



# Coaxial Cable

## 086-SBSMR+ Model Series

50Ω DC to 18 GHz

### The Big Deal

- Hand-formable with 6mm bend radius
- SMA-M right-angle to SMA-F bulkhead connectors
- Excellent return and insertion loss
- Ideal for assembled systems



CASE STYLE: KP1680

### Product Overview

086-SBSMR+ Series Hand-Flex coaxial cables are ideal for interconnecting coaxial components and sub-assemblies in a wide range of systems, including communications, military and aerospace, environmental and test chamber systems and more. The hand-formable cable provides a minimum bend radius of 6mm to accommodate tight layouts without the need for bending tools, adapters or brackets. SMA right angle to SMA bulkhead connectors make these cables ideal for perpendicular connections run directly to the front panel of rack-mounted equipment. The connectors feature an anti-torque nut to prevent cable stress during installation and an insulated outer jacket to minimize signal leakage. They are available in a range of lengths to meet a variety of connection requirements.

Feature	Advantages
Hand-formable RF cables	Facilitates the assembly of coaxial systems and sub-systems without the need for special cable-bending tools or adapters. Reduces the risk of damage during bending.
Tight bend-radius	6mm bend-radius makes the cable ideal for connections in tight spaces and crowded layouts.
18 GHz right-angle SMA connector	Meets requirements of 90°connections without bending and without sacrificing high-frequency performance.
18 GHz SMA bulkhead connector	Ideal for making secure connections directly through equipment chassis panels.
Excellent return loss	Suitable for interconnecting a variety of RF components while minimizing VSWR ripple contribution.
Good power handling <ul style="list-style-type: none"> <li>• 211 W at 0.5 GHz</li> <li>• 35 at 18 GHz</li> </ul>	Supports medium to high RF power levels used in transmit paths.
Anti-torque nut	Reduces risk of twist damage to cable during installation.

#### 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

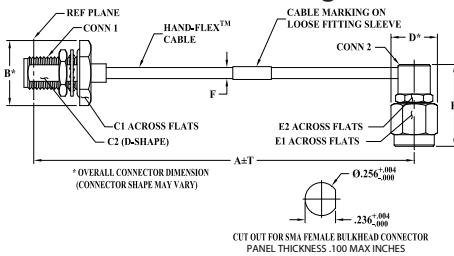
50Ω 8 inch DC to 18 GHz

## Maximum Ratings

Operating Temperature	-55°C to 105°C		
Storage Temperature	-55°C to 105°C		
Power Handling at 25°C, Sea Level	211W at	0.5 GHz	
	150W at	1 GHz	
	101W at	2 GHz	
	59W at	6 GHz	
	45W at	10 GHz	
	35W at	18 GHz	

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

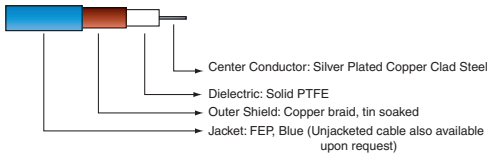
## Outline Drawing



## Outline Dimensions (inch/mm)

A	B	C1	C2	D	E1
8.0	.51	.438	.232	.36	.313
203.20	12.95	11.13	5.89	9.14	7.95
E2	F	H	T	wt	
.250	.108	0.634	0.10	grams	
6.35	2.75	16.10	2.54	10.46	

## Cable Construction



Connectors: Coupling Nut: Stainless Steel Passivated  
Body: Stainless Steel Gold Plated  
Center Pin: Brass, Gold Plated (SMA-M) and BeCuB Gold Plated (SMA-F)

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## Features

- Wideband frequency coverage, DC to 18 GHz
- Low Loss, .78 dB at 18 GHz
- Excellent Return Loss, 19 dB at 18 GHz
- SMA-F bulkhead connector at one end
- Hand formable to almost any custom shape without special bending tools
- 6mm bend radius for tight installations
- Anti-torque nut prevents cable stress during installation
- Insulated outer jacket standard
- Connector interface, meets MIL-STD-348
- Ideal for interconnect of assembled systems**

## Applications

- Bulkhead connector mounts on front panel of equipment racks
- Replacement for custom bent 0.086" semi-rigid cables
- Communication receivers and transmitters
- Military and aerospace system
- Environmental and test chambers

