapters. Other options can be reviewed as well, including additional cable sizes, PCB surface mounting, and tape and reel packaging.

The QMA connector series is a cost effective solution for the challenging demands of today's commercial marketplace, with applications including cellular base station, handsets, and test and measurement. Call your local sales office or authorized distributor for additional information or samples of the QMA connector series.

Tyco Electronics is a leading supplier of RF and Microwave connectors and cable assemblies, and provides advanced technology products from well known and industry leading brands, including AMP and M/A-COM.

Material and Finish

Shells and Bodies — Brass, nickel plated

Collars — Phosphor bronze, white bronze plated

Outer Contacts — Beryllium copper, nickel plated

Center Contacts — Beryllium copper, gold plated

Dielectrics — PTFE

Electrical Characteristics

Frequency — dc – 6 GHz

Nominal Impedance — 50 ohms

Voltage Rating — 335 Volts (VRMS max.) @ Sea Level

VSWR — 1.15 : 1 max. @ 6 GHz

Insulation Resistance — 5,000 megohms min.

Insertion Loss — .25 dB Max @ 6 GHz

Dielectric Withstanding Voltage — 1000 Volts (VRMS max.) @ Sea Level

Contact Resistance —

Center Contact — 5 milliohms max.

Outer Contact — 4 milliohms max.

Mechanical Characteristics

Connector Durability —

100 mating cycles

Force to Engage — 27 Newtons

Force to Disengage — 20 Newtons

Retention Force (mated pair) — 60 Newtons min.

Cable Retention — Dependent upon cable type

Environmental Characteristics

Temperature Rating —

-40 to +125°C

Vibration — EIA-364-28, Test Condition VII, Condition D

Shock — EIA-364-27, Method H

Moisture Resistance — EIA-364-31, Method III

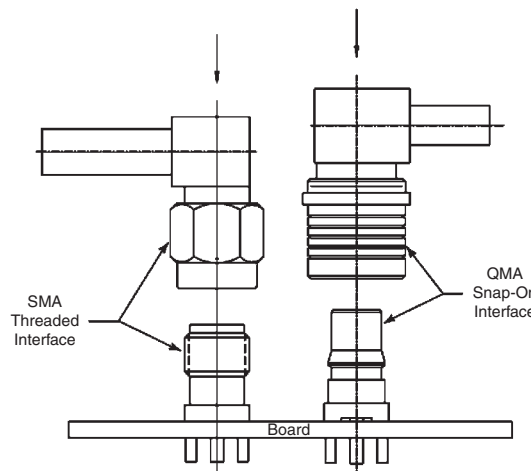
Thermal Shock — EIA-364-32

Note: Performance specifications are typical, but may not apply to all connector types.

Related Product Data

Product Specification — 108-2087

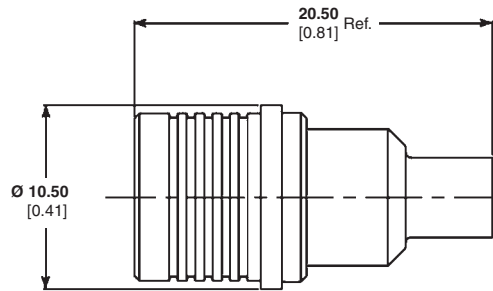
Sample Kit — 1654882



QMA Connectors (Continued)

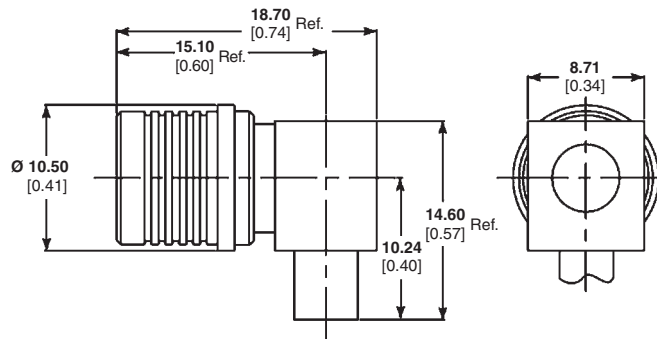
**Semi-Rigid Cable —
Direct Solder Attachment**

Straight Cable Plug



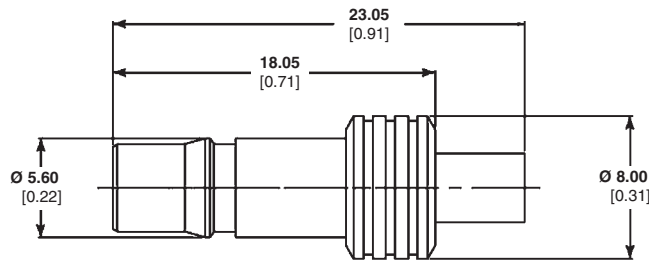
Cable	Part Number
RG 402	1408346-1

Right-Angle Cable Plug



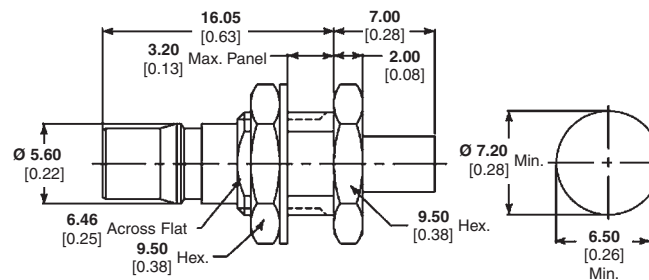
Cable	Part Number
RG 402	1408347-1

Straight Cable Jack



Cable	Part Number
RG 402	1408348-1

Bulkhead Cable Jack



Recommended Mounting Hole

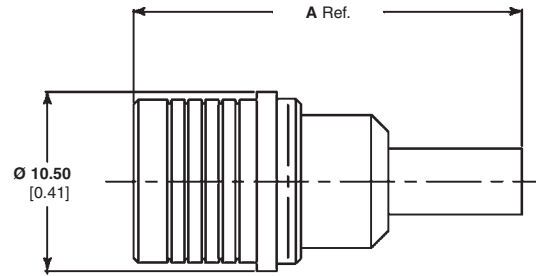
Cable	Part Number
RG 402	1408349-1

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

QMA Connectors (Continued)

Flexible Cable — Crimp Attachment

Straight Cable Plug

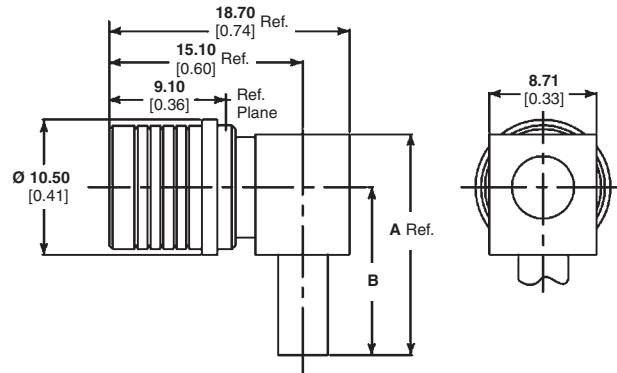


Cable	Dim. A	Part Number
RG 174, 188, 316	22.90 0.90	1408333-1
RD 316	22.90 0.90	1408333-3
RG 400	25.20 0.99	1408333-5
RG 58	25.20 0.99	1408333-7

Right-Angle Cable Plug



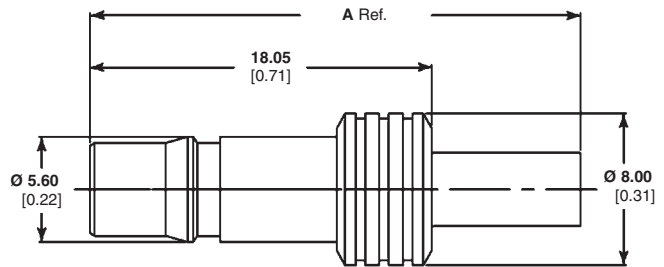
Cable	Dim. A	Dim. B	Part Number
RG 174, 188, 316	17.20 0.68	13.10 0.52	1408336-1
RD 316	17.20 0.68	13.10 0.52	1408336-3
RG 400	19.50 0.77	15.40 0.61	1408336-5
RG 58	19.50 0.77	15.40 0.61	1408336-7



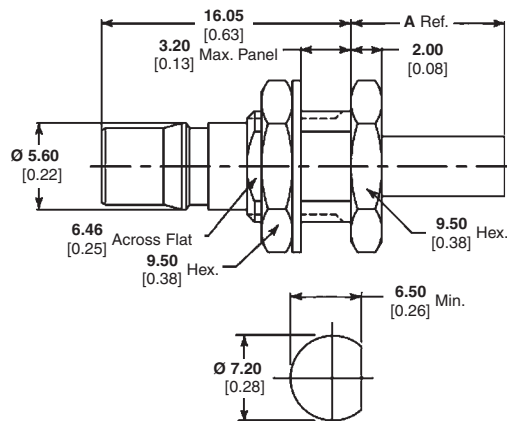
Straight Cable Jack



Cable	Dim. A	Part Number
RG 174, 188, 316	25.90 1.02	1408338-1
RD 316	25.90 1.02	1408338-3
RG 400	28.20 1.11	1408338-5
RG 58	28.20 1.11	1408338-7



Bulkhead Cable Jack



Cable	Dim. A	Part Number
RG 174, 188, 316	9.90 0.39	1408339-1
RD 316	9.90 0.39	1408339-3
RG 400	12.20 0.48	1408339-5
RG 58	12.20 0.48	1408339-7

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

Recommended Mounting Hole

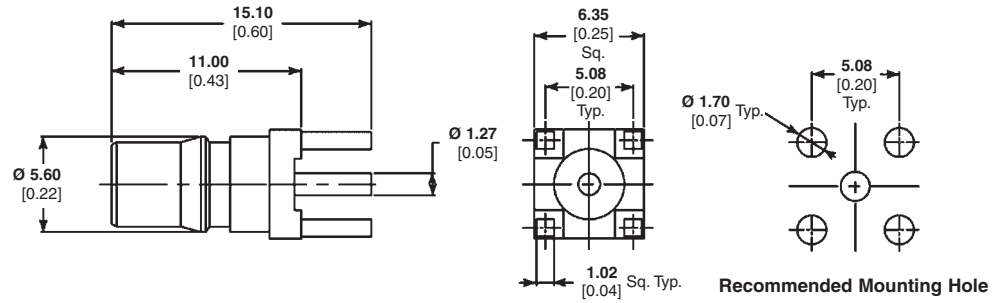
QMA Connectors (Continued)

Printed Circuit Board

Straight Jack Receptacle



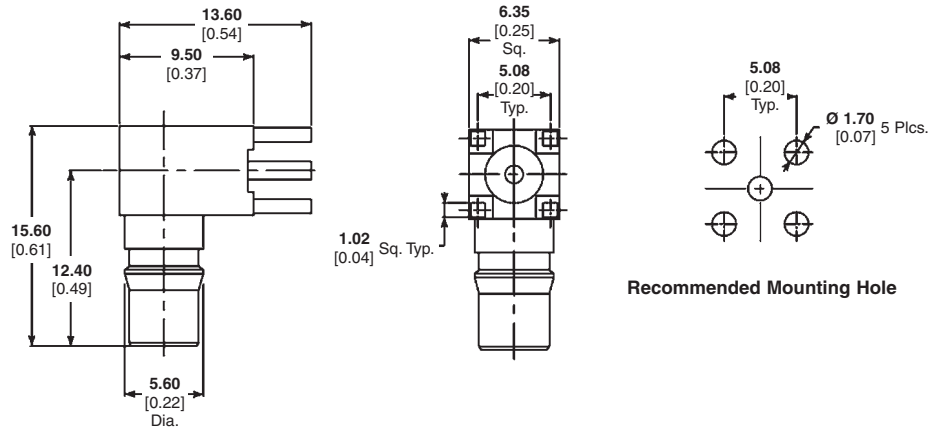
Part Number
1408332-1



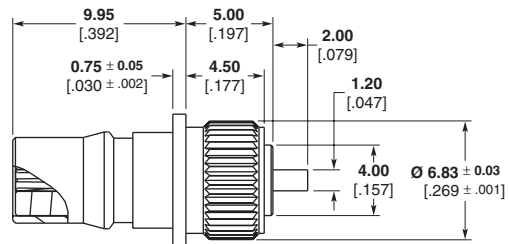
Right-Angle Jack Receptacle



Part Number
1408337-1



Straight Terminal Press-In Jack



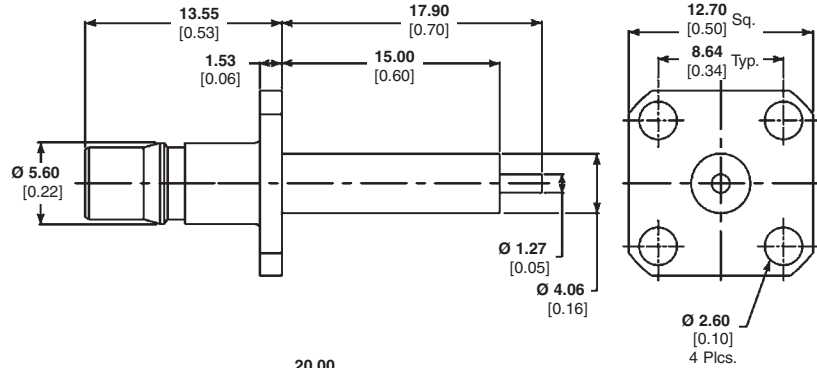
Body Material & Finish	Contact Captivation	RF Leakage db min.	Temperature Range	Part No.
Brass, Gold	Mechanical	N/A	-65 to 125° C	619215-1

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

QMA Connectors (Continued)

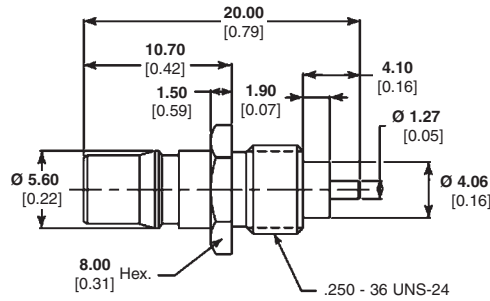
Straight Terminal

4-Hole Flange Mount Jack Receptacle



Part Number
1408341-1

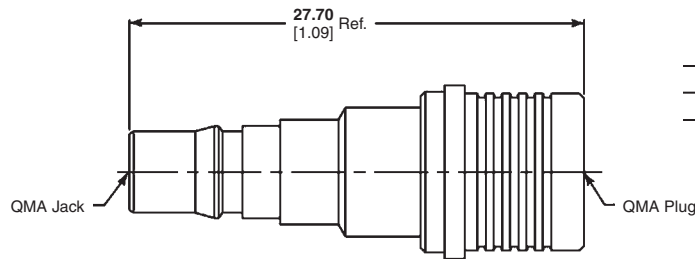
Screw-In Front Mount Jack Receptacle



Part Number
1408340-1

Adapters — In Series

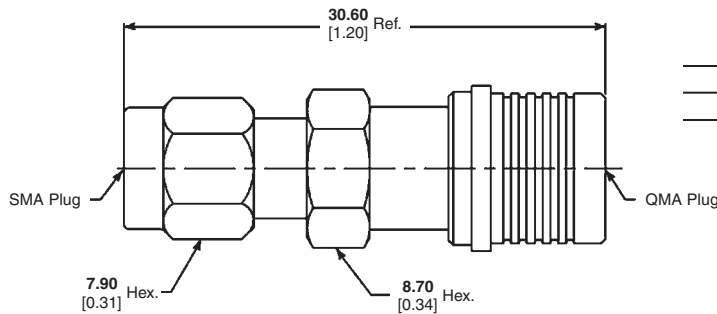
QMA Plug to QMA Jack



Part Number
1408342-1

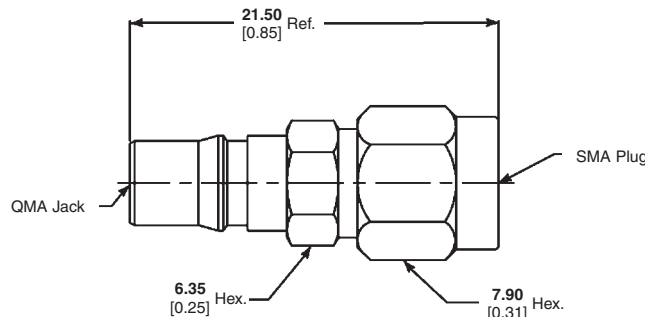
Adapters — Between Series

QMA Plug to SMA Plug



Part Number
1408393-1

QMA Jack to SMA Plug



Part Number
1408343-1

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

Series 1.0/2.3 (50 Ohm/75 Ohm)



Miniature coaxial connectors series 1.0/2.3 (CECC 22230 and IEC 61169-29) coaxial connectors are devised to meet the requirements of compact electronic instrumentation. All plugs and jacks with $Z_0 = 50 \Omega$ are designed for a number of different 50 Ω and 75 Ω cables. Owing to the large demand, the Series 1.0/2.3 has also been optimized as a 75 Ω design into the GHz range. The different types of coupling mechanisms, such as screw on, slide-in and latching coupling permit space-saving installation. In addition, an extensive range of measurement

accessories, adapters as well as terminations is available. The quality-determining factors have been established on the basis of corresponding measurements and test procedures in accordance with national and international standards for RF connectors (IEC 61169-1, MIL-C-39012 etc.). High-quality materials ensure high reliability even in industrial atmospheres. The contact principle is the pin-socket principle and the contacts are gold plated to ensure perfect contact mating. The inner conductor parts are held in PTFE (Polytetrafluoroethylene).

The reduced dimensions of all component parts of these connectors permit a compact hole spacing (installation pitch) of 6.8 [0.27] depending upon the corresponding cable diameters. The cable is connected by crimping the cable braid to the plug or jack body, the inner conductor is soldered or crimped. In most applications, the plug and jack belong to the same coupling type group. In special instances, such as for measurement purposes, different coupling types can be used together.

Between Series Adapters

For Series 1.0/2.3 Adapters please see pages 251-260.

Series 1.0/2.3 (50 Ohm/75 Ohm) (Continued)

Technical Data

Electrical and mechanical characteristics in accordance with CECC 22230

Characteristic impedance —
50 Ω/75 Ω

Frequency range — up to 10 GHz/
2 GHz

Reflection factor, referred to 50 Ω cable¹ —

up to 1 GHz, $r \leq 0.05$
up to 4 GHz, $r \leq 0.07$
up to 10 GHz, $r \leq 0.15$

Reflection factor, referred to 75 Ω cable¹ —

up to 2 GHz, $r \leq 0.10$

Insulation resistance —

initial value $\geq 1 \text{ G}\Omega$
after stressing $\geq 200 \text{ M}\Omega$

Screening effectiveness² —

$\geq 90 \text{ dB}$

Inner conductor contact resistance

— after stressing $\leq 10 \text{ m}\Omega$

Outer conductor continuity —

after stressing $\leq 7.5 \text{ m}\Omega$

Voltage proof³ —

flexible cables (RG 316)
— at sea level, 750 V, 50 Hz
— at 20 km altitude, 150 V, 50 Hz

Working voltage³ —

flexible cables (RG 316)
— at sea level, 350 V, 50 Hz
— at 20 km altitude, 65 V, 50 Hz

Service life — 500 cycles

Climatic category — 40/85/21

Notes:

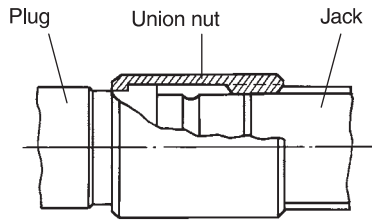
¹ Guide values, depending on cable type and connector style.

² Values apply to a straight screw and latching coupling with suitable cable.

³ Some cables suitable for use with these connectors have lower characteristic values than specified here.

⁴ For applicable cable types see page 151.

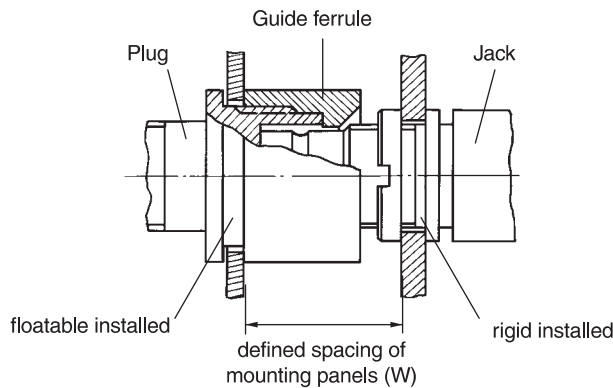
Coupling Types



Type A

Screw coupling; version with union nut

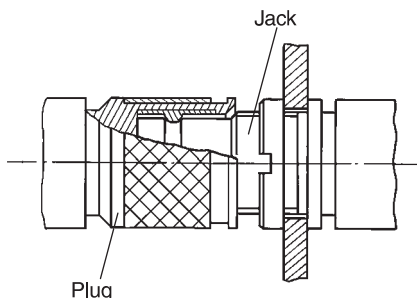
This type permits the plug and jack to be screwed together manually by means of a union nut secured to the plug. This is necessary for readily accessible locations, front panel test points and cable connections.



Type C

Slide-in coupling; version with centering ferrule

In this type of coupling, the plug features a guide ferrule with a conical entry surface. This ensures that the floatable bulkhead plugs with cable connection make a reliable electrical connection to the rigid installed jack. Examples of this are single and multi-contact connections of slide-in applications. "W" denotes the allowed spacing of the mounting panel for satisfactory contact when the connection is made.



Type F

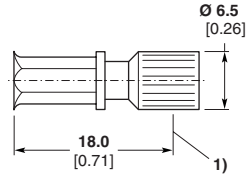
Latching coupling (Quick Lock)

In this version, the cable plugs bear a funnel ferrule with built-in spring which snaps into a groove on the jack, simultaneously locking the connection. The connec-

tion can be easily separated by lightly pulling the outer sleeve of the plug. This type of coupling can be used with a higher packing density, as the screw coupling.

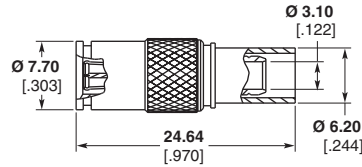
Series 1.0/2.3, 50 Ohm

Plugs, Solder/Crimp

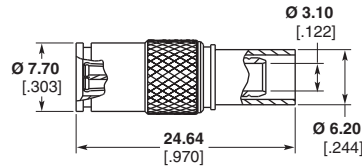


1) Detent for jack

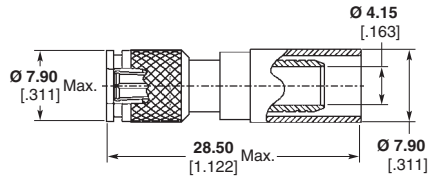
Cable	Coupling Type	Ø Max.	Part No.
RG 316	A	2.67 0.105	1393670-1



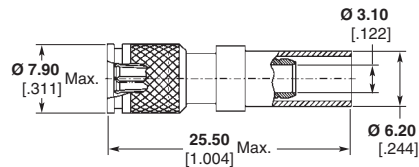
Cable	Coupling Type	Ø Max.	Part No.
WP93385L2	F	2.67 0.105	619223-1



Cable	Coupling Type	Ø Max.	Part No.
LMR 240	F	2.67 0.105	619224-1



Cable	Coupling Type	Ø Max.	Part No.
LMR 240FR	F	6.3 0.248	1460010-1

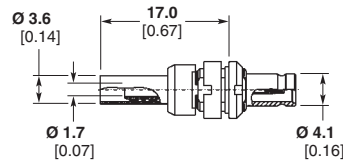


Cable	Coupling Type	Ø Max.	Part No.
WP93385L2	F	6.3 0.248	619085-1

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

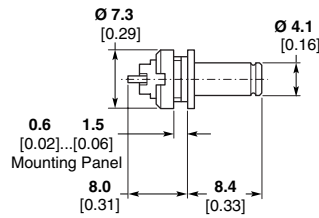
Series 1.0/2.3, 50 Ohm (Continued)

**Bulkhead Jack,
Solder/Crimp**



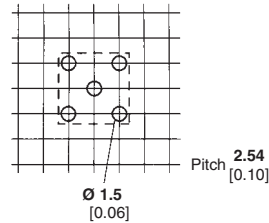
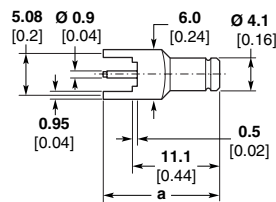
Cable	Coupling Type	Ø Max.	Part No.
RG 316	A, C, F	2.6 0.10	4-1393670-4

Bulkhead Solder Jack



Coupling Type	Part No.
C, F	1393670-8

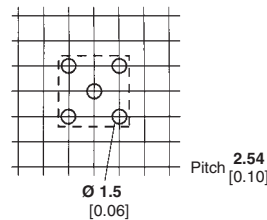
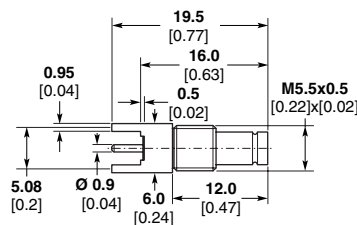
**Vertical PC Board
Mount Jack**



Coupling Type	Dim a	Part No.
C, F	14.6 0.57	3-1393670-4
C, F	15.6 0.61	3-1393670-5

Recommended Mounting Holes

**Vertical PC Board Mount
Bulkhead Jack**



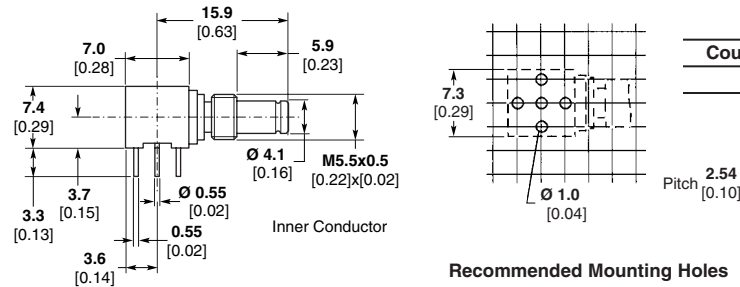
Coupling Type	Part No.
A, C, F	3-1393670-6

Recommended Mounting Holes

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

Series 1.0/2.3, 50 Ohm (Continued)

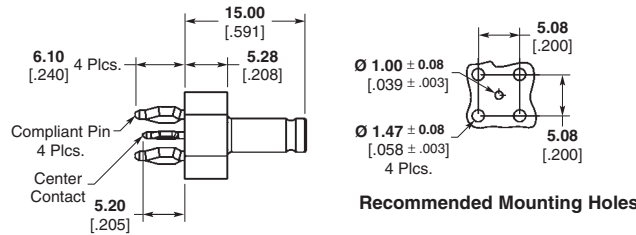
Right-Angle PC Board Mount Bulkhead Jack



