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Military Specifications

MIL-PRF-39012

- **Defines the general requirements and tests for radio frequency (RF) connectors used with flexible RF cables and certain other types of coaxial transmission lines. It includes the following series of connectors in this catalog: N, BNC, TNC, SMA**

MIL-C-55339

- **Defines the performance requirements and tests for between series and within series, RF coaxial connector adapters. The In-Series Adapters are shown in this catalog**

MIL-C-83517

- **Defines the general requirements and test for RF connectors used with coaxial, strip, or microstrip transmission line devices. It includes the SMA Receptacles as shown in this catalog**



Definition of Categories for MIL-PRF-39012

Category A — Flexible Cable
Field serviceable, no special tools required to assemble. Standard wrenches, soldering equipment, pliers, etc., are not defined as special tools. Captured center contact.

Category B — Flexible & Semi-Rigid Cable
Non-field replaceable, special tools may be required. These connectors may be used for original installations. Field replacement is intended to be made by Category A or C Connectors. Will not be stocked or procured by the Government. Captured and non-captured center contacts.

Category C — Flexible Cable
Field replaceable. Requires crimp tool and specified cable stripping dimensions. Captured center contact. Recommended crimp tool kit: Part Number 1055236-1.

Category D — Flexible Cable
Field replaceable. Requires crimp tool for center contact and outer ferrule; specified cable stripping dimensions (same as Category C) and defined piece parts. Captured center contact. Recommended crimp tool kit: Part Number 1055236-1.

Category E — Semi-Rigid Cable
Field replaceable. Requires specified cable stripping dimensions. Captured and non-captured center contact. Uses standard tool kit: Part Number 1055420-1.

Category F — Semi-Rigid Cable
Field replaceable. Requires crimp tool and specified cable stripping dimensions. Captured center contact. Recommended crimp tool kit: Part Number 1055835-1.

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N Series Connectors (MIL-PRF-39012)

Product Facts

- **Dual "O" Crimp connectors are MIL-PRF-39012, Class II, Category B qualified**
- **COTS equivalent parts available**
- **Captive center contacts**
- **Completely crimpable application – one hand tool crimps all cables with single or double braided shields of a given size**
- **Impedance matching crimps**
- **Broad band performance – low VSWR**
- **Superior cable retention**
- **PTFE dielectric**

The TE Connectivity N Series Connector, featuring a .625 [15.88] - 24 threaded coupling for optimum stability, is highly suited for critical applications and environments. This medium sized connector can withstand shock and vibration for a low noise level and has a constant impedance of 50 ohms. It also features a captive center contact and provides excellent performance at frequencies up to 11 GHz, with voltages to 1000 volts rms.

This connector offers the added benefits of low overall applied cost with a labor-saving two-crimp assembly. The contact is simply crimped to the cable's center conductor, then both braid and cable support are simultaneously crimped to complete the termination.

N Series Connectors are available in standard plug, jack, bulkhead jack and right-angle plug configurations.



Materials

Brass — QQ-B-626
Beryllium Copper — QQ-C-530
Dielectric — PTFE
PTFE — MIL-P-19468
Copper, Annealed — QQ-C-576
Phosphor Bronze — QQ-B-750
Silicone Rubber — ZZ-R-765

Plating

Body —
Silver per QQ-S-365
Center Contact —
Gold per ASTM B488, type 3, grade C

Electrical Characteristics

Nominal Impedance — 50 ohms
Working Voltage — 1000 volts, rms at sea level
Frequency Range — 0 to 11 GHz
Voltage Standing Wave Ratio (VSWR) — Straight Plug or Jack- 1.3:1 max.
Right-Angle Plug —
1.35 max. at 0 to 9.0 GHz
1.50 max. at 9.0 to 11.0 GHz
Contact Resistance —
Outer Contact — 0.2 milliohms
Center Contact — 1.0 milliohms
Right-Angle — 2.5 milliohms
Insulation Resistance —
5000 megohms min.
Dielectric Withstanding Voltage —
2500 Volts, rms at sea level
RF Leakage — -90 dB min. at 2 to 3 GHz
RF Insertion Loss — 0.15 dB max. at 10 GHz; Right-Angle Plug, 0.3 dB max. at 10 GHz
Corona Level — 500 volts min. at 21 336 m [70,000 ft.]

Mechanical Characteristics

Mating/Unmating — Threaded coupling
Cable Attachment — Crimp type - center contact and braid
Coupling Nut Retention — 445 N [100 lbs.] min.
Cable Retention — 400 N [90 lbs.] min. RG 214/U Cable
Durability — 500 cycles per MIL-PRF-39012
Captive Contact — 27 N [6 lbs.] min. axial retention, either direction

Environmental Characteristics

Temperature Range —
-85°F to +329°F [-65°C to +165°C]
Vibration — MIL-STD-202, Method 204, Test Cond. B
Shock — MIL-STD-202, Method 213, Test Cond. I
Moisture Resistance — MIL-STD-202 Method 106
Salt Spray — MIL-STD-202, Method 101, Test Cond B
Temperature Cycling — MIL-STD-202, Method 107, Test Cond. B (except high temperature is +85°C)
Note: All data pertains to use with MIL-PRF-39012 specified cables only.

Termination Tooling

Integral Die —
Hand Tool Part Number 220015-1

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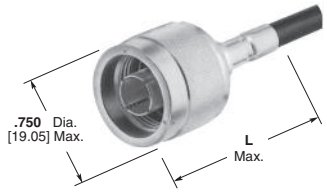
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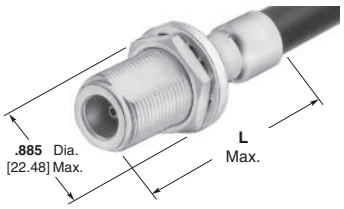
Plugs MIL-PRF-39012/01



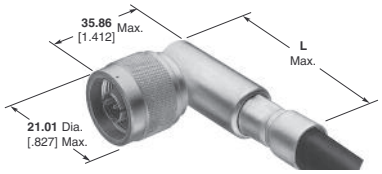
Jacks MIL-PRF-39012/02



Bulkhead Jacks MIL-PRF-39012/03



Right-Angle Plugs MIL-PRF-39012/05



Plugs

TE Part No.	Reference Part No.	Military PN M39012/01	Notes	Termination Style	Body Plating	Dim L	RG/U Cable
225092-7	—	B0012	Weatherproof	Crimp	Silver	**1.859** [47.22]	225
1-225092-1	—	—	Weatherproof	Crimp	Silver	**1.859** [47.22]	393
51692-4	—	B0013		Crimp	Silver	**1.687** [42.85]	11, 11A, 216
225392-2	—	—	Weatherproof	Crimp	Silver	**1.687** [42.85]	142, 142A, 142B, 400
225361-4	—	—		Crimp	Silver	**1.687** [42.85]	142, 142A, 142B, 400
225361-2	—	—		Crimp	Silver	**1.687** [42.85]	223, 55, 55A, 55B
225361-1	—	—		Crimp	Silver	**1.687** [42.85]	58, 58A, 58B, 58C
1-225661-2	—	—		Crimp	Nickel	**1.687** [42.85]	58, 58A, 58B, 58C
225092-2	—	B0007	Weatherproof	Crimp	Silver	**1.859** [47.22]	8, 8A, 213
51692-2	—	B0007		Crimp	Silver	**1.687** [42.85]	8, 8A, 213
225661-2	—	—		Crimp	Nickel	**1.687** [42.85]	8, 8A, 213
225092-1	—	B0008	Weatherproof	Crimp	Silver	**1.859** [47.22]	9, 9A, 9B, 214
51692-1	—	B0008		Crimp	Silver	**1.687** [42.85]	9, 9A, 9B, 214
225661-1	—	—		Crimp	Nickel	**1.687** [42.85]	9, 9A, 9B, 214
1057088-1	3001-7941-00	—		Solder	Passivate / Gold	**0.970** [24.60]	402 semirigid (.141 dia)
1057094-1	3001-7985-00	—		Solder	Passivate / Gold	**0.970** [24.60]	405 semirigid (.086 dia)

Jacks

TE Part No.	Reference Part No.	Military PN M39012/02	Notes	Termination Style	Body Plating	Dim L	RG/U Cable
225093-2	—	B0008		Crimp	Silver	**1.937** [49.19]	8, 8A, 213
225664-2	—	—	Weatherproof	Crimp	Nickel	**1.937** [49.19]	8, 8A, 213
225093-7	—	—		Crimp	Silver	**1.937** [49.19]	225
1057116-1	3002-7941-00	—		Solder	Passivate / Gold	**1.050** [26.70]	402 semirigid (.141 dia)

Bulkhead Jacks

TE Part No.	Reference Part No.	Military PN M39012/03	Notes	Termination Style	Body Plating	Dim L	RG/U Cable
225094-2	—	B0004	Weatherproof	Crimp	Silver	**2.125** [53.98]	8, 8A, 213
225094-1	—	B0005	Weatherproof	Crimp	Silver	**2.125** [53.98]	9, 9A, 9B, 214
1-225668-1	—	—	Weatherproof	Crimp	Nickel	**2.125** [53.98]	393
1057140-1	3004-7388-10	—		Clamp	Nickel	**1.125** [28.60]	174, 179, 187, 188, 316
1057138-1	3004-7341-10	—		Clamp	Nickel	**1.125** [28.60]	55, 58, 141, 142, 223, 303
1057159-1	3004-7941-00	—		Solder	Passivate / Gold	**1.335** [33.90]	402 semirigid (.141 dia)
1058628-1	3604-7841-02	—	18 GHz	Solder	Passivate / Gold	**1.125** [28.60]	402 semirigid (.141 dia)
1057165-1	3004-7985-00	—		Solder	Passivate / Gold	**1.335** [33.90]	405 semirigid (.086 dia)

Flange Mount Cable Jacks

TE Part No.	Reference Part No.	Termination Style	Body Plating	Dim L	RG/U Cable
1057176-1	3006-7941-00	Solder	Passivate / Gold	**1.000** [25.40]	402 semirigid (.141 dia)
1057178-1	3006-7985-00	Solder	Passivate / Gold	**1.000** [25.40]	405 semirigid (.086 dia)

Right Angle Plugs

TE Part No.	Reference Part No.	Military PN M39012/05	Notes	Termination Style	Body Plating	Dim L	RG/U Cable
225014-2	—	B0002		Crimp	Silver	**2.275** [57.79]	8, 8A, 213
225389-2	—	B0002	Weatherproof	Crimp	Silver	**2.453** [62.31]	8, 8A, 213
225669-2	—	—		Crimp	Nickel	**2.275** [57.79]	8, 8A, 213
225014-3	—	B0003		Crimp	Silver	**2.275** [57.79]	9, 9A, 9B, 214
225389-6	—	—	Weatherproof	Crimp	Silver	**2.453** [62.31]	393
225389-3	—	—	Weatherproof	Crimp	Silver	**2.453** [62.31]	225

Panel Mount Receptacles

TE Part No.	Reference Part No.	Interface	Termination Style
1057275-1	3051-0000-10	Plug	solder cup
1057284-1	3052-0000-10	Jack	solder cup
1057279-1	3051-1201-10	Plug	straight post
1057290-1	3052-1201-10	Jack	straight post
1057293-1	3052-1648-10	Jack	contact tab

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BNC Connectors (MIL-PRF-39012)

Product Facts

- **Dual "O" Crimp Connectors are MIL-PRF-39012, Class II, Category A or B qualified**
- **COTS equivalent parts available**
- **Bayonet lock coupling for quick connect/disconnect**
- **Various connectors available in 50 ohm versions**
- **Fully intermateable with comparable BNC UG/U connectors**
- **Low VSWR**

Related Product Data

Performance Specifications — See chart below

Material Specifications — See chart below

Military Category — All MIL type "O" crimp connectors are Category B Type (TE Connectivity Crimp Tooling), unless otherwise noted.

Packaging — All connectors are packaged individually.

The TE Connectivity BNC RF connector family with bayonet locking coupling provides highly reliable, quick connect/disconnect coaxial connections. Exclusive "O" crimp terminations allow positive insulation grip and require no soldering, providing terminations at a very low overall applied cost.

Available in 50 ohm versions, these connectors feature numerous styles including cable plugs and jacks. These connectors accept a wide range of coaxial cables and are intermateable with industry standard connectors designed to MIL-PRF-39012 specifications.



Characteristics	Category B "O" Crimp (MIL Type)
Electrical	
Impedance, Nom. (Ohms)	50
Working Voltage (Volts RMS)	500
Contact Resistance (Milliohms)	Inner: 1.5 Outer: 2.0
Initial Insulation Resistance (Megohms)	5000
Dielectric Withstanding Voltage (VAC)	1500
Corona Level at 70,000 ft. (Volts, RMS)	375
RF Leakage, Max. (dB)	-55 at 2-3 GHz
RF Insertion Loss, Max. (dB)	0.2 at 3 GHz
Frequency Range (GHz)	0-4
VSWR in Frequency Range Max.	1.30
Mechanical	
Force to Engage (lbs. [N])/couple, (in-lbs. [N-M]) max.	13.3/11.12 [3/2.5]
Coupling Nut Retention, Min. N [lbs.]	444.8 [100]
Cable Retention, N [lbs.]	266.9 [60] (RG58C/U)
Durability (Cycles)	500
Jam Nut Mounting Torque, Max. [N•m] (in. lbs.)	25 [2.8]
Environmental	
Temperature Range, Operating (C°)	-65 to +165[1] / -55 to +85[2]
Vibration	MIL-STD-202 Method 204 Cond. B
Physical Shock	MIL-STD-202 Method 213 Cond. G, 50 G's
Thermal Shock	MIL-STD-202 Method 107
Moisture Resistance	MIL-STD-202 Method 106
Salt Spray	MIL-STD-202 Method 101 Cond. B
Product Specification	108-12020

[1] Assembled to cable with polytetrafluoroethylene dielectric.
[2] Assembled to cable with polyethylene dielectric.

Connector Component	Category A & B "O" Crimp (MIL Type)
Connector Material	
Collar	Brass, QQ-B-626
Outer Contact (Plug)	Phos. Bronze, QQ-B-750
Shell (Jack)	Brass, QQ-B-626
Dielectric	PTFE, MIL-P-19468
Center Contact (Plug)	Brass, QQ-B-626
Center Contact (Jack)	Beryl. Copper, ASTM-B-643 QQ-C-530
Gasket	Silicon Rubber, QQ-R-765
Ferrule	Copper, QQ-C-576
Connector Primary Finishes[1]	
Collar	Silver, QQ-S-365 Bright Nickel, QQ-N-290
Outer Contacts (Plug & Jack)	Silver, QQ-S-365 Bright Nickel, QQ-N-290
Center Contacts (Plug & Jack)	Gold MIL-G-45204
Ferrule[2]	Silver, QQ-S-365 Tin Lead, ASTM-B-545

[1] If more than one finish is listed, refer to individual catalog page(s) or customer drawings for exact specification.
[2] Ferrules with tin-lead finish are used with nickel plated outer contacts.

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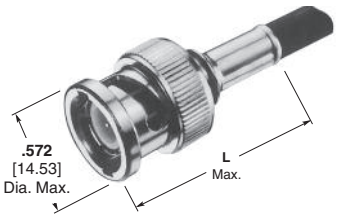
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Plugs MIL-PRF-39012/16



Jacks MIL-PRF-39012/17

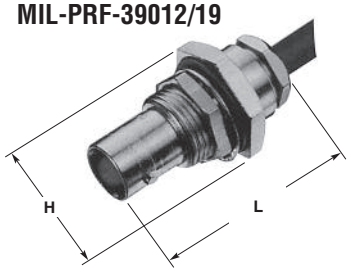


Bulkhead Jacks MIL-PRF-39012/19



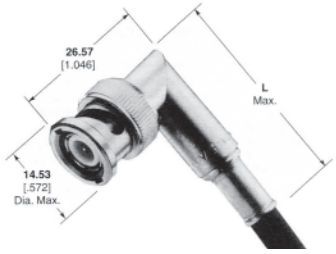
H = 11/16" across flats,
.800 [20.32] Max. across points

Field Serviceable Bulkhead Jack MIL-PRF-39012/19



H = 11/16" across flats,
.800 [20.32] Max. across points

Right Angle Plugs



Plugs

TE Part No.	Military PN M39012/16	Termination Style	Body Plating	Dim L	RG/U Cable
8-331350-0	—	Crimp	Silver	**1.188** [30.18]	174, 188, 316
5225395-7	—	Crimp	Nickel	**1.188** [30.18]	174, 188, 316
9-331350-3	—	Crimp	Silver	**1.188** [30.18]	179, 187
5225395-8	—	Crimp	Nickel	**1.188** [30.18]	179, 187
2-331350-1	B0004	Crimp	Silver	**1.188** [30.18]	58, 58A, 58B, 58C
5225395-1	—	Crimp	Nickel	**1.188** [30.18]	58, 58A, 58B, 58C
5225395-3	—	Crimp	Nickel	**1.188** [30.18]	55, 223
5225395-5	—	Crimp	Nickel	**1.188** [30.18]	141
2-331350-9	B0007	Crimp	Silver	**1.188** [30.18]	142, 400
5225395-6	—	Crimp	Nickel	**1.188** [30.18]	142, 400
331350	B0008	Crimp	Silver	**1.188** [30.18]	59, 59A, 59B, 62, 62A, 62B, 124, 140, 210, Belden 9291, 9209, 9269
5225395-2	—	Crimp	Nickel	**1.188** [30.18]	59, 59A, 59B, 62, 62A, 62B, 124, 140, 210, Belden 9291, 9209, 9269
221265-1	—	Solder/clamp	Silver	**1.250** [31.75]	58, 141, 142, 55, 223, 400
1-221265-0	—	Solder/clamp	Nickel	**1.250** [31.75]	58, 141, 142, 55, 223, 400
221265-2	—	Solder/clamp	Silver	**1.250** [31.75]	59, 62, 71, 210
1-221265-1	—	Solder/clamp	Nickel	**1.250** [31.75]	59, 62, 71, 210

Jacks

TE Part No.	Military PN M39012/17	Termination Style	Body Plating	Dim L	RG/U Cable
2-331351-4	—	Crimp	Silver	**1.200** [30.48]	174, 188, 316
5225396-7	—	Crimp	Nickel	**1.200** [30.48]	174, 188, 316
2-331351-1	B0004	Crimp	Silver	**1.200** [30.48]	58, 58A, 58B, 58C
5225396-1	—	Crimp	Nickel	**1.200** [30.48]	58, 58A, 58B, 58C
331351	B0008	Crimp	Silver	**1.200** [30.48]	59, 59A, 59B, 62, 62A, 62B, 124, 140, 210, Belden 9291, 9209, 9269
5225396-2	—	Crimp	Nickel	**1.200** [30.48]	59, 59A, 59B, 62, 62A, 62B, 124, 140, 210, Belden 9291, 9209, 9269

Bulkhead Jacks

TE Part No.	Military PN M39012/19	Termination Style	Body Plating	Dim L	RG/U Cable
1-331693-2	—	Crimp	Silver	**1.406** [35.71]	174, 188, 316
5225398-7	—	Crimp	Nickel	**1.375** [34.93]	174, 188, 316
5225398-8	—	Crimp	Nickel	**1.375** [34.93]	179, 187
1-331693-1	B0003	Crimp	Silver	**1.406** [35.71]	58, 58A, 58B, 58C
5225398-1	—	Crimp	Nickel	**1.375** [34.93]	58, 58A, 58B, 58C
331693	B0007	Crimp	Silver	**1.406** [35.71]	59, 59A, 59B, 62, 62A, 62B, 124, 140, 210, Belden 9291, 9209, 9269
5225398-3	—	Crimp	Nickel	**1.500** [38.10]	55, 223
5225398-6	—	Crimp	Nickel	**1.500** [38.10]	142, 400

Right Angle Plugs

TE Part No.	Military PN M39012/	Termination Style	Body Plating	Dim L	RG/U Cable
5225974-1	—	Crimp	Nickel	**1.540** [39.12]	58
5225974-5	—	Crimp	Nickel	**1.468** [37.29]	59, 59A, 59B, 62, 62A, 62B, 124, 140, 210, Belden 9291, 9209, 9269

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TNC Connectors (MIL-PRF-39012)

Product Facts

- **Dual "O" Crimp Connectors are MIL-PRF-39012, Class II, Category B qualified**
- **COTS equivalent parts available**
- **Provides excellent performance at frequencies up to 11 GHz**
- **Standard and weatherproof versions available**
- **Plugs available for high temperature cable**

Related Product Data

Military Category — All crimp connectors are Category B Type (TE Connectivity Crimp Tooling), unless otherwise noted.
Packaging — All connectors are packaged individually.

The TE Connectivity TNC RF connector family, with 7/16-28 threaded couplings, provides low noise levels and optimum stability, and can withstand the shock and vibration often present in harsh environments.

Available in 50 ohm versions, these connectors feature cable plugs and jacks. These connectors accept a wide range of coaxial cables and are intermateable with industry standard connectors designed to MIL-PRF-39012 specifications.



Characteristics	Category B "O" Crimp (MIL Type)
Electrical	
Impedance, Nom. (Ohms)	50
Working Voltage (Volts RMS)	500
Contact Resistance (Milliohms)	Inner: 1.5 Outer: 0.2
Initial Insulation Resistance (Megohms)	5000
Dielectric Withstanding Voltage (VAC)	1500
Corona Level at 70,000 ft. (Picocoulombs)	5 max. @375 VRMS
RF Leakage, Max. (dB)	60 at 2-3 GHz
RF Insertion Loss, Max. (dB)	0.18 at 9 GHz
Frequency Range (GHz)	0-11
VSWR in Frequency Range Max.	1.3
Mechanical	
Force to Engage/Couple, lbs. [N]	2/2 [8.9/8.9]
Coupling Nut Retention, Min. lbs. [N]	100 [444.8]
Cable Retention, lbs. [N]	60 [266.9] RG58C/U
Durability (Cycles)	500
Jam Nut Mounting Torque, Max. lbs. [N•m]	25 [2.8]
Environmental	
Temperature Range, Operating (C°)	-65 to +165[1] / -55 to +85[2]
Vibration	MIL-STD-202 Method 204 Cond. B
Physical Shock	MIL-STD-202 Method 213 Cond. I, (100 G's)
Thermal Shock	MIL-STD-202 Method 107 Cond. B
Moisture Resistance	MIL-STD-202 Method 106
Salt Spray	MIL-STD-202 Method 101 Cond. B
Product Specification	108-12001

[1] Assembled to cable with polytetrafluoroethylene dielectric.
[2] Assembled to cable with polyethylene dielectric.

Characteristics	Category B "O" Crimp (MIL Type)
Connector Material	
Collar	Brass, QQ-B-626
Outer Contact (Plug)	Phos. Bronze, QQ-B-750 Beryl. Copper, QQ-C-530
Outer Contact (Jack)	Brass, QQ-B-626
Dielectric	PTFE, MIL-P-19468
Center Contact (Plug)	Brass, QQ-B-626
Center Contact (Jack)	Beryl. Copper, ASTM-B-643 QQ-C-530
Gasket	Silicon Rubber, QQ-R-765
Ferrule	Copper, QQ-C-576
Connector Primary Finishes[1]	
Collar	Silver, QQ-S-365
Outer Contact (Plug & Jack)	Bright Nickel, QQ-N-290
Center Contact (Plug & Jack)	Silver, QQ-S-365
Ferrule	Gold, MIL-G-45204

[1] If several finishes are listed, refer to individual catalog page(s) or customer drawings for exact specification.

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TNC Connectors (MIL-PRF-39012) (Continued)

Plugs

Plugs
MIL-PRF-39012/26
(Weatherproof)



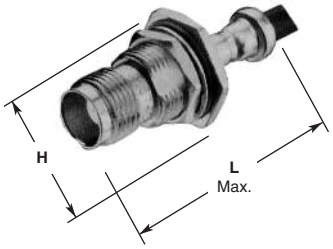
TE Part No.	Reference Part No.	Military PN M39012/26	Notes	Termination Style	Body Plating	Dim L	RG/U Cable
225550-2	—	B0005	Weatherproof	Crimp	Silver	**1.375** [34.93]	58, 58A, 58B, 58C
5225555-2		—	Weatherproof	Crimp	Nickel	**1.375** [34.93]	58, 58A, 58B, 58C
225550-1		B0016	Weatherproof	Crimp	Silver	**1.375** [34.93]	55, 55A, 55B, 223
225550-6		B0006	Weatherproof	Crimp	Silver	**1.375** [34.93]	142, 142A, 142B, 400
225345-6		B0006		Crimp	Silver	**1.343** [34.11]	142, 142A, 142B, 400
5-225345-6		—		Crimp	Silver	**1.343** [34.11]	142, 142A, 142B, 400
5225555-6		—	Weatherproof	Crimp	Nickel	**1.375** [34.93]	142, 142A, 142B, 400
225550-3		B0007	Weatherproof	Crimp	Silver	**1.375** [34.93]	59, 59A, 59B, 62, 62A, 62B, 124, 140, 210, Belden 9291, 9209, 9269
5225555-5		—	Weatherproof	Crimp	Nickel	**1.375** [34.93]	141
1-225550-2		—	Weatherproof	Crimp	Silver	**2.000** [50.80]	225
1-225550-3		—	Weatherproof	Crimp	Silver	**1.995** [50.67]	393
5225555-7		—	Weatherproof	Crimp	Nickel	**2.000** [50.80]	8, 213
5225555-8		—	Weatherproof	Crimp	Nickel	**2.000** [50.80]	9, 214
1057635-1	3101-7985-00	—		Solder	Passivate / Gold	**0.770** [19.60]	405 semirigid (.086 dia)
1057631-1	3101-7941-00	—		Solder	Passivate / Gold	**0.770** [19.60]	402 semirigid (.141 dia)

Jacks
MIL-PRF-39012/27
(Weatherproof)



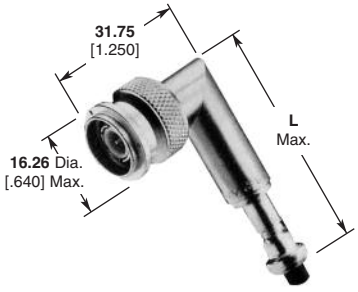
Jacks

TE Part No.	Reference Part No.	Military PN M39012/27	Notes	Termination Style	Body Plating	Dim L	RG/U Cable
225551-2		B0005	Weatherproof	Crimp	Silver	**1.406** [35.72]	58, 58A, 58B, 58C
225551-5		B0015	Weatherproof	Crimp	Silver	**1.406** [35.72]	141, 141A, 303
225551-1		B0016	Weatherproof	Crimp	Silver	**1.406** [35.72]	55, 55A, 55B, 223
225551-6		B0006	Weatherproof	Crimp	Silver	**1.406** [35.72]	142, 142A, 142B, 400



Bulkhead Jacks

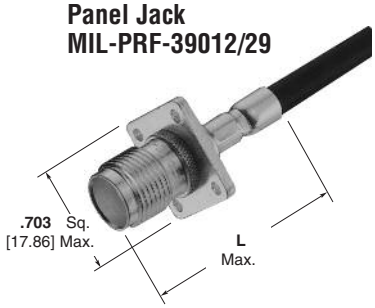
TE Part No.	Reference Part No.	Military PN M39012/	Notes	Termination Style	Body Plating	Dim L	RG/U Cable
5225557-2		—	Weatherproof	Crimp	Nickel	**1.500** [38.10]	58, 58A, 58B, 58C
5225557-6		—	Weatherproof	Crimp	Nickel	**1.500** [38.10]	142, 142A, 142B, 400
1057679-1	3104-7985-00	—		Solder	Passivate / Gold	**1.200** [30.50]	405 semirigid (.086 dia)
1057676-1	3104-7941-00	—		Solder	Passivate / Gold	**1.200** [30.50]	402 semirigid (.141 dia)



Right Angle Plugs

TE Part No.	Reference Part No.	Military PN M39012/	Notes	Termination Style	Body Plating	Dim L	RG/U Cable
5225554-2		—	Weatherproof	Crimp	Silver	**2.500** [63.50]	58, 58A, 58B, 58C
5225559-2		—	Weatherproof	Crimp	Nickel	**2.500** [63.50]	58, 58A, 58B, 58C
5225554-6		—	Weatherproof	Crimp	Silver	**2.500** [63.50]	142, 142A, 142B, 400
1-5225554-1		—	Weatherproof	Crimp	Silver	**2.500** [63.50]	393
5225559-8		—	Weatherproof	Crimp	Nickel	**2.500** [63.50]	8,213
5225554-9		—	Weatherproof	Crimp	Silver	**2.500** [63.50]	9,214

Panel Jack
MIL-PRF-39012/29



Flange Mount Cable Jacks

TE Part No.	Reference Part No.	Military PN M39012/29	Notes	Termination Style	Body Plating	Dim L	RG/U Cable
225348-2		B0005		Crimp	Solder	**1.375** [34.93]	58, 58A, 58B, 58C
1057699-1	3106-7985-00	----		Solder	Passivate / Gold	**0.900** [22.90]	405 semirigid (.086 dia)
1057697-1	3106-7941-00	----		Solder	Passivate / Gold	**0.900** [22.90]	402 semirigid (.141 dia)

Panel Mount Receptacles

TE Part No.	Reference Part No.	Interface	Termination Style
1057775-1	3152-0000-10	TNC jack	solder cup
1057780-1	3152-1201-10	TNC jack	solder post

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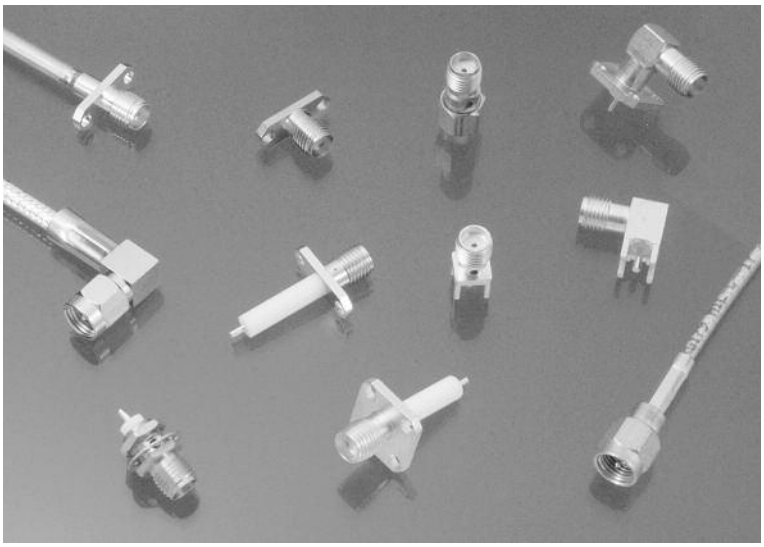
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SMA Connectors (MIL-PRF-39012) — Introduction

Product Facts

- **Performance to 18 GHz**
- **Uses industry standard crimp tools and processes**
- **Qualified to MIL-PRF-39012**
- **COTS equivalent parts available**



TE Connectivity offers a complete line of SMA connectors. To satisfy the broad range of 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, including connectors for semi-rigid cable and micro-strip applications.

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SMA Connectors (MIL-PRF-39012) — Introduction (Continued)

Electrical Properties

MIL Type	Cable Military Slash Sheet M17/	Frequency Max. (GHz)	VSWR (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 (GHz)	RF High Potential at 5 MHz (V RMS)	RF Leakage (dB min.)
				Center Contact	Outer Contact						
MIL-PRF-39012/55	93-RG178	12.4	1.20+0.025	3	2	5,000	500	125	0.06 x sqrt (freq)	335	-60
	54-RG122, 119-RG174, 94-RG179, 113-RG316, 152-	12.4	1.15+0.02	3	2	5,000	750	190	0.06 x sqrt (freq)	500	-60
	28-RG058, 60-RG142, 84-RG223, 111-RG303, 128-RG400	12.4	1.15+0.01	3	2	5,000	1000	250	0.06 x sqrt (freq)	670	-60
	169-00001	12.4	1.15+0.01	3	2	5,000	500	125	0.06 x sqrt (freq)	335	-60
	173-00001, 172-00001, 157-00001	12.4	1.15+0.01	3	2	5,000	750	190	0.06 x sqrt (freq)	500	-60
	155-0001, 158-00001, 167-00001, 170-00001, 175-00001	12.4	1.15+0.01	3	2	5,000	1000	250	0.06 x sqrt (freq)	670	-60
MIL-PRF-39012/56	93-RG178	12.4	1.20+0.03	4	2	5,000	500	125	0.15 x sqrt (freq)	335	-60
	54-RG122, 119-RG174, 94-RG179, 113-RG316, 152-00001	12.4	1.15+0.03	4	2	5,000	750	190	0.15 x sqrt (freq)	500	-60
	28-RG058, 60-RG142, 84-RG223, 111-RG303, 128-RG400	12.4	1.15+0.02	4	2	5,000	1000	250	0.15 x sqrt (freq)	670	-60
	169-00001	12.4	1.15+0.02	4	2	5,000	500	125	0.15 x sqrt (freq)	335	-60
	173-00001, 172-00001 157-00001	12.4	1.15+0.02	4	2	5,000	750	190	0.15 x sqrt (freq)	500	-60
	155-0001, 158-00001, 167-00001, 170-00001, 175-00001	12.4	1.15+0.02	4	2	5,000	1000	250	0.15 x sqrt (freq)	670	-60
MIL-PRF-39012/57, /58 & /59	93-RG178	12.4	1.20+0.025	3	2	5,000	500	125	0.06 x sqrt (freq)	335	-60
	54-RG122, 119-RG174, 113-RG316	12.4	1.15+0.02	3	2	5,000	750	190	0.06 x sqrt (freq)	500	-60
	28-RG058, 60-RG142, 84-RG223, 111-RG303, 128-RG400	12.4	1.15+0.01	3	2	5,000	1000	250	0.06 x sqrt (freq)	670	-60
	169-00001	12.4	1.15+0.01	3	2	5,000	500	125	0.06 x sqrt (freq)	335	-60
	173-00001, 172-00001, 157-00001	12.4	1.15+0.01	3	2	5,000	750	190	0.06 x sqrt (freq)	500	-60
	155-0001, 158-00001, 167-00001, 170-00001, 175-00001	12.4	1.15+0.01	3	2	5,000	1000	250	0.06 x sqrt (freq)	670	-60
MIL-PRF-39012/60, & /61	—	N/A	N/A	3	2	5,000	1000	250	N/A	670	N/A
MIL-PRF-39012/79	133-RG405, 133-00001 Thru 133-00011 Captive	18	1.07+0.01	3	2	5,000	1000	250	0.03 x sqrt (freq)	670	-90
	130-RG402, 130-00001 Thru 133-00007 Captive	18	1.05+0.01	3	2	5,000	1500	375	0.03 x sqrt (freq)	1000	-90
	133-RG405, 133-00001 Thru 133-00011 Non-Captive	18	1.07+0.008	3	2	5,000	1000	250	0.03 x sqrt (freq)	670	-90
	130-RG402, 130-00001 Thru 130-00007 Non-Captive	18	1.05+0.008	3	2	5,000	1500	375	0.03 x sqrt (freq)	1000	-90
MIL-PRF-39012/80	133-RG405, 133-00001 Thru 133-00011	18	1.10+0.01	4	2	5,000	1000	250	0.05 x sqrt (freq)	670	-90
	130-RG402, 130-00001 Thru 130-00007	18	1.10+0.01	4	2	5,000	1500	375	0.05 x sqrt (freq)	1000	-90
MIL-PRF-39012/81, /82 & /83	133-RG405, 133-00001 Thru 133-00011 Captive	18	1.07+0.01	3	2	5,000	1000	250	0.03 x sqrt (freq)	670	-90
	130-RG402, 130-00001 Thru 133-00007 Captive	18	1.05+0.01	3	2	5,000	1500	375	0.03 x sqrt (freq)	1000	-90
	133-RG405, 133-00001 Thru 133-00011 Non-Captive	18	1.07+0.008	3	2	5,000	1000	250	0.03 x sqrt (freq)	670	-90
	130-RG402, 130-00001 Thru 130-00007 Non-Captive	18	1.05+0.008	3	2	5,000	1500	375	0.03 x sqrt (freq)	1000	-90
MIL-PRF-39012/92	—	18	1.035+0.005	N/A	2	5,000	N/A	250	0.03 x sqrt (freq)	670	-90
MIL-PRF-39012/93 & /94	—	18	N/A	3	2	5,000	1000	250	N/A	670	N/A

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SMA Connectors (MIL-PRF-39012) — Introduction (Continued)

Mechanical and Environmental Properties

MIL Type	Force to Engage (in-lbs)	Coupling Nut Retention (lbs.)	Coupling Proof Torque (in-lbs)	Cable Retention			Insertion	Withdrawal	Connector Durability	Recommended Mating Torque (in lbs.)
				Dia.	Lbs. Min.	In.-Ounces				
MIL-PRF-39012/55	2 max.	60	15 min.	0.036 [0.91] 0.067 [1.70] 0.110 [2.79] 0.122 [3.10]	10 20 30 40	N/A	N/A	N/A	500 cycles min.	7-10
MIL-PRF-39012/56	2 max.	60	15 min.	0.036 [0.91] 0.067 [1.70] 0.110 [2.79] 0.122 [3.10]	10 20 30 40	N/A	N/A	N/A	500 cycles min.	7-10
MIL-PRF-39012/57, /58 & /59	2 max.	N/A	N/A	0.036 [0.91] 0.067 [1.70] 0.110 [2.79] 0.122 [3.10]	10 20 30 40	N/A	2 lbs. max. w/ .0370 dia. pin	1 oz. min. w/ .0355 dia. pin	500 cycles min.	7-10
MIL-PRF-39012/60, & /61	2 max.	N/A	N/A	N/A	N/A	N/A	2 lbs. max. w/ .0370 dia. pin	1 oz. min. w/ .0355 dia. pin	500 cycles min.	7-10
MIL-PRF-39012/79	2 max.	60	15 min.	133-RG405, 133-00001 Thru 133-00011	30	16	N/A	N/A	500 cycles min.	7-10
				130-RG402, 130-00001 Thru 130-00007	60	55				
MIL-PRF-39012/80	2 max.	60	15 min.	133-RG405, 133-00001 Thru 133-00011	30	16	N/A	N/A	500 cycles min.	7-10
				130-RG402, 130-00001 Thru 130-00007	60	55				
MIL-PRF-39012/81, /82 & /83	2 max.	N/A	N/A	133-RG405, 133-00001 Thru 133-00011	30	16	2 lbs. max. w/ .0370 dia. pin	1 oz. min. w/ .0355 dia. pin	500 cycles min.	7-10
				130-RG402, 130-00001 Thru 130-00007	60	55				
MIL-PRF-39012/92	2 max.	60	15 min.	N/A	N/A	N/A	N/A	N/A	100 cycles min.	7-10
MIL-PRF-39012/93 & /94	2 max.	N/A	N/A	N/A	N/A	N/A	2 lbs. max. w/ .0370 dia. pin	1 oz. min. w/ .0355 dia. pin	500 cycles min.	7-10

Environmental

MIL Type	Vibration	Shock	Thermal Shock	Corrosion (Salt Spray)	Moisture Resistance
MIL-PRF-39012/55	MIL-STD-202 Method 204 Cond. D No Discontinuity	MIL-STD-202 Method 213 Cond. 1 No Discontinuity	MIL-STD-202 Method 107 Cond. B Except T_{HI} 85C	MIL-STD-202 Method 101 Cond. B	MIL-STD-202, Method 106 No Measurement @ High Humidity Insulation Resistance 200 Megaohms with 5 min. of removal from humidity
MIL-PRF-39012/56	MIL-STD-202 Method 204 Cond. D No Discontinuity	MIL-STD-202 Method 213 Cond. 1 No Discontinuity	MIL-STD-202 Method 107 Cond. B Except T_{HI} 85C	MIL-STD-202 Method 101 Cond. B	MIL-STD-202, Method 106 No Measurement @ High Humidity Insulation Resistance 200 Megaohms with 5 min. of removal from humidity
MIL-PRF-39012/57, /58 & /59	MIL-STD-202 Method 204 Cond. D No Discontinuity	MIL-STD-202 Method 213 Cond. 1 No Discontinuity	MIL-STD-202 Method 107 Cond. B Except T_{HI} 85C	MIL-STD-202 Method 101 Cond. B	MIL-STD-202, Method 106 No Measurement @ High Humidity Insulation Resistance 200 Megaohms with 5 min. of removal from humidity
MIL-PRF-39012/60, & /61	MIL-STD-1344 Method 2005 Cond. IV No Discontinuity	MIL-STD-1344 Method 2004 Cond. G No Discontinuity	MIL-STD-1344 Method 1003 Cond. A Except T_{HI} 200C	MIL-STD-1344 Method 1001 Cond. B	MIL-STD-1344, Method 1002, Type II No Measurement @ High Humidity Insulation Resistance 200 Megaohms with 5 min. of removal from humidity
MIL-PRF-39012/79	MIL-STD-202 Method 204 Cond. D No Discontinuity	MIL-STD-202 Method 213 Cond. 1 No Discontinuity	MIL-STD-202 Method 107 Cond. B Except T_{HI} 115C	MIL-STD-202 Method 101 Cond. B	MIL-STD-202, Method 106 No Measurement @ High Humidity Insulation Resistance 200 Megaohms with 5 min. of removal from humidity
MIL-PRF-39012/80	MIL-STD-202 Method 204 Cond. D No Discontinuity	MIL-STD-202 Method 213 Cond. 1 No Discontinuity	MIL-STD-202 Method 107 Cond. B Except T_{HI} 115C	MIL-STD-202 Method 101 Cond. B	MIL-STD-202, Method 106 No Measurement @ High Humidity Insulation Resistance 200 Megaohms with 5 min. of removal from humidity
MIL-PRF-39012/81, /82 & /83	MIL-STD-202 Method 204 Cond. D No Discontinuity	MIL-STD-202 Method 213 Cond. 1 No Discontinuity	MIL-STD-202 Method 107 Cond. B Except T_{HI} 115C	MIL-STD-202 Method 101 Cond. B	MIL-STD-202, Method 106 No Measurement @ High Humidity Insulation Resistance 200 Megaohms with 5 min. of removal from humidity
MIL-PRF-39012/92	MIL-STD-202 Method 204 Cond. D No Discontinuity	MIL-STD-202 Method 213 Cond. 1 No Discontinuity	MIL-STD-202 Method 107 Cond. B Except T_{HI} 115C	MIL-STD-202 Method 101 Cond. B	MIL-STD-202, Method 106 No Measurement @ High Humidity Insulation Resistance 200 Megaohms with 5 min. of removal from humidity
MIL-PRF-39012/93 & /94	MIL-STD-202 Method 204 Cond. D No Discontinuity	MIL-STD-202 Method 213 Cond. 1 No Discontinuity	MIL-STD-202 Method 107 Cond. B Except T_{HI} 125C	MIL-STD-202 Method 101 Cond. B	MIL-STD-202, Method 106 No Measurement @ High Humidity Insulation Resistance 200 Megaohms with 5 min. of removal from humidity

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Dimensions are shown for reference purposes only. Specifications subject to change.

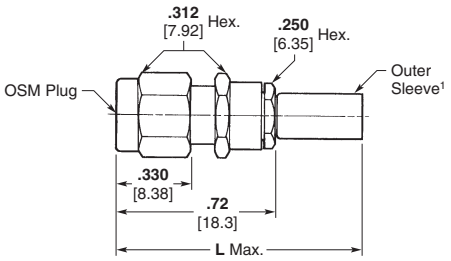
Dimensions are in millimeters unless otherwise specified.

USA: +1 800 522 6752
Asia Pacific: +86 0 400 820 6015
UK: +44 800 267 666

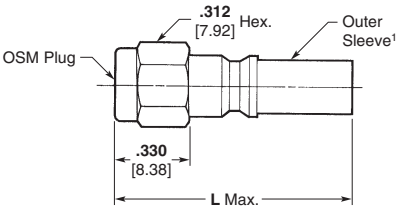
For additional support numbers please visit www.te.com

SMA Connectors (MIL-PRF-39012) — For Flexible Cable

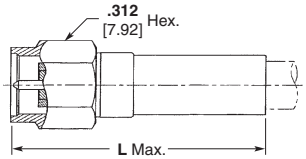
Straight Plugs



Outline 1



Outline 2



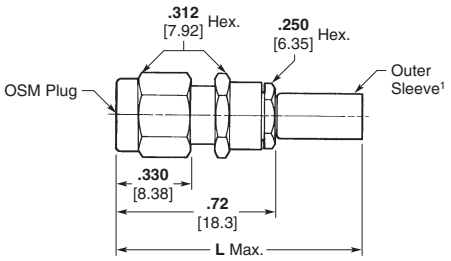
Outline 3

Military Part No. M39012/55	TE Part No.	Reference[3] Part No. (Ref. Only)	Outline	Cat.[1]	RG/U Cable	Dim. L	COTS Part No.	Reference[3] Part No. (Ref. Only)
-3006	1051757-1	2031-8006-92	1	A	178	**1.030** [26.16]	—	—
-3007	1051759-1	2031-8007-92	1	A	174, 316	**1.030** [26.16]	—	—
-3009	1051762-1	2031-8009-92	2	A	58, 142, 223	**1.030** [26.16]	—	—
B3011	1051764-1	2031-8011-92	1	B	178	**1.250** [31.75]	1051687-1 1051686-1	2031-5102-02 2031-5102-00
B3012	1051766-1	2031-8012-92	2	B	174, 316	**1.250** [31.75]	1051665-1 1051664-1	2031-5012-02 2031-5012-00
B3014	1051768-1	2031-8014-92	2	B	58	**1.250** [31.75]	1051678-1	2031-5055-00
B3015	1051769-1	2031-8015-92	2	B	142	**1.250** [31.75]	1051651-1 1051650-1	2031-5005-02 2031-5005-00
B3016	1051770-1	2031-8016-92	2	B	223	**1.250** [31.75]	1051651-1 1051650-1	2031-5005-02 2031-5005-00
B3019	1056413-1	2031-8019-92	1	B	174, 316	**1.375** [34.93]	1051665-1 1051664-1	2031-5012-02 2031-5012-00
B3019	225532-4[2]	—	3	B	174, 188, 188A, 316	**.950** [24.13]	221117-2	—
B3021	225532-1[2]	—	3	B	58, 58A, 58B, 58C	**1.030** [26.16]	—	—
—	—	—	2	B	142	**1.375** [34.93]	1051661-1 1051660-1	2031-5011-02 2031-5011-00
B3022	225532-3[2]	—	4	B	142, 142A, 142B, 400, Belden 84142	**1.030** [26.16]	221117-1	—
—	—	—	2	B	223	**1.375** [34.93]	1051661-1 1051660-1	2031-5011-02 2031-5011-00
B3023	1-225532-0[2]	—	4	B	223, 55, 55A, 55B	**1.030** [26.16]	—	—
B3024	225532-9[2]	—	4	B	141, 141A, 303	**1.030** [26.16]	—	—
-3025	1051780-1	2031-8025-92	1	C	178	**1.250** [31.75]	1051687-1 1051686-1	2031-5102-02 2031-5102-00
-3026	1051782-1	2031-8026-92	1	C	174, 316	**1.250** [31.75]	1051665-1 1051664-1	2031-5012-02 2031-5012-00

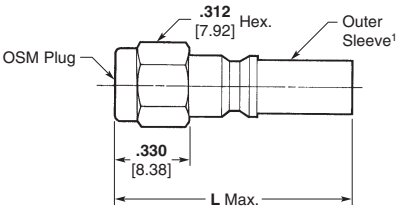
* No safety wire holes.
[1] Category A: solder sleeve; Categories B, C and D: crimp sleeve.
[2] Use Integral Die Crimp Tool Part Number 220061-1.
[3] -92 and -02 indicate passivated stainless steel finish. -00 indicates gold plated finish.
See page 2-4 for description of categories and pages 2-82 to 2-87 for tooling (unless noted otherwise).

SMA Connectors (MIL-PRF-39012) — For Flexible Cable (Continued)

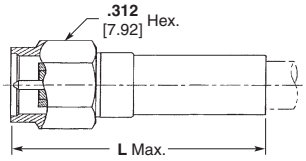
Straight Plugs (Continued)



Outline 1



Outline 2



Outline 3

Military Part No. M39012/55	TE Part No.	Reference[3] Part No. (Ref. Only)	Outline	Cat.[1]	RG/U Cable	Dim. L	COTS Part No.	Reference[3] Part No. (Ref. Only)
-3028	1051785-1	2031-8028-92	2	C	142, 223	**1.250** [31.75]	1051661-1 1051660-1	2031-5011-02 2031-5011-00
-3029	1051787-1	2031-8029-92	2	C	58, 303	**1.250** [31.75]	—	—
*-3106	1051789-1	2031-8106-92	1	A	178	**1.030** [26.16]	—	—
*-3107	1051791-1	2031-8107-92	1	A	174, 316	**1.030** [26.16]	—	—
*-3109	1051794-1	2031-8109-92	2	A	58, 142, 223	**1.030** [26.16]	—	—
*B3112	1051797-1	2031-8112-92	2	B	174, 316	**1.250** [31.75]	1051665-1 1051664-1	2031-5012-02 2031-5012-00
*B3113	1051798-1	2031-8113-92	2	B	122	**1.250** [31.75]	—	—
*B3114	1051799-1	2031-8114-92	2	B	58	**1.250** [31.75]	1051678-1	2031-5055-00
*B3115	1051800-1	2031-8115-92	2	B	142	**1.250** [31.75]	1051651-1 1051650-1	2031-5005-02 2031-5005-00
*B3116	1051801-1	2031-8116-92	2	B	223	**1.250** [31.75]	1051651-1 1051650-1	2031-5005-02 2031-5005-00
*B3119	1051804-1	2031-8119-92	1	B	174, 316	**1.375** [34.93]	1051665-1 1051664-1	2031-5012-02 2031-5012-00
—	—	—	2	B	142	**1.375** [34.93]	1051661-1 1051660-1	2031-5011-02 2031-5011-00
—	—	—	2	B	223	**1.375** [34.93]	1051661-1 1051660-1	2031-5011-02 2031-5011-00
*-3125	1051810-1	2031-8125-92	1	C	178	**1.250** [31.75]	1051687-1 1051686-1	2031-5102-02 2031-5102-00
*-3126	1051812-1	2031-8126-92	1	C	174, 316	**1.250** [31.75]	1051665-1 1051664-1	2031-5012-02 2031-5012-00
*-3128	1051815-1	2031-8128-92	2	C	142, 223	**1.250** [31.75]	1051661-1 1051660-1	2031-5011-02 2031-5011-00
*-3129	1051816-1	2031-8129-92	2	C	58, 303	**1.250** [31.75]	—	—
-3502	1051788-1	2031-8052-92	2	D	142, 400	**1.250** [31.75]	1051661-1 1051660-1	2031-5011-02 2031-5011-00
*-3602	1051817-1	2031-8162-92	2	D	142, 400	**1.250** [31.75]	1051661-1 1051660-1	2031-5011-02 2031-5011-00

* No safety wire holes.
[1] Category A: solder sleeve; Categories B, C and D: crimp sleeve.
[2] Use Integral Die Crimp Tool Part Number 220061-1.
[3] -92 and -02 indicate passivated stainless steel finish. -00 indicates gold plated finish.
See page 2-4 for description of categories and pages 2-82 to 2-87 for tooling (unless noted otherwise).

Catalog 1308940
Revised 9-14

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Dimensions are shown for reference purposes only. Specifications subject to change.

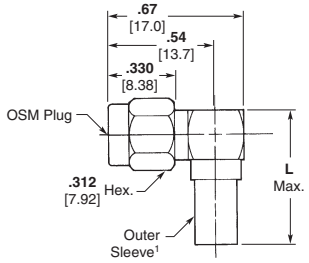
Dimensions are in millimeters unless otherwise specified.

USA: +1 800 522 6752
Asia Pacific: +86 0 400 820 6015
UK: +44 800 267 666

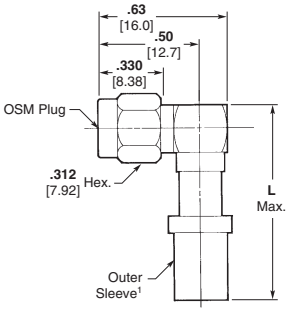
For additional support numbers please visit www.te.com

SMA Connectors (MIL-PRF-39012) — For Flexible Cable (Continued)

Right Angle Plugs



Outline 1



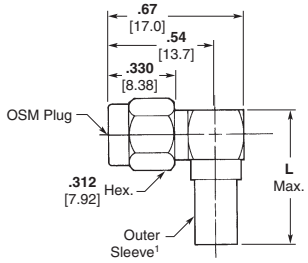
Outline 2

Military Part No. M39012/56	TE Part No.	Reference[2] Part No. (Ref. Only)	Outline	Cat.[1]	RG/U Cable	Dim. L	COTS Part No.	Reference[2] Part No. (Ref. Only)
-3006	1052149-1	2037-8006-92	1	A	178	**1.125** [28.58]	—	—
-3007	1052151-1	2037-8007-92	1	A	174, 316	**1.125** [28.58]	1052067-1 1052066-1	2037-5006-02 2037-5006-00
-3008	1052152-1	2037-8008-92	1	A	122	**1.125** [28.58]	—	—
-3009	1052154-1	2037-8009-92	1	A	58, 142, 223	**1.125** [28.58]	1052063-1 1052062-1	2037-5005-02 2037-5005-00
-3010	1052155-1	2037-8010-92	1	A	303	**1.125** [28.58]	1052063-1 1052062-1	2037-5005-02 2037-5005-00
B3011	1052156-1	2037-8011-92	1	B	178	**1.250** [31.75]	1052098-1 1052097-1	2037-5100-02 2037-5100-00
B3012	1052157-1	2037-8012-92	1	B	174, 316	**1.250** [31.75]	1052076-1 1052075-1	2037-5008-02 2037-5008-00
B3013	1052158-1	2037-8013-92	1	B	122	**1.250** [31.75]	—	—
B3014	1052159-1	2037-8014-92	1	B	58	**1.250** [31.75]	1052092-1	2037-5056-00
B3015	1052160-1	2037-8015-92	1	B	142	**1.250** [31.75]	1052072-1 1052071-1	2037-5007-02 2037-5007-00
B3016	1052161-1	2037-8016-92	1	B	223	**1.250** [31.75]	1052072-1 1052071-1	2037-5007-02 2037-5007-00
B3017	1052162-1	2037-8017-92	1	B	303	**1.250** [31.75]	1052092-1	2037-5056-00
B3018	1052163-1	2037-8018-92	1	B	178	**1.375** [34.93]	1052098-1 1052097-1	2037-5100-02 2037-5100-00
B3019	1052165-1	2037-8019-92	1	B	174, 316	**1.375** [34.93]	1052076-1 1052075-1	2037-5008-02 2037-5008-00
B3020	1052166-1	2037-8020-92	1	B	122	**1.375** [34.93]	—	—
B3021	1052167-1	2037-8021-92	1	B	58	**1.375** [34.93]	1052092-1	2037-5056-00
B3022	1052168-1	2037-8022-92	1	B	142	**1.375** [34.93]	1052072-1 1052071-1	2037-5007-02 2037-5007-00
B3023	1052169-1	2037-8023-92	1	B	223	**1.375** [34.93]	1052072-1 1052071-1	2037-5007-02 2037-5007-00
B3024	1052170-1	2037-8024-92	1	B	303	**1.375** [34.93]	1052092-1	2037-5056-00
-3025	1052171-1	2037-8025-92	1	C	178	**1.375** [34.93]	1052098-1 1052097-1	2037-5100-02 2037-5100-00
-3026	1052173-1	2037-8026-92	1	C	174, 316	**1.375** [34.93]	1052076-1 1052075-1	2037-5008-02 2037-5008-00
-3027	1052174-1	2037-8027-92	1	C	122	**1.375** [34.93]	—	—
-3028	1052176-1	2037-8028-92	1	C	142, 223	**1.375** [34.93]	1052072-1 1052071-1	2037-5007-02 2037-5007-00

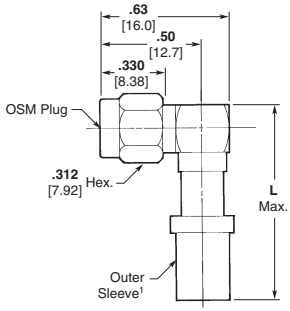
* No safety wire holes.
[1] Category A: solder sleeve; Categories B, C and D: crimp sleeve.
[2] -92 and -02 indicate passivated stainless steel finish. -00 indicates gold plated finish.
See page 2-4 for description of categories and pages 2-82 to 2-87 for tooling (unless noted otherwise).

SMA Connectors (MIL-PRF-39012) — For Flexible Cable (Continued)

Right Angle Plugs (Continued)



Outline 1



Outline 2

Military Part No. M39012/56	TE Part No.	Reference[2] Part No. (Ref. Only)	Outline	Cat.[1]	RG/U Cable	Dim. L	COTS Part No.	Reference[2] Part No. (Ref. Only)
-3029	1052177-1	2037-8029-92	1	C	58, 303	**1.375** [34.93]	1052092-1	2037-5056-00
*-3106	1052179-1	2037-8106-92	1	A	178	**1.125** [28.58]	—	—
*-3107	1052181-1	2037-8107-92	1	A	174, 316	**1.125** [28.58]	1052067-1 1052066-1	2037-5006-02 2037-5006-00
*-3108	1052182-1	2037-8108-92	1	A	122	**1.125** [28.58]	—	—
*-3109	1052184-1	2037-8109-92	1	A	58, 142, 223	**1.125** [28.58]	1052063-1 1052062-1	2037-5005-02 2037-5005-00
*-3110	1052185-1	2037-8110-92	1	A	303	**1.125** [28.58]	1052063-1 1052062-1	2037-5005-02 2037-5005-00
*B3111	1052186-1	2037-8111-92	1	B	178	**1.250** [31.75]	1052098-1 1052097-1	2037-5100-02 2037-5100-00
*B3112	1052187-1	2037-8112-92	1	B	174, 316	**1.250** [31.75]	1052076-1 1052075-1	2037-5008-02 2037-5008-00
*B3113	1052188-1	2037-8113-92	1	B	122	**1.250** [31.75]	—	—
*B3114	1052189-1	2037-8114-92	1	B	58	**1.250** [31.75]	1052092-1	2037-5056-00
*B3115	1052190-1	2037-8115-92	1	B	142	**1.250** [31.75]	1052072-1 1052071-1	2037-5007-02 2037-5007-00
*B3116	1052191-1	2037-8116-92	1	B	223	**1.250** [31.75]	1052072-1 1052071-1	2037-5007-02 2037-5007-00
*B3117	1052192-1	2037-8117-92	1	B	303	**1.250** [31.75]	1052092-1	2037-5056-00
*B3118	1052193-1	2037-8118-92	1	B	178	**1.375** [34.93]	1052098-1 1052097-1	2037-5100-02 2037-5100-00
*B3119	1052194-1	2037-8119-92	1	B	174, 316	**1.375** [34.93]	1052076-1 1052075-1	2037-5008-02 2037-5008-00
*B3120	1052195-1	2037-8120-92	1	B	122	**1.375** [34.93]	—	—
*B3121	1052196-1	2037-8121-92	1	B	58	**1.375** [34.93]	1052092-1	2037-5056-00
*B3122	1052197-1	2037-8122-92	1	B	142	**1.375** [34.93]	1052072-1 1052071-1	2037-5007-02 2037-5007-00
*B3123	1052198-1	2037-8123-92	1	B	223	**1.375** [34.93]	1052072-1 1052071-1	2037-5007-02 2037-5007-00
*B3124	1052199-1	2037-8124-92	1	B	303	**1.375** [34.93]	1052092-1	2037-5056-00
*-3125	1052201-1	2037-8125-92	1	C	178	**1.375** [34.93]	1052098-1 1052097-1	2037-5100-02 2037-5100-00
*-3126	1052203-1	2037-8126-92	1	C	174, 316	**1.375** [34.93]	1052076-1 1052075-1	2037-5008-02 2037-5008-00
*-3127	1052204-1	2037-8127-92	1	C	122	**1.375** [34.93]	—	—
*-3128	1052206-1	2037-8128-92	1	C	142, 223	**1.375** [34.93]	1052072-1 1052071-1	2037-5007-02 2037-5007-00
*-3129	1052207-1	2037-8129-92	1	C	58, 303	**1.375** [34.93]	1052092-1	2037-5056-00
-3502	1052178-1	2037-8052-92	2	D	142, 400	**1.375** [34.93]	1052072-1 1052071-1	2037-5007-02 2037-5007-00
*-3602	1086723-1	2037-8162-92	2	D	142, 400	**1.375** [34.93]	1052072-1 1052071-1	2037-5007-02 2037-5007-00

* No safety wire holes.
[1] Category A: solder sleeve; Categories B, C and D: crimp sleeve.
[2] -92 and -02 indicate passivated stainless steel finish. -00 indicates gold plated finish.
See page 2-4 for description of categories and pages 2-82 to 2-87 for tooling (unless noted otherwise).

Catalog 1308940
Revised 9-14

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Dimensions are shown for reference purposes only. Specifications subject to change.

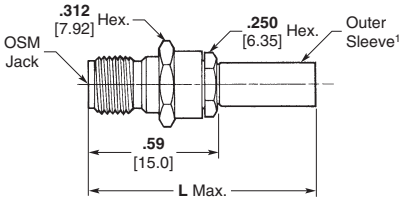
Dimensions are in millimeters unless otherwise specified.

