



FLEXIBLE

# Coaxial Cable

## FL086-12SM+

Mini-Circuits

50Ω 12 inch DC to 18 GHz SMA-Male

### THE BIG DEAL

- Wideband frequency coverage, DC to 18 GHz
- Low Loss, 1.0 dB typ. at 18 GHz
- Excellent Return Loss, 26 dB typ. at 18 GHz
- 6mm bend radius for tight installations
- Insulated outer jacket standard
- Connector interface, meets MIL-STD-348
- Ideal for interconnect of assembled systems



Generic photo used for illustration purposes only

<b>Model No.</b>	FL086-9SM+
<b>Case Style</b>	SE2634-9
<b>Connectors</b>	SMA-Male

### +RoHS Compliant

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

### APPLICATIONS

- Replacement for custom bent 0.086" semi-rigid cables
- Communication Receivers and Transmitters
- Military and Aerospace Systems
- Environmental and Test Chambers
- Test Accessory

### PRODUCT OVERVIEW

The FL086 Series Flexible Coaxial Cables are ideal for interconnection of coaxial components or sub-systems. The construction includes a silver-plated copper-clad steel center conductor. The outer shield is copper braid, tin soaked, which minimizes signal leakage and at the same time flexible for easy bend. Dielectric is low loss PTFE. Connectors have brass coupling nut over nickel plated body with a gold plated brass center conductor. The FL086 Series Flexible cables are available in variety of length to meet your requirements.

### KEY FEATURES

Feature	Advantages
Flexible RF Cables	The FL086 Series Flexible cables are 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: 6mm	Capable of only 6mm bend radius, the FL086 Flexible 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>• 27 dB typ. at 6 GHz</li> <li>• 26 dB typ. at 18 GHz</li> </ul>	The FL086 Series Flexible 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>• 57W at 0.5 GHz</li> <li>• 33W at 18 GHz</li> </ul>	Mini-Circuits FL086 Cable series can support medium to high RF power levels enabling these cables to be used in the transmit path. NOTE: power rating is at sea-level altitudes.

REV. A  
ECO-019729  
FL086-12SM+  
MCL NY  
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### 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	—	0.2	0.5	dB
	2 - 6	—	0.4	0.9	
	6 - 10	—	0.6	1.2	
	10 - 18	—	0.9	1.6	
Return Loss	DC - 2	23	39	—	dB
	2 - 6	23	33	—	
	6 - 10	18	33	—	
	10 - 18	18	29	—	

1. Custom sizes available, consult factory.

### ABSOLUTE MAXIMUM RATINGS

Parameter	Ratings
Operating Temperature	-55°C to +105°C
Storage Temperature	-55°C to +105°C
Power Handling at 25°C, Sea Level	198W at 0.5 GHz 140W at 1 GHz 99W at 2 GHz 57W at 6 GHz 45W at 10 GHz 33W at 18 GHz

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





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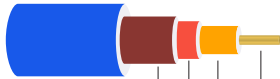
# Coaxial Cable

## FL086-12SM+

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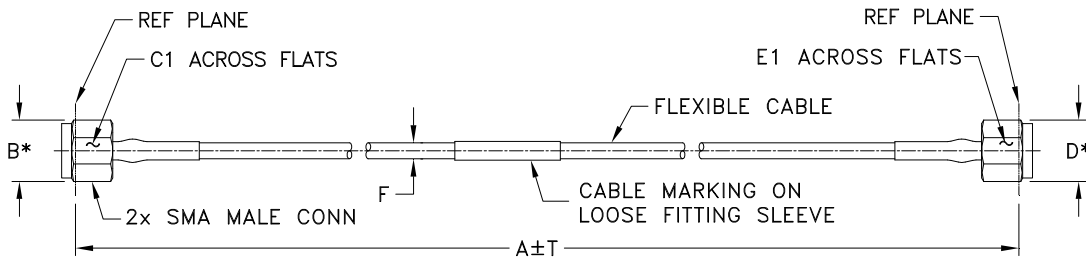
### CABLE CONSTRUCTION



- Center Conductor: Silver Plated Copper Clad Steel
- Dielectric: Fine Powder PTFE
- Inner Shield: Silver Plated Copper Tape
- Outer Shield: Silver Plated Copper Braid
- Jacket: FEP, Blue  
(Unjacketed cable also available upon request)

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	E2	T	wt
12.0	.36	.315	--	.36	.315	--	0.1	grams
304.80	9.14	8.00	--	9.14	8.00	--	2.54	11.02





