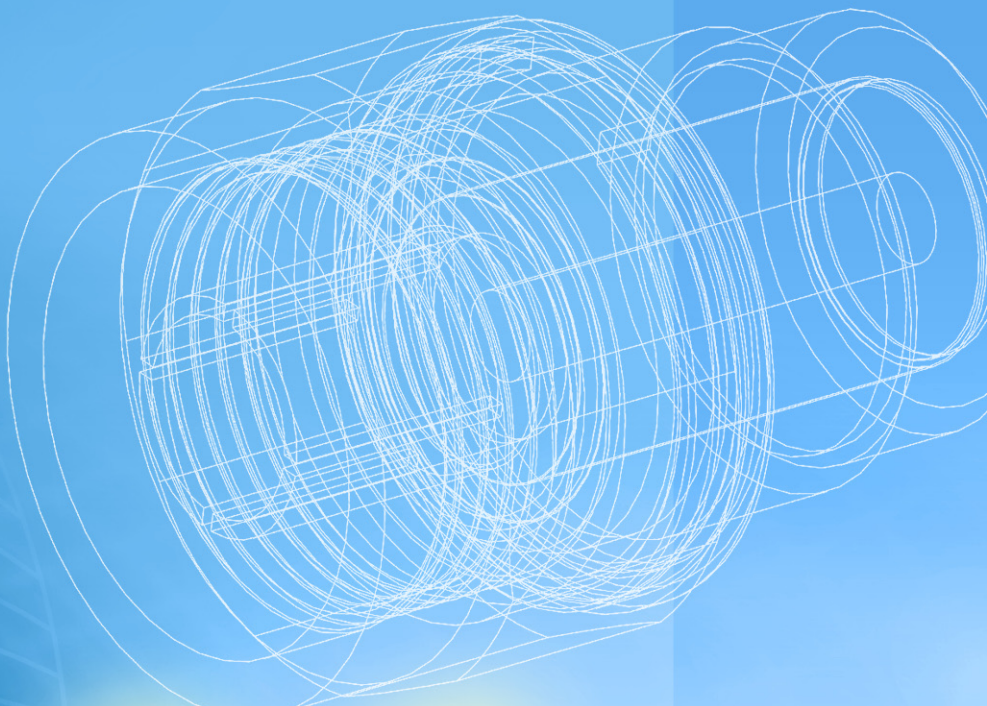
SMA



SMA Connectors

SMA Connectors

Description

SMA is an acronym for SubMiniature version A and was developed in the 1960's. It uses a threaded interface. 50 Ω SMA connectors are semi-precision, subminiature units that provide excellent electrical performance from DC to 18 GHz. These high-performance connectors are compact in size and mechanically have outstanding durability.

For phase array radar, test equipment, ILS landing systems and other instrumentation using phase matching techniques, these SMA connectors for semi-rigid coaxial cables and the SMA Plug-to-Jack adapter offer a precise and simple means of phase adjustment for microwave devices. Built in accordance with MIL-C-39012 and CECC 22110/111, SMA connectors can be mated with all connectors that meet these interface specifications, regardless of manufacturer.

SMA is available both in Standard and Reverse Polarity. Reverse polarity is a keying system accomplished with a reverse interface, and ensures that reverse polarity interface connectors do not mate with standard interface connectors. Amphenol accomplishes this by inserting female contacts into plugs and male contacts into jacks.

Features/Benefits

- Broadband performance DC to 18 GHz with low reflection stainless steel construction and ¼-36 threaded coupling.
- Brass SMA available in nickel or gold plating which provides approximately 30% cost reduction with 100 mating cycles.
- Available for .085" and .141" diameter semi-rigid cables and all the standard flexible cables including double shielded RG-316.
- Phase Adjustable SMA connectors provide ease of mechanical screw adjustments.

Applications

- Base Stations
- Cable Assemblies
- Instrumentation
- Mil/Aero
- Process Controls
- PC/LAN
- Telecom