USA: +1 800 522 6752
Asia Pacific: +86 0 400 820 6015
UK: +44 800 267 666

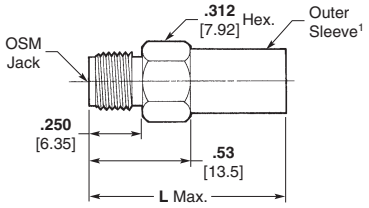
For additional support numbers please visit www.te.com

SMA Connectors (MIL-PRF-39012) — For Flexible Cable (Continued)

Straight Jacks



Outline 1



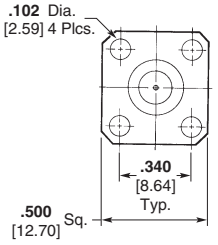
Outline 2

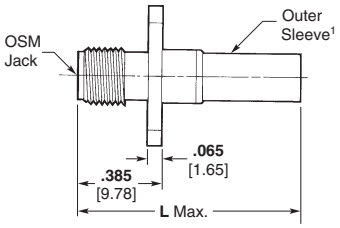
Military Part No. M39012/57	TE Part No.	Reference2 Part No. (Ref. Only)	Outline	Cat.1	RG/U Cable	Dim. L	COTS Part No.	Reference2 Part No. (Ref. Only)
B3011	1051904-1	2032-8011-92	1	B	178	**1.265** [32.13]	1051869-1 1051868-1	2032-5026-02 2032-5026-00
B3012	1051905-1	2032-8012-92	1	B	174, 316	**1.265** [32.13]	1051855-1	2032-5003-02
B3013	1051906-1	2032-8013-92	2	B	122	**1.265** [32.13]	—	—
B3014	1051907-1	2032-8014-92	2	B	58	**1.265** [32.13]	1051866-1	2032-5021-00
B3015	1051908-1	2032-8015-92	2	B	142	**1.265** [32.13]	1051861-1	2032-5007-00
B3016	1051909-1	2032-8016-92	2	B	223	**1.265** [32.13]	1051861-1	2032-5007-00
B3017	1051910-1	2032-8017-92	2	B	303	**1.265** [32.13]	1051866-1	2032-5021-00
B3018	1051911-1	2032-8018-92	1	B	178	**1.265** [32.13]	1 -1 1051868-1	2032-5026-02 2032-5026-00
B3019	1051912-1	2032-8019-92	1	B	174, 316	**1.265** [32.13]	1051855-1	2032-5003-02
B3020	1051913-1	2032-8020-92	2	B	122	**1.265** [32.13]	—	—
B3021	1051914-1	2032-8021-92	2	B	58	**1.265** [32.13]	1051866-1	2032-5021-00
B3022	1051915-1	2032-8022-92	2	B	142	**1.265** [32.13]	1051861-1	2032-5007-00
B3023	1051916-1	2032-8023-92	2	B	223	**1.265** [32.13]	1051861-1	2032-5007-00
B3024	1051917-1	2032-8024-92	2	B	303	**1.265** [32.13]	1051866-1	2032-5021-00
-3025	1051918-1	2032-8025-92	1	C	178	**1.265** [32.13]	1051869-1 1051868-1	2032-5026-02 2032-5026-00
-3026	1051919-1	2032-8026-92	1	C	174, 316	**1.265** [32.13]	1051855-1	2032-5003-02
-3027	1051920-1	2032-8027-92	2	C	122	**1.265** [32.13]	—	—
-3028	1051921-1	2032-8028-92	2	C	142, 223	**1.265** [32.13]	1051861-1	2032-5007-00
-3029	1051922-1	2032-8029-92	2	C	58, 303	**1.265** [32.13]	1051866-1	2032-5021-00
-3502	1051923-1	2032-8052-92	2	D	142, 400	**1.265** [32.13]	1051861-1	2032-5007-00

[1] Category A: solder sleeve; Categories B, C and D: crimp sleeve.
[2] -92 and -02 indicate passivated stainless steel finish. -00 indicates gold plated finish.
See page 2-4 for description of categories and pages 2-82 to 2-87 for tooling (unless noted otherwise).

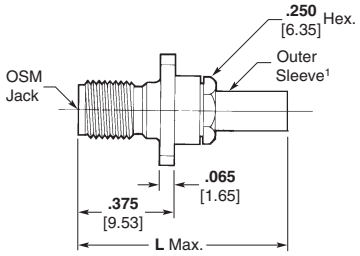
SMA Connectors (MIL-PRF-39012) — For Flexible Cable (Continued)

Panel Mount Jacks





Outline 1



Outline 2

Military Part No. M39012/58	TE Part No.	Reference2 Part No. (Ref. Only)	Outline	Cat.1	RG/U Cable	Dim. L	COTS Part No.	Reference2 Part No. (Ref. Only)
B3011	1052042-1	2036-8011-92	2	B	178	**1.265** [32.13]	1052024-1	2036-5004-02
B3012	1254028-1	2036-8012-92	2	B	174, 316	**1.265** [32.13]	1052024-1	2036-5004-02
B3013	1484499-1	2036-8013-92	1	B	122	**1.265** [32.13]	—	—
B3014	1484500-1	2036-8014-92	1	B	58	**1.265** [32.13]	—	—
B3015	1052043-1	2036-8015-92	1	B	142	**1.265** [32.13]	—	—
B3016	1484501-1	2036-8016-92	1	B	223	**1.265** [32.13]	—	—
B3017	1484502-1	2036-8017-92	1	B	303	**1.265** [32.13]	1087843-1	2036-5014-02
B3018	1052044-1	2036-8018-92	2	B	178	**1.265** [32.13]	1052030-1	2036-5016-00
B3019	1484503-1	2036-8019-92	2	B	174, 316	**1.265** [32.13]	1052024-1	2036-5004-02
B3020	1484504-1	2036-8020-92	1	B	122	**1.265** [32.13]	—	—
B3021	1484505-1	2036-8021-92	1	B	58	**1.265** [32.13]	1087843-1	2036-5014-02
B3022	1052045-1	2036-8022-92	1	B	142	**1.265** [32.13]	—	—
B3023	1484506-1	2036-8023-92	1	B	223	**1.265** [32.13]	—	—
B3024	1484507-1	2036-8024-92	1	B	303	**1.265** [32.13]	1087843-1	2036-5014-02
-3025	1052046-1	2036-8025-92	2	C	178	**1.125** [28.58]	1052030-1	2036-5016-00
-3026	1052047-1	2036-8026-92	2	C	174, 316	**1.125** [28.58]	1052024-1	2036-5004-02
-3027	1052048-1	2036-8027-92	1	C	122	**1.125** [28.58]	—	—
-3028	1052049-1	2036-8028-92	1	C	142, 223	**1.125** [28.58]	—	—
-3029	1052050-1	2036-8029-92	1	C	58, 303	**1.125** [28.58]	—	—
-3502	1052051-1	2036-8052-92	1	D	142, 400	**1.125** [28.58]	—	—

1 Category A: solder sleeve; Categories B, C and D: crimp sleeve.
2 -92 and -02 indicate passivated stainless steel finish. -00 indicates gold plated finish.
See page 2-4 for description of categories and pages 2-82 to 2-87 for tooling (unless noted otherwise).

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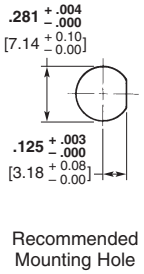
Dimensions are in millimeters unless otherwise specified.

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UK: +44 800 267 666

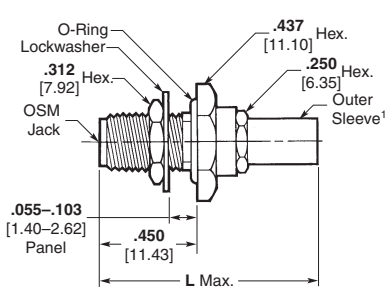
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SMA Connectors (MIL-PRF-39012) — For Flexible Cable (Continued)

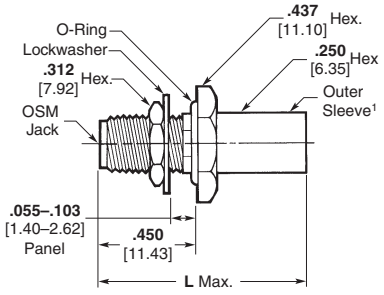
Bulkhead Jacks



Recommended Mounting Hole



Outline 1



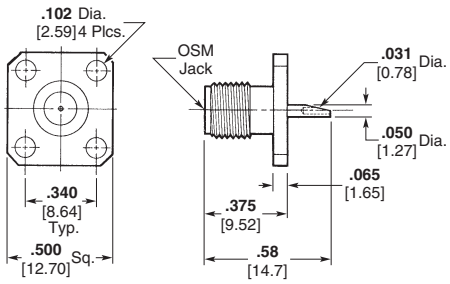
Outline 2

Military Part No. M39012/59	TE Part No.	Reference[2] Part No. (Ref. Only)	Outline	Cat.[1]	RG/U Cable	Dim. L	COTS Part No.	Reference[2] Part No. (Ref. Only)
B3011	1362216-1	2034-8011-92	1	B	178	**1.265** [32.13]	1051951-1 1051950-1	2034-5031-02 2034-5031-00
B3012	1051986-1	2034-8012-92	1	B	174, 316	**1.265** [32.13]	1051933-1	2034-5005-00
B3013	1083993-1	2034-8013-92	2	B	122	**1.265** [32.13]	—	—
B3014	1331293-1	2034-8014-92	2	B	58	**1.265** [32.13]	—	—
B3015	1253627-1	2034-8015-92	2	B	142	**1.265** [32.13]	—	—
B3016	1221165-1	2034-8016-92	2	B	223	**1.265** [32.13]	—	—
B3017	1484542-1	2034-8017-92	2	B	303	**1.265** [32.13]	—	—
B3018	1051987-1	2034-8018-92	1	B	178	**1.265** [32.13]	1051951-1 1051950-1	2034-5031-02 2034-5031-00
B3019	1051988-1	2034-8019-92	1	B	174, 316	**1.265** [32.13]	1051933-1	2034-5005-00
B3020	1484543-1	2034-8020-92	2	B	122	**1.265** [32.13]	—	—
B3021	1087842-1	2034-8021-92	2	B	58	**1.265** [32.13]	—	—
B3022	1051989-1	2034-8022-92	2	B	142	**1.265** [32.13]	—	—
B3023	1051990-1	2034-8023-92	2	B	223	**1.265** [32.13]	—	—
B3024	1051991-1	2034-8024-92	2	B	303	**1.265** [32.13]	—	—
-3025	1051992-1	2034-8025-92	1	C	178	**1.125** [28.58]	1051951-1 1051950-1	2034-5031-02 2034-5031-00
-3026	1051994-1	2034-8026-92	1	C	174, 316	**1.125** [28.58]	1051933-1	2034-5005-00
-3027	1051995-1	2034-8027-92	2	C	122	**1.125** [28.58]	—	—
-3028	1051996-1	2034-8028-92	2	C	142, 223	**1.125** [28.58]	—	—
-3029	1051997-1	2034-8029-92	2	C	58, 303	**1.125** [28.58]	—	—
-3502	1051998-1	2034-8052-92	2	D	142, 400	**1.265** [32.13]	—	—

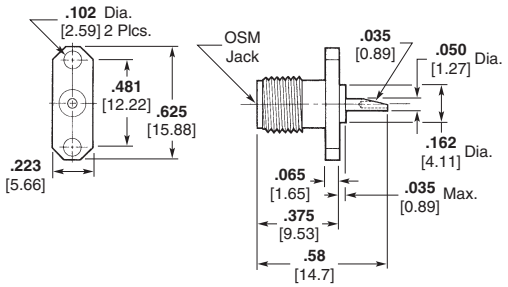
[1] Category A: solder sleeve; Categories B, C and D: crimp sleeve.
[2] -92 and -02 indicate passivated stainless steel finish. -00 indicates gold plated finish.
See page 2-4 for description of categories and pages 2-82 to 2-87 for tooling (unless noted otherwise).

SMA Connectors (MIL-PRF-39012) — Panel Mount

Panel Mount Receptacles



Outline 1

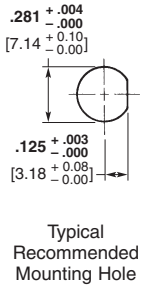


Outline 2

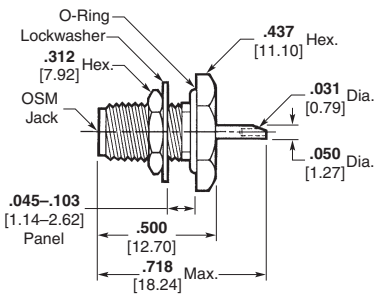
Military Part No. M39012/60	TE Part No.	Reference[1] Part No. (Ref. Only)	Outline	COTS Part No.	Reference[1] Part No. (Ref. Only)
-3001	1052924-1	2052-8001-92	1	1052422-1 1052421-1	2052-0000-02 2052-0000-00
-3002	1052926-1	2052-8002-92	2	1052534-1 1052533-1	2052-1300-02 2052-1300-00

[1] -92 and -02 indicate passivated stainless steel finish. -00 indicates gold plated finish.

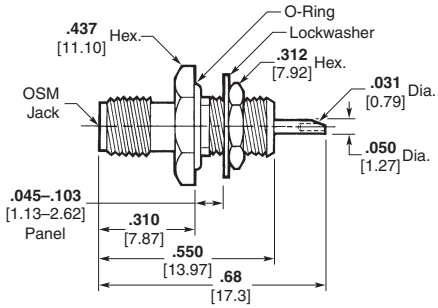
Bulkhead Mount Receptacles



Typical Recommended Mounting Hole



Outline 3



Outline 4

Military Part No. M39012/61	TE Part No.	Reference[1] Part No. (Ref. Only)	Outline	COTS Part No.	Reference[1] Part No. (Ref. Only)
-3001	1053118-1	2056-8011-92	3	—	—
-3002	1484516-1	2058-8012-92	4	1053133-1	2058-0000-00

[1] -92 and -02 indicate passivated stainless steel finish. -00 indicates gold plated finish.

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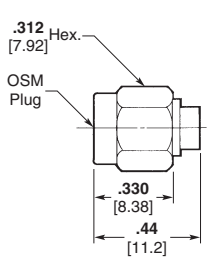
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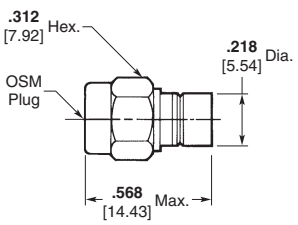
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SMA Connectors (MIL-PRF-39012) — For Semi-Rigid Cable

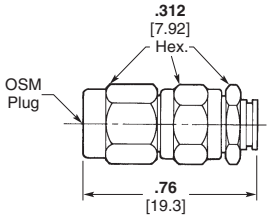
Straight Plugs



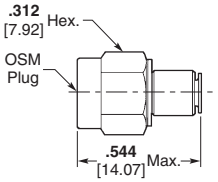
Outline 1



Outline 2



Outline 3



Outline 4

Military Part No. M39012/79	TE Part No.	Reference[4] Part No. (Ref. Only)	Outline	Category	RG/U Cable	COTS Part No.	Reference[4] Part No. (Ref. Only)
B3001	1050774-1	2001-8001-92	1	B	405	1050548-1 1050547-1	2001-5032-02 2001-5032-00
B3002	1050776-1	2001-8002-92	1	B	402	1050525-1 1050524-1	2001-5003-02 2001-5003-00
B3003	1050777-1	2001-8003-92	3	B	405	—	—
B3003	1050813-1	2001-8991-92	2[1]	B	405	1050598-1	2001-5385-02
B3003	1089686-1[2]	2001-8203-92	2	B	405	—	—
B3004	1050779-1	2001-8004-92	3	B	402	—	—
B3004	1050792-1[2]	2001-8204-92	2	B	402	—	—
-3007	1050781-1	2001-8007-92	3	E	405	—	—
-3008	1050783-1	2001-8008-92	3	E	402	—	—
*B3101	1050785-1	2001-8101-92	1	B	405	1050548-1 1050547-1	2001-5032-02 2001-5032-00
*B3102	1050786-1	2001-8102-92	1	B	402	1050525-1 1050524-1	2001-5003-02 2001-5003-00
*B3103	1050787-1	2001-8103-92	3	B	405	—	—
*B3103	1050797-1[2]	2001-8303-92	2	B	405	1050744-1	2001-7685-02
*B3103	1050812-1	2001-8981-92	2[1]	B	405	1050598-1	2001-5385-02
*B3103	227868-1[3]	—	4	B	405	—	—
*B3104	1050788-1	2001-8104-92	3	B	402	—	—
*B3104	1050799-1	2001-8304-92	2	B	402	—	—
*B3104	227743-1[3]	—	4	B	402	—	—
*-3107	1050789-1	2001-8107-92	3	E	405	—	—
*-3108	1050790-1	2001-8108-92	3	E	402	—	—
-3207	228639-3[3]	—	4	F	405	—	—
*-3307	228639-1[3]	—	4	F	405	—	—
*-3308	228634-1[3]	—	4	F	402	—	—
AF8627286-2	221447-1	—	4	—	405	—	—

* No safety wire holes.
[1] Low profile version; overall length .393 [9.98] max.
[2] OSCC solderless compression crimp version.
[3] Use Hand Tool Kit Part Number 59981-1 which includes Die Set Part Number 312253-2 and Locator Part Number 220221-2.
[4] -92 and -02 indicate passivated stainless steel finish. -00 indicates gold plated finish.
See page 2-4 for description of categories and pages 2-82 to 2-87 for tooling (unless noted otherwise).

DSCC Part Number	TE Part No.	Reference[1] Part No. Part No.	Outline	RG/U Cable	COTS Part No.	Reference[1] Part No. Part No.
84149SSG	1050605-1	2001-5397-02	1	402	—	—
84149SSG-1	1050629-1	2001-5557-02	1	402	1050525-1 1050524-1	2001-5003-02 2001-5003-00
84149SSGA	1050609-1	2001-5431-02	1	405	—	—
84149SSGA-1	1050631-1	2001-5558-02	1	405	1050770-1 1050769-1	2001-7985-02 2001-7985-00

[1] -02 indicates passivated stainless steel finish. -00 indicates gold plated finish.

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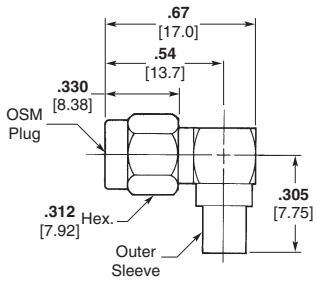
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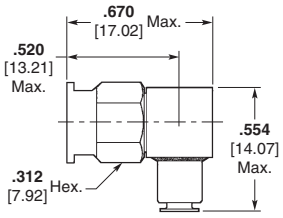
For additional support numbers please visit www.te.com

SMA Connectors (MIL-PRF-39012) — For Semi-Rigid Cable (Continued)

Right Angle Plugs



Outline 1



Outline 2

Military Part No. M39012/80	TE Part No.	Reference[2] Part No. (Ref. Only)	Outline	Category	RG/U Cable	COTS Part No.	Reference[2] Part No. (Ref. Only)
B3003	1051163-1	2007-8003-92	1	B	405	—	—
B3004	1051164-1	2007-8004-92	1	B	402	—	—
-3005	1051165-1	2007-8005-92	1	E	405	1051114-1 1051113-1	2007-5055-02 2007-5055-00
-3006	1051166-1	2007-8006-92	1	E	402	1051110-1 1051109-1	2007-5054-02 2007-5054-00
-3007	1051168-1	2007-8007-92	1	E	405	1051114-1 1051113-1	2007-5055-02 2007-5055-00
-3008	1051170-1	2007-8008-92	1	E	402	1051110-1 1051109-1	2007-5054-02 2007-5054-00
*B3103	1051173-1	2007-8103-92	1	B	405	1051114-1 1051113-1	2007-5055-02 2007-5055-00
*B3104	1051174-1	2007-8104-92	1	B	402	1051110-1 1051109-1	2007-5054-02 2007-5054-00
*-3105	1051175-1	2007-8105-92	1	E	405	1051114-1 1051113-1	2007-5055-02 2007-5055-00
*-3106	1051176-1	2007-8106-92	1	E	402	1051110-1 1051109-1	2007-5054-02 2007-5054-00
*-3107	1051177-1	2007-8107-92	1	E	405	1051114-1 1051113-1	2007-5055-02 2007-5055-00
*-3108	1051178-1	2007-8108-92	1	E	402	1051110-1 1051109-1	2007-5054-02 2007-5054-00
-3207	228583-3	—	2	F	405	—	—
*-3307	228583-1	—	2	F	405	—	—
-3308	228626-1	—	2	F	402	—	—

* No safety wire holes.
[1] Use Hand Tool Kit Part Number 59981-1 which includes Die Set Part Number 312253-1 and Locator Part Number 312173-1
[2] -92 and -02 indicate passivated stainless steel finish. -00 indicates gold plated finish.
See page 2-4 for description of categories and pages 2-82 to 2-87 for tooling (unless noted otherwise).

DSCC Part Number	TE Part No.	Reference[1] Part No. Part No.	Outline	RG/U Cable	COTS Part No.	Reference[1] Part No. Part No.
85037SSG	1051119-1	2007-5115-02	1	402	1051110-1 1051109-1	2007-5054-02 2007-5054-00
85037SSGA	1051120-1	2007-5116-02	1	405	1051114-1 1051113-1	2007-5055-02 2007-5055-00

[1] -02 indicates passivated stainless steel finish. -00 indicates gold plated finish.

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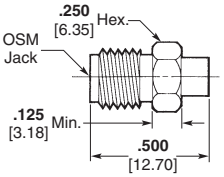
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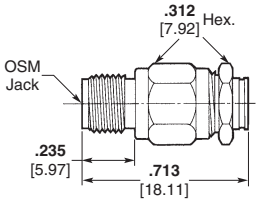
For additional support numbers please visit www.te.com

SMA Connectors (MIL-PRF-39012) — For Semi-Rigid Cable (Continued)

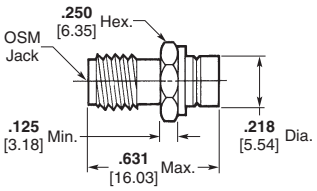
Straight Jacks



Outline 1



Outline 2

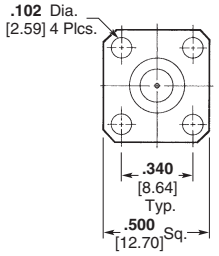


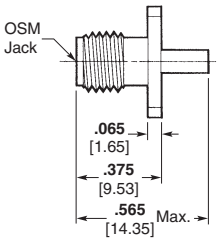
Outline 3

Military Part No. M39012/81	TE Part No.	Reference[2] Part No. (Ref. Only)	Outline	Category	RG/U Cable	COTS Part No.	Reference[2] Part No. (Ref. Only)
B3001	1050923-1	2002-8001-90	1	B	405	1050859-1	2002-5016-00
B3002	1050924-1	2002-8002-90	1	B	402	1050854-1	2002-5015-00
-3005	1050926-1	2002-8005-90	1	E	405	1050859-1	2002-5016-00
-3006	1050928-1	2002-8006-90	1	E	402	1050854-1	2002-5015-00
-3007	1050929-1	2002-8007-92	2	E	405	—	—
-3008	1050931-1	2002-8008-92	2	E	402	—	—
-3207	1050934-1[1]	2002-8207-92	3	F	405	—	—
-3208	1050935-1[1]	2002-8208-92	3	F	402	—	—

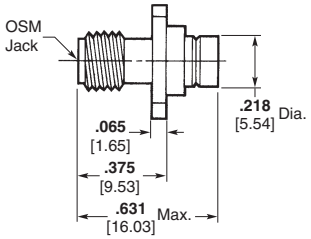
[1] OSCC solderless compression crimp version.
[2] -92 indicates passivated stainless steel finish. -90 and -00 indicate gold plated finish.
See page 2-4 for description of categories and pages 2-82 to 2-87 for tooling.

Panel Mount Jacks

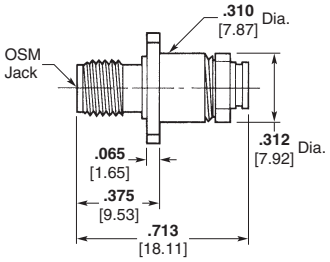




Outline 4



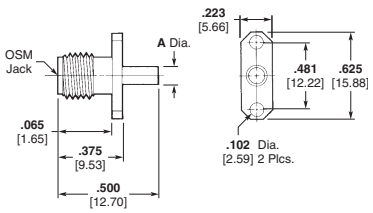
Outline 5



Outline 6

Military Part No. M39012/82	TE Part No.	Reference[2] Part No. (Ref. Only)	Outline	Category	RG/U Cable	COTS Part No.	Reference[2] Part No. (Ref. Only)
B3001	1051087-1	2006-8001-90	4	B	405	1051049-1	2006-5012-00
B3002	1051088-1	2006-8002-90	4	B	402	1051081-1	2006-7941-00
-3005	1051091-1	2006-8005-90	4	E	405	1051049-1	2006-5012-00
-3006	1051092-1	2006-8006-90	4	E	402	1051081-1	2006-7941-00
-3007	1051093-1	2006-8007-92	6	E	405	—	—
-3008	1051094-1	2006-8008-92	6	E	402	—	—
-3207	1051097-1[1]	2006-8207-92	5	F	405	—	—
-3208	1051098-1[1]	2006-8208-92	5	F	402	—	—

[1] OSCC solderless compression crimp version.
[2] -92 indicates passivated stainless steel finish. -90 and -00 indicate gold plated finish.
See page 2-4 for description of categories and pages 2-82 to 2-87 for tooling.



Outline 7

DSCC Part Number	TE Part No.	Reference[1] Part No. Part No.	Outline	RG/U Cable	COTS Part No.	Reference[1] Part No. Part No.
85022SSG	1051063-1	2006-5151-00	7	402	—	—
85022SSG-1	1221162-1	2006-5192-00	7	402	1051052-1	2006-5013-00
85022SSGA	1051062-1	2006-5150-00	7	405	—	—
85022SSGA-1	1051067-1	2006-5193-00	7	405	1051046-1	2006-5010-00

[1] -02 indicates passivated stainless steel finish. -00 indicates gold plated finish.

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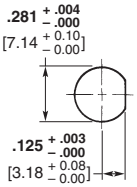
Dimensions are in millimeters unless otherwise specified.

USA: +1 800 522 6752
Asia Pacific: +86 0 400 820 6015
UK: +44 800 267 666

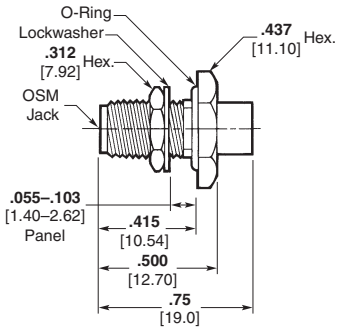
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SMA Connectors (MIL-PRF-39012) — For Semi-Rigid Cable (Continued)

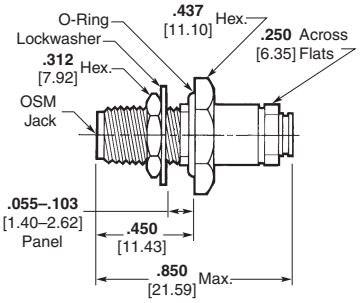
Bulkhead Mount Jacks



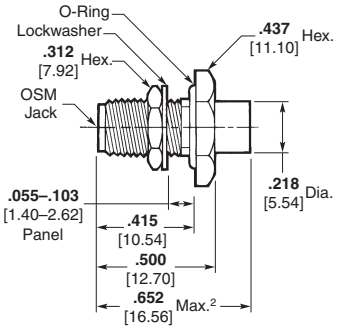
Recommended Mounting Hole



Outline 1



Outline 2

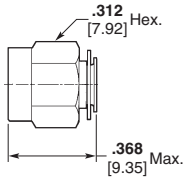


Outline 3

Military Part No. M39012/83	TE Part No.	Reference[3] Part No. (Ref. Only)	Outline	Category	RG/U Cable	COTS Part No.	Reference[3] Part No. (Ref. Only)
B3001	1051022-1	2004-8001-90	1	B	405	1051018-1	2004-7985-00
B3002	1051023-1	2004-8002-90	1	B	402	1051013-1	2004-7941-00
-3005	1051026-1	2004-8005-90	1	E	405	1051018-1	2004-7985-00
-3006	1051027-1	2004-8006-90	1	E	402	1051013-1	2004-7941-00
-3007	1051028-1	2004-8007-92	2	E	405	—	—
-3008	1051029-1	2004-8008-92	2	E	402	—	—
-3207	1051032-1[1, 2]	2004-8207-92	3	F	405	—	—
-3208	1051033-1[1, 2]	2004-8208-92	3	F	402	1051005-1	2004-7641-02

[1] OSCC Solderless Compression Crimp version.
[2] Category F Only: Overall Length; .620 [15.75] Max.
[3] -92 and -02 indicate passivated stainless steel finish. -90 and -00 indicate gold plated finish.
See page 2-4 for description of categories and pages 2-82 to 2-87 for tooling.

Straight Plugs, without Contact



Outline 4

Military Part No. M39012/92	TE Part No.	Reference Part No. (Ref. Only)	Outline	Category	RG/U Cable
B3101	227531-1[2]	—	4	B	402
-3301	228635-1	—	4	F	402

[2] Use Hand Tool Kit Part Number 59981-1 which includes Die Set Part Number 312253-1 and Locator Part Number 220220-2.
See page 2-4 for description of categories and pages 2-82 to 2-87 for tooling.

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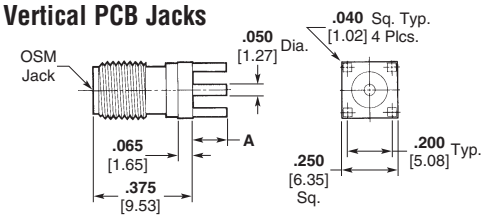
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SMA Connectors (MIL-PRF-39012) — Printed Circuit Board Mount

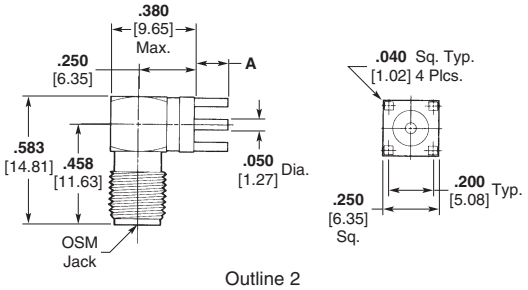
Vertical PCB Jacks



Outline 1

Military Part No. M39012/93	TE Part No.	Reference[1] Part No. (Ref. Only)	Outline	Dimension A	COTS Part No.	Reference[1] Part No. (Ref. Only)
-3001	1053372-1	2062-8001-90	1	.155 3.94	1053354-1	2062-0000-00
-3002	1053374-1	2062-8002-90	1	.125 3.18	—	—
-3003	1053376-1	2062-8003-90	1	.093 2.36	—	—

Right Angle PCB Jacks



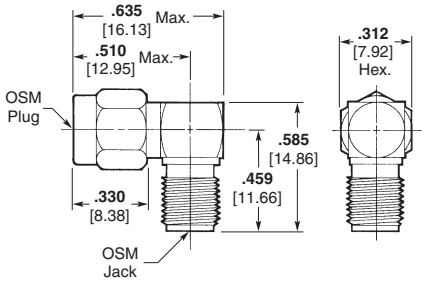
Outline 2

Military Part No. M39012/94	TE Part No.	Reference[1] Part No. (Ref. Only)	Outline	Dimension A	COTS Part No.	Reference[1] Part No. (Ref. Only)
-3001	1053396-1	2064-8001-90	2	.155 3.94	1053378-1	2064-0000-00
-3002	1053398-1	2064-8002-90	2	.125 3.18	—	—
-3003	1053400-1	2064-8003-90	2	.093 2.36	—	—

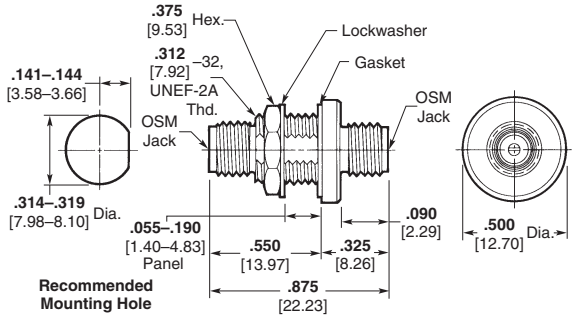
[1] -90 and -00 indicate gold plated finish.

SMA In-Series Adapters (MIL-A-55339)

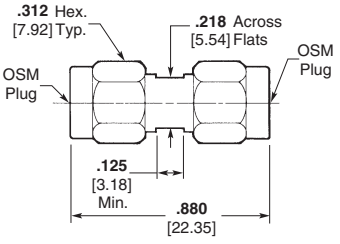
MIL-A-55339



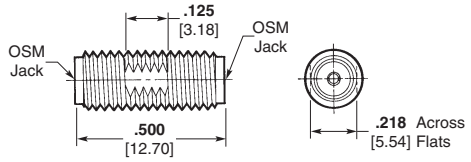
Outline 1



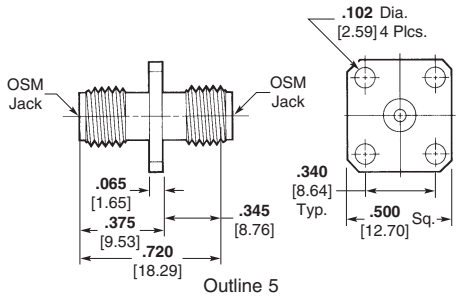
Outline 2



Outline 3



Outline 4



Outline 5

Military Part No. M55339	TE Part No.	Reference[1] Part No. (Ref. Only)	Outline	COTS Part No.	Reference[1] Part No. (Ref. Only)
/02-30001	1055091-1	2088-8001-92	1	1055065-1 1055064-1	2088-0000-02 2088-0000-00
/28-30001	1054986-1	2084-8001-92	2	1054875-1 1054874-1	2084-1100-02 2084-1100-00
/28-30002	1054988-1	2084-8002-92	5	—	—
/29-30001	1053765-1	2081-8001-92	3	1053635-1 1053634-1	2081-0000-02 2081-0000-00
*/29-30101	1053767-1	2081-8101-92	3	1053635-1 1053634-1	2081-0000-02 2081-0000-00
/31-30001	1053633-1	2080-8001-92	4	1053489-1 1053488-1	2080-0000-02 2080-0000-00

* No safety wire holes.
[1] -92 and -02 indicate passivated stainless steel finish. -00 indicates gold plated finish.

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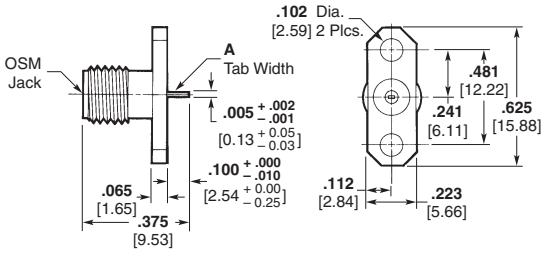
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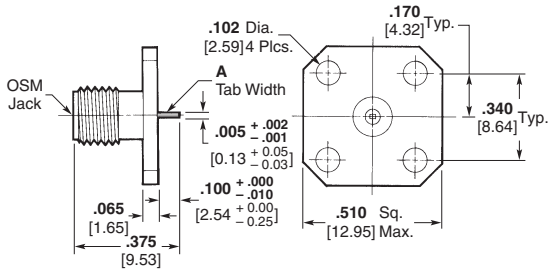
For additional support numbers please visit www.te.com

SMA Receptacles (MIL-C-83517) — Panel Mount

Panel Mount Jacks, Solder Tab



Outline 1

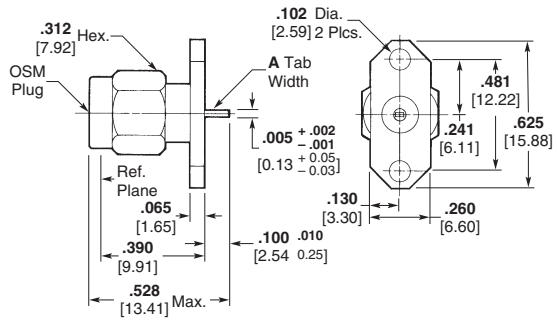


Outline 2

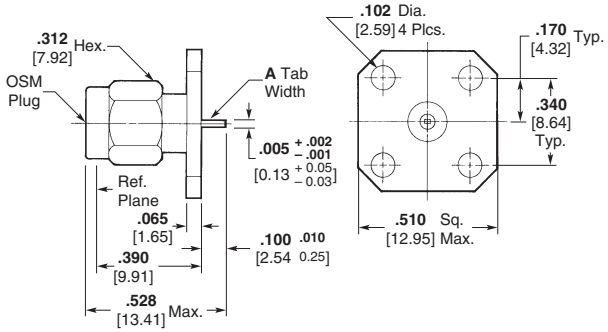
Military Part No. M83517/1	TE Part No.	Reference[1] Part No. (Ref. Only)	Outline	Dimension A	COTS Part No.	Reference[1] Part No. (Ref. Only)
-31001	1052928-1	2052-8003-92	1	.020 ±.002 0.51 ±.051	—	—
-31002	1052930-1	2052-8004-92	1	.050 ±.001 1.27 ±.025	1052577-1	2052-1658-02
-31003	1052932-1	2052-8005-92	2	.020 ±.002 0.51 ±.051	1052898-1 1052897-1	2052-5636-02 2052-5636-00
-31004	1052934-1	2052-8006-92	2	.050 ±.001 1.27 ±.025	1052566-1 1052565-1	2052-1618-02 2052-1618-00
-32001	1052927-1	2052-8003-90	1	.020 ±.002 0.51 ±.051	—	—
-32002	1052929-1	2052-8004-90	1	.050 ±.001 1.27 ±.025	1052577-1	2052-1658-02
-32003	1052931-1	2052-8005-90	2	.020 ±.002 0.51 ±.051	1052898-1 1052897-1	2052-5636-02 2052-5636-00
-32004	1052933-1	2052-8006-90	2	.050 ±.001 1.27 ±.025	1052566-1 1052565-1	2052-1618-02 2052-1618-00

[1] -92 and -02 indicate passivated stainless steel finish. -90 and -00 indicate gold plated finish.

Panel Mount Plugs, Solder Tab



Outline 3



Outline 4

Military Part No. M83517/2	TE Part No.	Reference[1] Part No. (Ref. Only)	Outline	Dimension A
-31001	1052409-1	2051-8001-92	3	.020 ±.002 0.51 ±.051
-31002	1052411-1	2051-8002-92	3	.050 ±.001 1.27 ±.025
-31003	1052413-1	2051-8003-92	4	.020 ±.002 0.51 ±.051
-31004	1052415-1	2051-8004-92	4	.050 ±.001 1.27 ±.025

Military Part No M83517/2	TE Part No.	Reference[1] Part No. (Ref. Only)	Outline	Dimension A
-32001	1052408-1	2051-8001-90	3	.020 ±.002 0.51 ±.051
-32002	1052410-1	2051-8002-90	3	.050 ±.001 1.27 ±.025
-32003	1052412-1	2051-8003-90	4	.020 ±.002 0.51 ±.051
-32004	1052414-1	2051-8004-90	4	.050 ±.001 1.27 ±.025

[1] -92 indicates passivated stainless steel finish.
-90 indicates gold plated finish.

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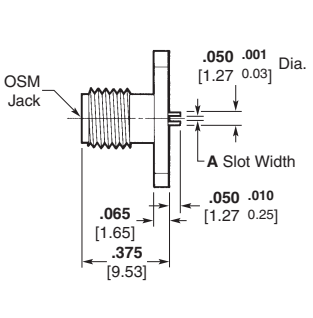
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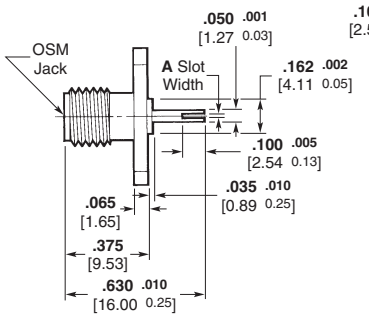
For additional support numbers please visit www.te.com

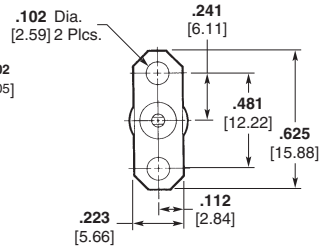
SMA Receptacles (MIL-C-83517) — Panel Mount (Continued)

Panel Mount Jacks, Slotted Contact

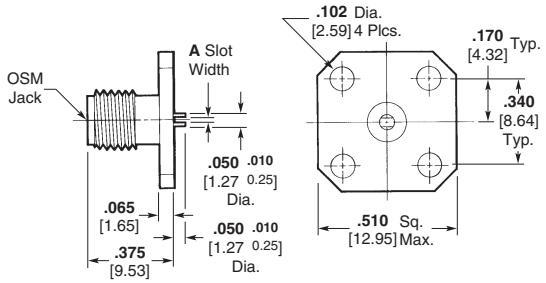


Outline 1





Outline 2



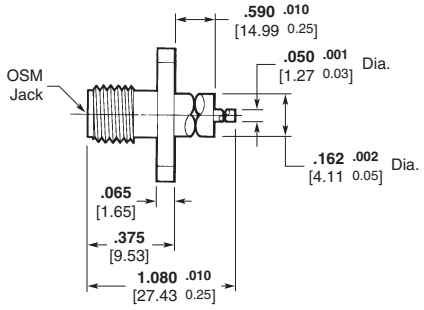
Outline 3

Military Part No. M83517/3	TE Part No.	Reference[1] Part No. (Ref. Only)	Outline	Dimension A	COTS Part No.	Reference[1] Part No. (Ref. Only)
-31001	1052936-1	2052-8007-92	1	.012 +.003/–.001 0.30 +0.08/–0.03	1251095-1	2052-1650-02
-31002	1052938-1	2052-8008-92	1	.018 +.003/–.001 0.46 +0.08/–0.03	—	—
-31003	1052940-1	2052-8009-92	1	.028 +.003/–.001 0.71 +0.08/–0.03	—	—
-31004	1052942-1	2052-8010-92	3	.012 +.003/–.001 0.30 +0.08/–0.03	—	—
-31005	1052944-1	2052-8011-92	3	.018 +.003/–.001 0.46 +0.08/–0.03	1052563-1	2052-1612-02
-31006	1052946-1	2052-8012-92	3	.028 +.003/–.001 0.71 +0.08/–0.03	—	—
-31007	1052948-1	2052-8013-92	2	.025 ±.002 0.64 ±0.05	—	—
-32001	1052935-1	2052-8007-90	1	.012 +.003/–.001 0.30 +0.08/–0.03	1251095-1	2052-1650-02
-32002	1052937-1	2052-8008-90	1	.018 +.003/–.001 0.46 +0.08/–0.03	—	—
-32003	1052939-1	2052-8009-90	1	.028 +.003/–.001 0.71 +0.08/–0.03	—	—
-32004	1052941-1	2052-8010-90	3	.012 +.003/–.001 0.30 +0.08/–0.03	—	—
-32005	1052943-1	2052-8011-90	3	.018 +.003/–.001 0.46 +0.08/–0.03	1052563-1	2052-1612-02
-32006	1052945-1	2052-8012-90	3	.028 +.003/–.001 0.71 +0.08/–0.03	—	—
-32007	1052947-1	2052-8013-90	2	.025 ±.002 0.64 ±0.05	—	—

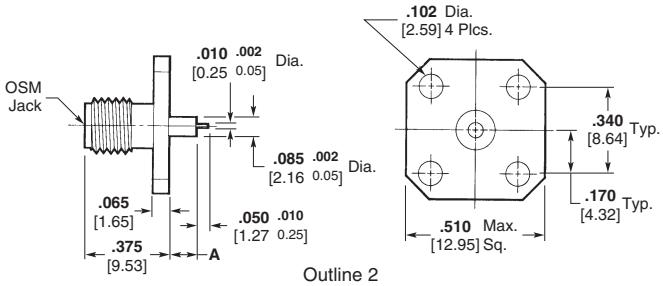
[1] -92 and -02 indicate passivated stainless steel finish. -90 indicates gold plated finish.

SMA Receptacles (MIL-C-83517) — Panel Mount (Continued)

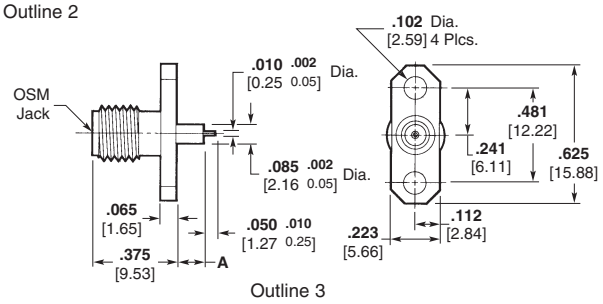
Panel Mount Jacks, Contact Post



Outline 1



Outline 2

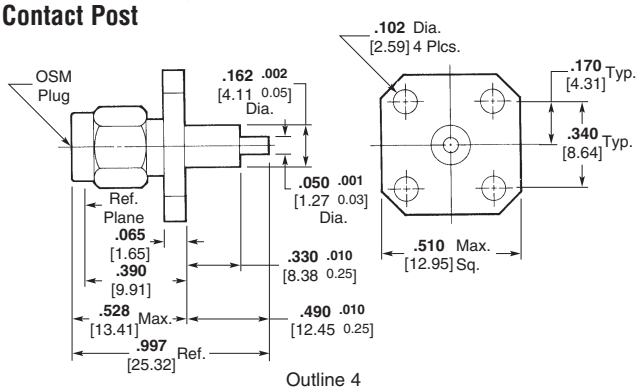


Outline 3

Military Part No. M83517/4	TE Part No.	Reference[1] Part No. (Ref. Only)	Outline	Dimension A	COTS Part No.	Reference[1] Part No. (Ref. Only)
-31001	1052950-1	2052-8014-92	3	.057 ±.003 1.45 ±.076	—	—
-31002	1052952-1	2052-8015-92	3	.125 ±.003 3.18 ±.076	1052902-1 1052901-1	2052-5674-02 2052-5674-00
-31003	1052954-1	2052-8016-92	2	.057 ±.003 1.45 ±.076	—	—
-31004	1052956-1	2052-8017-92	2	.125 ±.003 3.18 ±.076	1052528-1 1052527-1	2052-1215-02 2052-1215-00
-31005	1052958-1	2052-8018-92	1	N/A	1052523-1 1052522-1	2052-1201-02 2052-1201-00
-32001	1052949-1	2052-8014-90	3	.057 ±.003 1.45 ±.076	—	—
-32002	1052951-1	2052-8015-90	3	.125 ±.003 3.18 ±.076	1052902-1 1052901-1	2052-5674-02 2052-5674-00
-32003	1052953-1	2052-8016-90	2	.057 ±.003 1.45 ±.076	—	—
-32004	1052955-1	2052-8017-90	2	.125 ±.003 3.18 ±.076	1052528-1 1052527-1	2052-1215-02 2052-1215-00
-32005	1052957-1	2052-8018-90	1	N/A	1052523-1 1052522-1	2052-1201-02 2052-1201-00

[1] -92 and -02 indicate passivated stainless steel finish. -90 and -00 indicate gold plated finish.

Panel Mount Plugs, Contact Post



Outline 4

Military Part No. M83517/5	TE Part No.	Reference[1] Part No. (Ref. Only)	Outline
-31001	1052417-1	2051-8005-92	4
-32001	1052416-1	2051-8005-90	4

[1] -92 indicates passivated stainless steel finish.
-90 indicates gold plated finish.

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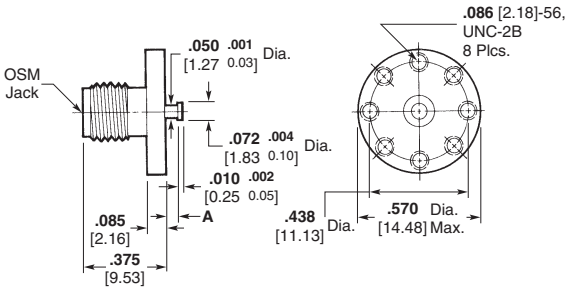
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SMA Receptacles (MIL-C-83517) — Surface Launch

Surface Launch Jacks

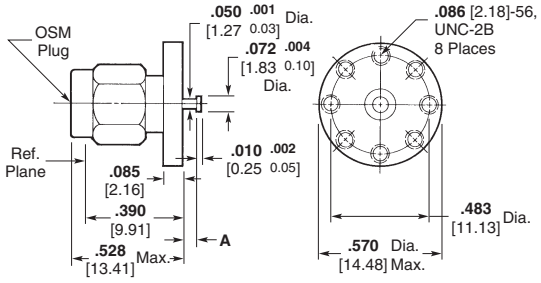


Outline 1

Military Part No. M83517/6	TE Part No.	Reference[1] Part No. (Ref. Only)	Outline	Dimension A	COTS Part No.	Reference[1] Part No. (Ref. Only)
-31001	1053423-1	2066-8001-92	1	.060 ±.003 1.52 ±0.08	—	—
-31002	1053425-1	2066-8002-92	1	.120 ±.003 3.05 ±0.08	1053415-1	2066-1403-00
-32001	1053422-1	2066-8001-90	1	.060 ±.003 1.52 ±0.08	—	—
-32002	1053424-1	2066-8002-90	1	.120 ±.003 3.05 ±0.08	1053415-1	2066-1403-00

[1] -92 indicates passivated stainless steel finish. -90 and -00 indicate gold plated finish.

Surface Launch Plugs

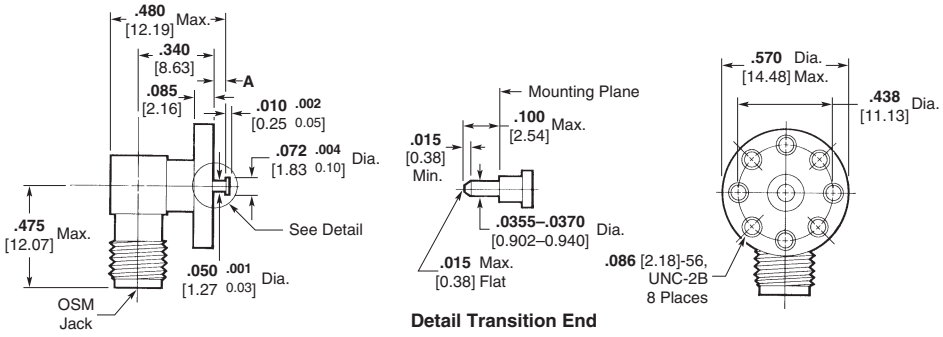


Outline 2

Military Part No. M83517/7	TE Part No.	Reference[1] Part No. (Ref. Only)	Outline	Dimension A
-31001	1053429-1	2067-8001-92	2	.060 ±.003 1.52 ±0.08
-31002	1053431-1	2067-8002-92	2	.120 ±.003 3.05 ±0.08
-32001	1053428-1	2067-8001-90	2	.060 ±.003 1.52 ±0.08
-32002	1053430-1	2067-8002-90	2	.120 ±.003 3.05 ±0.08

[1] -92 indicates passivated stainless steel finish. -90 indicates gold plated finish.

Surface Launch Right Angle Jacks



Outline 3

Military Part No. M83517/8	TE Part No.	Reference[1] Part No. (Ref. Only)	Outline	Dimension A	COTS Part No.	Reference[1] Part No. (Ref. Only)
-31001	1053451-1	2068-8001-92	3	.060 ±.003 1.52 ±0.08	1053438-1	2068-5156-00
-31002	1053453-1	2068-8002-92	3	.120 ±.003 3.05 ±0.08	—	—
-32001	1053450-1	2068-8001-90	3	.060 ±.003 1.52 ±0.08	1053438-1	2068-5156-00
-32002	1053452-1	2068-8002-90	3	.120 ±.003 3.05 ±0.08	—	—

[1] -92 indicates passivated stainless steel finish. -90 and -00 indicate gold plated finish.

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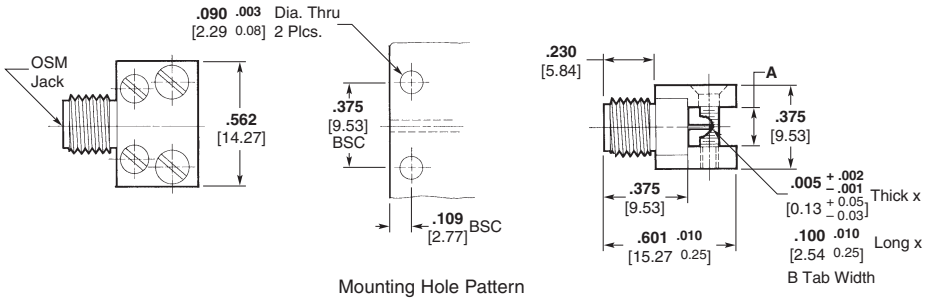
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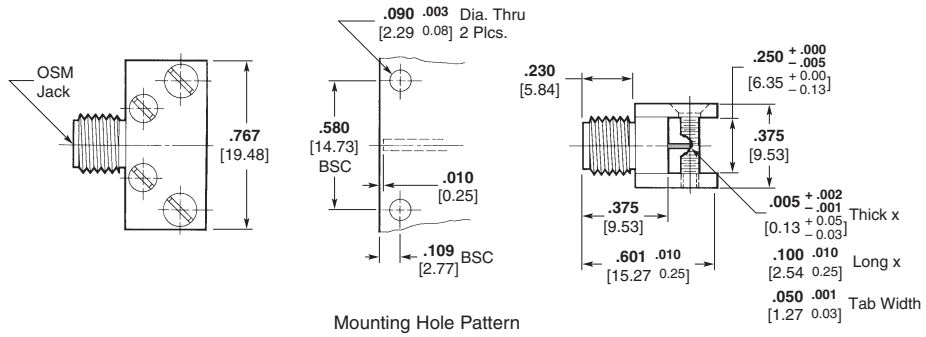
SMA Receptacles (MIL-C-83517) — End Launch

End Launch Jacks



Mounting Hole Pattern

Outline 1



Mounting Hole Pattern

Outline 2

Military Part No. M83517/9	TE Part No.	Reference[1] Part No. (Ref. Only)	Outline	Dimension A	Dimension B	COTS Part No.	Reference[1] Part No. (Ref. Only)
-31001	1053476-1	2070-8001-92	1	**.057–.064** 1.45–1.63	**.025 ± .002** 0.64 ± 0.05	—	—
-31002	1053478-1	2070-8002-92	1	**.120–.127** 3.05–3.23	**.050 ± .001** 1.27 ± 0.03	1053465-1	2070-5068-02
-31003	1053480-1	2070-8003-92	1	**.245–.250** 6.22–6.35	**.050 ± .001** 1.27 ± 0.03	1053467-1	2070-5069-02
-31004	1053482-1	2070-8004-92	2	N/A	N/A	—	—
-32001	1053475-1	2070-8001-90	1	**.057–.064** 1.45–1.63	**.025 ± .002** 0.64 ± 0.05	—	—
-32002	1053477-1	2070-8002-90	1	**.120–.127** 3.05–3.23	**.050 ± .001** 1.27 ± 0.03	1053465-1	2070-5068-02
-32003	1053479-1	2070-8003-90	1	**.245–.250** 6.22–6.35	**.050 ± .001** 1.27 ± 0.03	1053467-1	2070-5069-02
-32004	1053481-1	2070-8004-90	2	N/A	N/A	—	—

[1] -92 and -02 indicate passivated stainless steel finish. -90 indicates gold plated finish.

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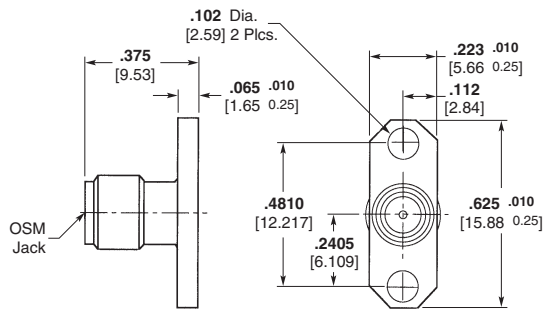
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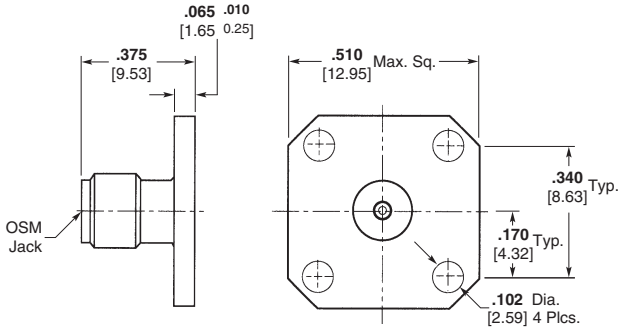
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SMA Receptacles (MIL-C-83517) — Field Replaceable Launchers

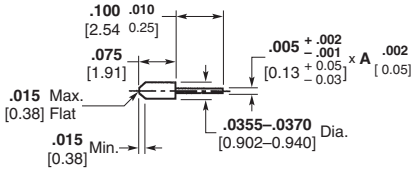
Field Replaceable Launchers



Outline 1



Outline 2



Transition Pin Detail

Military Part No. M83517/10	TE Part No.	Reference[1] Part No. (Ref. Only)	Outline	Dimension A	COTS Part No.	Reference[1] Part No. (Ref. Only)
-31001	1052959-1	2052-8019-92	1	—	1052646-1	2052-3359-02
-31003	1052962-1	2052-8021-92	2	—	1052643-1	2052-3358-02
-31005	1052963-1	2052-8023-92	1	**.020 ± .002** 0.51 ± 0.05	—	—
-31006	1484518-1	2052-8024-92	1	**.050 ± .002** 1.27 ± 0.05	—	—
-31015	1484519-1	2052-8033-92	2	**.020 ± .002** 0.51 ± 0.05	1052643-1	2052-3358-02
-31016	1484520-1	2052-8034-92	2	**.050 ± .002** 1.27 ± 0.05	—	—
-32001	1484521-1	2052-8019-90	1	—	1052646-1	2052-3359-02
-32003	1052961-1	2052-8021-90	2	—	1052643-1	2052-3358-02
-32005	1484522-1	2052-8023-90	1	**.020 ± .002** 0.51 ± 0.05	—	—
-32006	1484523-1	2052-8024-90	1	**.050 ± .002** 1.27 ± 0.05	—	—
-32015	1484524-1	2052-8033-90	2	**.020 ± .002** 0.51 ± 0.05	—	—
-32016	1484525-1	2052-8034-90	2	**.050 ± .002** 1.27 ± 0.05	—	—

[1] -92 and -02 indicate passivated stainless steel finish. -90 indicates gold plated finish.

Catalog 1308940
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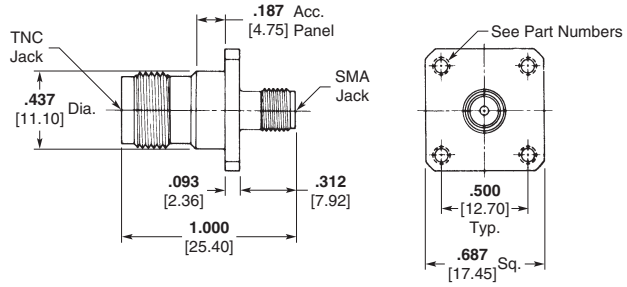
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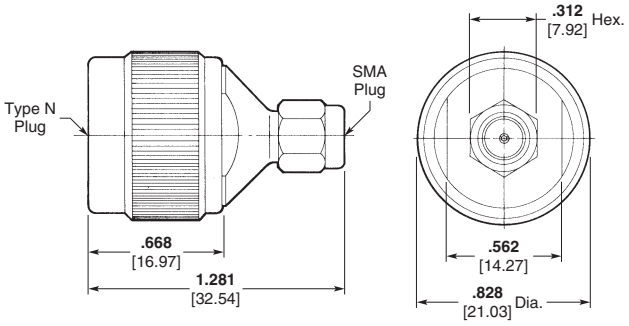
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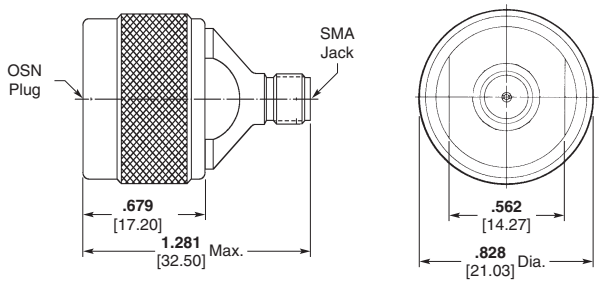
Between Series Adapters



Outline 78



Outline 80



Outline 83

DSCC Part Number	Reference Part Number (Ref. Only)	Outline	Description	TE Part Number
8501814FP-1[1]	3180-4034-02[1]	78	SMA Jack to TNC Jack	1057848-1
8501814FP-2[2]	3180-4036-02[2]	78	SMA Jack to TNC Jack	1080294-1
8604412SP-1	3081-4002-02	80	SMA Plug to Type N Plug	1057371-1
8604412SP-4	3082-4031-02	83	Type N Plug to SMA Jack	1057403-1

[1] .125 [3.20] Dia. Typ. (4 Plcs.)
[2] Tapped holes to accommodate 3-56 UNF mounting screws.

* Defense Electronics Supply Center, Dayton, Ohio

Catalog 1308940
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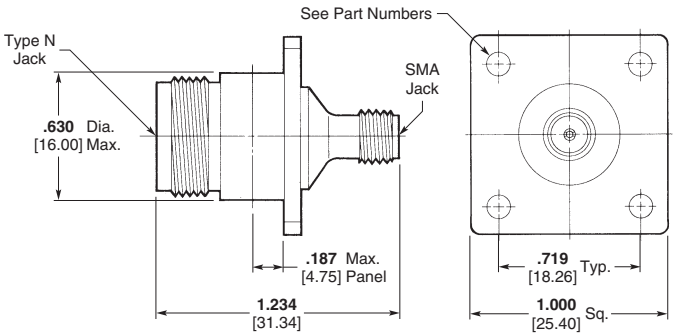
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Dimensions are in millimeters unless otherwise specified.

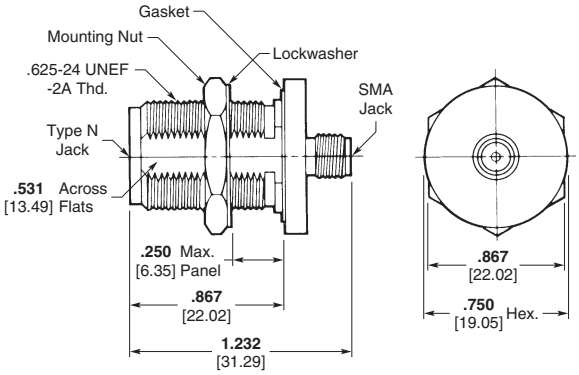
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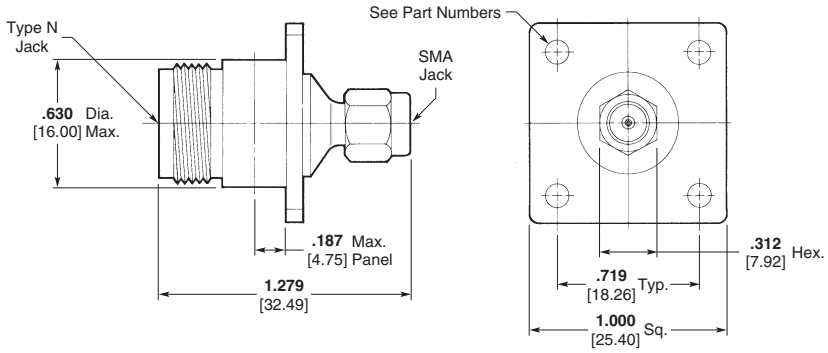
Between Series Adapters (Continued)



Outline 84



Outline 85



Outline 86

DSCC Part Number	Reference Part Number (Ref. Only)	Outline	Description	TE Part Number
8503812FP-1[1]	3080-4010-02[1]	84	SMA Jack to Type N Jack	1057354-1
8503812FP-2[2]	3080-4015-02[2]	84	SMA Jack to Type N Jack	1057357-1
8503812FP-3	3084-4001-00	85	SMA Jack to Type N Jack	1057465-1
8503812FP-4[1]	3082-4028-02[1]	86	SMA Plug to Type N Jack	1057402-1
8503812FP-5[2]	3082-4029-02[2]	86	SMA Plug to Type N Jack	1252992-1
8503812FP-6[1]	3080-4019-02[1]	84	SMA Jack to Type N Jack	1057359-1
8503812FP-7[2]	3080-4020-02[2]	84	SMA Jack to Type N Jack	1087866-1

[1] .125 [3.20] Dia. Typ. (4 Plcs.)
[2] Tapped holes to accommodate 3-56 UNF mounting screws.

