

**THE BIG DEAL**

- Wideband frequency coverage, DC to 18 GHz
- Low Loss, 1.65 dB at 18 GHz
- Excellent Return Loss, 20 dB at 18 GHz
- Hand formable to almost any custom shape without special bending tools
- 3.2mm bend radius for tight installations
- Connector interface, meets MIL-STD-348
- Ideal for interconnect of assembled systems



Generic photo used for illustration purposes only

<b>Model No.</b>	047-12SMP+
<b>Case Style</b>	BZ2551-12
<b>Connectors</b>	SMP-Female

**+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 beryllium copper construction. The 047 Series Hand-Flex™ 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, 3.2mm	Capable of only 3.2mm 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"> <li>• 28 dB at 6 GHz</li> <li>• 20 dB at 18 GHz</li> </ul>	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"> <li>• 22.5 W at 0.5 GHz</li> <li>• 4.50 W at 18 GHz</li> </ul>	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 connector on one side	Quick connect/disconnect saving time.



# Coaxial Cable

047-12SMP+

50Ω 12 inch DC to 18 GHz SMP-Female

## ELECTRICAL SPECIFICATIONS AT +25°C

Parameter	Frequency (GHz)	Min.	Typ.	Max.	Units
Frequency Range		DC	-	18	GHz
Length <sup>1</sup>		12			inches
Insertion Loss	DC - 2	—	0.42	0.8	dB
	2 - 6	—	0.74	1.53	
	6 - 10	—	1.14	1.91	
	10 - 18	—	1.51	2.62	
Return Loss	DC - 2	20	30	—	dB
	2 - 6	20	28	—	
	6 - 10	17	27	—	
	10 - 18	17	27	—	

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	22.5 W 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™

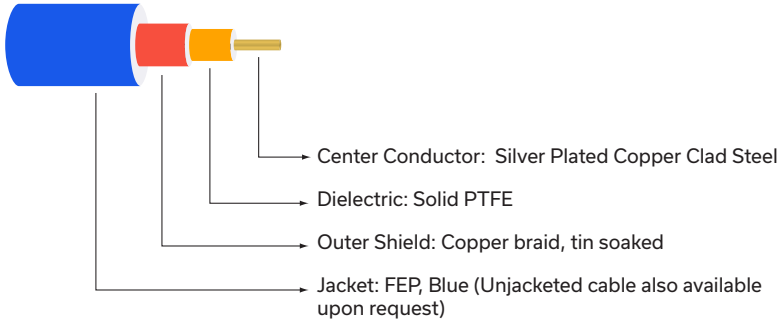
# Coaxial Cable

047-12SMP+

Mini-Circuits

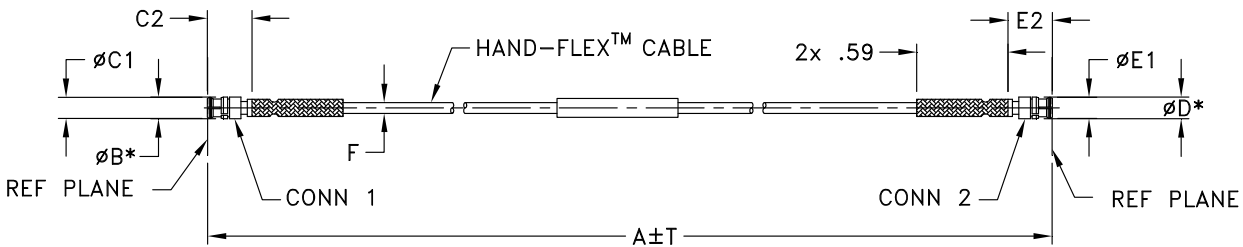
50Ω 12 inch DC to 18 GHz SMP-Female

## 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

A	B	C1	C2	D	E1	E2	F	T	wt grams
12.0	.14	.135	.287	.14	.135	.289	.069	0.1	3.98
304.80	3.56	3.43	7.29	3.56	3.43	7.34	1.75	2.54	





