

**THE BIG DEAL**

- Wideband frequency coverage, DC to 18 GHz
- Low Loss, 0.76 dB at 18 GHz
- Excellent Return Loss, 21 dB at 18 GHz
- Hand formable to almost any custom shape without special bending tools
- 3.2 mm bend radius for tight installations
- Connector interface, meets MIL-STD-348
- Ideal for interconnect of assembled systems



Generic photo used for illustration purposes only

| | |
|-------------------|------------------------|
| Model No. | 047-12SMPSM+ |
| Case Style | BZ2329-12 |
| Connectors | SMP-Female to SMA-Male |

+RoHS Compliant

The +Suffix identifies RoHS Compliance.
See our website for methodologies and qualifications

APPLICATIONS

- Replacement for custom bent 0.047" semi-rigid cables
- Communication receivers and transmitters
- Military and aerospace system
- Environmental and test chambers

PRODUCT OVERVIEW

The 047 Series Hand-Flex™ Coaxial Cables are ideal for interconnection of coaxial components or sub-systems in tight spaces. The outer shield is tin plated copper braid and tin soaked, which minimizes signal leakage and at the same time flexible for easy bend. The 047 Series Hand-Flex™ Cables features gold plated stainless steel (SMA side) and Gold-plated beryllium copper construction (SMP side). The 047 Series Cables are available in variety of length to meet your requirements.

KEY FEATURES

| Feature | Advantages |
|--|---|
| Hand-Formable RF Cables | The 047 Series Hand-Flex™ cables are hand formable making them ideal for use integrating coaxial components and sub-assemblies without the need for special cable-bending tools and alleviating the risk of damage during the bending process typical of semi-rigid coaxial cable assemblies. |
| Tight Bend Radius, 3.2 mm | Capable of only 3.2 mm bend radius, the 047 Hand-Flex™ series is able to make connections in tight spaces making these cables ideal for dense system integration. |
| Excellent Return Loss, <ul style="list-style-type: none"> • 27 dB at 6 GHz • 19 dB at 18 GHz | The 047 Series Hand-Flex™ Cables are ideally suited for interconnecting a wide variety of RF components while minimizing VSWR ripple contribution due to mating cables & connectors. |
| Good Power Handling Capability: <ul style="list-style-type: none"> • 22.5W at 0.5 GHz • 4.5W at 18 GHz | Mini-Circuits' 047 Cable series can support medium to high RF power levels enabling these cables to be used in the transmit path. |
| SMP-F blind mate Push-on/snap-on connectors on one side | Quick connect / disconnect saving time |



Coaxial Cable

047-12SMPSM+

50Ω 12 inch DC to 18 GHz SMP-Female to SMA-Male

ELECTRICAL SPECIFICATIONS AT +25°C

| Parameter | Frequency (GHz) | Min. | Typ. | Max. | Units |
|---------------------|-----------------|------|------|------|--------|
| Frequency Range | | DC | | 18 | GHz |
| Length ¹ | | 12 | | | inches |
| Insertion Loss | DC - 2 | — | 0.39 | 0.80 | dB |
| | 2 - 6 | — | 0.70 | 1.53 | |
| | 6 - 10 | — | 1.11 | 1.91 | |
| | 10 - 18 | — | 1.51 | 2.62 | |
| Return Loss | DC - 2 | 20 | 33 | — | dB |
| | 2 - 6 | 20 | 28 | — | |
| | 6 - 10 | 17 | 27 | — | |
| | 10 - 18 | 17 | 26 | — | |

1. Custom sizes available, consult factory.

ABSOLUTE MAXIMUM RATINGS

| Parameter | Ratings |
|------------------------------------|---|
| Operating Temperature | -45°C to 85°C |
| Storage Temperature | -45°C to 85°C |
| Power Handling at +25°C, Sea Level | 22.5W at 0.5 GHz 15.5W at 1 GHz 11W at 2 GHz 5.5W at 6 GHz 4.6W at 10 GHz 4.5W at 18 GHz |

Permanent damage may occur if any of these limits are exceeded.