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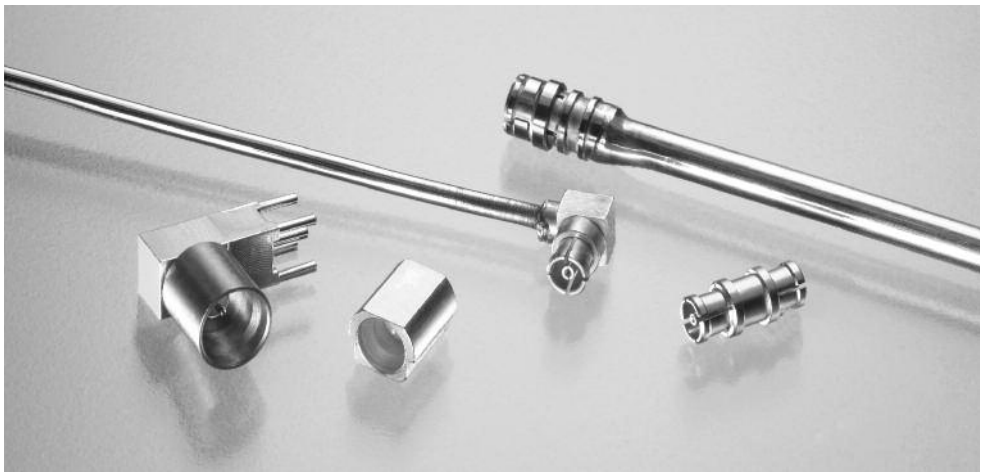
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SMPM Micro-Miniature Push-on Coaxial Connectors

Product Facts

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



Description

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

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

Applications

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

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

Product Offering

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

Electrical Performance

VSWR — 1.50:1 max to 40 GHz

Impedance — 50 ohm

Contact Resistance — Center - 6 milliohms max, Outer - 2 milliohms max.

Insulation Resistance — 5000 megohms min.

Dielectric Withstanding Voltage — 225 Vrms min.

Insertion Loss — 0.12 dB max. typical

Mechanical

Force to Engage — 4.5 lbs. typical full detent; 2.5 lbs. typical smooth bore

Force to Disengage — 6.5 lbs. typical full detent; 1.5 lbs. typical smooth bore

Radial Misalignment — ±.010"

Vibration — EIA-364-28, Test condition III

Mechanical Shock — EIA-364-27, Method G

Durability — EIA-364-9, 100 cycles min.

Material and Finish

Housings and Center Contacts — Beryllium Copper per ASTM-B-196; gold plate over nickel plate

Dielectric — PTFE Fluorocarbon per ASTM-D-1457

Shrouds — Stainless steel per ASTM-A582 Type 303; passivate per ASTM-A380

Hermetic Seal — Glass bead

Standards and Specifications

MIL-STD-348A

General Specifications

Temperature Range — -55 to +125 °C

Voltage Rating — 150 volts AC

Environmental Performance

Thermal Shock — EIA-364-32, 5 cycles

Humidity-temperature — EIA-364-31 Method III, 10 cycles

Salt Spray Corrosion — EIA-364-26, Condition B

Temperature Life — EIA-364-17, Method A, test condition 5

Catalog 1308940
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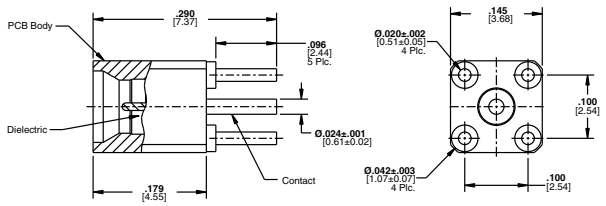
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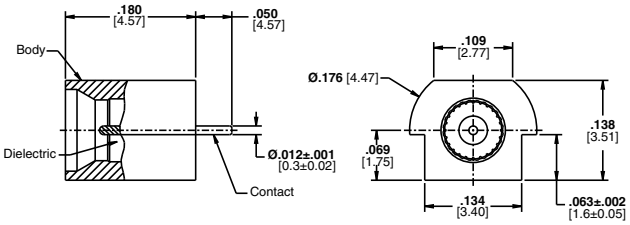
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SMPM Micro-Miniature Push-on Coaxial Connectors (Continued)

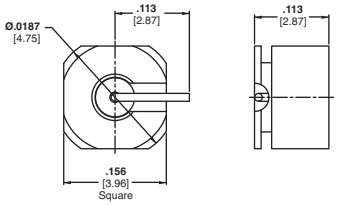
Vertical Through-Hole PCB Mount — Part No. 1757644-1



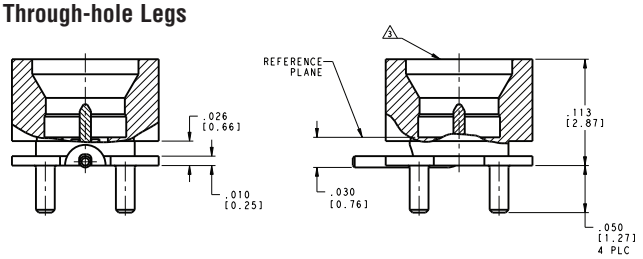
PCB Edge Mount — Part No. 1757640-1 Full Detent
1757640-2 Smooth Bore



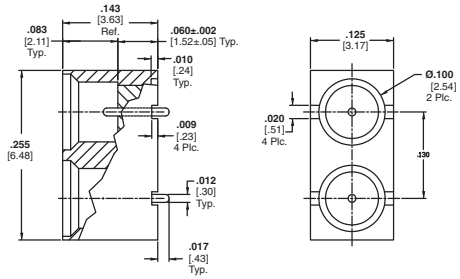
PCB Surface Mount, Smooth Bore — Part No. 1757253-1 Smooth Bore
1757254-1 Full Detent



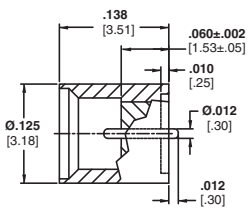
PCB Surface Mount, — Part No. 1757639-1 Full Detent
Through-hole Legs



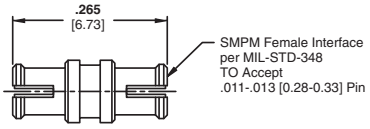
Hermetic, Smooth Bore, 2 Pos.
Part No. 1663434-1



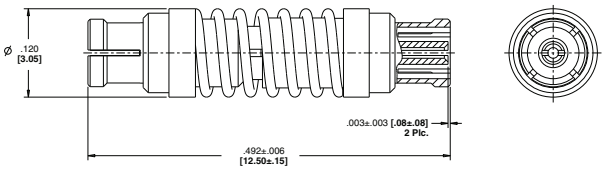
Hermetic Smooth Bore
Part No. 1663433-1



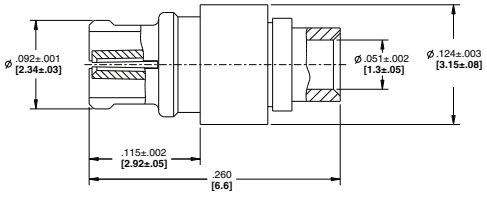
Female Bullet Adapter — Part No. 1757256-1



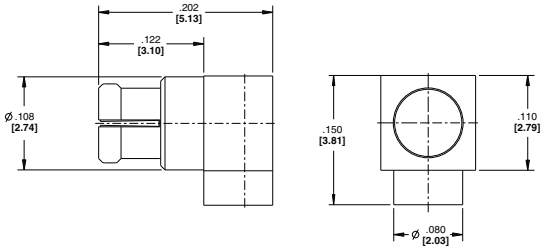
Jack to Jack, Adapter, Spring Bullet — Part No. 1757257-1



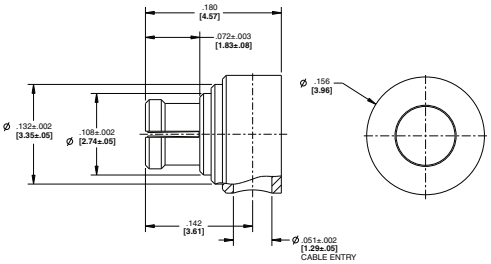
Cable Jack, Straight — Part No. 1757642-1 — .047 dia. cable
1996328-1 — .086 dia. cable



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



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



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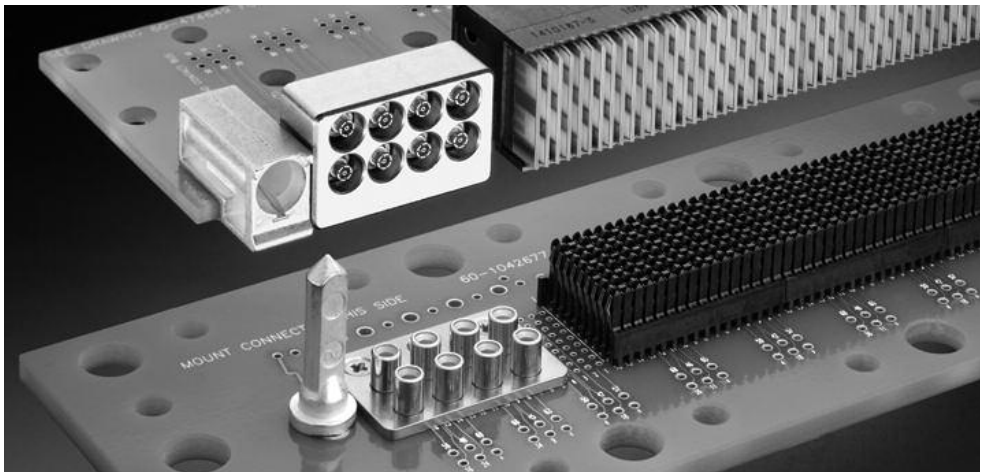
Multi-position Backplane RF Modules

Product Facts

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

Compliant pin backplane contacts are available

- **RF cable assemblies**



Description

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

Applications

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

Standards & Specs

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

SMPM RF contact interfaces IAW MIL-STD-348

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

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

Product Specification: 108-2443

IS Sheet: 408-10387

Test Report: 501-748

Materials

Center Contacts: Beryllium copper, gold plated

Connector Housings: Beryllium copper, gold plated

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

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

Insulators: PTFE

Mechanical

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

Vibration: EIA-364-28, Test Condition III

Mechanical Shock: EIA-364-27, Method G

Operating Temperature: -55˚C to +85˚C

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

Physical or Other Properties

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

Radial Misalignment: +/- .010 min.

Force to Engage: 18.75 N (4.2 lbf) typical

Force to Disengage: 3.25 N (0.73 lbf) typical

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

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

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

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Multi-position Backplane RF Modules (Continued)

Electrical

Impedance — 50 ohm

Frequency — P.C.B. Mounted Contacts - DC — 6.0 GHz

Semi-Rigid Cable Contacts - DC — 26.5 GHz

Flexible Cable Contacts - DC — 20 GHz

VSWR — 1.15:1 to 20 Ghz; 1.25 max. to 26.5 GHz

Insertion Loss — .12 sqrt f (GHz) dB max.

Insulation Resistance — 5000 megaohms min.

DWV @ Sea Level — 325 Vrms min.

Contact Resistance — Center 6 milliohms max., outer 2 milliohms max.

Isolation (Channel to Channel) — SHF (3-30 GHz): >100 dB
VHF/UHF (30 MHz-3 GHz): >120 dB
HF (3-30 MHz): >140 dB

RF Power @ 105 C (C.W. Ave.) — VHF/UHF/SHF (30 MHz-30GHz): >20 dBm
HF (3-30 MHz): >30 dBm

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





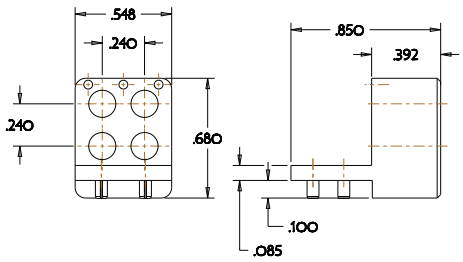
Part Dimensions

Dimensions are in inches

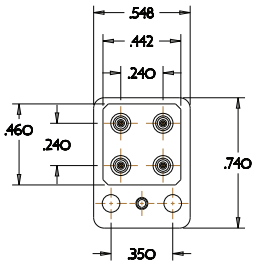
4 Position

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

Part Number 1996883-4



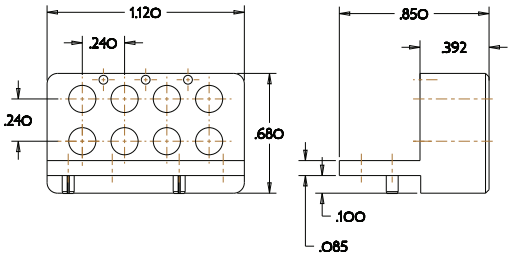
Part Number 1996884-1



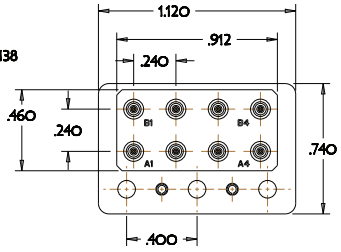
8 Position

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

Part Number 1996705-4



Part Number 1996706-1



SMPM Contacts for Daughtercard modules:
.047 semi-rigid cable: 1996771-1
.086 semi-rigid cable: 1996390-1
Consult TE for flexible cable/contact compatibility

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

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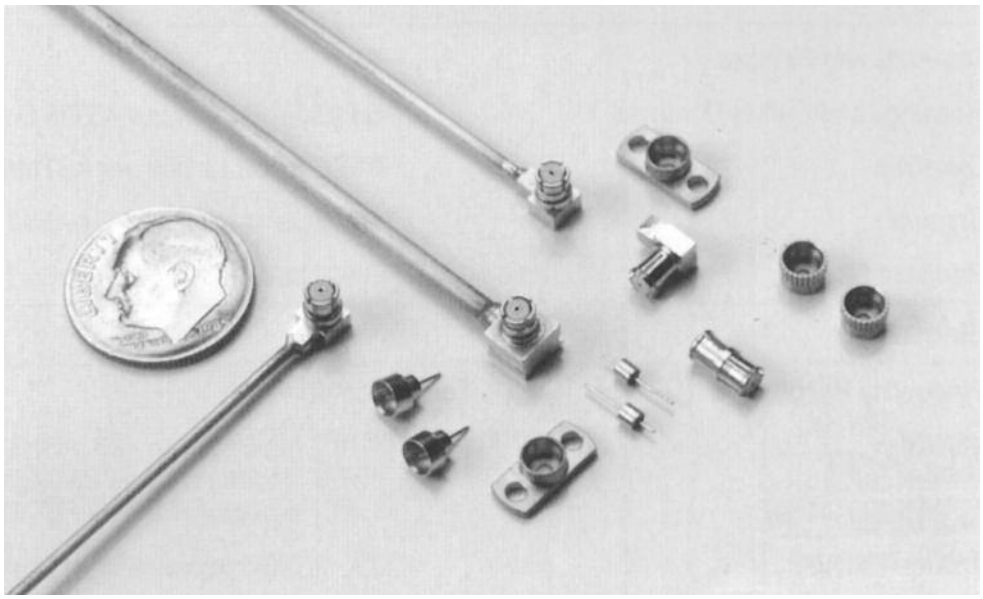
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SMP Micro-Miniature Push-On Coaxial Connectors

Features

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

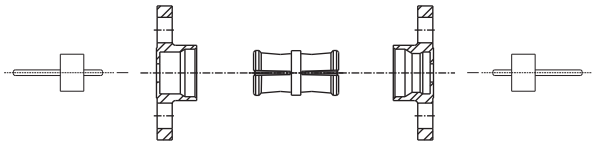


SMP micro-miniature push-on coaxial connectors provide solutions for today's modular designs with denser packaging requirements. The extremely small size of the SMP offers a versatile solution for high density packaging allowing connector center-to-center spacing of 0.17 [4.32]. The push-on interface facilitates easier assembly and test with a positive snap-in feature to indicate a fully mated connection. The rugged SMP interface can better withstand harsh environments of mechanical shock and vibration, typically found in military or aerospace related applications. This SMP connector interface is the standard used by Defense Electronics Supply Center (DSCC) to generate the SMP push-on connector series. For DSCC Part Numbers, see page 2-31.

SMP connectors can be your design solution for mechanical packaging and frequency response. The SMP interface provides 0.010" of radial misalignment for critical blindmate applications. Mating forces are strictly controlled for reliable connections per mated pair or when simultaneously mating multiple connectors. Cable jacks include an anti-rocking ring for reliable mechanical performance for harsh operating environments. SMP connectors offer enhanced broadband VSWR performance of 1.15:1 max thru 26.5GHz and 1.70:1 max thru 40GHz.

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

SMP Shroud and Jack-to-Jack Adapter Assembly



Gilbert GPO Series — Trademark of Corning Incorporated

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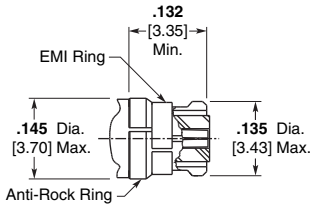
SMP Micro-Miniature Push-On Coaxial Connectors (Continued)

Specifications

General		
Materials and Finishes		
Housings and Center Contacts	Beryllium Copper per ASTM-B-196; gold plate over nickel plate	
Dielectric	PTFE Fluorocarbon per ASTM-D-1457	
Shrouds	Stainless steel per ASTM-A582 Type 303; passivate per ASTM-A380	
Hermetic Seal	Glass bead	
Electrical		
Frequency Range	dc - 40.0 GHz	
VSWR	1.10:1 Maximum dc - 23.0 GHz	
	1.15:1 Maximum 23.0 - 26.5 GHz	
	1.70:1 Maximum 40.0 GHz	
Voltage Rating	335 Vrms maximum at sea level	
Insertion Loss	$0.10\ f\sqrt{(GHz)}$ dB	
Insulation Resistance	5000 megohms minimum	
Dielectric Withstanding Voltage	500 volts (VRMS minimum)	
RF High Potential	325 volts (VRMS minimum) @ 5 MHz	
Impedance	50 ohms nominal	
RF Leakage	-80dB to 3 GHz, -65dB from 3 to 26.5 GHz minimum	
Contact Resistance	Initial center contact 6.0 milliohms maximum	
	Outer contact 2.0 milliohms maximum	
Mechanical		
Durability	100 mating cycles minimum - (full detent)	
Radial Misalignment	±0.010 minimum	
Axial Misalignment	.000/.010	
Force to Engage	full detent	15.0 lbs. maximum
	limited detent	10.0 lbs. maximum
	smooth bore	2.0 lbs. maximum
Force to Disengage	full detent	5.0 lbs. minimum
	limited detent	2.0 lbs. minimum
	smooth bore	0.5 lbs. minimum
Center Contact Retention	1.5 lbs. minimum axial force	
Environmental		
Operating Temperature	-85°F to +329°F [-65°C to +165°C]	
Vibration	per MIL-STD-202, method 204, test condition D	
Shock	per MIL-STD-202, method 213, test condition I	
Thermal Shock	per MIL-STD-202, method 107, test condition B	
Moisture Resistance megohms	per MIL-STD-202, method 106, except step 7b shall be omitted. Resistance shall be 1000 within 5 minutes after removal from humidity.	

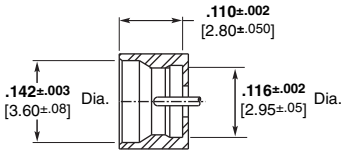
Interface Dimensions

Jack

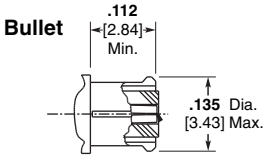


Shroud

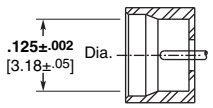
Full Detent



Bullet



Smooth Bore



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

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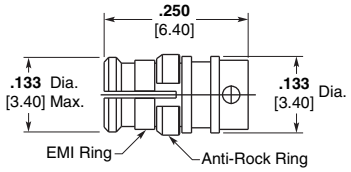
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SMP Micro-Miniature Push-On Coaxial Connectors (Continued)

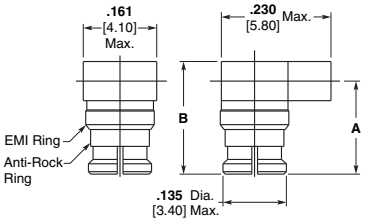
Jacks (Continued)

Straight Cable Jack, Solder Attachment



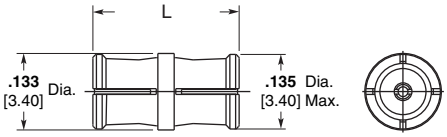
Cable	Reference Part No. (Ref. only)	Part No.	DSCC Part No.
.047 Semi-Rigid	2902-5005-62	1056521-1	94008ZCG-2
.085 Semi-Rigid (RG-405)	2902-5006-62	1056522-1	94008ZCG-1

Right-Angle Cable Jack, Solder Attachment



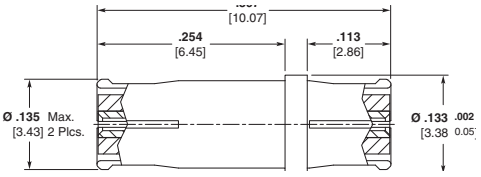
Cable	Dim. A	Dim. B	Reference Part No. (Ref. only)	Part No.	DSCC Part No.
.047 Semi-Rigid	.190 4.80	.230 5.80	2908-5006-62	1056550-1	94008ZCG-4
.085 Semi-Rigid (RG-405)	.209 5.30	.265 6.70	2908-5007-62	1056551-1	94008ZCG-3

Jack to Jack Adapter (Bullet)



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

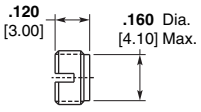
Jack to Jack Adapter (SMP)



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

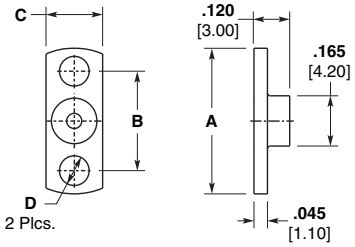
Shrouds

Shroud — Threaded



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

Shroud — 2 Hole Flange Surface Mount



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

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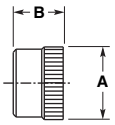
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SMP Micro-Miniature Push-On Coaxial Connectors (Continued)

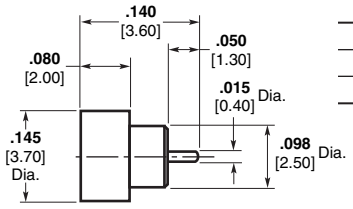
Shrouds (Continued)

Shroud — Press Fit



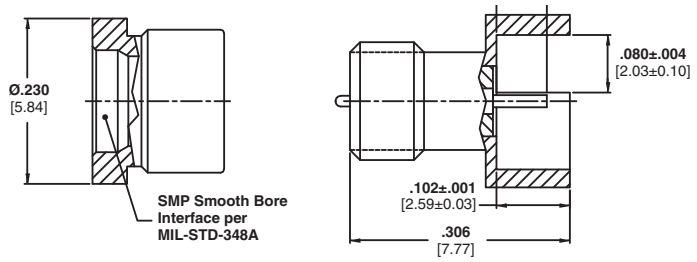
Description	Dim. A	Dim. B	Reference Part No. (Ref. only)	Part No.
Full Detent	.182 4.60	.115 2.90	2998-5005-02	1056726-1
Limited Detent	.174 4.40	.120 3.00	2998-5033-02	1056734-1
	.154 3.90	.080 2.00	2998-5035-02	1056736-1

Shroud — Solder-In Hermetic



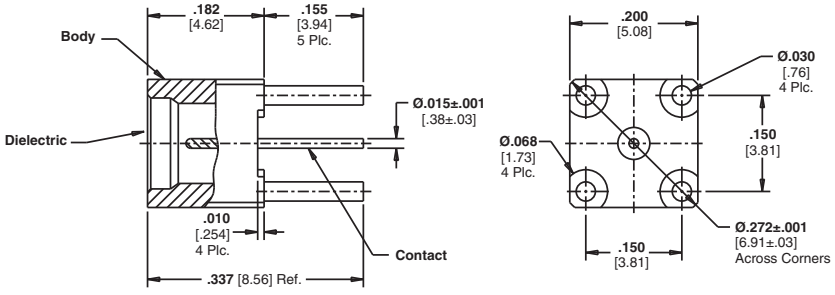
Description	Reference Part No. (Ref. only)	Part No.
Full Detent	2998-5054-94	1056750-1
Limited Detent	2998-5055-94	1056751-1
Smooth Bore	2998-5056-94	1056752-1

PCB Plug, Bulkhead Mount, Smooth Bore



Part No.
1663678-1

PCB Thru-Hole Mount, Smooth Bore



Part No.
1663679-1

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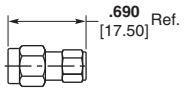
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SMP Micro-Miniature Push-On Coaxial Connectors (Continued)

Between Series Adapters

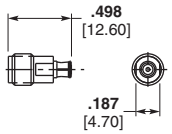
Between Series Coaxial Transmission Line Adapters provide convenient transitions between popular series coaxial connectors. The adapter design provides a minimum length consistent with good electrical performance. The small size, low VSWR, and broad frequency coverage permits a wide range of applications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

SMA Plug – SMP Plug



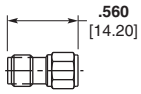
Part Number 1056706-1
Reference Part No. (Ref. only)
2981-2241-00

SMA Jack – SMP Jack



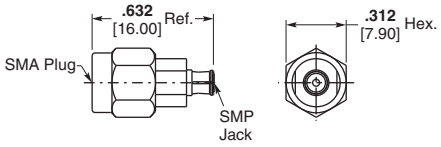
Part Number 1056702-1
Reference Part No. (Ref. only)
2980-2240-00

SMA Jack – OSMP Plug



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

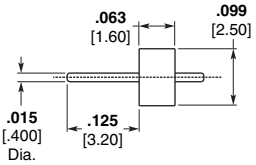
SMP Jack – SMA Plug



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

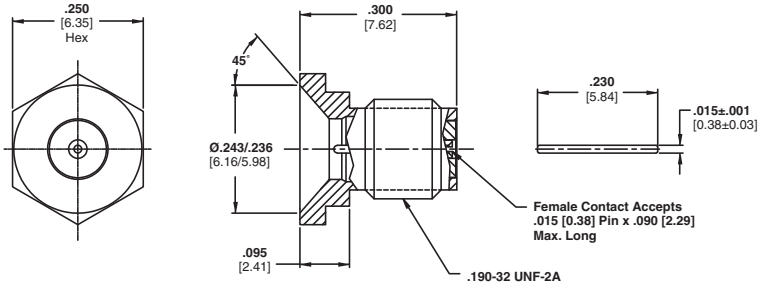
Miscellaneous

Glass Bead Assembly



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

Plug Assembly, Thread-In with Sliding Pin



Part No.
1663670-1

Catalog 1308940
Revised 9-14

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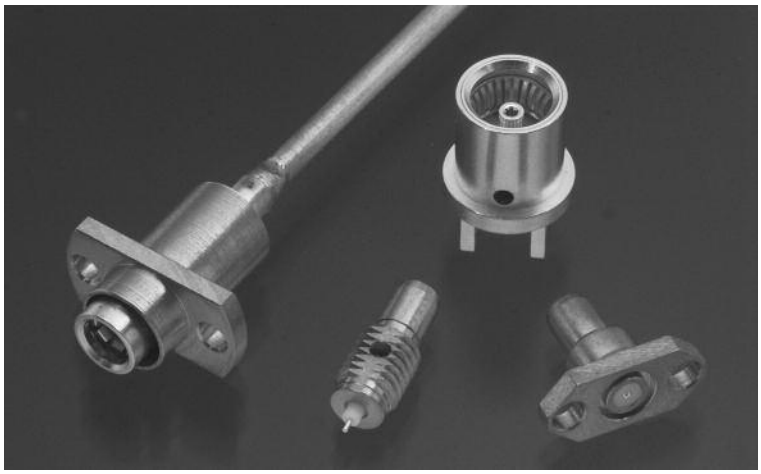
USA: +1 800 522 6752
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UK: +44 800 267 666

For additional support numbers please visit www.te.com

OSSP Subminiature Modular Blind Mate Connectors

Features

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



METRIC

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

OSSP connectors are a subminiature version of the OSP (BMA) blind mate series. Connectors in this series incorporate the design elements of the OSP (BMA) interface including the float and mismate features. OSSP blind mates are about 40% smaller than OSP (BMA) connectors and are designed to be used in applications where space is at a premium.

A complete family of OSSP connectors and adapters is available including cable connectors, fixed and float mount panel connectors and hermetic connectors. Rigid mount units will function to specifications up to ±.064 [±.0025] radial misalignment with the mating plug connector. Applications requiring greater than ±.064 [±.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

	RG-405 (.085) Semi-Rigid
VSWR —	1.05 + .01f (GHz)
RF Transmission Loss —	.040 x $\sqrt{f}$ (GHz)
Insulation Resistance —	5,000 megohms min.
Contact Resistance —	
Center Contact	6.0 milliohms max.
Outer Contact	3.0 milliohms max.
Outer Contact to Cable	0.5 milliohms max.
Dielectric Withstanding Voltage —	675 volts RMS
Corona Extinction Voltage at 70,000 Ft.—	250 volts min.
RF High Potential at 5 MHz —	675 volts RMS
RF Leakage Interface Only —	-(90-fGHz) dB min. (fully mated)
Power Handling —	300W at 3 GHz (sea level) and room temperature

Environmental

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

Material

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

Mechanical

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

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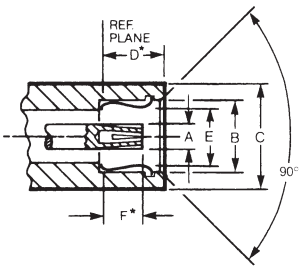
For additional support numbers please visit www.te.com

OSSP Subminiature Modular Blind Mate Connectors (Continued)

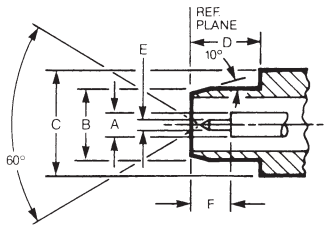
Interface Mating Dimensions

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.



Jack



Plug

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

*With spring bottomed.

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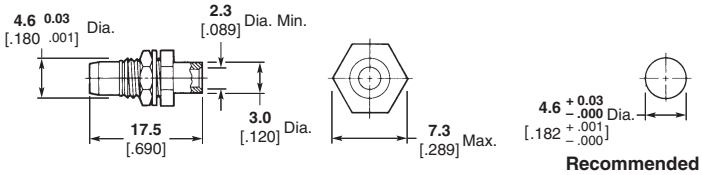
For additional support numbers please visit www.te.com

OSSP Subminiature Modular Blind Mate Connectors (Continued)

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

Bulkhead Feedthrough Cable Plug — Rear Mount

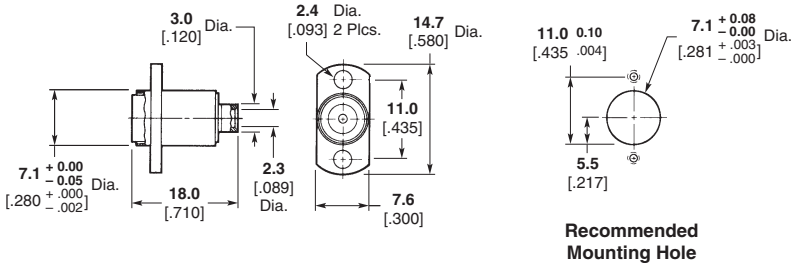




Cable	Plating	Reference Part No.	Part No.
RG-405/U, **2.16** [.085]	Gold	4703-7985-00	**1255511-1**

Flange Mount Cable Jack — Floating Rear Mount



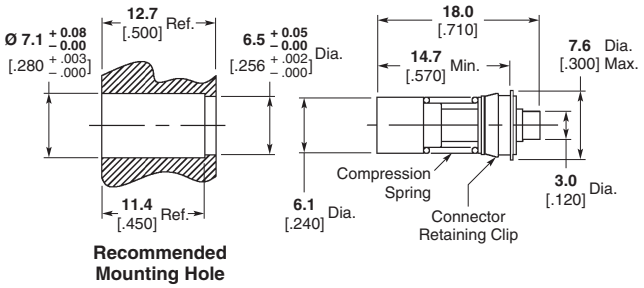


Cable	Reference Part No.	Part No.
RG-405/U, **2.16** [.085]	4706-7985-02	**1059868-1**

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

Feedthru Snap-In





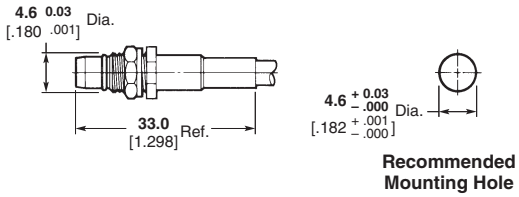
Cable	Reference Part No.	Part No.
RG-405/U, **2.16** [.085]	4710-7985-00	**1059874-1**

OSSP Subminiature Modular Blind Mate Connectors (Continued)

For Flexible Cable, Crimp Attachment

Bulkhead Feedthrough Cable Plug — Rear Mount

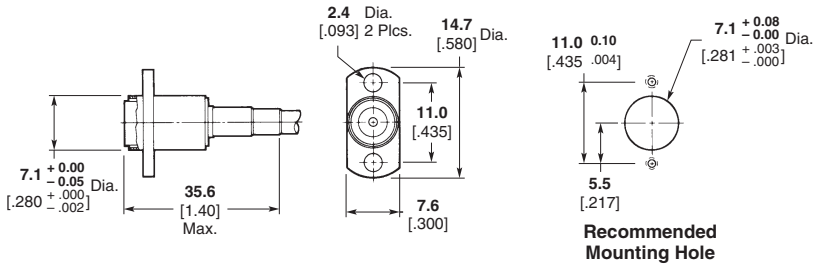




Cable	Plating	Reference Part No. (Ref. Only)	Part No.
RG-174/U, 188/U, 316U	Passivated Stainless Steel	4733-7388-02	**1059886-1**

Flange Mount Cable Jack — Floating Rear Mount





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

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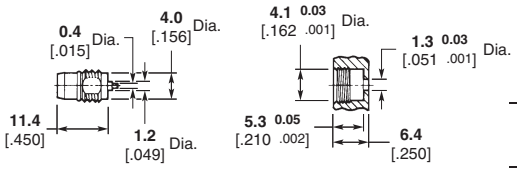
OSSP Subminiature Modular Blind Mate Connectors (Continued)

For Panel Mount

Straight Terminal

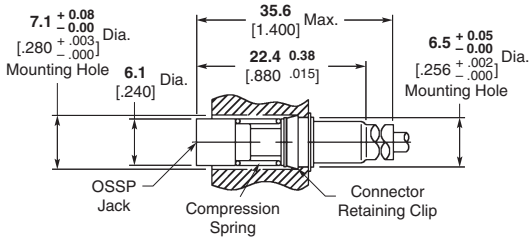
Threaded Installation — Panel Feedthrough Plug Receptacle





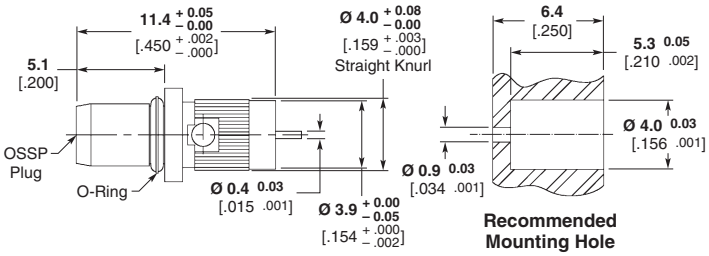
Plating	Reference Part No. (Ref. Only)	Part No.
Passivated Stainless Steel	4757-5006-02	**1059903-1**

Feedthru Snap-In Cable Jack



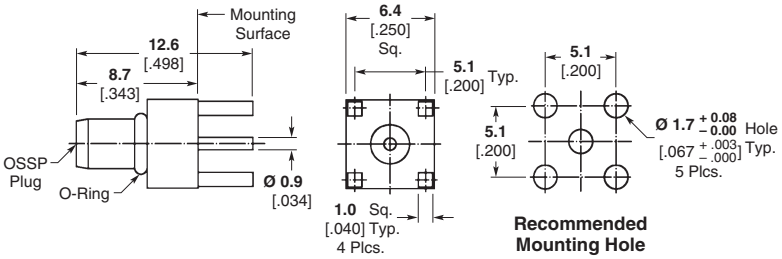
Reference Part No. (Ref. Only)	Part No.
4740-7388-00	**1059889-1**

PCB Vertical Plug



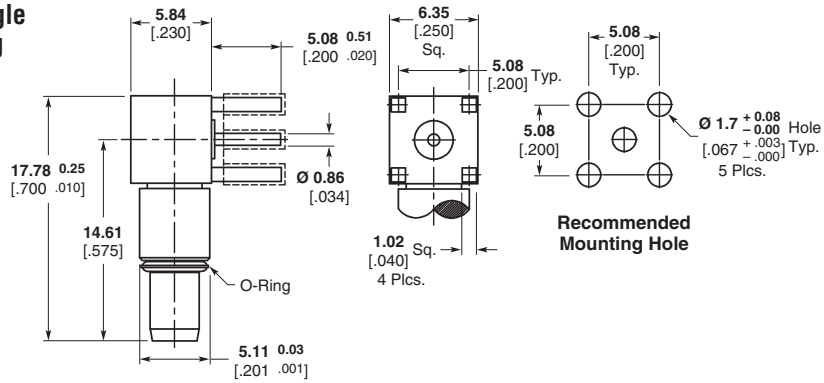
Reference Part No. (Ref. Only)	Part No.
4757-1154-02	**1059901-1**

Press-In Plug



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

PCB Right Angle Bulkhead Plug



Part No.
1484546-1

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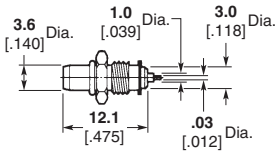
OSSP Subminiature Modular Blind Mate Connectors (Continued)

Hermetically Sealed

Metal to Metal

Formable Gasket — Panel Feedthrough Plug Receptacle



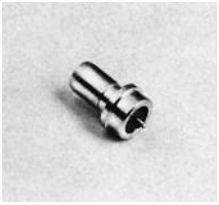


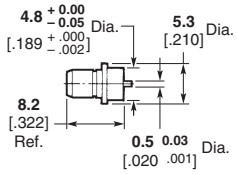
VSWR (GHz)	RF Leakage (dB)	Plating	Reference Part No. (Ref. Only)	Part No.
1.06 + .01f	–(85-fGHz)	Gold	4757-5014-00	**1059905-1**

Recommended Mounting Hole Detail A at bottom of this page.

Solder and Braze-In

Panel Feedthrough Plug Receptacle



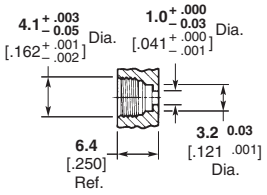


VSWR (GHz)	RF Leakage (dB)	Plating	Reference Part No. (Ref. Only)	Part No.
1.06 + .01f	–(85-fGHz)	Gold	4757-3204-00	**1059902-1**

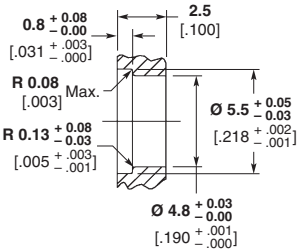
Recommended Mounting Hole Detail B at bottom of this page.

Recommended Mounting Hole Detail for Hermetically Sealed

Detail A*



Detail B*



*Consult appropriate Instruction Sheet for complete mounting procedure.

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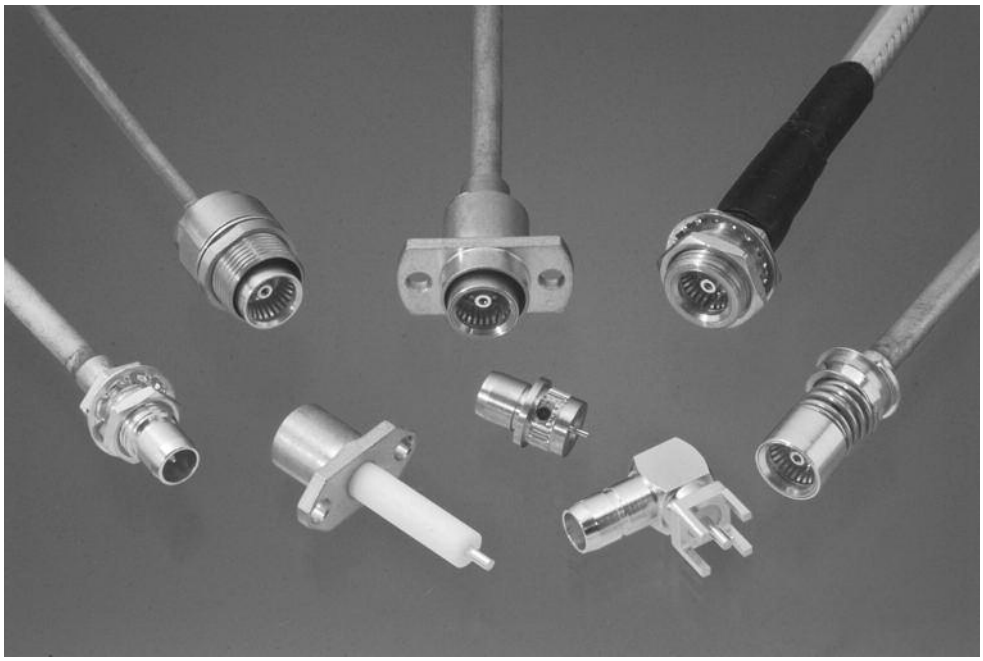
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OSP (BMA) Miniature Modular Blind Mate Connectors

Features

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



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

Jack connectors are available in either float or rigid mount. Rigid mount units will function to specifications up to ±.10 [.004] radial misalignment with the mating plug connector. Applications requiring greater than ±.10 [.004] radial misalignment can use either the float design or floating connector plates with guide pins.

The OSCC 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.

METRIC

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

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

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

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

Engineering Data

Impedance —	50 ohms	
Frequency —	dc to 22.0 GHz	
Temperature Rating —	-65° to 125° C	
Electrical	**RG 402 (.141) Semi-Rigid**	**RG 405 (.085) Semi-Rigid**
VSWR —		
dc - 18.0 GHz	1.02 + .005f (GHz)	1.05 + .005f (GHz)
18.0 - 22.0 GHz	1.02 + .008f (GHz)	1.05 + .009f (GHz)
RF Transmission Loss —	.03 x $\sqrt{f}$ (GHz)	.03 x $\sqrt{f}$ (GHz)
Insulation Resistance —	5,000 megohms min.	5,000 megohms min.
Contact Resistance —		
Center Contact	2.0 milliohms max.	2.0 milliohms max.
Outer Contact	2.0 milliohms max.	2.0 milliohms max.
Outer Contact to Cable	0.5 milliohms max.	0.5 milliohms max.
Dielectric Withstanding Voltage —	1500 volts RMS	1000 volts RMS
Corona Extinction Voltage at 70,000 Ft.—	375 volts min.	335 volts min.
RF High Potential at 5 MHz —	1,000 volts RMS	670 volts RMS
RF Leakage Interface Only —	-(90-fGHz) dB min. (fully mated)	-(90-fGHz) dB min. (fully mated)
Power Handling —	300W at 3 GHz (sea level) and room temperature	

Environmental

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

Material

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

Mechanical

Force to Engage —	3 pounds max.
Force to Disengage —	1.5 pounds max.
Center Contact Retention —	6 pounds min.
Durablilty —	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.

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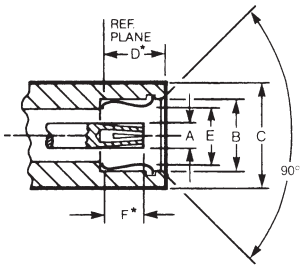
OSP (BMA) Miniature Modular Blind Mate Connectors (Continued)

Interface Mating Dimensions

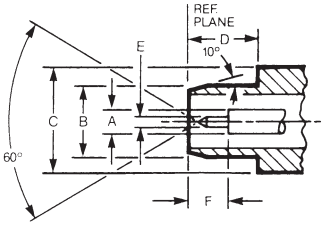
The connector interface, specifically designed for multiple interconnects, maintains reliable performance over the typical mechanical tolerance required in cost effective packaging.

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

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



Jack

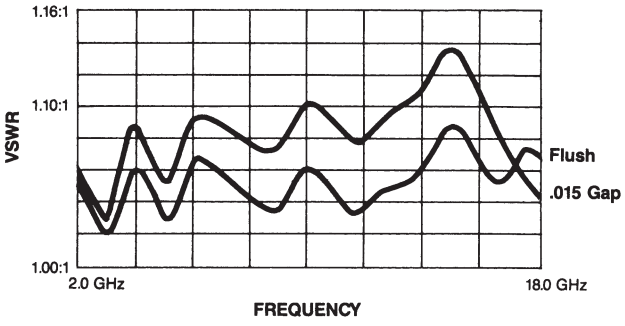


Plug

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

*With spring bottomed

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.



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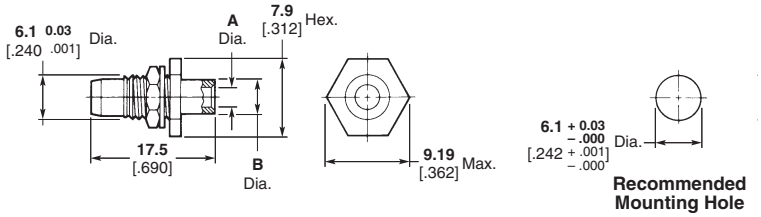
For additional support numbers please visit www.te.com

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

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

Bulkhead Feedthrough Cable Plug Rear Mount



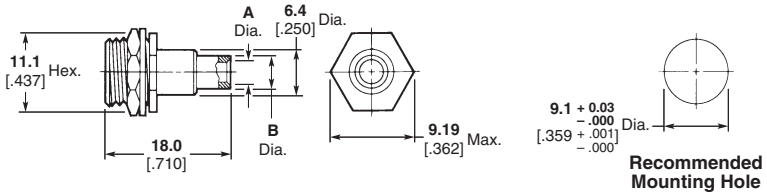


Cable	Plating	Dimensions A	Dimensions B	Reference Part No. (Ref. Only)	Part No.
RG-402/U **3.58** .141	Gold	**3.7** .144	**4.6** .180	4503-7941-00	**1059402-1**
RG-405/U **2.16** .085	Gold	**2.3** .089	**3.0** .120	4503-7985-00	**1059404-1***

*Non-SCD.

Bulkhead Feedthrough Cable Jack Rigid Rear Mount

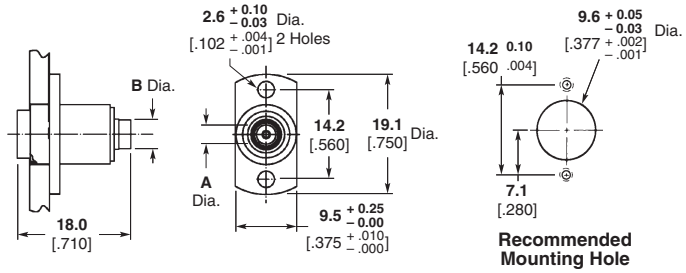




Cable	Plating	Dimensions A	Dimensions B	Reference Part No. (Ref. Only)	Part No.
RG-402/U **3.58** .141	Gold	**3.7** .144	**4.6** .180	4504-7941-00	**1059410-1**
RG-405/U **2.16** .085	Gold	**2.3** .089	**3.0** .120	4504-7985-00	**1059412-1**

Flange Mount Cable Jack Floating Rear Mount





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

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

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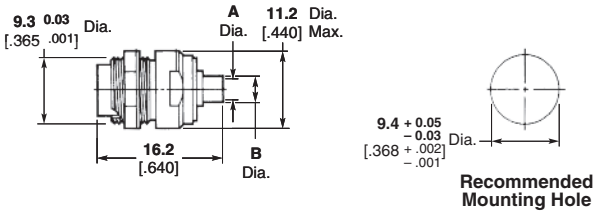
For additional support numbers please visit www.te.com

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

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

Low Profile – Bulkhead Feedthrough Cable Jack – Floating Rear Mount



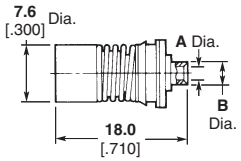


Cable	Plating	Dimensions A	Dimensions B	Reference Part No. (Ref. Only)	Part No.
RG-402/U **3.58** .141	Gold	**3.7** .144	**4.6** .180	4522-7941-02	**1059505-1**
RG-405/U **2.16** .085	Gold	**2.3** .089	**3.0** .120	4522-7985-02	**1059506-1**

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

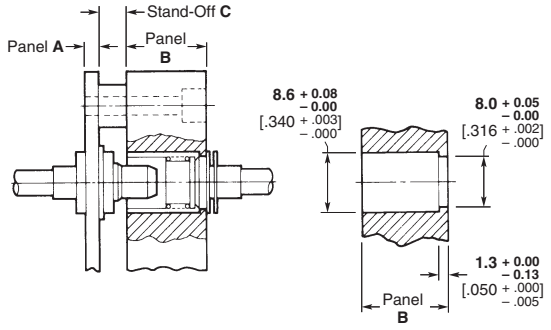
Low Profile – Panel Feedthrough Cable Jack – Floating Rear Mount





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

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



Recommended Mounting Detail

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

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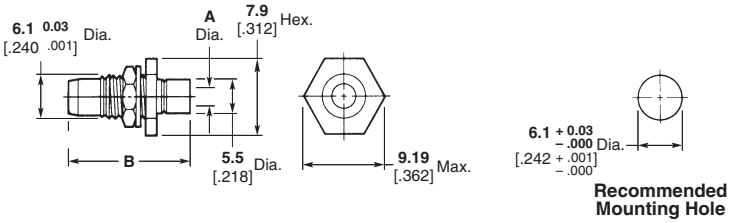
For additional support numbers please visit www.te.com

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

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

Bulkhead Feedthrough Cable Plug Fixed Rear Mount



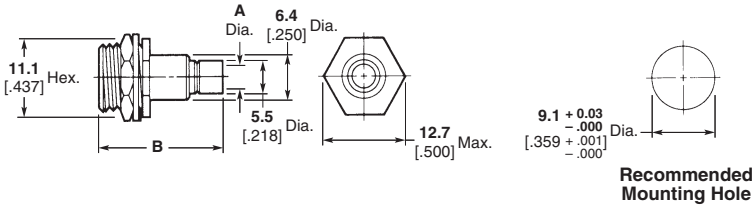


Cable	Plating	Dim. A	Dim. B		Reference Part No. (Ref. Only)	Part No.
			Before Crimping	After Crimping		
RG-405/U **2.16** .085	Passivated Stainless Steel	**2.2** .088	**19.8** .782	**17.2** .677	4503-7685-02	**1059399-1**

Outline drawing shows after crimp dimensions.

Bulkhead Feedthrough Cable Jack Fixed Rear Mount



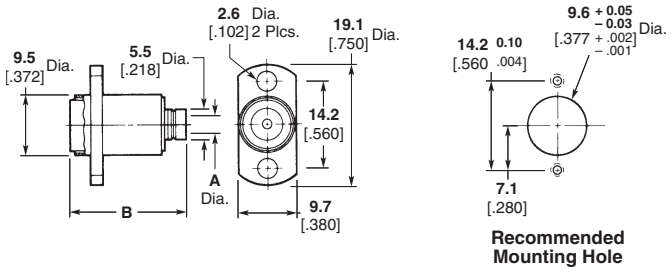


Cable	Plating	Dim. A	Dim. B		Reference Part No. (Ref. Only)	Part No.
			Before Crimping	After Crimping		
RG-402/U **3.58** .141	Passivated Stainless Steel	**3.6** .143	**21.1** .830	**18.2** .715	4504-7641-02	**1059408-1**

Outline drawing shows after crimp dimensions.

Flange Mount Cable Jack Floating Rear Mount





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

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

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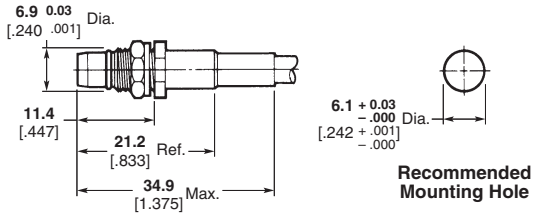
For additional support numbers please visit www.te.com

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

For Flexible Cable, Crimp Attachment

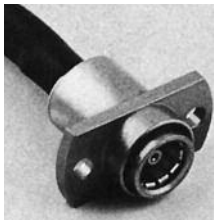
Bulkhead Feedthrough Cable Plug Rear Mount

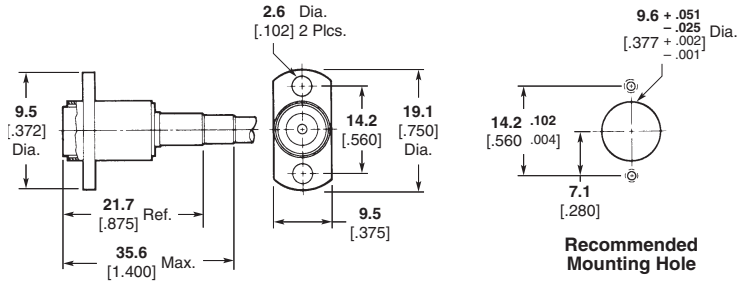




Cable	Plating	Reference Part No. (Ref. Only)	Part No.
RG-174/U, 179, 187, 188, 316	Passivated Stainless Steel	4533-7388-02	**1059523-1**

Flange Mount Cable Jack Floating Rear Mount

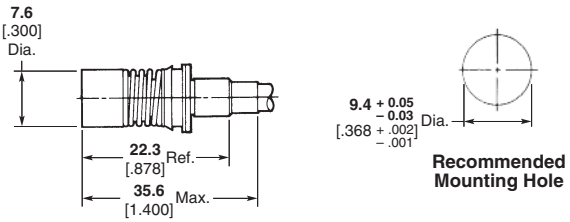




Cable	Plating	Reference Part No. (Ref. Only)	Part No.
RG-55/U, 142, 223, 400	Passivated Stainless Steel	4536-7341-02	**1059540-1**
RG-174/U, 179, 187, 188, 316	Passivated Stainless Steel	4536-7388-02	**1059541-1**
RG-178, Double Braid	Passivated Stainless Steel	4536-5014-02	**1058572-1**

Low Profile – Panel Feedthrough Cable Jack – Rear Mount





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

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

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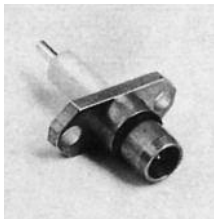
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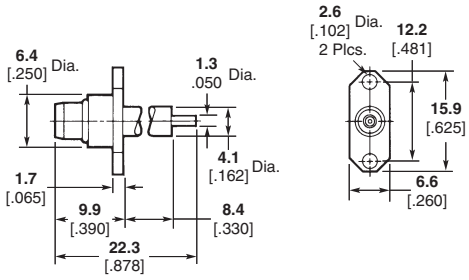
OSP (BMA) Miniature Modular Blind Mate Connectors (Continued)

Panel Mount

Straight Terminal

2-Hole Flange Mount Plug Receptacle

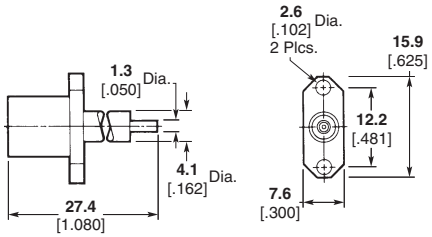




Plating	Reference Part No. (Ref. Only)	Part No.
Passivated Stainless Steel	4551-1352-02	**1049678-1**

2-Hole Flange Mount Jack Receptacle

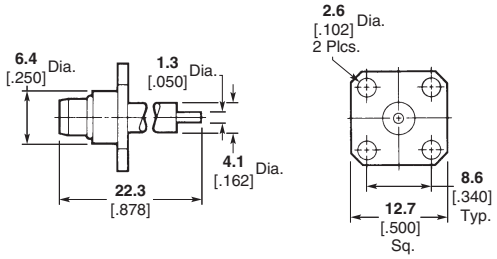




Plating	Reference Part No. (Ref. Only)	Part No.
Passivated Stainless Steel	4552-1352-02	**1059596-1**

4-Hole Flange Mount Plug Receptacle





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

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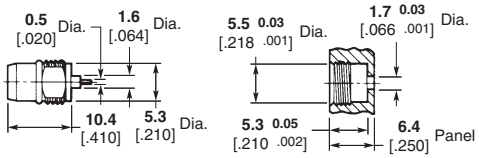
OSP (BMA) Miniature Modular Blind Mate Connectors (Continued)

Panel Mount (Continued)

Straight Terminal

Threaded Installation – Panel Feedthrough Plug Receptacle



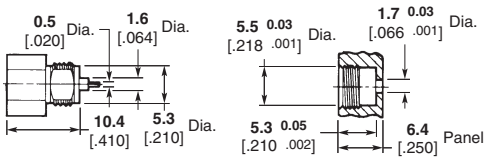


Recommended Mounting Hole

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

Threaded Installation – Panel Feedthrough Jack Receptacle



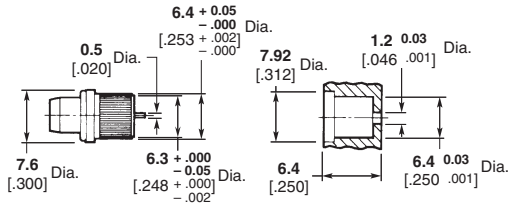


Recommended Mounting Hole

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

Press Fit Installation – Panel Feedthrough Plug Receptacle



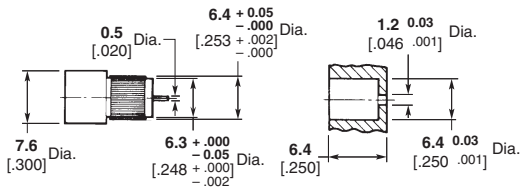


Recommended Mounting Hole

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

Press Fit Installation – Panel Feedthrough Jack Receptacle





Recommended Mounting Hole

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

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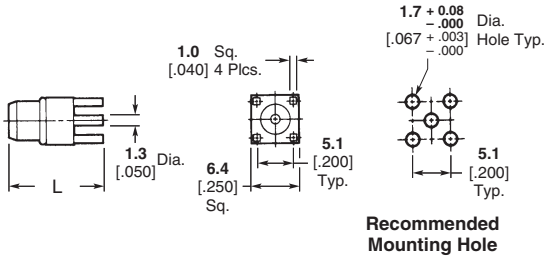
OSP (BMA) Miniature Modular Blind Mate Connectors (Continued)

Panel Mount (Continued)

Straight Terminal Printed Circuit Board

Straight Plug Receptacle – Captured Contact

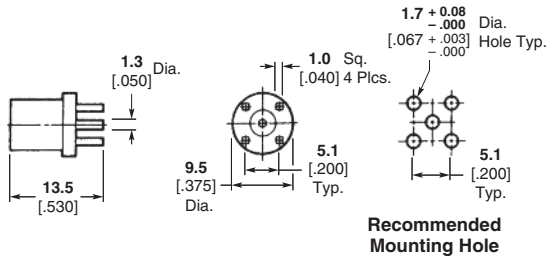




Plating	Reference Part No. (Ref. Only)	Part No.	Dim. L
Gold	4563-0000-00	**1059684-1**	**12.7** .500
Gold	—	**1663572-1**	**21.9** .862

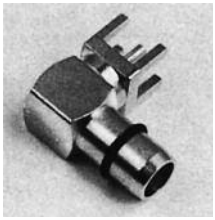
Straight Jack Receptacle – Captured Contact

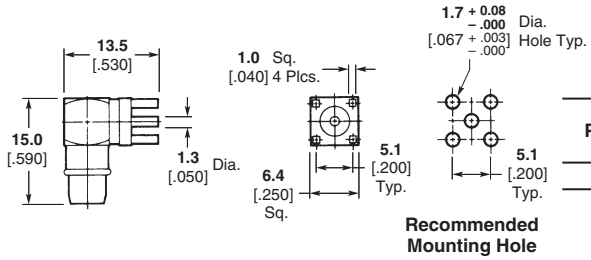




Plating	Reference Part No. (Ref. Only)	Part No.
Gold	4562-0000-00	**1059681-1**

Right Angle Plug Receptacle – Captured Contact





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

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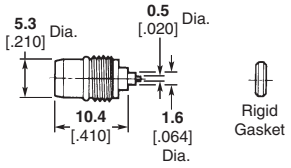
OSP (BMA) Miniature Modular Blind Mate Connectors (Continued)

Hermetically Sealed

Metal-To-Metal

Rigid Gasket Seal – Panel Feedthrough Plug Receptacle



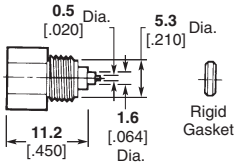


VSWR (GHz)	RF Leakage (dB)	Plating	Reference Part No. (Ref. Only)	Part No.
1.04 + .009f	–(90-fGHz)	Passivated stainless steel	4557-5119-02	**1059632-1**

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

Rigid Gasket Seal – Panel Feedthrough Jack Receptacle





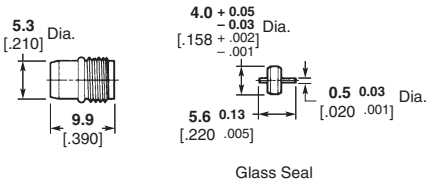
VSWR (GHz)	RF Leakage (dB)	Plating	Reference Part No. (Ref. Only)	Part No.
1.04 + .009f	–(90-fGHz)	Passivated stainless steel	4558-5119-02	**1059665-1**

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

Field Replaceable Solder and Braze-In

Panel Feedthrough Plug Receptacle





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

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

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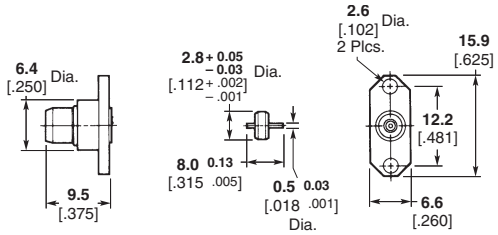
For additional support numbers please visit www.te.com

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

Hermetically Sealed
(Continued)

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



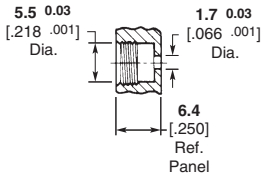


VSWR (GHz)	RF Leakage (dB)	Plating	Reference Part No. (Ref. Only)	Part No.
1.06 + .01f	–(90-fGHz)	Passivated stainless steel	4551-3357-02	**1059572-1**

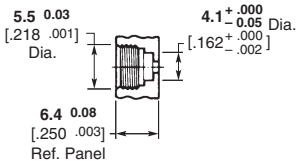
Recommended Mounting Detail D follows at bottom of this page.

Recommended Mounting Hole Detail

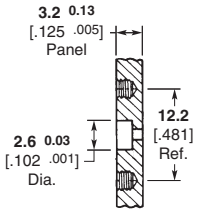
Detail A*



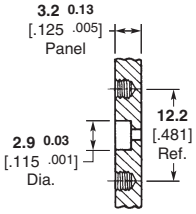
Detail B* (6.35 [.250] Panel Thickness)



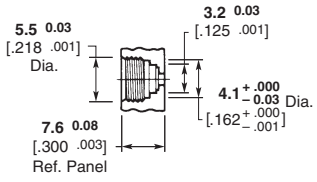
Detail C*



Detail D*



Detail E*



*Consult appropriate Instruction Sheet for complete mounting details.