## Electrical Specifications at 25°C

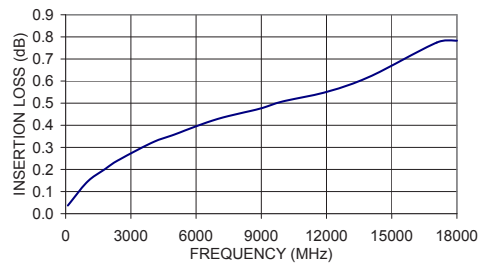
Parameter	Condition (GHz)	Min.	Typ.	Max.	Unit
<b>Frequency Range</b>		DC		18	GHz
<b>Length<sup>1</sup></b>			8		inches
<b>Insertion Loss</b>	DC - 2	—	0.23	0.44	
	2 - 6	—	0.41	0.77	dB
	6 - 10	—	0.54	1.02	
	10 - 18	—	0.86	1.41	
<b>Return Loss</b>	DC - 2	23	28	—	
	2 - 6	23	25	—	dB
	6 - 10	17	21	—	
	10 - 18	16	19	—	

1. Custom sizes available, consult factory.

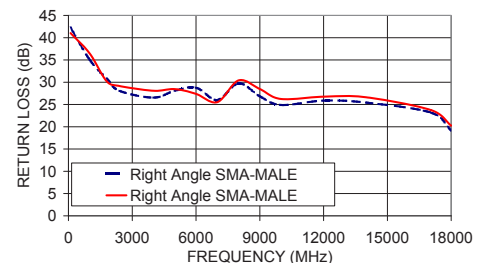
## Typical Performance Data

Frequency (MHz)	Insertion Loss (dB)	Return Loss (dB)	
		Right Angle SMA-MALE	SMA-FEMALE BULKHEAD
100	0.04	42.3	41.0
1000	0.14	35.0	36.5
1800	0.20	30.8	30.2
2404	0.24	28.1	29.2
4001	0.32	26.6	28.1
5000	0.36	28.1	28.5
6000	0.40	28.8	27.4
7001	0.43	26.0	25.5
8001	0.45	29.8	30.4
9000	0.48	26.8	28.5
10000	0.51	24.9	26.2
12001	0.55	25.9	26.8
14001	0.62	25.4	26.6
17069	0.77	23.2	23.7
18000	0.78	19.2	20.2

086-8SBSMR+ INSERTION LOSS



086-8SBSMR+ RETURN LOSS



# 086-8SBSMR+



CASE STYLE: KP1680-8

Connectors	Model
Conn1	Conn2
Right Angle SMA-M	SMA-F Bulkhead
	086-8SBSMR+

## +RoHS Compliant

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



# Hand-Flex Coaxial Cable, Right Angle SMA-M/SMA-F Bulkhead 086-8SBSMR+

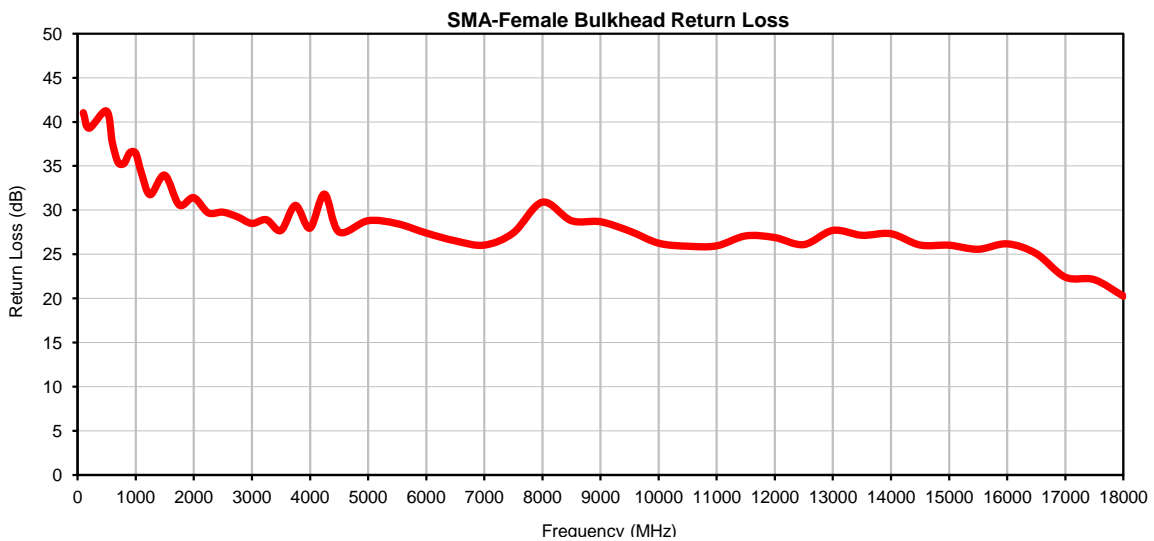
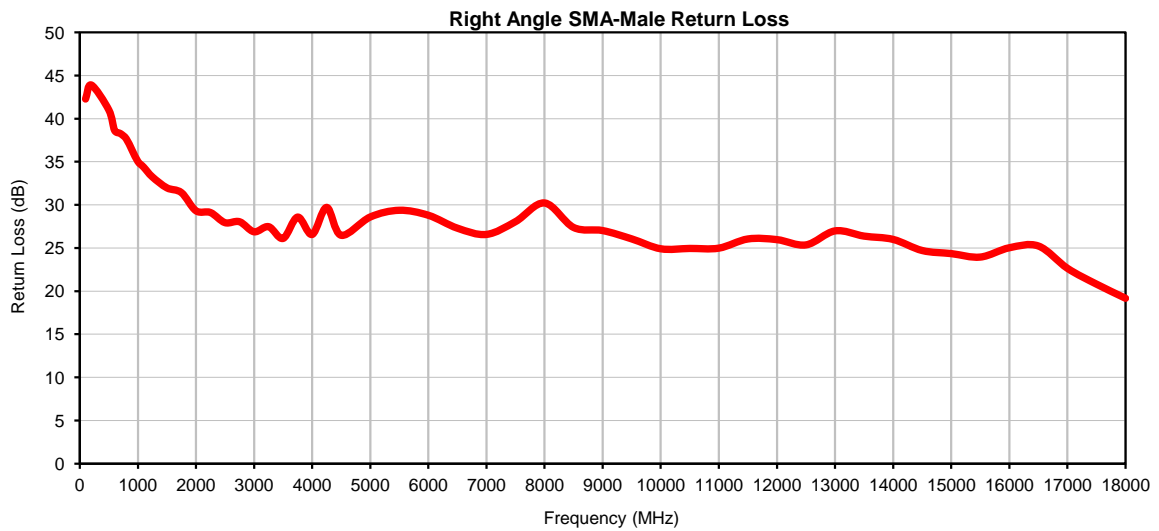
## Typical Performance Data