HAND FLEX™

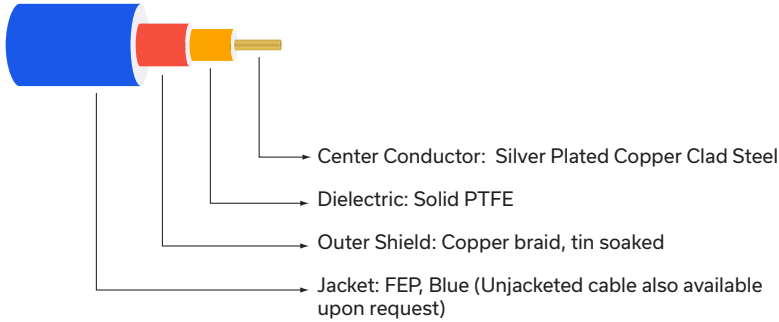
Coaxial Cable

047-12SMPSM+

Mini-Circuits

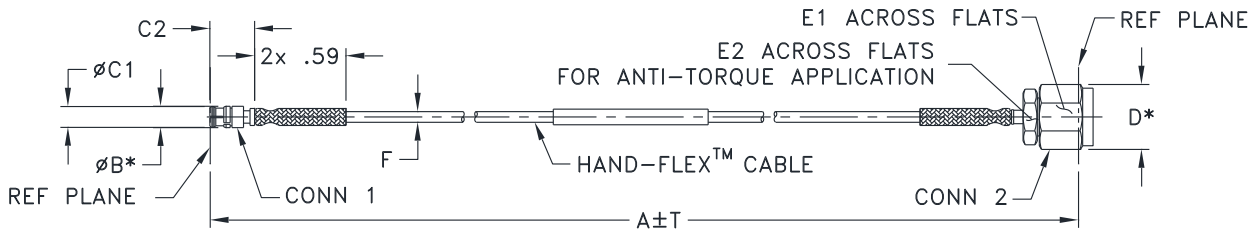
50Ω 12 inch DC to 18 GHz SMP-Female to SMA-Male

CABLE CONSTRUCTION



Connectors: Coupling Nut: Stainless Steel Passivated
 Body: Stainless Steel Gold Plated
 Center Pin: Brass Gold Plated

OUTLINE DRAWING



* OVERALL CONNECTOR DIMENSION [CONNECTOR SHAPE MAY VARY]

OUTLINE DIMENSIONS (Inch/mm)

| A | B | C1 | C2 | D | E1 |
|--------|------|------|-------|------|------|
| 12.0 | .14 | .135 | .287 | .36 | .313 |
| 304.80 | 3.56 | 3.43 | 7.29 | 9.14 | 7.95 |
| E2 | F | T | wt | | |
| .250 | .069 | 0.1 | grams | | |
| 6.35 | 1.75 | 2.54 | 6.33 | | |