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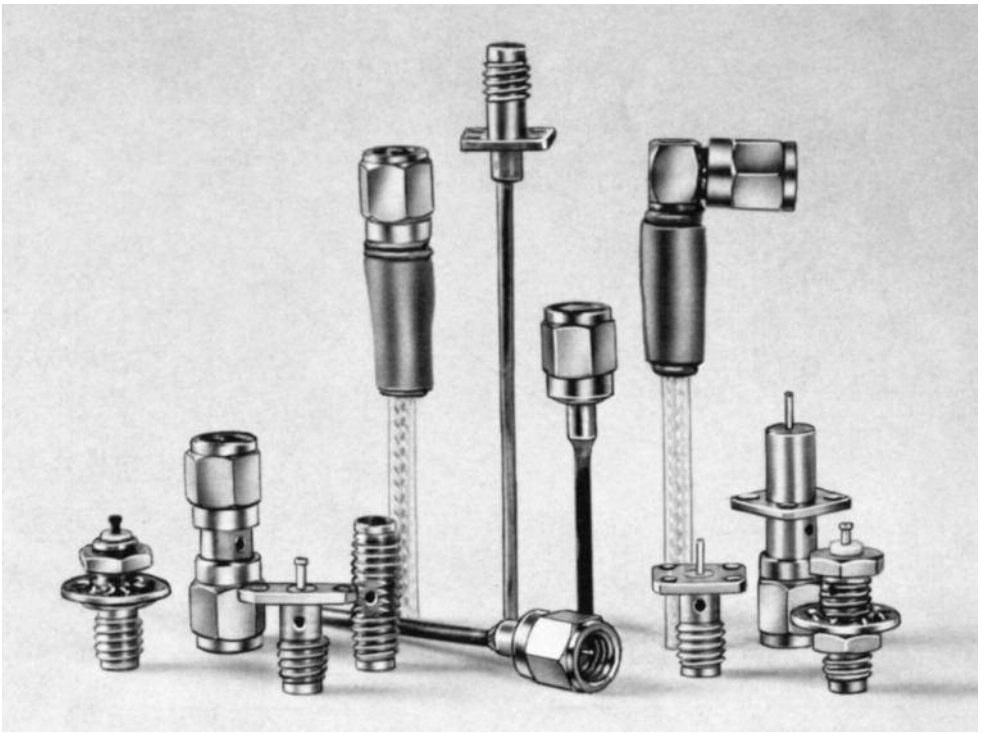
Dimensions are in millimeters unless otherwise specified.

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OSMM Microminiature Connectors

Introduction



The microminiature series has been developed to meet the increasing demand for smaller connector size. This series is small, but still very rugged for its relative size.

The interface mating design insures precise outer shell alignment before engagement of the inner contacts. The OSMM Series is compatible with smaller diameter semi-rigid cable.

Design and Construction

All shell and body parts are made of stainless steel for ruggedness and long life. The dielectric is PTFE fluorocarbon. The center contacts are made of beryllium copper, gold plated. The coupling thread is .138-40 UNF thread.

Types

The OSMM Series connectors are available for appropriate size semi-rigid and flexible coaxial cables. Panel and bulkhead mount are also available to provide complete flexibility to component and system design.

Application

Typical applications include requirements from low RF to high microwave frequencies. The higher order moding for this series is above 45.0 GHz, but the primary feature is the microminiature size.

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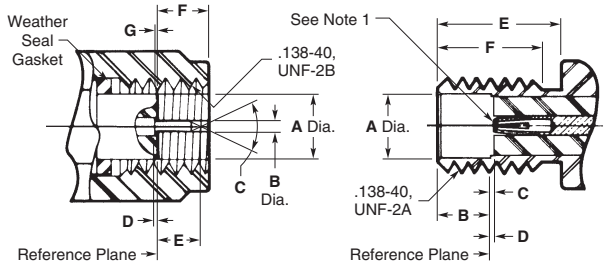
Dimensions are in millimeters unless otherwise specified.

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UK: +44 800 267 666

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OSMM Microminiature Connectors (Continued)

Interface Mating Dimensions



Plug

Dim.	Min.	Max.
A	**.0930** 2.36	**.0946** 2.43
B	**.0150** 0.38	**.0163** 0.42
C	60°	90°
D	**.000** 0.00	**.010** 0.25
E	**.055** 1.40	**.070** 1.78
F	**.065** 1.65	**.099** 2.29
G	**.000** 0.00	**.010** 0.25

Jack

Dim.	Min.	Max.
A	**.096** 2.44	**.097** 2.46
B	**.076** 1.98	**.082** 2.08
C	**.000** 0.00	**.010** 0.25
D	**.000** 0.00	**.010** 0.25
E	**.175** 4.45	—
F	**.140** 3.56	—

1. ID to meet VSWR and contact resistance when mated with .0155 +.0008/-.0005 [0.0394 +.0203/-.0127] dia. pin.
2. When fully engaged, the two reference planes must coincide with metal to metal contact.

Specifications

Requirement	MIL-C-39012 Applicable Paragraph	Detail
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-1457.
Finish which	3.31	Center contacts shall be gold plated to a min. thickness of .00005 [0.0013] in accordance with MIL-G-45204, Typ I, Grade C. All other metal parts shall be finished as to provide a connector 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 5,000 megohms.
Corona Level	3.22	The connector shall not exhibit breakdown when the voltage is 150 volts rms at 70,000 ft.
Dielectric Withstanding Voltage	3.17	The magnitude of the test voltage shall be 500 volts rms at sea level.
RF HIgh Potential	3.23	The withstanding voltage is 375 volts rms at 5 MHz. Leakage current is not applicable.
Contact Resistance	3.16	Center contact resistance: 3.5 milliohms max. Outer contact resistance: 2.8 milliohms max.
VSWR	3.14	No military slash sheet applies. Consult factory. Frequency range dependent on cable used.
RF Leakage	3.26	No military slash sheet applies. Consult factory.
Insertion Loss	3.27	No military slash sheet applies. Consult factory. Frequency range dependent on cable used.
Mechanical		
Force to Engage	3.5.1	The torque required to engage and disengage shall not exceed 1 in.-lbs. The longitudinal force is not applicable.
Coupling Nut Retention	3.25	40 lbs. min. Applicable for plug connectors only.
Coupling Proof Torque	3.6	4 in.-lbs. min. Applicable for plug connectors only.
Cable Retention	3.24	No military slash sheet applies. Consult factory.
Mating Characteristics	3.7	Applicable to jack connectors only. Oversize pin .0165 [0.419] min. dia., .045 [1.14] deep; insertion force 3 lbs. max. with .0163 [0.414] min. dia. pin; withdrawal force 0.5 oz. min. with .015 [0.38] 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	—	2 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	No military slash sheet applies. 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.

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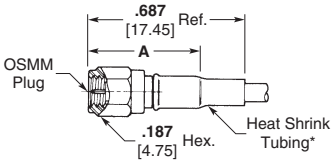
For additional support numbers please visit www.te.com

OSMM Microminiature Connectors (Continued)

For Flexible and Semi-Rigid Cables

Straight Cable Plug



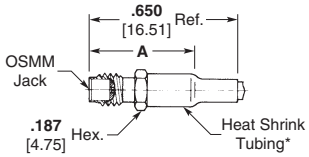


Cable	Attachment	Dim. A	Reference Part No. (Ref. only)	Part Number
RG 196/U Flexible	Crimp	.450 11.40 Ref.	4031-7196-00	1059057-1
.047 Dia.* Semi-Rigid	Direct Solder	.360 9.20 Ref.	4001-7947-00	1058955-1

* Semi-rigid versions do not use heat shrink tubing.
Finish: Gold plate.

Straight Cable Jack



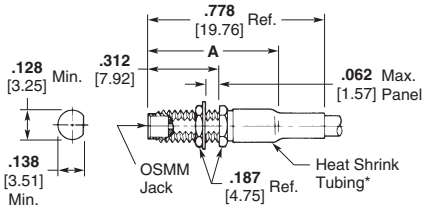


Cable	Attachment	Dim. A	Reference Part No. (Ref. only)	Part Number
.047 Dia.* Semi-Rigid	Direct Solder	.330 8.40 Ref.	4002-7947-00	—

* Semi-rigid versions do not use heat shrink tubing.
Finish: Gold plate.

Bulkhead Feedthrough Cable Jack





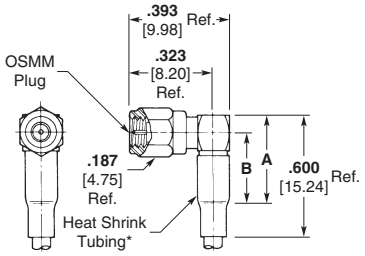
Recommended Mounting Hole

Cable	Attachment	Dim. A	Reference Part No. (Ref. only)	Part Number
RG 196/U Flexible	Crimp	.565 14.40 Ref.	4034-7196-00	1059060-1
.047 Dia.* Semi-Rigid	Direct Solder	.458 11.60 Ref.	4004-7947-00	1058990-1

* Semi-rigid versions do not use heat shrink tubing.
Finish: Gold plate.

Right-Angle Cable Plug



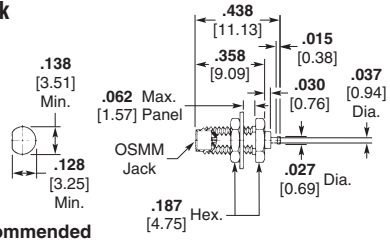


Cable	Attachment	Dim. A	Dim. B	Reference Part No. (Ref. only)	Part Number
.047 Dia.* Semi-Rigid	Direct Solder	.256 6.50 Ref.	.178 4.50 Ref.	4007-7947-00	1058993-1

* Semi-rigid versions do not use heat shrink tubing.
Finish: Gold plate.

Bulkhead Feedthrough Jack





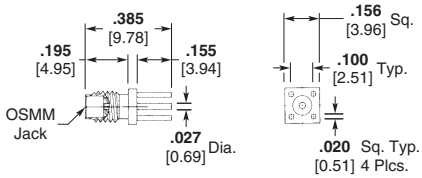
Recommended Mounting Hole

Description	Reference Part No. (Ref. only)	Part Number
Captured Center Contact* Turret Terminal Rear Mount	4056-0000-00	—

* Contact captivation per U.S. patent number 3,292,117.
Finish: Gold plate.

Printed Circuit Board Straight Jack





Description	Reference Part No. (Ref. only)	Part Number
Captured Center Contact* Straight Terminal	4062-0000-00	1059081-1

* Contact captivation per U.S. patent number 3,292,117.
Finish: Gold plate.

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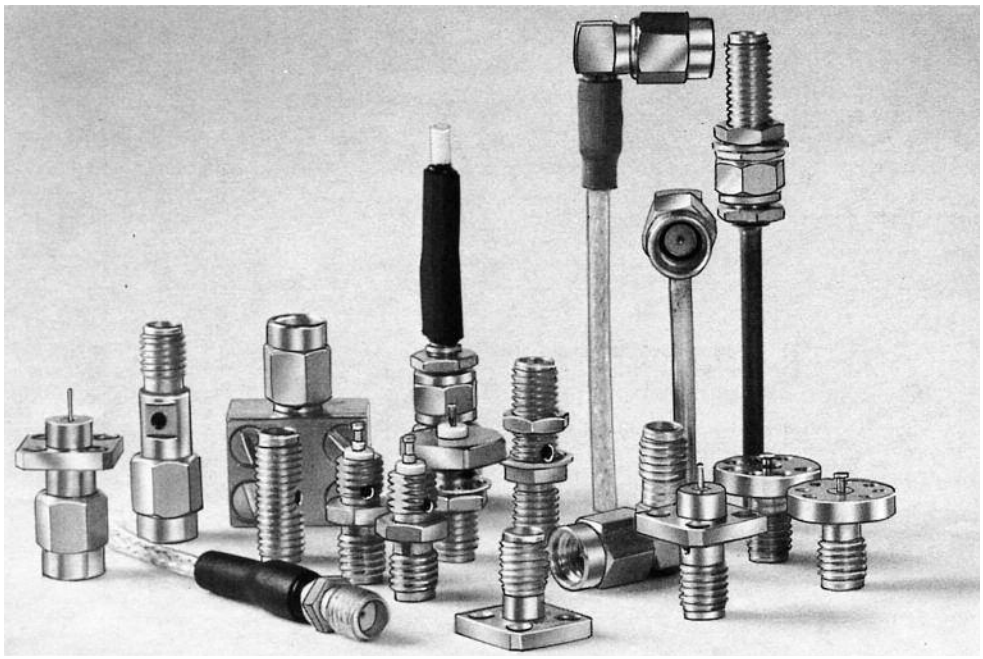
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SSMA Subminiature Coaxial Connectors

Introduction



The success of the SMA connector created a need for a smaller version for reduced packaging requirements. The SSMA series was designed to a size compatible with smaller diameter semi-rigid cable. The coupling thread is 10-36 UNS thread.

Design and Construction

As with the SMA series, all shell and body parts are made of stainless steel for ruggedness and long life. The dielectric is solid PTFE fluorocarbon. The center contacts are made of beryllium copper, gold plated.

Types

SSMA connectors are available for both semi-rigid and flexible coaxial cable. Panel and bulkhead mount, strip transmission line type, microstrip transmission type and hermetically sealed connectors and in-series adapters give designers complete flexibility for component and system design.

Upper Operating Frequency Limits

The standard SSMA series allows operation to 38.0 GHz. The extended frequency SSMA series allows high order mode free operation beyond 40.0 GHz. The extended frequency series directly mates with the standard SSMA series with minimum discontinuity.

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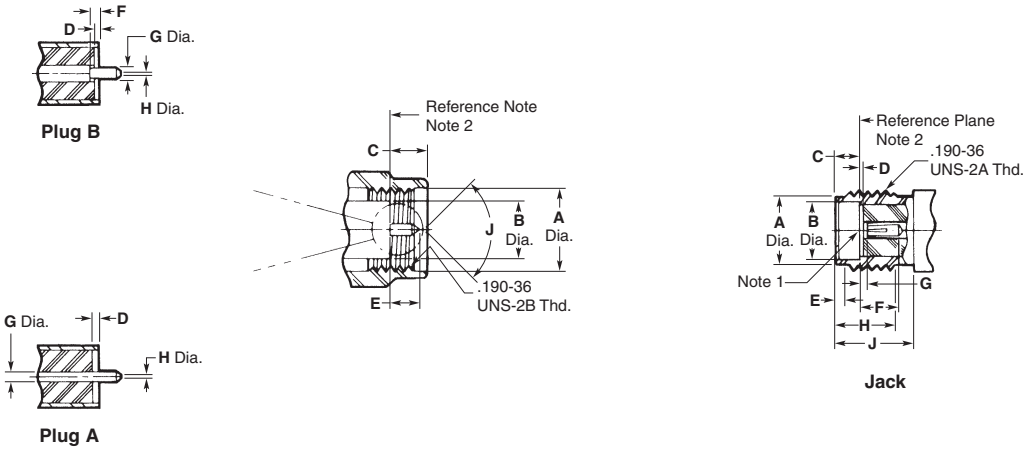
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SSMA Subminiature Coaxial Connectors (Continued)

Interface Mating Dimensions



Plug

Dim.	Min.	Max.
A	**.196** 4.98	**.202** 5.13
B	**.124** 3.15	**.127** 3.22
C	**.100** 2.54	**.133** 3.38
D	**.000** 0.00	**.007** 0.25
E	**.050** 1.27	**.065** 1.65
F	**.000** 0.00	**.010** 0.25
G	**.020** 0.50	**.021** 0.53
H	**.000** 0.00	**.010** 0.25
J	70°	95°

Jack

Dim.	Min.	Max.
A	**.153** 3.89	**.160** 4.06
B	**.127** 3.23	**.130** 3.30
C	**.075** 1.91	**.077** 1.96
D	**.000** 0.00	**.007** 0.25
E	**.020** 0.51	**.040** 1.02
F	**.075** 1.91	—
G	**.000** 0.00	**.010** 0.25
H	**.190** 4.83	**.210** 5.33
J	**.230** 5.84	—

1. ID to meet VSWR and contact resistance when mated with .020 +.0008/-.0005 [0.51 +.0203/-.0127] dia. pin.
2. When fully engaged, the two reference planes must coincide with metal to metal contact.

SSMA Subminiature Coaxial Connectors (Continued)

Specifications

General	
Materials	Steel corrosion resistant per ASTM-A-582 and ASTM-A-484, Type 303. Beryllium copper per ASTM B 196. PTFE Fluorocarbon per ASTM-D-1457.
Finishes which	Center contacts shall be gold plated to a min. thickness of .00005 [0.0013] in accordance with MIL-G-45204, Typ I, Grade C. All other metal parts shall be finished as to provide a connector meets the corrosion requirements.
Design	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	The insulation resistance shall not be less than 5,000 megohms.
Corona Level	The connector shall not exhibit breakdown when the voltage is 190 volts rms at 70,000 ft.
Dielectric Withstanding Voltage	The magnitude of the test voltage shall be 750 volts rms at sea level.
RF HIgh Potential	The withstanding voltage is 500 volts rms at 5 MHz. Leakage current is not applicable.
Contact Resistance	Center contact resistance: 2 milliohms max. Outer contact resistance: 2 milliohms max.
VSWR	Refer to applicable military slash sheet or consult factory. Frequency range dependent on cable used.
RF Leakage	Refer to applicable military slash sheet or consult factory.
Insertion Loss	Refer to applicable military slash sheet or consult factory. Frequency range dependent on cable use.
Mechanical	
Force to Engage	The torque required to engage and disengage shall not exceed 2 in.-lbs. The longitudinal force is not applicable.
Coupling Nut Retention	60 lbs. min. Applicable for plug connectors only.
Coupling Proof Torque	5 in.-lbs. min. Applicable for plug connectors only.
Cable Retention	Refer to applicable military slash sheet or consult factory.
Mating Characteristics	Applicable to jack connectors only. Reference MIL-STD-348A for dimensions; oversize pin .021 [0.53] min. dia., .045 [1.14] deep; insertion force 3 lbs. max. with .0208 [0.528] min. dia. pin; withdrawal force 1 oz. min. with .0195 [0.495] max. dia. pin.
Connector Durability	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	5 in.-lbs.
Environmental	
Vibration	Specification MIL-STD-202, method 204, test condition D.
Shock	Specification MIL-STD-202, method 213, test condition I.
Thermal Shock	Refer to applicable military slash sheet or consult factory.
Corrosion (Salt Spray)	Specification MIL-STD-202, method 101, test condition B.
Moisture Resistance	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.

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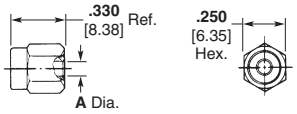
SSMA Subminiature Coaxial Connectors (Continued)

For Semi-Rigid Cable

.085 [2.16] Dia. Direct Solder Attachment

Straight Cable Plug (Without Center Contact)



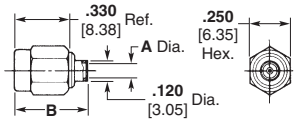


Part No.	Reference Part No. (Ref. Only)	Dim. A	RG/U Cable
1045370-1	1001-7985-02	.088 2.22 Min.	405

Electrical
DC — 40.0 GHz

Straight Cable Plug (With Center Contact)

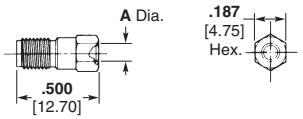




Part No.	Reference Part No. (Ref. Only)	Dim. A	Dim. B	RG/U Cable	DSCC Part No.
1045351-1	1001-5004-02	.088 2.22 Min.	.447 11.35 Ref.	405	—
1045358-1	1001-5045-92	.088 2.22 Min.	.467 11.86 Ref.	405	86116ZSG

Straight Cable Jack (With Center Contact)

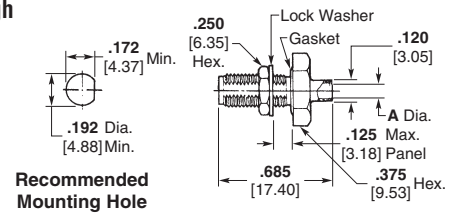




Part No.	Reference Part No. (Ref. Only)	Dim. A	RG/U Cable
1045381-1	1002-7985-00	.088 2.22 Min.	405

Bulkhead Feed-through Cable Jack

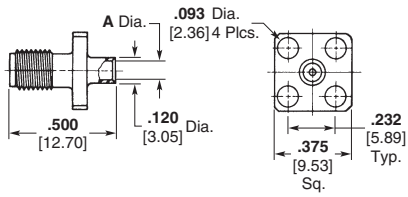




Part No.	Reference Part No. (Ref. Only)	Dim. A	RG/U Cable	DSCC Part No.
1045401-1	1004-7985-00	.088 2.22 Min.	405	—
1045398-1	1004-5005-90	.088 2.22 Min.	405	86117ZSG

Flange Mount Cable Jack

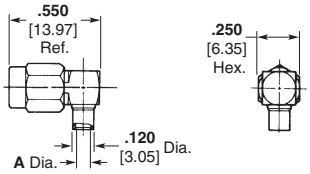




Part No.	Reference Part No. (Ref. Only)	Dim. A	RG/U Cable
1045410-1	1006-7985-00	.088 2.22 Min.	405

Right-Angle Cable Plug





Part No.	Reference Part No. (Ref. Only)	Dim. A	RG/U Cable	DSCC Part No.
1045423-1	1007-7985-02	.088 2.22 Min.	405	—
1045418-1	1007-5015-92	.088 2.22 Min.	405	86118ZSG

Finish: Passivated stainless steel, -02. For gold plated coupling nut, change the Part Number suffix from -02 to -00. Inner housing that is soldered to cable is gold plated.
Refer to recommended assembly tools in Application Tooling Section.

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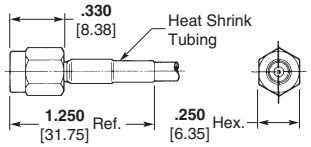
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SSMA Subminiature Coaxial Connectors (Continued)

For Flexible Cable — Solder Attachment

Straight Cable Plug[1]

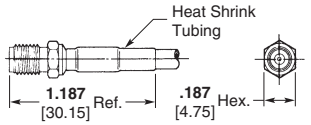




Part No.	Reference Part No. (Ref. Only)	RG/U Cable
1045477-1	1031-5001-02	178/U, 196
1045482-1	1031-5002-02	174/U, 179, 187, 188, 316

Straight Cable Jack



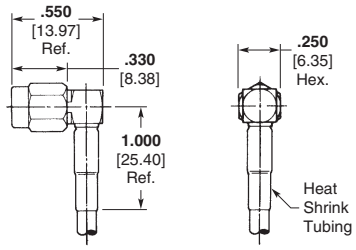


Part No.	Reference Part No. (Ref. Only)	RG/U Cable
1045496-1	1032-5001-00	178/U, 196
1045497-1	1032-5002-00	174/U, 179, 187, 188, 316

Finish: Gold plated. Inner housing that is soldered to cable is gold plated.

Right-Angle Cable Plug[1]



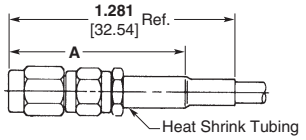


Part No.	Reference Part No. (Ref. Only)	RG/U Cable
1045507-1	1037-5001-00	178/U, 196
1045508-1	1037-5001-02	178/U, 196
1045511-1	1037-5002-02	174/U, 179, 187, 188, 316

For Flexible Cable — Crimp Attachment

Straight Cable Plug[1, 2]

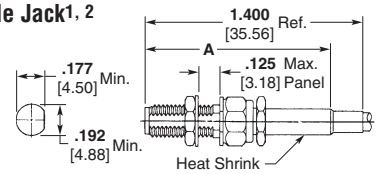




Part No.	Reference Part No. (Ref. Only)	Dim. A	RG/U Cable	DSCC Part No.
1045489-1	1031-7188-02	**1.062** 26.97 Ref.	174/U, 179, 187, 188, 316	—
1045486-1	1031-5031-92	**1.062** 26.97 Ref.	174, 316, 179	86119ZSG

Bulkhead Feed-through Cable Jack[1, 2]



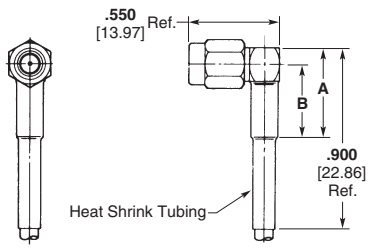


Recommended Mounting Hole

Part No.	Reference Part No. (Ref. Only)	Dim. A	RG/U Cable
1045506-1	1034-7196-02	**1.050** 26.67 Ref	178/U, 196
1045503-1	1034-7188-02	**1.180** 29.97 Ref.	174/U, 179, 187, 188, 316

Right-Angle Cable Plug[1, 2]





Part No.	Reference Part No. (Ref. Only)	Dim. A	Dim. B	RG/U Cable	DSCC Part No.
1045520-1	1037-7188-02	**.625** 15.88 Ref	**.525** 13.34 Ref.	174/U, 179, 187, 188, 316	—
1045517-1	1037-5032-92	**.625** 15.88 Ref	**.525** 13.34 Ref.	174, 316, 179	86120ZSG

Refer to recommended assembly tools in Application Tooling Section.

1. Finish: Passivated stainless steel, -02. For gold plated coupling nut, change the Part Number suffix from -02 to -00. Inner housing that is soldered to cable is gold plated.
2. Captured contact.
3. Non-captured contact

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Revised 9-14

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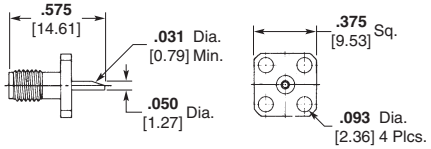
SSMA Subminiature Coaxial Connectors (Continued)

Panel Mount Receptacles

Solder Pot Terminals

Flange Mount Jack Receptacle[1]

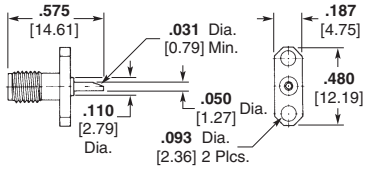




Reference Part No. (Ref. Only)	Part No.
1052-0000-00	1045568-1

Flange Mount Jack Receptacle[1]

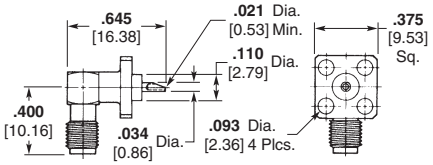




Reference Part No. (Ref. Only)	Part No.
1052-1300-02	1045582-1

Flange Mount Jack Receptacle[1]





Reference Part No. (Ref. Only)	Part No.
1054-5005-02	1045621-1

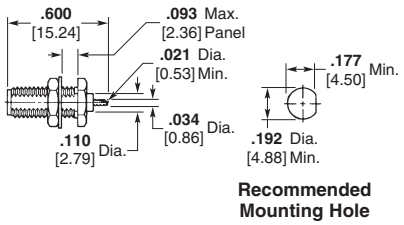
Bulkhead Mount Receptacles

Solder Pot Terminals

Bulkhead Feed-through Jack Receptacles[1]

Rear Mount

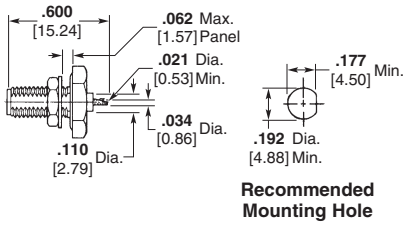




Reference Part No. (Ref. Only)	Part No.
1056-0000-02	1045630-1

Rear Mount (With "O" Ring)





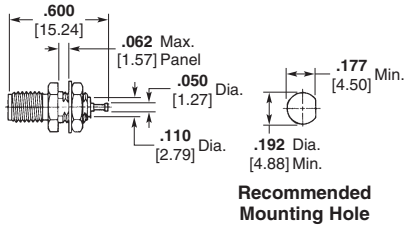
Reference Part No. (Ref. Only)	Part No.
1056-1100-02	1045632-1

Turret Terminal

Bulkhead Feed-through Jack Receptacle[1]

Front Mount





Reference Part No. (Ref. Only)	Part No.
1058-0000-02	1045637-1

Finish: Passivated stainless steel, -02. For gold plate, change the Part Number suffix from -02 to -00.
1. Captured Center Contact.

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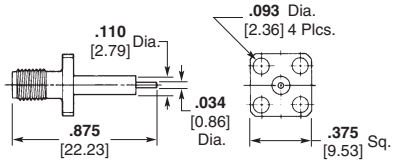
SSMA Subminiature Coaxial Connectors (Continued)

Panel Mount Receptacles

Straight Terminal

Flange Mount Jack Receptacle[2]



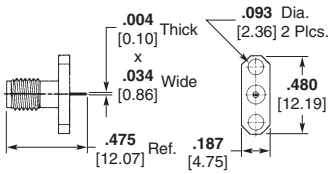


Reference Part No. (Ref. Only)	Part No.
1052-1200-02	1045576-1
1052-1201-02	1045578-1

Tab Terminal

Flange Mount Jack Receptacle[2]



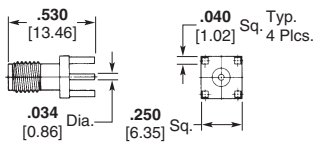


Reference Part No. (Ref. Only)	Part No.
1052-1302-02	1045586-1

Printed Circuit Boards

Straight Jack

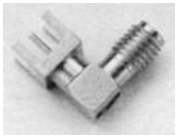


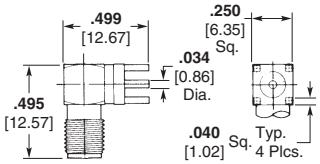


Reference Part No. (Ref. Only)	Part No.
1062-0000-00	1045672-1

Finish: Gold plate.

Right-Angle Jack





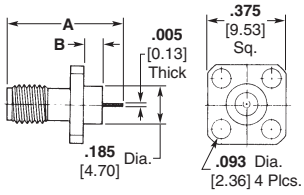
Reference Part No. (Ref. Only)	Part No.
1064-0000-00	1045677-1

Circuits

Microstrip Transmission Line Circuits, Flange Mount Jack[1]

Tab Terminal

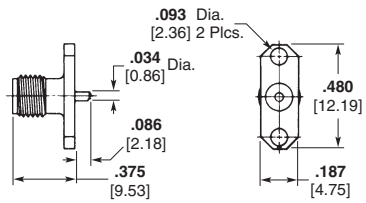




Reference Part No. (Ref. Only)	Part No.	Dim. A	Dim. B
1052-1132-00	1045573-1	.600 15.24 Ref.	.125 3.18 Ref.

Solderless Compression Terminal





Reference Part No. (Ref. Only)	Part No.
1052-5013-00	1045607-1

Finish: Passivated stainless steel, -02. For gold plate, change the Part Number suffix from -02 to -00.
1. Captured center contact.
2. Non-captured center contact.

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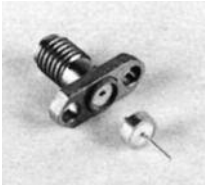
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SSMA Subminiature Coaxial Connectors (Continued)

Hermetically Sealed

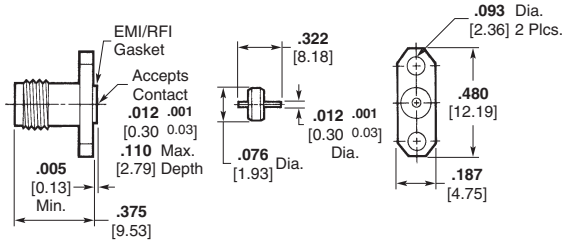
Metal-To-Metal Hermetic Seal

Jack Receptacle With EMI/RFI Gasket, Field Replaceable Solder and Braze-In[1, 4]



Electrical

VSWR (GHz) — 1.07 + .011f
RF Leakage (dB) — –(100 – fGHz)



Reference Part No. (Ref. Only)	Part No.
1052-3355-02	1045598-1

Feed-through Jack Receptacle, Formable Gasket[2, 4]

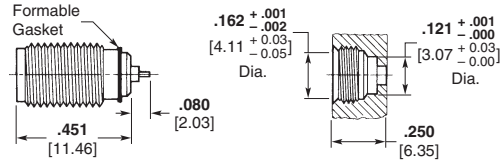


Electrical

VSWR (GHz) — 1.05 + .01f
RF Leakage (dB) — –(100 – fGHz)

Mechanical

Installation Thermal Limit — 250°C



Recommended Mounting Hole

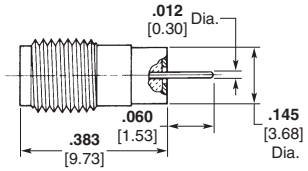
Reference Part No. (Ref. Only)	Part No.
1058-5014-00	1045651-1

Feed-through Jack Receptacle, Solder and Braze-In[3]



Electrical

VSWR (GHz) — 1.05 + .014f
RF Leakage (dB) — –(100 – fGHz)



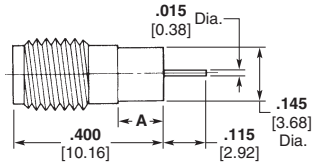
Reference Part No. (Ref. Only)	Part No.
1058-3203-00	1045647-1

Panel Feed-through Jack Receptacle, Solder and Braze-In



Electrical

VSWR (GHz) — 1.05 + .014f
RF Leakage (dB) — –(70 – fGHz)



Reference Part No. (Ref. Only)	Part No.	Dim. A
1058-3121-00	1045643-1	.093 2.36
1058-3123-00	1045646-1	.187 4.75

Finish: Gold plate.

1. Finish: Passivated stainless steel, -02. For gold plate, change the Part Number suffix from -02 to -00.
2. Finish: Gold plate, -00. For passivated stainless steel, change the Part Number suffix from -00 to -02. For nickel plate, change the suffix from -00 to -10.
3. Finish: Gold plate, -00. This unit has a unique self-matching compensation step, allowing direct attachment to the substrate, resulting in minimal package size.
4. Refer to recommended assembly tools in Application Tooling section.

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SSMA Subminiature Coaxial Connectors (Continued)

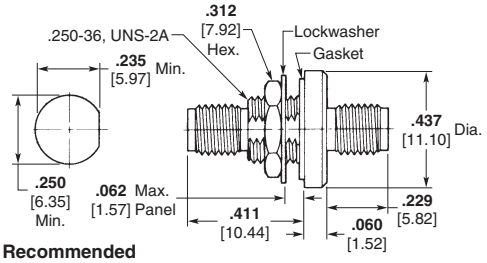
Hermetically Sealed
(Continued)

Panel Feed-through Hermetic Adapter

Jack to Jack[1]



Electrical
VSWR (GHz) — 1.10 + .01f
RF Leakage (dB) — –(100 – fGHz)



Recommended Mounting Hole

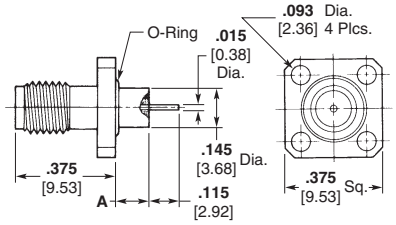
Reference Part No. (Ref. Only)	Part No.
1084-1100-00	1045725-1

O-Ring Gasket Hermetic Seal

Flange Mount Jack Receptacle[1, 2]



Electrical
VSWR (GHz) — 1.05 + .01f
RF Leakage (dB) — –(70 – fGHz)

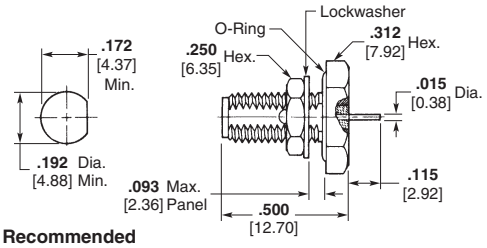


Reference Part No. (Ref. Only)	Part No.	Dim. A
1052-3121-00	1045593-1	.093 2.36

Rear Mount Jack Receptacle[1, 2]



Electrical
VSWR (GHz) — 1.05 + .014f
RF Leakage (dB) — –(70 – fGHz)



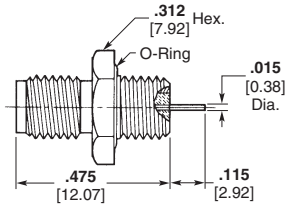
Recommended Mounting Hole

Reference Part No. (Ref. Only)	Part No.
1056-3100-00	1045633-1

Bulkhead Feed-through Front Mount Jack Receptacle



Electrical
VSWR (GHz) — 1.05 + .01f
RF Leakage (dB) — –(70 – fGHz)



Reference Part No. (Ref. Only)	Part No.
1058-3100-00	1045642-1

1. Finish: Gold plate, -00. For passivated stainless steel, change the Part Number suffix from -00 to -02.
2. On passivated versions (-02), pins are pre-tinned using Sn60 solder.

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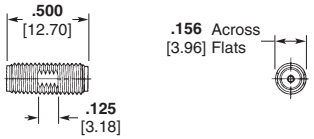
For additional support numbers please visit www.te.com

SSMA Subminiature Coaxial Connectors (Continued)

In-Series Adapters

Jack to Jack Adapter

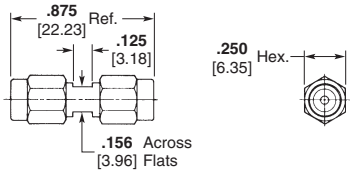




Reference Part No. (Ref. Only)	Part No.
1080-0000-02	1045701-1

Plug to Plug Adapter

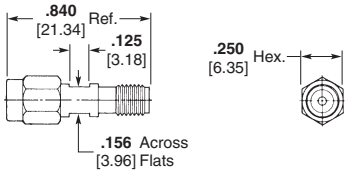




Reference Part No. (Ref. Only)	Part No.
1081-0000-02	1045704-1

Plug to Jack Adapter (Connector Saver)

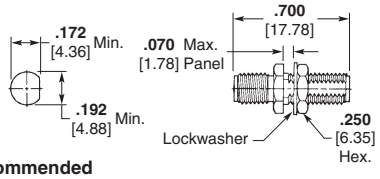




Reference Part No. (Ref. Only)	Part No.
1082-0000-02	1045708-1

Bulkhead Mount Jack to Jack Adapter



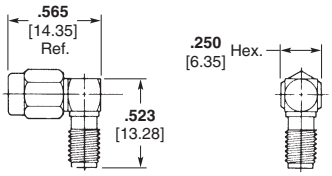


Recommended Mounting Hole

Reference Part No. (Ref. Only)	Part No.
1084-0000-02	1045723-1

Right-Angle Plug to Jack Adapter





Reference Part No. (Ref. Only)	Part No.
1088-0000-02	1045747-1

Finish: Passivated stainless steel, -02. For gold plate, change the Part Number suffix from -02 to -00.

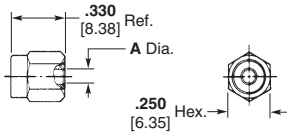
SSMA Subminiature Coaxial Connectors (Continued)

High Frequency For Semi-Rigid Cable

.085 [2.16] and .070 [1.78] Dia. — Direct Solder Attachment

Straight Cable Plug (Without Center Contact)[1, 3]





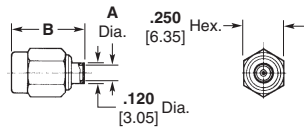
Specifications

Nominal Impedance — 50 ohms
Frequency Range — dc to 40 GHz
Voltage Standing Wave Ratio — 1.07 + .010 f (GHz)
Insertion Loss — .04 x $\sqrt{f\ (GHz)}$ = dB max.
Voltage Rating — 250 volts RMS max. working voltage

Reference Part No. (Ref. Only)	Part No.	Dim. A	RG/U Cable	Cable Dielectric
1001-7985-00	1045369-1	.087 2.2	405	Solid PTFE

Straight Cable Plug Center Contact[1, 3]

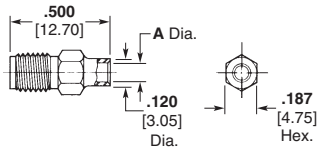




Reference Part No. (Ref. Only)	Part No.	Dim. A	Dim. B	RG/U Cable	Cable Dielectric
1401-7985-00	1046477-1	.088 2.22	.447 11.35	405	Solid PTFE

Straight Cable Jack[3]





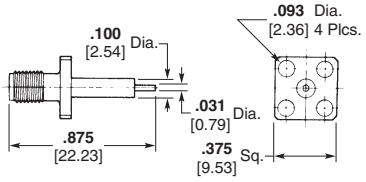
Reference Part No. (Ref. Only)	Part No.	Dim. A	RG/U Cable	Cable Dielectric
1402-7985-00	1046479-1	.088 2.22	405	Solid PTFE

Finish: Gold plate.

Panel Mount — Straight Terminal

Flange Mount Jack Receptacle[2, 4]





Reference Part No. (Ref. Only)	Part No.
1452-1201-02	1086451-1

1. Finish: Gold plated, -00. For passivated stainless steel coupling nut, change the Part Number suffix from -00 to -02. Inner housing that is soldered to cable is gold plated.
2. Finish: Passivated stainless steel, -02. For gold plate, change the Part Number suffix from -02 to -00.
3. Refer to recommended assembly tools in Appication Tooling Section.
4. Captured center contact.

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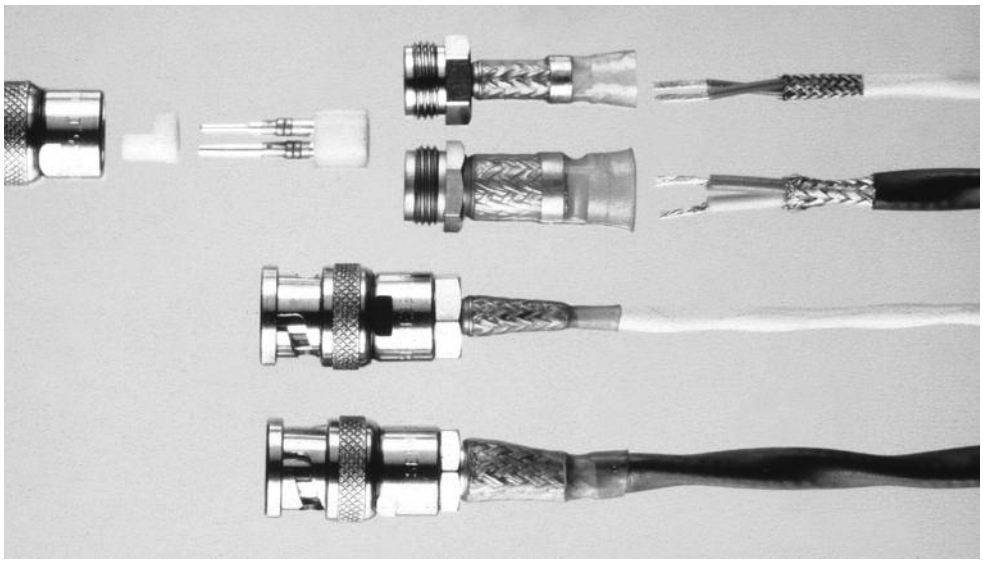
USA: +1 800 522 6752
Asia Pacific: +86 0 400 820 6015
UK: +44 800 267 666

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RF One-Step BNC/TNC Connectors

Product Facts

- **Easy, quick installation**
- **Outstanding cable-retention force**
- **Solder-solder connection type (center conductor and braid)**
- **One-step termination for easy, quick installation and lower installed cost**
- **Exceptional cable retention force to withstand high vibration and frequent mates and unmates**
- **Fully soldered center conductor and braid**
- **Excellent built-in strain relief against vibration and excessive handling**
- **Long-term reliability**
- **Controlled soldering termination**
- **Use with standard RG/U cables and Raychem brand Cheminax cables**
- **Three product sizes to accommodate a wide range of cables**
- **Meets performance requirements of MIL-PRF-39012 up to 2.8 GHz**



Applications

One-Step BNC/TNC connectors are single-piece assemblies for terminating the center conductor and the braid of a broad range of coaxial cables.

The connectors are fully intermateable with MIL-PRF-39012 connectors and are available in 50-ohm and 75-ohm versions.

Specifications	Installation	
TE Connectivity RB-115	For proper installation of these devices, the correct heating tool and reflector attachment must be used. Any one of the following Raychem heating tools is recommended: • Steinel® Model HL1802E • CV-1981	Refer to TE installation procedure RPIP 683-00 for detailed instructions.

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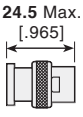
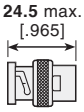
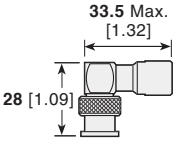
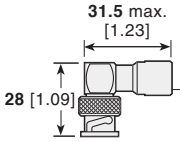
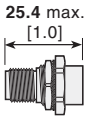
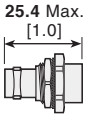
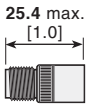
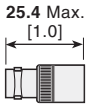
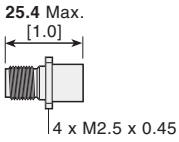
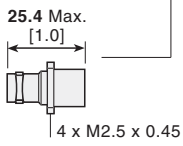
Dimensions are in millimeters unless otherwise specified.

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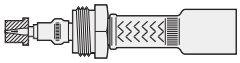
RF One-Step BNC/TNC Connectors (Continued)

Product Options and Part Numbering System

RXX - XX - X - XX	Connector Style Dash No. -XX	Style	Connector Type TNC	Connector Type BNC
	-00	Straight plug		
	-01	Right-angle plug		
	-02	Straight bulkhead jack		
	-03	Straight jack		
	-04	Straight panel jack		



Male



Female

Connector size

- L = Large
- M = Medium
- S = Small

- 50 = 50 ohms
- 75 = 75 ohms

- D = Nickel-plated brass body, gold-plated brass pin

- B = BNC
- T = TNC

Example: RBD-50-L-00 is a BNC connector, 50 ohms, large size, with straight plug body.

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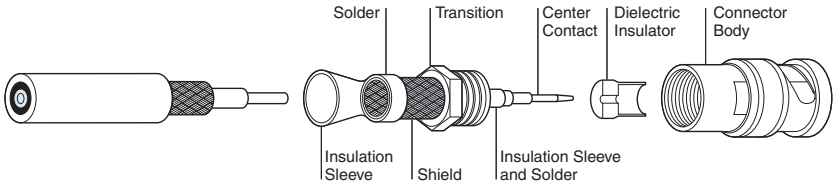
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RF One-Step BNC/TNC Connectors (Continued)

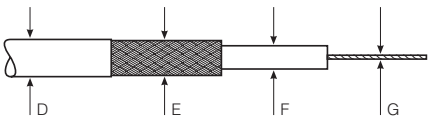
Product Characteristics



Material		
Center contact		Gold-plated beryllium copper (female)
		Gold-plated brass (male)
Dielectric insulator		PTFE
Transition		Silver-plated brass
Connector body		Nickel-plated brass
Solder and flux		Sn63Pb37, RMA flux
Braided shield		Tin-plated copper wire per ASTM B3
Insulation sleeve		Radiation-crosslinked, heat-shrinkable polyvinylidene fluoride, transparent blue
Strain relief/sealing sleeve		Radiation-crosslinked, heat-shrinkable modified polyolefin with adhesive, black
Typical Performance		
Dielectric withstand voltage		1500 V
Insulation resistance		5000 megohms
Temperature rating		-55˚C to 150˚C [-67˚F to 302˚F]
Contact resistance-straight		Inner = 1.5 milliohms, outer = 1.0 milliohm
Contact resistance — right-angle		Inner = 2.5 milliohms, outer = 1.5 milliohms
Cable retention force		295N (66 lb) to 822N (196 lb)
Voltage rating		500 V RMS
Connector durability		500 mating cycles minimum
Electrical Performance		
Nominal impedance		50 and 75 ohms
Frequency range		Up to 2.8 GHz

Part Selection Process

1. From Product Options and Part Numbering System on page 2-35, select the connector style you need (BNC or TNC, plug or jack, male or female contacts).
2. From the tables that follow, find the appropriate table for the connector style you selected.
3. From the appropriate table, select the connector part number based on the RG cable type or Raychem cable part number. For cable types not shown use the cable dimensions.
   Note: The cable dimensions in each table are keyed to the diagram below.



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RF One-Step BNC/TNC Connectors (Continued)

Impedance (ohms)	Cable Type RG Cables	Raychem Cables	Cable Dimensions D (Min.–Max.)	E (Min.–Max.)	F (Max.)	G (Max.)	Part No.
BNC Straight Plugs, Male Contacts							
50	RG-174, RG-178, RG-188, RG-196,RG–316	5026A1311, 5028A1317, 5030A1317	1.50–5.50 [.060–.217]	0.90–3.00 [.035–.118]	1.55 [.060]	0.65 [.025]	RBD-50-S-00
50	RG-58, RG-141, RG-142, RG-303, RG-400	5019D3318, 5021D1331, 5020A1311	3.50–7.00 [.138–.276]	2.10–5.00 [.083–.197]	3.00 [.118]	1.25 [.050]	RBD-50-M-00
50	RG-165, RG-215, RG-213, RG-225, RG-214	5012F3332, 5012A3311	5.00–12.50 [.197–.500]	4.10–9.50 [.161–.375]	7.30 [.287]	2.45 [.100]	RBD-50-L-00
75	RG-179, RG-187	7530A1317	1.50–5.00 [.060–.217]	5 0.90-3.00 [.035–.118]	1.55 [.060]	0.65 [.025]	RBD-75-S-00
75	—	7524A1311, 7528A1317	3.50–7.00 [.138–.276]	2.10–5.00 [.083–.197]	3.70 [.126]	1.25 [.050]	RBD-75-M-00
75	RG-6, RG-11, RG-12, RG-59 RG-144, RG-216	—	5.00–.12.50 [.197–.500]	4.10–9.50 [.161–.375]	7.3 [.287]	2.45 [.100]	RBD-75-L-00
BNC Right-Angle Plugs, Male Contacts							
50	RG-174, RG-178, RG-188, RG-196,RG–316	5026A1311, 5028A1317, 5030A1317	1.50–5.50 [.060–.217]	0.90–3.00 [.035–.118]	1.55 [.060]	0.65 [.025]	RBD-50-S-01
50	RG-58, RG-141, RG-142, RG-303, RG-400	5019D3318, 5021D1331, 5020A1311	3.50–7.00 [.138–.276]	2.10–5.00 [.083–.197]	3.00 [.118]	1.25 [.050]	RBD-50-M-01
50	RG-165, RG-215, RG-213, RG-225, RG-214	5012F3332, 5012A3311	5.00–12.50 [.197–.500]	4.1–9.50 [.161–.375]	7.30 [.287]	2.45 [.100]	RBD-50-L-01
75	RG-179, RG-187	7530A1317	1.50–5.50 [.060–.217]	0.9-3.00 [.035–.118]	1.55 [.060]	0.65 [.025]	RBD-75-S-01
75	—	524A1311, 7528A1317	3.50–7.00 [.138–.276]	2.1–5.00 [.083–.197]	3.70 [.146]	1.25 [.050]	RBD-75-M-01
75	RG-6, RG-11, RG-12, RG-59 RG-144, RG-216	—	5.00–12.50 [.197–.500]	4.1–9.50 [.161–.375]	7.30 [.287]	2.45 [.100]	RBD-75-L-01
BNC Straight Bulkhead Jacks, Female Contacts							
50	RG-174, RG-178, RG-188, RG-196,RG–316	5026A1311, 5028A1317, 5030A1317	1.50–5.50 [.060–.217]	0.90–3.00 [.035–.118]	1.55 [.060]	0.65 [.025]	RBD-50-S-02
50	RG-58, RG-141, RG-142, RG-303, RG-400	5019D3318, 5021D1331, 5020A1311	3.50–7.00 [.138–.276]	2.10–5.00 [.083–.197]	3.00 [.118]	1.25 [.050]	RBD-50-M-02
50	RG-165, RG-215, RG-213, RG-225, RG-214	5012F3332, 5012A3311	5.00–12.50 [.197–.500]	4.10–9.50 [.161–.375]	7.30 [.287]	2.45 [.100]	RBD-50-L-02
75	RG-179, RG-187	7530A1317	1.50–5.00 [.060–.217]	5 0.90-3.00 [.035–.118]	1.55 [.060]	0.65 [.025]	RBD-75-S-02
75	—	75 7524A1311, 7528A1317	3.50–7.00 [.138–.276]	2.10–5.00 [.083–.197]	3.70 [.146]	1.25 [.050]	RBD-75-M-02
75	RG-6, RG-11, RG-12, RG-59 RG-144, RG-216	—	5.00-12.50 [.197–.500]	4.10–9.50 [.161–.375]	7.30 [.287]	2.45 [.100]	RBD-75-L-02
BNC Straight Jacks, Female Contacts							
50	RG-174, RG-178, RG-188, RG-196,RG–316	5026A1311, 5028A1317, 5030A1317	1.50–5.50 [.060–.217]	0.90–3.00 [.035–.118]	1.55 [.060]	0.65 [.025]	RBD-50-S-03
50	RG-58, RG-141, RG-142, RG-303, RG-400	5019D3318, 5021D1331, 5020A1311	3.50–7.00 [.138–.276]	2.10–5.00 [.083–.197]	3.00 [.118]	1.25 [.050]	RBD-50-M-03
50	RG-165, RG-215, RG-213, RG-225, RG-214	5012F3332, 5012A3311	5.00–12.50 [.197–.500]	4.10–9.50 [.161–.375]	7.30 [.287]	2.45 [.100]	RBD-50-L-03
75	RG-179, RG-187	7530A1317	1.50–5.50 [.060–.217]	0.90–3.00 [.035–.118]	1.55 [.060]	0.65 [.025]	RBD-75-S-03
75	—	75 7524A1311, 7528A1317	3.50–7.00 [.138–.276]	2.10–5.00 [.083–.197]	3.70 [.146]	1.25 [.050]	RBD-75-M-03
75	RG-6, RG-11, RG-12, RG-59 RG-144, RG-216	—	5.00–12.50 [.197–.500]	4.10–9.50 [.161–.375]	7.30 [.287]	2.45 [.100]	RBD-75-L-03
BNC Straight Panel Jacks, Female Contacts							
50	RG-174, RG-178, RG-188, RG-196,RG–316	5026A1311, 5028A1317, 5030A1317	1.50–5.50 [.060–.217]	0.90–3.00 [.035–.118]	1.55 [.060]	0.65 [.025]	RBD-50-S-04
50	RG-58, RG-141, RG-142, RG-303, RG-400	5019D3318, 5021D1331, 5020A1311	3.50–7.00 [.138–.276]	2.10–5.00 [.083–.197]	3.00 [.118]	1.25 [.050]	RBD-50-M-04
50	RG-165, RG-215, RG-213, RG-225, RG-214	5012F3332, 5012A3311	5.00–12.50 [.197–.500]	4.10–9.50 [.161–.375]	7.30 [.287]	2.45 [.100]	RBD-50-L-04
75	RG-179, RG-187	7530A1317	1.50–5.50 [.060–.217]	0.90–3.00 [.035–.118]	1.55 [.060]	0.65 [.025]	RBD-75-S-04
75	—	7524A1311, 7528A1317	3.50–7.00 [.138–.276]	2.10–5.00 [.083–.197]	3.70 [.146]	1.25 [.050]	RBD-75-M-04
75	RG-6, RG-11, RG-12, RG-59 RG-144, RG-216	—	5.00–12.50 [.197–.500]	4.10–9.5o [.161–.375]	7.30 [.287]	2.45 [.100]	RBD-75-L-04

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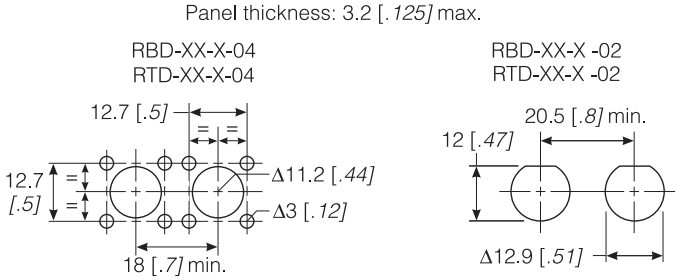
RF One-Step BNC/TNC Connectors (Continued)

TNC Coaxial Connectors

Impedance (ohms)	Cable Type: RG Cables	Cable Type: Raychem Cables	Cable Dimensions: D (Min.–Max.)	Cable Dimensions: E (Min.–Max.)	Cable Dimensions: F (Max.)	Cable Dimensions: G (Max.)	Part No.
TNC Straight Plugs, Male Contacts							
50	RG-174, RG-178, RG-188, RG-196,RG–316	5026A1311, 5028A1317, 5030A1317	1.50–5.50 [.060–.217]	0.90–3.00 [.035–.118]	1.55 [.060]	0.65 [.025]	RTD-50-S-00
50	RG-58, RG-141, RG-142, RG-303, RG-400	5019D3318, 5021D1331, 5020A1311	3.50–7.00 [.138–.276]	2.10–5.00 [.083–.197]	3.00 [.118]	1.25 [.050]	RTD-50-M-00
50	RG-165, RG-215, RG-213, RG-225, RG-214	5012F3332, 5012A3311	5.00–12.50 [.197–.500]	4.10–9.50 [.161–.375]	7.30 [.287]	2.45 [.100]	RTD-50-L-00
75	RG-179, RG-187	7530A1317	1.50–5.50 [.060–.217]	0.90-3.00 [.035–.118]	1.55 [.060]	0.65 [.025]	RTD-75-S-00
75	—	7524A1311, 7528A1317	3.50–7.00 [.138–.276]	2.10–5.00 [.083–.197]	3.70 [.146]	1.25 [.050]	RTD-75-M-00
75	RG-6, RG-11, RG-12, RG-59 RG-144, RG-216	—	5.00–12.50 [.197–.500]	4.10–9.50 [.161–.375]	7.30 [.287]	2.45 [.100]	RTD-75-L-00
TNC Straight Jacks, Female Contacts							
50	RG-174, RG-178, RG-188, RG-196,RG–316	5026A1311, 5028A1317, 5030A1317	1.5–5.5 [.060–.217]	0.9–3.0 [.035–.118]	1.55 [.060]	0.65 [.025]	RTD-50-S-03
50	RG-58, RG-141, RG-142, RG-303, RG-400	5019D3318, 5021D1331, 5020A1311	3.5–7.0 [.138–.276]	2.1–5.0 [.083–.197]	3.0 [.118]	1.25 [.050]	RTD-50-M-03
50	RG-165, RG-215, RG-213, RG-225, RG-214	5012F3332, 5012A3311	5.0–12.5 [.197–.500]	4.1–9.5 [.161–.375]	7.3 [.287]	2.45 [.100]	RTD-50-L-03
75	RG-179, RG-187	7530A1317	1.5–5.5 [.060–.217]	0.9–3.0 [.035–.118]	1.55 [.060]	0.65 [.025]	RTD-75-S-03
75	—	7524A1311, 7528A1317	3.5–7.0 [.138–.276]	2.1–5.0 [.083–.197]	3.7 [.146]	1.25 [.050]	RTD-75-M-03
75	RG-6, RG-11, RG-12, RG-59 RG-144, RG-216	—	5.0–12.5 [.197–.500]	4.1–9.5 [.161–.375]	7.3 [.287]	2.45 [.100]	RTD-75-L-03
TNC Straight Panel Jacks, Female Contacts							
50	RG-174, RG-178, RG-188, RG-196,RG–316	5026A1311, 5028A1317, 5030A1317	1.5–5.5 [.060–.217]	0.9–3.0 [.035–.118]	1.55 [.060]	0.65 [.025]	RTD-50-S-04
50	RG-58, RG-141, RG-142, RG-303, RG-400	5019D3318, 5021D1331, 5020A1311	3.5–7.0 [.138–.276]	2.1–5.0 [.083–.197]	3.0 [.118]	1.25 [.050]	RTD-50-M-04
50	RG-165, RG-215, RG-213, RG-225, RG-214	5012F3332, 5012A3311	5.0–12.5 [.197–.500]	4.1–9.5 [.161–.375]	7.3 [.287]	2.45 [.100]	RTD-50-L-04
75	RG-179, RG-187	7530A1317	1.5–5.5 [.060–.217]	0.9–3.0 [.035–.118]	1.55 [.060]	0.65 [.025]	RTD-75-S-04
75	—	7524A1311, 7528A1317	3.5–7.0 [.138–.276]	2.1–5.0 [.083–.197]	3.7 [.146]	1.25 [.050]	RTD-75-M-04
75	RG-6, RG-11, RG-12, RG-59 RG-144, RG-216	—	5.0–12.5 [.197–.500]	4.1–9.5 [.161–.375]	7.3 [.287]	2.45 [.100]	RTD-75-L-04

RF One-Step BNC/TNC Connectors (Continued)

TNC Coaxial Connectors



Cable Type			Cable Dimensions				Part No.
Impedance (ohms)	RG Cables	Raychem Cables	D (Min.–Max.)	E (Min.–Max.)	F (Max.)	G (Max.)	
TNC Straight Bulkhead Jacks, Female Contacts							
50	RG-174, RG-178, RG-188, RG-196,RG–316	5026A1311, 5028A1317, 5030A1317	1.50–5.50 [.060–.217]	0.90–3.00 [.035–.118]	1.55 [.060]	0.65 [.025]	RTD-50-S-02
50	RG-58, RG-141, RG-142, RG-303, RG-400	5019D3318, 5021D1331, 5020A1311	3.5–7.0 [.138–.276]	2.10–5.00 [.083–.197]	3.00 [.118]	1.25 [.050]	RTD-50-M-02
50	RG-165, RG-215, RG-213, RG-225, RG-214	5012F3332, 5012A3311	5.0–12.5 [.197–.500]	4.10–9.50 [.161–.375]	7.30 [.287]	2.45 [.100]	RTD-50-L-02
75	RG-179, RG-187	7530A1317	1.5–5.5 [.060–.217]	0.90–3.00 [.035–.118]	1.55 [.060]	0.65 [.025]	RTD-75-S-02
75	—	7524A1311, 7528A1317	3.5–7.0 [.138–.276]	2.10–5.00 [.083–.197]	3.70 [.146]	1.25 [.050]	RTD-75-M-02
75	RG-6, RG-11, RG-12, RG-59 RG-144, RG-216	—	5.0–12.5 [.197–.500]	4.10–9.50 [.161–.375]	7.30 [.287]	2.45 [.100]	RTD-75-L-02
TNC Right-Angle Plugs, Male Contacts							
50	RG-174, RG-178, RG-188, RG-196,RG–316	5026A1311, 5028A1317, 5030A1317	1.50–5.50 [.060–.217]	0.90–3.00 [.035–.118]	1.55 [.060]	0.65 [.025]	RTD-50-S-01
50	RG-58, RG-141, RG-142, RG-303, RG-400	5019D3318, 5021D1331, 5020A1311	3.50–7.00 [.138–.276]	2.10–5.00 [.083–.197]	3.00 [.118]	1.25 [.050]	RTD-50-M-01
50	RG-165, RG-215, RG-213, RG-225, RG-214	5012F3332, 5012A3311	5.00–12.50 [.197–.500]	4.10–9.50 [.161–.375]	7.30 [.287]	2.45 [.100]	RTD-50-L-01
75	RG-179, RG-187	7530A1317	1.50–5.50 [.060–.217]	0.90–3.00 [.035–.118]	1.55 [.060]	0.65 [.025]	RTD-75-S-01
75	—	7524A1311, 7528A1317	3.50–7.00 [.138–.276]	2.10–5.00 [.083–.197]	3.70 [.146]	1.25 [.050]	RTD-75-M-01
75	RG-6, RG-11, RG-12, RG-59 RG-144, RG-216	—	5.0–12.5 [.197–.500]	4.10–9.50 [.161–.375]	7.30 [.287]	2.45 [.100]	RTD-75-L-01

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Application Tooling

Hand Tools

TE Connectivity CERTI-CRIMP Hand Tools are our top-of-the-line crimping tools featuring the original ratcheted crimp control. All tools are designed to exacting specifications, and manufactured using high quality materials to provide long service life. Recommended for low production runs, repairs and prototype work, and applications requiring consistent, highly-reliable terminations.
See Catalog 65780 for further information.