FREQUENCY (MHz)	INSERTION LOSS (dB)	RIGHT ANGLE SMA-MALE RETURN LOSS (dB)	SMA-FEMALE BULKHEAD RETURN LOSS (dB)
100.0	0.04	42.3	41.0
200.0	0.06	43.9	39.3
500.0	0.10	41.0	41.2
600.0	0.11	38.6	37.6
700.0	0.12	38.3	35.4
800.0	0.13	37.7	35.3
900.0	0.14	36.3	36.5
1000.0	0.14	35.0	36.5
1100.0	0.15	34.4	34.2
1250.0	0.17	33.2	31.7
1500.0	0.18	32.0	34.0
1750.0	0.20	31.4	30.6
2000.0	0.22	29.3	31.4
2250.0	0.23	29.1	29.7
2500.0	0.25	27.9	29.8
2750.0	0.26	28.0	29.2
3000.0	0.28	26.9	28.5
3250.0	0.28	27.5	28.9
3500.0	0.30	26.1	27.7
3750.0	0.30	28.6	30.5
4000.0	0.32	26.6	27.9
4250.0	0.32	29.7	31.8
4500.0	0.34	26.5	27.5
5000.0	0.36	28.6	28.8
5500.0	0.37	29.4	28.5
6000.0	0.40	28.8	27.4
6500.0	0.41	27.3	26.5
7000.0	0.43	26.6	26.0
7500.0	0.44	28.0	27.4
8000.0	0.45	30.2	30.9
8500.0	0.47	27.4	28.8
9000.0	0.47	27.0	28.7
9500.0	0.49	26.0	27.6
10000.0	0.51	24.9	26.2
10500.0	0.52	24.9	25.9
11000.0	0.54	25.0	25.9
11500.0	0.55	26.0	27.1
12000.0	0.55	26.0	26.9
12500.0	0.57	25.3	26.1
13000.0	0.59	27.0	27.7
13500.0	0.61	26.4	27.1
14000.0	0.63	26.0	27.3
14500.0	0.65	24.7	26.0
15000.0	0.68	24.3	26.0
15500.0	0.71	23.9	25.6
16000.0	0.70	25.0	26.2
16500.0	0.72	25.2	25.1
17000.0	0.75	22.6	22.4
17500.0	0.76	20.8	22.1
18000.0	0.78	19.2	20.2