HAND FLEX™

# Coaxial Cable

## 047-12SMP+

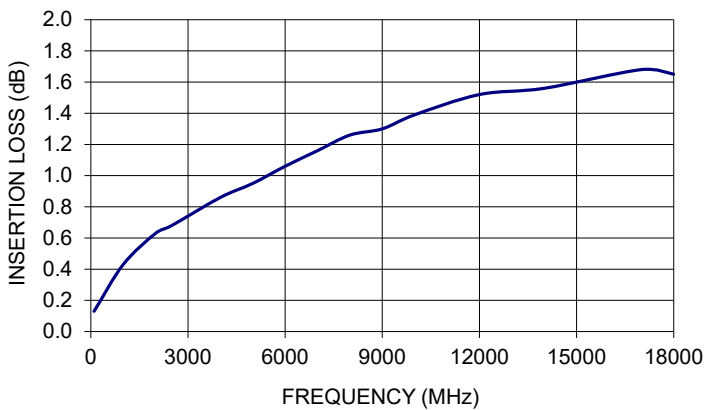
Mini-Circuits

50Ω 12 inch DC to 18 GHz SMP-Female

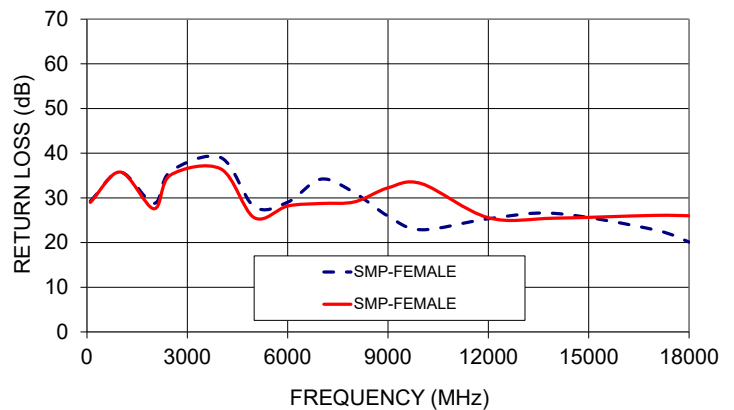
### TYPICAL PERFORMANCE DATA AND CHARTS

Frequency (MHz)	Insertion Loss (dB)	Return Loss (dB)	
		SMP-Female	SMP-Female
100	0.13	29.3	29.0
1000	0.43	35.8	35.8
2000	0.63	28.8	27.6
2500	0.68	35.9	35.1
4000	0.86	39.0	36.5
5000	0.95	28.0	25.6
6000	1.06	29.0	28.2
7000	1.16	34.2	28.8
8000	1.26	31.1	29.1
9000	1.30	25.9	32.3
10000	1.39	22.9	33.2
12000	1.52	25.3	25.6
14000	1.56	26.5	25.5
17000	1.68	22.8	26.1
18000	1.65	20.1	26.0