Typical CERTI-CRIMP Hand Tools with Integral (Non-Interchangeable) Dies



Part Number 58537-1 (used with PRO-CRIMPER Tool Frame 354940-1)
for 50 Ohm BNC Dual Crimp MIL Type Connectors



Part Number 220015-1
for 50 Ohm N Connectors



CERTI-CRIMP Hand Tool with Interchangeable Dies

Part Number 69710



Hand Tool Kit for SMA and Blindmate Connectors

Part Number 59981-1



Item Description	Part Numbers	
	TE	Military (M22520/)
Hand Tool	59980-1	36-01
Plug Locator (without Center Contact)	220220-2	36-06
Plug Locator (with Center Contact)	220221-2	36-04
Jack Locator	220222-2	36-05
Die Set for RG-402/U Cable (.141 [3.58] O.D.)	312253-1	36-03
Die Set for RG-405/U Cable (.086 [2.18] O.D.)	312253-2	36-02
Cutoff Fixture	311395-1	36-09
Cable Dressing Fixture	311396-1	36-07
Trimmer Tool	312317-1	36-08
Cable Bend Fixture Assembly Includes following 6 items:	220224-1	36-10
Bend Segment, RG-402/U (.125 [3.18] Radius)	311386-1	36-11
Bend Segment, RG-402/U (.250 [6.35] Radius)	311386-2	36-12
Bend Segment, RG-405/U	311386-3	36-13
Tool Holder	311392-1	—
Limiting Pin	307581-1	—
Conforming Block	312067-1	—
Hex Wrench	21027-6	—
Carrying Case	13126-1	—
Insert, Case	13127-1	—

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Application Tooling (Continued)

Solder Assembly Kit Brass SMA Connectors

Kit Part Number 1055420-1

(Reference Kit Part Number 2098-5066-54)

For installation of SMA connectors to .035 [0.89] and .141 [3.58] diameter semi-rigid cable



Inserts



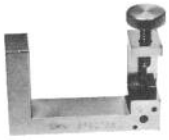
Locator Tools



Dielectric Insert Tool



Solder Gauge



Fixture Sub-Assembly



Retainer Ring Pliers



Dielectric Recess Tool



Center Contact Holder

Item Description	Part No.	Reference Part No. (Ref. Only)
Center Contact Holder	1055454-1	2098-5221-10
Dielectric Insert Tool	1055448-1	2098-5215-02
	1055447-1	2098-5214-02
Dielectric Recess Tool	1055450-1	2098-5217-54
Fixture Sub-Assembly	1055439-1	2098-5206-54
Inserts — .085 [2.16] (2)	1055441-1	2098-5208-54
Inserts — .141 [3.58] (2)	1055440-1	2098-5207-54
Locator Tool	1055442-1	2098-5209-02
	1055443-1	2098-5210-02
	1055446-1	2098-5213-02
	1055451-1	2098-5218-02
Retainer Ring Pliers	1055449-1	2098-5216-54
Solder Gauge .010 [0.25]	91362-6	2098-5516-02
Solder Gauge .015 [0.38]	91362-1	2098-5212-02
Solder Gauge .018 [0.46]	91362-2	2098-5211-02

Universal Compression Crimp Tool

Kit Part Number 1055835-1

(Reference Kit Part Number 2598-5200-54)

TE Connectivity Universal Compression Crimp Tool offers the ability to rapidly produce cable assemblies using solderless compression crimp connectors with semi-rigid cables. This universal assembly tool kit will attach SMA, OSP (BMA), N and TNC series connectors to .141 [3.58], .085 [2.16] and .250 [6.35] cable quickly and consistently with excellent mechanical and electrical results.

The tool kit permits single hand assembly. Anvils and cable supports can be quickly changed. Crimp lengths can be adjusted from .001 [.025] to 1.000 [25.4] in increments of .001 [.025]. Sharp radius bends in cables are easily accommodated. The kit contains:





Crimp Frame



Cable Supports



Anvil



Gauge

Description	Part No.	Reference Part No. (Ref. Only)
Crimp Frame	1055831-1	2598-5196-54
Calibration Gauge	1055832-1	2598-5197-54
.141 [3.58] Cable Support	1055833-1	2598-5198-54
.085 [2.16] Cable Support	1055834-1	2598-5199-54
SMA Plug Anvil	1055836-1	2598-5201-54
SMA Jack Anvil	1055837-1	2598-5202-54
Type N Plug Anvil	1055838-1	2598-5203-54
Type N Jack Anvil	1055839-1	2598-5204-54
TNC Plug Anvil	1055840-1	2598-5205-54
TNC Jack Anvil	1055841-1	2598-5206-54
OSP (BMA) Plug Anvil	1055842-1	2598-5207-54
OSP (BMA) Jack Anvil	1055843-1	2598-5208-54

All tools may be purchased separately.

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Application Tooling (Continued)

MIL-C-22520/10-01 Equivalent Hex Crimp Kit

Kit Part Number 1055236-1

(Reference Kit Part Number 2098-0105-54)

For military specified applications requiring quick and efficient cable to connector attachment. Five popular hex die sizes are available to crimp the outer cable conductor to connector housings.





Die Change Tool



Crimp Tool



Hex Die

The kit contains:

Description	Part Number	Reference Part Number (Ref. Only)
Crimp Tool	1060713-1	9098-5105-54
Die Change Tool	1060716-1	5698-5014-54
Hex Die — A, B, C	1060714-1	5698-5015-54
Hex Die — D, E	1060715-1	5698-5016-54

All tools may be purchased separately.
For the assembly of SMA connectors, Accessory Kit Part Number 1055421-1 is required.

A basic instruction sheet, included with the kit, aids in proper die selection

Hex Die Part Number	Reference Hex Die Part Number (Ref. Only)	Die	Hex Size ±.003 [0.08]	For Use With RG/U Cable
1060714-1	5698-5015-54	A	**.105** 2.67	178B & 196A
		B	**.213** 5.41	55B, 58C, 141A, 142B, 223, 303, & 400
		C	**.128** 3.25	174, 174B, 179, 187A, 188A, & 316
1060715-1	5698-5016-54	D	**.178** 4.52	180B, 195A, & 122
		E	**.255** 6.48	59, 62A, 71B, 210, & 302

Additional Dies Available

Hex Die Part Number	Reference Hex Die Part Number (Ref. Only)	Hex Size ±.003 [0.08]	For Use With RG/U Cable
1055270-1	2098-0323-54	**.151** 3.84	RD316 Double Braid

SMA Crimp Tool Accessory Kit

Kit Part Number 1055421-1

(Reference Kit Part Number 2098-5067-54)

For installation of SMA connectors to flexible braided cable. Crimp type SMA connectors require Hex Crimp Kit Part Number 1055236-1.

The kit contains:

Description	Part Number	Reference Part Number (Ref. Only)
Center Contact Holder	1055454-1	2098-5221-10
Locator Tool	1055446-1	2098-5213-02
Locator Tool	1055451-1	2098-5218-02
Solder Gauge .015 [0.38]	91362-1	2098-5212-02

All tools may be purchased separately.



Locator Tool



Solder Gauge



Center Contact Holder

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Application Tooling (Continued)

Stripping Tools

The hand-operated TE Connectivity Coaxial Cable Stripper features interchangeable, color-coded blade cassettes and V-blocks to accommodate 2- or 3-step stripping for cable diameters ranging from 2.54 [.10] through 7.62 [.30]. You strip cable by simply clamping and rotating the tool around the cable. See Instruction Sheet IS 2766 for further information.



For Use With Connector Type	Tool No.
BNC Single Crimp	603995-1
BNC Commercial and UHF Miniature	603995-2
UHF Standard	603995-3
BNC MIL Type Dual Crimp	603995-5
BNC Commercial Dual Crimp	603995-6

Semi-Rigid Cable Tooling

The tools listed here are designed specifically to strip and terminate semi-rigid cable. These tools operate basically the same as the flexible cable tools, in that they produce uniform terminations time after time, without heat damage from soldering.

Hand Tool for BNC and TNC Semi-Rigid Cable Connectors



Part Number 59980-1
Frame only — does not include dies and locator

Manual Trim and Point Tool

TE offers a manual tool that performs both trimming and pointing operations. Tools are available for .141 [3.58] and .085 [2.16] diameter semi-rigid cable. These hand-operated tools are ideally suited for engineering, small production runs or field use. They feature tungsten carbide cutters for durability up to 30 times longer than the life of a high speed steel cutter. Replacement cutters are interchangeable and may be purchased separately.



Replacement Cutters

Trimmer: Part Number 1055813-1
Pointer: Part Number 1055814-1

Tool Part Number	Reference Tool Part Number (Ref. Only)	Cable	Trim Length
1055811-1	2598-5116-54	RG-402/U (.141 [3.58])	**.085** 2.16 Fixed
1055815-1	2598-5120-54	RG-405/U (.085 [2.16])	**.070** 1.78 Fixed
1055823-1	2598-5137-54	RG-402/U (.141 [3.58])	Adjustable*
1055824-1	2598-5138-54	RG-405/U (.085 [2.16])	Adjustable*

*Adjustable trim length from .050 [1.27] to .140 [3.56].

Replacement Collets

Part Number	Reference Part Number (Ref. Only)	Cable
1055825-1	2598-5145-54	RG-402/U (.141 [3.58])
1055827-1	2598-5167-54	RG-405/U (.085 [2.16])

Cable Benders for Semi-Rigid Cable



Cable Bender

Description	Part Number	Reference Part Number (Ref. Only)	Bend Radius*
Cable Bender for RG-405/U (.085 [2.16])	1055479-1	2098-5287-54	1/4 [6.4] 3/8 [9.8]
Cable Bender for RG-402/U (.141 [3.58])	1055478-1	2098-5286-54	3/8 [9.8] 1/2 [12.7]

*Radius of the bend is measured from the centerline of the cable.

Trimming Tools for Semi-Rigid Cable

For soldered semi-rigid cable connectors using the cable center conductor as its contact. These tools are optional for most installations but recommended for optimum connector performance.



Trim Tool

Description	Part Number	Reference Part Number (Ref. Only)
Trim Tool for SMA Connectors RG-402/U (.141 [3.58])	1055455-1	2098-5272-02
Trim Tool for SSMA Connectors RG-405/U (.085 [2.16])	1055465-1	2098-5269-02

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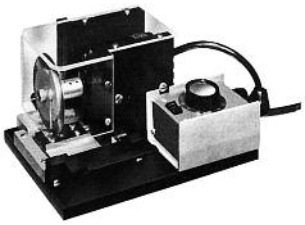
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Application Tooling (Continued)

Cable Trimmers for Production

TE Connectivity cable trimmers are designed for production trimming of RG-402/U (.141 [3.58]) and RG-405/U (.085 [2.16]) coaxial cables in preparation for connector installation. The trimming operation produces an unusually clean, burr-free cut with minimum smear. The length and depth of cut are adjustable. Replacement hardware can be used with either tool.



Cable Trimmers

Description	Part Number	Reference Part Number (Ref. Only)
RG-402/U (.141 [3.58])	1055526-1	2098-5676-54
RG-405/U (.085 [2.16])	1055530-1	2098-5686-54

Replacement Hardware

Description	Part Number	Reference Part Number (Ref. Only)
Saw Blade	1055524-1	2098-5674-54
Trim Saw Block (.141 [3.58])	1055527-1	2098-5678-54
Trim Saw Block (.085 [2.16])	1055528-1	2098-5679-54

Cable Pointers for Production

TE cable pointers are designed to point straight and bent cables and are adjustable for desired center conductor length. The cable pointers cut 90° point on copper as well as copper-clad center conductors.



Cable Pointers

Description	Part Number	Reference Part Number (Ref. Only)	Cable	Replacement Cutter Part Number	Reference Replacement Cutter Part Number (Ref. Only)
Single Pointer	1055525-1	2098-5675-54	RG-402/U (.141 [3.58])	1055529-1	2098-5681-54
Single Pointer	1080269-1	2098-5685-54	RG-405/U (.085 [2.16])		

Interface Inspection Gauges

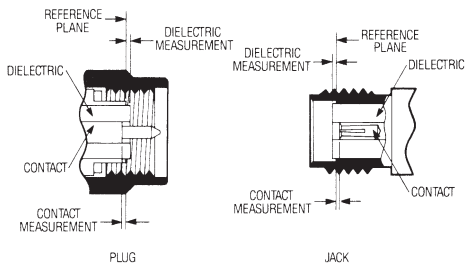
TE offers Connector Interface Gauges. They have shock proof and fully jeweled dial indicators. The rugged construction of the dial mechanism minimizes the need for repair or replacement.

The gauge heads are manufactured from a corrosion resistant, hardening stainless steel which is heat treated for longer life. All critical surfaces are ground and lapped for precision fit and superior surface finish. The heads are securely fastened onto the dial indicator for no movement between the gauge head and the dial indicator spindle allowing for precise measurements.

Like the gauge heads, the plungers are specially designed to provide strength and durability.



Connector	Type	Gauge Kit Part Number	Reference Gauge Kit Part Number (Ref. Only)
SMA	Jack	1055496-1	2098-5455-54
	Plug	1055497-1	2098-5456-54



SMA Interface Example

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Application Tooling (Continued)

SSMA Connectors

Kit Part Number 1055466-1

(Reference Kit Part Number 2098-5270-54)

For installation of SSMA connectors to .070 [1.78] and .085 [2.16] diameter semi-rigid cable.



Inserts



Locator Tools



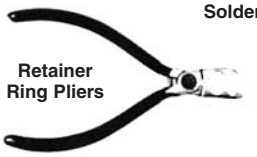
Dielectric Insert Tool



Solder Gauge



Fixture Sub-Assembly



Retainer Ring Pliers



Dielectric Recess Tool



Center Contact Holder

Item Description	Part No.	Reference Part No. (Ref. Only)
Center Contact Holder	1055463-1	2098-5237-10
Dielectric Insert Tool	1055458-1	2098-5233-02
	1055459-1	2098-5234-02
Dielectric Recess Tool	1055460-1	2098-5235-54
Fixture Sub-Assembly	1055439-1	2098-5206-54
Inserts — .070 [1.78] (2)	1055547-1	2098-5831-54
Inserts — .085 [2.16] (2)	1055441-1	2098-5208-54
Locator Tool	1055461-1	2098-5236-02
	1055464-1	2098-5238-02
	1055456-1	2098-5231-02
	1055457-1	2098-5232-02
Retainer Ring Pliers	1055449-1	2098-5216-54
Solder Gauge .015 [0.38]	91362-1	2098-5212-02

All tools may be purchased separately.

Econo-Crimp Assembly Kit

Kit Part Number 1055779-1

(Reference Kit Part Number 2598-5005-54)

For quick and efficient cable to connector attachment. Five popular hex die sizes are available to crimp the outer cable conductor to connector housings.



Crimp Tool



Hex Die

Item Description	Part No.	Reference Part No. (Ref. Only)
Crimp Tool	1055780-1	2598-5006-54
Hex Die — A, B, C	1055781-1	2598-5007-54
Hex Die — D, E	1055782-1	2598-5008-54

All tools may be purchased separately.
For the assembly of SMA connectors, Accessory Kit Part Number 2098-5067-54 is required. For SSMA connectors, Accessory Kit Part Number 2098-5272-54 is required.

Hex Die Part Number	Reference Hex Die Part Number (Ref. Only)	Die	Hex Size ±.003 [0.08]	For Use With RG/U Cable
1055781-1	2598-5007-54	A	**.105** 2.67	178B & 196A
		B	**.213** 5.41	55B, 58C, 141A, 142B, 223, 303, & 400
		C	**.128** 3.25	174, 174B, 179, 187A, 188A, & 316
1055782-1	2598-5008-54	D	**.178** 4.52	180B, 195A, & 122
		E	**.255** 6.48	59, 62A, 71B, 210, & 302

SSMA Crimp Tool Accessories

Kit Part Number 1055467-1

(Reference Kit Model Number T-550)

For installation of SSMA connectors to flexible braided cable. Crimp type SSMA connectors require Hex Crimp Kit Part Number 1055779-1.



Locator Tool



Center Contact Holder

Description	Part Number	Reference Part Number (Ref. Only)
Center Contact Holder	1055463-1	2098-5237-10
Locator Tool	1055461-1	2098-5236-02
	1055464-1	2098-5238-02

All tools may be purchased separately.

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Cross Reference

Military Part Number	Reference Part Number (Ref. Only)	TE Part No.	COTS Part No.
	2031-5011-00 2031-5011-02		1051660-1 1051661-1
M39012/01B0012		225092-7	
M39012/01B0013		51692-4	
M39012/01B007		225092-2	
M39012/01B008		225092-1	
M39012/02B008		225093-2	
M39012/03B0004		225094-2	
M39012/03B0005		225094-1	
M39012/05B0002		225014-2	
M39012/05B0002		225389-2	
M39012/05B0003		225014-3	
M39012/16B0004		2-331350-1	
M39012/16B0007		2-331350-9	
M39012/16B0008		331350	
M39012/17B0004		2-331351-1	
M39012/17B0008		331351	
M39012/19-0102		221313-2	
M39012/19B0003		1-331693-1	
M39012/19B0007		331693	
M39012/26B0005		225550-2	
M39012/26B0006		225550-6	
M39012/26B0007		225550-3	
M39012/26B0016		225550-1	
M39012/27B0005		225551-2	
M39012/27B0006		225551-6	
M39012/27B0015		225551-5	
M39012/27B0016		225551-1	
M39012/29B0005		225348-2	
M39012/55-3006	2031-8006-92	1051757-1	
M39012/55-3007	2031-8007-92	1051759-1	
M39012/55-3009	2031-8009-92	1051762-1	
M39012/55-3025	2031-5102-00 2031-5102-02 2031-8025-92	 1051780-1	1051686-1 1051687-1
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M39012/55-3109	2031-8109-92	1051794-1	
M39012/55-3125	2031-5102-00 2031-5102-02 2031-8125-92	 1051810-1	1051686-1 1051687-1
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M39012/55-3129	2031-8129-92	1051816-1	
M39012/55-3502	2031-5011-00 2031-5011-02 2031-8052-92	 1051788-1	1051660-1 1051661-1
M39012/55-3602	2031-5011-00 2031-5011-02 2031-8162-92	 1051817-1	1051660-1 1051661-1
M39012/55B3011	2031-5102-00 2031-5102-02 2031-8011-92	 1051764-1	1051686-1 1051687-1
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M39012/55B3014	2031-5055-00 2031-8014-92	 1051768-1	1051678-1
M39012/55B3015	2031-5005-00 2031-5005-02 2031-8015-92	 1051769-1	1051650-1 1051651-1
M39012/55B3016	2031-5005-00 2031-5005-02 2031-8016-92	 1051770-1	1051650-1 1051651-1
M39012/55B3019		225532-4	221117-2
M39012/55B3019	2031-5012-00 2031-5012-02 2031-8019-92	 1056413-1	1051664-1 1051665-1
M39012/55B3021		225532-1	
M39012/55B3022		225532-3	221117-1
M39012/55B3023		1-225532-0	
M39012/55B3024		225532-9	
M39012/55B3112	2031-5012-00 2031-5012-02 2031-8112-92	1051664-1 1051665-1 1051797-1	
M39012/55B3113	2031-8113-92	1051798-1	
M39012/55B3114	2031-5055-00 2031-8114-92	1051678-1 1051799-1	
M39012/55B3115	2031-5005-00 2031-5005-02 2031-8115-92	1051650-1 1051651-1 1051800-1	
M39012/55B3116	2031-5005-00 2031-5005-02 2031-8116-92	1051650-1 1051651-1 1051801-1	
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Military Part Number	Reference Part Number (Ref. Only)	TE Part No.	COTS Part No.
M39012/56-3128	2037-5007-00 2037-5007-02 2037-8128-92	 1052206-1	1052071-1 1052072-1
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Military Part Number	Reference Part Number (Ref. Only)	TE Part No.	COTS Part No.
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Military Part Number	Reference Part Number (Ref. Only)	TE Part No.	COTS Part No.
M39012/82B3001	2006-5012-00 2006-8001-90	 1051087-1	1051049-1
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M83517/3-32003	2052-8009-90	1052939-1	
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M83517/3-32005	2052-1612-02 2052-8011-90	 1052943-1	1052563-1
M83517/3-32006	2052-8012-90	1052945-1	
M83517/3-32007	2052-8013-90	1052947-1	
M83517/4-31001	2052-8014-92	1052950-1	
M83517/4-31002	2052-5674-00 2052-5674-02 2052-8015-92	 1052952-1	1052901-1 1052902-1
M83517/4-31003	2052-8016-92	1052954-1	
M83517/4-31004	2052-1215-00 2052-1215-02 2052-8017-92	 1052956-1	1052527-1 1052528-1
M83517/4-31005	2052-1201-00 2052-1201-02 2052-8018-92	 1052958-1	1052522-1 1052523-1
M83517/4-32001	2052-8014-90	1052949-1	
M83517/4-32002	2052-5674-00 2052-5674-02 2052-8015-90	 1052951-1	1052901-1 1052902-1
M83517/4-32003	2052-8016-90	1052953-1	
M83517/4-32004	2052-1215-00 2052-1215-02 2052-8017-90	 1052955-1	1052527-1 1052528-1
M83517/4-32005	2052-1201-00 2052-1201-02 2052-8018-90	 1052957-1	1052522-1 1052523-1
M83517/5-31001	2051-8005-92	1052417-1	
M83517/5-32002	2051-8005-90	1052416-1	
M83517/6-31001	2066-8001-92	1053423-1	
M83517/6-31002	2066-1403-00 2066-8002-92	 1053425-1	1053415-1
M83517/6-32001	2066-8001-90	1053422-1	
M83517/6-32002	2066-1403-00 2066-8002-90	 1053424-1	1053415-1
M83517/7-31001	2067-8001-92	1053429-1	
M83517/7-31002	2067-8002-92	1053431-1	
M83517/7-32001	2067-8001-90	1053428-1	
M83517/7-32002	2067-8002-90	1053430-1	
M83517/8-31001	2068-5156-00 2068-8001-92	 1053451-1	1053438-1
M83517/8-31002	2068-8002-92	1053453-1	
M83517/8-32001	2068-5156-00 2068-8001-90	 1053450-1	1053438-1

COTS part numbers are commercial equivalents and are not military qualified.

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Cross Reference (Continued)

Military Part Number	Reference Part Number (Ref. Only)	TE Part No.	COTS Part No.
M83517/8-32002	2068-8002-90	1053452-1	
M83517/9-31001	2070-8001-92	1053476-1	
M83517/9-31002	2070-5068-02 2070-8002-92	1053478-1	1053465-1
M83517/9-31003	2070-5069-02 2070-8003-92	1053480-1	1053467-1
M83517/9-31004	2070-8004-92	1053482-1	
M83517/9-32001	2070-8001-90	1053475-1	
M83517/9-32002	2070-5068-02 2070-8002-90	1053477-1	1053465-1
M83517/9-32003	2070-5069-02 2070-8003-90	1053479-1	1053467-1
M83517/9-32004	2070-8004-90	1053481-1	
M83517/10-31001	2052-3359-02 2052-8019-92	1052959-1	1052646-1
M83517/10-31003	2052-3358-02		1052643-1
	2052-8021-92	1052962-1	
M83517/10-31004	2052-8023-92	1052963-1	
M83517/10-31005	2052-8023-92	1052963-1	
M83517/10-31006	2052-8024-92	1484518-1	
M83517/10-31015	2052-3358-02 2052-8033-92	1484519-1	1052643-1
M83517/10-31016	2052-8034-92	1484520-1	
M83517/10-32001	2052-3359-02 2052-8019-90	1484521-1	1052646-1
M83517/10-32003	2052-3358-02 2052-8021-90	1052961-1	1052643-1
M83517/10-32005	2052-8023-90	1484522-1	
M83517/10-32006	2052-8024-90	1484523-1	
M83517/10-32015	2052-8033-90	1484524-1	
M83517/10-32016	2052-8034-90	1484525-1	

DSCC Cross Reference

DSCC Part No.	Reference Part Number (Ref. Only)	TE Part No.	COTS Part No.
84149SSG	2001-5397-02	1050605-1	
84149SSG-1	2001-5557-02 2001-5003-00 2001-5003-02	1050629-1	 1050524-1 1050525-1
84149SSGA	2001-5431-02	1050609-1	
84149SSGA-1	2001-5558-02 2001-7985-00 2001-7985-02	1050631-1	 1050769-1 1050770-1
85022SSG	2006-5151-00	1051063-1	
85022SSG-1	2006-5192-00 2006-5013-00	1221162-1	 1051052-1
85022SSGA	2006-5150-00	1051062-1	
85022SSGA-1	2006-5193-00 2006-5010-00	1051067-1	 1051046-1
85037SSG	2007-5115-02 2007-5054-00 2007-5054-02	1051119-1	 1051109-1 1051110-1
85037SSGA	2007-5116-02 2007-5055-00 2007-5055-02	1051120-1	 1051113-1 1051114-1
86116ZSG	1001-5045-92	1045358-1	
86117ZSG	1004-5005-90	1045398-1	
86118ZSG	1007-5015-92	1045418-1	
86119ZSG	1031-5031-92	1045486-1	
86120ZSG	1037-5032-92	1045517-1	
94008ZCG-2	2902-5005-62	1056521-1	
94008ZCG-1	2902-5006-62	1056522-1	
94008ZCG-4	2908-5006-62	1056550-1	
94008ZCG-3	2908-5007-62	1056551-1	
94007ZCG-1	2980-5004-62	1056703-1	
94007ZCG-2		1757023-1	
8501814FP-1	3180-4034-02	1057848-1	
8501814FP-2	3180-4036-02	1080294-1	
8604412SP-1	3081-4002-02	1057371-1	
8604412SP-4	3082-4031-02	1057403-1	
8503812FP-1	3080-4010-02	1057354-1	
8503812FP-2	3080-4015-02	1057357-1	
8503812FP-3	3084-4001-00	1057465-1	
8503812FP-4	3082-4028-02	1057402-1	
8503812FP-5	3082-4029-02	1252992-1	
8503812FP-6	3080-4019-02	1057359-1	
8503812FP-7	3080-4020-02	1087866-1	

Cheminax Coaxial Cables Cross Reference

	Cable to RF Part Numbers		
	5024A3314	5020A1611	5030L1134
SMA Plug	1996810-1	1996811-1	1996812-1
SMA R/A Plug	1996813-1	1996814-1	1996815-1
SMA BHD Jack	1996816-1	1996817-1	1996818-1
BNC Plug	1996819-1	1996820-1	1996821-1
BNC BHD Jack	1996822-1	1996823-1	1996824-1
TNC Plug	1996825-1	1996826-1	1996827-1
TNC BHD Jack	1996828-1	1996829-1	1996830-1

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NANONICS Coaxial Connectors Introduction



The NANONICS 50 ohm coaxial connector system combines the benefits of the rectangular DUALOBE connectors while offering the flexibility to terminate up to nine coaxial contacts within the same metal connector housing. Furthermore, with this unique design, five signal contacts, terminated with 30 AWG or smaller discrete wire, can also be integrated into this connector package. These connectors are typically used in applications with frequencies up to 20 GHz.

RG-178 coax coaxial cable is the standard cable used on these connectors. The receptacle coax connector is also available in a horizontal surface mount configuration allowing for wire to board applications. Harness assemblies and custom configurations can also be accommodated.

Specifications

Technical and Performance Data

Electrical

Contact Resistance — .003 - .008 ohms

Current Rating — 1 amp max. per contact

Dielectric Withstanding Voltage — Volts RMS 60 Hz at room ambient conditions. At sea level 500V. At 70,000 ft. 150V.

Insulation Resistance — 5000 megohms min. (@ 500 VDC) at room ambient conditions.

Magnetic Permeability — 2 mu max.

Temperature Range — -55˚C to +125˚C

Outer Coaxial Contacts — BeCu Alloy plated with gold per MIL-G-45204 over nickel

Dielectric Insert — PTFE

Braid Termination — Soldered to outer coaxial contacts with Sn63Pb37 solder

Backpotting — Standard for wire terminations

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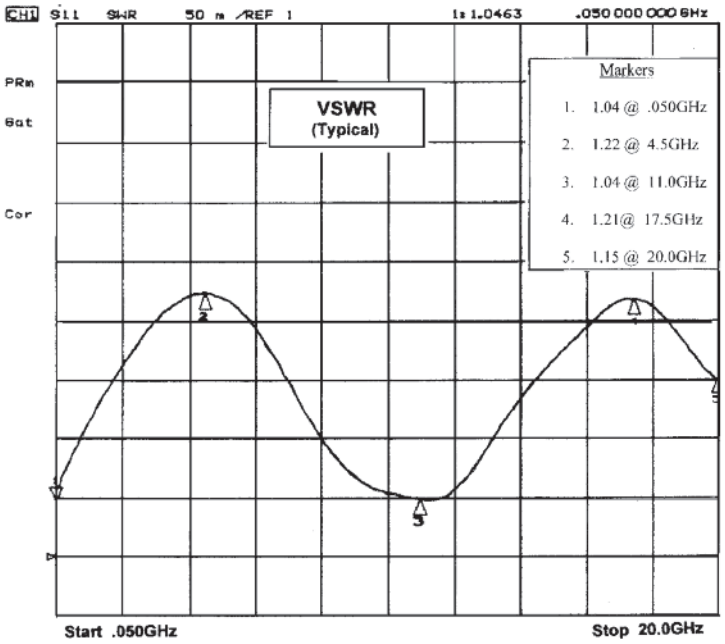
Dimensions are in millimeters unless otherwise specified.

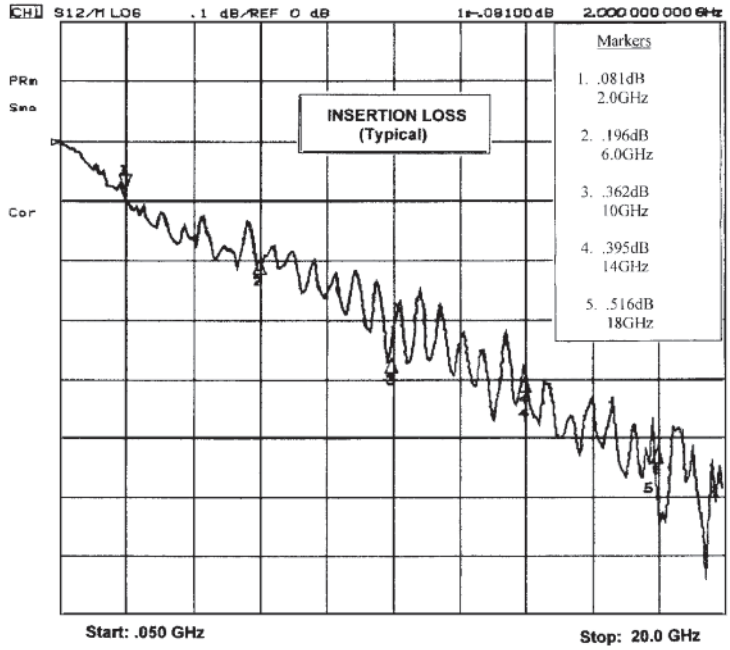
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NANONICS Typical VSWR and Insertion Loss

Note: Insertion Loss of 30 AWG Coax Cable @ (50 Ohm) is approximately 1.0db/ft. @ 3 GHz. The connector system with 6" of coax on each side, is better than 1.5db @ 3 GHz.





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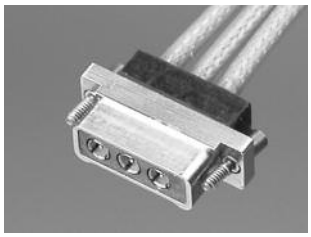
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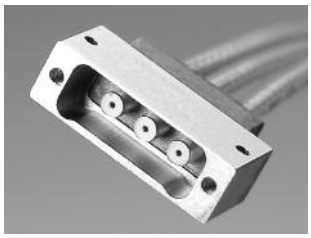
USA: +1 800 522 6752
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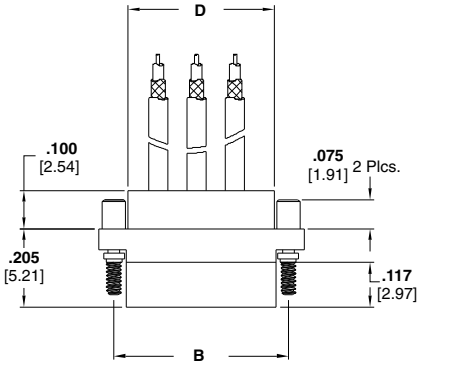
NANONICS 50 Ohm Coax Connectors



Plug



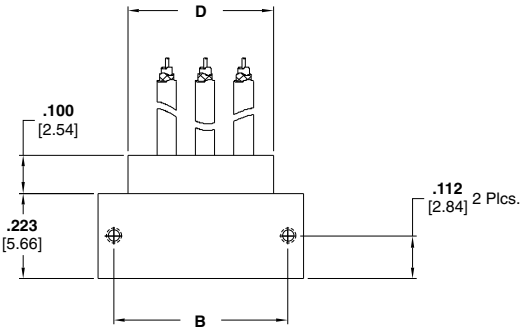
Receptacle

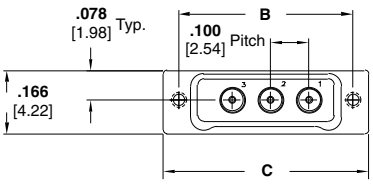


Plug Assembly
Drawing Number 1589070

Product Facts

- **Metal Shell**
- **Standard Sizes: 1-9**
- **Factory wired to your specifications**
- **Contact TE Connectivity for custom configurations**





Receptacle Assembly
Drawing Number 1589071

Size	Dimensions			
	B	C	D	No. Coax
1	**0.254** [6.45]	**0.335** [8.51]	**0.180** [4.57]	1
2	**0.354** [8.99]	**0.435** [11.05]	**0.280** [7.11]	2
3	**0.454** [11.53]	**0.535** [13.59]	**0.380** [9.65]	3
4	**0.554** [14.07]	**0.635** [16.13]	**0.480** [12.19]	4
5	**0.654** [16.61]	**0.735** [18.67]	**0.580** [14.73]	5
6	**0.754** [19.15]	**0.835** [21.21]	**0.680** [17.27]	6
7	**0.854** [21.69]	**0.935** [23.75]	**0.780** [19.81]	7
8	**0.954** [24.23]	**1.035** [26.29]	**0.880** [22.35]	8
9	**1.054** [26.77]	**1.135** [28.83]	**0.980** [24.89]	9

Catalog 1308940
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Dimensions are shown for reference purposes only. Specifications subject to change.

Dimensions are in millimeters unless otherwise specified.

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For additional support numbers please visit www.te.com

Part Numbering Guideline for NANONICS 50 Ohm Coax Connectors

Coax Only Connectors - Wire Terminations

CX XXX XX 2 RG XXX X

Class/Type

CX Coax, 50 Ohm

Positions

010 1 Position
020 2 Position
030 3 Position
040 4 Position
050 5 Position
060 6 Position
070 7 Position
080 8 Position
090 9 Position

Configuration

PC Plug
SC Receptacle

Conductor Size

2 30 AWG

Conductor Type

RG RG 178 Coaxial Cable

Conductor Length

XXX Three numbers only, length is in inches (i.e. 012 = twelve inches)
CXX A “C” follwed by two numbers, length is in centimeters (i.e. C06 = 6 centimeters)
MXX An “M” followed by two numbers, length is in meters (i.e. M02 = 2 meters)

Threads/Jackscrews

Threads (Receptacles Only)	Jackscrews (Plugs Only)
N Thread for 1.0 mm Jackscrews	**M** 1.0 mm Non Captive Jackscrews
Q Thread for 1.2 mm Jackscrews	**N** 1.0 mm Captive Jackscrews
	Q 1.2 mm Captive Jackscrews

Catalog 1308940
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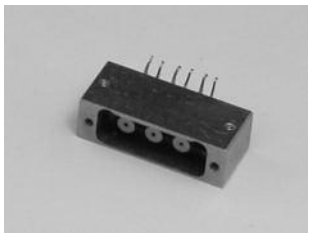
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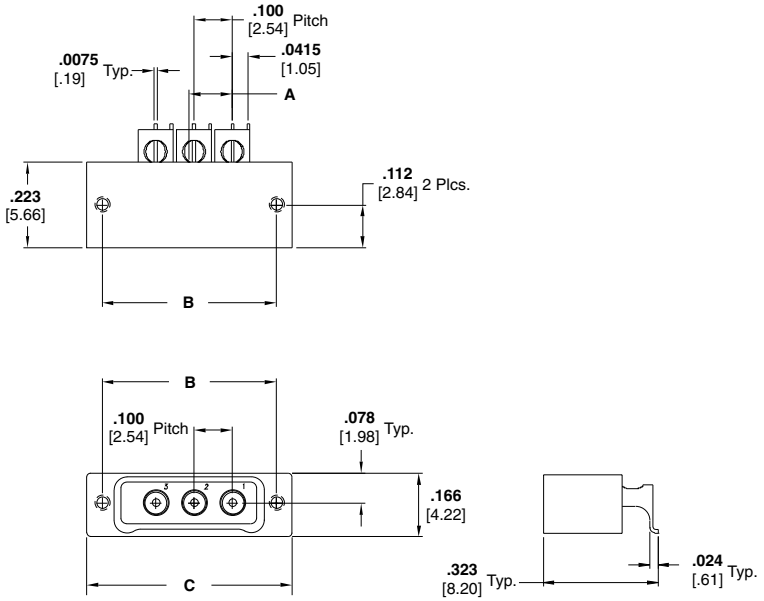
NANONICS Horizontal SMT 50 Ohm Coax Connectors



Surface Mount

Product Facts

- Metal Shell
- Standard Sizes: 1-9
- Factory wired to your specifications
- Contact TE Connectivity for custom configurations



Receptacle Assembly
Drawing Number 1589072

Size	Dimensions			
	A	B	C	No. Coax
1	**0.0125** [.32]	**0.254** [6.45]	**0.335** [8.51]	1
2	**0.0625** [1.59]	**0.354** [8.99]	**0.435** [11.05]	2
3	**0.1125** [2.86]	**0.454** [11.53]	**0.535** [13.59]	3
4	**0.1625** [4.13]	**0.554** [14.07]	**0.635** [16.13]	4
5	**0.2125** [5.40]	**0.654** [16.61]	**0.735** [18.67]	5
6	**0.2625** [6.67]	**0.754** [19.15]	**0.835** [21.21]	6
7	**0.3125** [7.94]	**0.854** [21.69]	**0.935** [23.75]	7
8	**0.3625** [9.21]	**0.954** [24.23]	**1.035** [26.29]	8
9	**0.4125** [10.48]	**1.054** [26.77]	**1.135** [28.83]	9

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Revised 9-14

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Asia Pacific: +86 0 400 820 6015
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For additional support numbers please visit www.te.com

Part Numbering Guideline for NANONICS Horizontal SMT 50 Ohm Coax Connectors

Coax Only Connectors - SMT Termination

CX XXX L2 X X

Class/Type

CX Coax, 50 ohm

Positions

010 1 Position
020 2 Position
030 3 Position
040 4 Position
050 5 Position
060 6 Position
070 7 Position
080 8 Position
090 9 Position

Configuration

L2 Receptacle, Horizontal SMT

Mounting Hardware

A 1.2 mm x .160"
H 1.0 mm x .160"

Jackscrew Threads

Threads

N Thread for 1.0 mm Jackscrews
Q Thread for 1.2 mm Jackscrews

Catalog 1308940
Revised 9-14

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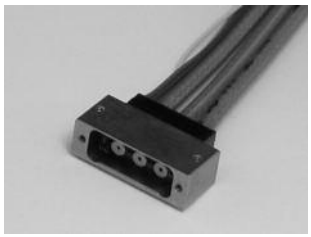
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For additional support numbers please visit www.te.com

NANONICS 50 Ohm Coax with Mixed Signal Connectors



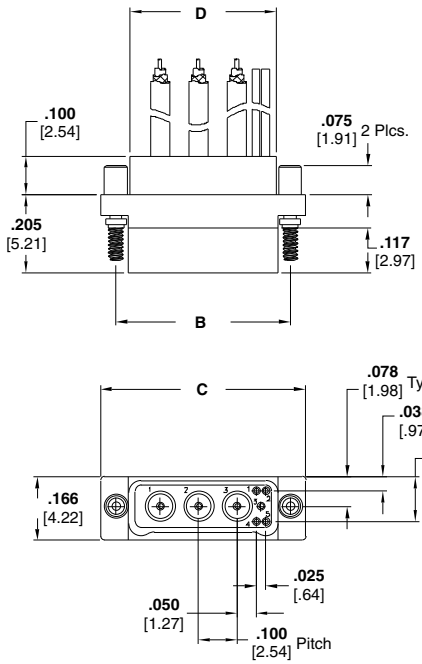
Plug



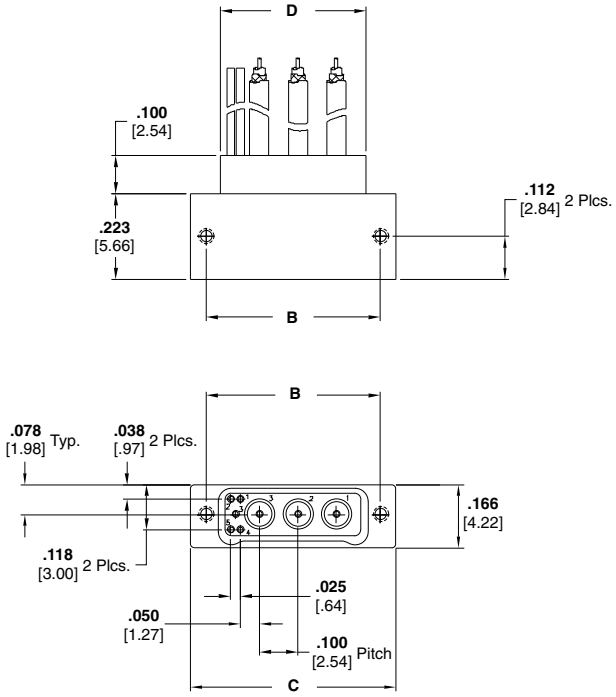
Receptacle

Product Facts

- **Metal Shell**
- **Standard Sizes: 1-9 coaxial contacts with 5 signal contacts**
- **Factory wired to your specifications**
- **Contact TE Connectivity for custom configurations**



Plug Assembly
Drawing Number 1589068



Receptacle Assembly
Drawing Number 1589069

Size	Dimensions			
	B	C	D	No. Coax
1	**0.254** [6.45]	**0.335** [8.51]	**0.180** [4.57]	1
2	**0.354** [8.99]	**0.435** [11.05]	**0.280** [7.11]	2
3	**0.454** [11.53]	**0.535** [13.59]	**0.380** [9.65]	3
4	**0.554** [14.07]	**0.635** [16.13]	**0.480** [12.19]	4
5	**0.654** [16.61]	**0.735** [18.67]	**0.580** [14.73]	5
6	**0.754** [19.15]	**0.835** [21.21]	**0.680** [17.27]	6
7	**0.854** [21.69]	**0.935** [23.75]	**0.780** [19.81]	7
8	**0.954** [24.23]	**1.035** [26.29]	**0.880** [22.35]	8
9	**1.054** [26.77]	**1.135** [28.83]	**0.980** [24.89]	9

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Revised 9-14

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UK: +44 800 267 666

For additional support numbers please visit www.te.com

Part Numbering Guideline for NANONICS 50 Ohm Coax with Mixed Signal Connectors

Coax w/ Mixed Signal Connectors - Wire Terminations

CX XXX XX 2 R X XXX X

Class/Type

CX Coax, 50 ohm

Positions

015 1 Position w/ 5 Signals
025 2 Position w/ 5 Signals
035 3 Position w/ 5 Signals
045 4 Position w/ 5 Signals
055 5 Position w/ 5 Signals
065 6 Position w/ 5 Signals
075 7 Position w/ 5 Signals
085 8 Position w/ 5 Signals
095 9 Position w/ 5 Signals

Configuration

PC Plug
SC Receptacle

Conductor Size

2 30 AWG 7 Strand

Conductor Type (Coax)

R RG-178 Coaxial Cable

Conductor Type (Signals)

C Color Coded Teflon
X White Teflon

Conductor Length

XXX Three numbers only, length is in inches (i.e. 012 = twelve inches)
CXX A “C” follwed by two numbers, length is in centimeters (i.e. C06 = 6 centimeters)
MXX An “M” followed by two numbers, length is in meters (i.e. M02 = 2 meters)

Threads/Jackscrew

Threads (Receptacles Only)	Jackscrews (Plugs Only)
N Thread for 1.0 mm Jackscrews	**M** 1.0 mm Non Captive Jackscrews
Q Thread for 1.2 mm Jackscrews	**N** 1.0 mm Captive Jackscrews
	Q 1.2 mm Captive Jackscrews

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Part Number Index Cross Reference

NANONICS Part Number	TE Part Number
Coax Only	
CX010PC2RG006N	0-1589070-1
CX010PC2RG018N	0-1589070-2
CX010PC2RG048Q	2-1589070-8
CX010PC2RG072N	0-1589070-3
CX010PC2RGC10Q	2-1589070-1
CX010SC2RG048Q	2-1589071-3
CX020PC2RG018N	0-1589070-4
CX020PC2RG048N	2-1589070-5
CX020PC2RG060N	1-1589070-8
CX020SC2RG012N	2-1589071-0
CX020SC2RG018N	2-1589071-5
CX020SC2RG024N	0-1589071-8
CX020SC2RG024Q	2-1589071-8
CX020SC2RG060N	2-1589071-2
CX030PC2RG006N	0-1589070-5
CX030PC2RG012	0-1589070-6
CX030PC2RG012N	0-1589070-7
CX030PC2RG018N	0-1589070-8
CX030PC2RG020Q	0-1589070-9
CX030PC2RG048N	2-1589070-4
CX030PC2RG060N	2-1589070-6
CX030SC2RG006N	0-1589071-3
CX030SC2RG012	0-1589071-4
CX030SC2RG012N	1-1589071-8
CX030SC2RG060N	2-1589071-1
CX040PC2RG012N	1-1589070-0
CX040PC2RG030N	1-1589070-1
CX040PC2RG039Q	3-1589070-7
CX040PC2RG060N	1-1589070-7
CX040SC2RG012	0-1589071-5
CX040SC2RG024N	0-1589071-7
CX050PC2RG006N	1-1589070-4
CX050SC2RG006N	1-1589071-9
CX060PC2RG012N	3-1589070-8
CX060PC2RG012Q	3-1589070-3
CX060PC2RG018N	3-1589070-5
CX060PC2RG036N	3-1589070-0
CX060PC2RG072N	3-1589070-1
CX060PC2RG144N	3-1589070-2
CX060PC2RGC10Q	2-1589070-0
CX060SC2RG012Q	2-1589071-6
CX070PC2RGC10Q	2-1589070-3
CX080PC2RG006N	2-1589070-2
CX080PC2RG012N	3-1589070-9
CX080PC2RG012Q	3-1589070-4
CX080PC2RG018N	3-1589070-6
CX080PC2RG024N	2-1589070-9
CX080PC2RG036N	1-1589070-5
CX080PC2RG048N	1-1589070-6
CX080PC2RG060N	1-1589070-9
CX080PC2RGC10N	2-1589070-7
CX080SC2RG012N	2-1589071-4
CX080SC2RG012Q	2-1589071-7
CX080SC2RG015N	1-1589071-7
CX080SC2RG024N	0-1589071-9
CX090PC2RG036N	1-1589070-2
CX090SC2RG036N	0-1589071-6

NANONICS Part Number	TE Part Number
Coax with Mixed Signals	
CX015PC2RC012	0-1589068-1
CX015PC2RC012N	0-1589068-5
CX015SC2RC012N	0-1589069-1
CX035PC2RC006N	0-1589068-2
CX035PC2RC018N	0-1589068-3
CX035SC2RC006N	0-1589069-2
CX035SC2RC018N	0-1589069-3
CX045PC2RC006N	0-1589068-4
CX045PC2RC036N	0-1589068-9
CX045PC2RC036Q	1-1589068-0
CX045SC2RC006N	0-1589069-4
CX045SC2RC006Q	0-1589069-7
CX055PC2RC006N	0-1589068-6
CX055SC2RC006N	0-1589069-5
CX095PC2RC006N	0-1589068-7
CX095PC2RC036N	0-1589068-8
CX095SC2RC006N	0-1589069-6

NANONICS Part Number	TE Part Number
Horizontal SMT Coax	
CX010L2AQ	1-1589072-3
CX010L2HN	0-1589072-1
CX020L2HN	1-1589072-2
CX030L23N	0-1589072-2
CX030L23Q	0-1589072-5
CX030L2HN	0-1589072-3
CX040L2AQ	1-1589072-0
CX040L2HN	1-1589072-6
CX050L23Q	0-1589072-6
CX050L2HN	0-1589072-9
CX060L2AQ	1-1589072-1
CX060L2HN	1-1589072-5
CX070L2AQ	1-1589072-4
CX080L2HN	0-1589072-4

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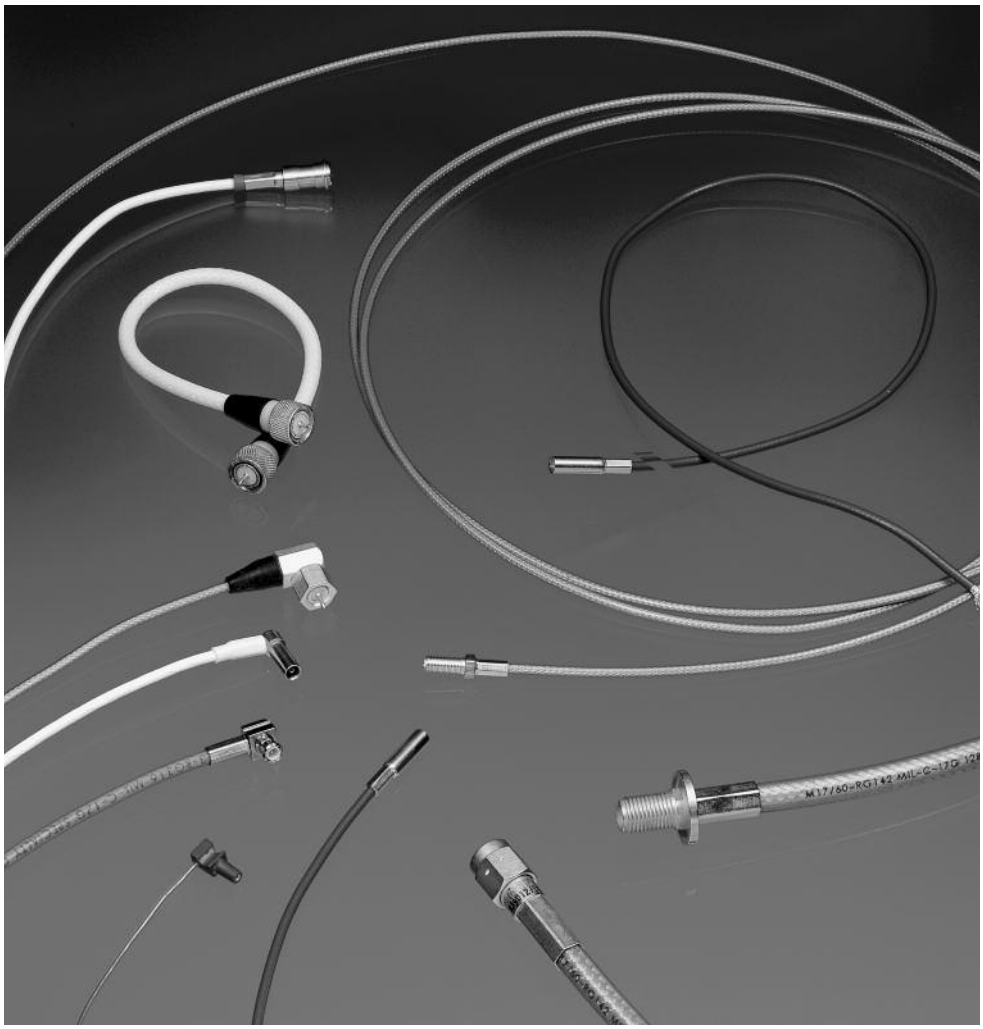
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MICRODOT Coaxial Connectors Introduction

Product Facts

- **Designed to accept 50, 70 and 93 ohm miniature coaxial cables**
- **Three types of connectors: Screw-on Series, Slide-on Series and Quick-Connect Series**
- **Temperature range — -85°F to +257°F [-65°C to +125°C] (with neoprene gasket or bend relief cap) -80°F to 392°F [-62°C to +200°C] (with silicone gasket or bend relief cap)**
- **Dielectric Withstanding Voltage — 1000 volts RMS at sea level**
- **Contact Resistance — 3 milliohms max., D.C.**
- **Captive Contacts — Terminated connector contacts captivated from movement in both directions**



MICRODOT Standard Coaxial Connectors are designed to accept 50, 70, and 93 Ohm miniature coaxial cables. These connectors are available as Screw-On Series, Slide-On Series, or Quick-Connect Series. The Screw-On Series is intermateable with the Gold Plated Crimp Style Coaxial Connector Series and offers the dependability of a threaded coupling. For enhanced safety, choose connectors with wire holes.

Choose Slide-On Series for the fastest, most convenient mating and unmating.

The Quick-Connect Series offers the convenience of Slide-On coupling with added retention provided by a snap ring located on the jack/receptacle side.

Consult TE Connectivity for special cable accommodations and mounting features.

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MICRODOT Standard Connectors

Performance Data Summary
For Standard Connectors

Mechanical

Captive Contacts — Terminated connector contacts captivated from movement in both directions.

Cable Retention —
50 Ohm connectors, 15 lb. min.[1]
70 Ohm connectors, 25 lb. min.[1]
93 Ohm connectors, 35 lb. min.[1]

Recommended Coupling Torque (Threaded Interface) —
8 inch/pounds max.

Recommended Receptacle Mounting Torque (All Series) —
8 inch/pounds max.

Unmating Force (Slide-On Series) —
1-7 pounds.

Contact Protection (Unmated) —
Pin contact protected by coupling nut (threaded series)[2] or by housing (Quick-Connect and Slide-On Series). Socket protected by insulator and housing.

Assembly Methods

Straight Plugs & Jacks —
Cable Inner Conductor — Soldered to contact.
Cable Shield — Crimped to jerk ring (solder optional).

Angle Plugs —
Cable Inner Conductor — Soldered to contact.
Cable Shield — Soldered to ring & housing.

Environmental

Temperature Range (Continuous Service) — -85°F to +257°F [-65°C to +125°C] (with Neoprene gasket or bend relief cap). -80°F to 392°F [-62°C to +200°C] (with Silicone gasket or bend relief cap).

Vibration[3,4] — MIL-STD-202, Method 204, Test condition B (15 G peak). No physical damage or electrical discontinuities in excess of 1 microsecond.

Shock[3,4] — MIL-STD-202, Method 213, Test Condition H. No physical damage or electrical discontinuity after shock.

Thermal Shock — MIL-STD-202, Method 107, Test Condition B.

Moisture Resistance[3] — MIL-STD-202, Method 106.

Salt Spray[3] — MIL-STD-202, Method 101, Test Condition B (48 hours).

Electrical

Impedance — Designed to be compatible with 50, 70, or 93 Ohm miniature coaxial cable.

Dielectric Withstanding Voltage — 1000 volts RMS at sea level.

Contact Resistance — 3 milliohms max., D.C.

Current Capacity — 3 amps, D.C.

Insulation Resistance — 5 x 10^3 Megohms min. @ 500 volts D.C.

Voltage Standing Wave Ratio[5] (VSWR) — Typical 50 Ohm series, 1.2 max. to 2 GHz.

Materials

Housing, Nut, Jerk Ring — Brass per ASTM-B-16.

Insulator — PTFE per ASTM-D-1710.

Pin Contact (Plugs) — Brass per ASTM-B-16.

Socket Contact (Jacks & Receptacles) — Beryllium Copper per ASTM-B-196.

Bend Relief Caps (Plugs & Jacks) — Neoprene or Silicone Rubber per ZZ-R-765.

Gaskets (Jacks & Receptacles) — Neoprene or Silicone Rubber per ZZ-R-765.

Lockwasher — #425 Bronze Alloy.

Plating

Contacts — Gold per MIL-G-45204, Type II, Grade C, Class 1.

Housing, Nut, Jerk Ring, Lockwasher — Silver per QQ-S-365, Type II, Grade A, .0002 [.005] min.

Notes:
[1]Termination to cables with foamed dielectrics excluded. Straight connector jerk rings must be soldered to cable shield.
[2]Pin protector required. See individual connector specifications.
[3]Screw-On Series, threaded interface.
[4]TE Connectivity recommends the use of safety wired connectors in vibration and shock environment. See individual specifications for connectors with safety wire holes.
[5]VSWR is a system specification. Where performance is critical, purchase TE cable assemblies with Screw-On or Quick-Connect Series connectors and specify VSWR testing and mating connector part number.

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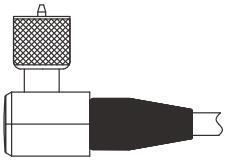
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MICRODOT Standard Connectors — Screw-On Series



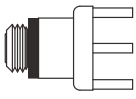
Plug

S-50 Ohm Series	S-70 Ohm Series	S-93 Ohm Series
032-0021-0001	032-0010-0001	032-0011-0001
032-0023-0001	032-0022-0001	032-0017-0001
032-0025-0001	032-0067-0001	032-0066-0001
032-0033-0001	032-0078-0001	032-0071-0001
032-0097-0001	032-0222-0001	032-0092-0001
032-0098-0001	052-0092-0001	032-0099-0001
032-0155-0001		052-0200-0001
032-0156-0001		
052-0213-0001		
052-0235-0001		
052-0235-0003		
052-0370-0001		
052-0542-0001		



Right-Angle Plug

S-50 Ohm Series	S-70 Ohm Series	S-93 Ohm Series
032-0015-0001	032-0013-0001	032-0014-0001
052-0204-0001	052-0299-0001	032-0068-0001
052-0215-0001	052-0379-0001	032-0153-0001
052-0337-0001		052-0207-0001
		052-0298-0001
		052-0304-0022



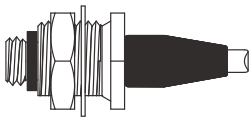
Printed Circuit Receptacle

S-50 Ohm Series	S-70 Ohm Series	S-93 Ohm Series
031-0059-0001	031-0069-0001	031-0067-0001
031-0062-0001		031-0080-0001
051-0450-0001		



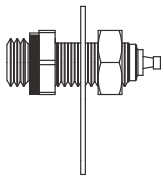
Jack

S-50 Ohm Series	S-70 Ohm Series	S-93 Ohm Series
031-0034-0001	031-0036-0001	031-0037-0001
051-0467-0001	031-0090-0001	031-0088-0001



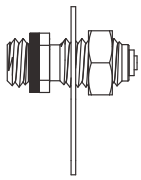
Bulkhead Jack

S-50 Ohm Series	S-70 Ohm Series	S-93 Ohm Series
031-0033-0001	031-0048-0001	031-0032-0001
		031-0089-0001



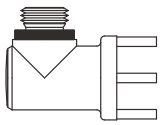
Receptacle

S-50 Ohm Series	S-70 Ohm Series	S-93 Ohm Series
031-0050-0001	031-0051-0001	031-0052-0001
051-0318-0001		



Receptacle

S-50 Ohm Series	S-70 Ohm Series	S-93 Ohm Series
031-0001-0001	031-0017-0001	031-0016-0001
031-0001-0003	031-0018-0001	031-0019-0001
031-0002-0001		031-0046-0001
031-0003-0001		
031-0024-0001		
051-0125-0001		



Right-Angle Printed Circuit Receptacle

S-50 Ohm Series	S-70 Ohm Series	S-93 Ohm Series
031-0061-0001	031-0072-0001	031-0073-0001
051-0459-0001		

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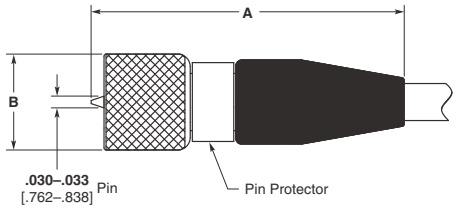
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MICRODOT Standard Connectors — Screw-On Series (Continued)

Plugs
S-50, 70 & 93





Part No.	Dim. A	Dim. B	Cable Jacket Max.	Special Features	Instruction Sheet No.	Former MICRODOT I.S. No.	Assembly Tool
S-50 Series (50 Ohm) .190 [4.83] -32 UNF-2B Thread							
032-0021-0001	**.745** 18.92	**.230** 5.84 Dia.	**.087** 2.21	[1]Solderless Assembly	408-8521	RF-ASMB-88	010-0003-0000
032-0023-0001	**.745** 18.92	**.230** 5.84 Dia.	**.087** 2.21	[1]	408-8522	RF-ASMB-89	010-0003-0000
032-0025-0001	**.745** 18.92	**.230** 5.84 Dia.	**.093** 2.36	[1]Solderless Assembly	408-8521	RF-ASMB-88	010-0003-0000
032-0033-0001	**.745** 18.92	**.230** 5.84 Dia.	**.093** 2.36	[1]	408-8522	RF-ASMB-89	010-0003-0000
032-0097-0001	**.745** 18.92	**.250** 6.35 Hex.	**.087** 2.21	[1]Solderless Assembly, Hex Nut	408-8521	RF-ASMB-88	010-0003-0000
032-0098-0001	**.745** 18.92	**.250** 6.35 Hex.	**.087** 2.21	Hex Nut	408-8522	RF-ASMB-89	010-0003-0000
032-0155-0001	**.700** 17.78	**.250** 6.35 Hex.	**.088** 2.24	[1, 2]Hex Nut, .187 [4.75] Hex Cable Clamp Nut	408-8522	RF-ASMB-89	010-0003-0000
032-0156-0001	**.700** 17.78	**.250** 6.35 Dia.	**.088** 2.24	[1, 2].187 [4.75] Hex Cable Clamp Nut	408-8522	RF-ASMB-89	010-0003-0000
052-0213-0001	**.745** 18.92	**.250** 6.35 Hex.	**.087** 2.21	[1]Solderless, Hex Nut w/ Safety Wire Holes, .021 [0.53] Wire Max.	408-8521	RF-ASMB-88	010-0003-0000
052-0235-0001	**.745** 18.92	**.250** 6.35 Hex.	**.087** 2.21	[1, 2]Hex Nut	408-8522	RF-ASMB-89	010-0003-0000
052-0235-0003	**.745** 18.92	**.250** 6.35 Hex.	**.087** 2.21	[1, 2]Hex Nut w/ Safety Wire Holes, .021 [0.53] Wire Max.	408-8522	RF-ASMB-89	010-0003-0000
052-0370-0001	**.745** 18.92	**.250** 6.35 Hex.	**.093** 2.36	[1]Hex Nut, Designed for Dual Shield Cable	408-8522	RF-ASMB-89	010-0003-0000
052-0542-0001	**.745** 18.92	**.250** 6.35 Hex.	**.087** 2.21	[1]Hex Nut	408-8522	RF-ASMB-89	010-0003-0000
S-70 Series (70 Ohm) .216 [5.49] -32 UNEF-2B Thread							
032-0010-0001	**.760** 19.30	**.255** 6.48 Dia.	**.093** 2.36	[1]Solderless Assembly	408-8521	RF-ASMB-88	010-0004-0000
032-0022-0001	**.760** 19.30	**.255** 6.48 Dia.	**.093** 2.36	[1]	408-8525	RF-ASMB-95	010-0004-0000
032-0067-0001	**.755** 19.18	**.255** 6.48 Dia.	**.108** 2.74	[1]	408-8522	RF-ASMB-89	010-0035-0000
032-0078-0001	**.755** 19.18	**.255** 6.48 Dia.	**.108** 2.74	[1]Solderless Assembly	408-8521	RF-ASMB-88	010-0035-0000
032-0222-0001	**.760** 19.30	**.281** 7.14 Hex.	**.093** 2.36	[1]Hex Nut w/ Safety Wire Holes, .014 [0.35] Wire Max.	408-8525	RF-ASMB-95	010-0004-0000
052-0092-0001	**.760** 19.30	**.255** 6.48 Dia.	**.093** 2.36	[2]	408-8525	RF-ASMB-95	010-0004-0000
S-93 Series (93 Ohm) .250 [6.35] -32 UNEF-2B Thread							
032-0011-0001	**.760** 19.30	**.320** 8.13 Dia.	**.134** 3.40	[1]Solderless Assembly	408-8521	RF-ASMB-88	010-0005-0000
032-0017-0001	**.760** 19.30	**.320** 8.13 Dia.	**.134** 3.40	[1]	408-8525	RF-ASMB-95	010-0005-0000
032-0066-0001	**.950** 24.13	**.350** 8.89 Dia.	**.154** 3.91	[1]Silicone Bend Relief Cap	408-8523	RF-ASMB-90	—
032-0071-0001	**.760** 19.30	**.320** 8.13 Dia.	**.134** 3.40	[1]Cable Inner Conductor, .031 [0.78] Max.	408-8525	RF-ASMB-95	010-0005-0000
032-0092-0001	**.760** 19.30	**.320** 8.13 Dia.	**.155** 3.94	[1]	408-8525	RF-ASMB-95	010-0044-0000
032-0099-0001	**.760** 19.30	**.312** 7.92 Hex.	**.134** 3.40	[1]Hex Nut	408-8525	RF-ASMB-95	010-0005-0000
052-0200-0001	**.760** 19.30	**.312** 7.92 Hex.	**.134** 3.40	[1]Hex Nut w/ Safety Wire Holes, .015 [0.38] Wire Max.	408-8525	RF-ASMB-95	010-0005-0000

[1]Pin protected.
[2]Hole in ferrule permits soldering to clamp ring and shield for increased cable pullout strength.