HAND FLEX™

Coaxial Cable

047-12SMPSM+

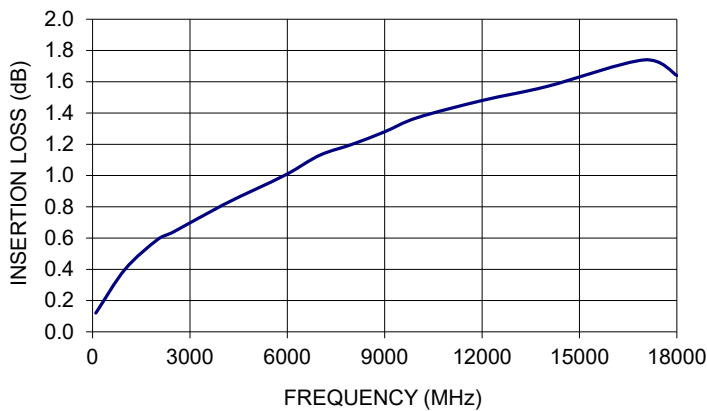
Mini-Circuits

50Ω 12 inch DC to 18 GHz SMP-Female to SMA-Male

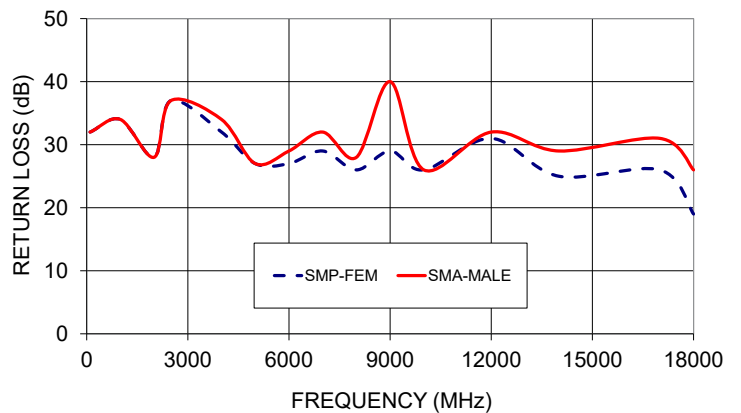
TYPICAL PERFORMANCE DATA AND CHARTS

| Frequency (MHz) | Insertion Loss (dB) | Return Loss (dB) | |
|-----------------|---------------------|------------------|----------|
| | | SMP-Female | SMA-Male |
| 100 | 0.12 | 32.0 | 32.0 |
| 1000 | 0.40 | 34.0 | 34.0 |
| 2000 | 0.59 | 28.0 | 28.0 |
| 2500 | 0.64 | 37.0 | 37.0 |
| 4000 | 0.81 | 32.0 | 34.0 |
| 5000 | 0.91 | 27.0 | 27.0 |
| 6000 | 1.01 | 27.0 | 29.0 |
| 7000 | 1.13 | 29.0 | 32.0 |
| 8000 | 1.20 | 26.0 | 28.0 |
| 9000 | 1.28 | 29.0 | 40.0 |
| 10000 | 1.37 | 26.0 | 26.0 |
| 12000 | 1.48 | 31.0 | 32.0 |
| 14000 | 1.57 | 25.0 | 29.0 |
| 17000 | 1.74 | 26.0 | 31.0 |
| 18000 | 1.64 | 19.0 | 26.0 |

047-12SMPSM+
INSERTION LOSS



047-12SMPSM+
RETURN LOSS





PROPER CABLE CONNECTION USING ANTI-TORQUE NUT

Mini-Circuits 047-series HandFlex™ interconnect cables are constructed with an anti-torque nut adjacent to the connector coupling nut. When used properly, this feature prevents possible damage to the cable due to torquing and twisting when tightening the cable connector.

TO PROPERLY TIGHTEN THE CABLE CONNECTOR:

1) The cable connector includes a coupling nut which rotates to fasten the connector, and an anti-torque nut, which is fixed to prevent the cable from twisting during connection.



2) To properly tighten the cable, use a standard 1/4-inch open end wrench to brace the anti-torque nut.



3) Using a 5/16-inch open end wrench, rotate the coupling nut clockwise to tighten the cable connector.

*NOTE: Mini-Circuits recommends using a 5/16-inch open end wrench calibrated to 8 inch-pounds maximum torque to prevent damage due to over-torquing the connector.

NOTES

- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
- B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's applicable established test performance criteria and measurement instructions.
- C. The parts covered by this specification document are subject to Mini-Circuits standard limited warranty and terms and conditions (collectively, "Standard Terms"); Purchasers of this part are entitled to the rights and benefits contained therein. For a full statement of the standard terms and the exclusive rights and remedies thereunder, please visit Mini-Circuits' website at www.minicircuits.com/terms/viewterm.html