Coupling Type	Part No.
A, C, F	3-1393670-9

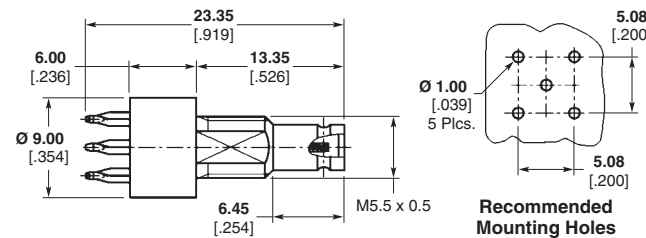
Recommended Mounting Holes

Vertical PC Board Mount ACTION PIN Jack



Coupling Type	Part No.
C, F	6274431-1

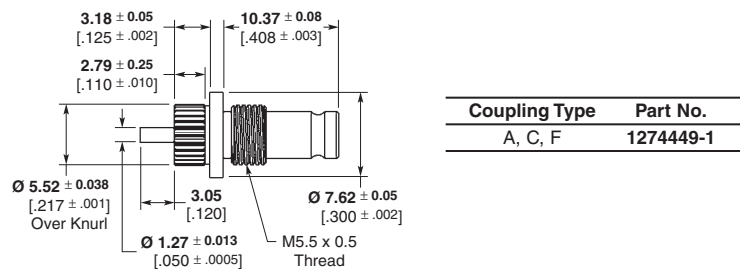
Recommended Mounting Holes



Coupling Type	Part No.
A, C, F	619107-1

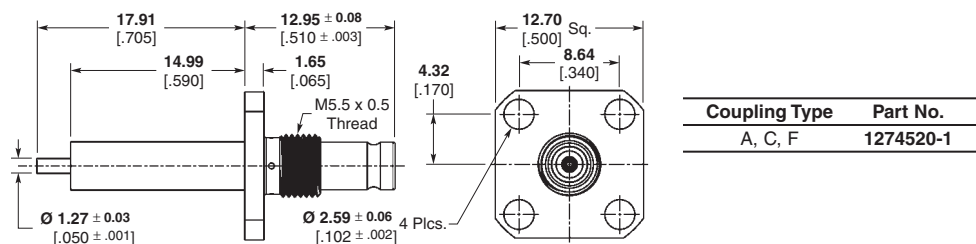
Recommended Mounting Holes

Panel Mount, Press-in, Launcher Jack



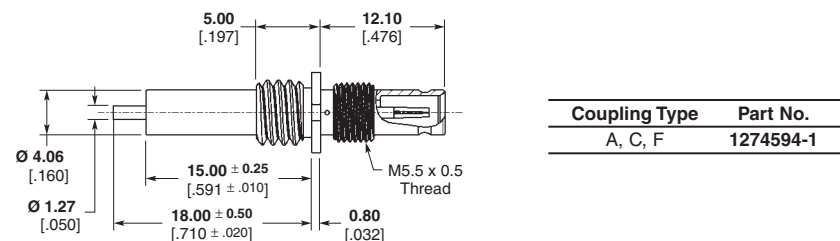
Coupling Type	Part No.
A, C, F	1274449-1

Panel Mount, 4-Hole Flange, Launcher Jack



Coupling Type	Part No.
A, C, F	1274520-1

Front Mount, Bulkhead Jack

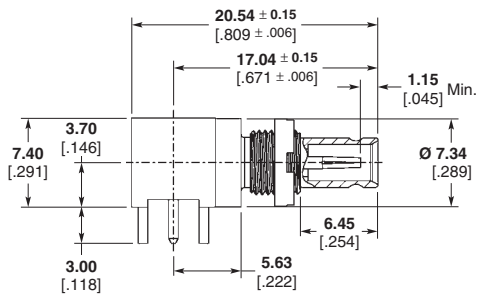


Coupling Type	Part No.
A, C, F	1274594-1

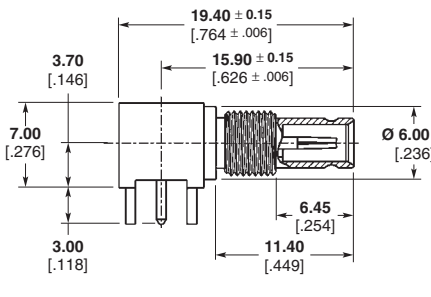
Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

Series 1.0/2.3, 50 Ohm (Continued)

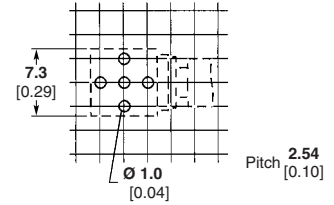
Right-Angle PC Board Mount Bulkhead Jack



Part Number 1274544-1



Part Number 1460060-1



Recommended Mounting Holes

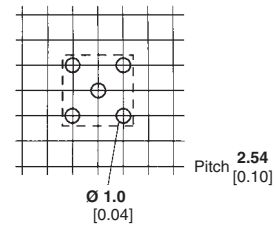
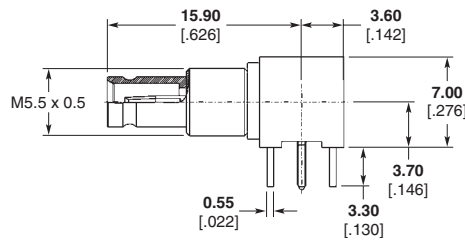
Coupling Type	Part No.
A, C, F	1274544-1
A, C, F	1460060-1

Plating

Outer Body — Silver

Outer and Center Conductor — Gold

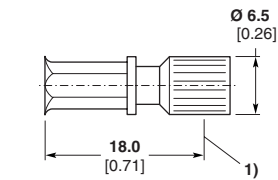
Coupling Type	Part No.
A, C, F	1460139-1



Recommended Mounting Holes

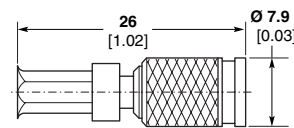
Series 1.0/2.3, 75 Ohm

Plugs, Solder/Crimp



1) Detent for jack

Cable	Coupling Type	Ø Max.	Part No.
RG 179	A	2.67 0.105	5-1393670-5

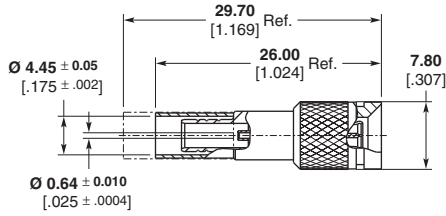


Cable	Coupling Type	Ø Max.	Part No.
RG 179	F	2.67 0.105	6-1393670-2
ST 212	F	3.2 0.13	6-1393670-5
02Y(ST)CY 0.45/2.0	F	3.6 0.14	6-1393670-4

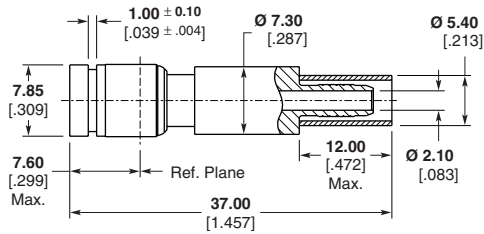
Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

Series 1.0/2.3, 75 Ohm (Continued)

**Straight Plugs,
Solder/Crimp**

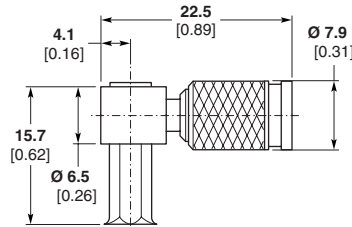


Cable	Coupling Type	Ø Max.	Part No.
BELDEN 1855A	A, C, F	2.67 0.105	619226-1

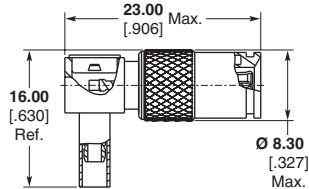


Cable	Coupling Type	Ø Max.	Part No.
BT 3002	A, C, F	2.67 0.105	1460815-1

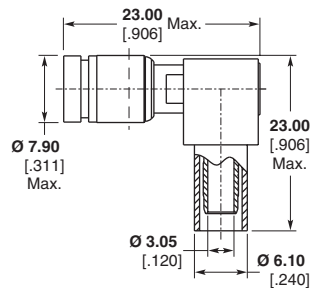
**Right-Angle Plug,
Solder/Crimp**



Cable	Coupling Type	Ø Max.	Part No.
RG 179	F	2.67 0.105	2-1393670-6
02Y(St)CY 0.45/2.0	F	3.6 0.14	7-1393670-0

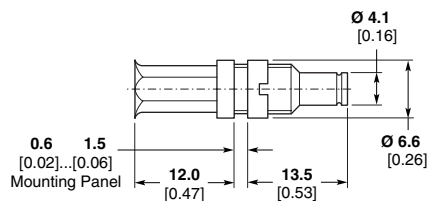


Cable	Coupling Type	Ø Max.	Part No.
RG 316	F	2.8 0.110	619228-1



Cable	Coupling Type	Ø Max.	Part No.
RA 7000	A, C, F	2.67 0.105	1460817-1

**Bulkhead Jack,
Solder/Crimp**



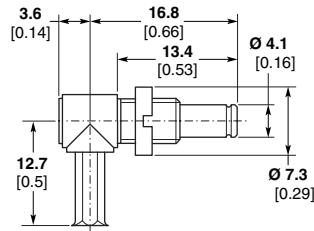
Cable	Coupling Type	Ø Max.	Part No.
RG 179	A, C, F	2.67 0.105	8-1393670-0

BELDEN is a trademark of Belden Wire and Cable Company.

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

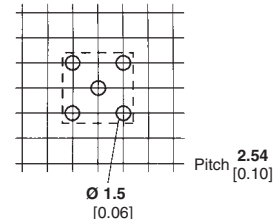
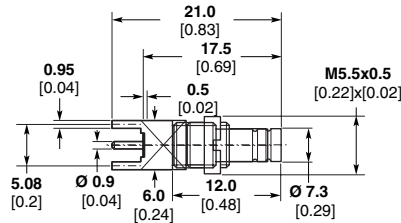
Series 1.0/2.3, 75 Ohm (Continued)

Right-Angle Bulkhead Jack, Solder/Crimp



Cable	Coupling Type	Ø Max.	Part No.
RG 179, 316	A, C, F	2.67 0.105	3-1393670-2

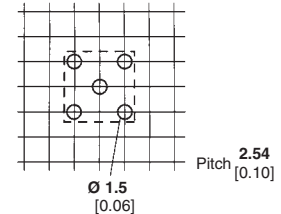
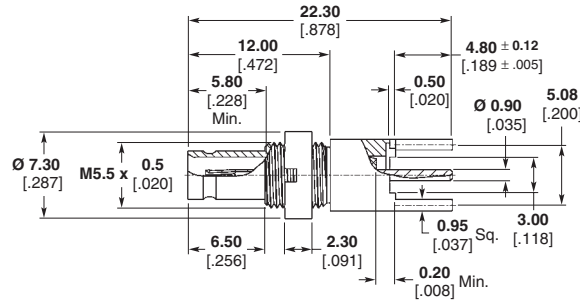
Vertical PC Board Mount Bulkhead Jack



Recommended Mounting Holes

Coupling Type	Part No.
A, C, F	8-1393670-3

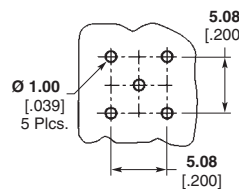
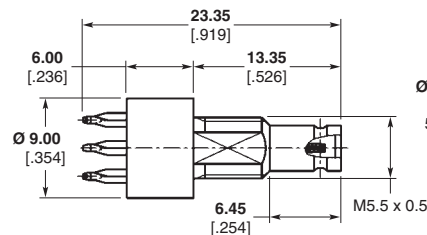
PC Board Mount Bulkhead Jack



Recommended Mounting Holes

Coupling Type	Ø Max.	Part No.
A, C, F	1.00-2.30 .039-.091	619220-1

Vertical PC Board Mount Bulkhead Jack



Recommended Mounting Holes

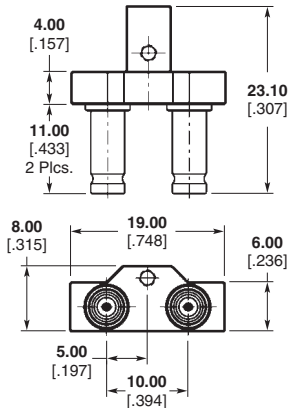
Coupling Type	Part No.
A, C, F	619106-1

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

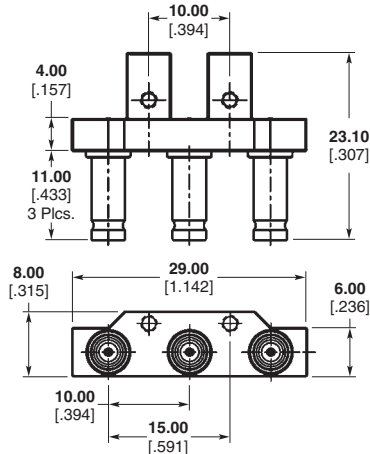
Series 1.0/2.3, 75 Ohm (Continued)

**Straight PCB Jacks,
Multi-Port**

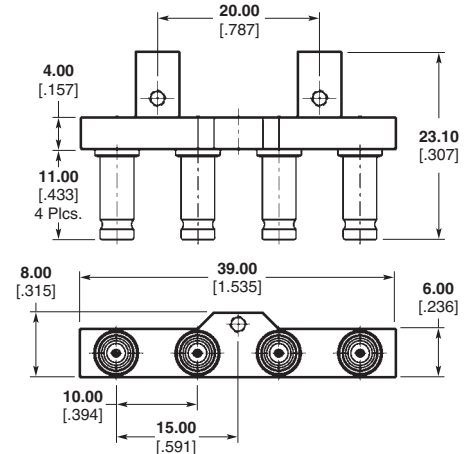
No. of Ports	Coupling Type	Part No.
2	A, C, F	1274714-3
3	A, C, F	1274714-2
4	A, C, F	1274714-1



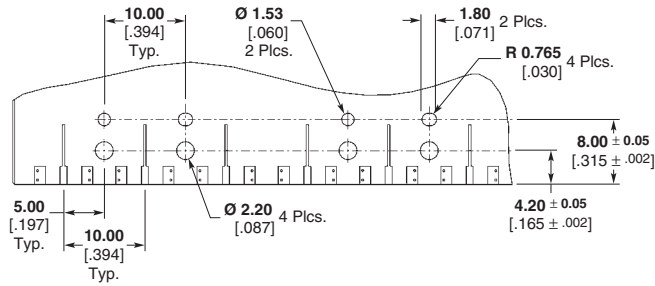
Part Number 1274714-3



Part Number 1274714-2

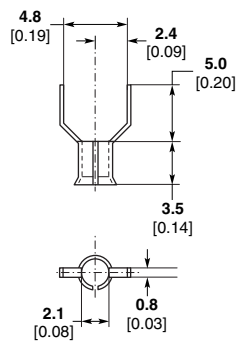


Part Number 1274714-1



Recommended PC Board Layout
2 Positions Shown

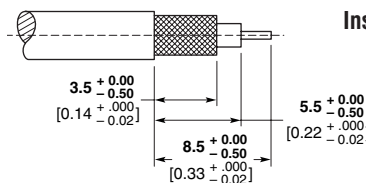
**Accessories
for 50 Ohm and 75 Ohm**



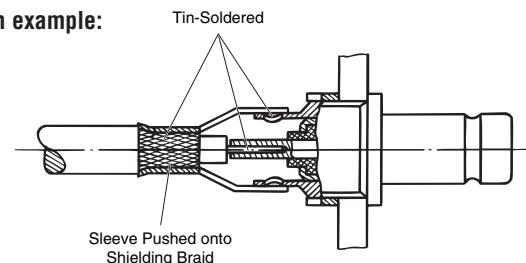
Soldering aid (sleeve) for jack 1393670-8 with solder connection.

Part No.
2-1393562-2

For cable size similar to RG 179 and RG 316



Installation example:



Note: For more accessories, see page 147.

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

Series 1.6/5.6 mS (75 Ohm)



General

The Series 1.6/5.6 mS connectors have been modified to incorporate improved technical advantages. Transmission values have been greatly improved while maintaining the proven positive characteristics of the previous genera-

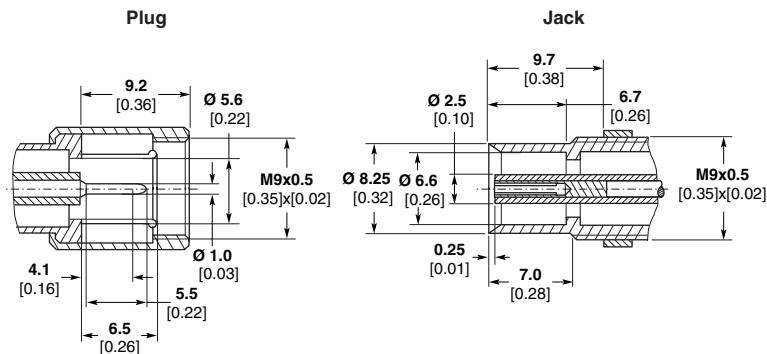
tions. All types of this new "third generation" Series 1.6/5.6 mS connectors are connection-compatible with their predecessor.

Today's PCM technology demands place the Series 1.6/5.6 mS connectors as a most suitable component for transmission of high bit rates.

Connectors are available in straight and angled versions as well as with different mechanisms for screw (type A), snap-on (type B), slide-in (type C), and latching (type F) coupling. All connectors of different coupling mechanisms are compatible with each other.

Between Series Adapters

For Series 1.6/5.6 Adapters please see pages 253-262.



The connectors are designed according to the pin-socket principle. The contacts are partially gold-plated, ensuring long service life and stable contact resistance for a high number of intermateability cycles.

The inner conductor parts are secured so that they cannot be displaced. The insulating parts are made of PEEK (polyetheretherketone) or PC (polycarbonate).

The cable inner conductors are soldered on, while the outer conductors are screwed or crimped on. Also, cable clamp which is independent of the braid clamping secures the connection point against tensile stressing for both methods of connection.

In addition, assembly-friendly connectors with full crimp and IDC (Insulation Displacement Contact) connection are included within

the scope of delivery. The connectors are characterized by high mechanical strength and low space requirement.

Connection possibilities exist for a number of different cables, including highly-flexible cable types (with foam insulation) with low attenuation or small diameter. Terminations and adapters (see also measurement accessories) round out the spectrum.

Series 1.6/5.6 mS (75 Ohm) (Continued)

Technical data

Electrical and mechanical characteristics in accordance with CECC 22240

Characteristic impedance — 75 Ω

Frequency range — up to 8 GHz

Reflection factor¹, referred to —

flexible cables, straight types —

up to 1 GHz, $r \leq 0.02$

up to 4 GHz, $r \leq 0.06$

up to 8 GHz, $r \leq 0.10$

flexible cables, angled types —

up to 1 GHz, $r \leq 0.04$

up to 2 GHz, $r \leq 0.06$

up to 4 GHz, $r \leq 0.10$

Insulation resistance —

initial value, $\geq 10 \text{ G}\Omega$

after stressing, $\geq 1 \text{ G}\Omega$

Shielding effectiveness —

(straight screw connector at 1 GHz)

$\geq 100 \text{ dB}$

Inner conductor contact

resistance — after stressing $\leq 8 \text{ m}\Omega$

Outer conductor continuity — after

stressing $\leq 4 \text{ m}\Omega$

Voltage proof² —

flexible cables (RG 59) —

at sea level, 1.5 kV, 50 Hz

at 20 km altitude, 300 V, 50 Hz

Working voltage² —

flexible cables (RG 59) —

at sea level, 500 V, 50 Hz

at 20 km altitude, 125 V, 50 Hz

Service life — 500 cycles

Climatic category — 40/85/21

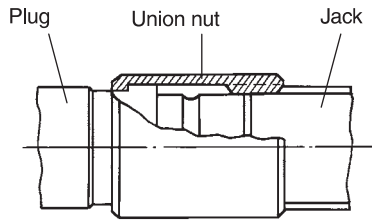
Notes:

¹ Guideline values, depending on cable type and connector style.

² Some cable types suitable for use with these connectors have lower characteristic values than specified here.

³ For applicable cable types see page 151.

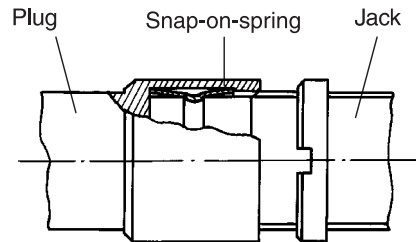
Coupling Types



Type A

Screw coupling; version with union nut

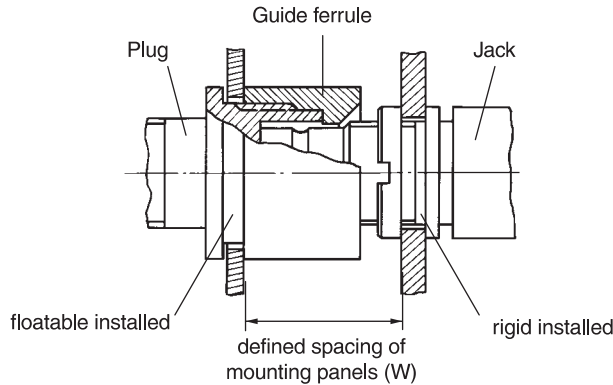
This type permits the plug and jack to be screwed together manually by means of a union nut secured to the plug manually, thus preventing the coupling from being pulled apart. This is necessary for readily accessible locations, front panel test points and cable connections.



Type B

Snap-on coupling (push-pull)

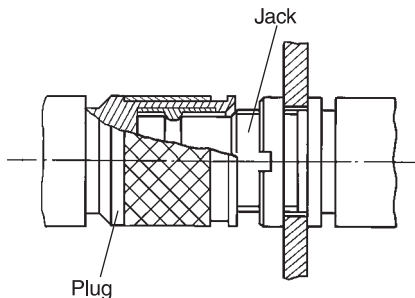
Connectors of this type offer fast make/break. They can be used for test and maintenance applications and also if there is lack of space and connectors with screw coupling cannot be used.



Type C

Slide-in coupling; version with centering ferrule

In this type of coupling, the plug features a guide ferrule with a conical entry surface. This ensures that the floatable bulkhead plugs with cable connection make a reliable electrical connection to the rigid installed jack. Examples of this are single and multi-contact connections of slide-in applications. "W" denotes the allowed spacing of the mounting panel for satisfactory contact when the connection is made.



Type F

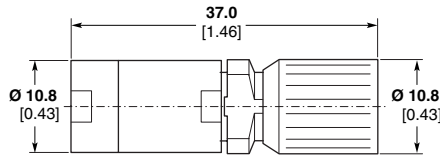
Latching coupling (Quick Lock)

In this version, the cable plugs bear a funnel ferrule with built-in spring which snaps into a groove on the jack, simultaneously locking the connection. The connec-

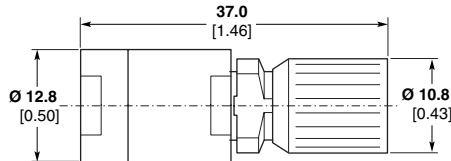
tion can be easily separated by lightly pulling the outer sleeve of the plug. This type of coupling provides the same amount of axial tensile strength as the screw coupling, but can be used with a higher packing density.

Series 1.6/5.6 mS (75 Ohm) (Continued)

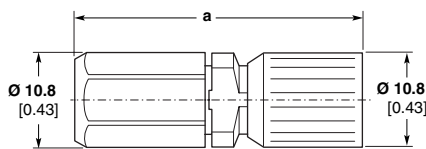
Plugs, Solder/Clamp



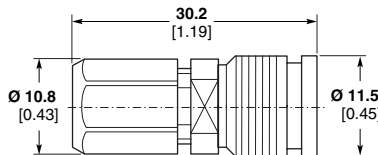
Cable	Coupling Type	Ø Max.	Part No.
2YCCY 0.7/4.4	A	7.8 0.31	1393682-1



Cable	Coupling Type	Ø Max.	Part No.
2YCCY 1.0/6.5	A	9.8	1393682-2
2YC(mS)CY 1.0/6.5	A	0.31	

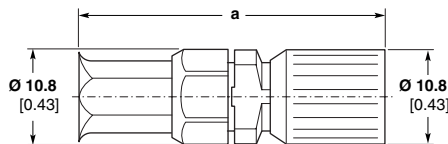


Cable	Coupling Type	Dim. a	Ø Max.	Part No.
2YCY 0.4/2.5	A	30.7 1.21	4.1 0.16	1-1393682-1
2YCCY 0.4/2.5	A	30.7 1.21	4.8 0.19	1-1393682-2
2YC(mS)CY 0.4/2.5	A	30.7 1.21	5.0 0.20	
2YCY 0.7/4.4	A	32.9 1.30	6.1 0.24	1-1393682-3
RG 59	A	32.9 1.30	6.25 0.25	
2YC(mS)CY 0.5/3.0	A	32.9 1.30	6.2 0.24	



Cable	Coupling Type	Ø Max.	Part No.
02Y(St)CY 0.45/2.0	F	3.6 0.14	1393681-8

Plugs, Solder/Crimp

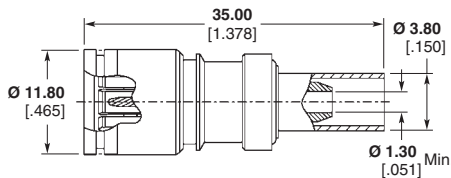
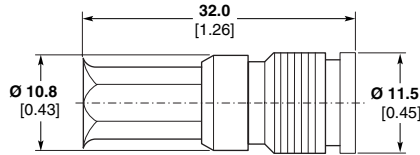
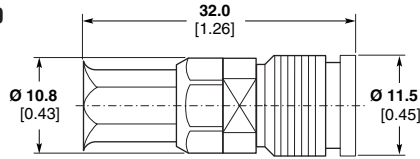


Cable	Coupling Type	Dim. a	Ø Max.	Part No.
RG 179	A	32.5 1.28	2.6 0.105	1393680-2
2YCCY 0.4/2.5	A	32.5 1.28	4.8 0.19	1393680-3
2YC(mS)CY 0.4/2.5	A	35.5 1.40	5.0 0.20	
2YC(mS)CY 0.5/3.0	A	35.5 1.40	6.2 0.24	1393680-4
2YCY 0.7/4.4	A	35.5 1.40	6.1 0.24	1393680-5
02Y(St)CY 0.45/2.0	A	32.5 1.28	3.6 0.14	1393680-9

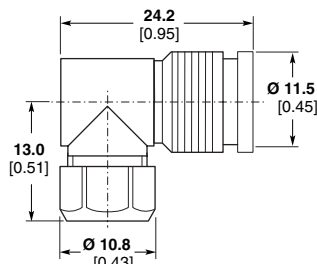
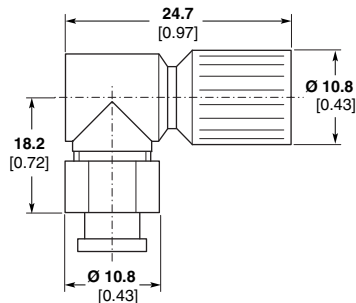
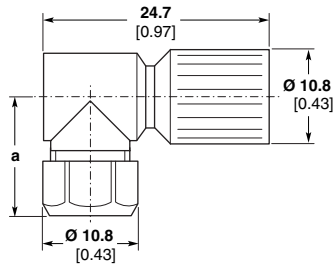
Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

Series 1.6/5.6 mS (75 Ohm)

Plugs, Solder/Crimp
(Continued)



Right-Angle Plugs, Solder/Crimp



Version with Preassembled Insulation

Cable	Coupling Type	Ø Max.	Part No.
02Y(St)CY 0.45/2.0	F	3.6 0.14	1393672-3

Preassembled Isolation Parts

Cable	Coupling Type	Ø Max.	Part No.
02Y(St)CY 0.45/2.0	F	3.6 0.14	1393672-9

Preassembled Version

Cable	Coupling Type	Ø Max.	Part No.
02YS(St)CHH 0.25/1.2	F	2.9 0.11	1460132-1

Cable	Coupling Type	Dim. a	Ø Max.	Part No.
2YCCY 0.4/2.5	A	13.0 0.51	4.8 0.19	2-1393682-0
2YC(mS)CY 0.4/2.5	A	13.0 0.51	5.0 0.20	
2YCY 0.7/4.4	A	15.8 0.62	6.1 0.24	2-1393682-2
RG 59	A	15.8 0.62	6.25 0.25	
2YC(mS)CY 0.5/3.0	A	15.8 0.62	6.2 0.24	