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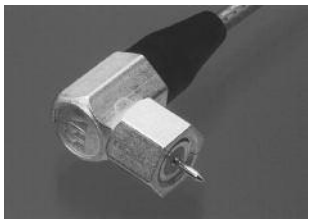
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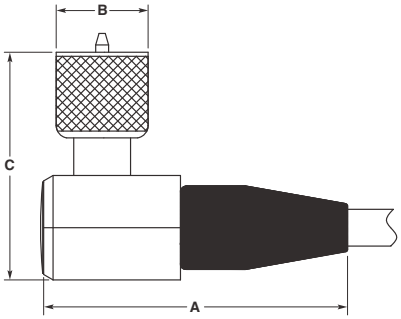
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MICRODOT Standard Connectors — Screw-On Series (Continued)

Right-Angle Plugs
S-50, 70 & 93





Part No.	Dim. A	Dim. B	Dim. C	Cable Jacket Max.	Special Features	Instruction Sheet No.	Former MICRODOT I.S. No.	Assembly Tool
S-50 Series (50 Ohm) .190 [4.83] -32 UNF-2B Thread								
032-0015-0001	**.735** 18.67	**.225** 5.72 Dia.	**.570** 14.48	**.092** 2.34		408-8520	RF-ASMB-87	010-0016-0000
052-0204-0001	**.735** 18.67	**.250** 6.35 Hex.	**.570** 14.48	**.092** 2.34	Hex Nut	408-8520	RF-ASMB-87	010-0016-0000
052-0215-0001	**.735** 18.67	**.250** 6.35 Hex.	**.570** 14.48	**.092** 2.34	Hex Nut w/ Safety Wire Holes, .021 [.533] Wire Max.	408-8520	RF-ASMB-87	010-0016-0000
052-0337-0001	**.745** 18.92	**.225** 5.72 Dia.	**.570** 14.48	**.111** 2.82	Dual Shield Cable	408-8520	RF-ASMB-87	010-0016-0000
S-70 Series (70 Ohm) .216 [5.49] -32 UNEF-2B Thread								
032-0013-0001	**.745** 18.92	**.255** 6.48 Dia.	**.570** 14.48	**.111** 2.82		408-8520	RF-ASMB-87	010-0016-0000
052-0299-0001	**.745** 18.92	**.281** 7.14 Hex.	**.570** 14.48	**.111** 2.82	Hex Nut w/ Safety Wire Holes, .014 [.355] Wire Max.	408-8520	RF-ASMB-87	010-0016-0000
052-0379-0001	**.745** 18.92	**.281** 7.14 Hex.	**.570** 14.48	**.111** 2.82	Hex Nut	408-8520	RF-ASMB-87	010-0016-0000
S-93 Series (93 Ohm) .250 [6.35] -32 UNEF-2B Thread								
032-0014-0001	**.745** 18.92	**.320** 8.13 Dia.	**.630** 16.00	**.134** 3.40		408-8520	RF-ASMB-87	010-0017-0000
032-0068-0001	**.745** 18.92	**.320** 8.13 Dia.	**.630** 16.00	**.155** 3.94		408-8520	RF-ASMB-87	010-0017-0000
032-0153-0001	**.745** 18.92	**.312** 7.92 Hex.	**.630** 16.00	**.155** 3.94	Hex Nut	408-8520	RF-ASMB-87	010-0017-0000
052-0207-0001	**.745** 18.92	**.312** 7.92 Hex.	**.630** 16.00	**.134** 3.40	Hex Nut	408-8520	RF-ASMB-87	010-0017-0000
052-0298-0001	**.745** 18.92	**.312** 7.92 Hex.	**.630** 16.00	**.134** 3.40	Hex Nut w/ Safety Wire Holes, .015 [.381] Wire Max.	408-8520	RF-ASMB-87	010-0017-0000
052-0304-0022	**.745** 18.92	**.312** 7.92 Hex.	**.630** 16.00	**.155** 3.94	Hex Nut w/ Safety Wire Holes, .015 [.381] Wire Max., Silicone Bend Relief Cap	408-8520	RF-ASMB-87	010-0017-0000

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MICRODOT Standard Connectors — Screw-On Series (Continued)

Jacks

S-50, 70 & 93

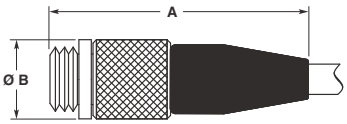


Fig. 1

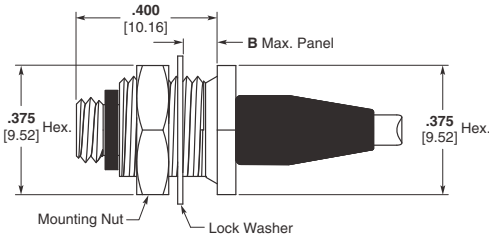
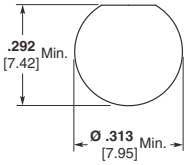


Fig. 2



Mounting Hole

Part No.	Fig.	Dim. A	Dim. B	Cable Jacket Max.	Special Features	Instruction Sheet No.	Former MICRODOT I.S. No.	Assembly Tool
S-50 Series (50 Ohm) .190 [4.83] -32 UNF-2A Thread								
031-0033-0001	2	**.870** 22.10	**.140** 3.56	**.088** 2.24		408-8522	RF-ASMB-89	010-0003-0000
031-0034-0001	1	**.750** 19.05	**.235** 5.97	**.087** 2.21		408-8522	RF-ASMB-89	010-0003-0000
051-0467-0001	1	**.720** 18.30	**.235** 5.97	**.079** 2.01	Hex Collet Cable Clamp	408-8522	RF-ASMB-89	010-0003-0000
S-70 Series (70 Ohm) .216 [5.49] -32 UNEF-2A Thread								
031-0036-0001	1	**.760** 19.30	**.255** 6.48	**.093** 2.36		408-8522	RF-ASMB-89	010-0004-0000
031-0048-0001	2	**.880** 22.35	**.140** 3.56	**.093** 2.36		408-8525	RF-ASMB-95	010-0004-0000
031-0090-0001	1	**.760** 19.30	**.255** 6.48	**.109** 2.77		408-8522	RF-ASMB-89	010-0035-0000
S-93 Series (93 Ohm) .250 [6.35] -32 UNEF-2A Thread								
031-0032-0001	2	**.880** 22.35	**.155** 3.94	**.134** 3.40		408-8525	RF-ASMB-95	010-0005-0000
031-0037-0001	1	**.760** 19.30	**.320** 8.13	**.134** 3.40		408-8525	RF-ASMB-95	010-0005-0000
031-0088-0001	1	**1.000** 25.40	**.320** 8.13	**.154** 3.91		408-8533	RF-ASMB-106	—
031-0089-0001	2	**.750** 19.05	**.140** 3.56	**.154** 3.91	No Mounting Flat, Hex Nut Cable Clamp	408-8524	RF-ASMB-92	—

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MICRODOT Standard Connectors — Screw-On Series (Continued)

Receptacles

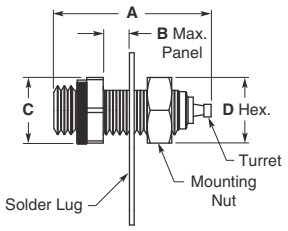


Fig. 1

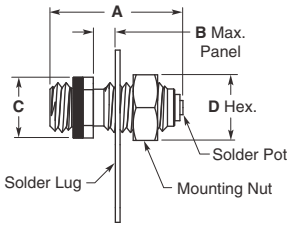
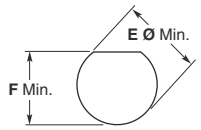


Fig. 2



Mounting Hole for Fig. 1 & 2

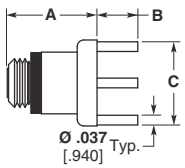


Fig. 3

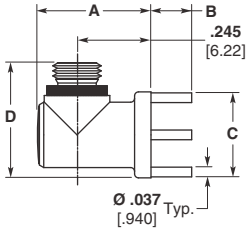
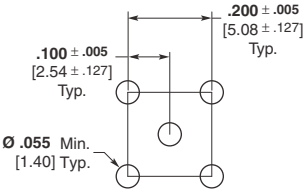


Fig. 4



Mounting Pattern for Fig. 3 & 4

Part No.	Fig.	Dim. A	Dim. B	Dim. C	Dim. D	Dim. E	Dim. F	Special Features
S-50 Series (50 Ohm) .190 [4.83] -32 UNF-2A Thread								
031-0001-0001	2	**.515** 13.08	**.080** 2.03	**.187** 4.75 Wrench Flats	**.250** 6.35	**.191** 4.85	—	No Mounting Flat
031-0001-0003	2	**.510** 12.95	**.110** 2.80	**.187** 4.75 Wrench Flats	**.250** 6.35	**.191** 4.85	—	No Mounting Flat
031-0002-0001	2	**.515** 13.08	**.150** 3.81	**.187** 4.75 Wrench Flats	**.250** 6.35	**.191** 4.85	—	No Mounting Flat
031-0003-0001	2	**.255** 6.48	—	**.187** 4.75 Wrench Flats	—	**.190** 4.83 -32	—	No Nut or Solder Lug, Threads into Panel
031-0024-0001	2	**.555** 14.10	**.120** 3.05	**.344** 8.74 Wrench Flats	**.438** 11.13	**.345** 8.76	—	Housing Isolated by Nylon Insulator
031-0050-0001	1	**.605** 15.37	**.160** 4.06	**.250** 6.35 Hex.	**.250** 4.75	**.191** 4.85	**.173** 4.39	
031-0059-0001	3	**.340** 8.64	**.155** 3.93	**.330** 8.38 Dia.	—	—	—	
031-0061-0001	4	**.425** 10.80	**.155** 3.93	**.330** 8.38 Dia.	**.480** 12.20	—	—	
031-0062-0001	3	**.345** 8.76	**.250** 6.35	**.330** 8.38 Dia.	—	—	—	
051-0125-0001	2	**.315** 8.00	**.125** 3.18	**.187** 4.75 Wrench Flats	—	**.138** 3.50	—	No Mounting Thread, Solder or Press into Panel
051-0318-0001	1	**.605** 15.37	**.160** 4.06	**.250** 6.35 Hex.	**.250** 4.75	**.191** 4.85	**.173** 4.39	w/ Safety Wire Holes, .014 [.355] Wire Max.
051-0450-0001	3	**.340** 8.64	**.050** 1.27	**.330** 8.38 Dia.	—	—	—	
051-0459-0001	4	**.425** 10.80	**.155** 3.93	**.330** 8.38 Dia.	**.480** 12.20	—	—	3 Outer Legs
S-70 Series (70 Ohm) .216 [5.49] -32 UNEF-2A Thread								
031-0017-0001	2	**.555** 14.10	**.100** 2.54	**.250** 6.35 Hex.	**.281** 7.14	**.217** 5.51	—	No Mounting Flat
031-0018-0001	2	**.555** 14.10	**.160** 4.06	**.250** 6.35 Hex.	**.281** 7.14	**.217** 5.51	—	No Mounting Flat
031-0051-0001	1	**.605** 15.37	**.160** 4.06	**.250** 6.35 Hex.	**.281** 7.14	**.217** 5.51	**.197** 5.00	
031-0069-0001	3	**.340** 8.64	**.155** 3.94	**.330** 8.38 Dia.	—	—	—	
031-0072-0001	4	**.425** 10.80	**.155** 3.94	**.330** 8.38 Dia.	**.480** 12.20	—	—	

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Receptacles (Continued)

Part No.	Fig.	Dim. A	Dim. B	Dim. C	Dim. D	Dim. E	Dim. F	Special Features
S-93 Series (93 Ohm) .250 [6.35] -32 UNEF-2A Thread								
031-0016-0001	2	**.555** 14.10	**.100** 2.54	**.312** 7.92 Hex.	**.312** 7.92	**.251** 6.38	—	No Mounting Flat
031-0019-0001	2	**.555** 14.10	**.160** 2.54	**.312** 7.92 Hex.	**.312** 7.92	**.251** 6.38	—	No Mounting Flat
031-0046-0001	2	**.555** 3.05	**.120** 3.05	**.345** 8.76 Wrench Flats	**.438** 11.13	**.345** 8.76	—	Housing Isolated by Nylon Insulator
031-0052-0001	1	**.605** 15.37	**.160** 2.54	**.312** 7.92 Hex.	**.312** 7.92	**.251** 6.38	**.232** 5.89	
031-0067-0001	3	**.340** 8.64	**.155** 3.94	**.330** 8.38 Dia.	—	—	—	
031-0073-0001	4	**.425** 10.80	**.155** 3.94	**.330** 8.38 Dia.	**.480** 12.20	—	—	
031-0080-0001	3	**.345** 8.76	**.250** 6.35	**.330** 8.38 Dia.	—	—	—	

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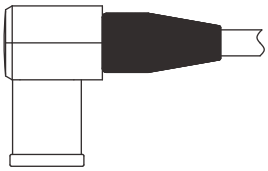
MICRODOT Standard Connectors — Slide-On Series

All plugs shown below mate with all jacks/receptacles shown below.



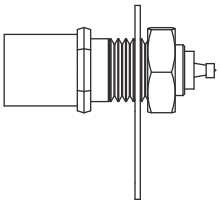
Plug

SOS-50 Ohm Series	SOS-70 Ohm Series	SOS-93 Ohm Series
032-0055-0001	032-0060-0001	032-0077-0001
	032-0087-0001	032-0084-0001



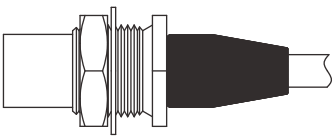
Right-Angle Plug

SOS-50 Ohm Series	SOS-70 Ohm Series	SOS-93 Ohm Series
032-0063-0001	032-0062-0001	032-0059-0001
		032-0083-0001



Plug Receptacle

SOS-50 Ohm Series	SOS-70 Ohm Series	SOS-93 Ohm Series
032-0042-0001	032-0042-0001	032-0042-0001
052-0061-0001	052-0061-0001	052-0061-0001
052-0471-0001	052-0471-0001	052-0471-0001



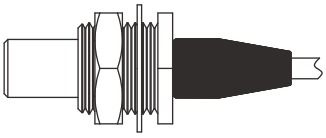
Bulkhead Plug

SOS-50 Ohm Series	SOS-70 Ohm Series	SOS-93 Ohm Series
032-0056-0001	032-0061-0001	032-0058-0001



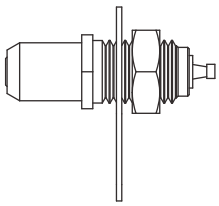
Jack

SOS-50 Ohm Series	SOS-70 Ohm Series	SOS-93 Ohm Series
031-0053-0001	031-0095-0001	031-0063-0001
		031-0093-0001



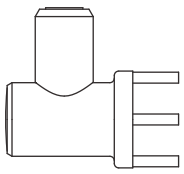
Bulkhead Jack

SOS-50 Ohm Series	SOS-70 Ohm Series	SOS-93 Ohm Series
031-0054-0001		031-0064-0001
		031-0094-0001



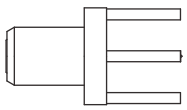
Receptacle

SOS-50 Ohm Series	SOS-70 Ohm Series	SOS-93 Ohm Series
031-0049-0001	031-0049-0001	031-0049-0001
051-0258-0001	051-0258-0001	051-0258-0001
051-0325-0001	051-0325-0001	051-0325-0001



Right-Angle Printed Circuit Receptacle

SOS-50 Ohm Series	SOS-70 Ohm Series	SOS-93 Ohm Series
031-0070-0001	031-0070-0001	031-0070-0001



Printed Circuit Receptacle

SOS-50 Ohm Series	SOS-70 Ohm Series	SOS-93 Ohm Series
031-0060-0001	031-0060-0001	031-0060-0001
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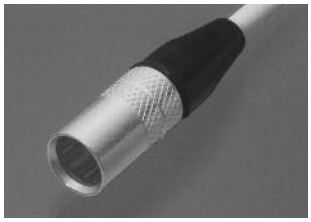
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Straight Plugs



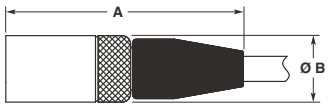


Fig. 1

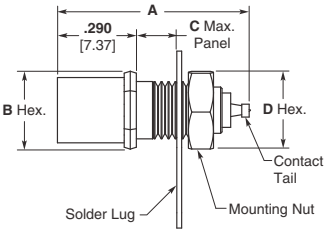


Fig. 2
Plug Receptacle

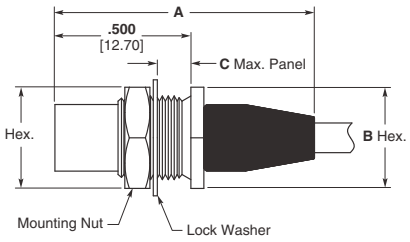
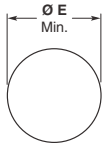


Fig. 3
Bulkhead Plug



Mounting Hole
for Fig. 2 & 3

Part No.	Fig.	Dim. A	Dim. B	Dim. C	Dim. D	Dim. E	Cable Max. Jacket	Special Features	Instruction Sheet No.	Former MICRODOT I.S. No.	Assembly Tool
SOS-50 Series (50 Ohm)											
032-0042-0001	2	**.705** 17.91	**.250** 6.35	**.160** 4.06	**.281** 7.14	**.217** 5.51	—	Turret Pin Contact Tail	—	—	—
032-0055-0001	1	**.870** 22.10	**.250** 6.35	—	—	—	**.088** 2.24		408-8526	RF-ASMB-97	010-0007-0000
032-0056-0001	3	**.950** 24.13	**.375** 9.53	**.145** 3.68	**.375** 9.53	**.313** 7.95	**.088** 2.24		408-8526	RF-ASMB-97	010-0007-0000
052-0061-0001	2	**.750** 19.05	**.250** 6.35	**.160** 4.06	**.281** 7.14	**.217** 5.51	—	Solder Pot Contact Tail	—	—	—
052-0471-0001	2	**.590** 14.99	**.250** 6.35	**.095** 2.41	**.281** 7.14	**.217** 5.51	—	Straight Pin Contact Tail[1]	—	—	—
SOS-70 Series (70 Ohm)											
032-0042-0001	2	**.705** 17.91	**.250** 6.35	**.160** 4.06	**.281** 7.14	**.217** 5.51	—	Turret Pin Contact Tail	—	—	—
032-0060-0001	1	**.880** 22.35	**.250** 6.35	—	—	—	**.093** 2.36		408-8529	RF-ASMB-102	010-0007-0000
032-0061-0001	3	**.960** 24.38	**.375** 9.53	**.145** 3.68	**.375** 9.53	**.313** 7.95	**.093** 2.36		408-8526	RF-ASMB-97	010-0007-0000
032-0087-0001	1	**.880** 22.35	**.250** 6.35	—	—	—	**.108** 2.24		408-8526	RF-ASMB-97	010-0036-0000
052-0061-0001	2	**.750** 19.05	**.250** 6.35	**.160** 4.06	**.281** 7.14	**.217** 5.51	—	Solder Pot Contact Tail	—	—	—
052-0471-0001	2	**.590** 14.99	**.250** 6.35	**.095** 2.41	**.281** 7.14	**.217** 5.51	—	Straight Pin Contact Tail[1]	—	—	—
SOS-93 Series (93 Ohm)											
032-0042-0001	2	**.705** 17.91	**.250** 6.35	**.160** 4.06	**.281** 7.14	**.217** 5.51	—	Turret Pin Contact Tail	—	—	—
032-0058-0001	3	**.960** 24.38	**.375** 9.53	**.145** 3.68	**.375** 9.53	**.313** 7.95	**.134** 3.40		408-8529	RF-ASMB-102	010-1008-0000
032-0077-0001	1	**.880** 22.35	**.250** 6.35	—	—	—	**.134** 3.40		408-8529	RF-ASMB-102	010-1008-0000
032-0084-0001	1	**1.06** 26.92	**.250** 6.35	—	—	—	**.154** 3.91		408-8523	RF-ASMB-90	—
052-0061-0001	2	**.750** 19.05	**.250** 6.35	**.160** 4.06	**.281** 7.14	**.217** 5.51	—	Solder Pot Contact Tail	—	—	—
052-0471-0001	2	**.590** 14.99	**.250** 6.35	**.095** 2.41	**.281** 7.14	**.217** 5.51	—	Straight Pin Contact Tail[1]	—	—	—

[1]Lockwasher supplied in place of solder lug.

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Jacks

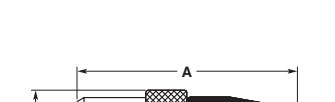


Fig. 1

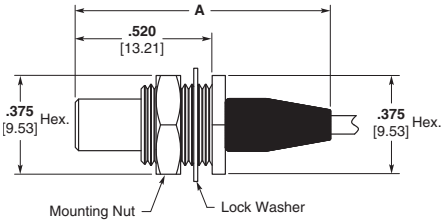
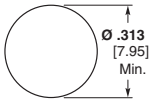


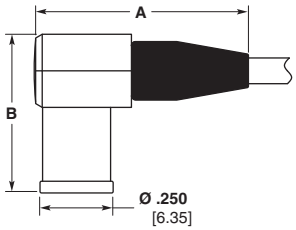
Fig. 2



Mounting Hole

Part No.	Fig.	Dim. A	Cable Jacket Max.	Special Features	Instruction Sheet No.	Former MICRODOT I.S. No.	Assembly Tool
SOS-50 Series (50 Ohm)							
031-0053-0001	1	**.800** 20.32	**.088** 2.24		408-8531	RF-ASMB-104	010-0007-0000
031-0054-0001	2	**.970** 24.64	**.088** 2.24		408-8531	RF-ASMB-104	010-0007-0000
SOS-70 Series (70 Ohm)							
031-0095-0001	1	**.810** 20.57	**.108** 2.74		408-8531	RF-ASMB-104	010-0036-0000
SOS-93 Series (93 Ohm)							
031-0063-0001	1	**.810** 20.57	**.134** 3.40		408-8530	RF-ASMB-103	010-1008-0000
031-0064-0001	2	**.980** 24.89	**.134** 3.40		408-8530	RF-ASMB-103	010-1008-0000
031-0093-0001	1	**1.100** 27.94	**.154** 3.91	.305 [7.75] Dia. Over B.R. Cap	408-8532	RF-ASMB-105	—
031-0094-0001	2	**.750** 19.05	**.154** 3.91	Hex Nut Cable Clamp	408-8524	RF-ASMB-92	—

Right-Angle Plugs



Part No.	Dim. A	Dim. B	Cable Max. O.D.	Special Features	Instruction Sheet No.	Former MICRODOT I.S. No.	Assembly Tool
SOS-50 Series (50 Ohm)							
032-0063-0001	**.735** 18.67	**.545** 13.84	**.092** 2.34		408-8520	RF-ASMB-87	010-0016-0000
SOS-70 Series (70 Ohm)							
032-0062-0001	**.745** 18.92	**.545** 13.84	**.111** 2.82		408-8520	RF-ASMB-87	010-0016-0000
SOS-93 Series (93 Ohm)							
032-0059-0001	**.745** 18.92	**.605** 15.37	**.134** 3.40		408-8520	RF-ASMB-87	010-0017-0000
032-0083-0001	**.745** 18.92	**.605** 15.37	**.155** 3.94		408-8520	RF-ASMB-87	010-0017-0000

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MICRODOT Standard Connectors — Slide-On Series (Continued)

Receptacles

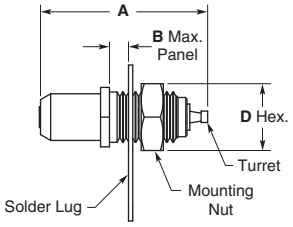


Fig. 1

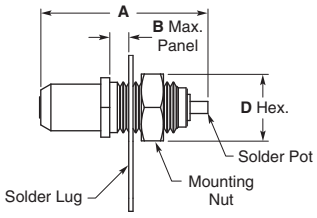
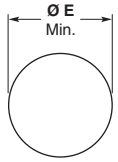


Fig. 2



Mounting Hole
for Fig. 1 & 2

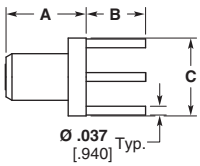


Fig. 3

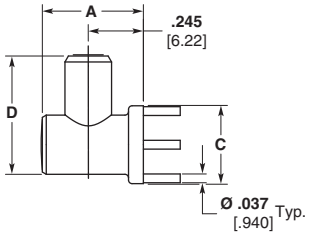
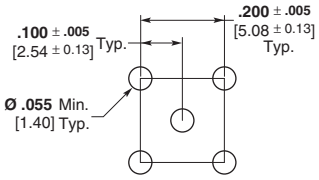


Fig. 4



Mounting Pattern
for Fig. 3 & 4

Part No.	Fig.	Dim. A	Dim. B	Dim. C	Dim. D	Dim. E	Special Features
SOS-50 (50 Ohm), SOS-70 (70 Ohm), & SOS-93 (93 Ohm) Series							
031-0049-0001	1	**.715** 18.16	**.160** 4.06	**.250** 6.35 Hex.	**.281** 7.14	**.217** 5.51	
031-0060-0001	3	**.340** 8.64	**.155** 3.94	**.330** 8.38 Dia.	—	—	
031-0065-0001	3	**.340** 8.64	**.250** 6.35	**.330** 8.38 Dia.	—	—	
031-0070-0001	4	**.425** 10.79	**.155** 3.94	**.330** 8.38 Dia.	**.540** 13.72	—	
051-0258-0001	2	**.715** 18.16	**.160** 4.06	**.250** 6.35 Hex.	**.281** 7.14	**.217** 5.51	
051-0325-0001	1	**.570** 14.48	**.140** 3.56	**.250** 6.35 Hex.	—	**.216-32** 5.49 Thd.	No Nut or Lockwasher, Threads into Panel

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MICRODOT Standard Connectors — Quick-Connect Series



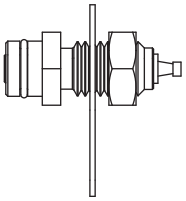
Plug

QC-50 Ohm Series	QC-70 Ohm Series	QC-93 Ohm Series
032-0002-0001	032-0016-0001	032-0012-0001
032-0030-0001	032-0031-0001	032-0032-0001
	032-0079-0001	032-0072-0001



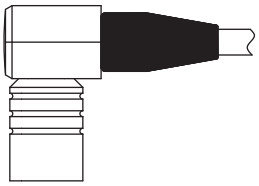
Jack

QC-50 Ohm Series	QC-70 Ohm Series	QC-93 Ohm Series
031-0038-0001		031-0040-0001



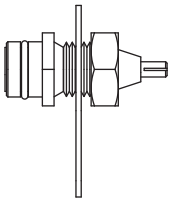
Receptacle

QC-50 Ohm Series	QC-70 Ohm Series	QC-93 Ohm Series
031-0057-0001	031-0057-0001	031-0058-0001
		031-0085-0001



Right-Angle Plug

QC-50 Ohm Series	QC-70 Ohm Series	QC-93 Ohm Series
032-0026-0001	032-0027-0001	032-0020-0001
		052-0228-0001



Receptacle

QC-50 Ohm Series	QC-70 Ohm Series	QC-93 Ohm Series
031-0004-0001	031-0004-0001	031-0020-0001
031-0005-0001	031-0005-0001	031-0021-0001
031-0006-0001	031-0006-0001	
051-0586-0001	051-0586-0001	

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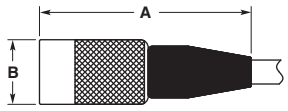
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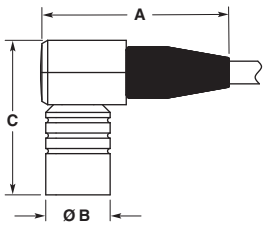
MICRODOT Standard Connectors — Quick-Connect Series (Continued)

Straight Plugs



Part No.	Dim. A	Dim. B	Cable Jacket Max.	Special Features	Instruction Sheet No.	Former MICRODOT I.S. No.	Assembly Tool
QC-50 Series (50 Ohm)							
032-0002-0001	**.820** 20.83	**.250** 6.35	**.093** 2.36	Solderless Assembly	408-8527	RF-ASMB-100	010-0007-0000
032-0030-0001	**.820** 20.83	**.250** 6.35	**.093** 2.36		408-8526	RF-ASMB-97	010-0007-0000
QC-70 Series (70 Ohm)							
032-0016-0001	**.830** 21.08	**.250** 6.35	**.093** 2.36	Solderless Assembly	408-8527	RF-ASMB-100	010-0007-0000
032-0031-0001	**.830** 21.08	**.250** 6.35	**.093** 2.36		408-8529	RF-ASMB-102	010-0007-0000
032-0079-0001	**.840** 21.34	**.250** 6.35	**.108** 2.74		408-8526	RF-ASMB-97	010-0036-0000
QC-93 Series (93 Ohm)							
032-0012-0001	**.845** 21.46	**.312** 7.92	**.134** 3.40	Solderless Assembly	408-8527	RF-ASMB-100	010-0008-0000
032-0032-0001	**.845** 21.46	**.312** 7.92	**.134** 3.40		408-8529	RF-ASMB-102	010-0008-0000
032-0072-0001	**1.050** 26.67	**.312** 7.92	**.154** 3.91	Mates with 031-0085-0001 Only	408-8523	RF-ASMB-90	—

Right-Angle Plugs



Part No.	Dim. A	Dim. B	Dim. C	Cable Jacket Max.	Special Features	Instruction Sheet No.	Former MICRODOT I.S. No.	Assembly Tool
QC-50 Series (50 Ohm)								
032-0026-0001	**.735** 18.67	**.250** 6.35	**.605** 15.37	**.092** 2.34		408-8520	RF-ASMB-87	010-0016-0000
QC-70 Series (70 Ohm)								
032-0027-0001	**.745** 18.92	**.250** 6.35	**.605** 15.37	**.111** 2.82		408-8520	RF-ASMB-87	010-0016-0000
QC-93 Series (93 Ohm)								
032-0020-0001	**.745** 18.92	**.312** 7.92	**.635** 16.13	**.134** 3.40		408-8520	RF-ASMB-87	010-0017-0000
052-0228-0001	**.745** 18.92	**.312** 7.92	**.720** 18.29	**.155** 3.94	Mates with 031-0085-0001 Only	408-8520	RF-ASMB-87	010-0017-0000

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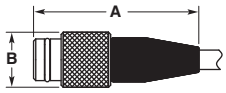
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MICRODOT Standard Connectors — Quick-Connect Series (Continued)

Jacks



Part No.	Dim. A	Dim. B	Cable Jacket Max.	Special Features	Instruction Sheet No.	Former MICRODOT I.S. No.	Assembly Tool
QC-50 Series (50 Ohm)							
031-0038-0001	**.750** 19.05	**.250** 6.35	**.093** 2.36		408-8531	RF-ASMB-104	010-0007-0000
QC-93 Series (93 Ohm)							
031-0040-0001	**.760** 19.30	**.320** 8.13	**.134** 3.40		408-8530	RF-ASMB-103	010-1009-0000

Receptacles

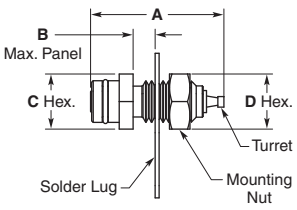


Fig. 1

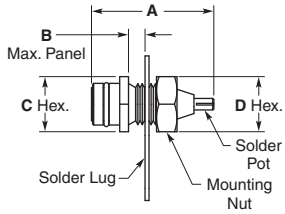
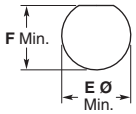


Fig. 2



Mounting Hole

Part No.	Fig.	Dim. A	Dim. B	Dim. C	Dim. D	Dim. E	Dim. F	Special Features
QC-50 Series (50 Ohm) & QC-70 Series (70 Ohm)								
031-0004-0001	2	**.555** 14.10	**.095** 2.41	**.250** 6.35	**.250** 6.35	**.191** 4.85	—	No Mounting Flat
031-0005-0001	2	**.555** 14.10	**.165** 4.19	**.250** 6.35	**.250** 6.35	**.191** 4.85	—	No Mounting Flat
031-0006-0001	2	**.250** 6.35	—	**.250** 6.35	—	**.190-32** Thd 4.83	—	No Nut or Solder Lug, Threads into Panel
031-0057-0001	1	**.605** 15.37	**.165** 4.19	**.250** 6.35	**.250** 6.35	**.191** 4.85	**.173** 4.39	
051-0586-0001	2	**.555** 14.10	**.165** 4.19	**.250** 6.35	**.250** 6.35	**.191** 4.85	—	No Mounting Flat, Split Solder Lug
QC-93 Series (93 Ohm)								
031-0020-0001	2	**.555** 14.10	**.095** 2.41	**.312** 7.92	**.312** 7.92	**.251** 6.38	—	No Mounting Flat
031-0021-0001	2	**.555** 14.10	**.165** 4.19	**.312** 7.92	**.312** 7.92	**.251** 6.38	—	No Mounting Flat
031-0058-0001	1	**.605** 15.37	**.160** 4.06	**.312** 7.92	**.312** 7.92	**.251** 6.38	**.232** 5.89	
031-0085-0001	1	**.715** 18.16	**.165** 4.19	**.312** 7.92	**.312** 7.92	**.251** 6.38	—	No Mounting Flat, Mates with 032-0072-0001 & 052-0228-0001 Only

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MICRODOT Standard Connectors — Twinax Series

Twinax Plugs:

For cables with two inner conductors and one shield

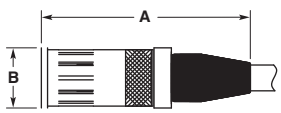


Fig. 1
Slide-On Series

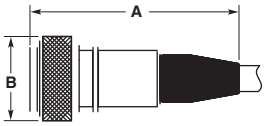


Fig. 2
Screw-On Series

Part No.	Fig.	Dim. A	Dim. B	Cable Jacket Max.	Special Features	Instruction Sheet No.	Former MICRODOT I.S. No.	Assembly Tool
032-0088-0001	1	**1.085** 27.56	**.312** 7.92	**.167** 4.24		408-8528	RF-ASMB-101	010-0031-0000
032-0093-0001	1	**1.085** 27.56	**.312** 7.92	**.123** 3.12		408-8528	RF-ASMB-101	010-0031-0000
052-0229-0001	2	**1.085** 27.56	**.440** 11.18	**.123** 3.12		408-8517	RF-ASMB-61	010-0172-0000
052-0324-0001	2	**1.095** 27.81	**.440** 11.18	**.167** 4.24		408-8517	RF-ASMB-61	010-0172-0000

Twinax Receptacles and Jacks:

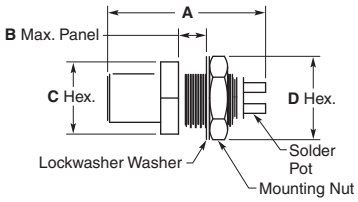


Fig. 1
Slide-On Series

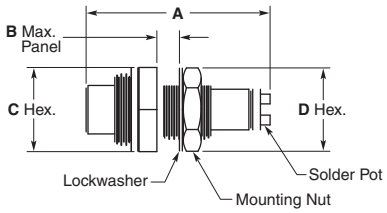


Fig. 2
Slide-On Series or Screw-On Series

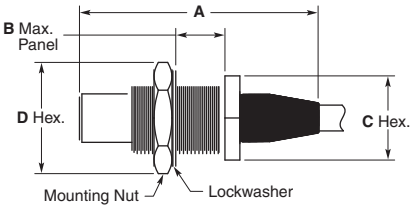
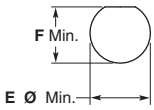


Fig. 3
Slide-On Series or Screw-On Series



Mounting Hole

Part No.	Fig.	Dim. A	Dim. B	Dim. C	Dim. D	Dim. E	Dim. F	Cable Max. Jacket	Special Features	Instruction Sheet No.	Former MICRODOT I.S. No.	Assembly Tool
031-0098-0001	1	**.812** 20.62	**.155** 3.94	**.375** 9.53	**.375** 9.53	**.313** 7.95	**.292** 7.42	—		—	—	—
051-0248-0001	2	**.960** 24.38	**.155** 3.94	**.437** 11.10	**.375** 9.53	**.313** 7.95	**.292** 7.42	—		—	—	—
051-0358-0001	3	**1.060** 26.92	**.075**[1] 1.91	**.437** 11.10	**.500** 12.7	**.376** 9.55	**.351** 8.92	**.167** 4.24	Lockwasher not included	408-8516	RF-ASMB-44	010-0186-0000
051-0389-0001	3	**1.255** 31.88	**.255**[2] 6.48	**.437** 11.10	**.500** 12.7	**.376** 9.55	**.351** 8.92	**.167** 4.24		408-8516	RF-ASMB-44	010-0186-0000

[1].075 [1.91] Max. Panel when mated with a Screw-On plug, .180 [4.57] Max. Panel when mated with a Slide-On plug.
[2].255 [6.48] Max. Panel when mated with a Screw-On plug, .360 [9.14] Max. Panel when mated with a Slide-On plug.

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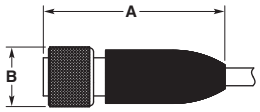
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MICRODOT Standard Connectors — Triax Series and Terminals

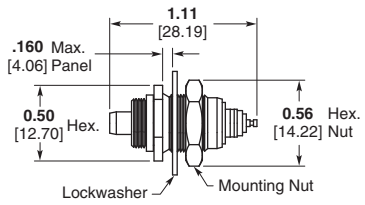
Triax Plugs:

For cables with one inner conductor and two isolated shields

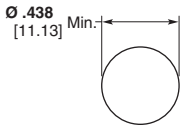


Part No.	Dim. A	Dim. B	Cable Jacket Max.	Special Features	Instruction Sheet No.	Former MICRODOT I.S. No.	Assembly Tool
052-0130-0001	**1.37** 34.80	**.440** 11.18 Dia.	**.124** 3.15		408-8514	RF-ASMB-20	—
052-0138-0001	**1.37** 34.80	**.440** 11.18 Dia.	**.183** 4.65		408-8515	RF-ASMB-21	—
052-0593-0001	**1.37** 34.80	**.438** 11.13 Hex.	**.214** 5.44	Hex Nut w/ Safety Wire Holes, .027 [.686] Wire Max.	408-8518	RF-ASMB-73	—

Triax Receptacle:

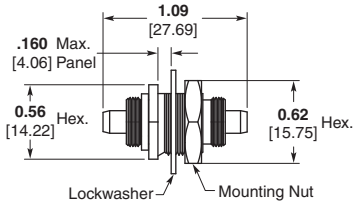


Part Number 051-0618-0001

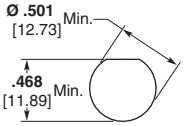


Mounting Hole

Triax Adapter:



Part Number 053-0161-0001
Mates with Triax Plug, Both Ends



Mounting Hole

Terminals

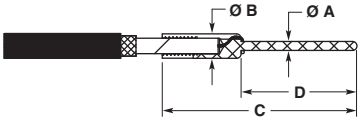


Fig. 1



Fig. 2

Terminals are gold plated. See applicable MICRODOT drawing for solder and crimp instructions.

Part No.	Fig.	Dim. A	Dim. B	Dim. C	Dim. D	Cable Max. Dielectric	Cable Max. Inner Conductor
053-0354-0003	1	**.030** .762	**.080** 2.03	**.630** 16.00	**.375** 9.53	**.050** 1.27	**.015** .381
053-0249-0001	1	**.030** .762	**.105** 2.67	**.630** 16.00	**.375** 9.53	**.071** 1.80	**.021** .533
053-0495-0001	1	**.030** .762	**.125** 3.18	**.880** 22.35	**.610** 15.49	**.083** 2.11	**.022** .559
053-0656-0001	1	**.030** .762	**.145** 3.68	**.880** 22.35	**.375** 9.53	**.108** 2.74	**.023** .584
053-0294-0002	1	**.030** .762	**.145** 3.68	**.880** 22.35	**.625** 15.88	**.108** 2.74	**.023** .584
033-0115-0002	2	**.040** 1.02	**.063** 1.60	**.255** 6.48	**.100** 2.54	**.042** 1.07	**.023** .584
033-0116-0001	2	**.040** 1.02	**.094** 2.39	**.300** 7.62	**.100** 2.54	**.068** 1.73	**.023** .584
033-0117-0001	2	**.040** 1.02	**.140** 3.56	**.350** 8.89	**.200** 5.08	**.108** 2.74	**.023** .584
053-0154-0001	1	**.041** 1.04	**.080** 2.03	**.430** 10.92	**.175** 4.45	**.050** 1.27	**.019** .483
053-0250-0001	1	**.041** 1.04	**.080** 2.03	**.505** 12.83	**.250** 6.35	**.050** 1.27	**.019** .483
053-0020-0003	1	**.041** 1.04	**.080** 2.03	**.630** 16.00	**.375** 9.53	**.050** 1.27	**.015** .381
053-0021-0003	1	**.041** 1.04	**.105** 2.67	**.630** 16.00	**.375** 9.53	**.071** 1.80	**.023** .584
053-0267-0003	1	**.041** 1.04	**.105** 2.67	**.875** 22.23	**.625** 15.88	**.071** 1.80	**.023** .584
053-0265-0001	2	**.041** 1.04	**.128** 3.25	**.505** 12.83	**.250** 6.35	**.102** 2.59	**.021** .533
053-0230-0001	2	**.041** 1.04	**.128** 3.25	**.630** 16.00	**.375** 9.53	**.102** 2.59	**.018** .457
053-0155-0001	1	**.041** 1.04	**.145** 3.68	**.430** 10.82	**.175** 4.45	**.108** 2.74	**.023** .584
053-0022-0003	1	**.041** 1.04	**.145** 3.68	**.630** 16.00	**.375** 9.53	**.108** 2.74	**.023** .584
053-0388-0001	2	**.042** 1.07	**.098** 2.49	**.500** 12.70	**.250** 6.35	**.065** 1.65	**.021** .533
053-0251-0001	2	**.042** 1.07	**.098** 2.49	**.630** 16.00	**.375** 9.53	**.065** 1.65	**.021** .533

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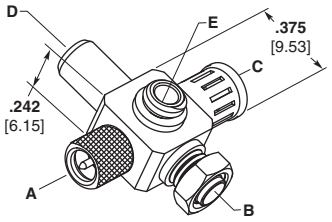
Dimensions are shown for reference purposes only. Specifications subject to change.

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MICRODOT Standard Connectors — Module Blocks



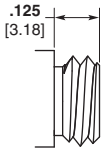
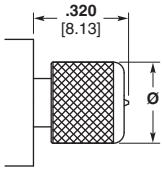
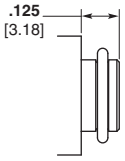
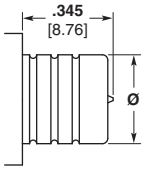
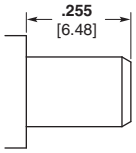
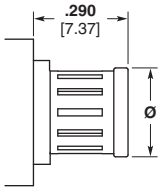
The five faces of basic block can be used to mount any one of 10 different terminations. The 5 faces are coded with letters as shown above. The 10 terminations are coded with Nos. 1–10. Part number, to be complete, must show face location and termination Nos. desired. (Ex: illustration shows 033-0042—A2—B7—C6—D5—E1) Ordering part number will be converted to a MICRODOT assigned number at time of ordering.

We do not stock complete assemblies.

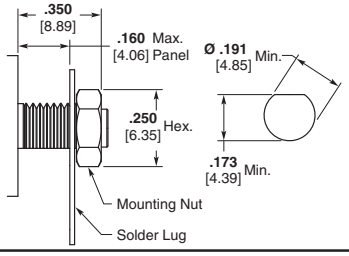
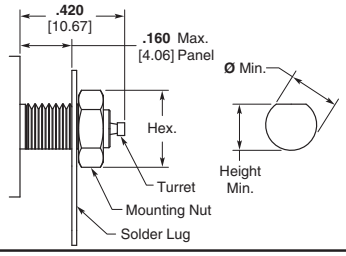
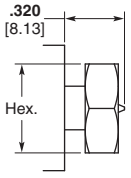
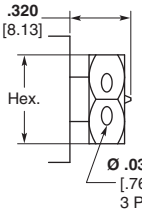
Size	Part No.	Dim. H
50 Ohm	033-0042*	**.250** 6.35
70 Ohm	033-0043*	**.250** 6.35
93 Ohm	033-0044*	**.300** 7.62

*Part number to be completed by customer. A Computer Part Number will be assigned by TE Connectivity.

Interfaces/Terminations

Termination Number	1	2	3	4	5	6
Mating Type	S	S	QC	QC	SOS	SOS
Description	Receptacle	Plug with Knurl Nut	Receptacle	Plug	Receptacle	Plug
						
	Thread	Thread Dia.		Dia.		Dia.
50 Series	**.190**-32 UNF 4.83	**.190**-32 UNF 4.83 **.230** 5.84		**.250** 6.35		**.250** 6.35
70 Series	**.216**-32 UNEF 5.49	**.216**-32 UNEF 5.49 **.255** 6.48		**.250** 6.35		**.250** 6.35
93 Series	**.250**-32 UNEF 6.35	**.250**-32 UNEF 6.35 **.320** 8.13		**.312** 7.92		**.250** 6.35

Interfaces/Terminations (Continued)

Termination Number	7	8				9		10	
Mating Type	—	—				S		S	
Description	Bulkhead Stud	Bulkhead Receptacle				Plug with Hex. Nut		Plug, Hex. Nut With Wire Holes	
									
	Thread	Thread	Hex.	Min. Hole Dia.	Min. Hole Height	Thread	Hex.	Thread	Hex.
50 Series	**.190**-32 UNF 4.83	**.190**-32 UNF 4.83	**.250** 6.35	**.191** 4.85	**.173** 4.39	**.190**-32 UNF 4.83	**.250** 6.35	**.190**-32 UNF 4.83	**.250** 6.35
70 Series	**.190**-32 UNF 4.83	**.216**-32 UNEF 5.49	**.281** 7.14	**.217** 5.51	**.197** 5.00	**.216**-32 UNEF 5.49	**.281** 7.14	**.216**-32 UNEF 5.49	**.281** 7.14
93 Series	**.190**-32 UNF 4.83	**.250**-32 UNEF 6.35	**.312** 7.92	**.251** 6.38	**.232** 5.89	**.250**-32 UNEF 6.35	**.312** 7.92	**.250**-32 UNEF 6.35	**.312** 7.92

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MICRODOT Standard Connectors — Caps, Hoods

Caps, Screw-On Series

For Receptacles and Jacks

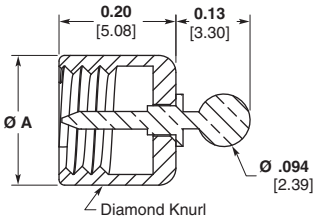


Fig. 1
With Grounding Pin

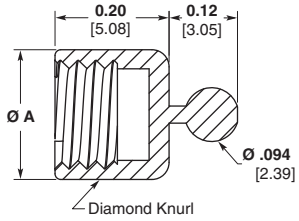


Fig. 2
Without Grounding Pin

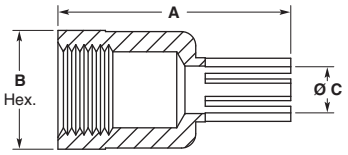
Part No.	Fig.	Dim. A
S-50 Series		
033-0046-0001	1	**.235** 5.97
033-0056-0001	2	**.235** 5.97
S-70 Series		
033-0047-0001	1	**.255** 6.48
033-0057-0001	2	**.255** 6.48
S-93 Series		
033-0048-0001	1	**.315** 8.00
033-0058-0001	2	**.315** 8.00

Material — Brass per QQ-B-626

Finish — Silver plate per QQ-S-365, .0002 [.005] min.

Note: All caps can be supplied with .094 [2.39] Dia. bead chain and end ring. When ordering, specify chain length and end ring hole size (.130 [3.30], .140 [3.56], .167 [4.24], or .193 [4.90] Dia.)

Receptacle Hoods



Part No.	Dim. A	Dim. B	Dim. C	Thread	For Receptacle Series
033-0067-0001	**.490** 12.45	**.250** 6.35	**.098** 2.49	**.190**-32 UNF 4.83	S-50, QC-50, QC-70
033-0068-0001	**.490** 12.45	**.250** 6.35	**.114** 2.90	**.216**-32 UNEF 5.49	S-70, SOS-50, SOS-70, SOS-93
033-0069-0001	**.490** 12.45	**.312** 7.92	**.156** 3.96	**.250**-32 UNEF 6.35	S-93, QC-93
033-0084-0001	**.490** 12.45	**.250** 6.35	**.156** 3.96	**.216**-32 UNEF 5.49	S-70, SOS-50, SOS-70, SOS-93
053-0147-0001	**.840** 21.34	**.437** 11.10	**.156** 3.96	**.375**-32 UNEF 9.53	Twinax/Triax Receptacle

Material — Brass per QQ-B-626

Finish — Silver plate per QQ-S-365, .0002 [.005] min.

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MICRODOT Standard Connectors — Adapters

Feed-Thru Adapters for Screw-On Series

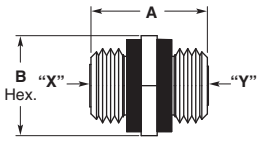


Fig. 1

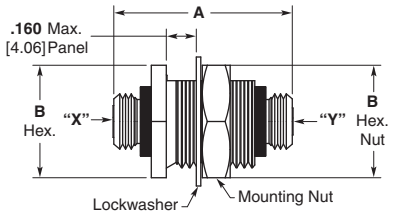
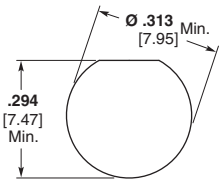


Fig. 2

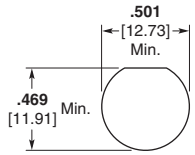


Mounting Hole

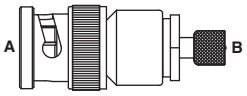
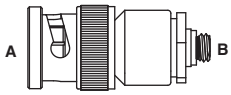
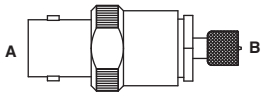
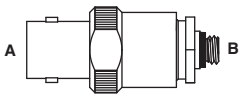
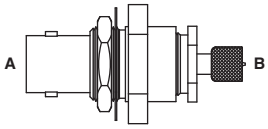
Part No.	Fig.	Dim. A	Dim. B	End "X" Is	End "Y" Is
033-0001-0001	1	**.300** 7.62	**.250** 6.35	S-50 Receptacle	S-50 Receptacle
033-0053-0001	2	**.600** 15.24	**.375** 9.53	S-50 Receptacle	S-50 Receptacle
033-0023-0001	1	**.400** 10.16	**.250** 6.35	S-70 Receptacle	S-70 Receptacle
033-0054-0001	2	**.600** 15.24	**.375** 9.53	S-70 Receptacle	S-70 Receptacle
033-0036-0001	1	**.410** 10.41	**.312** 7.92	S-93 Receptacle	S-93 Receptacle
033-0055-0001	2	**.600** 15.24	**.375** 9.53	S-93 Receptacle	S-93 Receptacle

BNC and TNC/MICRODOT Adapters for Screw-On, Slide-On, and Quick-Connect Series

For mating BNC/TNC connectors to MICRODOT standard connectors.



Mounting Hole

End "A" Is:	Configuration	End "B" Is:	50 Series Part No.	70 Series Part No.	93 Series Part No.
BNC Plug		Screw-On (S) Type Plug	033-0103-0001	033-0107-0001	033-0111-0001
BNC Plug		Screw-On Type Receptacle	033-0101-0001	033-0105-0001	033-0109-0001
BNC Receptacle		Screw-On (S) Type Plug	033-0104-0001	053-0108-0001	033-0112-0001
BNC Receptacle		Screw-On (S) Type Receptacle	033-0102-0001	033-0106-0001	033-0110-0001
BNC Bulkhead Receptacle		Screw-On (S) Type Plug	033-0127-0001[1]	—	033-0129-0001[1]

[1]Mounting information: Housing Hex. .688 [17.48], Mtg. Nut Hex. .625 [15.88], Max. Panel .090 [2.29].

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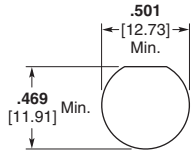
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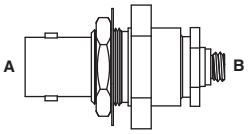
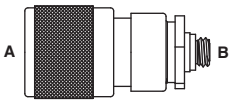
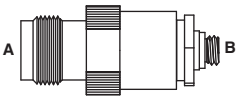
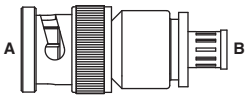
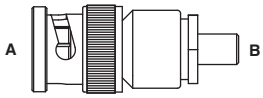
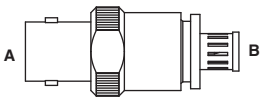
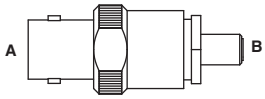
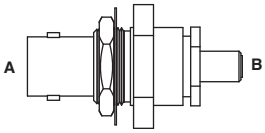
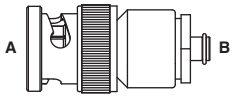
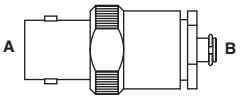
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MICRODOT Standard Connectors — Adapters (Continued)

BNC and TNC/MICRODOT Adapters for Screw-On, Slide-On, and Quick-Connect Series (Continued)



Mounting Hole

End "A" Is:	Configuration	End "B" Is:	50 Series Part No.	70 Series Part No.	93 Series Part No.
BNC Bulkhead Receptacle		Screw-On (S) Type Receptacle	033-0090-0001[1]	033-0125-0001[1]	033-0126-0001[1]
TNC Plug		Screw-On (S) Type Receptacle	033-0141-0001	033-0143-0001	033-0145-0001
TNC Receptacle		Screw-On (S) Type Receptacle	033-0153-0001	—	—
BNC Plug		Slide-On (SOS) Type Plug	053-0339-0001	053-0339-0001	053-0339-0001
BNC Plug		Slide-On (SOS) Type Receptacle	033-0081-0001	033-0081-0001	033-0081-0001
BNC Receptacle		Slide-On (SOS) Type Plug	033-0092-0001	033-0092-0001	033-0092-0001
BNC Receptacle		Slide-On (SOS) Type Receptacle	033-0082-0001	033-0082-0001	033-0082-0001
BNC Bulkhead Receptacle		Slide-On (SOS) Type Receptacle	033-0124-0001[1]	033-0124-0001[1]	033-0124-0001[1]
BNC Plug		Quick-Connect (QC) Type Receptacle	033-0093-0001	033-0093-0001	033-0097-0001
BNC Receptacle		Quick-Connect (QC) Type Receptacle	033-0094-0001	033-0094-0001	—

[1]Mounting information: Housing Hex. .688 [17.48], Mtg. Nut Hex. .625 [15.88], Max. Panel .090 [2.29].

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MICRODOT Gold Plated Crimp Style Coaxial Connectors

Performance Data Summary

For Gold Plated Crimp Style Coaxial Connectors

Mechanical

Captive Contacts — Terminated connector contacts captivated from movement in both directions.

Cable Retention — 50 Ohm connectors, 15 lb. min. 70 Ohm connectors, 25 lb. min. 93 Ohm connectors, 25 lb. min.

Recommended Coupling Torque (Threaded Interface) — 8 inch/pounds max. [.904 Nm]

Recommended Receptacle Mounting Torque (Threaded Interface) — 8 inch/pounds max. [.904 Nm]

Contact Protection (Unmated) — Pin contact protected by coupling nut. Socket protected by insulator and housing.

Assembly Methods

Straight Plugs & Jacks — **Cable Inner Conductor** — Crimped to contact. **Cable Shield** — Crimped under housing.

Right-Angle Plugs — **Cable Inner Conductor** — Crimped to contact. **Cable Shield** — Crimped under housing.

Environmental

Temperature Range (Continuous Service) — -80°F to +392°F. [-62°C to +200°C].

Vibration[1,2] — MIL-STD-202, Method 204, Test condition B (15 G peak). No physical damage or electrical discontinuities in excess of 1 microsecond.

Shock[1,2] — MIL-STD-202, Method 213, Test Condition H. No physical damage or electrical discontinuity after shock.

Thermal Shock — MIL-STD-202, Method 107, Test Condition C.

Moisture Resistance[1] — MIL-STD-202, Method 106.

Salt Spray[1] — MIL-STD-202, Method 101, Test Condition B (48 hours).

Electrical

Impedance — Designed to be compatible with 50, 70, or 93 Ohm miniature coaxial cable.

Dielectric Withstanding Voltage — 1000 volts RMS at sea level.

Contact Resistance — 4 milliohms max., D.C.

Contact Capacity — 3 amps, D.C.

Insulation Resistance — 5 x 10^3 Megohms min. @ 500 volts D.C.

Voltage Standing Wave Ratio[3] (VSWR) — Typical 50 Ohm series, 1.2 max. to 2 GHz.

Materials

Housing, Nut, Inner Sleeve — Brass per ASTM-B-16, 35% Zinc.

Insulator — PTFE per ASTM-D-1710.

Pin & Socket Contacts — Beryllium Copper per ASTM-B-196.

Middle Sleeve — Copper Alloy.

Facial Seal, Sealing Sleeve & Gasket — Silicone Rubber per ZZ-R-765.

Lockwasher — #425 Bronze Alloy.

Plating

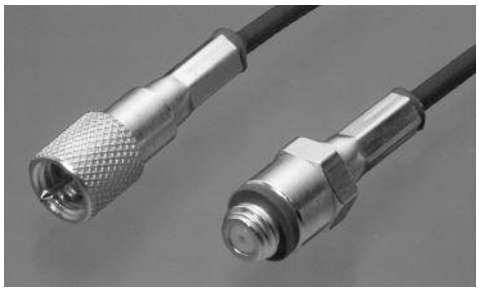
Contacts, Housing, Nut, Inner Sleeve, Middle Sleeve, Lockwasher — Gold per MIL-G-45204, Type II, Grade C, Class 1.

Notes:

[1]Screw-On Series threaded interface.

[2]TE Connectivity recommends the use of wired connectors in vibration and shock environments. See individual specifications for connectors with wire holes.

[3]VSWR is a system specification. Where performance is critical, purchase TE cable assemblies (See page 2-138) and specify VSWR testing and mating connector part numbers.