Stainless Steel SMA Specifications

Electrical	
Impedance	50 Ω
Frequency range	DC - 18 GHz (semi-rigid cable) DC - 12.4 GHz (flexible cable)
RF-leakage	100 dB-f minimum @ 3 GHz (semi-rigid cable) 60 dB minimum @ 3 GHz (flexible cable)
Voltage rating (at sea level)	≤ 500 Vrms (semi-rigid, depending on cable) ≤ 335 Vrms (flexible, depending on cable)
Contact resistance	center contact: ≤ 2 mΩ outer contact: ≤ 2 mΩ braid to body: ≤ 0.5 mΩ
Insulation resistance	5,000 MΩ minimum
Insertion loss maximum	dB maximum = .03 √ f(GHz)
Dielectric withstanding voltage	1,500 Vrms (semi-rigid cable, at sea level) 1,000 Vrms (flexible cable, at sea level)
Mechanical	
Mating	.250-36 threaded coupling
Coupling torque	15 in-lbs (22 / 170 N-cm) max, recom. 7 / 10 in-lbs (80 / 110 N-cm)
Coupling nut retention force	100 in-lbs (300 N-cm) min.
Braid/Jacket cable affixment	Crimp and solder types
Center conductor cable affixment	Solder, unless noted otherwise
Captivated contacts	All types, unless noted otherwise
Durability (matings)	500 cycles minimum
Environmental	
Temperature range	-65°C to +165°C
Weatherproof	crimp: w/ heat shrink tubing, solder: w/ gasket
Thermal shock	MIL-STD-202, method 107, cond. B
Moisture resistance	MIL-STD-202, method 106 (except step 7b)
Corrosion	MIL-STD-202, method 101, cond. B
Vibration	MIL-STD-202, method 204, cond. D
Mechanical shock	MIL-STD-202, method 213, cond. 1
Altitude	MIL-STD-202, method 105, cond. C (n/a 70,000 ft)

Note: These characteristics are typical but may not apply to all connectors.

Stainless Steel SMA Specifications (continued)

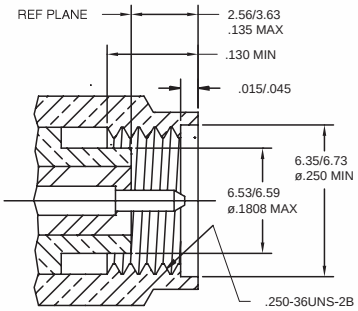
Material

Center contact	Beryllium copper, gold plated
Crimp ferrule	Copper or brass
Other metal parts	Non-magnetic stainless steel (except as noted)
Plated	Gold or nickel
Insulator	PTFE (ASTM D1457)
Gasket	Silicone rubber (MIL-R-5847 and ZZ-R-765)

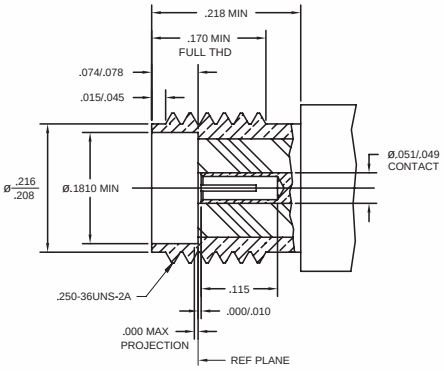
Military

MIL-C-39012	where applicable
MIL-C-83517 SMA	where applicable

Plug



Jack



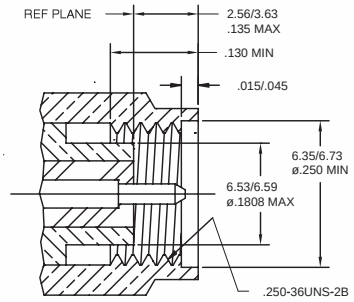
Brass SMA Specifications

Electrical	
Impedance	50 Ω
Frequency range	DC - 18 GHz (semi-rigid cable) DC - 12.4 GHz (flexible cable)
RF-leakage	100 dB-f minimum @ 3 GHz (semi-rigid cable) 60 dB minimum @ 3 GHz (flexible cable)
Voltage rating (at sea level)	≤ 500 Vrms (semi-rigid, depending on cable) ≤ 335 Vrms (flexible, depending on cable)
Contact resistance	center contact: ≤ 2 mΩ outer contact: ≤ 2 mΩ braid to body: ≤ 0.5 mΩ
Insulation resistance	5,000 MΩ minimum
Insertion loss maximum	dB maximum = .06 √ f(GHz)
Dielectric withstanding voltage	1,500 Vrms (semi-rigid cable, at sea level) 1,000 Vrms (flexible cable, at sea level)
Mechanical	
Mating	.250-36 threaded coupling
Coupling torque, min./max.	max. = 5.2 in-lbs (60 N-cm), recommended = 4 in-lbs (45 N-cm)
Coupling nut retention force	100 in-lbs (300 N-cm) min.
Braid/Jacket cable affixment	Crimp and solder types
Center conductor cable affixment	Solder, unless noted otherwise
Captivated contacts	All types, unless noted otherwise
Durability (matings)	100 cycles minimum
Environmental	
Temperature range	-65°C to +165°C
Weatherproof	crimp: w/ heat shrink tubing, solder: w/ gasket
Thermal shock	MIL-STD-202, method 107, cond. B
Moisture resistance	MIL-STD-202, method 106 (except step 7b)
Corrosion	MIL-STD-202, method 101, cond. B
Vibration	MIL-STD-202, method 204, cond. D
Mechanical shock	MIL-STD-202, method 213, cond. 1
Altitude	MIL-STD-202, method 105, cond. C (n/a 70,000 ft)
Material	
Male contact	Brass, gold plated
Female contact	Beryllium copper, gold plated
Crimp ferrule	Copper or brass
Other metal parts	Brass (except as noted), gold or nickel plated
Insulator	PTFE (ASTM D1457)
Gasket	Silicone rubber (MIL-R-5847 and ZZ-R-765)
Military	
MIL-C-39012	where applicable
MIL-C-83517 SMA	where applicable