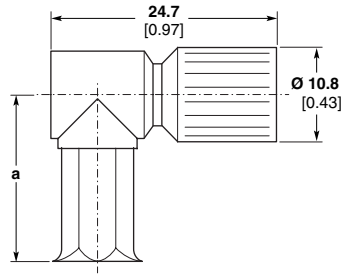
Cable	Coupling Type	Ø Max.	Part No.
RG 179	A	2.67 0.105	2-1393682-3

Cable	Coupling Type	Ø Max.	Part No.
02Y(St)CY 0.45/2.0	F	3.6 0.14	1-1393681-0

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

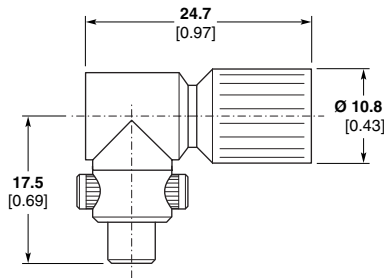
Series 1.6/5.6 mS (75 Ohm) (Continued)

**Right-Angle Plugs,
Solder/Crimp**



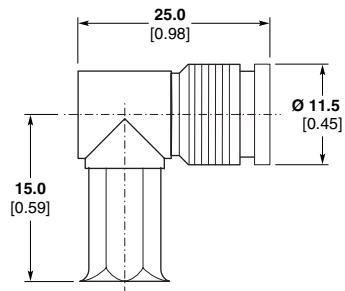
Cable	Coupling Type	Dim. a	Ø Max.	Part No.
02Y12YC(mS)C6Y 0.45/2.0	A	15.0 0.59	4.0 0.16	1-1393680-6
02Y(St)CY 0.45/2.0	A	15.0 0.59	3.6 0.14	1-1393680-8

**Right-Angle Plugs,
IDC Connection**



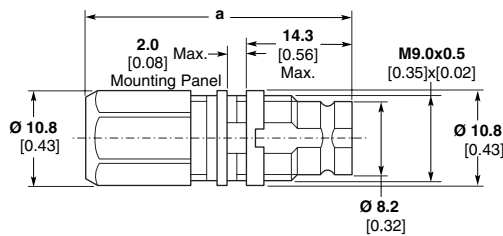
Cable	Coupling Type	Ø Max.	Part No.
02Y(St)CY 0.45/2.0	A	3.6 0.14	1393757-9
2YCY 0.4/2.5	A	4.1 0.16	1393757-8

**Right-Angle Plug,
Solder/Crimp**



Cable	Coupling Type	Ø Max.	Part No.
02Y(St)CY 0.45/2.0	F	3.6 0.14	1393672-5

**Bulkhead Jacks,
Solder/Clamp**

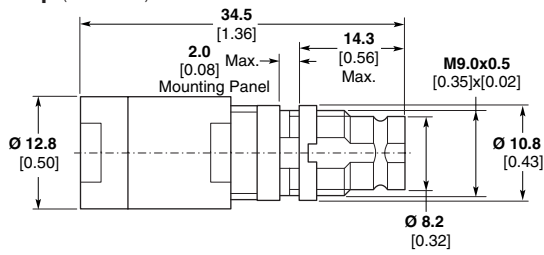


Cable	Coupling Type	Dim. a	Ø Max.	Part No.
2YCY 0.4/2.5	A, B, F	28.1 1.11	4.1 0.16	3-1393682-2
2YCCY 0.4/2.5	A, B, F	28.1 1.11	4.8 0.19	3-1393682-3
2YC(mS)CY 0.4/2.5	A, B, F	28.1 1.11	5.0 0.20	
2YCY 0.7/4.4	A, B, F	30.4 1.20	6.1 0.24	3-1393682-5
RG 59	A, B, F	30.4 1.20	6.25 0.25	
2YC(mS)CY 0.5/3.0	A, B, F	30.4 1.20	6.2 0.24	

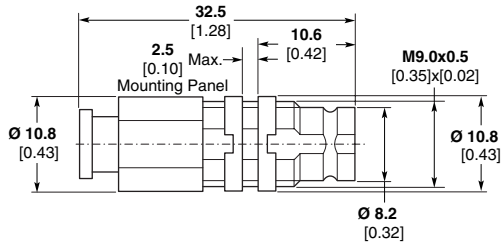
Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

Series 1.6/5.6 mS (75 Ohm) (Continued)

Bulkhead Jacks, Solder/Clamp (Continued)

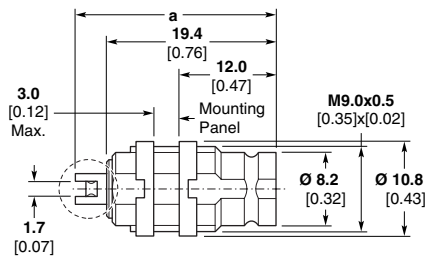


Cable	Coupling Type	Ø Max.	Part No.
2YCCY 1.0/6.5	A, B, F	9.8 0.38	1393682-4
2Y(mS)CY 1.0/6.5	A, B, F	9.8 0.38	



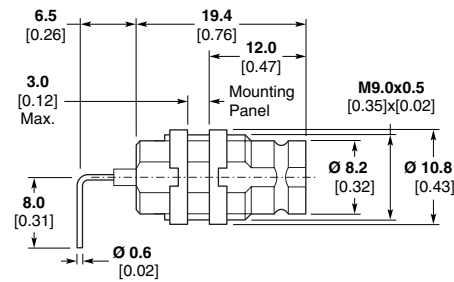
Cable	Coupling Type	Ø Max.	Part No.
RG 179	B, C, F	2.67 0.105	4-1393682-2

Bulkhead Jacks, Solder



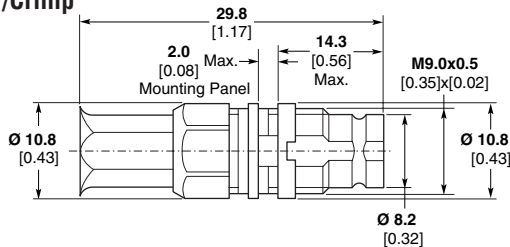
Dim. a	Ø Max.	Part No.
22.3* 0.88	A, B, C, F	1-1393681-1
23.5 0.93	A, B, C, F	1-1393681-9

*Without soldering tags on outer conductor, dimension a up to inner conductor end.

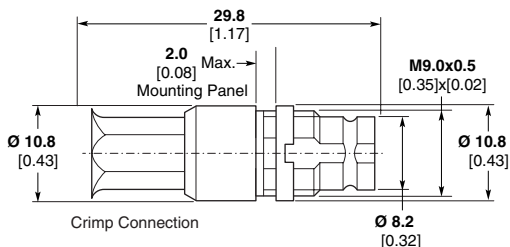


Coupling Type	Part No.
A, B, C, F	1-1393681-3

Bulkhead Jacks, Solder/Crimp



Cable	Coupling Type	Ø Max.	Part No.
RG 179	A, B, F	2.67 0.105	2-1393680-2
02Y12YC(mS)C6Y 0.45/2.0	A, B, F	4.0 0.16	2-1393680-4
06YCC(St)6Y 0.4/1.6	A, B, F	3.3 0.13	2-1393680-5
02Y(St)CY 0.45/2.0	A, B, F	3.6 0.14	1393672-6



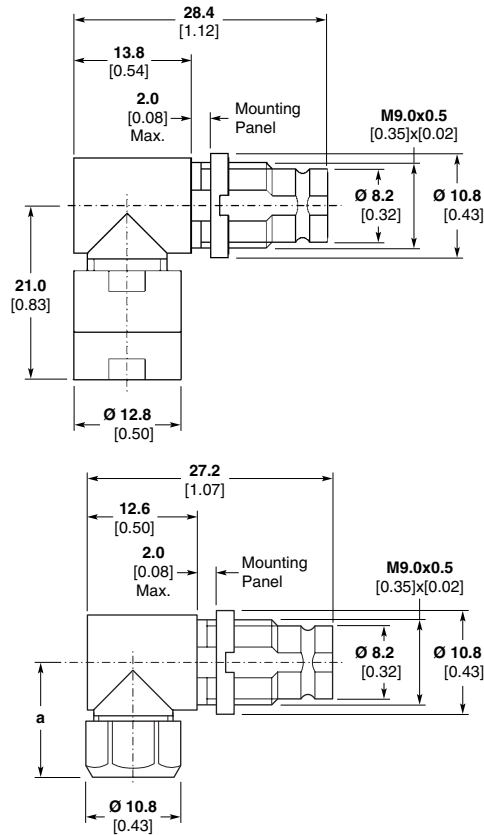
With preassembled insulation parts

Cable	Coupling Type	Ø Max.	Part No.
02Y(St)CY 0.45/2.0	A, B, F	3.6 0.14	1-1393672-4

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

Series 1.6/5.6 mS (75 Ohm) (Continued)

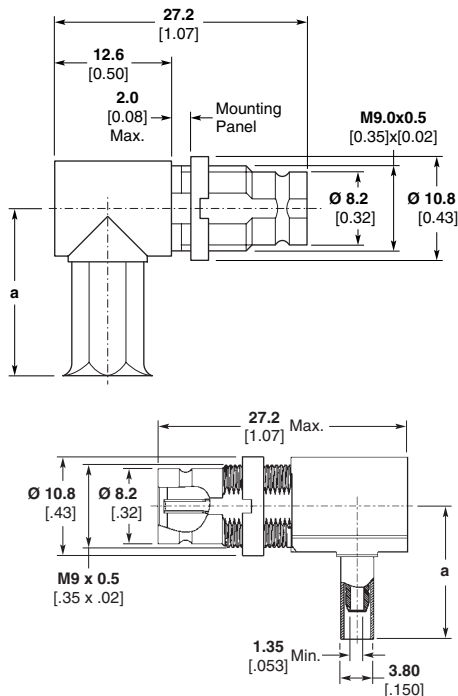
**Right-Angle Bulkhead Jack,
Solder/Clamp**



Cable	Coupling Type	Ø Max.	Part No.
2YCCY 1.0/6.5	A, B, F	9.8 0.39	1393682-8
2YC(mS)CY 1.0/6.5	A, B, F	9.8 0.39	

Cable	Coupling Type	Dim. a	Ø Max.	Part No.
02Y(St)CY 0.45/2.0	A, B, F	13.0 0.51	3.6 0.14	4-1393682-9
2YCCY 0.4/2.5	A, B, F	13.0 0.51	4.8 0.19	4-1393682-6
2YC(mS)CY 0.4/2.5	A, B, F	13.0 0.51	5.0 0.20	
2YCY 0.7/4.4	A, B, F	15.8 0.62	6.1 0.24	4-1393682-8
RG 59	A, B, F	15.8 0.62	6.25 0.25	
2YC(mS)CY 0.5/3.0	A, B, F	15.8 0.62	6.2 0.24	

**Right-Angle Bulkhead Jack,
Solder/Crimp**



Cable	Coupling Type	Dim. a	Ø Max.	Part No.
RG 179	A, B, F	15.0 0.59	2.67 0.105	3-1393680-0
2YCCY 0.4/2.5	A, B, F	15.0 0.59	4.8 0.19	3-1393680-2
2YC(mS)CY 0.4/2.5	A, B, F	15.0 0.59	5.0 0.20	
02Y12YC(mS)C6Y 0.45/2.0	A, B, F	15.0 0.59	4.0 0.16	3-1393680-5
06YCC(St)6Y 0.4/1.6	A, B, F	15.0 0.59	3.3 0.13	4-1393682-3
02Y(St)CY 0.45/2.0	A, B, F	15.0 0.59	3.6 0.14	3-1393680-7

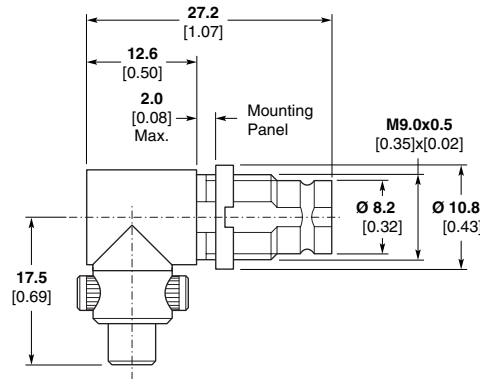
Cable	Coupling Type	Dim. a	Ø Max.	Part No.
02YS(St)CHH 0.25/1.2	A, B, F	15.0 0.59	2.9 0.11	1460128-1*
02YS(St)CHH 0.25/1.2	A, B, F	15.0 0.59	2.9 0.11	1460169-1**

* Tray Packaging.
** Individual Packaging.

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

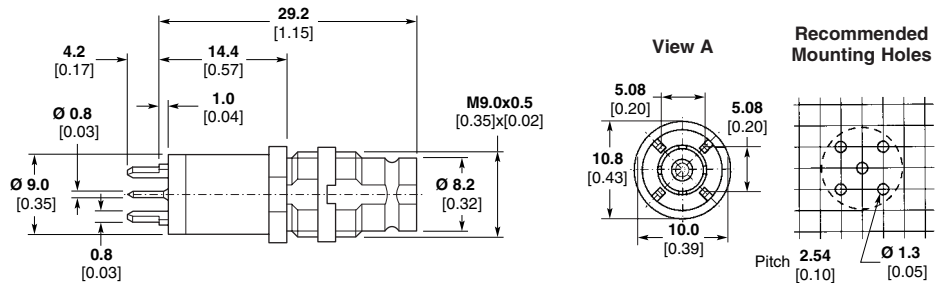
Series 1.6/5.6 mS (75 Ohm) (Continued)

**Right-Angle Bulkhead Jack,
IDC Connection**

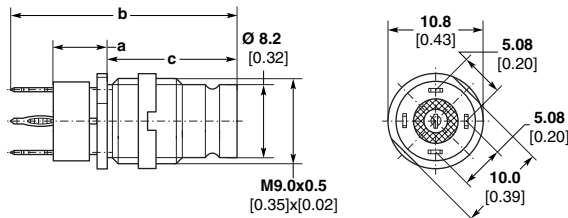


Cable	Coupling Type	Ø Max.	Part No.
02Y(St)CY 0.45/2.0	A, B, F	3.6 0.14	1-1393757-6

**Vertical PC Board
Mount Jack**



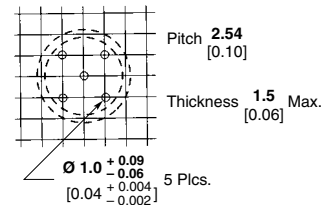
Coupling Type	Part No.
A, B, F	1-1393681-6



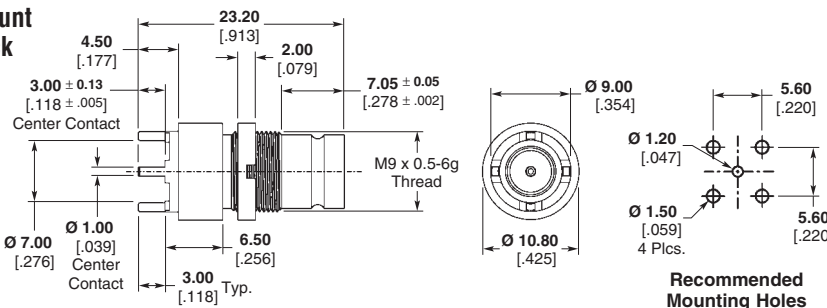
Inner- and outer conductor, press-fit

Coupling Type	Dim. a	Dim. b	Dim. c	Part No.
A, B, F	6.0 0.24	27.2 1.07	16.4 0.65	2-1393757-0

Recommended Mounting Holes



**PC Board Mount
Bulkhead Jack**



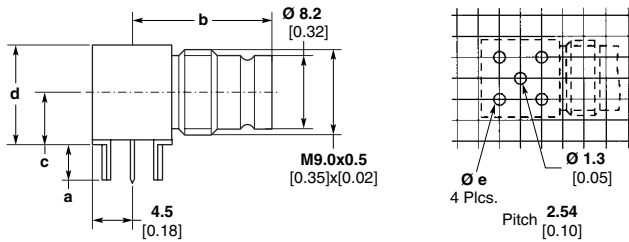
Coupling Type	Part No.
A, B, F	1274513-1

**Recommended
Mounting Holes**

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

Series 1.6/5.6 mS (75 Ohm) (Continued)

Right-Angle PC Board Mount Bulkhead Jack

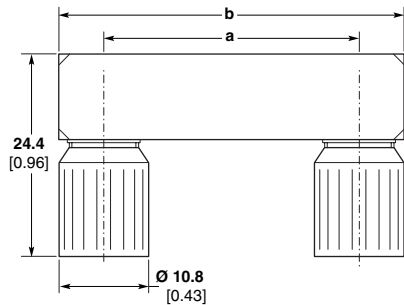


Recommended Mounting Holes

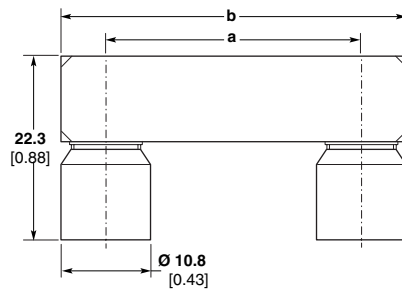
Coupling Type	Dim. a	Dim. b	Dim. c	Dim. d	Dim. e	Part No.
A, B, F	4.0 0.16	16.0 0.63	6.0 0.24	10.75 0.42	1.3 0.05	2-1393681-1
A, B, F	3.3 0.13	16.0 0.63	6.0 0.24	10.75 0.42	1.3 0.05	2-1393681-2
A, B, F	3.7 0.15	22.9 0.90	6.45 0.25	11.25 0.44	1.8 0.07	2-1393681-3*

*With positioning and snap-on system onto PC board

U-link Plug/Plug



Coupling Type	Dim. a ± 0.1 [0.004]	Dim. b Max.	Part No.
A	15.0 0.59	26.5 1.04	6-1460823-1



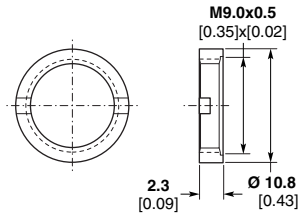
Coupling Type	Dim. a ± 0.1 [0.004]	Dim. b Max.	Part No.
B	15.0 0.59	26.5 1.04	6-1460823-2

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

Series 1.6/5.6 mS (75 Ohm) (Continued)

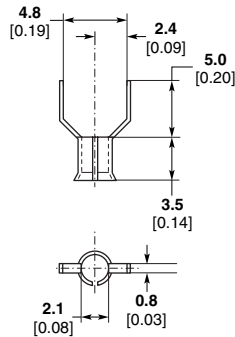
Accessories

These components are provided when bulkhead jack part numbers are ordered, but can also be ordered separately.



Threaded ring for installation of bulkhead jacks

Part No.
1-1393562-0



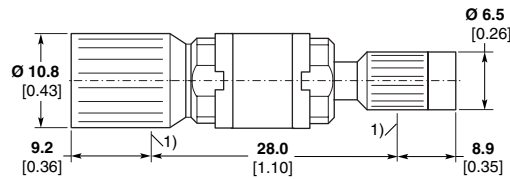
Soldering aid (sleeve) for jack (1-1393681-9) with solder termination

Part No.
2-1393562-2

Cable stripping and installation example: see Part number 2-1393562-2 under "Series 1.0/2.3", page 137.

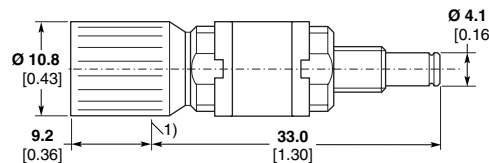
Measurement Accessories

Between Series Adapters (75 Ohm)



Plug 1.6/5.6 to Plug 1.0/2.3

Coupling Type	Part No.
A	6-1460821-1



Plug 1.6/5.6 to Jack 1.0/2.3

Coupling Type	Part No.
A, F ²	2-1393670-2 ♦
A, F ²	6-1460821-2

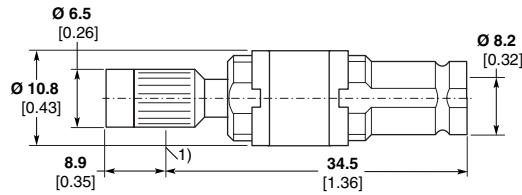
1) Detent for jack

2 Only jack side

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

Measurement Accessories (Continued)

Between Series Adapters (75 Ohm) (Continued)

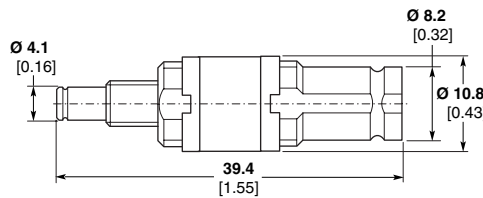


Plug 1.0/2.3 to Jack 1.6/5.6

Coupling Type	Part No.
A, B ² , F ²	6-1460821-3

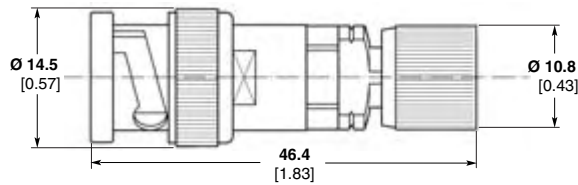
² Only jack side

1) Detent for jack



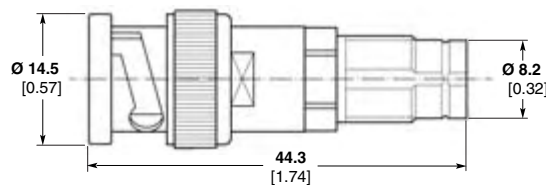
Jack 1.0/2.3 to Jack 1.6/5.6

Coupling Type	Part No.
A, B, F	6-1460821-4



BNC Plug to Plug 1.6/5.6

Part No.
7-1393665-4



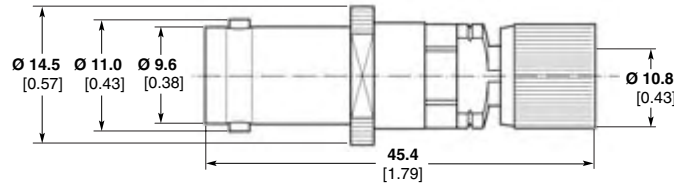
BNC Plug to Jack 1.6/5.6

Part No.
7-1393665-6

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

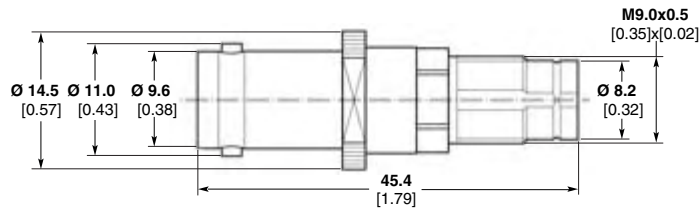
Measurement Accessories (Continued)

Between Series Adapters
(75 Ohm) (Continued)



BNC Jack to Plug 1.6/5.6

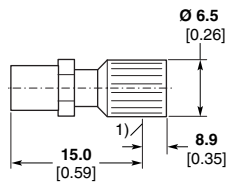
Part No.
7-1393665-7



BNC Jack to Jack 1.6/5.6

Part No.
7-1393665-5

Termination (75 Ohm)

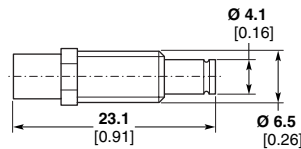


1) Detent for jack

Standard Termination

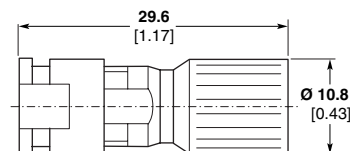
Plug 1.0/2.3

Coupling Type	Power W	Part No.
A	0.6	7-1393665-2



Jack 1.0/2.3

Coupling Type	Power W	Part No.
A, F	0.6	7-1393665-3



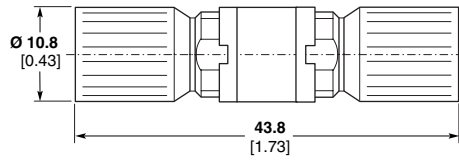
Plug 1.6/5.6

Coupling Type	Power W	Part No.
A	1.0	6-1393665-1

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

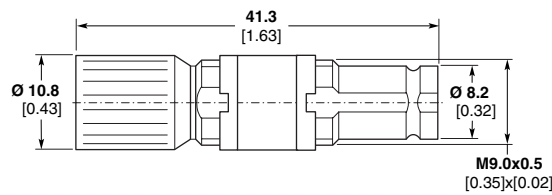
Measurement Accessories (Continued)

In-Series Adapter (75 Ohm)



Adapter 1.6/5.6, Plug/Plug

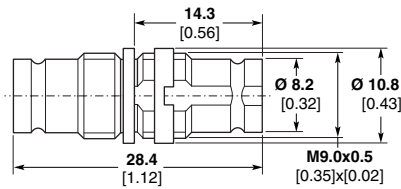
Coupling Type	Part No.
A	1393681-6



Adapter 1.6/5.6, Plug/Jack

Coupling Type	Part No.
A, B*, F*	1-1393681-7

*Jack side only



Adapter 1.6/5.6, Jack/Jack

Coupling Type	Part No.
A, B, F	1-1393665-1

Note:

U-link connectors see "1.6/5.6" section, page 146.

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

Coaxial Cables

List of the coaxial cables that are listed in the various connector series of this section.