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MICRODOT Gold Plated Crimp Style Coaxial Connectors — Screw-On Series

Straight Plugs

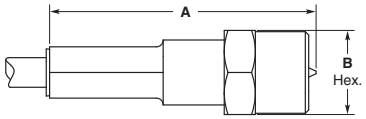


Fig. 1
Partial Hex. Nut

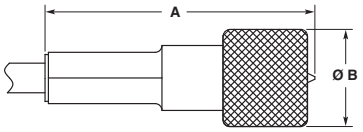


Fig. 2
Knurl Nut

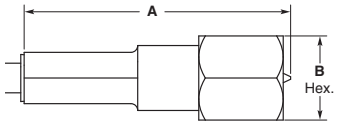


Fig. 3
Full Hex. Nut

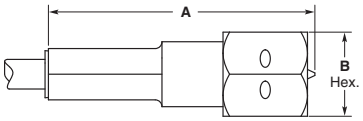


Fig. 4
Hex. Nut w/ 3 Safety Wire Holes

Part No.	Fig.	Dim. A	Dim. B	Cable Max.	Special Features	Instruction Sheet No.	Former MICRODOT I.S. No.
50 Ohm Series .190 [4.83] -32 UNF-2B Thread							
132-0112-0001	1	**.800** 20.32	**.250** 6.35	**.088** 2.24		408-8508	RF-ASMB-8
132-0112-0002	2	**.800** 20.32	**.250** 6.35	**.088** 2.24		408-8508	RF-ASMB-8
132-0112-0003	3	**.800** 20.32	**.250** 6.35	**.088** 2.24		408-8508	RF-ASMB-8
132-0112-0004	4	**.800** 20.32	**.250** 6.35	**.088** 2.24		408-8508	RF-ASMB-8
132-0113-0001	1	**.800** 20.32	**.250** 6.35	**.088** 2.24	With environmental seal	408-8508	RF-ASMB-8
132-0113-0002	2	**.800** 20.32	**.250** 6.35	**.088** 2.24	With environmental seal	408-8508	RF-ASMB-8
132-0113-0003	3	**.800** 20.32	**.250** 6.35	**.088** 2.24	With environmental seal	408-8508	RF-ASMB-8
132-0113-0004	4	**.800** 20.32	**.250** 6.35	**.088** 2.24	With environmental seal	408-8508	RF-ASMB-8
132-0114-0001	1	**.800** 20.32	**.250** 6.35	**.110** 2.79		408-8508	RF-ASMB-8
132-0114-0002	2	**.800** 20.32	**.250** 6.35	**.110** 2.79		408-8508	RF-ASMB-8
132-0114-0003	3	**.800** 20.32	**.250** 6.35	**.110** 2.79		408-8508	RF-ASMB-8
132-0114-0004	4	**.800** 20.32	**.250** 6.35	**.110** 2.79		408-8508	RF-ASMB-8
132-0115-0001	1	**.800** 20.32	**.250** 6.35	**.110** 2.79	With environmental seal	408-8508	RF-ASMB-8
132-0115-0002	2	**.800** 20.32	**.250** 6.35	**.110** 2.79	With environmental seal	408-8508	RF-ASMB-8
132-0115-0003	3	**.800** 20.32	**.250** 6.35	**.110** 2.79	With environmental seal	408-8508	RF-ASMB-8
132-0115-0004	4	**.800** 20.32	**.250** 6.35	**.110** 2.79	With environmental seal	408-8508	RF-ASMB-8
132-0509-0002	2	**.800** 20.32	**.250** 6.35	**.116** 2.95	Dual shield cable version of RG 188 & 316	408-8508	RF-ASMB-8
70 Ohm Series .216 [5.49] -32 UNEF-2B Thread							
132-0200-0001	1	**.800** 20.32	**.281** 7.14	**.110** 2.79		408-8508	RF-ASMB-8
132-0200-0002	2	**.800** 20.32	**.290** 7.37	**.110** 2.79		408-8508	RF-ASMB-8
132-0200-0003	3	**.800** 20.32	**.281** 7.14	**.110** 2.79		408-8508	RF-ASMB-8
132-0200-0004	4	**.800** 20.32	**.281** 7.14	**.110** 2.79		408-8508	RF-ASMB-8
132-0201-0001	1	**.800** 20.32	**.281** 7.14	**.110** 2.79	With environmental seal	408-8508	RF-ASMB-8
132-0201-0002	2	**.800** 20.32	**.290** 7.37	**.110** 2.79	With environmental seal	408-8508	RF-ASMB-8
132-0201-0003	3	**.800** 20.32	**.281** 7.14	**.110** 2.79	With environmental seal	408-8508	RF-ASMB-8
132-0201-0004	4	**.800** 20.32	**.281** 7.14	**.110** 2.79	With environmental seal	408-8508	RF-ASMB-8

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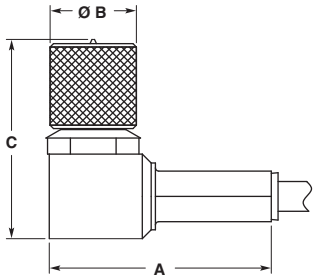
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MICRODOT Gold Plated Crimp Style Coaxial Connectors — Screw-On Series (Continued)

Straight Plugs (Continued)

Part No.	Fig.	Dim. A	Dim. B	Cable Max.	Special Features	Instruction Sheet No.	Former MICRODOT I.S. No.
93 Ohm Series .250 [6.35] -32 UNEF-2B Thread							
132-0300-0001	1	**.795** 20.19	**.312** 7.92	**.155** 3.94		408-8508	RF-ASMB-8
132-0300-0002	2	**.795** 20.19	**.320** 8.13	**.155** 3.94		408-8508	RF-ASMB-8
132-0300-0003	3	**.795** 20.19	**.312** 7.92	**.155** 3.94		408-8508	RF-ASMB-8
132-0300-0004	4	**.795** 20.19	**.312** 7.92	**.155** 3.94		408-8508	RF-ASMB-8
132-0301-0001	1	**.795** 20.19	**.312** 7.92	**.155** 3.94	With environmental seal	408-8508	RF-ASMB-8
132-0301-0002	2	**.795** 20.19	**.320** 8.13	**.155** 3.94	With environmental seal	408-8508	RF-ASMB-8
132-0301-0003	3	**.795** 20.19	**.312** 7.92	**.155** 3.94	With environmental seal	408-8508	RF-ASMB-8
132-0301-0004	4	**.795** 20.19	**.312** 7.92	**.155** 3.94	With environmental seal	408-8508	RF-ASMB-8

Right-Angle Plugs



Knurl Nut

Part No.	Dim. A	Dim. B	Dim. C	Cable Jacket Max.	Special Features	Instruction Sheet No.	Former MICRODOT I.S. No.
50 Ohm Series .190 [4.83] -32 UNF-2B Thread							
132-0116-0002	**.660** 16.76	**.250** 6.35	**.620** 15.75	**.088** 2.24		408-8509	RF-ASMB-11
132-0117-0002	**.660** 16.76	**.250** 6.35	**.620** 15.75	**.088** 2.24	With environmental seal	408-8509	RF-ASMB-11
132-0118-0002	**.695** 17.65	**.250** 6.35	**.650** 16.51	**.110** 2.79		408-8509	RF-ASMB-11
132-0119-0002	**.695** 17.65	**.250** 6.35	**.650** 16.51	**.110** 2.79	With environmental seal	408-8509	RF-ASMB-11
70 Ohm Series .216 [5.49] -32 UNEF-2B Thread							
132-0202-0002	**.695** 17.65	**.290** 7.37	**.650** 16.51	**.110** 2.79		408-8509	RF-ASMB-11
132-0203-0002	**.695** 17.65	**.290** 7.37	**.650** 16.51	**.110** 2.79	With environmental seal	408-8509	RF-ASMB-11
93 Ohm Series .250 [6.35] -32 UNEF-2B Thread							
132-0302-0002	**.710** 18.03	**.320** 8.13	**.680** 17.27	**.155** 3.94		408-8509	RF-ASMB-11
132-0303-0002	**.710** 18.03	**.320** 8.13	**.680** 17.27	**.155** 3.94	With environmental seal	408-8509	RF-ASMB-11

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MICRODOT Gold Plated Crimp Style Coaxial Connectors — Screw-On Series (Continued)

Jacks

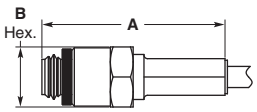


Fig. 1

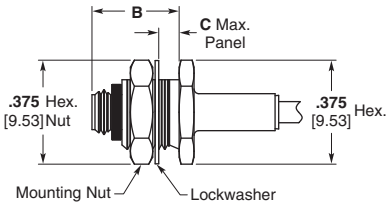
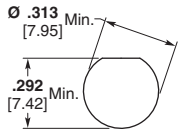


Fig. 2



Mounting Hole

Part No.	Fig.	Dim. A	Dim. B	Dim. C	Cable Jacket Max.	Special Features	Instruction Sheet No.	Former MICRODOT I.S. No.
50 Ohm Series .190 [4.83] -32 UNF-2B Thread								
131-0134-0001	1	**.770** 19.56	**.250** 6.35	—	**.088** 2.24		408-8508	RF-ASMB-8
131-0135-0001	2	**.770** 19.56	**.360** 9.14	**.105** 2.67	**.088** 2.24		408-8508	RF-ASMB-8
131-0136-0001	1	**.770** 19.56	**.250** 6.35	—	**.110** 2.79		408-8508	RF-ASMB-8
131-0137-0001	2	**.770** 19.56	**.360** 9.14	**.105** 2.67	**.110** 2.79		408-8508	RF-ASMB-8
131-0150-0001	1	**.770** 19.56	**.250** 6.35	—	**.116** 2.95	Dual Shield Cable Version of RG 188 & 316	408-8508	RF-ASMB-8
131-0151-0001	2	**.770** 19.56	**.360** 9.14	**.105** 2.67	**.116** 2.95	Dual Shield Cable Version of RG 188 & 316	408-8508	RF-ASMB-8
70 Ohm Series .216 [5.49] -32 UNEF-2B Thread								
131-0200-0001	1	**.770** 19.56	**.281** 7.14	—	**.110** 2.79		408-8508	RF-ASMB-8
131-0201-0001	2	**.770** 19.56	**.360** 9.14	**.100** 2.54	**.110** 2.79		408-8508	RF-ASMB-8
93 Ohm Series .250 [6.35] -32 UNEF-2B Thread								
131-0300-0001	1	**.760** 19.30	**.312** 7.92	—	**.155** 3.94		408-8508	RF-ASMB-8
131-0301-0001	2	**.760** 19.30	**.350** 8.89	**.095** 2.41	**.155** 3.94		408-8508	RF-ASMB-8

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MICRODOT Gold Plated Crimp Style Coaxial Connectors — Screw-On Series (Continued)

Receptacles

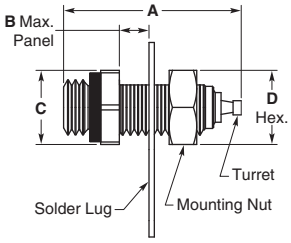


Fig. 1

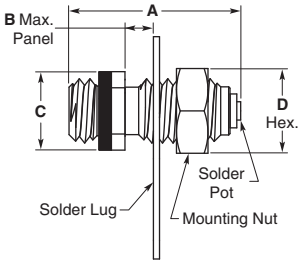
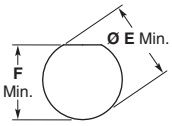


Fig. 2



Mounting Hole
for Fig. 1 & 2

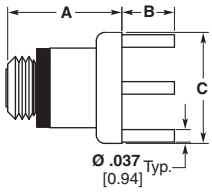


Fig. 3

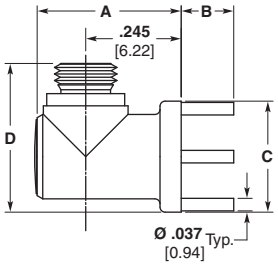
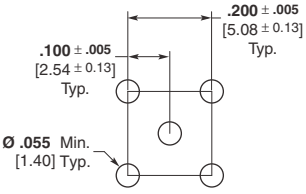


Fig. 4



Mounting Pattern
for Fig. 3 & 4

Part No.	Fig.	Dim. A	Dim. B	Dim. C	Dim. D	Dim. E	Dim. F	Special Features
50 Ohm Series .190 [4.83] -32 UNF-2A Thread								
131-0138-0002	1	**.605** 15.37	**.160** 4.06	**.250** 6.35 Hex.	**.250** 6.35	**.191** 4.85	**.173** 4.39	
131-0139-0002	2	**.515** 13.08	**.150** 3.81	**.187** 4.75 Wrench Flats	**.250** 6.35	**.191** 4.85	—	No Mounting Flat
131-0140-0001	2	**.255** 6.48	—	**.187** 4.75 Wrench Flats	—	**.190** 4.83 -32 Thd.	—	No Nut or Solder Lug, Threads into Panel
131-0141-0002	3	**.340** 8.64	**.155** 3.94	**.330** 8.38 Dia.	—	—	—	
131-0142-0002	4	**.425** 10.80	**.155** 3.94	**.330** 8.38 Dia.	**.480** 12.19	—	—	
70 Ohm Series .216 [5.49] -32 UNEF-2A Thread								
131-0202-0002	1	**.605** 15.37	**.160** 4.06	**.250** 6.35 Hex.	**.281** 7.14	**.217** 5.51	**.197** 5.00	
131-0705-0001	3	**.340** 8.64	**.155** 3.94	**.330** 8.38 Dia.	—	—	—	
93 Ohm Series .250 [6.35] -32 UNEF-2A Thread								
131-0303-0002	3	**.340** 8.64	**.155** 3.94	**.330** 8.38 Dia.	—	—	—	
131-0304-0001	4	**.425** 10.80	**.155** 3.94	**.330** 8.38 Dia.	**.480** 12.19	—	—	
131-0904-0001	1	**.605** 15.37	**.160** 4.06	**.312** 7.92 Hex.	**.312** 7.92	**.251** 6.38	**.232** 5.89	

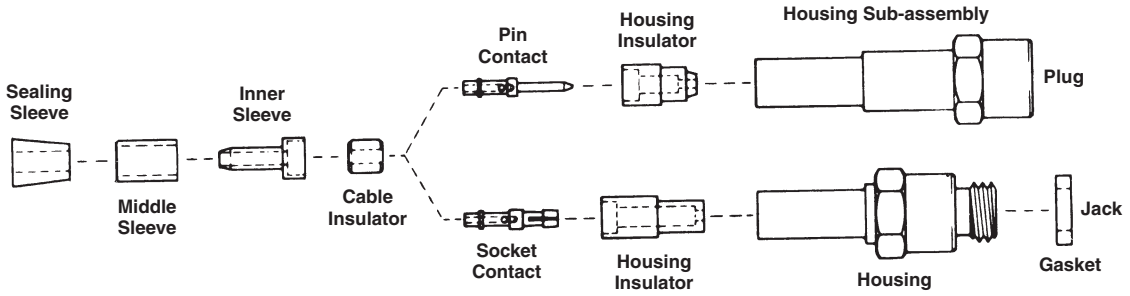
Gold Plated Crimp Style Coaxial Connectors Assembly Tools

Table 1. Contact Crimp Tools

MICRODOT Part No.	Manufacturers Part No.
010-0065-0000	Astro Tool A-810-3

Table 2. Housing Crimp Tools

MICRODOT Part No.	Thomas & Betts Part No.	Max. Cable Diameter
010-0081-0000	WT-400	**.088** [2.24]
010-0082-0000	WT-402	**.110** [2.79]
010-0083-0000	WT-406	**.155** [3.94]



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MICRODOT LEPRA/CON Ultra-Miniature Connectors

Performance Data Summary
For LEPRA/CON Connectors

Mechanical

Captive Contacts — Terminated connector contacts captivated from movement in both directions.

Cable Retention — 10 lb. min. when properly assembled to RG196/U and RG178/U cable.

Recommended Coupling Torque (Threaded Interface) — 24 inch/ounces max.

Recommended Receptacle Mounting Torque (All Series) — 24 inch/ounces max.

Typical Cable Acceptance Dimensions — Inner conductor: .012 [0.31] nom. Dielectric: .039 [0.99] max. Shield: .059 [1.50] max. Jacket: .081 [2.06] max.

Contact Protection (Unmated) — Twist pin contact protected from damage by insulator. Tube socket protected by connector housing.

Assembly Methods

Straight Plugs & Jacks — Cable Inner Conductor: Crimped to contact. Cable Shield: Crimped under housing.

Right-Angle Plugs — Cable Inner Conductor: Soldered to contact. Cable Shield: Crimped under housing.

Environmental

Temperature Range (Continuous Service) — -85°F to +392°F [-65°C to +200°C].

Vibration[1,2] — MIL-STD-202, Method 204, Test Condition B (15 G peaks). No physical damage or electrical discontinuities in excess of 1 microsecond.

Shock[1,2] — MIL-STD-202, Method 213, Test Condition H. No physical damage or electrical discontinuity after shock.

Thermal Shock — MIL-STD-202, Method 107, Test Condition C.

Moisture Resistance[1] — MIL-STD-202, Method 106.

Salt Spray[1] — MIL-STD-202, Method 101, Test Condition B (48 hours).

Electrical

Impedance — Designed to be compatible with 50 Ohm coaxial cable RG178/U.

Dielectric Withstanding Voltage — 450 volts RMS at sea level, 250 volts RMS at 50,000 ft [15,240 m], 150 volts RMS at 70,000 ft. [21,336 m]

Contact Resistance — 8 milliohms max., D.C.

Contact Capacity — 3 amps, D.C.

Insulation Resistance — 10^4 Megohms min. @ 500 volts D.C.

Voltage Standing Wave Ratio[3] (VSWR) — Typical 50 Ohm Series, 1.2 Maximum to 2 GHz.

Materials

Housing, Nut, Ferrule — Brass per ASTM-B-16.

Insulator — PTFE per ASTM-D-1710.

Pin & Socket Contact — Copper Alloy.

Crimp Sleeve — Copper Alloy.

Lockwasher — #425 Bronze Alloy.

Plating

Contacts, Housing, Nut, Ferrule, Crimp Sleeve, Lockwasher — Gold per MIL-G-45204, Type II, Grade C, Class 1.

Notes:

[1]Screw-On Series, threaded interface.

[2]TE Connectivity recommends the use of safety wired connectors in vibration and shock environments. See individual specifications with wire holes.

[3]VSWR is a system specification. Where performance is critical, purchase TE cable assemblies with Screw-On connectors (See page 2-140) and specify VSWR testing and mating connector part numbers.

Catalog 1308940
Revised 9-14

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Dimensions are shown for reference purposes only. Specifications subject to change.

Dimensions are in millimeters unless otherwise specified.

USA: +1 800 522 6752
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For additional support numbers please visit www.te.com

MICRODOT LEPRA/CON Ultra-Miniature Connectors — Screw-On Series

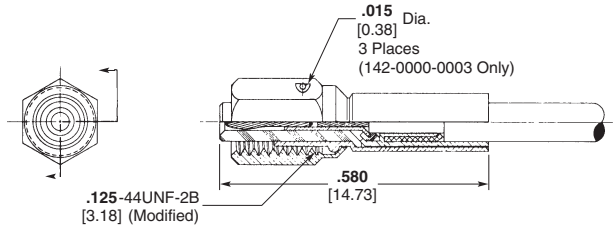
Featuring Twist Pin, Pin and Socket Contacts, Standard Interface



MICRODOT twist pin, pin and socket contacts are used in LEPRA/CON connectors. Twist pin contact pins are produced from beryllium copper material with a gold-plated finish and constructed with helically-wound stress free cable of spring copper around a highly conductive soft copper core, terminated with a hemispherical weld. Twist pin contacts contain seven self-wiping spring surfaces, designed for consistent continuity and very low noise level. Twist pin contacts are self-aligning because of the contact-engaging-end configuration. The sockets are a closed entry tubular-type contact, made of gold-plated copper alloy.

The connectors are designed to be used with coaxial cables RG196/U and RG178/U.

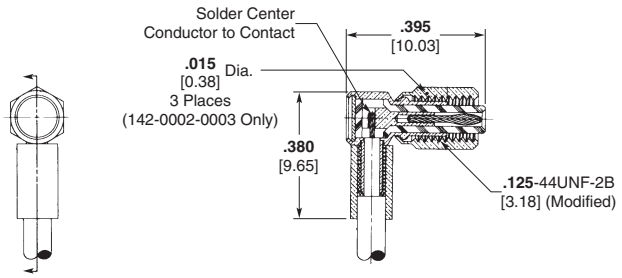
The connectors are designed with the contacts completely protected for reliability. The use of twist pin contacts makes the connectors very rugged for their size.



Straight Plugs[1]

Part No.	Nut Style
142-0000-0001	**.156** [3.96] Hex.
142-0000-0002	**.160** [4.06] Dia. Knurl
142-0000-0003	**.156** [3.96] Hex. w/ Safety Wire Holes

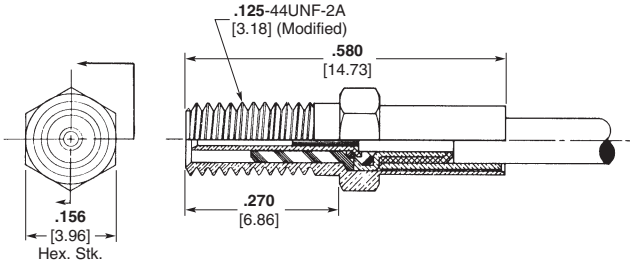
Assembly instructions: RF-ASMB-12



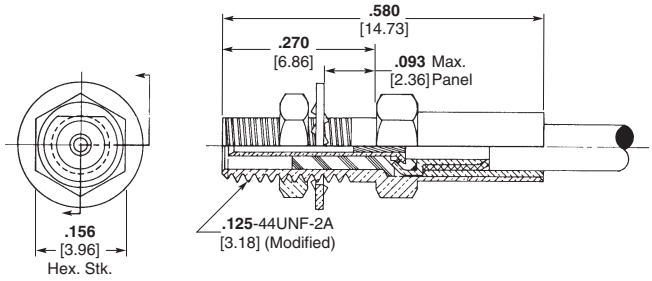
Right-Angle Plug[1]

Part No.	Nut Style
142-0002-0001	**.156** [3.96] Hex.
142-0002-0002	**.160** [4.06] Dia. Knurl
142-0002-0003	**.156** [3.96] Hex. w/ Safety Wire Holes

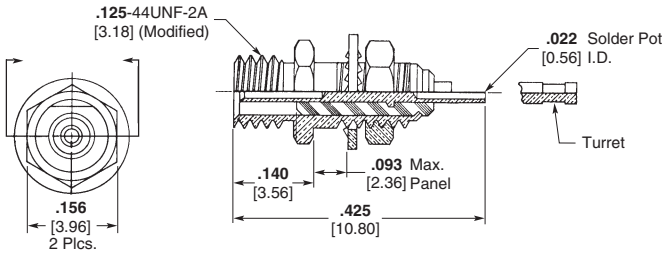
Assembly instructions: RF-ASMB-13



Jack[1]
Part Number 141-0000-0001
Instruction Sheet Number 408-8510
Former MICRODOT I.S. Number RF-ASMB-12

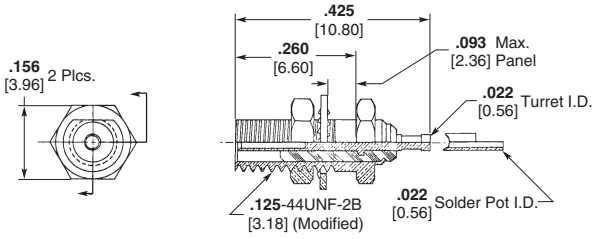


Bulkhead Jack[1]
Part Number 141-0001-0001
Instruction Sheet Number 408-8510
Former MICRODOT I.S. Number RF-ASMB-12



Front Mount Receptacle[1]

Part No.	Contact Tail
141-0002-0001	Turret
141-0002-0002	Solder Pot



Rear Mount Receptacle[1]

Part No.	Contact Tail
141-0003-0001	Turret
141-0003-0002	Solder Pot

[1]Mounting hole pattern and assembly tools shown on page 2-134.

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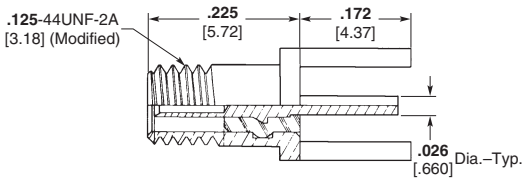
Dimensions are in millimeters unless otherwise specified.

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Asia Pacific: +86 0 400 820 6015
UK: +44 800 267 666

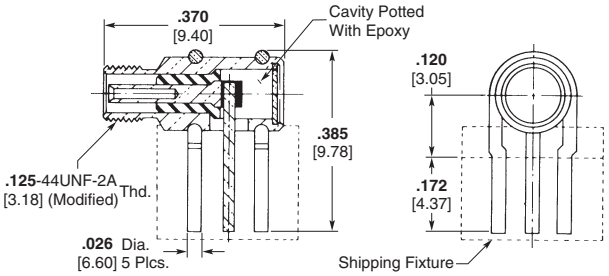
For additional support numbers please visit www.te.com

MICRODOT LEPRA/CON Ultra-Miniature Connectors — Screw-On Series (Continued)

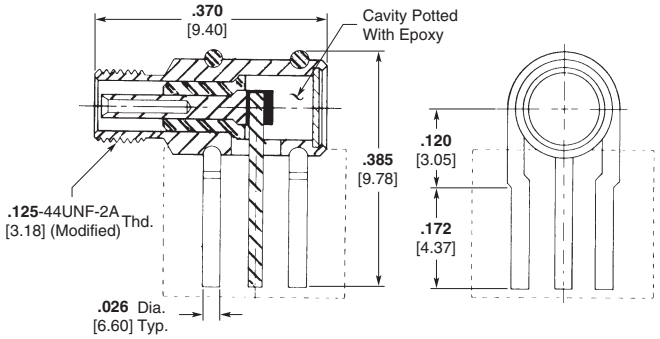
Featuring Twist Pin, Pin and Socket Contacts, Standard Interface (Continued)



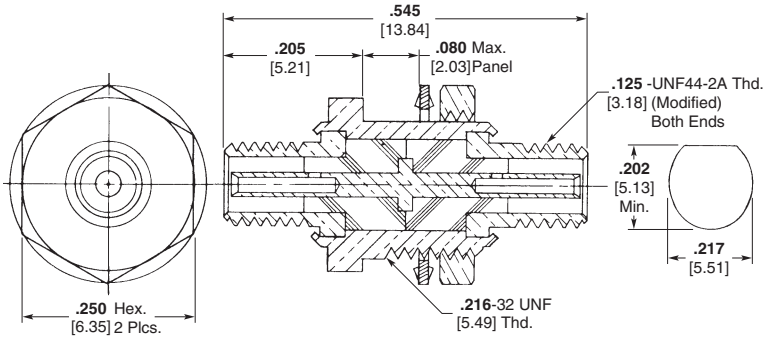
Straight Printed Circuit Receptacle[1]
Part No. 141-0004-0001



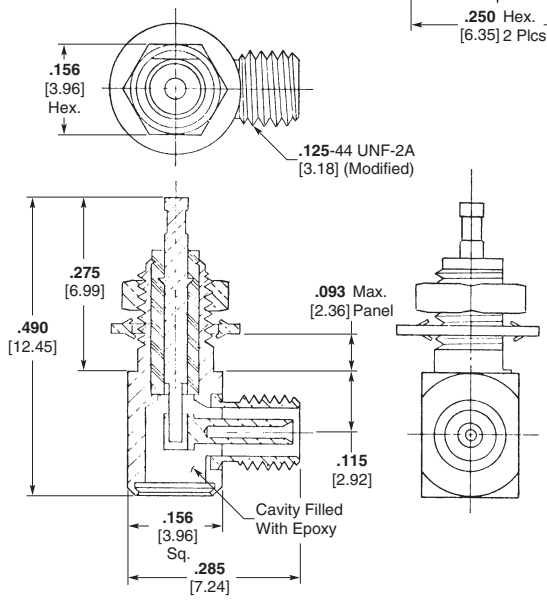
Right-Angle Printed Circuit Receptacle[1]
(Small Mounting Pattern)
Part Number 141-0019-0001



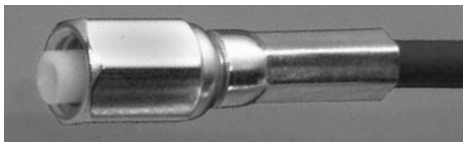
Right-Angle Printed Circuit Receptacle[1]
(Standard Mounting Pattern)
Part Number 141-0010-0001



Feed-Thru Bulkhead Adapter
(Both Ends are Receptacle Interface)
Part Number 143-0005-0001



Right-Angle Receptacle[1]
Part Number 141-0013-0001



Straight Plug

[1]Mounting hole pattern and assembly tools shown on page 2-134.

Catalog 1308940
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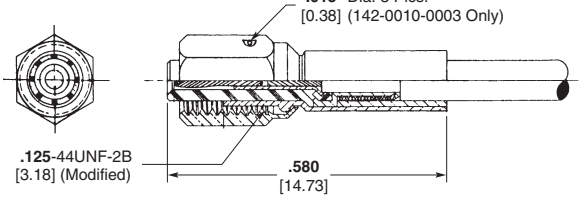
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UK: +44 800 267 666

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MICRODOT LEPRA/CON Ultra-Miniature Connectors — Screw-On Series (Continued)

Featuring Twist Pin, Pin and Socket Contacts with Locking Interface

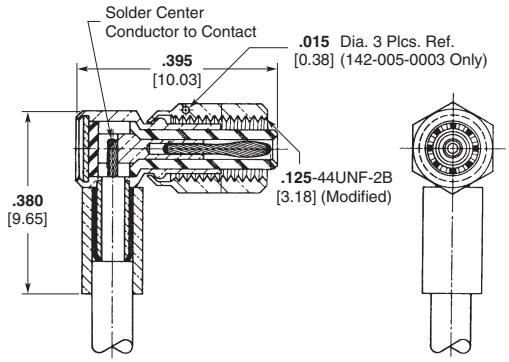
The MICRODOT LEPRA/CON coaxial connector series is now offered with a unique locking interface feature. This new coupling design permits the user to lock the coaxial plug, when mated to its receptacle, preventing any axial rotation. This adaptation is especially popular on connector installations requiring straight or 90° cable terminations firmly held in a fixed position. The locking interface is especially suited for telecommunications and instrumentation applications.



Straight Plug[1]

Part No.	Nut Style
142-0010-0001	**.156** [3.96] Hex.
142-0010-0002	**.160** [4.06] Dia. Knurl
142-0010-0003	**.156** [3.96] Hex. w/ Safety Wire Holes

Assembly instructions: RF-ASMB-12, 142-0010-0001



Right-Angle Plug[1]

Part No.	Nut Style
142-0005-0001	**.156** [3.96] Hex.
142-0005-0002	**.160** [4.06] Dia. Knurl
142-0005-0003	**.156** [3.96] Hex. w/ Safety Wire Holes

Assembly instructions: RF-ASMB-13, 142-0005-0001

[1]Assembly tools; page 2-134.

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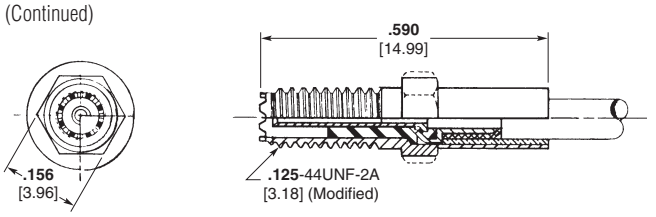
Dimensions are in millimeters unless otherwise specified.

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Asia Pacific: +86 0 400 820 6015
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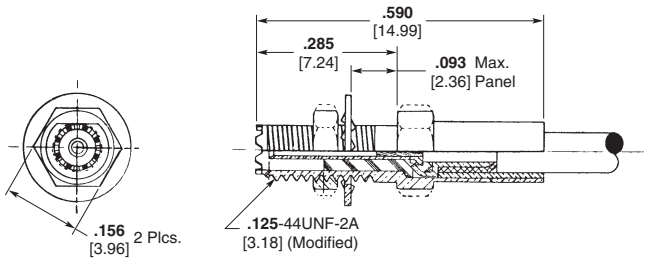
For additional support numbers please visit www.te.com

MICRODOT LEPRA/CON Ultra-Miniature Connectors — Screw-On Series (Continued)

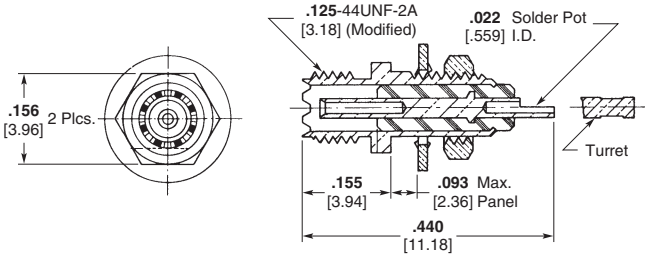
Featuring Twist Pin, Pin and Socket Contacts with Locking Interface
(Continued)



Straight Jack[1]
Part Number 141-0017-0001
Instruction Sheet Number 408-8510
Former MICRODOT I.S. Number RF-ASMB-12

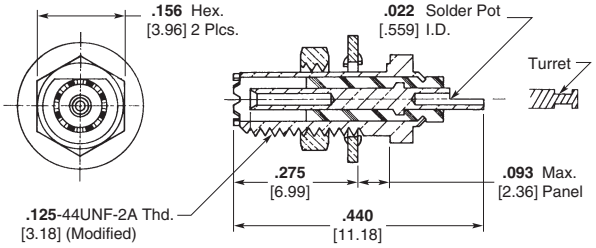


Bulkhead Jack[1]
Part Number 141-0014-0001
Instruction Sheet Number 408-8510
Former MICRODOT I.S. Number RF-ASMB-12



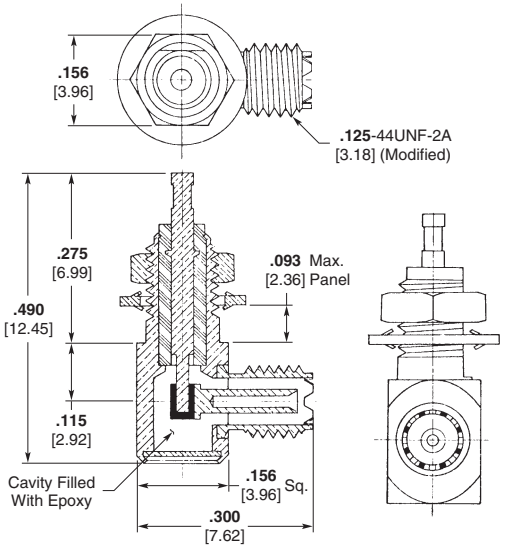
Front Mount Receptacle[1]

Part No.	Contact Tail
141-0012-0001	Solder Pot
141-0012-0002	Turret

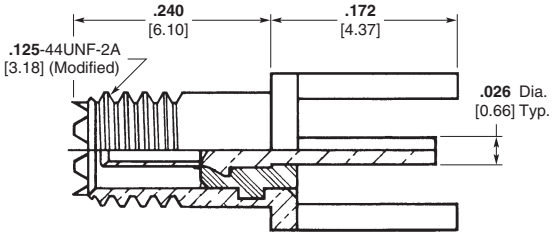


Rear Mount Receptacle w/ Locking Interface[1]

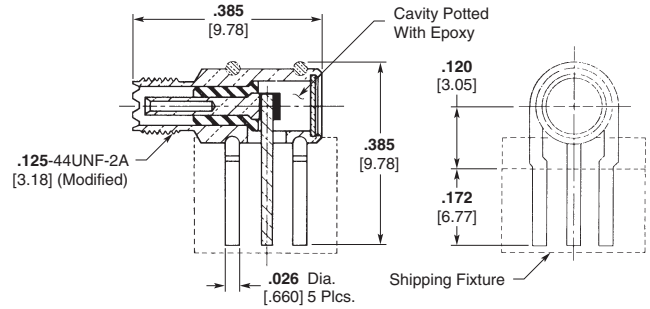
Part No.	Contact Tail
141-0011-0001	Turret
141-0011-0002	Solder Pot



Right-Angle Receptacle[1]
Part Number 141-0020-0001



Straight Printed Circuit Receptacle[1]
Part Number 141-0015-0001



Right-Angle Printed Circuit Receptacle[1]
Part Number 141-0023-0001

[1]Mounting hole pattern and assembly tools shown on page 2-134.

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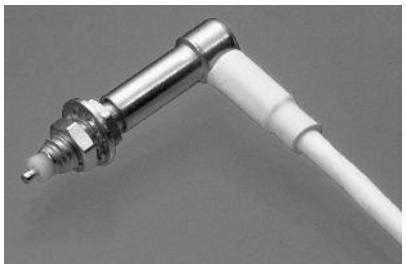
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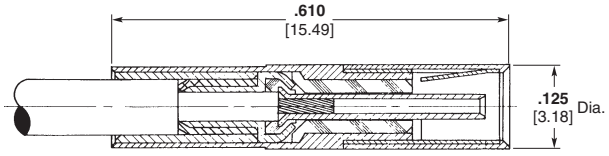
For additional support numbers please visit www.te.com

MICRODOT LEPRA/CON Ultra-Miniature Connectors — Slide-On Series

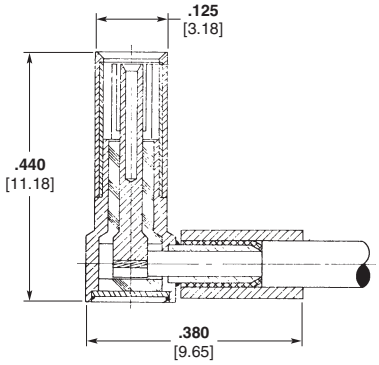
Featuring Twist Pin, Pin and Socket Contacts



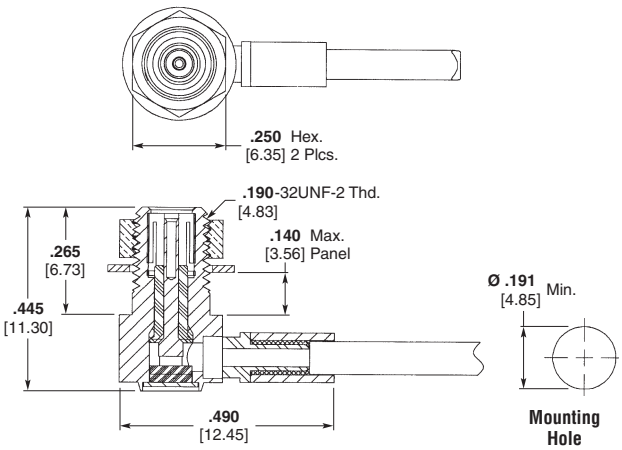
LEPRA/CON Slide-On Connectors offer a convenient mating style along with Ultra-miniature size. Inner contacts are twist pin tubular sockets in plugs and twist pin contacts for jacks and receptacles. Positive housing contact is provided by a three finger contact in the plug housing.



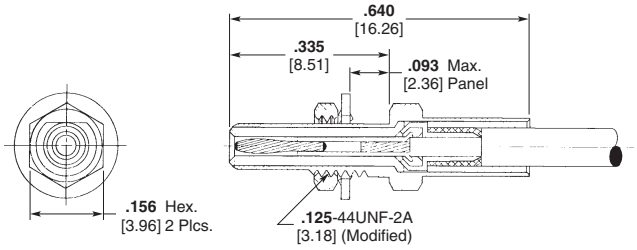
Straight Plug[1]
Part Number 142-1000-0001
Instruction Sheet Number 408-8512
Former MICRODOT I.S. Number RF-ASMB-15



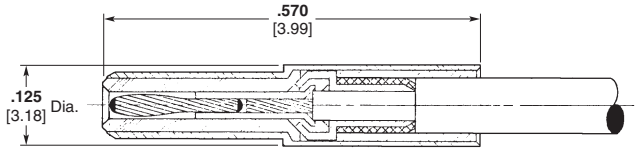
Right-Angle Plug[1]
Part Number 142-1002-0001
Instruction Sheet Number 408-8513
Former MICRODOT I.S. Number RF-ASMB-16



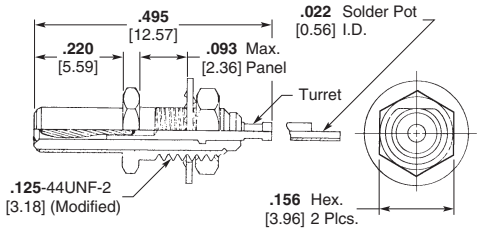
Right-Angle Bulkhead Mount Plug[1]
Part Number 142-1021-0001
Instruction Sheet Number 408-8519
Former MICRODOT I.S. Number RF-ASMB-76



Straight Bulkhead Jack[1]
Part Number 141-1001-0001
Instruction Sheet Number 408-8512
Former MICRODOT I.S. Number RF-ASMB-15



Straight Jack[1]
Part Number 141-1000-0001
Instruction Sheet Number 408-8512
Former MICRODOT I.S. Number RF-ASMB-15



Front Mount Receptacle[1]

Part No.	Contact Tail
141-1002-0001	Turret
141-1002-0002	Solder Pot

[1]Mounting hole and assembly tools shown on page 2-134.

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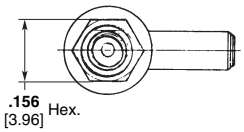
Dimensions are in millimeters unless otherwise specified.

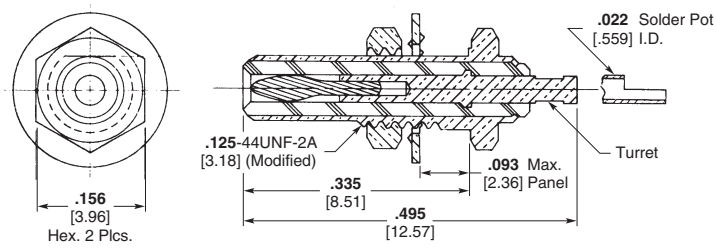
USA: +1 800 522 6752
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MICRODOT LEPRA/CON Ultra-Miniature Connectors — Slide-On Series (Continued)

Featuring Twist Pin, Pin and Socket Contacts
(Continued)

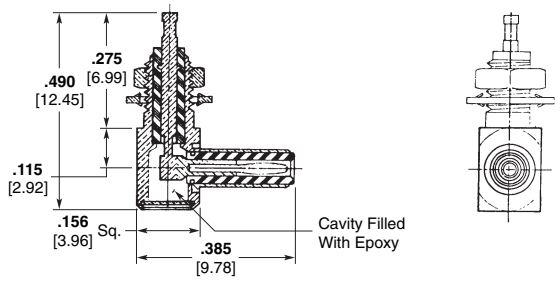




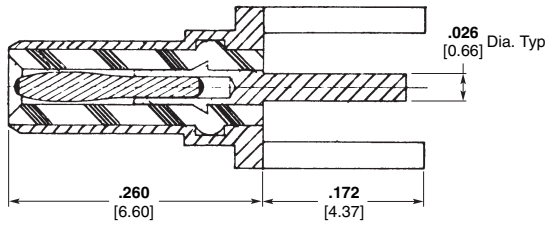
Rear Mount Receptacle

Part No.	Contact Tail
141-1003-0001	Turret
141-1003-0002	Solder Pot

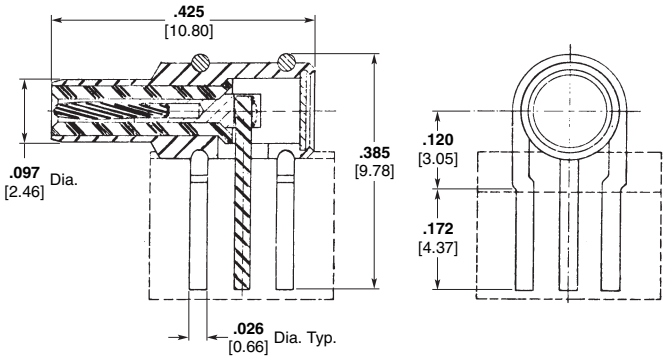
Mounting Hole shown below.



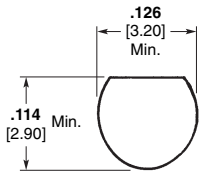
Right-Angle Receptacle
Mounting Hole Shown Below
Part Number 141-1012-0001



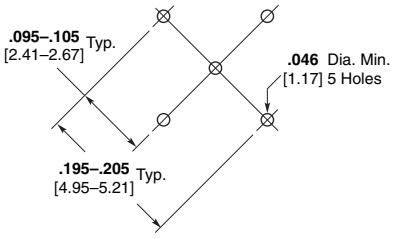
Straight Printed Circuit Receptacle
Mounting Hole Pattern Shown Below
Part Number 141-1004-0001



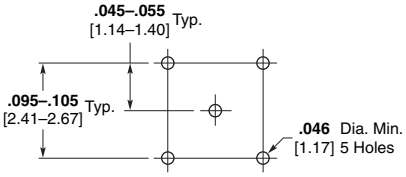
Right-Angle Printed Circuit Receptacle
Mounting Hole Pattern Shown Below
Part Number 141-1005-0001



Bulkhead Receptacle Mounting Hole



Standard Pattern



Small Pattern
Connectors 141-0019-0001
and 141-0023-0001 Only

Printed Circuit Receptacle Mounting Hole Pattern

LEPRA/CON Connector Assembly Tools



Housing Crimp Tool

Part No.	Thomas & Betts Part No.
010-0132-0000	WT-419



Contact Crimp Tool

Connector	Contact Crimp No.	Astro Tool Part No.
Straight Connector Only	010-0150-0000	A-826-1
141-1001-0001	010-0161-0000	827

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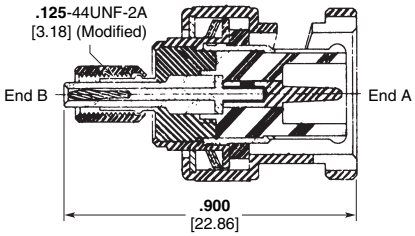
Dimensions are in millimeters unless otherwise specified.

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Asia Pacific: +86 0 400 820 6015
UK: +44 800 267 666

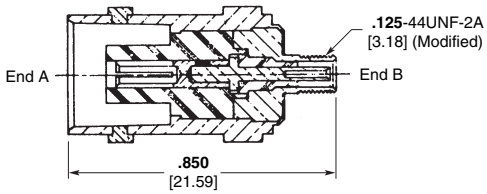
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MICRODOT LEPRA/CON Ultra-Miniature Connectors (Continued)

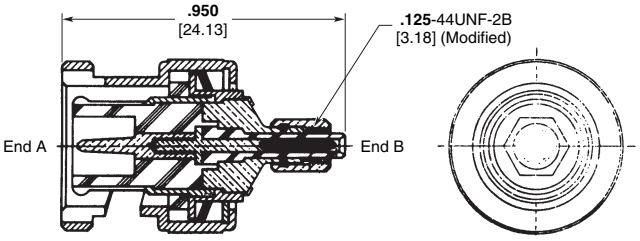
BNC / LEPRA/CON Connector Adapters



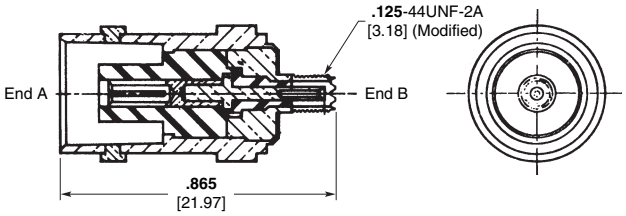
End "B" is MICRODOT Screw-On Plug
End "A" is BNC Plug
Part Number 143-0001-0001



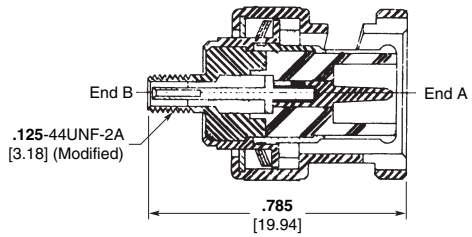
End "A" is BNC Receptacle
End "B" is MICRODOT Screw-On Receptacle
Part Number 143-0003-0001



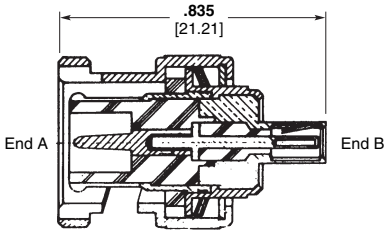
End "A" is BNC Plug
End "B" is MICRODOT Screw-On Plug with Locking Interface
Part Number 143-0029-0001



End "A" is BNC Receptacle
End "B" is MICRODOT Screw-On Receptacle with Locking Interface
Part Number 143-0032-0001



End "B" is Screw-On Receptacle
End "A" is BNC Plug
Part Number 143-0002-0001



End "A" is BNC Plug
End "B" is MICRODOT Slide-On Plug
Part Number 143-1000-0001

Catalog 1308940
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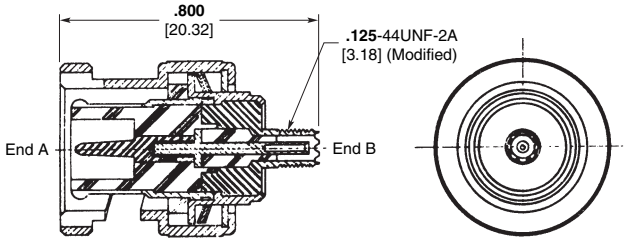
USA: +1 800 522 6752
Asia Pacific: +86 0 400 820 6015
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MICRODOT LEPRA/CON Ultra-Miniature Connectors (Continued)

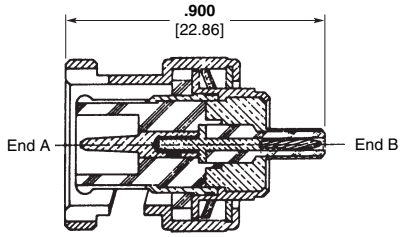
BNC / LEPRA/CON Connector Adapters

(Continued)



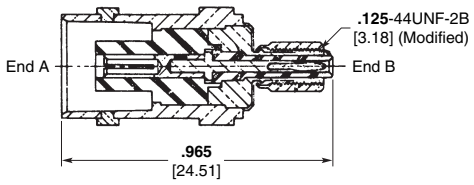
End "A" is BNC Plug **End "B" is MICRODOT Receptacle with Locking Interface**

Part Number 143-0031-0001



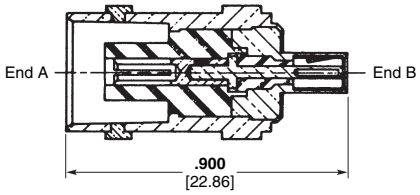
End "A" is BNC Plug **End "B" is MICRODOT Slide-On Receptacle**

Part Number 143-1002-0001



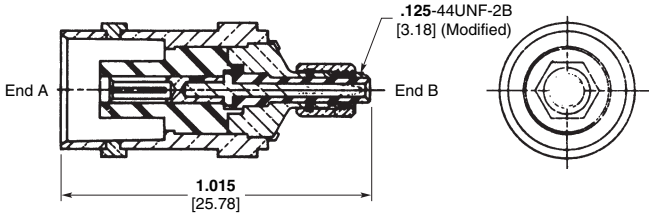
End "A" is BNC Receptacle **End "B" is MICRODOT Screw-On Plug**

Part Number 143-0004-0001



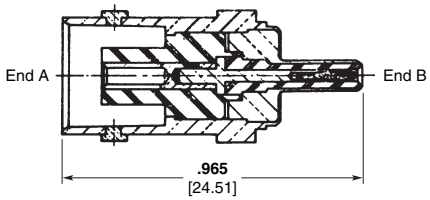
End "A" is BNC Receptacle **End "B" is MICRODOT Slide-On Plug**

Part Number 143-1001-0001



End "A" is BNC Receptacle **End "B" is MICRODOT Screw-On Plug with Locking Interface**

Part Number 143-0030-0001



End "A" is BNC Receptacle **End "B" is MICRODOT Slide-On Receptacle**

Part Number 143-1003-0001

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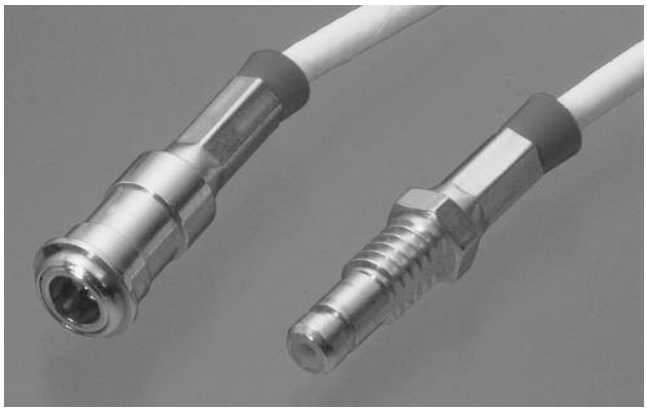
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Asia Pacific: +86 0 400 820 6015
UK: +44 800 267 666

For additional support numbers please visit www.te.com

MICRODOT LEPRA/CON Ultra-Miniature Connectors — Snap-Lock Series

Product Facts

- **Simple coupling design eliminates the need for tools and saves assembly time**
- **Positive locking mechanism provides its own fail-safe features**
- **Inspection of the mated connector is fast, simple and effective**
- **Push-Pull design allows higher panel density**
- **Quick-connect and disconnect features**



Performance Data Summary
For Snap-Lock Connectors

Electrical

Impedance — Designed to be compatible with 50 Ohm coaxial cables (Dual Shield RG 196).

Dielectric Withstanding Voltage — 450 volts RMS at sea level (Operating).

Contact Resistance — 8 milliohms max. at 3 amps. Average resistance: 4 milliohms

Insulation Resistance — 10^4 megohms min.

Voltage Standing Wave Ratio (VSWR) — 3.4 max., 1.3 min. to 12 GHz.

Environmental

Temperature Range — -85°F to +257°F [-65°C to +125°C].

Vibration — MIL-STD-202, Method 204, Test condition D. No change in electrical discontinuity in excess of 1 microsecond.

Shock — MIL-STD-202, Method 213A, Test Condition C. No electrical discontinuity or evidence of physical damage.

Mechanical

Cable Acceptance Dimensions —
Center conductor — .012 [0.31] nom.
Dielectric — .040 [1.02] max.
Shield — .080 [2.03] max.
Jacket — .090 [2.29] max..

All-Crimp Assembly — Center contacts and shield are crimped individually.

Durability — 500 mating cycles.

Materials

Body and Body Components — Brass per QQ-B-626 Comp 360.

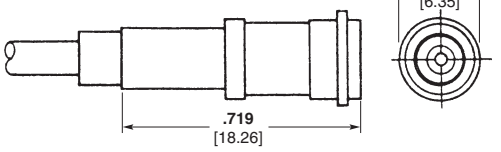
Contact Material — Copper Alloy.

Crimp Sleeves — Leaded Copper.

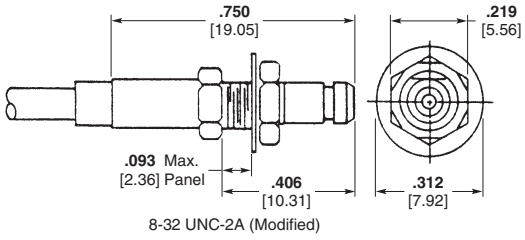
Insulators — PTFE per ASTM-D-1710.

Lockwashers — #425 Bronze Alloy.

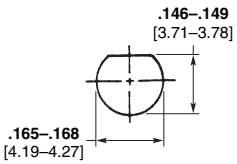
Plating — Gold per MIL-G-45204, Type II, Grade C, Class 1.



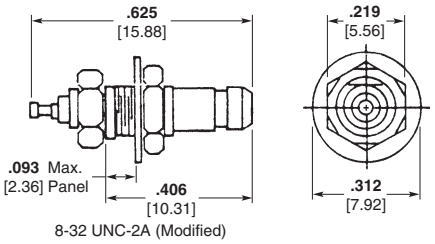
Straight Plug
Part Number 144-0001-0001



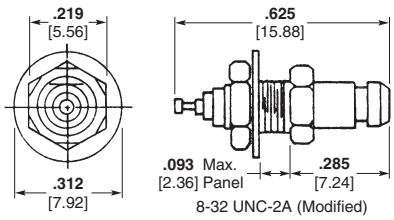
Bulkhead Jack, Rear Mount
Part Number 145-0001-0001



"D" Hole Dimensions
For Panel Mounting



Receptacle, Rear Mount
Part Number 145-0003-0001



Receptacle, Front Mount
Part Number 145-0002-0001

Connector/Cable Assembly Crimp Tools — Center Contact and Shield

Tool	Part No.
SKT & Pin Crimp	010-1004-0000
Housing Crimp	010-0081-0000

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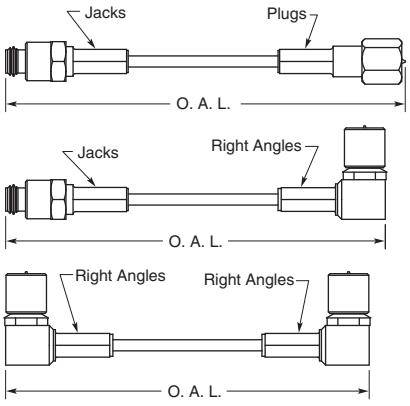
MICRODOT Cable Assemblies

Capability

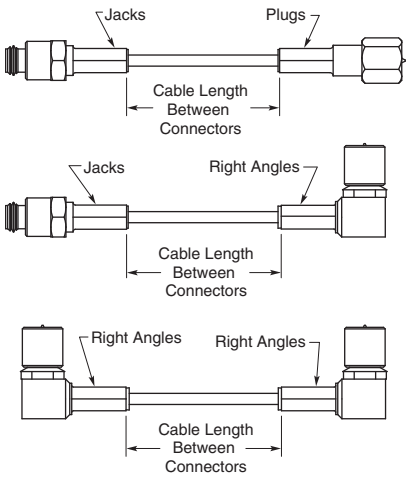
The experience TE Connectivity has gained through years of pioneering efforts in the development of MICRODOT miniaturized cable and connectors is available to customers in the assembly of complex cable/connector combinations. This experience offers the customer low cost and no tooling charges, precision construction, thorough inspection and prompt delivery. The capability also makes it possible for the designer to specify a complete assembly or harness with the understanding that TE will deliver a custom fabrication equal in quality to the MICRODOT components it contains. These assemblies are made to the customer's specifications or are designed by the Company's experienced engineers to fit particular requirements. Special features are light weight, reduced size, high operating temperatures and comprehensive layouts.