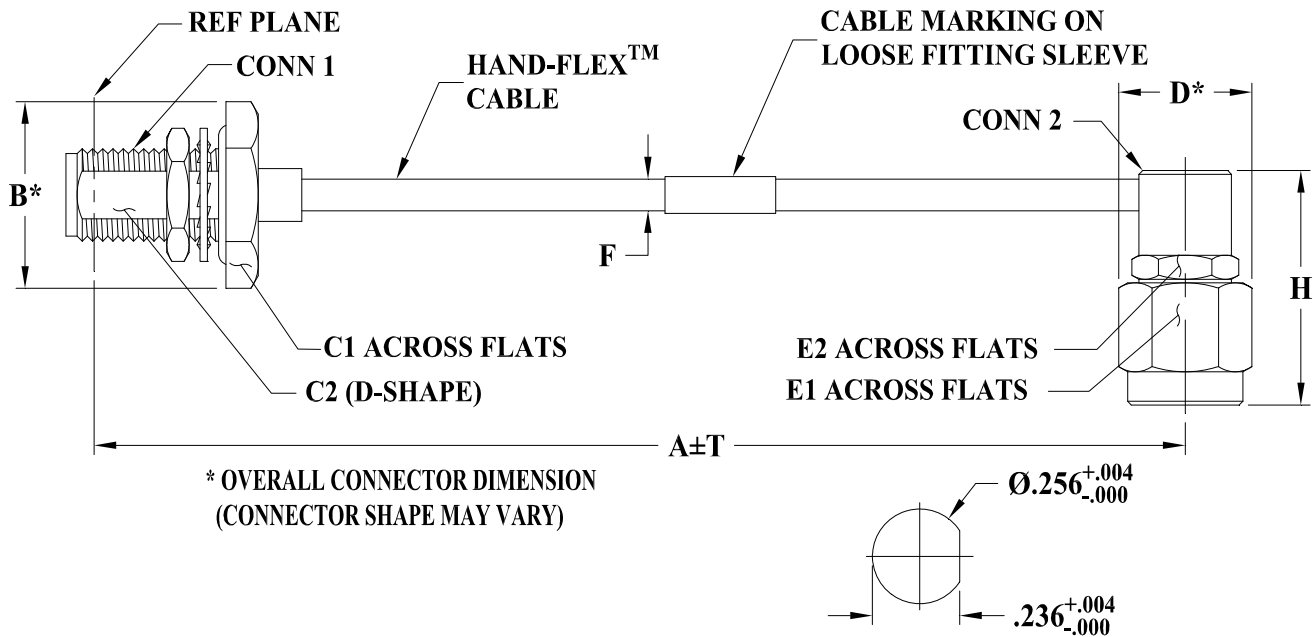


# Hand-Flex Coaxial Cable, Right Angle SMA-M/SMA-F Bulkhead 086-8SBSMR+

## Typical Performance Data



### Outline Dimensions



KP1680 SERIES  
BULKHEAD SMA FEMALE (CONN-1)  
RIGHT ANGLE SMA MALE (CONN-2)

CASE STYLE #	A		B	C1	C2	D	E1	E2	F		G	H	T		WEIGHT GRAMS
	INCH	MM							086U-ASMRSM+	086-ASMRSM+			INCH	MM	
KP1680-2	2.00	50.80	.51 (12.95)	.438 (11.13)	.232 (5.89)	.36 (9.14)	.313 (7.95)	.250 (6.35)	.089 $\nabla$ .002 (2.26 $\nabla$ .05)	.108 NOM (2.74 NOM)	-	.634 (16.10)	.05	1.27	7.71
KP1680-3	3.00	76.20											.05	1.27	8.17
KP1680-4	4.00	101.60											.05	1.27	8.63
KP1680-5	5.00	127.00											.05	1.27	9.09
KP1680-6	6.00	152.40											.05	1.27	9.54
KP1680-8	8.00	203.20											.10	2.54	10.46
KP1680-18	18.00	457.20	.15	3.81	15.03										

Unless otherwise specified dimensions are in inches (mm).

Tolerances: 2Pl.  $\pm .03$ ; 3Pl.  $\pm .015$

#### Note:

- 086 Hand-Flex™ Coaxial Cable.
- "A" represents length of cable.



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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	-55° to 105° C or -55° to 85° C (see datasheet) Ambient Environment	Individual Model Data sheet
Storage Temperature	-55° to 105° C or -55° to 85° C (see data sheet) Ambient Environment	Individual Model Data Sheet
Thermal Shock	-55° to 100°C, 100 Cycles	MIL-STD-202F; Method 107G
Multiple Bend Radius	40 mm, 5 times for 141 series cables 30 mm, 5 times for 086 series cables	
Single Bend Radius	8 mm for 141 series cables 6 mm for 086 series cables	