Characteristic Impedance (Ω)	Max. Cable Outer Diameter (mm)	Dielectric Diameter (mm)/ Material ¹⁾	Cable-Type Designation		
			VDE Designation ²⁾	US Designation Manufacturer des.	IEC Designation 96-IEC
50	1.9	0.91max/PTFE	5YC5Ye 0.3/0.86	RG 178	50-1-1
50	2.1	0.87/PTFE	—	RG 196	50-1-2
50	2.25	1.71max/PTFE	5YK 0.51/1.68	RG 405	—
50	2.6	1.60max/PTFE	5YC5Ye 0.5/1.5	RG 316	50-2-1
50	2.8	1.60max/PE	2YCY 0.5/1.5	RG 174	—
50	3.0	1.52/PTFE	5YCC5Y 0.5/1.5	RD 316	—
50	3.6	3.01max/PTFE	5YK 0.9/3.0	RG 402	—
50	6.4	5.38max/PTFE	5YK 1.63/5.33	RG 401	—
75	2.67	1.68max/PTFE	5YC6Y 0.3/1.6	RG 179	75-2-1
75	3.0	1.60max/PTFE	—	RD 179	—
75	3.3	1.68max/Cell-FEP	06YCC(St)6Y 0.4/1.6	—	—
75	3.2	2.1max	—	ST 212	—
75	3.6	2.0max/Cell-PE	02Y(St)CY 0.45/2.0	—	—
75	4.0	2.0maxE/Cell-PE	02Y12YC(mS)C6Y 0.45/2.0	—	—
75	4.0	2.54max/PE	2YCY 0.4/2.5	—	—
75	4.8	2.54max/PE	2YCCY 0.4/2.5	—	—
75	5.0	2.54max/PE	2YC(mS)CY 0.4/2.5	—	—
75	6.1	4.25max/PE	2YCY 0.7/4.4	—	—
75	6.2	2.83max/PE	2YC(mS)CY 0.5/3.0	—	—
75	6.25	3.8max/PE	2YCY 0.58/3.7	RG 59	—
75	7.8	4.43max/PE	2YCCY 0.7/4.4	—	—
75	9.8	6.4/PE	2YCCY 1.0/6.5	—	—
75	9.8	6.4/PE	2YC(mS)CY 1.0/6.5	—	—

1) Material label

- PTFE Polytetrafluorethylene
- PE Polyethylene
- FEP Perfluorethylene propylene
- PFA Perfluoralkoxy copolymer

2) Mounting label of the VDE type numbers (from inside to outside)

Example:

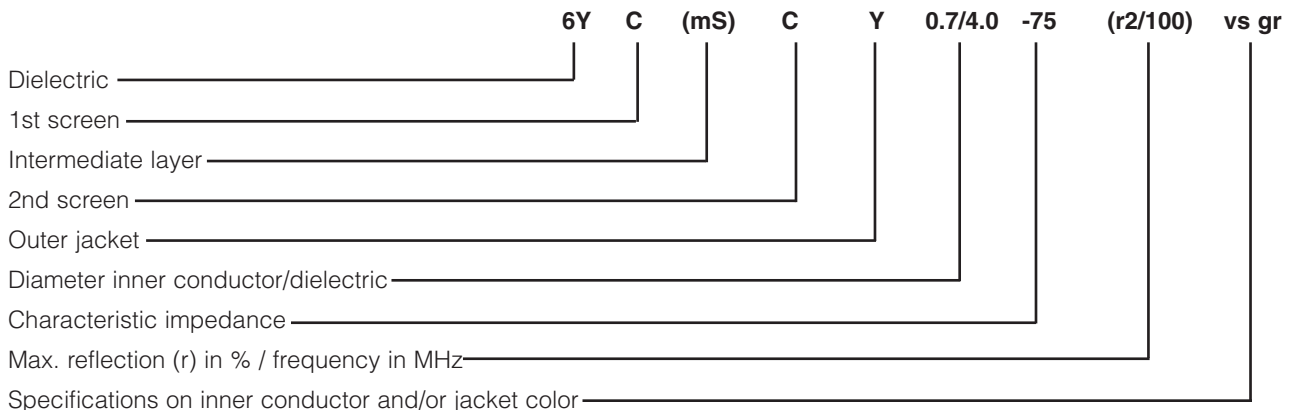
Explanation

Dielectric and Jacket
 2Y = PE
 5Y = PTFE
 02Y = Cell PE
 06Y = Cell FEP
 6Y = FEP

Screen:
 C = Cu braiding
 K = Cu tape
 Intermediate layer:
 mS = magnetic screen
 St = static screen

Specifications on inner conductor:
 vs = silver plated
 staku = Bare copper-clad steel wire conductor

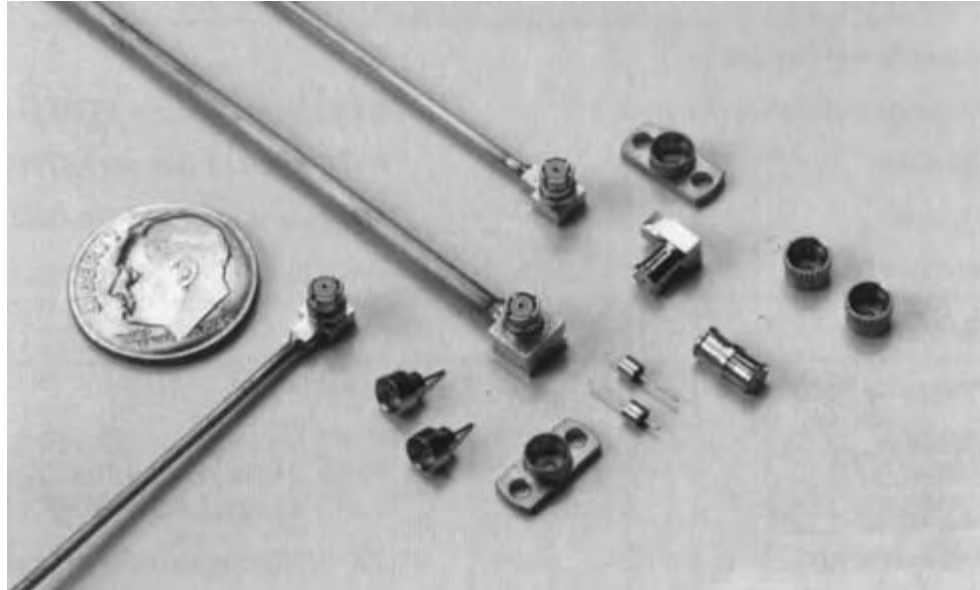
Jacket color:
 gn = green
 gr = grey
 rt = red
 ws = white



SMP Microminiature Push-On Coaxial Connectors

Product Facts

- Intermateable with Corning Gilbert GPO Series Connector
- DESC approved
- Enhanced performance features
- Simplified Assembly



SMP microminiature 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 4.32 [0.17]. 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 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 (DESC) to generate the SMP push-on connector series.

SMP connectors can be your design solution for mechanical packaging and frequency response. The SMP interface provides 0.020" of radial misalignment for critical blindmate applications. Mating forces are strictly controlled to ensure reliable connections per mated pair or when simultaneously mating multiple connectors. Cable jacks include an anti-rocking ring to ensure reliable mechanical performance regardless of the operating environment. SMP connectors offer enhanced broadband VSWR performance of

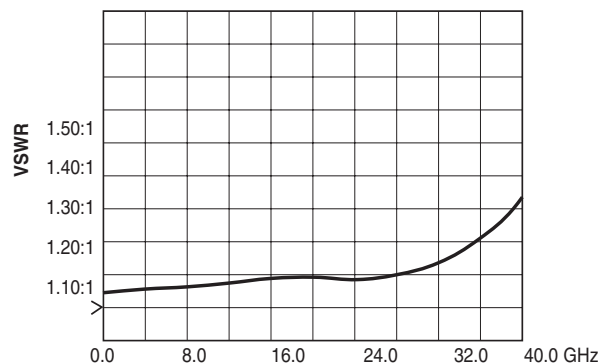
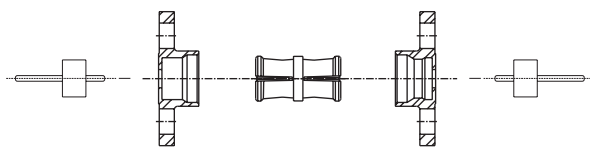
1.15:1 max thru 26GHz and 1.40:1 max thru 40GHz.

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.

Between Series Adapters

For SMP Between Series Adapters, see pages 253-262.

SMP Shroud and Jack to Jack Adapter Assembly



Typical VSWR for SMP Jack to Jack Adapter
Part Numbers 1056700-1 and 1056721-1

GPO is a trademark of Corning Gilbert, Inc.

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

SMP Microminiature 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 - 26.0 GHz 1.40:1 Maximum 26.0 - 40.0 GHz
Voltage Rating	335 Vrms maximum at sea level
Insertion Loss	0.10 $f\sqrt{\text{GHz}}$ maximum
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 dB minimum
Contact Resistance	Initial center contact 6.0 milliohms maximum Outer contact 2.0 milliohms maximum

Mechanical

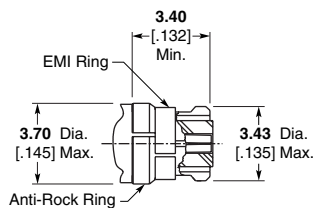
Durability	100 mating cycles minimum
Radial Misalignment	± 0.020 minimum
Axial Misalignment	.000/.010
Force to Engage	full detent 15.0 lbs. maximum half detent 10.0 lbs. maximum smooth bore 2.0 lbs. maximum
Force to Disengage	full detent 5.0 lbs. minimum half detent 2.0 lbs. minimum smooth bore 0.5 lbs. minimum
Center Contact Retention	1.5 lbs. minimum axial force

Environmental

Operating Temperature	-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 200 megohms within 5 minutes after removal from humidity.

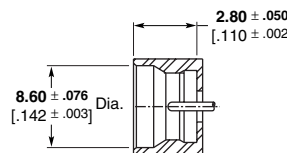
Interface Dimensions

Jack

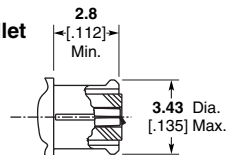


Shroud

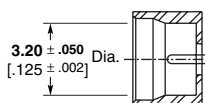
Full Detent



Bullet



Smooth Bore



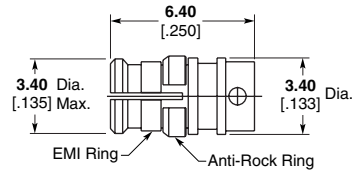
Note: The U.S. Government (DESC) has determined that the above specified interface dimensions are interchangeable and intermateable with Corning Gilbert GPO Series RF Connectors.¹

GPO is a trademark of Corning Gilbert, Inc.

¹ Per DESC drawing numbers 94007 and 94008, series SMP.

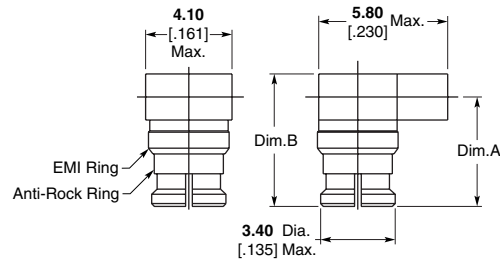
SMP Microminiature Push-On Coaxial Connectors (Continued)

Straight Cable Jack, Solder Attachment



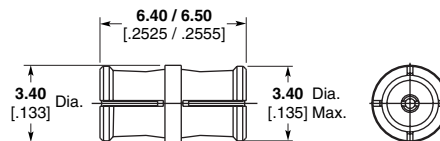
Cable	Part No.
.047 Semi-Rigid	1056526-1
.085 Semi-Rigid (RG 405)	1056527-1

Right-Angle Cable Jack, Solder Attachment



Cable	Dim. A	Dim. B	Part No.
.047 Semi-Rigid	4.8 .190	5.8 .230	1056553-1
.085 Semi-Rigid (RG 405)	5.3 .209	6.7 .265	1056554-1

Jack to Jack Adapter (Bullet)

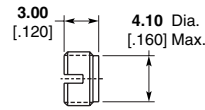


Part No.
1056700-1

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

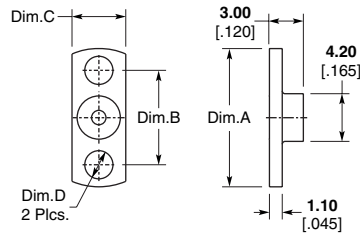
SMP Microminiature Push-On Coaxial Connectors (Continued)

Shroud — Threaded



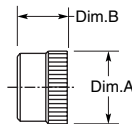
Description	Part No.
Full Detent	1056745-1
Limited Detent	1056743-1
Smooth Bore	1056744-1

**Shroud — 2 Hole Flange
Surface Mount**



Description	Dim. A	Dim. B	Dim. C	Dim. D	Part No.
Full Detent	12.2 .480	8.3 .328	4.7 .187	2.5 .098	1056721-1
	15.8 .625	12.2 .481	5.7 .223	2.6 .102	1056722-1
	10.2 .400	7.2 .282	4.2 .165	1.9 .073	1056724-1
Limited Detent	12.2 .480	8.3 .328	4.7 .187	2.5 .098	1056729-1
	10.2 .400	7.2 .282	4.2 .165	1.9 .073	1056731-1

Shroud — Press Fit

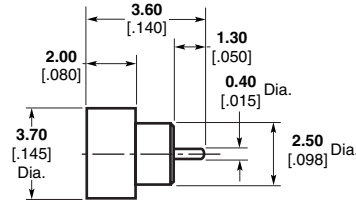


Description	Dim. A	Dim. B	Part No.
Limited Detent	3.9 .154	2.0 .080	1056736-1

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

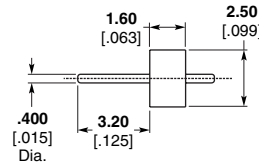
SMP Microminiature Push-On Coaxial Connectors (Continued)

**Shroud — Solder-In
Hermetic**



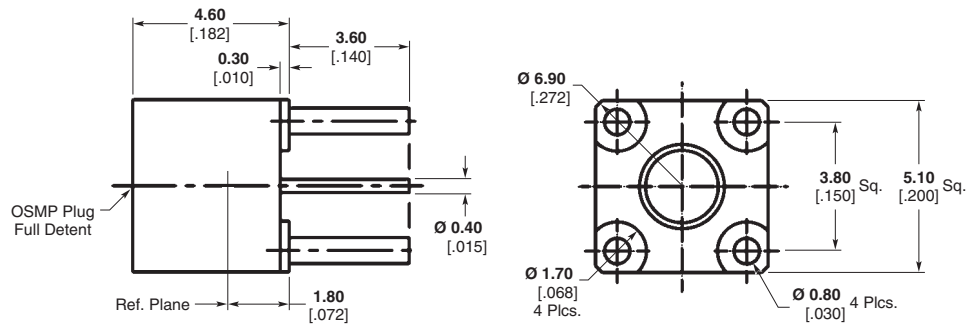
Description	Part No.
Full Detent	1056750-1
Limited Detent	1056751-1
Smooth Bore	1056752-1

Glass Bead Assembly

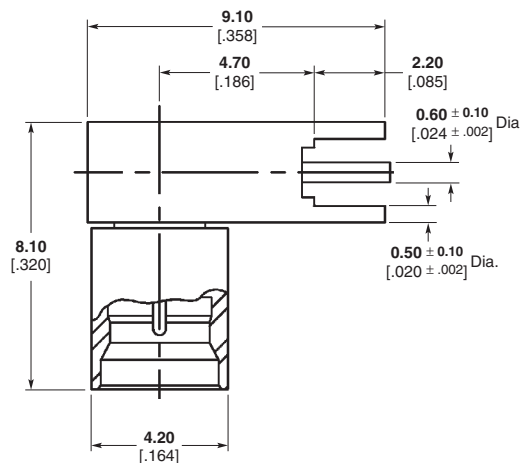


Part No.
1056728-1

Plug, Straight, Full Detent



**Plug, Right-Angle, Limited
Detent**



M/A-COM Model Number	Part No.
2965-5006-62	1061692-1

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

OSP Miniature Modular Blind Mate Connectors

Product Facts

- Interface designed for multiple interconnects
- For high performance microwave system requirements
- Module to module, module to motherboard, fixed and float mount
- Bulkhead or panel mount
- For flexible and semi-rigid cable



OSP 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 solderless compression crimp attachment. Complete tooling for both versions is located in the Tooling 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 solderless compression crimp attachment 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.

OSP 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

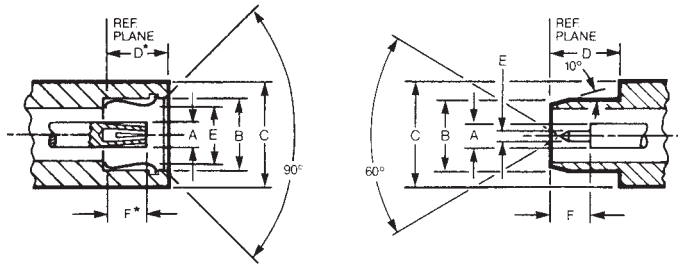
**All dimensions shown are nominal.
Contact the factory for specific tolerances.**

OSP 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.



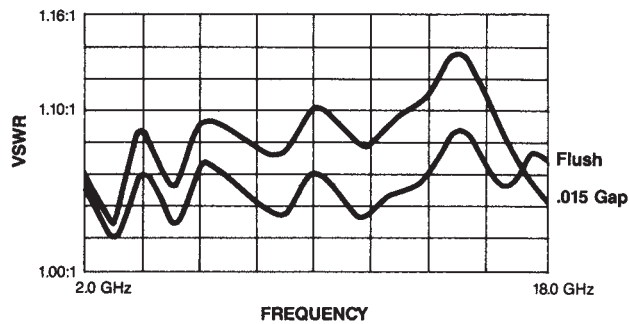
Jack

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.*

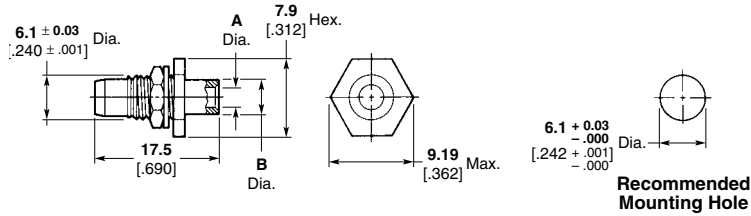
Letter	Dimensions
A	1.78 .070 Nom.
B	5.33 .210 Nom.
C	7.62 .300 Ref.
D	5.05 .199 Min.
E	0.91 .036 Nom.
F	3.25 .128 Min.

*With spring bottomed



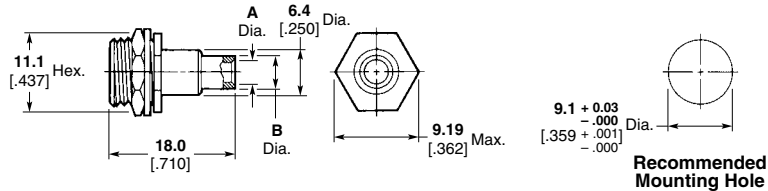
OSP Miniature Modular Blind Mate Connectors (Continued)
For Semi-Rigid Cable, Direct Solder Attachment

Bulkhead Feedthrough Cable Plug Rear Mount



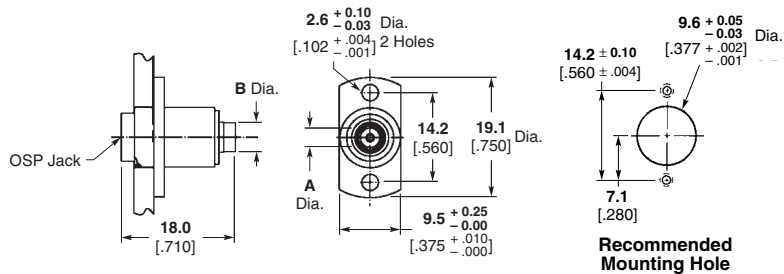
Cable	Plating	Dimensions		Part No.
		A	B	
RG 402/U 3.58 .141	Gold	3.7 .144	4.6 .180	1059402-1
RG 405/U 2.16 .085	Gold	2.3 .089	3.0 .120	1059404-1

Bulkhead Feedthrough Cable Jack Rigid Rear Mount



Cable	Plating	Dimensions		Part No.
		A	B	
RG 402/U 3.58 .141	Gold	3.7 .144	4.6 .180	1059410-1
RG 405/U 2.16 .085	Gold	2.3 .089	3.0 .120	1059412-1

Flange Mount Cable Jack Floating Rear Mount



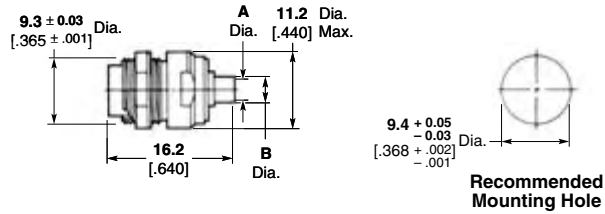
Cable	Dimensions		Part No.
	A	B	
RG 402/U 3.58 .141	3.7 .144	4.6 .180	1059453-1
RG 405/U 2.16 .085	2.3 .089	3.0 .120	1059456-1

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.

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

OSP Miniature Modular Blind Mate Connectors (Continued)
For Semi-Rigid Cable, Direct Solder Attachment (Continued)

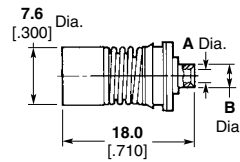
Low Profile — Bulkhead Feedthrough Cable Jack — Floating Rear Mount



Cable	Plating	Dimensions		Part No.
		A	B	
RG 402/U 3.58 .141	Gold	3.7 .144	4.6 .180	1059505-1
RG 405/U 2.16 .085	Gold	2.3 .089	3.0 .120	1059506-1

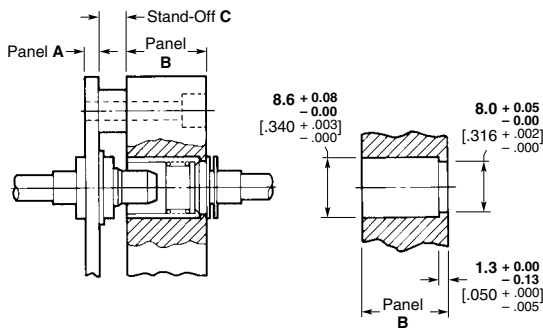
When using semi-rigid cable, it is recommended that a service loop be used to facilitate the float features of the connector.

Low Profile — Panel Feedthrough Cable Jack — Floating Rear Mount



Cable	Plating	Dimensions		Part No.
		A	B	
RG 402/U 3.58 .141	Gold	3.7 .144	4.6 .180	1059465-1
RG 405/U 2.16 .085	Gold	2.3 .089	3.0 .120	1059467-1

Recommended removal tool part number 1059774-1 is described in the Tooling Section of this catalog.
When using semi-rigid cable, it is recommended that a service loop be used to facilitate the float features of the connector.



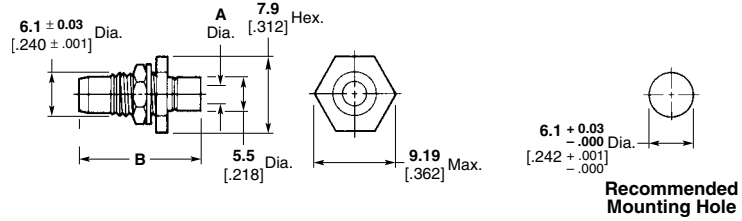
Recommended Mounting Detail

Panel A ±.003	Panel B ±.003	Stand-Off Panel C +.050/-0.000
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

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

OSP Miniature Modular Blind Mate Connectors (Continued)
For Semi-Rigid Cable, Solderless Compression Crimp Attachment

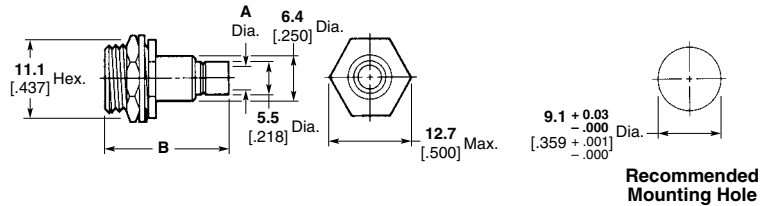
**Bulkhead Feedthrough
Cable Plug
Fixed Rear Mount**



Cable	Plating	Dim. A	Dim. B		Part No.
			Before Crimping	After Crimping	
RG 405/U 2.16 .085	Passivated Stainless Steel	2.2 .088	19.8 .782	17.2 .677	1059399-1

Outline drawing shows after crimp dimensions.

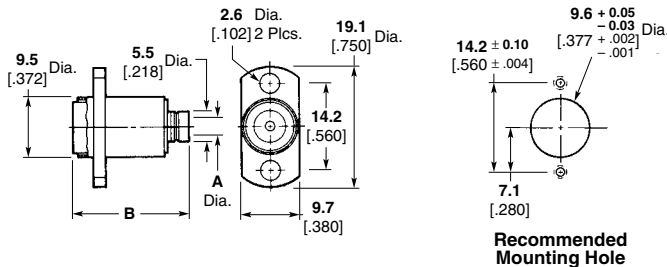
**Bulkhead Feedthrough
Cable Jack
Fixed Rear Mount**



Cable	Plating	Dim. A	Dim. B		Part No.
			Before Crimping	After Crimping	
RG 402/U 3.58 .141	Passivated Stainless Steel	3.6 .143	21.1 .830	18.2 .715	1059408-1

Outline drawing shows after crimp dimensions.

**Flange Mount Cable Jack
Floating Rear Mount**



Cable	Plating	Dim. A	Dim. B		Part No.
			Before Crimping	After Crimping	
RG 402/U 3.58 .141	Passivated Stainless Steel	3.6 .143	22.6 .891	19.8 .780	1059451-1
RG 405/U 2.16 .085	Passivated Stainless Steel	2.2 .088	22.6 .891	19.8 .780	1059452-1

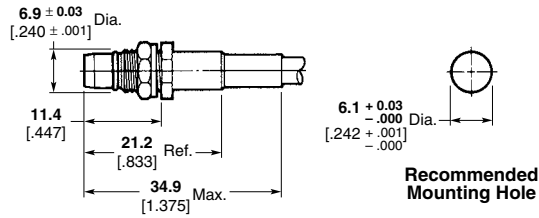
Outline drawing shows after crimp dimensions.

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

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

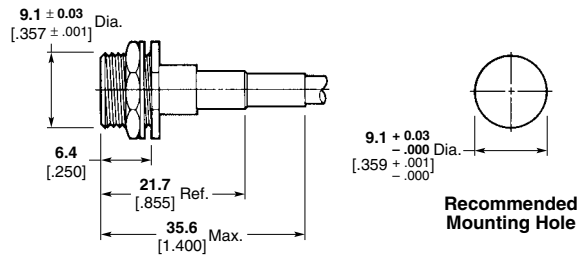
OSP Miniature Modular Blind Mate Connectors (Continued)
For Flexible Cable, Crimp Attachment

Bulkhead Feedthrough Cable Plug Rear Mount



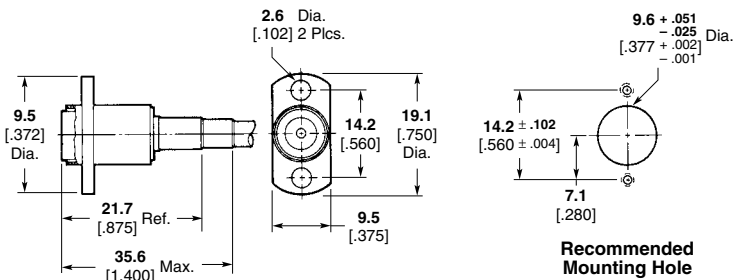
Cable	Plating	Part No.
RG 174/U, 179, 187, 188, 316	Passivated Stainless Steel	1059523-1

Bulkhead Feedthrough Cable Jack Rigid Rear Mount



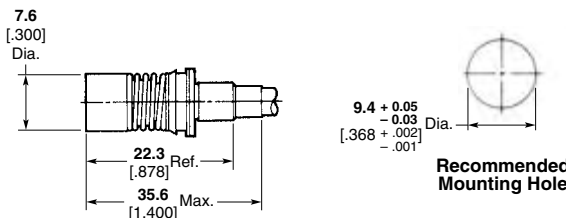
Cable	Plating	Part No.
RG 55/U, 142, 223, 400	Passivated Stainless Steel	1059525-1

Flange Mount Cable Jack Floating Rear Mount



Cable	Plating	Part No.
RG 55/U, 142, 223, 400	Passivated Stainless Steel	1059540-1
RG 174/U, 179, 187, 188, 316	Passivated Stainless Steel	1059541-1
RG 178, Double Braid	Passivated Stainless Steel	1058572-1

Low Profile — Panel Feedthrough Cable Jack — Rear Mount



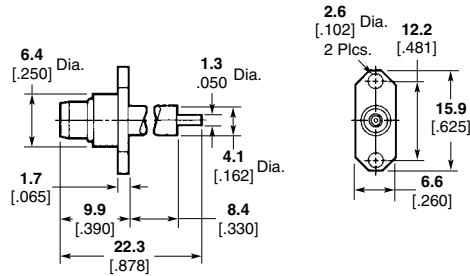
Cable	Plating	Part No.
RG 174/U, 179, 187, 188, 316	Passivated Stainless Steel	1059551-1

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

Refer to Recommended Mounting Hole Detail for Semi-Rigid Cable Low Profile Feedthrough Cable Jack. Recommended removal tool part number 1059774-1 as described in the Tooling Section of this catalog.

