



# Coaxial Cable

## 047-SMPSM+ Series

50Ω DC to 18 GHz

### The Big Deal

- Miniature Hand Formable
- Tight Bend Radius, 3.2 mm
- Ideal for interconnect of assembled systems in tight spaces



CASE STYLE: BZ2329-XX

XX= cable length in inches

### 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, • 28 dB at 6 GHz • 21 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: • 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

#### 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/MCLStore/terms.jsp](http://www.minicircuits.com/MCLStore/terms.jsp)





# Coaxial Cable

50Ω 6 inch DC to 18 GHz

## 047-6SMPSM+

### Maximum 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	
	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.

### Features

- Wideband frequency coverage, DC to 18 GHz
- Low Loss, 0.76dB 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**

### Applications

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



Generic photo used for illustration purposes only

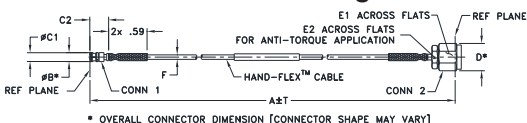
CASE STYLE: BZ2329-6

Connectors	Model
SMP-Female - SMA-Male	047-6SMPSM+

### +RoHS Compliant

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

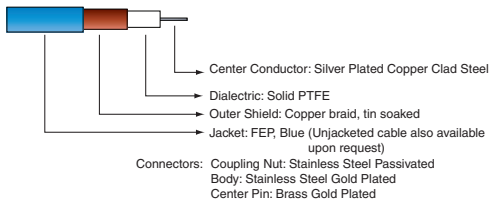
### Outline Drawing



### Outline Dimensions (inch/mm)

A	B	C1	C2	D	E1
6.0	.14	.135	.287	.36	.313
152.40	3.56	3.43	7.29	9.14	7.95
E2	F	T	wt		
.250	.069	0.05	grams		
6.35	1.75	1.27	4.88		

### Cable Construction



### Electrical Specifications at 25°C

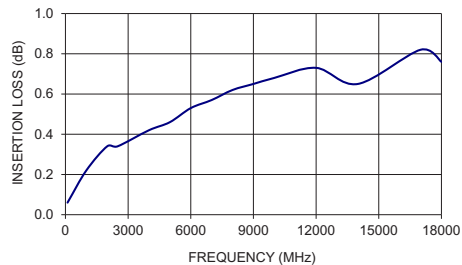
Parameter	Condition (GHz)	Min.	Typ.	Max.	Unit
Frequency Range		DC		18	GHz
Length <sup>1</sup>			6		Inches
Insertion Loss	DC - 2	—	0.21	0.52	
	2 - 6	—	0.38	0.97	
	6 - 10	—	0.57	1.22	
Return Loss	10 - 18	—	0.75	1.66	dB
	DC - 2	20	30	—	
	2 - 6	20	27	—	
Return Loss	6 - 10	17	29	—	dB
	10 - 18	17	26	—	

1. Custom sizes available, consult factory.

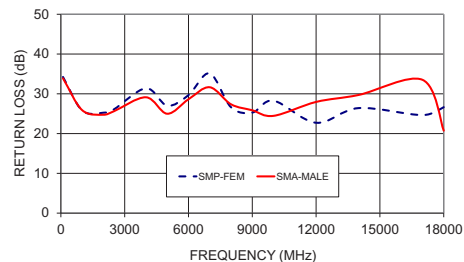
### Typical Performance Data

Frequency (MHz)	Insertion Loss (dB)	Return Loss (dB)	
		SMP-FEMALE	SMA-MALE
100	0.06	34.2	33.9
1000	0.22	25.8	25.9
2000	0.34	25.3	24.7
2500	0.34	26.1	25.6
4000	0.42	31.4	29.1
5000	0.46	27.0	25.0
6000	0.53	29.7	28.6
7000	0.57	35.1	31.7
8000	0.62	26.6	27.4
9000	0.65	25.3	25.9
10000	0.68	28.3	24.5
12000	0.73	22.7	28.0
14000	0.65	26.4	29.7
17000	0.82	24.7	33.5
18000	0.76	26.6	20.7

047-3SMPSM+ INSERTION LOSS



047-3SMPSM+ RETURN LOSS



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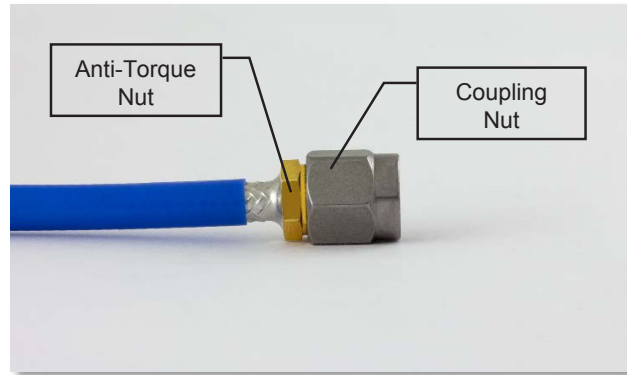


## Proper Cable Connection Using Anti-Torque Nut

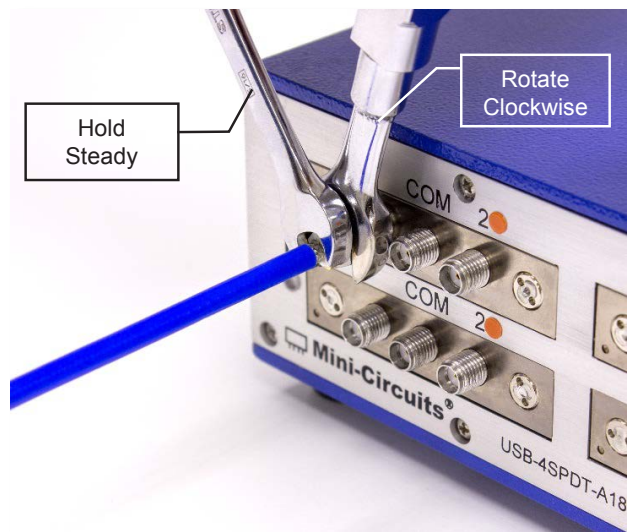
Mini-Circuits 047-series HandFlex™ interconnect cables are constructed with an anti-torque nut adjacent to the connector coupling nut. When used properly, this feature prevents possible damage to the cable due to torquing and twisting when tightening the cable connector.

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.

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