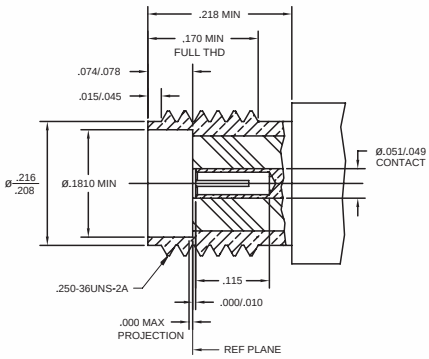
Note: These characteristics are typical but may not apply to all connectors.

Brass SMA Specifications (continued)

Plug



Jack

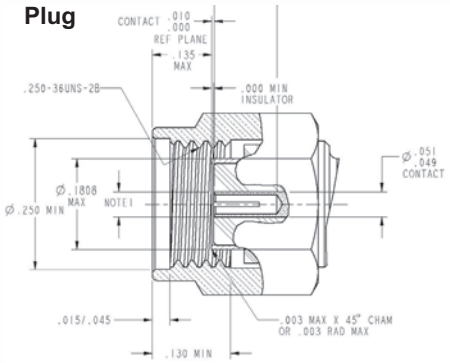


Reverse Polarity SMA Specifications

Electrical	
Impedance	50 Ω
Frequency range	DC - 18 GHz (semi-rigid cable) DC - 12.4 GHz (flexible cable)
RF-leakage	100 dB-f minimum @ 3 GHz (semi-rigid cable) 60 dB minimum @ 3 GHz (flexible cable)
Voltage rating (at sea level)	≤ 500 Vrms (semi-rigid, depending on cable) ≤ 335 Vrms (flexible, depending on cable)
Contact resistance	center contact: ≤ 2 mΩ outer contact: ≤ 2 mΩ braid to body: ≤ 0.5 mΩ
Insulation resistance	5,000 MΩ minimum
Dielectric withstanding voltage	1,500 Vrms (semi-rigid cable, at sea level) 1,000 Vrms (flexible cable, at sea level)
Mechanical	
Mating	.250-36 threaded coupling
Coupling nut retention force	100 in-lbs (300 N-cm) min.
Braid/Jacket cable affixment	Crimp and solder types
Center conductor cable affixment	Solder, unless noted otherwise
Captivated contacts	All types, unless noted otherwise
Durability (matings)	100 cycles min. (brass), 500 cycles min. (stainless steel)
Environmental	
Temperature range	-65°C to +165°C
Weatherproof	crimp: w/ heat shrink tubing, solder: w/ gasket
Thermal shock	MIL-STD-202, method 107, cond. B
Moisture resistance	MIL-STD-202, method 106 (except step 7b)
Corrosion	MIL-STD-202, method 101, cond. B
Vibration	MIL-STD-202, method 204, cond. D
Mechanical shock	MIL-STD-202, method 213, cond. 1
Altitude	MIL-STD-202, method 105, cond. C (n/a 70,000 ft)
Material	
Center contact	Beryllium copper, gold plated
Crimp ferrule	Copper or brass
Other metal parts	Non-magnetic stainless steel or brass, gold, silver or nickel plated
Insulator	PTFE (ASTM D1457)
Gasket	Silicone rubber (MIL-R-5847 and ZZ-R-765)
Military	
MIL-C-39012	where applicable
MIL-C-83517 SMA	where applicable

Note: These characteristics are typical but may not apply to all connectors.

Plug



Jack