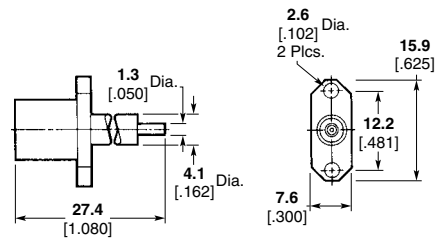
OSP Miniature Modular Blind Mate Connectors (Continued)
Panel Mount

Straight Terminal
2-Hole Flange Mount Plug
Receptacle



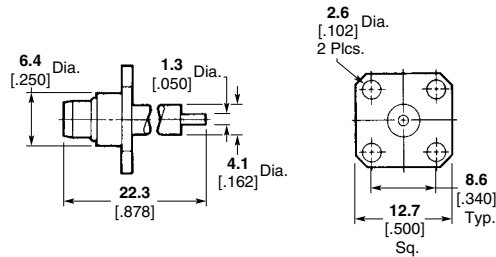
Plating	Part No.
Passivated Stainless Steel	1059566-1

2-Hole Flange Mount Jack
Receptacle



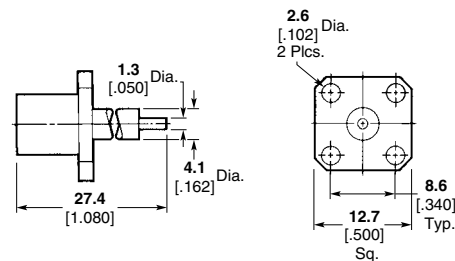
Plating	Part No.
Passivated Stainless Steel	1059596-1

4-Hole Flange Mount Plug
Receptacle



Plating	Part No.
Passivated Stainless Steel	1059563-1

4-Hole Flange Mount Jack
Receptacle

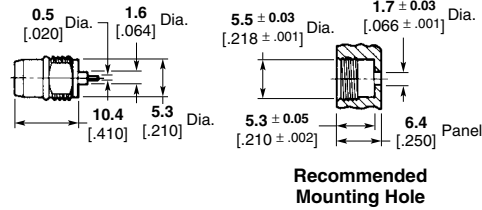


Plating	Part No.
Passivated Stainless Steel	1059594-1

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

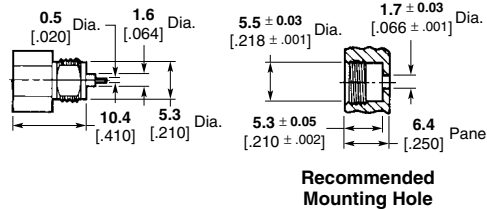
OSP Miniature Modular Blind Mate Connectors (Continued)
Panel Mount (Continued)

Straight Terminal
Threaded Installation —
Panel Feedthrough Plug
Receptacle



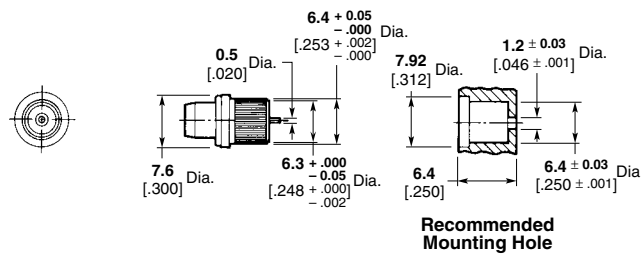
Plating	Part No.
Passivated Stainless Steel	1059617-1

Threaded Installation —
Panel Feedthrough Jack
Receptacle



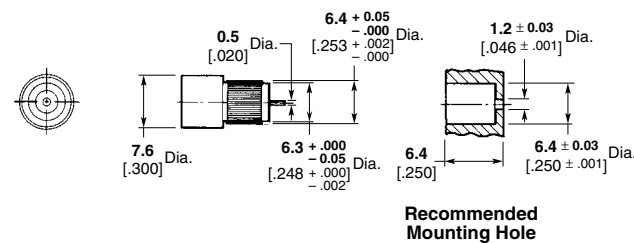
Plating	Part No.
Passivated Stainless Steel	1059657-1

Press Fit Installation —
Panel Feedthrough Plug
Receptacle



Plating	Part No.
Passivated Stainless Steel	1059651-1

Press Fit Installation —
Panel Feedthrough Jack
Receptacle

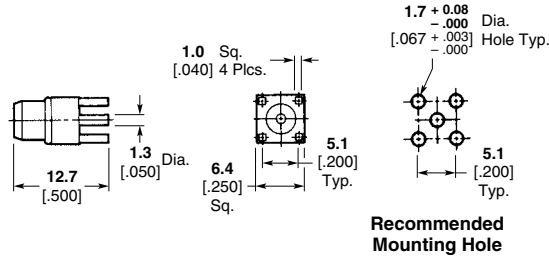


Plating	Part No.
Passivated Stainless Steel	1059654-1

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

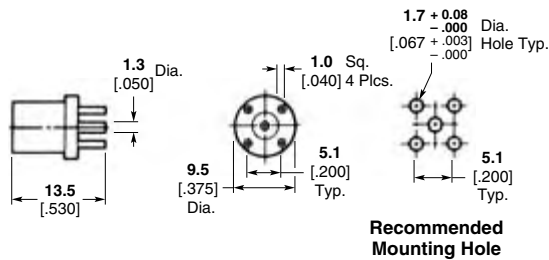
OSP Miniature Modular Blind Mate Connectors (Continued)
Printed Circuit Board Mount

**Straight Plug Receptacle —
Captured Contact**



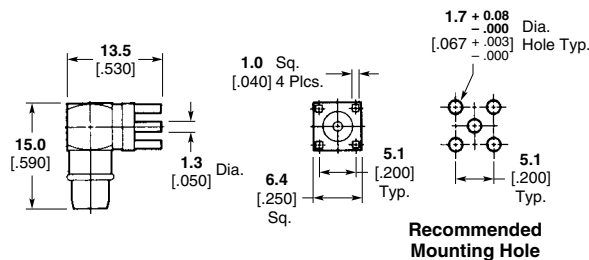
Plating	Part No.
Gold	1059684-1

**Straight Jack Receptacle —
Captured Contact**



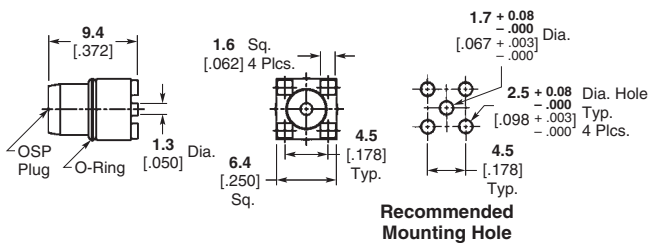
Plating	Part No.
Gold	1059681-1

**Right-Angle Plug Receptacle —
Captured Contact**



Plating	Part No.
Gold	1059691-1

**Surface Mount Vertical Plug with
Small Leg**

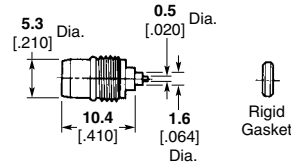


Plating	Part No.
Gold	1253111-1

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

OSP Miniature Modular Blind Mate Connectors (Continued)
Hermetically Sealed

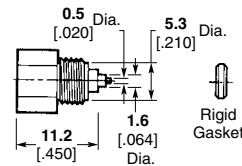
Metal-To-Metal
Rigid Gasket Seal —
Panel Feedthrough
Plug Receptacle



VSWR (GHz)	RF Leakage (dB)	Plating	Part No.
1.04 + .009f	-(90-fGHz)	Passivated stainless steel	6059632-1

Installation Thermal Limit: 250°C.
Recommended Mounting Hole Detail A follows, pg 168.

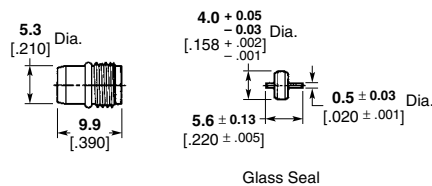
Rigid Gasket Seal —
Panel Feedthrough
Jack Receptacle



VSWR (GHz)	RF Leakage (dB)	Plating	Part No.
1.04 + .009f	-(90-fGHz)	Passivated stainless steel	6059665-1

Installation Thermal Limit: 250°C.
Recommended Mounting Hole Detail A follows, pg 168.

Field Replaceable
Solder and Braze-In
Panel Feedthrough Plug
Receptacle



VSWR (GHz)	RF Leakage (dB)	Plating	Part No.
1.06 + .01f	-(90-fGHz)	Passivated stainless steel	1059637-1

Recommended Mounting Detail B or E follows, pg 168.

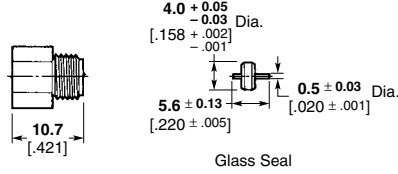
Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

OSP Miniature Modular Blind Mate Connectors (Continued)
Hermetically Sealed (Continued)

Field Replaceable Solder and Braze-In

(Continued)

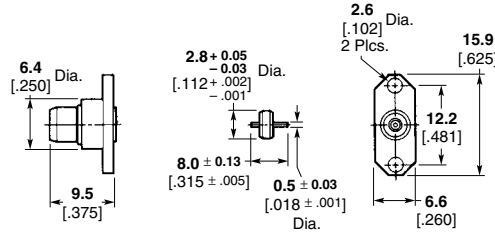
Panel Feedthrough Jack Receptacle



VSWR (GHz)	RF Leakage (dB)	Plating	Part No.
1.06 + .01f	-(90-fGHz)	Passivated stainless steel	1059671-1

Recommended Mounting Detail B or E follows at bottom of this page.

2-Hole Flange Mount Plug Receptacle With EMI/RFI Gasket — 0.5 [0.018] Dia. Contact

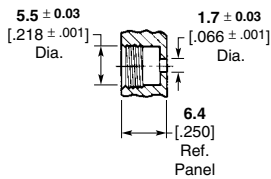


VSWR (GHz)	RF Leakage (dB)	Plating	Part No.
1.06 + .01f	-(90-fGHz)	Passivated stainless steel	1059572-1

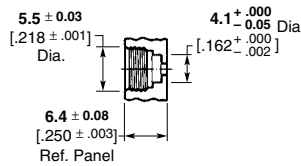
Recommended Mounting Detail D follows at bottom of this page.

Recommended Mounting Hole Detail

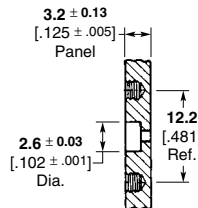
Detail A*



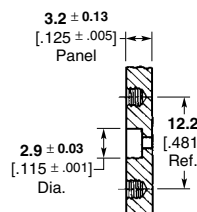
Detail B* (6.35 [0.250] Panel Thickness)



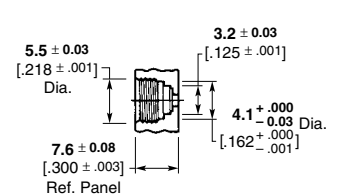
Detail C*



Detail D*



Detail E*



*Consult appropriate Instruction Sheet for complete mounting details.

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

OSSP Subminiature Modular Blind Mate Connectors

Product Facts

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



OSSP connectors are a sub-miniature version of the OSP blind mate series. Connectors in this series incorporate the design elements of the OSP interface including the float and mis-mate features. OSSP blind mates are about 40% smaller than OSP 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 function 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

RG 405 (.085) Semi-Rigid

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 —	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

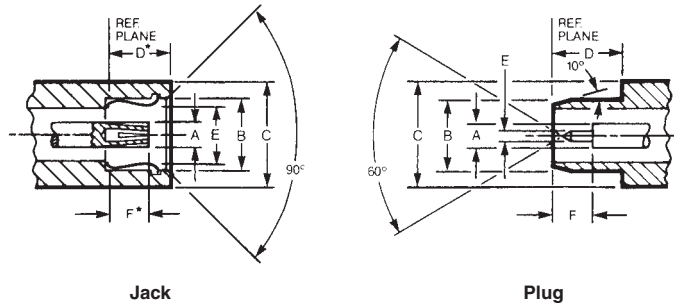
Center Contact —	Gold plate per MIL-G-45204, Type II, Class 0 over nickel plate per QQ-N-290, Class 2 or passivate per ASTM-A380
Housing —	Gold plate per MIL-G-45204, Type II, Class 0 over nickel plate per QQ-N-290, Class 2 or passivate per ASTM-A380

OSSP Subminiature Modular Blind Mate Connectors (Continued)

**Interface Mating
Dimensions**

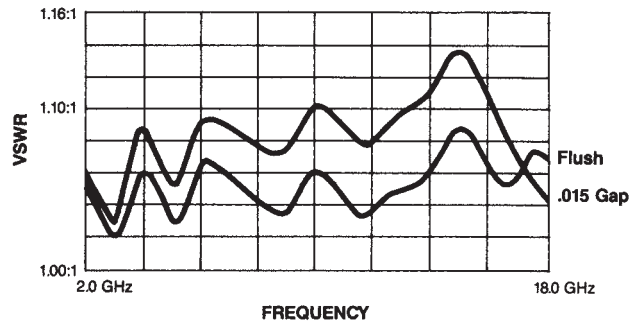
The connector interface, specifically designed for multiple interconnects, maintains reliable performance over the typical mechanical tolerance required in cost effective packaging.

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



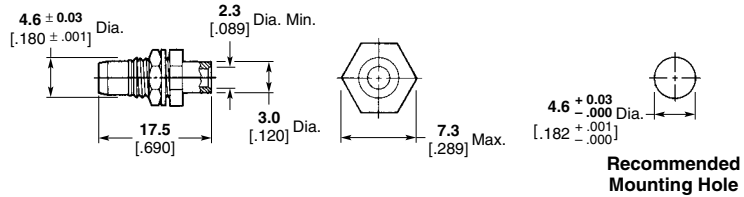
Description	Dimensions						
	A	B	C	D	E	F	
Jack	1.22 0.48	Nom. .154	3.91 Min.	5.33 .210	Ref. 5.00 .197	Nom.* 3.35 .132	Max.* 3.23 .127
Plug	1.22 0.48	Nom. .140	3.56 Nom.	5.33 .210	Ref. 5.00 .199	Min. 0.51 .020	Nom. 3.25 .128

*With spring bottomed.



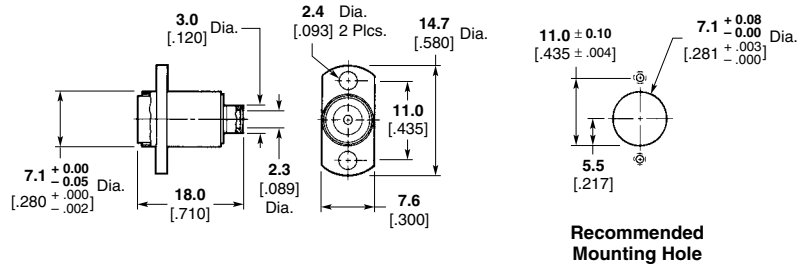
OSSP Subminiature Modular Blind Mate Connectors (Continued)
For Semi-Rigid Cable, Direct Solder Attachment

Bulkhead Feedthrough Cable Plug — Rear Mount



Cable	Plating	Part No.
RG 405/U, 2.16 [.085]	Gold	1059857-1

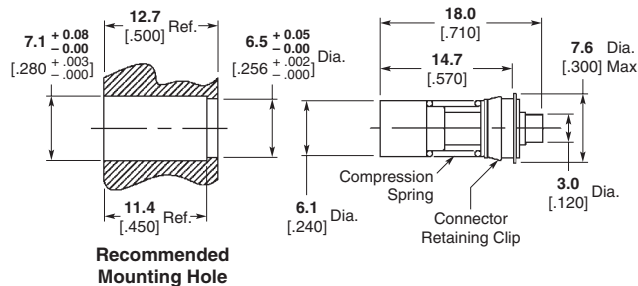
Flange Mount Cable Jack — Floating Rear Mount



Cable	Part No.
RG 405/U, 2.16 [.085]	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.

Feedthrough Snap-In

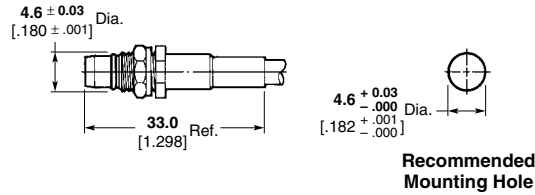


Cable	Part No.
RG 405/U, 2.16 [.085]	1059874-1

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

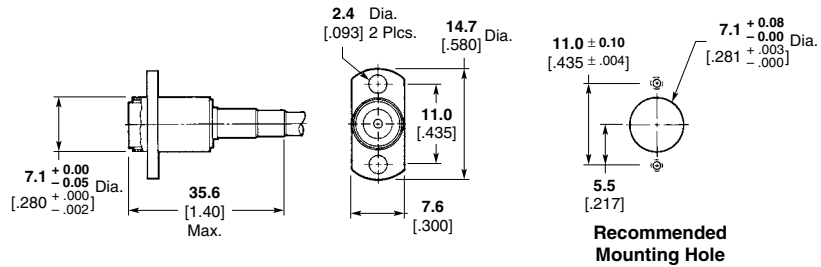
OSSP Subminiature Modular Blind Mate Connectors (Continued)
For Flexible Cable, Crimp Attachment

Bulkhead Feedthrough Cable Plug — Rear Mount



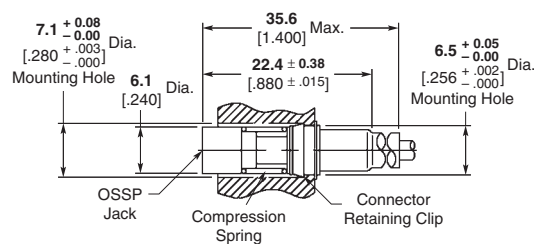
Cable	Plating	Part No.
RG 188/U, 316 Double Braided Only	Passivated Stainless Steel	1059884-1
RG 174/U, 188/U, 316U	Passivated Stainless Steel	1059886-1

Flange Mount Cable Jack — Floating Rear Mount



Cable	Plating	Part No.
RG 188/U, 316 Double Braided Only	Passivated Stainless Steel	1059888-1
RG 174/U, 188/U, 316U	Passivated Stainless Steel	1059887-1

Feedthrough Snap-In Cable Jack

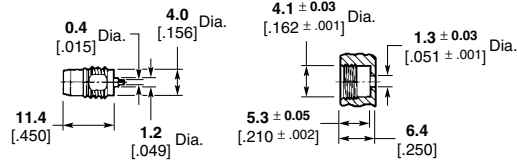


Part No.
1059889-1

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

OSSP Subminiature Modular Blind Mate Connectors (Continued)
For Panel Mount

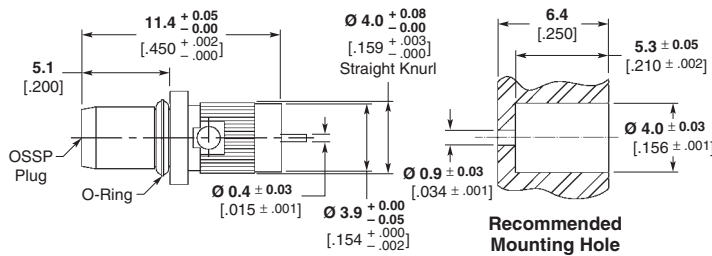
Threaded Panel Feedthrough Plug Receptacle, Straight Terminal



Recommended Mounting Hole

Plating	Part No.
Passivated Stainless Steel	1059903-1

Press-Fit Panel Feedthrough Plug Receptacle



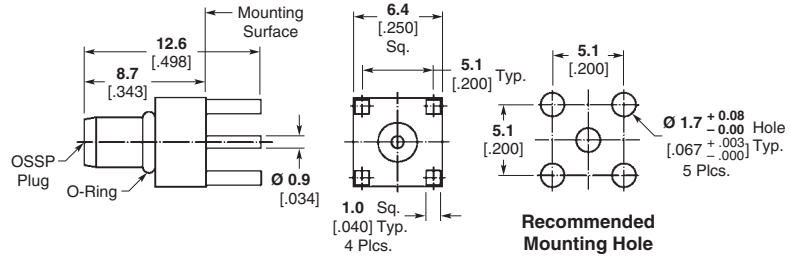
Recommended Mounting Hole

Part No.
1059901-1

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

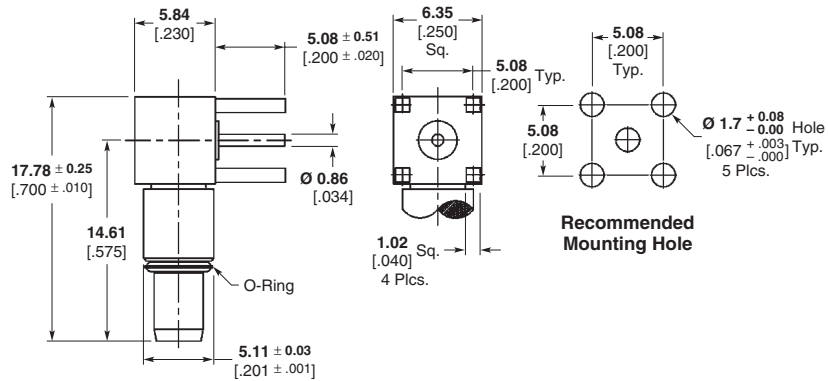
OSSP Subminiature Modular Blind Mate Connectors (Continued)
For Printed Circuit Board Mount

**Straight Plug Receptacle —
Captured Contact**



Part No.
1059919-1

**Right-Angle
Plug Receptacle**



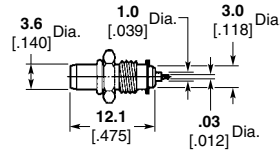
Part Number
1484546-1

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

OSSP Subminiature Modular Blind Mate Connectors (Continued)
Hermetically Sealed

Metal to Metal

**Formable Gasket —
Panel Feedthrough Plug
Receptacle**

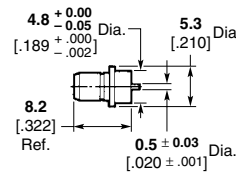


VSWR (GHz)	RF Leakage (dB)	Plating	Part No.
1.06 + .01f	-(85-fGHz)	Gold	1059905-1

Recommended Mounting Hole Detail A at bottom of this page.

Solder and Braze-In

**Panel Feedthrough Plug
Receptacle**

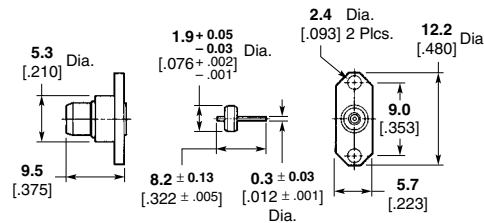


VSWR (GHz)	RF Leakage (dB)	Plating	Part No.
1.06 + .01f	-(85-fGHz)	Gold	1059902-1

Recommended Mounting Hole Detail B at bottom of this page.

**Field Replaceable
Solder and Braze-In**

**2-Hole Flange Mount
Plug Receptacle With
EMI/RFI Gasket**

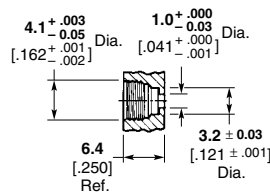


VSWR (GHz)	RF Leakage (dB)	Plating	Part No.
1.06 + .01f	-(85-fGHz)	Passivated Stainless Steel	1059894-1

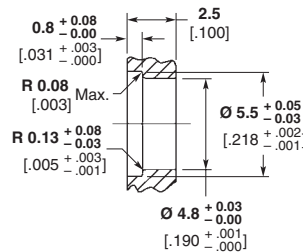
Recommended Mounting Hole Detail C at bottom of this page.

**Recommended
Mounting Hole Detail for
Hermetically Sealed**

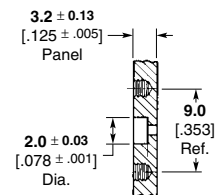
Detail A*



Detail B*



Detail C*






Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

*Consult appropriate Instruction Sheet for complete mounting procedure.

SMB Connectors

Product Facts

- **SMB offers snap-fit coupling for quick connect/disconnect**
- **Choice of Commercial or High Rel Connectors**
- **50 and 75 Ω MIL-Type connectors available**
- **Straight plugs and jacks are completely crimp terminated**
- **Fast easy cable assembly**
- **Low VSWR**
- **Standard military, commercial or Tyco Electronics tooling**
- **Listed under the Component Program of Underwriters Laboratories Inc., File No. E81956** 
- **PC Board soldered connectors are recognized under the Component Program of Underwriters Laboratories Inc., File No. E81956** 
- **Certified by Canadian Standards Association File No. LR 7189** 

SMB Connectors are available in commercial and high rel versions. They are ideally suited for circuit miniaturization and are offered in a wide range of configurations including plugs, right-angle plugs, jacks, bulkhead jacks and adapters, as well as printed circuit board and solder jacks.

Termination costs are kept to a minimum using plugs and jacks with a crimp center contact and hex crimp outer braid. Both hand held tooling and pneumatic bench-mounted tooling is available. Easily assembled right-angle plugs have a hex crimp on the outer braid ferrule and bifurcated solder center contacts.

Tyco Electronics' 75 Ohm BT 43 SMB Connectors feature unique spring mating with snap-fit couplings for quick connect/disconnect. These connectors are designed to be intermateable with 75 Ohm SMB MIL-C-39012 connectors. They also feature reliable dual crimp cable terminations.



Packaging — All connectors are packaged individually unless otherwise noted under the "Military No. and/or Comments" column in the connector specifications chart.

Between Series Adapters

For SMB Between Series Adapters, please see pages 251-260.

SMB Connector Specifications

Electrical Characteristics

Impedance — 50 ohms and 75 ohms, nominal

Frequency Range — 0 to 4.0 GHz

Voltage Rating (VRMS) —

	Sea Level	70,000 Feet
50 ohm connectors for RG 178/U series cable	300	75
50 ohm connectors for RG 316/U series cable	400	100
75 ohm connectors for RG 179/U series cable	300	75
75 ohm connectors for RG 195/U series cable	500	125

Insulations Resistance — 1000 megohms min.

Contact Resistance — (milliohms max.)

	Initial	After Environment
Center contact	6.0	8.0
Outer contact	1.0	1.5
Braid to body	1.0	N/A

Contact Current Rating — 1.5 amps DC max.

Voltage Standing Wave Ratio (VSWR) — to 4.0 GHz or 80% of upper cutoff frequency of the cable, whichever is lower.

Cable	Mating Engagement	
	Straight	Right-Angle
RG 178/U Series	1.30 + .04F	1.45 + .06F
RG 316/U Series	1.25 + .04F	1.35 + .04F

F=GHz, does not apply to 75 ohm connectors.

RF High Potential Withstanding Voltage

Frequency — 5 MHz

Leakage Current — N/A

50 ohm connectors for RG 178/U series cable	675 VRMS
50 ohm connectors for RG 316/U series cable	950 VRMS
75 ohm connectors for RG 179/U series cable	950 VRMS
75 ohm connectors for RG 195/U series cable	1225 VRMS

RF Leakage — -55 dB min. at 2-3 GHz

Insertion Loss — .30dB max. at 3 GHz

Mechanical Characteristics

Engagement Forces — 14 lbs. [62.3 N] maximum engagement initially.