How To Order

1. Specify MICRODOT part numbers
   - A. Connector, one end
   - B. Connector, other end
   - C. Cable
2. Specify normal length
   - A. Overall length



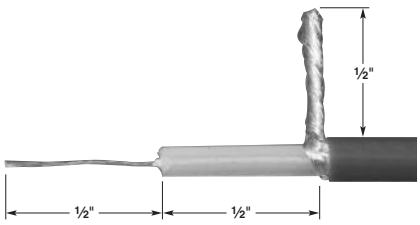
   - B. Or length between connectors



3. Specify length tolerance
   - A. Standard tolerance

Assembly Length	Tolerance
0 thru 12-1/2"	±1/8"
Over 12-1/2" thru 1000"	±1% rounded to nearest 1/4"
Over 1000"	±1% rounded to nearest 1"

   - B. Special tolerance
     Tolerances as close as ±.5% are available for most cable assemblies at a premium rate. Consult TE Connectivity for details.
4. Specify cable strip (Applies to cable assemblies with only one connector)
   - A. Not stripped
   - B. Standard strip



Standard Strip

   - C. Special strip - specify style

Example:

Connector:
142-1000-0001 one end
142-1002-0001 other end

Length:
36" overall, standard tolerance

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MICRODOT Cable Assemblies (Continued)

Mating Interface Chart

Plugs				Jacks and Receptacles		
Series	**Description**	**Page**		**Series**	**Description**	**Page**
S50	Standard	2-105, 2-106		S50	Standard	2-107, 2-108
50 Ohm	Gold Plated Crimp Style	2-124, 2-125		50 Ohm	Gold Plated Crimp Style	2-126, 2-127
50 Ohm	Cap	2-120		50 Ohm	Feed Thru Adapter	2-121, 2-122
S70	Standard	2-105, 2-106		S70	Standard	2-107, 2-108
70 Ohm	Gold Plated Crimp Style	2-124, 2-125		70 Ohm	Gold Plated Crimp Style	2-126, 2-127
70 Ohm	Cap	2-120		70 Ohm	Feed Thru Adapter	2-121, 2-122
S93	Standard	2-105, 2-106		S93	Standard	2-107, 2-109
93 Ohm	Gold Plated Crimp Style	2-125		93 Ohm	Gold Plated Crimp Style	2-126, 2-127
93 Ohm	Cap	2-120		93 Ohm	Feed Thru Adapter	2-121, 2-122
SOS 50	Standard	2-110, 2-111		SOS 50	Standard	2-110, 2-113
SOS 70	Standard	2-111, 2-112		SOS 70	Standard	2-112, 2-113
SOS 93	Standard	2-111, 2-112		SOS 93	Standard	2-112, 2-113
QC 50	Standard	2-114, 2-115		QC 50	Standard	2-114
QC 70	Standard	2-115		QC 70	Standard	2-114
QC 93	Standard	2-115		QC 93	Standard	2-114
Screw-On	Twinax	2-117		Screw-On	Twinax	2-117
Slide-On	Twinax	2-117		Slide-On	Twinax	2-117
Screw-On	Triax	2-118		Screw-On	Triax	2-118
Screw-On	LEPRA/CON Connector	2-129		Screw-On	LEPRA/CON Connector	2-129, 2-130
Screw-On	LEPRA/CON Connector Interlocking Interface	2-131		Screw-On	LEPRA/CON Connector Interlocking Interface	2-132
Slide-On	LEPRA/CON Connector	2-133		Slide-On	LEPRA/CON Connector	2-133, 201

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MICRODOT Cable Acceptance Dimensions

Standard Connectors

Screw-On Series

Straight Plugs — Page 2-105

Connector Part No.	Max. Jacket	Max. Shield	Max. Dielectric	Max. Inner Conductor
S-50				
032-0021-0001	**.087** 2.21	**.061** 1.55	**.050** 1.27	**.013** .330
032-0023-0001	**.087** 2.21	**.061** 1.55	**.041** 1.04	**.015** .381
032-0025-0001	**.093** 2.36	**.068** 1.73	**.050** 1.27	**.013** .330
032-0033-0001	**.093** 2.36	**.077** 1.96	**.047** 1.00	**.015** .381
032-0097-0001	**.087** 2.21	**.061** 1.55	**.050** 1.27	**.015** .381
032-0098-0001	**.087** 2.21	**.061** 1.55	**.041** 1.04	**.015** .381
032-0155-0001	**.088** 2.24	**.061** 1.55	**.041** 1.04	**.015** .381
032-0156-0001	**.088** 2.24	**.061** 1.55	**.041** 1.04	**.015** .381
052-0213-0001	**.087** 2.21	**.061** 1.55	**.050** 1.27	**.013** .330
052-0235-0001	**.087** 2.21	**.061** 1.55	**.041** 1.04	**.015** .381
052-0235-0003	**.087** 2.21	**.061** 1.55	**.041** 1.04	**.015** .381
052-0370-0001	**.093** 2.36	**.068** 1.73	**.041** 1.04	**.015** .381
052-0542-0001	**.087** 2.21	**.061** 1.55	**.041** 1.04	**.015** .381
S-70				
032-0010-0001	**.093** 2.36	**.075** 1.91	**.061** 1.55	**.013** .330
032-0022-0001	**.093** 2.36	**.075** 1.91	**.059** 1.50	**.015** .381
032-0067-0001	**.108** 2.74	**.079** 2.01	**.059** 1.50	**.015** .381
032-0078-0001	**.108** 2.74	**.079** 2.01	**.061** 1.55	**.013** .330
032-0222-0001	**.093** 2.36	**.075** 1.91	**.059** 1.50	**.015** .381
052-0092-0001	**.093** 2.36	**.075** 1.91	**.059** 1.50	**.015** .381
S-93				
032-0011-0001	**.134** 3.40	**.118** 2.99	**.100** 2.54	**.013** .330
032-0017-0001	**.134** 3.40	**.118** 2.99	**.100** 2.54	**.015** .381
032-0066-0001	**.154** 3.91	**.118** 2.99	**.101** 2.67	**.015** .381
032-0071-0001	**.134** 3.40	**.118** 2.99	**.097** 2.446	**.031** .787
032-0092-0001	**.155** 3.94	**.125** 3.18	**.107** 2.72	**.015** .381
032-0099-0001	**.134** 3.40	**.118** 2.99	**.100** 2.54	**.015** .381
052-0200-0001	**.134** 3.40	**.118** 2.99	**.100** 2.54	**.015** .381

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MICRODOT Cable Acceptance Dimensions (Continued)

Screw-On Series (Continued)

Right-Angle Plugs — Page 2-106

Connector Part No.	Max. Jacket	Max. Shield	Max. Dielectric	Nom. Inner Conductor
S-50				
032-0015-0001	**.092** 2.34	**.060** 1.52	Any	**.012** .305
052-0204-0001	**.092** 2.34	**.060** 1.52	Any	**.012** .305
052-0215-0001	**.092** 2.34	**.060** 1.52	Any	**.012** .305
052-0337-0001	**.111** 2.81	**.074** 1.88	Any	**.012** .305
S-70				
032-0013-0001	**.111** 2.81	**.074** 1.88	Any	**.012** .305
052-0299-0001	**.111** 2.81	**.074** 1.88	Any	**.012** .305
052-0379-0001	**.111** 2.81	**.074** 1.88	Any	**.012** .305
S-93				
032-0014-0001	**.134** 3.40	**.123** 3.12	Any	**.012** .305
032-0068-0001	**.155** 3.94	**.118** 2.99	Any	**.012** .305
032-0153-0001	**.155** 3.94	**.118** 2.99	Any	**.012** .305
052-0207-0001	**.134** 3.40	**.123** 3.12	Any	**.012** .305
052-0298-0001	**.134** 3.40	**.123** 3.12	Any	**.012** .305
052-0304-0022	**.155** 3.94	**.118** 2.99	Any	**.012** .305

Jacks — Page 2-107

Connector Part No.	Max. Jacket	Max. Shield	Max. Dielectric	Max. Inner Conductor
S-50				
031-0033-0001	**.088** 2.24	**.061** 1.55	**.041** 1.04	**.021** .533
031-0034-0001	**.087** 2.21	**.061** 1.55	**.041** 1.04	**.021** .533
051-0467-0001	**.079** 2.01	**.061** 1.55	**.041** 1.04	**.021** .533
S-70				
031-0036-0001	**.093** 2.36	**.075** 1.91	**.059** 1.50	**.021** .533
031-0048-0001	**.093** 2.36	**.075** 1.91	**.059** 1.50	**.021** .533
031-0090-0001	**.109** 2.77	**.079** 2.01	**.059** 1.50	**.021** .533
S-93				
031-0032-0001	**.134** 3.40	**.118** 2.99	**.100** 2.54	**.021** .533
031-0037-0001	**.134** 3.40	**.118** 2.99	**.100** 2.54	**.021** .533
031-0088-0001	**.154** 3.91	**.118** 2.99	**.101** 2.57	**.021** .533
031-0089-0001	**.154** 3.91	**.118** 2.99	**.101** 2.57	**.021** .533

MICRODOT Cable Acceptance Dimensions (Continued)

Slide-On Series

Straight Plugs — Page 2-111

Connector Part No.	Max. Jacket	Max. Shield	Max. Dielectric	Max. Inner Conductor
SOS-50				
032-0055-0001	**.088** 2.24	**.058** 1.47	**.041** 1.04	**.015** .381
032-0056-0001	**.088** 2.24	**.058** 1.47	**.041** 1.04	**.015** .381
SOS-70				
032-0060-0001	**.093** 2.36	**.075** 1.71	**.059** 1.50	**.015** .381
032-0061-0001	**.093** 2.36	**.075** 1.71	**.059** 1.50	**.015** .381
032-0087-0001	**.108** 2.74	**.079** 2.01	**.059** 1.50	**.015** .381
SOS-93				
032-0058-0001	**.134** 3.40	**.118** 2.99	**.100** 2.54	**.015** .381
032-0077-0001	**.134** 3.40	**.118** 2.99	**.100** 2.54	**.015** .381
032-0084-0001	**.154** 3.91	**.118** 2.99	**.101** 2.57	**.015** .381

Right-Angle Plugs — Page 2-112

Connector Part No.	Max. Jacket	Max. Shield	Max. Dielectric	Nom. Inner Conductor
SOS-50				
032-0063-0001	**.092** 2.34	**.060** 1.52	Any	**.012** .305
SOS-70				
032-0062-0001	**.111** 2.82	**.074** 1.88	Any	**.012** .305
SOS-93				
032-0059-0001	**.134** 3.40	**.123** 3.12	Any	**.012** .305
032-0083-0001	**.155** 3.94	**.118** 2.99	Any	**.012** .305

Jacks — Page 2-112

Connector Part No.	Max. Jacket	Max. Shield	Max. Dielectric	Max. Inner Conductor
SOS-50				
031-0053-0001	**.088** 2.24	**.061** 1.55	**.041** 1.04	**.021** .533
031-0054-0001	**.088** 2.24	**.061** 1.55	**.041** 1.04	**.021** .533
SOS-70				
031-0095-0001	**.108** 2.74	**.079** 2.01	**.059** 1.50	**.021** .533
SOS-93				
031-0063-0001	**.134** 3.40	**.118** 2.99	**.100** 2.54	**.021** .533
031-0064-0001	**.134** 3.40	**.118** 2.99	**.100** 2.54	**.021** .533
031-0093-0001	**.154** 3.91	**.118** 2.99	**.101** 2.57	**.021** .533
031-0094-0001	**.154** 3.91	**.118** 2.99	**.101** 2.57	**.021** .533

MICRODOT Cable Acceptance Dimensions (Continued)

Quick-Connect Series

Straight Plugs — Page 2-115

Connector Part No.	Max. Jacket	Max. Shield	Max. Dielectric	Max. Inner Conductor
QC-50				
032-0002-0001	**.093** 2.36	**.058** 1.47	Any	**.013** .330
032-0030-0001	**.093** 2.36	**.058** 1.47	**.041** 1.04	**.015** .381
QC-70				
032-0016-0001	**.093** 2.36	**.075** 1.91	**.061** 1.55	**.013** .330
032-0031-0001	**.093** 2.36	**.075** 1.71	**.059** 1.50	**.015** .381
032-0079-0001	**.108** 2.74	**.079** 2.01	**.059** 1.50	**.015** .381
QC-93				
032-0012-0001	**.134** 3.40	**.118** 2.99	**.100** 2.54	**.013** .330
032-0032-0001	**.134** 3.40	**.118** 2.99	**.100** 2.54	**.015** .381
032-0072-0001	**.154** 3.91	**.118** 2.99	**.101** 2.57	**.015** .381

Right-Angle Plugs — Page 2-115

Connector Part No.	Max. Jacket	Max. Shield	Max. Dielectric	Nom. Inner Conductor
QC-50				
032-0026-0001	**.092** 2.34	**.060** 1.52	Any	**.012** .305
QC-70				
032-0027-0001	**.111** 2.82	**.074** 1.88	Any	**.012** .305
QC-93				
032-0020-0001	**.134** 5.40	**.123** 3.12	Any	**.012** .305
052-0228-0001	**.155** 3.94	**.118** 2.99	Any	**.012** .305

Jacks — Page 2-116

Connector Part No.	Max. Jacket	Max. Shield	Max. Dielectric	Max. Inner Conductor
QC-50				
031-0038-0001	**.093** 2.36	**.061** 1.55	**.041** 1.04	**.021** .533
QC-93				
031-0040-0001	**.134** 3.40	**.118** 2.99	**.100** 2.54	**.021** .533

Twinax

Plugs — Page 2-117

Connector Part No.	Max. Jacket	Max. Shield	Max. Dielectric	Max. Inner Conductor
032-0088-0001	**.167** 4.24	**.142** 3.60	**.061** 1.55	**.014** .356
032-0093-0001	**.123** 3.12	**.092** 2.34	**.042** 1.07	**.014** .356
052-0229-0001	**.123** 3.12	**.092** 2.34	**.042** 1.07	**.014** .356
052-0324-0001	**.167** 4.24	**.142** 3.61	**.061** 1.55	**.014** .356

Jacks — Page 2-117

Connector Part No.	Max. Jacket	Max. Shield	Max. Dielectric	Max. Inner Conductor
051-0358-0001	**.167** 4.24	**.142** 3.60	**.061** 1.55	**.020** .508
051-0389-0001	**.167** 4.24	**.142** 3.61	**.061** 1.55	**.020** .508

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MICRODOT Cable Acceptance Dimensions (Continued)

Triax

Plugs — Page 2-118

Connector Part No.	Max. Jacket	Max. Outer Shield	Max. Outer Dielectric	Max. Inner Shield	Max. Inner Dielectric	Max. Inner Conductor
052-0130-0001	**.124** 3.15	Single Shield	**.085** 2.26	Single Shield	**.041** 1.04	**.014** .356
052-0138-0001	**.183** 4.65	Single Shield	**.146** 3.71	**.118** 2.99	**.107** 2.72	**.014** .356
052-0593-0001	**.214** 5.44	Single Shield	**.166** 4.22	**.161** 4.09	**.131** 3.33	**.020** .508

Gold Plated Crimp Style Coaxial Connectors

Straight Plugs — Pages 2-124, 2-125

Connector Part No.	Max. Jacket	Max. Dielectric	Nom. Inner Conductor
50 Ohm Series			
132-0112-000*	**.088** 2.24	**.039** .991	**.012** .305
132-0113-000*	**.088** 2.24	**.039** .991	**.012** .305
132-0114-000*	**.110** 2.79	**.070** 1.78	**.012** .305
132-0115-000*	**.110** 2.79	**.070** 1.78	**.012** .305
132-0509-0002	**.116** 2.95	**.070** 1.78	**.012** .305
70 Ohm Series			
132-0200-000*	**.110** 2.79	**.070** 1.78	**.012** .305
132-0201-000*	**.110** 2.79	**.070** 1.78	**.012** .305
93 Ohm Series			
132-0300-000*	**.155** 3.94	**.107** 2.72	**.012** .305
132-0301-000*	**.155** 3.94	**.107** 2.72	**.012** .305

Right-Angle Plugs — Page 2-125

Connector Part No.	Max. Jacket	Max. Dielectric	Nom. Inner Conductor
50 Ohm Series			
132-0116-0002	**.088** 2.24	**.039** .991	**.012** .305
132-0117-0002	**.088** 2.24	**.039** .991	**.012** .305
132-0118-0002	**.110** 2.79	**.074** 1.88	**.012** .305
132-0119-0002	**.110** 2.79	**.074** 1.88	**.012** .305
70 Ohm Series			
132-0202-0002	**.110** 2.79	**.074** 1.88	**.012** .305
132-0203-0002	**.110** 2.79	**.074** 1.88	**.012** .305
93 Ohm Series			
132-0302-0002	**.155** 3.94	**.107** 2.72	**.012** .305
132-0303-0002	**.155** 3.94	**.107** 2.72	**.012** .305

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MICRODOT Cable Acceptance Dimensions (Continued)

Gold Plated Crimp Style Coaxial Connectors (Continued)

Jacks — Page 2-126

Connector Part No.	Max. Jacket	Max. Dielectric	Nom. Inner Conductor
50 Ohm Series			
131-0134-0001	**.088** 2.24	**.039** .991	**.012** .305
131-0135-0001	**.088** 2.24	**.039** .991	**.012** .305
131-0136-0001	**.110** 2.79	**.070** 1.78	**.012** .305
131-0137-0001	**.110** 2.79	**.070** 1.78	**.012** .305
70 Ohm Series			
131-0200-0001	**.110** 2.79	**.070** 1.78	**.012** .305
131-0201-0001	**.110** 2.79	**.070** 1.78	**.012** .305
93 Ohm Series			
131-0300-0001	**.155** 3.94	**.107** 2.72	**.012** .305
131-0301-0001	**.155** 3.94	**.107** 2.72	**.012** .305

LEPRA/CON Connectors

All — Pages 2-129 to 2-137

Connector Part No.	Max. Jacket	Max. Dielectric	Nom. Inner Conductor
All	**.081** 2.06	**.040** 1.02	**.012** .305

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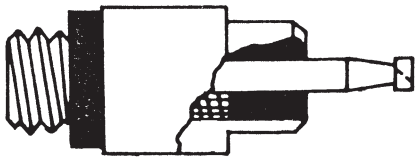
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MICRODOT Hermetic Connectors

Coaxial Screw-On, Slide-On Series



Material and Finish

50 Connector uses 10-32 thread.

70 Connector uses 12-32 thread.

93 Connector uses 1/4-32 thread.

Housing (1) — Cold rolled steel silver plate.

Gasket (2) — Neoprene or silicone rubber.

Insulator (3) — PTFE.

Glass Seal (4)

Center Contact (5) — Nickel Iron alloy contact with slotted turret type solder pot (other terminations available).

Service and Performance Data

Temperature Range — -65°F to 450°F [–54°C to 232°C] .

Electrical — 750 VAC working voltage.

Performance — 1200 VAC test at sea level.

Insulation Resistance — 5000 megohms at 500 VDC (room temperature).

Shock — 100 G's minimum.

Pressure — 100 PSI minimum.

Leak Rate Per Seal — Less than 1.04×10^{-8} cc/sec. (.001 Micron cubic ft/hr) of 100% helium tested at one atmosphere pressure differential far exceeding requirements of MIL-C-26500 and MIL-C-26482.

Plating — Silver unless otherwise specified.

Bulkhead Solder Mount

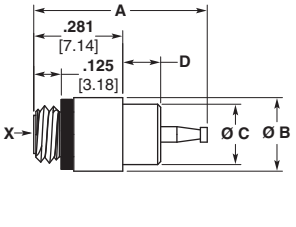


Fig. 1

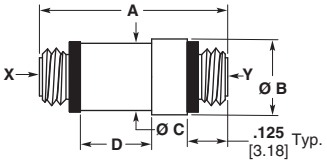


Fig. 2

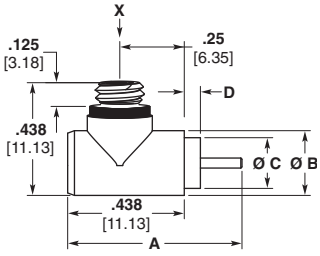


Fig. 3

Part No.	Fig.	A	B Dia.	C Dia. ±.015	D	X*	Y*
051-0049-0001	1	**.563** 14.30	**.25** 6.35	**.200** 5.08	**.125** 3.18	S-50	—
051-0056-0001	1	**.563** 14.30	**.313** 7.95	**.251** 6.38	**.125** 3.18	S-93	—
053-0228-0001	2	**.594** 15.09	**.25** 6.35	**.227** 5.77	**.234** 5.94	S-50	S-50
051-0315-0001	3	**.656** 16.66	**.25** 6.35	**.195** 4.95	**.063** 1.60	S-50	—

* "S" indicates Screw-On Series
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Bulkhead Solder Mount, Panel Insulated

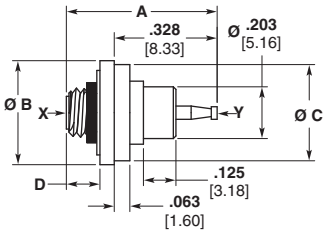


Fig. 1

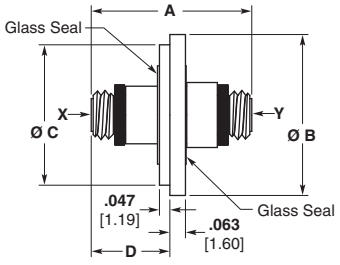


Fig. 2

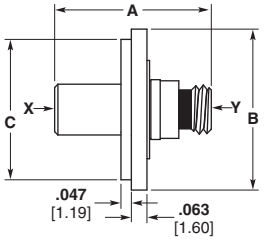


Fig. 3

Part No.	Fig.	A	B Dia.	C Dia.	D	X*	Y*
051-0232-0001	1	**.563** 14.30	**.406** 10.31	**.370** 9.40	**.172** 4.37	S-50	
053-0227-0001	2	**.609** 15.47	**.625** 15.88	**.540** 13.72	**.297** 7.54	S-50	S-50
053-0412-0001	2	**.609** 15.47	**.625** 15.88	**.540** 13.72	**.297** 7.54	S-93	S-93
053-0028-0001	3	**.609** 15.47	**.625** 15.88	**.540** 13.72	**.297** 7.54	SOS-50	S-50

* "S" indicates Screw-On Series; "SOS" indicates Slide-On Series
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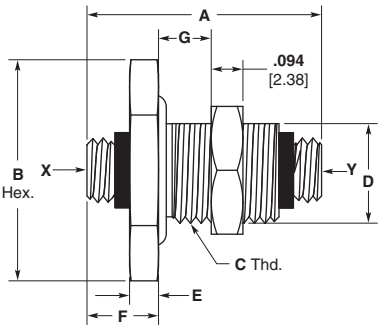
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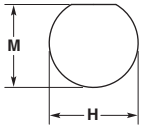
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MICRODOT Hermetic Connectors (Continued)

Coaxial Screw-On, Slide-On Series
(Continued)

Microminiature Coaxial Receptacles



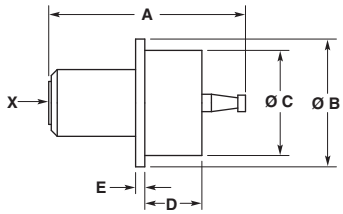


Mounting Hole

Part No.	A	B Hex.	C Thd.	D	E	F	G	H	M	X*	Y*
053-0455-0001	**.688** 17.46	**.563** 14.29	5/16-32 UNEF-2A	**.297** 7.54	**.094** 2.38	**.203** 5.16	**.25** 6.35	**.312** 7.92	**.291** 7.39	S-50	S-50
053-0636-0001	**.922** 23.42	**.625** 15.88	3/8-32 UNEF-2A	**.344** 8.73	**.078** 1.98	**.203** 5.16	**.438** 11.11	**.375** 9.53	**.347** 8.81	S-93	S-93

* "S" indicates Screw-On Series
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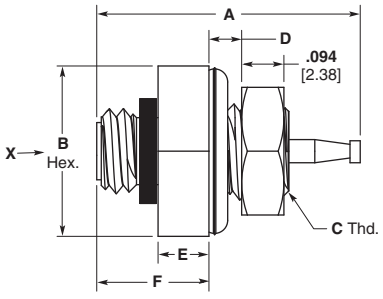
Solder Mount Slide-On Series Receptacles

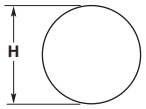


Part No.	A	B Dia.	C Dia. ±.015	D	E	X*
051-0134-0001	**.563** 14.29	**.375** 9.53	**.309** 7.85	**.172** 4.37	**.031** .794	SOS-50, 70, 93
051-0158-0001	**.563** 14.29	**.25** 6.35	**.200** 5.08	**.125** 3.18	**.047** 1.19	SOS-50, 70, 93

* "SOS" indicates Slide-On Series
Dimensions are subject to change without notice.

Single Hole Mount Receptacles





Mounting Hole

Part No.	A	B Hex.	C Thd.	D	E	F	H	X*
051-0249-0001	**.563** 14.29	**.375** 9.53	12-32 UNEF-2A	**.078** 1.98	**.109** 2.78	**.234** 5.95	**.218** 5.54	S-50
051-0154-0001	**.656** 16.67	**.625** 15.88	3/8-32 UNEF-2A	**.156** 3.97	**.078** 1.98	**.203** 5.16	**.375** 9.53	S-93

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Appendix A - Theory and Application

Theory and Application

As a leading manufacturer of RF products, TE Connectivity produces a large variety of coaxial connectors. The proper selection and application of these connectors requires a knowledge of factors not involved in other types of connectors and terminals. The following paragraphs have been prepared to improve understanding of the theory behind RF connectors:

Basic RF Theory[1]

RF energy travels by electromagnetic waves, and it is primarily the frequency of these waves that we are interested in. Briefly, if an oscillating voltage source is connected to a cable, a continuous electromagnetic wave will propagate along the cable. A sensor placed at some point on the cable would indicate a varying voltage (E field) as well as a current and magnetic field (H field) as the wave travels past it. This is called an electromagnetic wave because both electric and magnetic fields are varying. The wave shape is initially determined by the variation of the source with time.

Figure 7 shows the radiant energy spectrum. Visible light, radio, television, x-rays and Gamma rays are all phenomenon of electromagnetic waves at different frequencies. This introduction will treat only those that are generated by an electrical source and propagated along a physical cable or other transmission media. That is, frequencies above zero and up to about 50 gigahertz.

[1]The majority of the technical terms, relative to RF and coaxial cable and connectors, used here-in and throughout this catalog are defined in the Glossary of Terms in Section 11.

Frequency or Wavelengths	Designation	Applications
0 - 29.9 KHz	VLF (Very Low Frequency)	Commercial AC electricity, deep depth sounders, ultrasonic grinders, sonic oscillators
30 - 299.9 KHz	LF (Low sonar Frequency)	Shallow-to-medium depth sounders
300 - 2999.9 KHz	MF (Medium Frequency)	Commercial AM radio broadcasting, marine radio telephone, direction finders
3 - 29.9 MHz	HF (High Frequency)	Citizen band radio, amateur radio, international broadcasting
30 - 299.9 MHz	VHF (Very High Frequency)	VHF television (Channels 2 thru 13), commercial FM radio broadcasting, amateur radio, fire and police radio
300 - 2999.9 MHz	UHF (Ultra-high Frequency)	UHF television (Channels 14 thru 83), microwave ovens, aeronautical radionavigation
3 - 29.9 GHz	SHF (Super High Frequency)	Microwave communications, marine radar, aircraft tracking and airborne radars
30 - 299.9 GHz	EHF (Extremely High Frequency)	Space communications, radio astronomy

Notes:
1. KHz = Kilohertz (1 thousand cycles per second)
2. MHz = Megahertz (1 million cycles per second)
3. GHz = Gigahertz (1 billion cycles per second)

Figure 7

Radiant Energy Spectrum

In the following paragraphs we will discuss waves in greater detail, including the relationship of frequency and wave length, how pulses are formed and used, how each differs from the other and the problems involved in their transmission.

Sine Waves

An RF wave is a sine wave, meaning that it smoothly swings from zero to a positive peak value, then back down past zero to a negative peak value, then back to zero to complete a 360 electrical degree cycle. The positive and negative peaks are always equal in amplitude. The two qualities which characterize this type of wave are amplitude and frequency (f). Figure 8 shows these two characteristics. Amplitude refers to the peak value attained by the wave and corresponds to voltage. Frequency refers to the number of oscillations per second. For example, the sign wave in Figure 8(B) has completed 12 cycles in one second. Therefore, we would say that this wave has a frequency of 12 cycles per second or 12 Hertz. The time for one complete cycle is defined as the period (T). The relationship between the period and frequency is given by the equation:

$$f = 1 / T \text{ in Hertz}$$

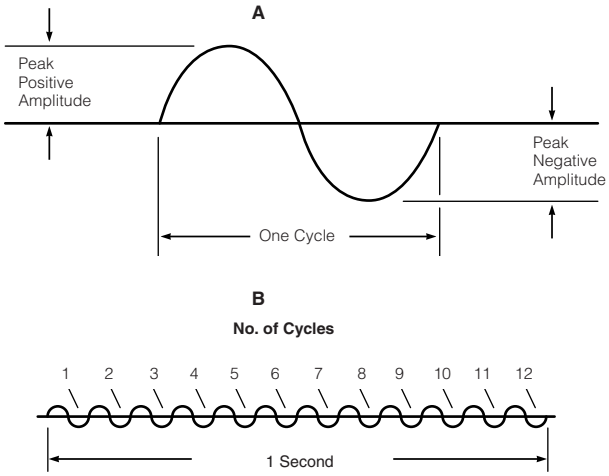


Figure 8

Typical Sine Wave Characteristics

The wave travels away from the generator at speeds approaching the speed of light. When an electromagnetic wave travels in a medium other than air or vacuum, the **speed** for the wave is reduced by a factor of the square root of the dielectric constant (ε. The velocity (v) of the propagation of a signal is given by:

$$v = \sqrt{\frac{c}{\varepsilon}}$$

Where c is the speed of light, 3×10^8 m/sec or 1.18×10^{10} in/sec, and ε is the dielectric constant of the medium. (See Table 1 for dielectric constants of various materials)

The **wavelength** of a signal is given by the formula

$$\lambda = v/f = \frac{c}{\sqrt{\varepsilon} \times f\,(GHz)} \quad \frac{1.18 \times 10^{10}}{\sqrt{\varepsilon} \times f\,(GHz)} \text{ inches}$$

See Figure 9

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Appendix A - Theory and Application (Continued)

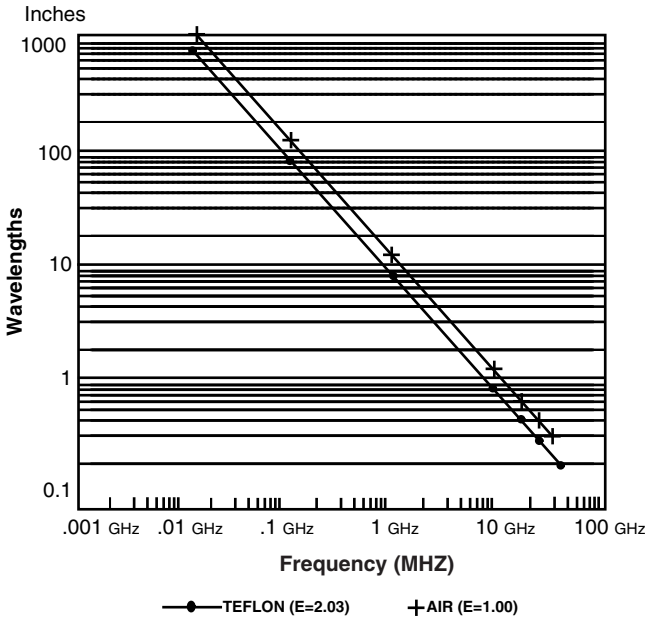


Figure 9

Table 1.

Properties of Insulating Materials

Dielectric Material	Dielectric Constant	Operating Temperature Range
TFE	2.03	-70 +250°C
Polyethylene	2.3	-60 +80°C
Nylon	4.6-4.0	-40 +120°C
TPX	2.12	-65 +85°C
Polypropylene	2.25	-40 +105°C
Acetal	3.7	-65 +85°C

Pulses

The sine wave is most often used for communication purposes where intelligence is imposed on the wave by a variation in amplitude (amplitude modulation, AM) or by a variation in frequency (frequency modulation, FM).

Pulses, on the other hand, are primarily used in computers and digital instrumentation. Since pulses are generally used for triggering purposes, the pulse rise/fall time, amplitude and width are the most important. Figure 10 shows a pulse and identifies these characteristics.

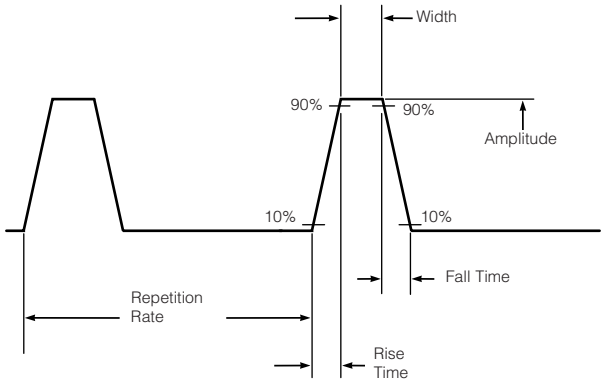


Figure 10

Pulse Characteristics

Notice that rise time is the time required for the pulse to rise from 10% to 90% of its amplitude — not from zero to maximum. Rise and fall time is perhaps the single most important characteristic of a pulse in today's high-speed digital equipment. Figure 11 shows that the faster the rise and fall time, the more pulses will fit in a given time frame.

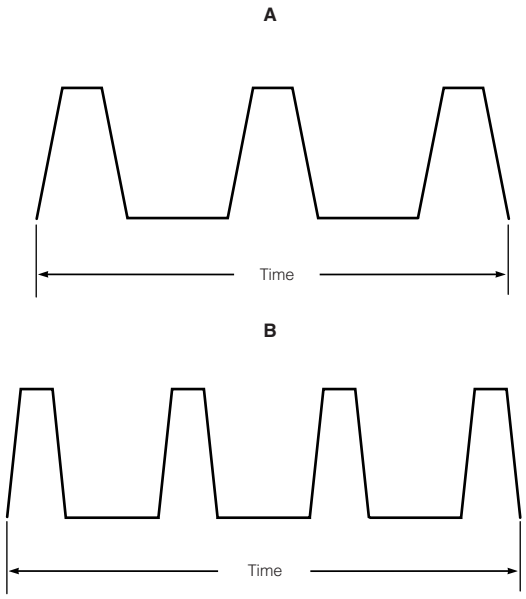


Figure 11

Pulse Rise and Fall Time

The bit rate for a system is the maximum rate of pulses per second that a system can process without causing data errors. The maximum performance can also be specified in terms of baud rate. The baud rate is defined as the number of characters (bytes) that are transmitted per second. Generally a character represents 10 bits (7 bits for the information, one parity bit, and two for start and stop, totalling 10).

Now that we know why fast pulses are required, the next problem is how to obtain faster rise times. A pulse is made up of a great number of different frequencies, and the more high frequencies a pulse contains, the faster will be its rise time and the flatter will be its peak. To better understand this, refer to Figure 12. At A, you will see a fundamental frequency (1), its third harmonic (3), and the resultant waveform (S3), which is a combination of 1 and 3. Although this does not yet resemble a square wave, you will note that the rise time is decreased, and a dip appears at the peak. At B of Figure 12, we have added the fifth harmonic. Rise time is further decreased, and the peak is beginning to flatten out. At C the seventh harmonic has been included, and the resultant wave S7 begins to resemble a square wave. As more high frequency harmonics are added to the waveform, it will more closely resemble a square wave, and the squarer it becomes, the faster will be the rise time.

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Appendix A - Theory and Application (Continued)

Fast rise times and short pulse widths require high frequency components.

Two frequent causes of digital signal degradation can be (1) high capacitance of the transmission line and (2) impedance mismatches of connector transmission line or I/0 devices. Selection of an impedance-matched connector on a digital line, especially if short cable assemblies are used, can be as important as connector selection for an RF modulated line. Reflected pulses out of phase with the original pulse can cause false signals or high error rates in a digital system.

Since pulses with fast rise times are necessary in high-speed computers, any circuit element which could reduce or attenuate high frequency response is undesirable.

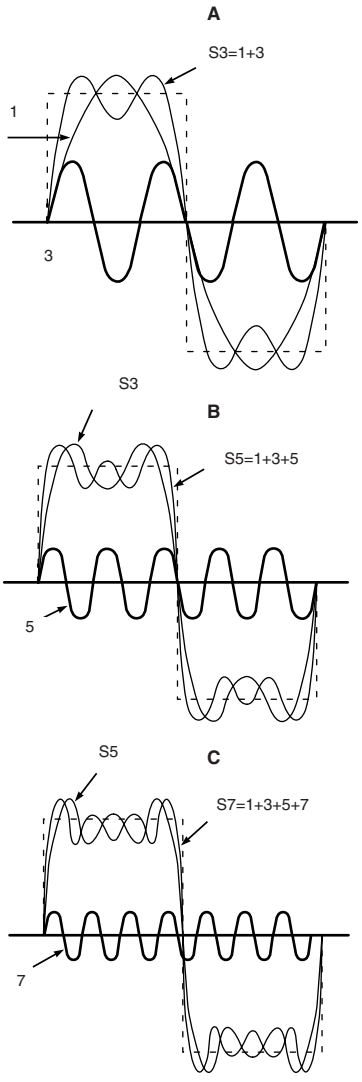


Figure 12

Development of a Square Wave

Signal Integrity and Propagation

To explain how to maintain signal integrity, it is necessary to review how the signal is configured in a cable and how it propagates. Ignoring digital signals for this discussion we will identify the issues that deal with the integrity of a sine wave. Consider a coaxial cable consisting of an inner conductor surrounded by a dielectric material and then an outer conductor (See Figure 13). The outer conductor may be a braid, a foil, or a solid metal.

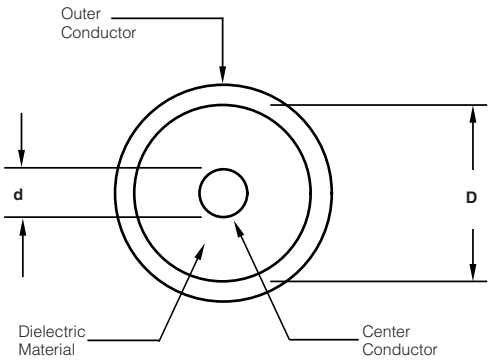


Figure 13

Diagram of a Cable

An electromagnetic wave traveling in a coaxial cable produces an electric and a magnetic field between the inner conductor and the outer conductor (Figure 14). The electric (E field) is radial and varies in time. An alternating current flows along the inner conductor and the outer conductor. An oscillating magnetic field (H field) circles the inner conductor.

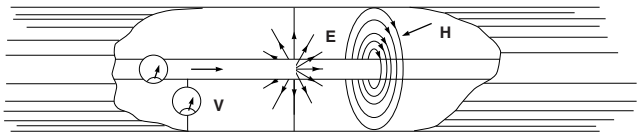


Figure 14

Electric field (E) and magnetic field (H) belonging to the principal mode in a coaxial line.

The alternating current on a conductor is not spread throughout the conductor but is strongest at the surface and decays exponentially at points further into the conductor. This is called the skin effect. At a frequency of 1MHz, three skin depths is 0.0078" (95% of the current is within three skin depths of the surface) and at 10GHz three skin depths is 0.00078". As a result, the current is on the outer surface of the inner conductor and the inner surface of the outer conductor over the entire range of interest for most RF systems. The dimensions and material beyond several skin depths have no effect on the wave; gold plated plastic will propagate as well as gold plated copper at sufficiently high frequencies.

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Attenuation

A wave loses energy (attenuates) in several ways: (1) The resistance of the inner and outer conductors is small but can be significant over long lengths and will produce some heat. (2) The dielectric may be lossy; its resistance is high but not infinite, and some energy is lost. (3) Electromagnetic energy radiates at high frequencies; significant energy losses are caused by radiation of electromagnetic energy (the cable acts like an antenna). (4) Energy is reflected due to impedance mismatches. The combination of these four types of losses are referred to as the **insertion loss** of a transmission line system. Connectors have similar losses.

Characteristic Impedance

A parameter which defines the behavior of a cable, connector, or any propagating system is **Characteristic Impedance**, Zo. The characteristic impedance of a lossless cable is related to the inductance per unit length, L, and the capacitance per unit length, C, as follows:

$$Zo = \sqrt{L/C} \text{ in ohms}$$

The equivalent circuit of a transmission line is shown in Figure 15. R represents the conductor resistance for a unit length.

For a coaxial cable the characteristic impedance is given by:

$$Zo = \frac{138}{\sqrt{\varepsilon}} \times \text{Log}_{10} \frac{D}{d} \text{ in ohms}$$

where D is the inner diameter of the outer conductor and d is the outer diameter of the inner conductor, respectively. Similar equations apply for other geometries such as two parallel wires.

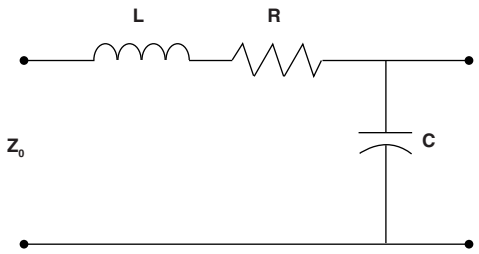


Figure 15

Typical Transmission Line Schematic

The maximum power is transferred between two systems if they have the same impedance. This is called impedance matching. However, impedance variations that are short compared to a wavelength can have a negligible effect on signal loss.

Standard impedances are 50 ohm, 75 ohm and 93-125 ohm. Most systems use 50 ohm because it is a compromise between maximum power transmission and minimum line loss. The telephone industry and the broadcast industry use 75 ohm for minimum line attenuation. The need for low capacitance instrumentation cable has produced the 93-125 ohm systems. The higher impedances are generally achieved by changing the conductor diameters and by modifying the dielectric material to add air.

Reflections

When the characteristic impedance changes in a transmission line system, part of an incident wave is reflected. The reflection coefficient can be calculated as:

$$\text{Reflection Coefficient} = \rho = \frac{V_i}{V_R} = \frac{Z_R - Z_O}{Z_R + Z_O}$$

Where Vi and ZO are the incident voltage and impedance of the first media. V_R and Z_R represent the reflected voltage and impedance of the media that caused the reflection. The decibel loss due to reflection is given by:

$$\text{Return Loss} = 10 \text{ Log}_{10} \left(\frac{1}{1-\rho^2} \right) \text{ dB}$$

VSWR

The traditional way to determine the reflection coefficient is to measure the standing wave caused by the superposition of the incident wave and the reflected wave. Traditionally the voltage is measured at a series of points using a slotted line. The ratio of the maximum divided by the minimum is the Voltage Standing Wave Ratio (VSWR). The VSWR is infinite for total reflections because the minimum voltage is zero. If no reflection occurs the VSWR is 1.0. VSWR and reflection coefficient are related as follows:

$$VSWR = (1 + \rho)/(1 - \rho)$$

Most present instrumentation measures the reflection coefficient and calculates the VSWR.

Figure 16 represents the direct relationship between VSWR and its equivalent in return loss (expressed in dB).

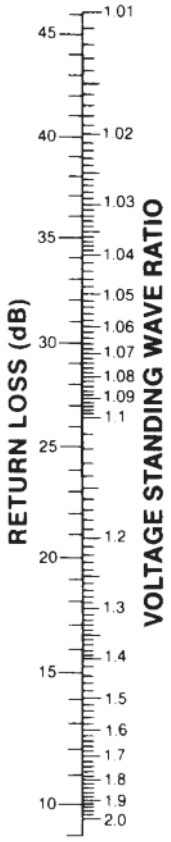


Figure 16

VSWR vs. Return Loss

Multiple Reflections

If there is a series of impedance changes, each one will have a reflection coefficient. The total reflection coefficient is the vector addition of each of the individual coefficients accounting for the distance between reflections and the reflection of any reflected waves. Even though the calculations are difficult, a total VSWR can still be measured.

Multiple reflections can produce a resonance phenomenon that is unique to wave theory. Properly understood some serious difficulties can be avoided. An example will make the point clear. Consider an electromagnetic wave with a wave-

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length of 4 inches traveling on a cable that changes from 50 ohms to 25 ohms. The reflection coefficient is -.33, which means that one third of the incident voltage is reflected toward the source. Assume that one inch (one quarter wavelength) down the cable the impedance changes back to 50 ohm. Again, one third of the wave is reflected, but without any phase shift. It travels back to the first interface where one third of this reflected wave is reflected back toward the second interface. Two thirds of the wave is transmitted through the interface and travels back to the source. Since the first (reflected) wave is shifted 180 degrees at the reflection, and the second (transmitted-reflected-transmitted) wave is shifted 180 degrees because it traveled the one inch separation twice, the two waves are in phase. The net result is that the VSWR is much larger because the length of the 25 ohm section was just the right length to cause a resonance. If the length of the 25 ohm section had been one half wavelength, the two waves would have interfered and the VSWR would be at a minimum.

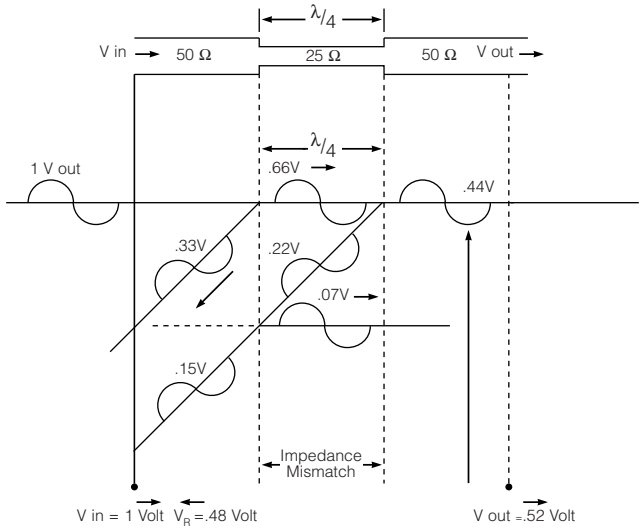


Figure 17

Multiple Wave Reflections
(Caused by Impedance Mismatch)

In summary, avoid cable lengths, printed circuit board paths, or connectors that are multiple of one quarter ($\lambda/4$, $3\lambda/4$, etc.) of the intended signal transmission wavelength. Coaxial cables, when manufactured, also have periodic variations in diameter that result in periodic changes in impedance (Zo), that can cause significant levels of reflected signal (high return loss) at specific frequencies.

Reflections of Digital Signals

The previous discussions dealing with attenuation, reflections and standing waves can apply to digital signals with some extra thought.

A single pulse can be thought of as a combination of high frequency sine waves. The maximum frequency component in a square wave pulse can be calculated by this equation:

$$f = 0.35/\text{rise time}$$

where

f = GHz when “t” is in nanoseconds

Attenuation of the frequencies necessary to support the short risetime will produce a slower rise and possibly prohibit the pulse from ever reaching the detector. This ‘slurring’ of the pulse is similar to the behavior of an RC circuit and the attenuation is sometimes called capacitive attenuation.

A series of pulses can demonstrate resonance. If a portion of a pulse is reflected at each interface, it is possible for them to come together and add up to form a new phantom pulse.

The critical frequency here is the bit rate. Think of a sine wave with a frequency the same as the bit rate; if it will resonate in the cable, the pulses will also. Extra pulses caused by resonance might easily result in an error signal from the receiving system requesting a retransmittal. The final result would be a communication system that is much slower than intended.

Cut-off Frequency

The cut-off frequency of a coaxial transmission line is the frequency at which modes of energy transmission, other than the “TEM” mode, can be generated.

$$fco = \frac{7.5}{\sqrt{\varepsilon}\,(D+d)} \text{ (in GHz)}$$

(D and d are measured in inches)

Types of Transmission Lines

Twin Lead transmission cable is generally used where impedance matching alone is important, since it provides only minimal shielding. Impedance values of 300 ohms and 600 ohms are common. Lower impedance values require closer spacing of the conductors and are not normally available in this type of cable. A typical application for twin lead cable is in antenna lead wire for television sets.

Twisted Pair is a variation of the twin lead type. It consists of two lengths of ordinary hookup wire twisted together. A twisted pair provides relatively constant impedance plus better magnetic shielding than twin lead cables. It is flexible, inexpensive, easy to terminate and is used extensively by the computer industry. However, it should not be used when maximum shielding is required.

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Appendix A - Theory and Application (Continued)

Shielded Twisted Pair Cable is used to eliminate inductive and capacitive coupling. Twisting cancels out inductive coupling, while the shield eliminates capacitive coupling. Most applications for this cable are between equipment, racks and buildings.

Flexible (Braided) Coaxial Cable is by far the most common type of closed transmission line because of its flexibility. It is a coaxial cable, meaning that both the signal and the ground conductors are on the same center axis. The outer conductor is made from fine braided wire, hence the name “braided coaxial cable”. This type of cable is used in practically all applications requiring complete shielding of the center conductor. The effectiveness of the shielding depends upon the weave of the braid and the number of braid layers. TE Connectivity manufacturers connectors for cable sizes ranging from less than 1/8 in. diameter, for low power applications of around 50 watts, to over 1/2 in. diameter for power of 850 watts at 100 MHz and voltages up to 5000. In addition to power handling capabilities, cables are available for high frequency applications, high and low temperature applications, severe environmental applications and many other specialized uses.

Triaxial Cable is used when higher “shielding” efficiency characteristics are required in applications similar to those using shielded twisted pair cable.

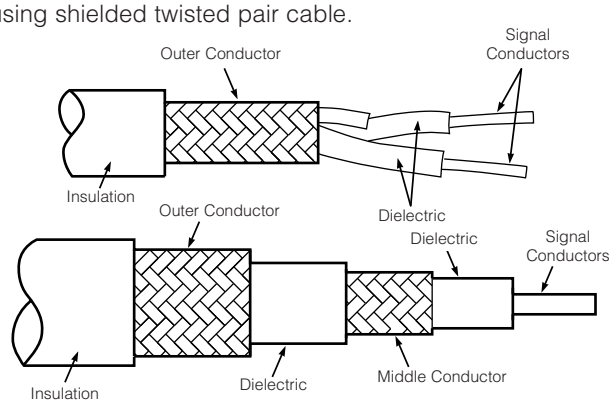


Figure 18

Twin Conductor and Triaxial Cable

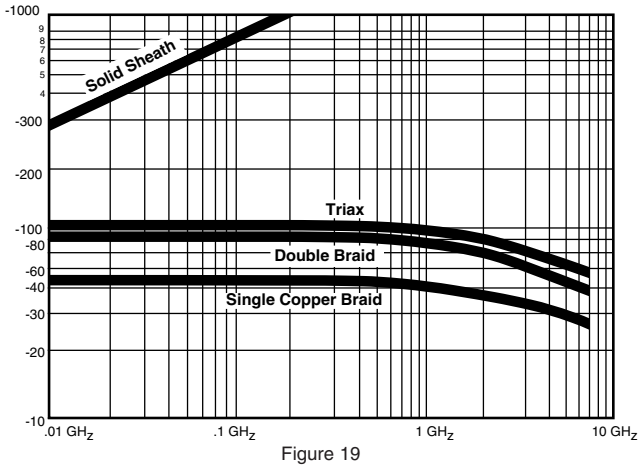


Figure 19

Shielding Efficiencies

Often you will hear the term “shielded cable”. This is very similar to coaxial cable except the spacing between center conductor and shield is not carefully controlled during manufacture, resulting in non-constant impedance.

Semi-rigid Coaxial Cable uses a solid tubular outer conductor rather than the braided type, so that all the RF energy is contained within the cable. One of the drawbacks of braided cable is that the shielding is not 100% effective, especially at higher frequencies. This is because the braided construction can permit small amounts of short wavelength (high frequency) energy to radiate. Normally this does not present a problem; however, if a higher degree of shielding is required, semi-rigid coaxial cable is recommended. For applications using frequencies higher than 30 GHz a miniature semi-rigid cable is recommended. Various connectors are available from TE to terminate these cables.

Ribbon Coaxial Cable is a relatively recent TE innovation which combines the advantages of both ribbon cable and coaxial cable. TE currently provides both the cable and the insulation displacing coaxial connector to terminate the cable. Each individual coaxial cable consists of the signal conductor, dielectric, a foil shield and a drain wire which is in continuous contact with the foil. The entire assembly is then covered with an outer insulating jacket. The unique manufacturing feature of this cable is the precise placement of the drain wires to permit gang stripping of the outer jacket and foil. The major advantage of this cable is the speed and ease with which it can be mass terminated with the TE insulation displacement technique. They can also be separated into individual coaxial lines and terminated with standard coaxial connectors as required.

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Appendix B - Typical Coaxial Cable Specifications

Abbreviations

Dielectric

PE .....Solid polyethylene
PTEE .....Solid polytetrafluoroethylene
PIB.....Polyisobutylene, Type B, per MIL-C-17
Rubber .....Per MIL-C-17D
Sil .....Silicone rubber
PS.....Polystyrene

Conductors and Braid Materials

AL .....Aluminum
SCAAI .....Silver covered copper covered aluminum
BC.....Bare copper
SC.....Silver covered copper
CCS .....Copper covered steel
TC.....Tinned copper
SCCS.....Silver covered copper covered steel
SCCad Br.....Silver covered cadmium bronze
GS.....Galvanized steel
TCCS .....Tin copper covered steel
SSC .....Silver covered strip
HR.....High resistance wire
SA .....Silver covered alloy

Jacket Material

PVC-I.....Black polyvinylchloride, contaminating, Type I, per MIL-C-17D
PVC-II.....Gray polyvinylchloride, noncontaminating, Type II, per MIL-C-17D
PVC-IIA.....Black polyvinylchloride, noncontaminating, Type IIA, per MIL-C-17D
PE-III.....Clear polyethylene
PE-IIIA .....High molecular weight, black polyethylene, Type IIIA, per MIL-C-17D
FG Braid V ....Fiberglass, impregnated, Type V, per MIL-C-17D
FEP-IX .....Fluorinated ethylene propylene, Type IX, per MIL-C-17D
PUR .....Polyurethane, black specific compounds
SIL/DAC-VI...Dacron braid over silicone rubber, Type VI, per MIL-C-17D
Rubber .....Per MIL-C-17D

RG/U Type Cable	Inner Conductor	Dielectric Material	DOD	Number/Type of Shielding Braids	Jacket Material	O.D.	Weight (lb/ft)	Nom. Imped. (Ohms)	Nom. Cap pf/ft	Max. Operating Temp. (C°)	Max. Operating Voltage (Volts RMS)	Comments
8	**2.17** .0855 7/**0.72** BC .0285	PE	**7.24** .285	1/BC	PVC-I	**10.29** .405	.106	52	29.5	−40 +80	4000	Use RG213
8A	**2.17** .0855 7/**0.72** BC .0285	PE	**7.24** .285	**.285** 1/BC	PVC-IIA	**10.29** .405	.106	52	29.5	−40 +80	5000	Use RG213
9	**2.17** .0855 7/**0.72** SC .0285	PE	**7.11** .280	2/Inner SC Outer BC	PVC-II	**10.67** .420	.140	51	30.0	−40 +80	4000	Use RG214
9A	**2.17** .0855 7/**0.72** SC .0285	PE	**7.11** .280	2/SC	PVC-II	**10.67** .420	.140	51	30.0	−40 +80	4000	Use RG214
9B	**2.17** .0855 7/**0.72** SC .0285	PE	**7.11** .280	2/SC	PVC-IIA	**10.67** .420	.150	50	30.8	−40 +80	5000	Use RG214
11	**1.21** .0477 7/**0.4** TC .0159	PE	**7.24** .285	1/BC	PVC-I	**10.29** .405	.096	75	20.6	−40 +80	4000	Use up to 100 MHz
11A	**1.21** .0477 7/**0.4** TC .0159	PE	**7.24** .285	1/BC	PVC-IIA	**10.29** .405	.096	75	20.6	−40 +80	5000	Use up to 1000 Mhz
55	**0.81** BC .0320	PE	**2.95** .116	2/TC	PE-III	**5.08** .200	.032	53.5	28.5	−55 +80	1900	Use RG55B
55A	**.0.89** SC .0350	PE	**2.95** .116	2/SC	PVC-IIA	**5.08** .200	.034	50	30.8	−40 +80	1900	Use RG223
55B	**0.81** SC .0320	PE	**2.95** .116	2/TC	PE-IIIA	**5.08** .200	.033	53.5	28.5	−55 +80	1900	Use up to 1000 MHz
58	**0.81** BC .0320	PE	**2.95** .116	1/TC	PVC-I	**4.95** .195	.029	53.5	28.5	−40 +80	1900	Use RG58B
58A	**0.9** .0355	PE	**2.95** .116	1/TC	PVC-I	**4.95** .195	.029	52	28.5	−40 +80	1900	Use RG58C
58B	**0.81** BC .0320	PE	**2.95** .116	1/TC	PVC-IIA	**4.95** .195	.029	53.5	28.5	−40 +80	1900	Use up to 1000 MHz
58C	**0.9** .0355 19/**0.8** TC .0071	PE	**2.95** .116	1/TC	PVC-IIA	**4.95** .195	.029	50	30.8	−40 +80	1900	Extra Flexible Version RG58B
59	**0.64** CCS .0253	PE	**3.71** .146	1/BC	PVC-I	**6.15** .242	.032	73	21.0	−40 +80	2300	Use RG59B
59A	**0.64** CCS .0253	PE	**3.71** .146	1/BC	PVC-IIA	**6.15** .242	.032	73	21.0	−40 +80	2300	Use RG59B
59B	**0.58** CCS .0230	PE	**3.71** .146	1/BC	PVC-IIA	**6.15** .242	.032	75	20.6	−40 +80	2300	Use up to 1000 MHz

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Appendix B - Typical Coaxial Cable Specifications (Continued)

RG/U Type Cable	Inner Conductor	Dielectric Material	DOD	Number/Type of Shielding Braids	Jacket Material	O.D.	Weight (lb/ft)	Nom. Imped. (Ohms)	Nom. Cap pf/ft	Max. Operating Temp. (C°)	Max. Operating Voltage (Volts RMS)	Comments
62A	**0.64** CCS .0253	Air-space PE	**3.71** .146	1/BC	PVC-IIA	**6.15** .242	.038	93	13.5	−40 +80	750	Low Capacitance
62B	**0.61** .0240 7/**0.2** CCS .0080	Air-space PE	**3.71** .146	1/BC	PVC-IIA	**6.15** .242	.038	93	13.5	−40 +80	750	Extra Flexible RG62A
71	**0.64** CCS .0253	Air-space PE	**3.71** .146	2/TC	PVC-I	**6.22** .245	.046	93	13.5	−40 +80	750	Use RG71B
71A	**0.64** CCS .0253	Air-space PE	**3.71** .146	2/TC	PE-III	**6.22** .245	.046	93	13.5	−55 +80	750	Use RG71B
71B	**0.64** CCS .0253	Air-space PE	**3.71** .146	2/TC	PE-IIIA	**6.22** .245	.046	93	13.5	−55 +80	750	Low Capacitance
122	**0.76** .0300 7/**0.13** TC .0050	PE	**2.44** .096	1/TC	PVC-IIA	**4.06** .160	.016	50	29.4	−40 +80	1900	Use up to 1000 MHz
124	**0.64** TCCS .0253	Taped PTFE	**3.43** .135	1/TC	FG Braid-V	**6.1** .240	.210	73	20.3	−55 +250	2300	Use RG140
140	**0.64** SCCS .0250	PTFE	**3.71** 1.46	1/SC	FG Braid-V	**5.92** .233	.056	75	19.5	−55 +250	2300	See RG302 for FEP Jacket
141	**0.91** SCCS .0359	PTFE	**2.95** .116	1/SC	FG Braid-V	**4.83** .190	.036	50	29.4	−55 +250	1900	Use RG141A
141A	**0.99** SCCS .0390	PTFE	**2.95** .116	1/SC	FG Braid-V	**4.83** .190	.036	50	29.4	−55 +250	1900	See RG303 for FEP Jacket
142	**0.91** SCCS .0359	PTFE	**2.95** .116	2/SC	FG Braid-V	**4.95** .195	.047	50	29.4	−55 +250	1900	Use RG142A
142A	**0.99** SCCS .0390	PTFE	**2.95** .116	2/SC	FG	**4.95** .195	.047	50	29.4	−50 +250	1900	See RG142B for FEP Jacket
142B	**0.99** SCCS .0390	PTFE	**2.95** .116	2/SC	FEP	**4.95** .195	.047	50	29.4	−55 +250	1900	Standard Center Cond. Available
174	**0.48** .0189 7/**0.16** CCS .0063	PE	**1.52** .060	1/TC	PVC	**2.54** .100	.008	50	30.8	−40 +80	1500	Miniature Data Transmission
178	**0.3** .0120 7/**0.1** SCCS .0040	PTFE	**0.91** .036	1/SC	KEL-F	**1.83** .072	.0054	50	29.4	−40 +150	1000	Use RG178B
178B	**0.3** .0120 7/**0.1** SCCS .0040	PTFE	**0.86** .034	1/SC	FEP-IX	**1.83** .072	.0054	50	29.4	−55 +200	1000	High Strength Cond. Available
179	**0.3** .0120 7/**0.1** SCCS .0040	PTFE	**1.45** .057	1/SC	KEL-F	**2.54** .100	.010	70	20.4	−55 +150	1200	Use RG179B
180B	**0.3** .0120 7/**0.1** SCCS .0040	PTFE	**2.59** .102	1/SC	KEP-IX	**3.56** .140	.019	95	15.4	−55 +200	1500	High Strength Cond. Available
188	**0.51** .0201 7/**0.17** SCCS .0067	PTFE	**1.52** .060	1/SC	PTFE	**2.67** .105	.011	50	29.4	−55 +250	1200	Use RG316
188A	**0.51** .0201 7/**0.17** SCCS .0067	PTFE	**1.52** .060	1/SC	PTFE	**2.67** .105	.011	50	29.4	−55 +250	1200	Use RG316
195A	**0.3** .0120 7/**0.1** SCCS .004	PTFE	**2.59** .102	1/SC	PTFE	**3.68** .145	.020	95	15.4	−55 +250	1500	Use RG180B
210	**0.64** SCCS .0253	Air-Space PTFE	**3.71** .146	1/SC	FG Braid-V	**6.15** .242	.040	93	13.5	−55 +250	750	High Temp. Low Capacitance
213	**2.26** .0888 7/**0.75** BC .0296	PE	**7.24** .285	1/BC	PVC-IIA	**10.29** .405	.099	50	30.8	−40 +80	5000	Use up to 1000 MHz
214	**2.26** .0888 7/**0.75** SC .0296	PE	**7.24** .285	2/SC	PVC-IIA	**10.0** .425	.126	50	30.8	−40 +80	5000	Use up to 10,000 MHz

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RG/U Type Cable	Inner Conductor	Dielectric Material	DOD	Number/Type of Shielding Braids	Jacket Material	O.D.	Weight (lb/ft)	Nom. Imped. (Ohms)	Nom. Cap pf/ft	Max. Operating Temp. (C°)	Max. Operating Voltage (Volts RMS)	Comments
216	**1.21** .0477 7/**0.75** BC .0159	PE	**7.24** .285	2/BC	PVC-IIA	**10.8** .425	.114	75	20.6	−40 +80	5000	Use up to 1000 MHz
223	**0.89** SC .035	PE	**2.95** .116	2/SC	PVC-IIA	**5.36** .211	.034	50	30.8	−40 +80	1900	Use up to 10,000 MHz
225	**2.38** .0936 7/**0.79** SC .0312	PTFE	**7.24** .285	2/SC	FG Braid-V	**10.92** .430	.180	50	29.4	−55 +250	5000	See RG393 for FEP Jacket
302	**0.64** SCCS .0250	PTFE	**3.71** .146	1/SC	FEP-IX	**5.11** .201	.030	75	19.5	−55 +200	2300	FEP Jacketed RG140
303	**0.99** SCCS .0390	PTFE	**2.95** .116	1/SC	FEP-IX	**4.32** .170	.088	50	29.4	−55 +200	1900	FEP Jacketed RG141A
316	**0.51** .0201 7/**0.17** SCCS .0067	PTFE	**1.52** .060	1/SC	FEDP-IX	**2.59** .102	.012	50	29.4	−55 +200	1200	FEP Jacketed RG188A
400	**0.98** .0385 19/**0.2** SPC .0077	PTFE	**2.95** .116	2/SC	FEP-IX	**4.95** .195	.050	50	29.3	−55 +200	1900	—
402	**0.91** SCCS .0360	PTFE	**3.02** .119	**3.58** OD .141 Copper Tube	None	**3.58** .141	.032	50	29.3	−40 +125	2500	Semi-rigid
405	**0.51** SCCS .0201	PTFE	**1.68** .066	**2.18** OD .086 Copper Tube	None	**2.19** .0865	.015	50	29.4	−40 +125	1500	Semi-rigid

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Appendix C - Maximum Power Handling Capabilities for Cables

Average Input Power in Watts

RG/U Type Cable	Frequency in MHz								
	10	50	100	200	400	1,000	3,000	5,000	10,000
5, 5A, 5B	2,000	800	550	350	230	125	60	40	22
8, 8A, 10A, 213, 215	3,700	1,300	850	540	350	190	95	65	37
9, 9A, 9B, 214	3,700	1,300	850	540	350	190	95	65	37
11, 11A, 12, 12A, 13, 13A, 216	2,500	1,000	650	400	260	150	70	50	26
217	6,000	2,000	1,200	800	480	260	120	85	50
22, 22B	1,700	650	430	280	190	110	50	38	20
55, 55A, 55B, 223	800	310	205	137	90	53	28	20	10
58, 58B	730	280	180	125	85	50	25	17	—
58A, 58C	650	225	170	110	75	44	22	15	—
59, 59A, 59B	1,300	480	310	200	135	77	40	27	15
62, 62A, 71, 71A, 71B	1,300	480	310	200	135	77	40	27	15
62B	1,150	420	280	180	120	69	35	25	14
115, 115A, 165, 225, 393	25,000	9,500	6,300	4,300	2,800	1,700	880	620	350
108, 108A	340	145	100	70	50	30	15	—	—
122	540	205	140	90	60	35	18	12	—
140, 141, 141A, 142, 142B, 302, 303, 400, 402	9,000	3,500	2,400	1,600	1,100	650	350	245	140
143, 143A	11,500	4,600	3,200	2,100	1,450	850	460	330	190
144	25,000	9,500	6,300	4,300	2,800	1,700	880	620	350
161, 179, 179A, 179B, 187, 187A	1,600	780	570	420	310	200	110	76	41
174, 174A	170	72	50	36	25	16	—	—	—
178, 178A, 178B, 196, 196A	710	340	240	170	123	78	41	28	14
180, 180A, 180B, 195, 195A	2,500	1,100	800	570	400	250	135	93	50
188, 188A, 316	1,250	600	450	330	240	160	80	57	30
210	8,500	3,300	2,300	1,600	1,100	620	310	220	140

Note: Values above 3 GHz vary considerably depending on construction.
Conditions:
Ambient — 104°F [40°C]
Altitude — Sea level
Center Conductor Temperature — 176°F [80°C] for polyethylene, 392°F [200°C] for PTFE

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Appendix D - Nominal Loss Characteristics for Cables

Decibels per Hundred Feet

RG/U Type Cable	Frequency in MHz								
	10	50	100	200	400	1,000	3,000	5,000	10,000
5, 5A, 5B	.80	1.40	2.90	4.30	6.40	11.00	22.00	30.00	52.00
8, 8A, 10A, 213, 215	.66	1.50	2.20	3.20	4.60	9.00	19.00	28.00	47.00
9, 9A, 9B, 214	.66	1.50	2.20	3.20	4.60	9.00	19.00	28.00	47.00
11, 11A, 12, 12A, 13, 13A, 216	.66	1.50	2.20	3.20	4.60	9.00	19.00	28.00	—
217	.41	1.00	1.40	2.10	3.10	5.80	13.00	19.00	31.00
22, 22B	1.20	2.80	4.20	6.30	9.50	—	—	—	—
55, 55A, 55B, 223	1.35	3.00	4.30	6.00	8.80	16.50	36.00	51.00	85.00
58, 58B	1.20	3.10	4.60	7.00	10.00	17.50	38.00	—	—
58A, 58C	1.40	3.30	4.90	7.30	11.00	20.00	41.00	—	—
59, 59A, 59B	1.10	2.30	3.30	4.70	6.70	11.50	25.50	41.00	—
62, 62A, 71, 71A, 71B	.90	1.90	2.80	3.70	5.20	8.50	18.40	29.50	—
62B	.90	2.10	3.00	4.30	6.10	10.50	23.50	36.00	—
115, 115A, 165, 225, 393	.60	1.40	2.10	3.10	4.50	7.50	14.00	21.00	35.00
108, 108A	2.30	5.20	7.50	11.00	16.00	26.20	54.00	—	—
122	1.60	4.40	6.90	11.00	16.60	29.20	57.20	89.00	—
140, 141, 141A, 142, 142B, 302, 303, 400, 402	1.20	2.70	3.90	5.50	8.00	13.00	26.00	36.00	62.00
143, 143A	.85	1.80	2.50	3.80	5.70	9.70	18.10	26.10	40.70
144	.38	1.00	1.60	2.30	3.80	7.00	15.10	—	—
161, 179, 179A, 179B, 187, 187A	5.00	7.90	9.80	12.70	15.80	25.00	43.00	62.50	135.00
174, 174A	3.80	6.50	8.90	12.00	17.50	31.00	64.30	97.00	185.00
178, 178A, 178B, 196, 196A	5.30	10.00	13.30	20.00	27.50	45.00	78.00	115.00	172.00
180, 180A, 180B, 195, 195A	3.10	4.20	5.10	7.30	10.40	16.50	36.00	49.50	89.00
188, 188A, 316	3.80	7.90	11.50	15.00	20.00	30.00	58.00	79.00	133.00
210	.23	.58	.85	1.30	1.90	3.10	6.50	9.00	15.00

Note: Values above 3 GHz vary considerably depending on construction.

Conditions
Ambient —68°F [20°C]

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