047-12SMP+  
INSERTION LOSS



047-12SMP+  
RETURN LOSS



#### NOTES

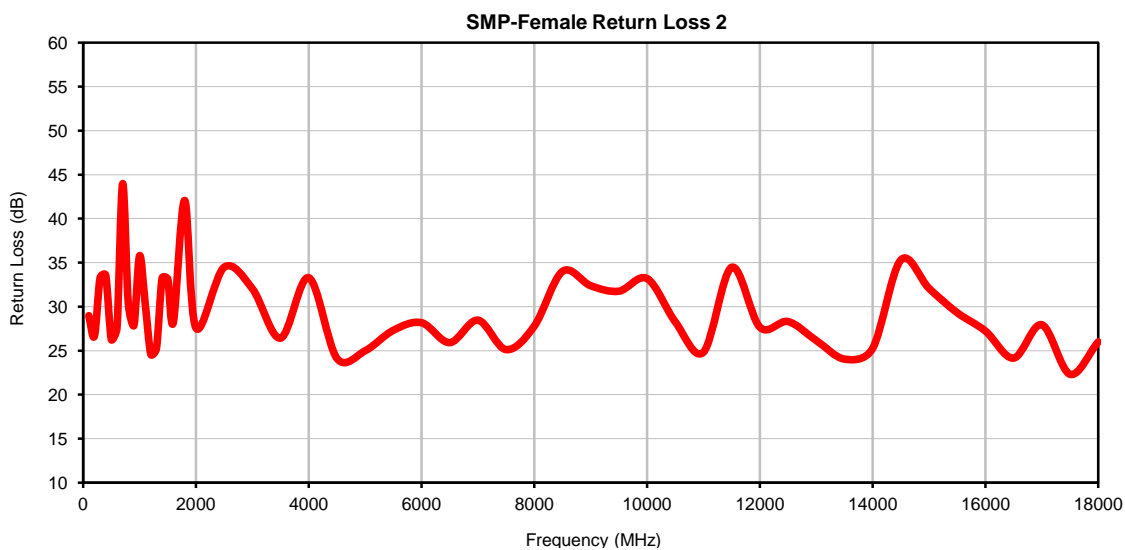
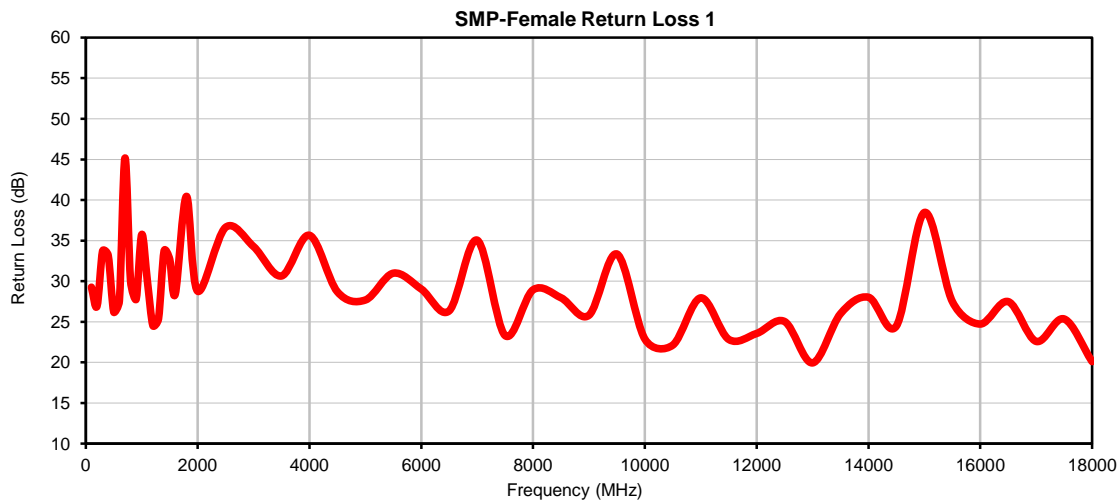
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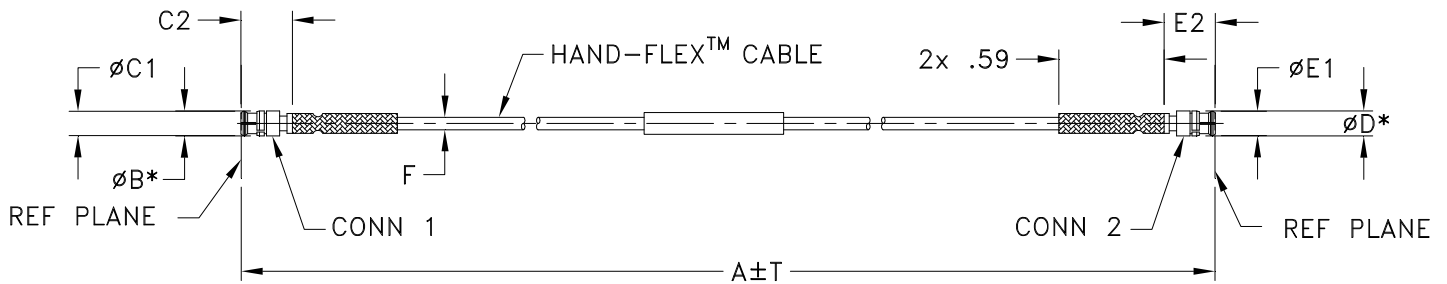
## Typical Performance Data