After 500 matings, 14 lbs. [62.3 N] maximum engagement and 2 lbs. [8.8 N] minimum disengagement for all of SMBs.

Cable Attachment —

Straight Connectors — Crimp, both center contact and braid

Right-Angle Connectors — Crimp on braid and bifurcated solder center contact

Durability — 500 cycles per MIL-C-39012

Contact Captivation — When captivated, the contacts will withstand 4.0 lbs. minimum axial force.

Cable Retention — When properly assembled to the compatible braided coaxial cable, the retention is equal to the breaking strength of the cable.

Marking — Per MIL-STD-130

Environmental Characteristics

Temperature Rating — -65°C to +165°C

Corrosion (salt spray) — MIL-STD-202, Method 101, test condition B, 5% salt solution

Vibration High Frequency — MIL-STD-202, Method 204, test condition B (15 G's)

Shock — MIL-STD-202, Method 213, test condition B, 75 G's at 6 milliseconds, 1/2 sine

Thermal Shock — MIL-STD-202, Method 107, test condition B, except high temperature shall be +85°C. High temperature shall be +200°C for connectors using 200°C cables.

Moisture Resistance — MIL-STD-202, Method 106, when interface gasket is used. No measurements of high humidity. Insulation resistance shall be 200 megohms minimum within five minutes after removal from humidity.

Durability Test — Conducted per MIL-C-39012 Reg. Para. 3.15, Method Para. 4.6.12

Materials

Body, Body Components and Male Contacts — Brass, half hard, per QQ-B-626, Alloy 360, Zinc per QQ-Z-363

Female Contacts — Beryllium copper per QQ-C-530, heat treated per MIL-H-7199

Insulators — TFE fluorocarbon per ASTM D 1710, Type 1, Grade 1

Lockwashers — Phosphor bronze per QQ-B-750

Crimp Ferrule — Annealed copper alloy per WW-T-799

Gaskets — Silicone rubber per ZZ-R-765, Class 11B, Grade 65-75

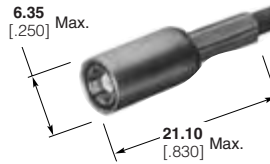
Plating

Center Contacts — 0.00127 [0.00050] min. Gold per MIL-G-452048 Type 1, Grade C, Class 1, over 0.00254 [0.00100] min. nickel per QQ-N-290

Other Metal Parts — Gold, Nickel or Solder plated to meet the Finish and Corrosion requirements of MIL-C-39012

SMB Connectors, 50 Ohm

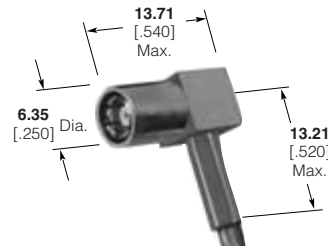
Straight Plugs



RG/U Cable	Center Contact Plating	Outer Contact Plating	Other Metal Parts Plating	Dielectric	Style	Part No.
178, 178A, 178B, 196, 196A	Gold	Gold	Nickel	PTFE	MIL Type	413985-6
174, 316, 188, 188A	Gold	Gold	Gold	PTFE	MIL Type	413985-1
	Gold	Gold	Nickel	PTFE	MIL Type	413985-3
	Gold	Nickel	Nickel	PTFE	MIL Type	413985-7
	Gold	Gold	Nickel	PTFE	Die Cast	414946-1
179, 179A, 179B, 161, 187, 187A, BELDEN 9221	Gold	Nickel	Nickel	PTFE	Die Cast	5414946-2
	Gold	Gold	Nickel	PTFE	MIL Type	1-413985-1
	Gold	Gold	Nickel	PTFE	Die Cast	5414946-5
RG 316, 188 Double Braid	Gold	Nickel	Nickel	PTFE	Die Cast	5414946-6
	Gold	Gold	Gold	PTFE	MIL Type	413985-2
	Gold	Gold	Nickel	PTFE	MIL Type	413985-4
	Gold	Gold	Nickel	PTFE	Die Cast	5414946-3
	Gold	Nickel	Nickel	PTFE	MIL Type	413985-8

Right-Angle Plugs

MIL Type



Die Cast



RG/U Cable	Center Contact Plating	Outer Contact Plating	Other Metal Parts Plating	Dielectric	Style	Part No.
178, 178A, 178B, 196, 196A	Gold	Gold	Gold	PTFE	MIL Type	414002-7
	Gold	Gold	Nickel	PTFE	MIL Type	414002-8
	Gold	Gold	Nickel	PTFE	Die Cast	5414363-8
174, 316, 188, 188A, 179, 179A, 179B, 161, 187, 187A, BELDEN 9221	Gold	Gold	Gold	PTFE	MIL Type	414002-1
	Gold	Gold	Nickel	PTFE	MIL Type	414002-3
	Gold	Nickel	Nickel	PTFE	MIL Type	414002-5
	Gold	Gold	Nickel	PTFE	Die Cast	5414363-3
RG 316, 188 Double Braid	Gold	Nickel	Nickel	PTFE	Die Cast	5414363-5
	Gold	Gold	Gold	PTFE	MIL Type	414002-2
	Gold	Gold	Nickel	PTFE	MIL Type	414002-4
	Gold	Gold	Nickel	PTFE	Die Cast	5414363-4

BELDEN is a trademark of Belden Wire and Cable Company.

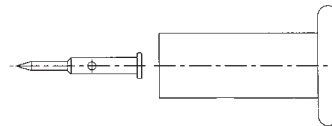
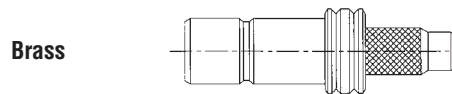
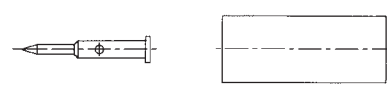
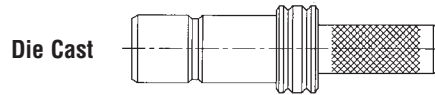
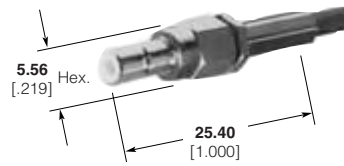
Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

SMB Connectors, 50 Ohm (Continued)

Straight Jacks

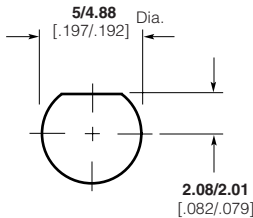
Commercial Jack

MIL Type Jack

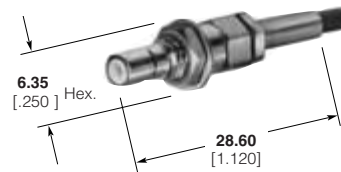


RG/U Cable	Center Contact Plating	Body Plating	Dielectric	Style	Jack Part No.
178, 178A, 178B, 196, 196A	Gold	Nickel	PTFE	MIL Type	5414170-2
174, 316, 188, 188A	Gold	Nickel	PTFE	MIL Type	5414170-1
	Gold	Nickel	PTFE	Die Cast	414948-1
RD 316, 188 Double Braid	Gold	Nickel	PTFE	Commercial	414948-3

Bulkhead Jacks



Maximum Panel Thickness **2.36** [.093]
Recommended Panel Cutout for Bulkhead Jack and Adapter



RG/U Cable	Center Contact Plating	Body Plating	Dielectric	Style	Bulkhead Jack Part No.
174, 316, 188, 188A	Gold	Nickel	PTFE	Commercial	5415006-1
	Gold	Nickel	PTFE	Commercial	5228217-1
RD 316, 188 Double Braid	Gold	Nickel	PTFE	Commercial	5415006-2

Bulkhead Jack Adapter (Jack-Jack)

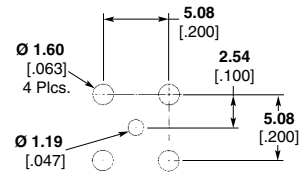
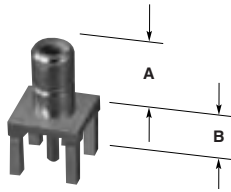


Type	Center Contact Plating	Body Plating	Dielectric	Style	Part No.
Jack-To-Jack	Gold	Nickel	PTFE	MIL Type	228553-1
	Gold	Gold	PTFE	MIL Type	228553-2

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

SMB Connectors, 50 Ohm (Continued)

**PC Board
Vertical Jacks**

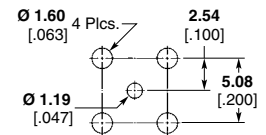
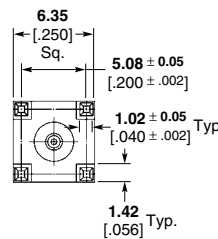
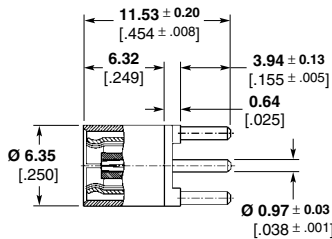
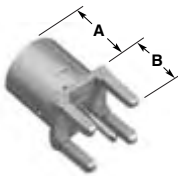


**Recommended
PC Board Layout**

Jacks

Type	Center Contact Plating	Body Plating	Dim. A	Dim. B	Dielectric	Style	Part No.
—	Gold	Gold	7.62 .300	3.94 .155	PTFE	MIL Type	413990-1
—	Gold	Nickel	7.62 .300	3.94 .155	PTFE	MIL Type	413990-2
—	Gold	Nickel	10.16 .400	2.54 .100	PTFE	MIL Type	414612-2
—	Gold	Tin	3.94 .155	8.25 .325 Max.	PTFE	Brass, Stamped	5221111-1

**PC Board
Vertical Plugs**



**Recommended
PC Board Layout**

Plugs

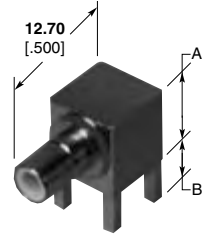
Type	Center Contact Plating	Body Plating	Dim. A	Dim. B	Dielectric	Recommended PC Board Layout	Style	Part No.
Low Profile (Plug) Mated Pair	Gold	Nickel	3.94 .155	7.62 300	PTFE	B	MIL Type	415774-1

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

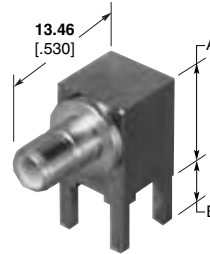
SMB Connectors, 50 Ohm (Continued)

**PC Board,
Right-Angle Jacks**

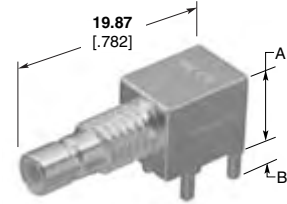
Jack Low Profile



Jack with Standoff Pads



Bulkhead Jack

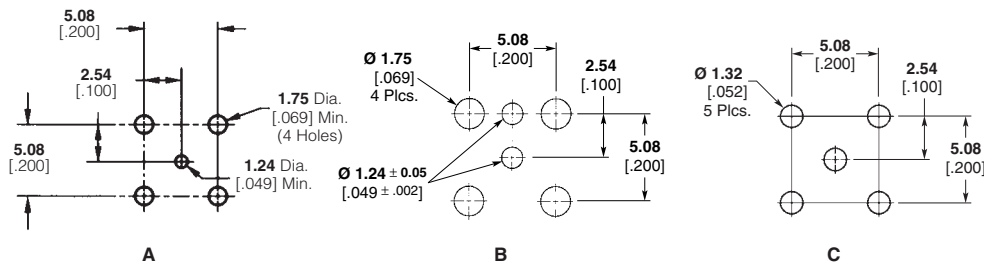
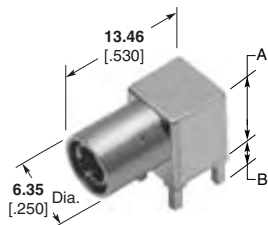


Jacks

Type	Center Contact Plating	Interface Body Plating	PCB Leg Plating	Dielectric	Dim. A	Dim. B	Style	Recommended PC Board Layout	Part No.
Low Profile	Gold	Gold	Gold	PTFE	7.11 .280	3.94 .155	MIL Type	A	413996-2
	Gold	Nickel	Nickel	PTFE	7.11 .280	3.94 .155	MIL Type	A	413996-4
	Gold	Gold	Gold	PTFE	7.11 .280	2.79 .110	Die Cast	A	415340-1
	Gold	Gold	Gold	PTFE	8.76 .345	2.79 .110	Die Cast	A	415672-1
With Standoff Pads	Gold	Gold	Gold	PTFE	8.51 .335	3.94 .155	MIL Type	A	414026-2
	Gold	Nickel	Nickel	PTFE	8.76 .345	3.94 .155	MIL Type	A	414026-3
	Gold	Nickel	Tin-Lead	PTFE	8.76 .345	3.94 .155	Die Cast	A	5414337-1
	Gold	Nickel	Nickel	PTFE	8.76 .345	2.79 .110	Die Cast	B	5415379-1*
Bulkhead	Gold	Gold	Gold	PTFE	8.51 .335	3.94 .155	Die Cast	A	415381-1♦
	Gold	Gold	Gold	PTFE	7.67 .302	2.79 .110	Die Cast	A	414963-1
Commercial	Gold	Nickel	Tin	Polypropylene	9.78 .385	3.94 .155	Brass, Stamped	C	5228435-1
Bulkhead	Gold	Gold	Gold	PTFE	7.67 .302	2.79 .110	Die Cast	A	1274330-1

* 5 leg design

**PC Board,
Right-Angle Plug**



**Recommended
PC Board Layouts**

Plugs

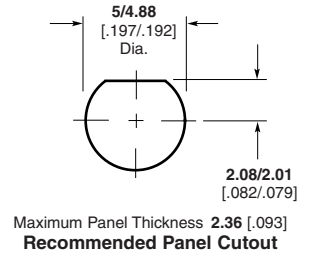
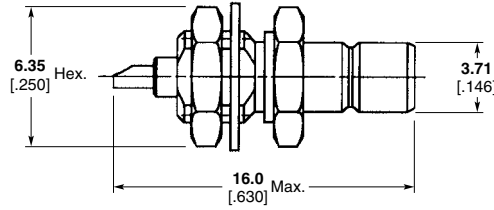
Center Contact Plating	Interface Body Plating	PCB Leg Plating	Dielectric	Dim. A	Dim. B	Style	Recommended PC Board Layout	Part No.
Gold	Nickel	Nickel	PTFE	8.76 .345	2.79 .110	Die Cast	B	415380-1*
Gold	Nickel	Tin	PTFE	8.76 .345	3.94 .155	Die Cast	A	5414338-1

* 5 leg design

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

SMB Connectors, 50 Ohm (Continued)

**Bulkhead PC Board Jack,
Solder Receptacle Kits**



**Kit Includes Lockwasher
and Jam Nut**

Lockwasher and Jam Nut



Part No.
415001-2

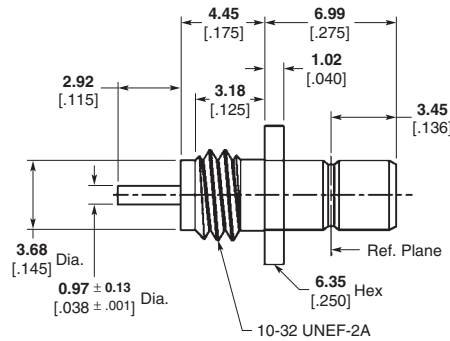


Part No.
414969-2

Type	Center Contact Plating	Body Plating	Dielectric	Style	Kit Part No.
Front Mount	Gold	Nickel	PTFE	MIL Type	228216-1*
Rear Mount	Gold	Nickel	PTFE	MIL Type	228215-1*

*includes Jam Nut and Lockwasher

SMB Receptacle Jack



Type	Center Contact Plating	Body Plating	Dielectric	Style	Part No.
Front Mount	Gold	Nickel	PTFE	MIL Type	414895-1

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

SMB Connectors, Mini 75 Ohm

Product Facts

- Industry standard for miniature 75 ohm SMB
- SMB offers snap-fit coupling for quick connect/disconnect
- Suitable for high density applications
- Fast easy cable assembly
- Low VSWR
- Connectors offer consistent mating and unmating forces
- Straight plugs and jacks are completely crimp terminated
- Low cost

Mini 75 ohm SMB connectors are ideally suited for circuit miniaturization in communication, broadband and switching equipment as well as a variety of other applications.

They offer the same low consistent mating/unmating force as Tyco Electronics standard SMB products and therefore, outer contact resistance values are maintained from connector to connector.

Standard military, commercial or Tyco Electronics tooling can be used to terminate these products. Cost effective assembly of the straight plugs is completed with a crimp center contact and hex crimp on the outer braid. Right-angle plugs have a hex crimp on the outer braid ferrule and bifurcated solder center contacts.



Electrical Characteristics

Impedance — 75 ohms

Frequency Range — 0 to 4.0 GHz

Insulation Resistance — 1000 megohms

Contact Current Rating — 1.5 amps DC max.

Mechanical Characteristics

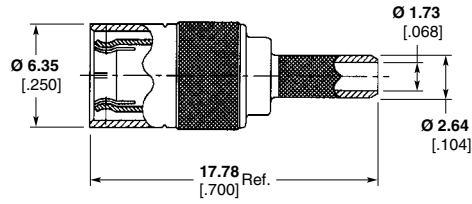
Engagement Forces — Initial—14.0 lbs. [62.3 N] maximum engagement.
After 500 matings, 14.0 lbs. [62.3 N] maximum engagement.
Durability—500 cycles

Environmental Characteristics

Temperature Rating — -65°C to +165°C

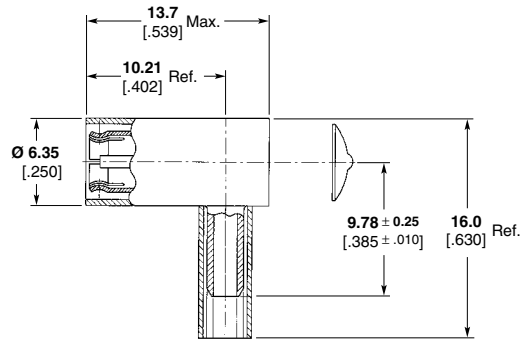
SMB Connectors, Mini 75 Ohm (Continued)

Straight Plug



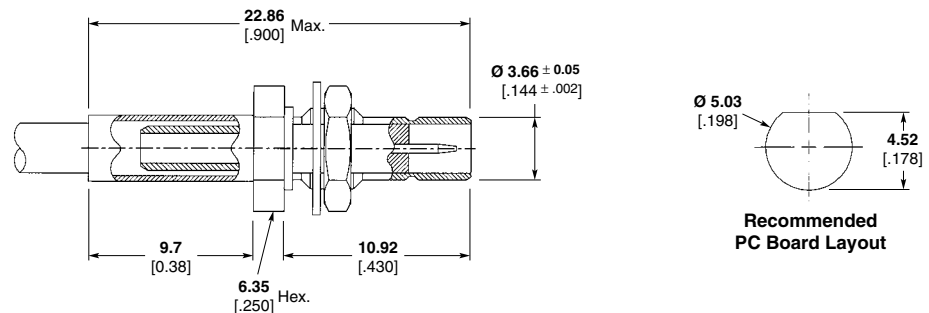
RG Cable	Center Contact Plating	Outer Contact Plating	Body Plating	Part No.
179, 187	Gold	Gold	Nickel	5415487-1
179, 187	Gold	Nickel	Nickel	5415487-2
RD 179	Gold	Nickel	Nickel	5415487-3

Right-Angle Plug



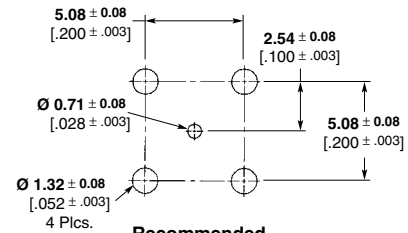
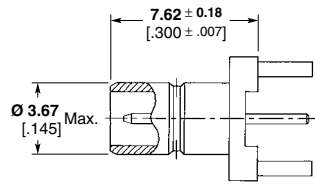
RG Cable	Center Contact Plating	Outer Contact Plating	Body Plating	Part No.
179, 187	Gold	Nickel	Nickel	5415484-1
179, 187	Gold	Gold	Nickel	5415484-2
RD 179	Gold	Gold	Nickel	5415484-3

Bulkhead Jack

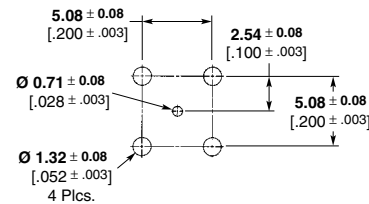
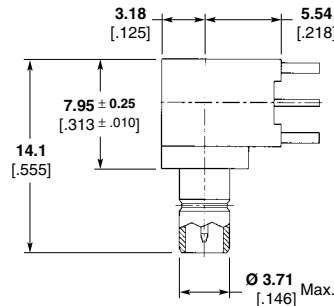


RG Cable	Center Contact Plating	Body Plating	Part No.
179, 187	Gold	Nickel	415500-1

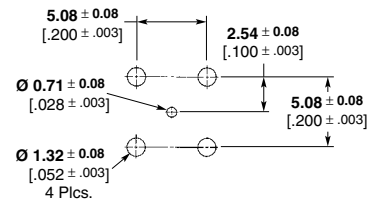
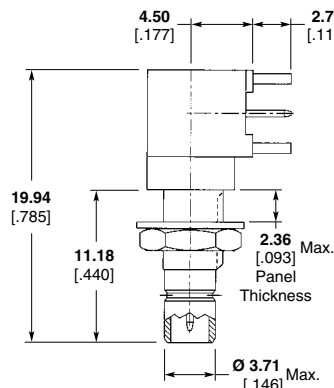
Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

SMB Connectors, Mini 75 Ohm (Continued)
Vertical PC Board Jacks

**Recommended
PC Board Layout**

Leg Length	Center Contact Plating	Body Plating	Part No.
2.11 .083	Gold	Gold Flash	415504-2
3.05 .120	Gold	Gold	415504-3
3.05 .120	Gold	Gold Flash	415504-4

Right-Angle PC Board Jacks

**Recommended
PC Board Layout**

Leg Length	Center Contact Plating	Body Plating	Part No.
2.79 .110	Gold	Gold	415490-1
2.79 .110	Gold	Nickel	415490-2
2.11 .083	Gold	Gold	415490-3
2.11 .083	Gold	Nickel	415490-4

Right-Angle PC Board Bulkhead Jacks

**Recommended
PC Board Layout**

Leg Length	Center Contact Plating	Body Plating	Part No.
2.79 .110	Gold	Nickel	415377-1
2.79 .110	Gold	Gold	415377-2
2.79 .110	Gold	Gold	415377-5*

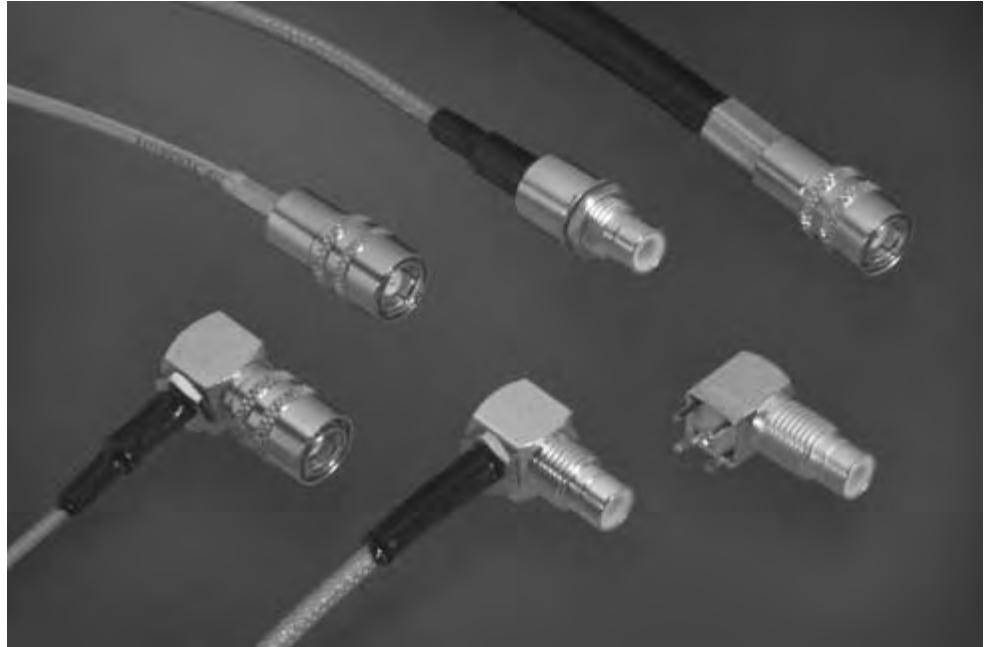
Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

*Isolated.

SMB Connectors, 75 Ohm BT 43 (SMZ)

Product Facts

- Widely used in data transmission and telecommunication applications
- BT 43 connector developed from the SMB range and feature snap-on and latching variant
- Most BT 43 connectors are available as fully crimped connectors.
- BT 43 and 75 Ω connectors available in solder and crimp versions



The Tyco Electronics range of 75 ohm SMB (SMZ) connectors are designed to meet the increasing demands of the Telecommunications market, and are designed in accordance with BS9210 F0022.

Specifications

- Max working voltage (dc)** — 500 V
- Max proof voltage (dc)** — 1.5 kV
- Contact resistance (inner)** — 5 milliohm
- Contact resistance (outer)** — 1 milliohm
- Bodies and other parts** — Brass

Female center contacts —

Copper Alloy

Male center contacts —

Copper Alloy

Outer contacts — BeCu

Plating —

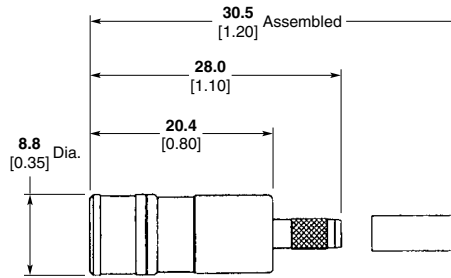
Contacts and critical surfaces — Gold

Other parts — Nickel

Insulators — P.T.F.E.

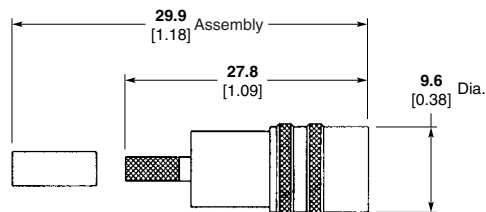
SMB Connectors, 75 Ohm BT 43 (SMZ) (Continued)

Straight Plugs, Snap-On



Cable Type	Termination Method		Body Plating	Part No.
	Inner	Outer		
RG 179B/U	Crimp	Crimp	Selective Gold	1311097-1
BT2002	Crimp	Crimp	Selective Gold	1311098-1

Straight Plugs, Latching, Crimp/Crimp

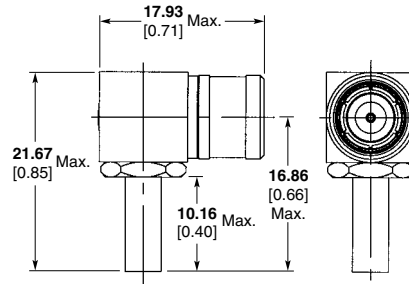


Cable Type	Body Plating	Part No
RG 179B/U	Selective Gold	1311099-1
BT2003	Selective Gold	1311100-1
BT2002	Selective Gold	1311101-1
BT2001	Selective Gold	1311696-1
BT3002, TZC75024	Selective Gold	1311102-1
RG 59B/U, RG 140/U, URM90	Selective Gold	1313507-1

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

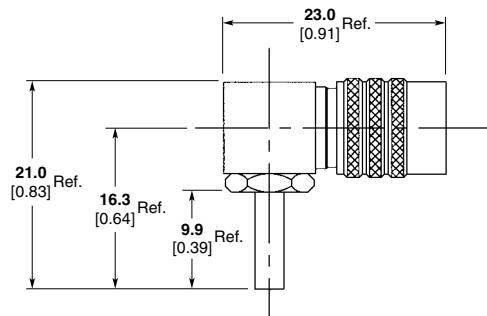
SMB Connectors, 75 Ohm BT 43 (SMZ) (Continued)

**Right-Angle Socket,
Snap-On, Solder/Crimp**



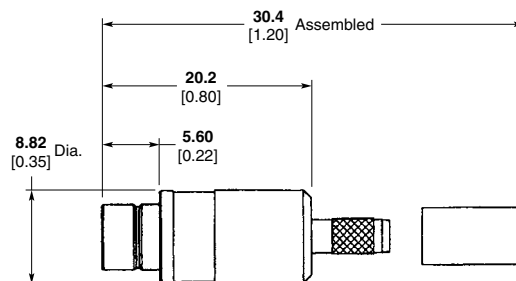
Cable Type	Body Plating	Part No
RG 179B/U	Selective Gold	1311103-1
BT3002, TZC75024	Selective Gold	1311104-1

**Right-Angle Socket,
Latching, Solder/Crimp**



Cable Type	Body Plating	Part No
RG 179B/U	Selective Gold	1311106-1
BT2003	Selective Gold	1311698-1
BT3002, TZC75024	Selective Gold	1311111-1
RG 59B/U, RG 140/U	Selective Gold	1313508-1

**Straight Free Plug,
Crimp/Crimp**

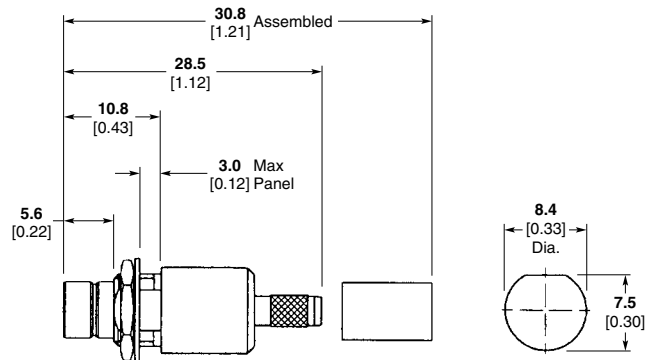


Cable Type	Body Plating	Part No
RG 179B/U	Selective Gold	1408041-1

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

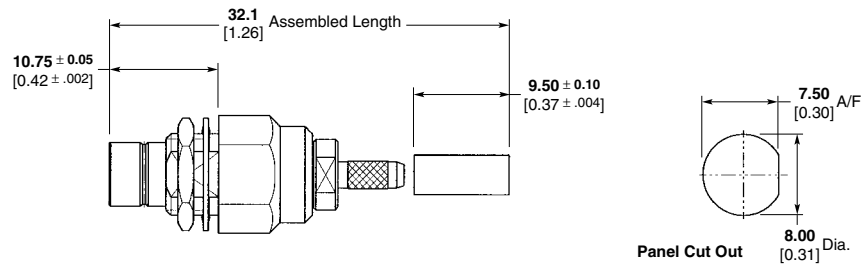
SMB Connectors, 75 Ohm BT 43 (SMZ) (Continued)

Straight Bulkhead Plug



Mounting Detail

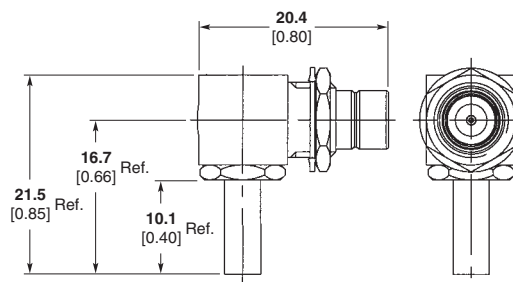
Cable Type	Termination Method		Body Plating	Part No.
	Inner	Outer		
RG 179B/U	Crimp	Crimp	Selective Gold	1311120-1
BT500B, BT2003, BT2003A	Crimp	Crimp	Selective Gold	1311701-1
BT3002, TZC75024	Crimp	Crimp	Selective Gold	1311122-1



Panel Cut Out

Cable Type	Termination Method		Body Plating	Part No.
	Inner	Outer		
3M: 043, 031C, CS4456, Gore: GCX	Crimp	Crimp	Selective Gold	1313511-1

**Right-Angle Bulkhead Plug,
Solder/Crimp**

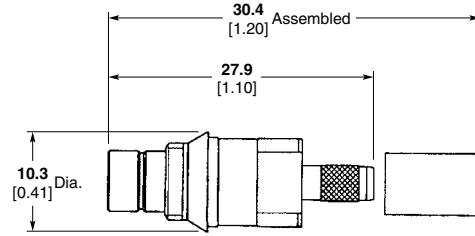


Cable Type	Body Plating	Part No
RG 179B/U	Selective Gold	1311115-1

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

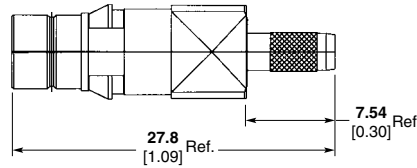
SMB Connectors, 75 Ohm BT 43 (SMZ) (Continued)

DDF Plug, Crimp/Crimp



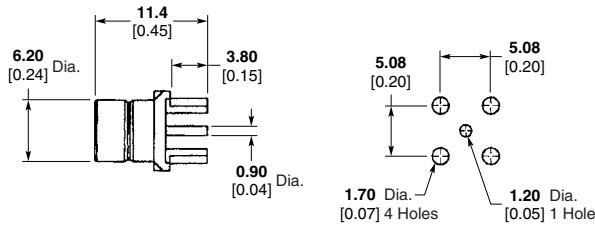
Cable Type	Body Plating	Part No
RG 179B/U	Selective Gold	1327083-1
BT2003	Selective Gold	1311117-1
BT2002	Selective Gold	1311700-1
B2001	Selective Gold	1313883-1
BT3002, TZC75024	Selective Gold	1311118-1
RG 59B/U, RG 140/U, URM90	Selective Gold	1313887-1

DDF Plug, Crimp/Crimp



Cable Type	Body Plating	Part No
RD179, 124431 (Filotex), 1366 (Orebro), K02253D-1, K02253-2 (Shuner)	Selective Gold	1314422-1

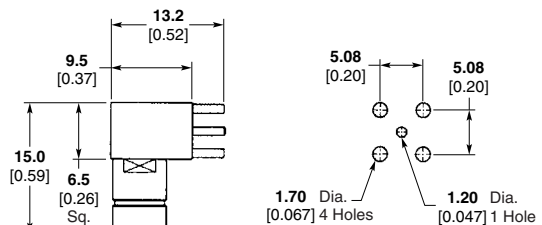
PC Board Plug 43/1D



Mounting Detail

Body Plating	Part No.
Selective Gold	1311125-1

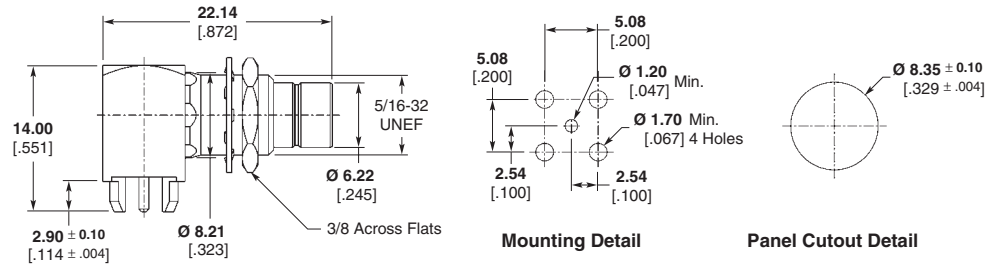
PC Board Plug 43/1E



Mounting Detail

Body Plating	Part No.
Selective Gold	1314103-1

Right-Angle PC Board Plug



Mounting Detail

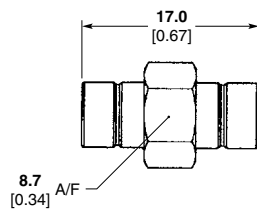
Panel Cutout Detail

Part No. 1314102-1

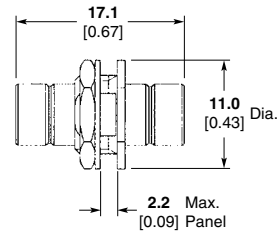
Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

SMB Connectors, 75 Ohm BT 43 (SMZ) (Continued)

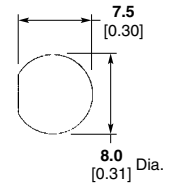
**Straight Adapter
Plug-Plug**



Part No. 1313364-1



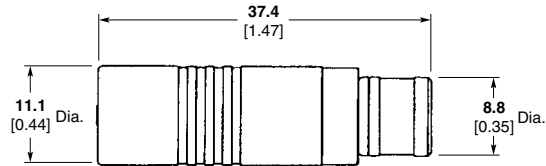
Part No. 1311127-1



Mounting Detail

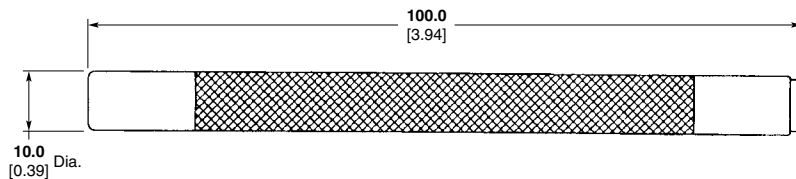
Body Plating	Part No.
Selective Gold	1313364-1
Selective Gold	1311127-1

Tester 430A



Body Plating	Part No.
Selective Plating	6-1311703-1

Extraction Tool 65A



Part No.
1311164-1 ◆

Note: Part Numbers are RoHS compliant except: ◆ Indicates non-RoHS compliant.

SMB Connector Crimp Tooling

50 Ω/75 Ω

RG/U Cable	Commercial Connector Tooling						MIL Type Connector Tooling						
	Center Contact Crimp Tooling			Braid Crimp Tooling			Center Contact Crimp Tooling			Braid Crimp Tooling			
	Dies for Tyco Electronics PRO-CRIMPER Hand Tool Number	MIL-C-22520/2-01 Tool DANIELS* Positioner	Position	Dies for Tyco Electronics PRO-CRIMPER Hand Tool Number	Position	MIL-C-22520/5-01 Tool DANIELS* Hex Crimp Die	DANIELS* Hand Tool	DANIELS* Positioner Number	Selector Position	Dies for Tyco Electronics PRO-CRIMPER Hand Tool Number	Position	DANIELS Hand Tool	Hex Die Across Flats
178, 178A, 178B, 196, 196A	58489-1	Female-K699 Male-K727	4	58489-1	A&B	Y624	AFM8	Female-K699 Male-K727	4	58483-1	A	HX4-1637	2.67 .105
Double Braid 178, 196	—	—	—	—	—	—	AFM8	Female-K699 Male-K727	4	58483-1	B	HX4-1637	3.25 .128
174, 316 188, 188A	58489-1	Female-K699 Male-K727	4	58489-1	A	Y444	AFM8	Female-K699 Male-K727	4	58483-1	B	HX4-1637	3.25 .128
Double Braid 174, 316, 188	58489-1	Female-K699	4	58489-1	C	Y196 Location A	AFM8	Female-K699	4	58483-1	C	HX4-1637	3.84 .151
Double Braid 174, 316, 188	58489-1	Male-K727	4	58489-1	C	Y196 Location A	AFM8	Solder	—	58483-1	B	HX4-1637	3.25 .128
179, 179A 179B, 161, 187, 187A, BELDEN 9221	58489-1	Female-K699	4	58489-1	A	Y444	AFM8	Female-K699	4	58483-1	B	HX4-1637	3.25 .128
179, 179A 179B, 161, 187, 187A, BELDEN 9221	58489-1	Male-K727	4	58489-1	A	Y444	—	Solder	—	58483-1	B	HX4-1637	3.25 .128
180, 180A 180B	—	—	—	—	—	—	—	Solder	—	58483-1	C	HX4-1637	3.84 .151
Mini SMB 75 ohm													
179, 187	—	Female-K699	—	58483-1	B	HX4-1637	—	—	—	—	—	—	—
179, 187	—	Solder Center Contact	—	58483-1	B	HX4-1637	—	—	—	—	—	—	—

Note: All 75 ohm SMB connectors have a solder center contact.

* DANIELS Manufacturing Corporation Telephone: 407-855-6161
6103 Anno Avenue FAX: 407-855-6884
Orlando, Florida 32809

Note: Equivalent military tool part numbers— M22520/5-01 – DANIELS Hand Tool HX4
M22520/5-33 – DANIELS Die Set Y136
M22520/5-37 – DANIELS Die Set Y138
M22520/5-41 – DANIELS Die Set Y140
M22520/5-03 – DANIELS Die Set Y196
M22520/2-01 – DANIELS Hand Tool AFM8

BELDEN is a trademark of Belden Wire and Cable Company.

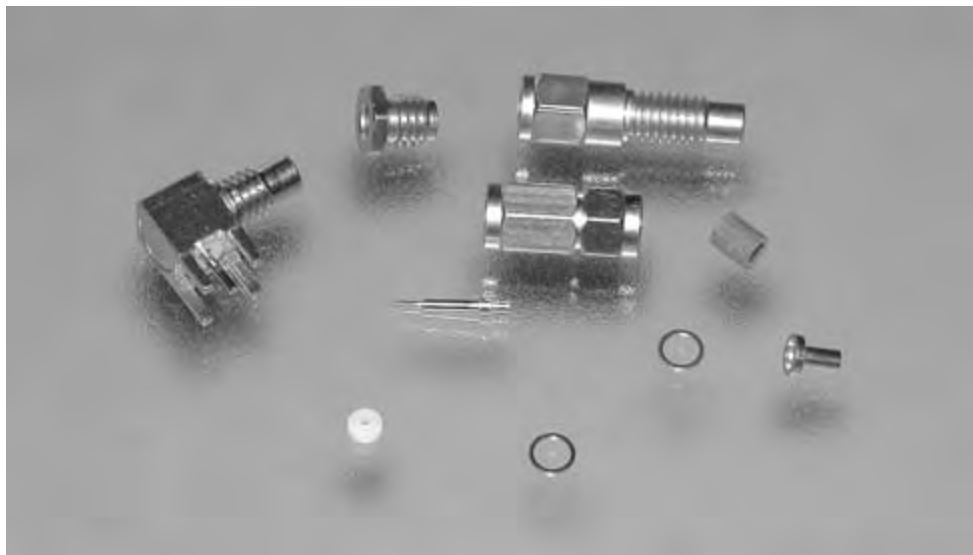
DANIELS is a trademark of Daniels Manufacturing Corporation.

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

SMC Connectors

Product Facts

- Three-piece designs
- Fast, clean cable assembly
- Connector bodies preassembled
- Solderless termination —no danger of heat damage
- Center conductor and braid terminated with same tool
- Low noise level
- Miniature screw-on coupling
- PTFE dielectric



The SMC Connector is miniature and light-weight, especially designed for use in critical applications where limited space and vibration are of major concern.

This connector is designed in accordance with the requirements of Specification MIL-C-39012, Class II, Category B to assure the highest standards of electrical and mechanical performance. It has a constant impedance of 50 ohms, a voltage rating of 350 volts and provides excellent operation at frequencies up to 10 GHz. It also has a threaded coupling and can be used with a wide range of miniature coaxial cable sizes including RG 174, 197, 187, 188 and 316.

Materials

Brass — QQ-B-626
Beryllium Copper — QQ-C-530
Copper — QQ-C-576
PTFE Insulation — MIL-P-19468

Plating

Gold — MIL-G-45204

Electrical Characteristics

Nominal Impedance — 50 ohms
Working Voltage — 335 volts rms
Frequency Range — 0 to 10 GHz
Insulation Resistance — 1000 megohms min.

Contact Resistance

Outer Contact — 1 milliohms
 Center Contact —
 Straight Connectors — 6 milliohms
 Right-Angle Connectors —
 12 milliohms

Dielectric Withstanding Voltage — 1000 volts rms

RF Leakage — -60 dB min., between 2 and 3 GHz

RF Insertion Loss —
 Straight Connectors — 0.25 dB max. at 4 GHz
 Right-Angle Connectors — 0.50 dB max. at 4 GHz

Corona Level — 250 volts min. at 70,000 ft [21 336 m]

Mechanical Characteristics

Mating/Unmating — 10-32 threaded coupling

Cable Attachment — Crimp type, both center contact and braid

Coupling Nut Retention — 35 lb [156 N] min.

Cable Retention — 20 lb [89 N] min., GR-174 cable

Durability — 500 cycles per MIL-C-39012

Environmental Characteristics

Temperature Range — -65°C to +85°C

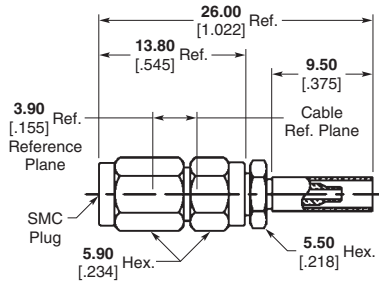
Vibration — MIL-STD-1344, Method 2005, Condition IV

Salt Spray — MIL-STD-1344, Method 1001, Condition B

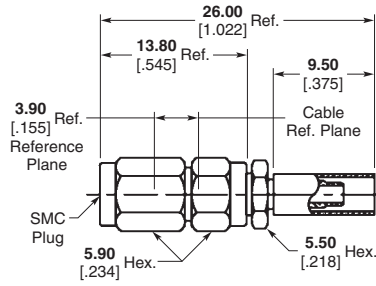
Temperature Cycling — MIL-STD-1344, Method 1003, Condition A (except low temperature is -65°C)

SMC Connectors (Continued)

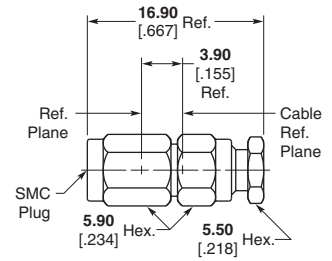
Straight Plugs



**Part No. 1060220-1
Crimp**



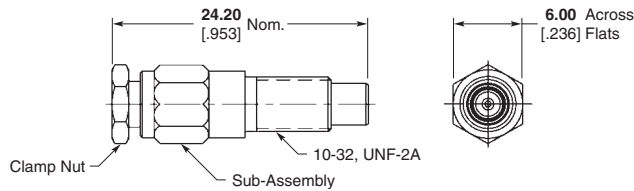
**Part No. 1060221-1
Crimp**



**Part No. 1060163-1
Clamp**

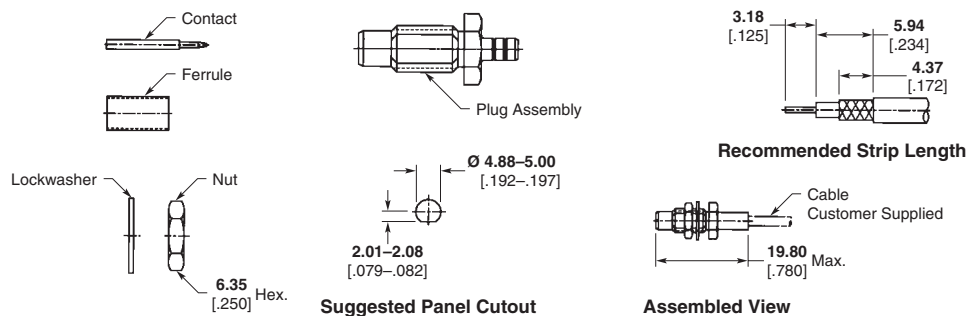
Cable Attachment	RG/U Cable	Part No.
Crimp	178, 178A, 178B 196, 196A	1060220-1
Crimp	174, 316 188, 188A	1060221-1
Clamp	174, 316 188, 188A	1060163-1

Straight Jacks



Cable Attachment	RG/U Cable	Part No.
Clamp	174, 316 188, 188A	1311638-1

Bulkhead Feedthrough Cable Jacks

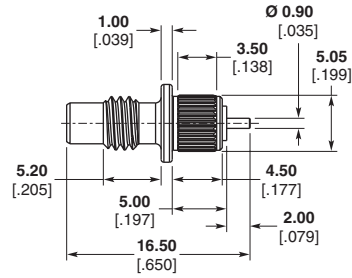


Cable Attachment	RG/U Cable	Part No.
Crimp	174, 316 188, 188A	51751-1

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

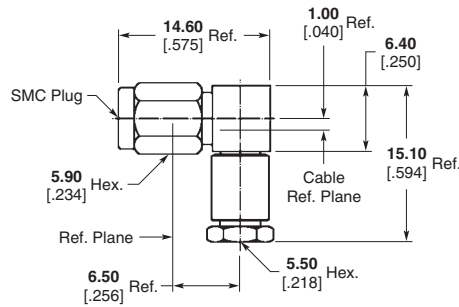
SMC Connectors (Continued)

Press-In Panel Jacks, Straight Terminal



Part No. 1460470-1

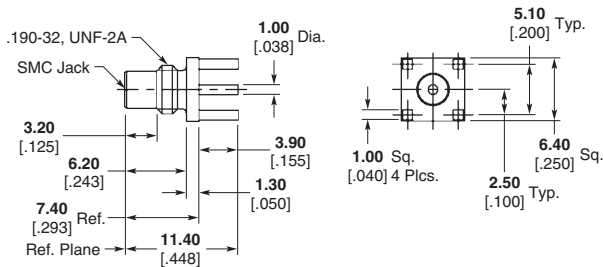
Right-Angle Cable Plug



Cable Attachment	RG/U Cable	Part No.
Clamp	174, 316 188, 188A	1060183-1

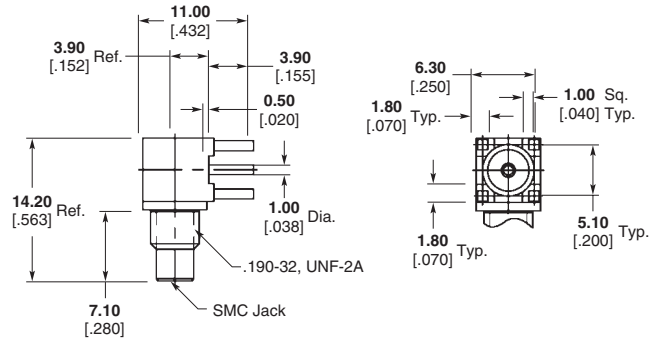
PC Board Jack Receptacles

Straight

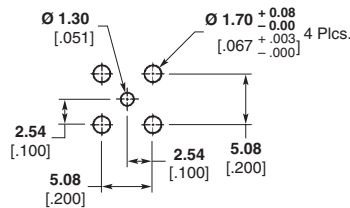


Part No. 1060256-1

Right-Angle



Part No. 1060259-1



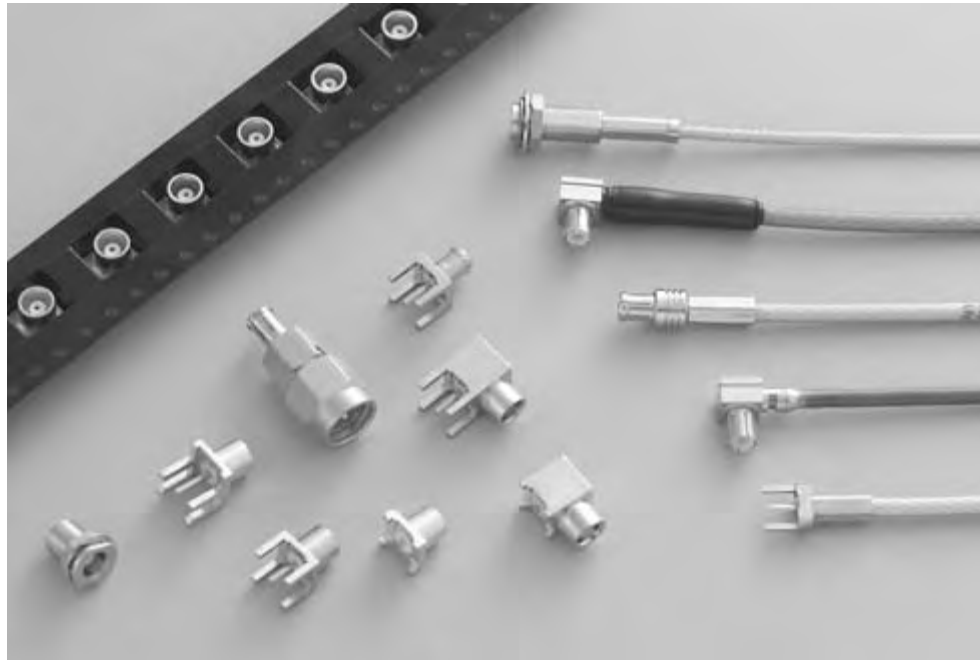
Recommended PC Board Layout

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

MCX Connectors

Product Facts

- Snap-on interface facilitates assembly
- Conforms to CECC interface specifications for MCX
- 30% smaller than SMB connectors
- Surface mount tape and reel for high volume
- 50 and 75 ohm versions available



Between Series Adapters

For MCX Between Series Adapters, see pages 251-260.

Tyco Electronics MCX microminiature snap-on connectors offer an excellent blend of size, durability and performance for emerging applications in GPS, automotive and wireless communications. MCX connectors are 30% smaller than traditional snap-on SMB connectors, offering greater packaging density and weight reduction. MCX connectors are mechanically robust with beryllium copper spring fingers rated at a minimum of 500 mating cycles. The snap-on interface facilitates assembly, eliminating the need for a threaded connection, and

ensuring full engagement. The forces to engage and disengage have been optimized to ensure ease of mating as well as to prevent damage to PCB solder connections. MCX connectors are designed for broad band performance, DC-6 GHz, and can be utilized for future system upgrades without concerns for performance degradation. Tyco Electronics MCX connectors are fully mateable with standard MCX connectors and conform to the CECC interface specifications.

MCX connectors are available in a broad range of

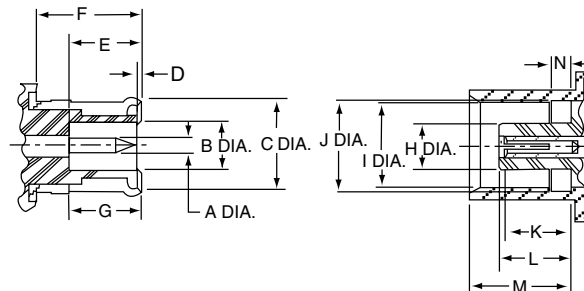
standard configurations for commercial applications. Tape and reel packaging for MCX surface mount straight and right-angle PCB receptacles is available to facilitate high volume pick and place manufacturing. MCX surface mount connectors are designed to withstand infrared reflow, convection and vapor phase soldering and provide a .254 [.010] standoff for optimal board cleaning. MCX plug and jack PCB receptacles also offer a direct board to board solution providing a nominal 7.11 [0.28] separation.