FREQUENCY (MHz)	INSERTION LOSS (dB)	SMP-FEMALE 1 RETURN LOSS (dB)	SMP-FEMALE 2 RETURN LOSS (dB)
100	0.13	29.3	29.0
200	0.19	26.9	26.7
300	0.23	33.7	33.3
400	0.26	33.2	33.6
500	0.30	26.2	26.3
600	0.33	27.6	27.6
700	0.35	45.2	44.0
800	0.37	30.0	30.3
900	0.41	27.8	27.9
1000	0.43	35.7	35.8
1100	0.44	30.1	30.3
1200	0.47	24.5	24.6
1300	0.50	25.4	25.3
1400	0.50	33.7	33.2
1500	0.52	32.7	33.1
1600	0.55	28.4	28.2
1800	0.57	40.4	42.1
2000	0.63	28.8	27.6
2500	0.67	36.6	34.5
3000	0.74	34.3	32.0
3500	0.77	30.6	26.4
4000	0.85	35.7	33.3
4500	0.89	28.7	24.1
5000	0.96	27.7	25.0
5500	1.03	31.0	27.3
6000	1.06	29.0	28.2
6500	1.13	26.4	25.9
7000	1.16	35.1	28.5
7500	1.20	23.3	25.1
8000	1.25	28.9	27.8
8500	1.29	28.0	34.0
9000	1.30	25.8	32.4
9500	1.34	33.3	31.8
10000	1.39	22.9	33.2
10500	1.36	22.1	28.3
11000	1.44	27.9	24.8
11500	1.54	22.8	34.5
12000	1.49	23.6	27.7
12500	1.63	25.0	28.3
13000	1.50	19.9	26.2
13500	1.70	26.0	24.0
14000	1.67	28.0	25.3
14500	1.68	24.5	35.3
15000	1.78	38.5	32.1
15500	1.86	27.5	29.3
16000	1.70	24.7	27.2
16500	1.80	27.5	24.2
17000	1.81	22.6	27.9
17500	1.84	25.3	22.3
18000	1.65	20.1	26.0

### Typical Performance Curves



### Outline Dimensions



\* OVERALL CONNECTOR DIMENSION [CONNECTOR SHAPE MAY VARY]

**BZ2551 SERIES**  
**SMP FEMALE (CONN-1)**  
**SMP FEMALE (CONN-2)**

CASE STYLE #	A		B	C1	C2	D	E1	E2	F		G	H	T		WEIGHT GRAMS
	INCH	MM							047U-ASMP+	047-ASMP+			INCH	MM	
BZ2551-3	3.00	76.20	.14 (3.50)	.135 (3.43)	.287 (7.35)	.14 (3.50)	.135 (3.43)	.289 (7.35)	.048 MAX (1.22 MAX)	.069 MAX (1.75 MAX)	--	--	.05	1.27	1.37
BZ2551-4	4.00	101.60									--	--	.05	1.27	1.66
BZ2551-5	5.00	127.00									--	--	.05	1.27	1.95
BZ2551-6	6.00	152.40									--	--	.05	1.27	2.24
BZ2551-7	7.00	177.80									--	--	.10	2.54	2.53
BZ2551-8	8.00	203.20									--	--	.10	2.54	2.82
BZ2551-10	10.00	254.00									--	--	.10	2.54	3.40
BZ2551-12	12.00	304.80									--	--	.10	2.54	3.98

Unless otherwise specified dimensions are in inches (mm).

Tolerances: 2Pl. ± .03; 3Pl. ± .015

**Note:**

1. 047 Hand-Flex™ Coaxial Cable.
2. "A" represents length of cable.



INTERNET <http://www.minicircuits.com>

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Mini-Circuits ISO 9001 & ISO 14001 Certified



All Mini-Circuits products are manufactured under exacting quality assurance and control standards, and are capable of meeting published specifications after being subjected to any or all of the following physical and environmental test.

Specification	Test/Inspection Condition	Reference/Spec
Operating Temperature	-45° to 85°C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-45° to 85°C Ambient Environment	Individual Model Data Sheet
Thermal Shock	-45° to 125°C, 3 Cycles	MIL-STD-202F; Method 107G
Single Bend Radius	3.2 mm for 047 series cables	