MCX Connectors (Continued)

Specifications

General		CECC 22220 PARA
Materials	—	Brass alloys UNS C36000 (ASTM-B16) or C38500 per QQ-B626, Beryllium copper per ASTM B-196, PTFE fluorocarbon per ASTM-D-1710
Finish	—	Center Contacts: Gold plated (ASTM-B488) over nickel plate (QQ-N-290)
	—	Outer Contacts: Gold plated (ASTM-B488) over nickel plate (OO-N-290)
	—	Housings: Nickel plated (QQ-N-290), tin (ASTM-B488) or Gold plated (ASTM-B488)
	—	All other metal parts shall be furnished so as to provide a connector which meets corrosion requirements of CECC 22220 PARA 4.6.10
Design	—	The design shall be such that the outline and interface dimensions shown in this catalog and the requirements of CECC 22220 PARA are met
Electrical		CECC 22220 PARA (General requirements performance may vary by cable)
Frequency	—	dc - 6 GHz
Nominal Impedance	—	50 ohms
Voltage Rating	—	335 Volts (VRMS Maximum) @ Sea Level
VSWR	4.4.1	1.25:1 Maximum @ 4 GHz
	—	1.35:1 Maximum @ 6 GHz
Insulation Resistance	4.4.4	10,000 Megohms Minimum
Insertion Loss	—	.1dB Maximum/1000 MHz
Dielectric Withstanding Voltage	4.4.5	1000 Volts (VRMS Minimum) @ Sea Level
Contact Resistance		
Center Contact	4.4.2	5.0 Milliohms Maximum
Outer Contact	4.4.3	1.0 Milliohms Maximum
Corona 70,000 ft.	—	250 Volts (VRMS Minimum) @ MHz
RF High Potential @ Sea Level	—	670 Volts (VRMS Minimum) @ MHz
Contact Current	—	1.5 ADC Max
Mechanical		CECC 22220 PARA
Force to Engage	4.5.4	15.5 N [3.4 lbs.] Maximum
Force to Disengage	—	8 – 20 N [1.8 – 4.5 lbs.]
Contact Captivation	4.5.2	Designed to maintain MCX interface when mating 10 N [2.2 lbs.] axial
Connector Durability	4.7.1	500 insertion and withdrawal cycles
Environmental		CECC 22220 PARA
Temperature Rating	—	-65°C + 165°C
Vibration	4.6.3	See CECC 22220
Moisture Resistance	4.6.4	See CECC 22220
Corrosion	4.6.10	See CECC 22220
Thermal Shock	4.6.7	See CECC 22220

Meets or exceeds requirements of CECC 22220. Tyco Electronics has design control and all data contained herein is subject to change without notice. Contact Tyco Electronics for specifications on other connector types.



Plug

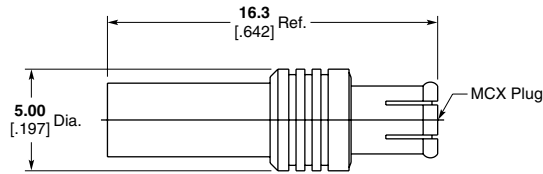
Letter	Minimum	Maximum
A	0.48 [.0189]	0.53 [.0208]
B	2.00 [.0788]	—
C	—	3.8 [.148]
D	0.00 [.000]	0.30 [.0118]
E	2.80 [.111]	3.20 [.125]
F	4.15 [.164]	—
G	2.80 [.111]	—

Jack

Letter	Minimum	Maximum
H	—	1.98 [.077]
I	3.42 [.135]	3.48 [.137]
J	3.60 [.142]	3.75 [.147]
K	2.30 [.091]	2.80 [.110]
L	2.60 [.103]	2.80 [.110]
M	4.00 [.158]	4.12 [.162]
N	0.75 [.0296]	0.85 [.0334]

MCX Connectors (Continued)

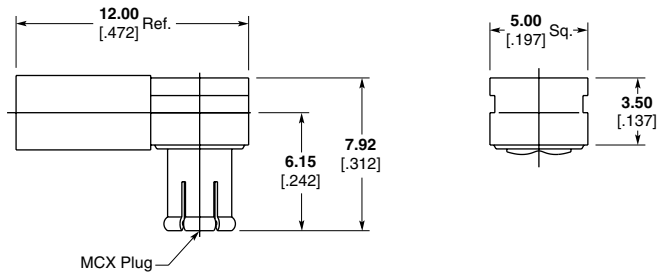
Straight Cable Plug, Crimp



Cable	Plating	Part No.
RG 178/U, 196/U	Nickel	1060869-1
RG 174/U, 188/U, 316/U	Nickel	1060872-1
	Gold	1060871-1
RD-316	Nickel	1060875-1
	Gold	1060875-2

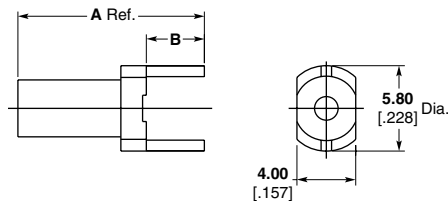
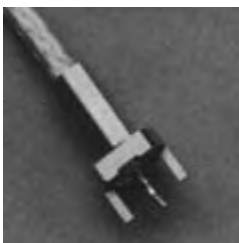
Note: For full crimp attachment consult Tyco Electronics at the numbers listed below.

Right-Angle Cable Plug, Crimp



Cable	Plating	Part No.
RG 178/U, 196/U	Nickel	1329293-1
RG 188/U, 316/U RG 179/U, RG 187/U	Nickel	1330723-1
RD-316	Nickel	1363301-1
	Gold	1363301-2

Straight Cable Terminal, PC Board, Without Center Contact

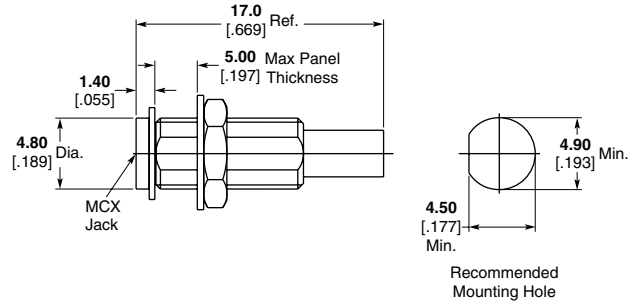


Cable	Dim. A	Dim. B	Plating	Part No.
RG 174/U, 188/U, 316/U	11.76	3.94	Nickel	1060811-1
	.463	.155	Gold	1060811-2
	10.74	2.92	Gold	1060813-2
	.423	.115		

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

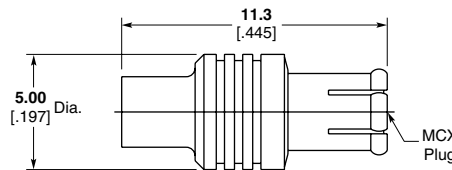
MCX Connectors (Continued)

Bulkhead Cable Jack



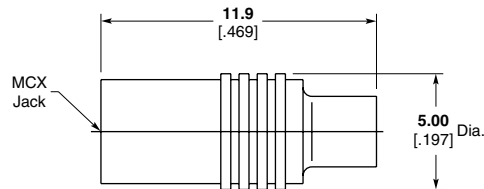
Cable	Plating	Part No.
RG 188/U, RG 316/U	Nickel	1060883-1

Straight Cable Plug, Direct Solder Attachment For Semi-Rigid Cable



Cable	Plating	Part No.
RG 405/U [0.085]	Gold	1060772-1
.047	Gold	1060772-2

Straight Cable Jack, Direct Solder Attachment For Semi-Rigid Cable

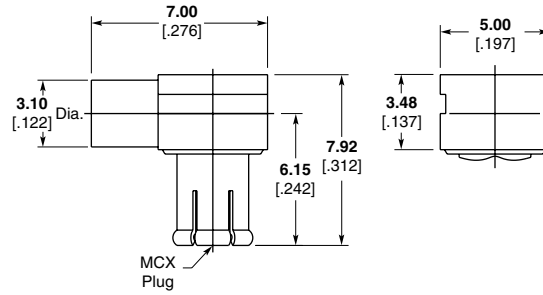


Cable	Plating	Part No.
RG 405/U [0.085]	Gold	1060774-1
.047	Gold	1060774-2

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

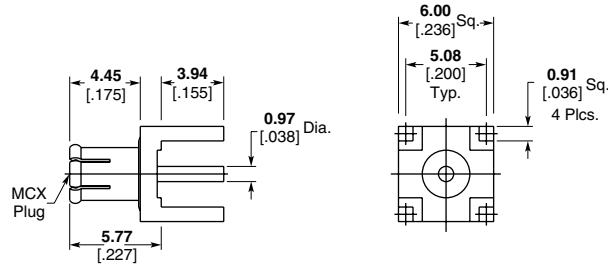
MCX Connectors (Continued)

**Right-Angle Plug Receptacle,
Direct Solder Attachment
For Semi-Rigid Cable**



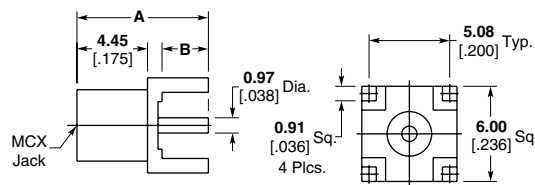
Cable	Plating	Part No.
RG 405/U	Gold	1060787-1

**Vertical Plug Receptacle,
PC Board**



Plating	Part No.
Nickel	1061015-1
Gold	1085221-1

**Vertical Jack Receptacle,
PC Board**

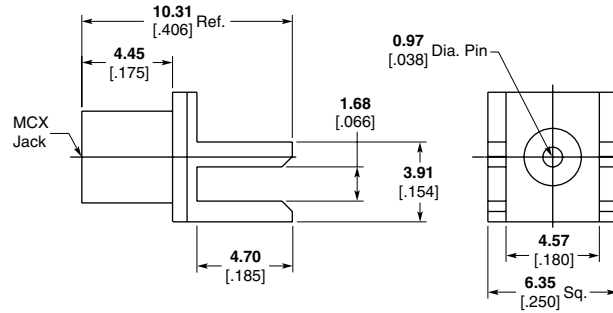


Dim. A	Dim. B	Plating	Part No.
8.28	2.92	Nickel	1060985-1
.326	.115	Gold	1060984-1
9.30	3.94	Nickel	1060989-1
.366	.155	Gold	1330126-1
7.09	1.73	Nickel	1060996-1
.279	.068	Gold	1060995-1

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

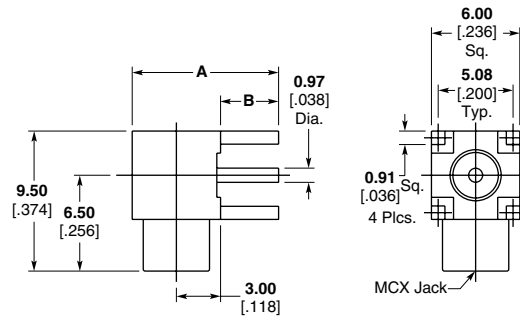
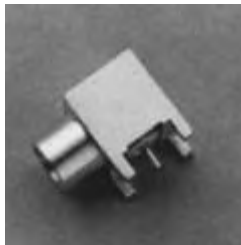
MCX Connectors (Continued)

**Vertical End Launch,
PC Board**



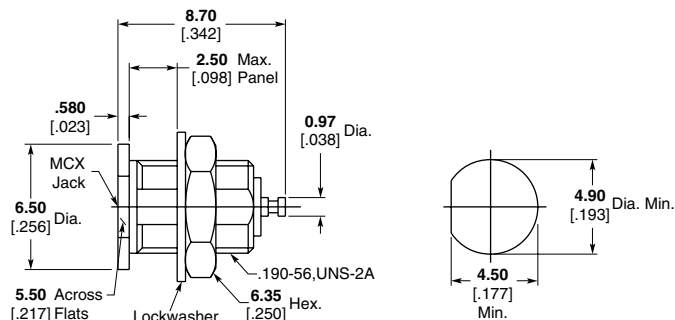
Plating	Part No.
Tin	1061007-1

**Right-Angle Jack
Receptacle, PC Board**



Dim. A	Dim. B	Plating	Part No.
9.93 [0.391]	3.94 [0.155]	Nickel	1061023-1
		Gold	1061022-1
7.72 [0.304]	1.73 [0.068]	Nickel	1061027-1
		Gold	1061026-1
8.92 [0.351]	2.92 [0.115]	Nickel	1061030-1
		Gold	1061029-1

**Jack Receptacle,
Bulkhead Feedthrough**



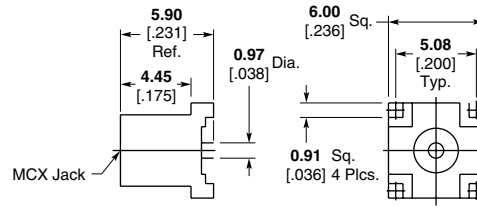
Recommended Mounting Hole

Plating	Part No.
Nickel	1060960-1
Gold	1060959-1

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

MCX Connectors (Continued)

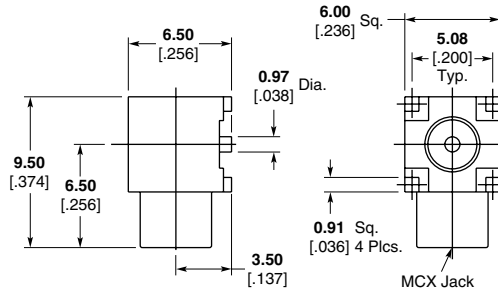
Vertical Jack Receptacle, Surface Mount



Plating	Part No.
Tin	6061002-1
	6061092-1 ¹

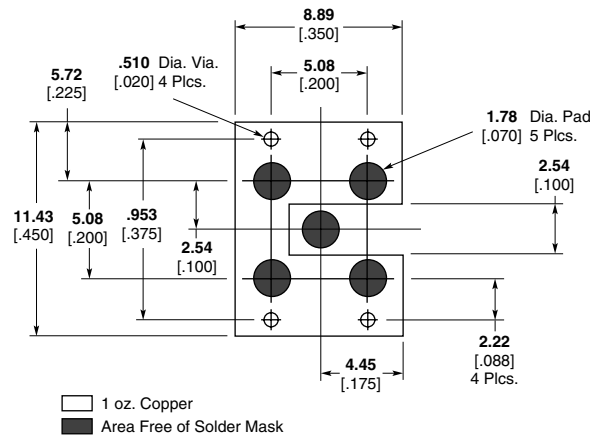
¹Tape and Reel packaging. 900 connectors per reel (carrier width 16mm, carrier pitch 12mm).

Right-Angle Jack Receptacle, Surface Mount



Plating	Part No.
Tin	6061035-1
Tin	6061094-1 ¹

¹Tape and reel packaging. 750 connectors per reel (carrier width 24mm carrier pitch 12mm).



Notes:

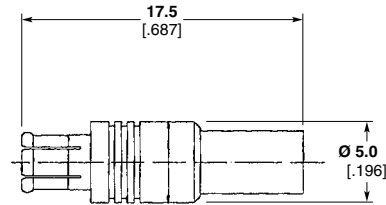
1. Printed circuit board material: glass epoxy FR-4 or similar; relative permittivity: 4.8, 1 oz. copper clad both sides.
2. These dimensions valid for 1.58 [0.062] board thickness.
3. Decimal inch equivalents are shown in parentheses for general information only.

Recommended Mounting Pattern for Microstrip Line

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

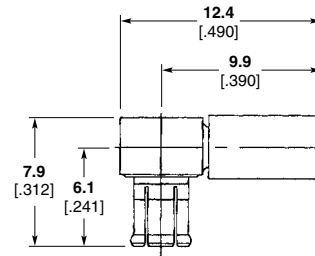
MCX Connectors (Continued)

**Straight Cable Plug,
Crimp, 75 Ohm**



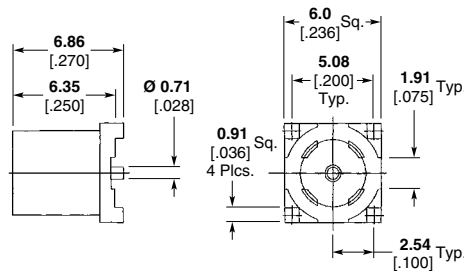
Cable	Plating	Part No.
RG 179/U	Nickel	1362990-1

**Right-Angle Cable Plug,
Crimp, 75 Ohm**



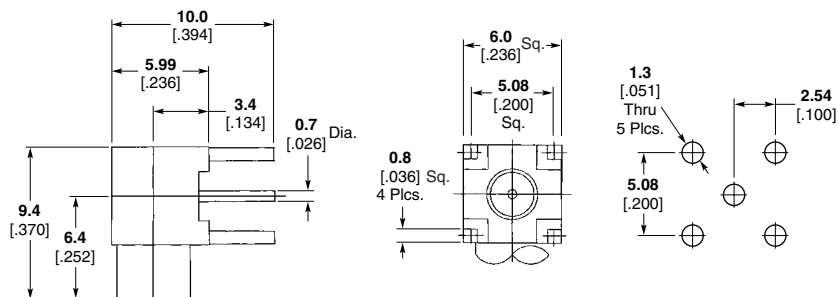
Cable	Plating	Part No.
RG 179/U	Nickel	1362991-1

**Vertical Plug, PC Board,
75 Ohm**



Plating	Part No.
Nickel	1361169-1

**Vertical Jack, PC Board,
75 Ohm**



Plating	Part No.
Gold	1363106-1

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

Compression Coax Board-to-Board Connectors

Board-to-Board RF Connector Series

- Single connector product
- Surface mount technology
- Excellent price-to-performance ratio

Product Facts

- Single connector design — no mating connectors needed
- Available in four sizes for varied board spacing: 14mm, 10mm, 6.65mm and 4mm
- Large radial and axial misalignment: For positioning both boards and for gap between boards
- Surface Mount Device for standard pick & place compatibility
- Gold plated phosphor bronze and brass contacts, stainless steel springs
- Mating directly on target board
- Easy connection without risk of breaking soldering or connector when mating or unmating
- Low applied material and assembly costs

Applications

- Modular parallel board-to-board blindmate applications
- Base Station / Sub Station systems
- PDA / PCS / Cellular Handset applications
- Wireless Communications systems (GSM, PCS, WCDMA, UMTS)



Specifications

Characteristic Impedance — 50 Ohms

Frequency Range — Up to 6 GHz

Return Loss — -20dB min.; up to 2.2 GHz (all misalignments)

Shielding Effectiveness — -60 dB min.; up to 2.2 GHz

Working Voltage — 125 VAC, 50 Hz (at sea level)

Dielectric Withstanding Voltage — 500 VAC, 50 Hz (at sea level)

Insulation Resistance — 100 Megohms

Operating Temperature — -40 to +125°C

Mating Force — 10 N

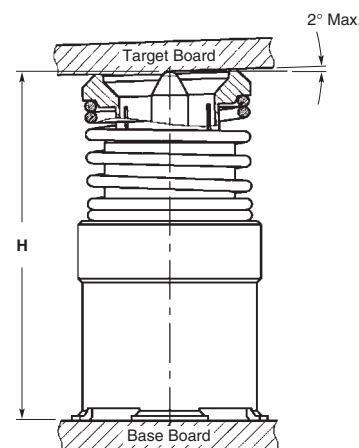
Durability — 25 cycles

Angle Between Boards — $\pm 2^\circ$ max.

Axial Misalignment — ± 1.0 mm from nominal boards stacking height; ± 0.4 mm, ± 0.3 mm for shortest models (Part Numbers 619135 and 1658260)

Radial Misalignment — ± 0.8 mm from center line in any direction

Vibration — 20 g between 58-500 Hz (Const. amplitude of 1.5 mm between 10-58 Hz)



Part Number	Height "H"
619127-1	14 \pm 1.0mm
619134-1	10 \pm 1.0mm
619135-1	6.65 \pm 0.4mm
1658260-1	4 \pm 0.3mm

Related Product Data

Internet — <http://tycoelectronics.com/products/rfcoax>

Product Specification/Design Objectives — 108-71060

Test Report — 501-90021

Sample Kit — 1-1773441-3

Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.

STAX Coax Connectors

Product Facts

- Low cost, low height and high performance
- Low insertion loss
0 to -0.5 dB from 0 to 6 GHz
- VSWR < 1.07 from 0 to 6 GHz
- Wide working range of deflection
- Long term reliability and durability
- Surface mount/pick and place
- Low board separation
≤ 2.5 mm
- Technology can support board separations ≤ 1.5 mm
- Easily modified free height
- No tooling required for height modifications
- Modified prototype samples within 2 weeks



Tyco Electronics' STAX coax RF connector is the first surface mount RF board-to-board connector on the market that uses elastomeric connector technology to provide an economical means to achieve low board separation while maintaining excellent RF signal integrity between PCBs.

The connector uses laminated sections of conductive and non-conductive silicone that are tuned to provide a 50 ohm

impedance line between mated substrates. The single piece construction of the STAX coax RF connector eliminates some of the signal anomalies normally associated with mated pairs of metal contact coax connectors. The dimensional relationship of the inner and outer conductor is consistently maintained throughout the connector.

With its metal holder, the STAX coax RF connector can be surface mount

soldered to the PCB. An additional metal SMT holder aligns the connector to the mating PCB. If adequate PCB alignment is already maintained by other means, the STAX RF connector may not need the additional mating receptacle and can become a blindmating connector. This has an additional advantage in space constrained mobile applications where very fine-pitch board-to-board connectors are also used.

Related Product Data

Internet — www.elastomerictech.com
www.tycoelectronics.com

Elastomeric Technologies Applications Engineering —

Phone: 1-800-989-STAX ext. 4453
Fax: 1-215-784-4522
E-mail: ETIapplicationseng@tycoelectronics.com

Technical Documents —

Qualification Test Report — T R 368
RF Performance Report — 00266

Electrical Characteristics

Contact Resistance — < 50 mΩ

Insulation Resistance — 10¹² Ω min.

Dielectric Withstanding Voltage (without breakdown or arcing) — 1000 Volt

Physical Characteristics

Board Separation — 2.5 mm ± 0.2 (std. part)

PCB Board Area — 4.0 mm dia.

Typical Clamping Force — See chart

Environmental Characteristics

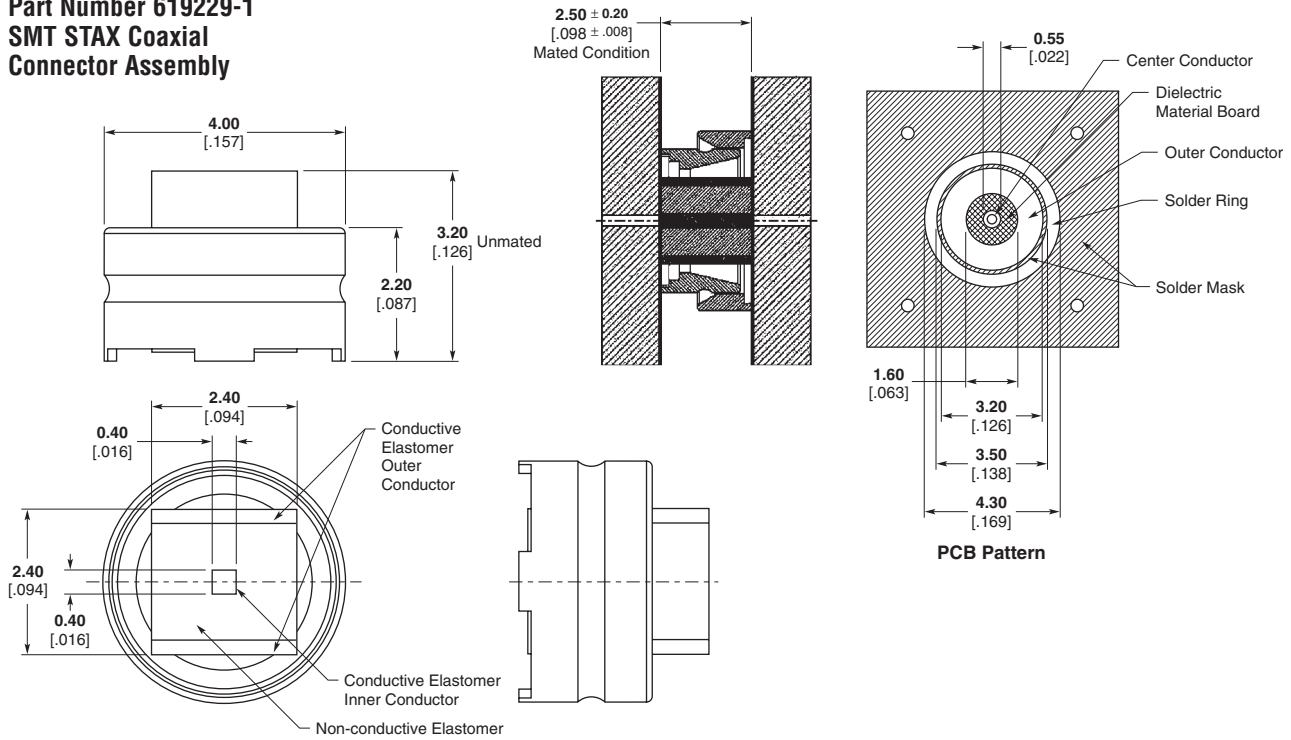
Operating Temperature — -40°C to +125°C

Moisture — 0 to 100% RH

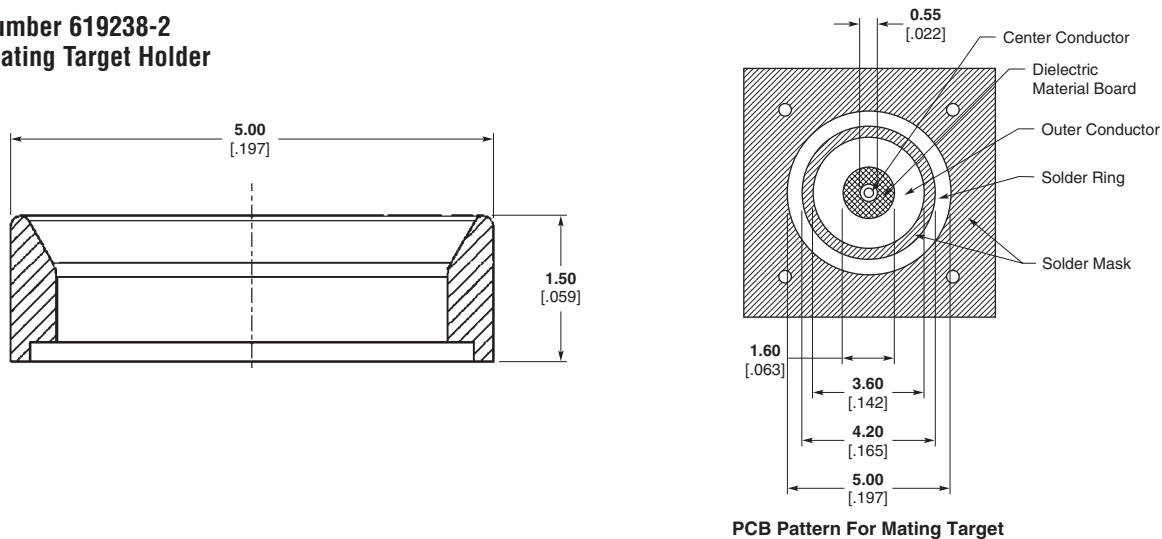
STAX Coax Connectors (Continued)

Description	Part Number
STAX SMT Coax Connector Assembly: Consists of STAX Coax elastomer in round SMT holder	619229-1
Mating SMT Target Holder: Controls alignment between PCBs	619238-2
STAX Coax RF Elastomer only: Used with customer furnished holder	1442004-1

Part Number 619229-1
SMT STAX Coaxial
Connector Assembly



Part Number 619238-2
SMT Mating Target Holder



Note: Part Numbers are RoHS compliant except: ♦ Indicates non-RoHS compliant.