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# Coaxial Cable

## FL086-12SM+

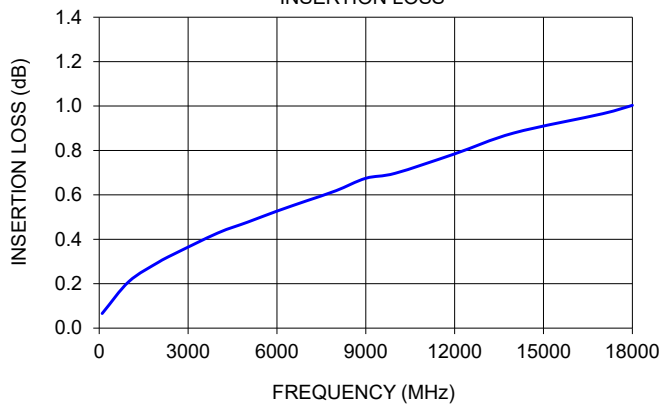
Mini-Circuits

50Ω 12 inch DC to 18 GHz SMA-Male

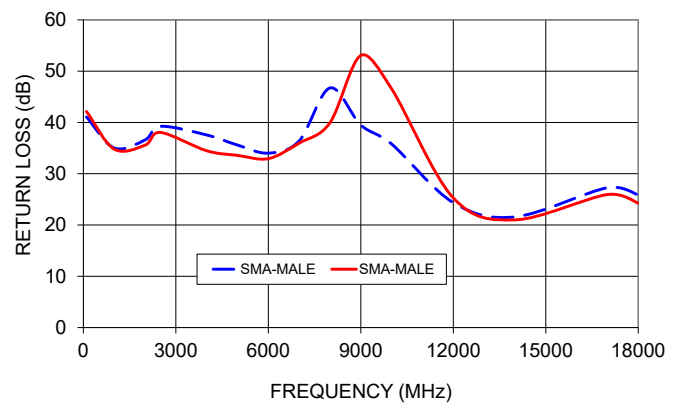
### TYPICAL PERFORMANCE DATA AND CHARTS

Frequency (MHz)	Insertion Loss (dB)	Return Loss (dB)	
		SMA-Male	SMA-Male
100	0.07	41.1	42.1
1000	0.21	35.0	34.8
2000	0.30	36.6	35.6
2500	0.33	39.2	38.0
4000	0.43	37.6	34.5
5000	0.48	35.6	33.6
6000	0.53	34.0	32.9
7000	0.57	36.4	36.0
8000	0.62	46.7	40.0
9000	0.67	39.5	53.1
10000	0.70	35.8	46.5
12000	0.78	24.4	25.3
14000	0.88	21.6	21.0
17000	0.97	27.3	25.9
18000	1.00	25.9	24.3

FL086-12SM+  
INSERTION LOSS



FL086-12SM+  
RETURN LOSS



#### NOTES

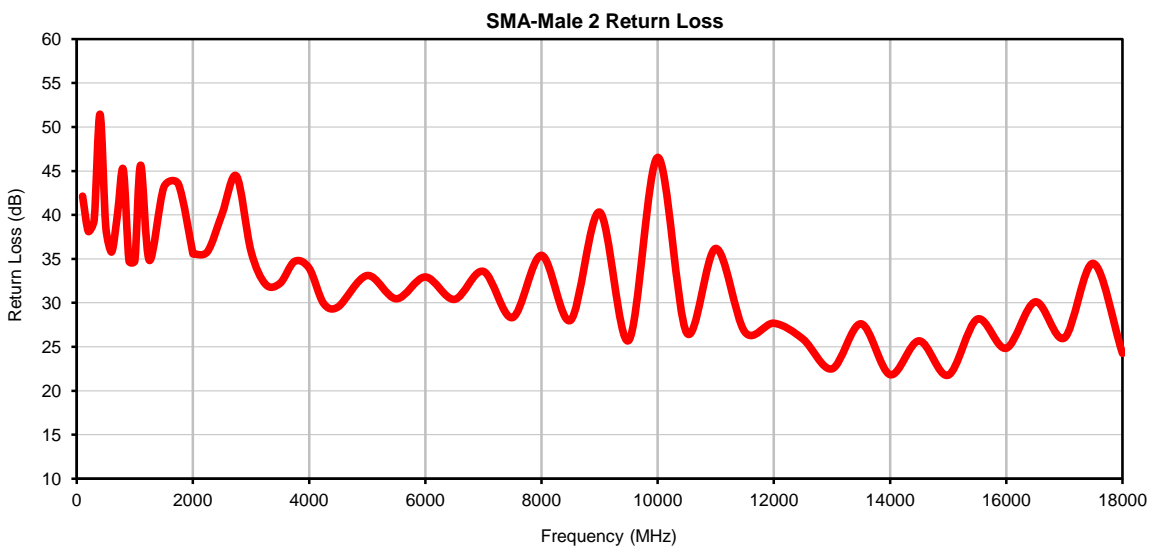
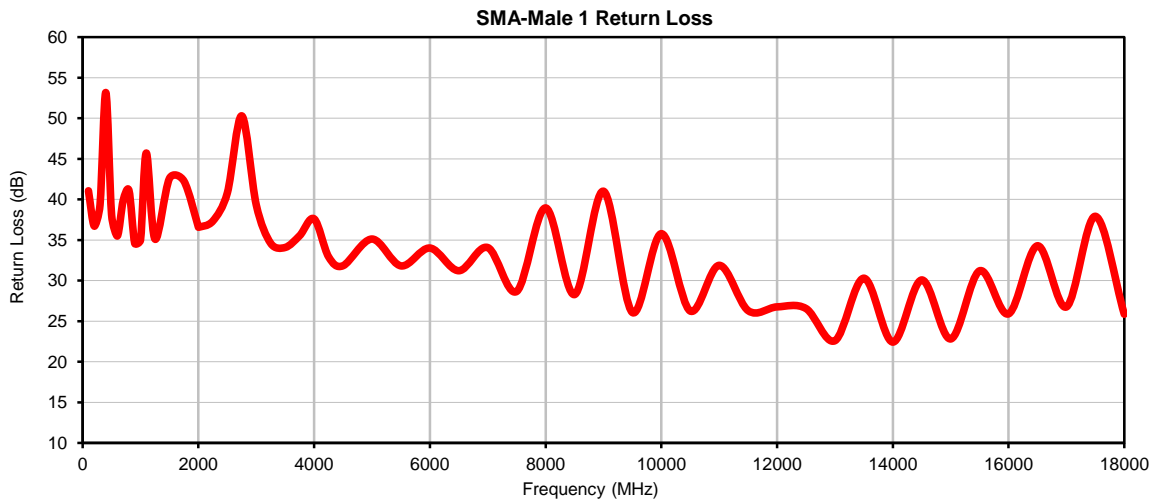
- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
- B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's 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](http://www.minicircuits.com/terms/viewterm.html)



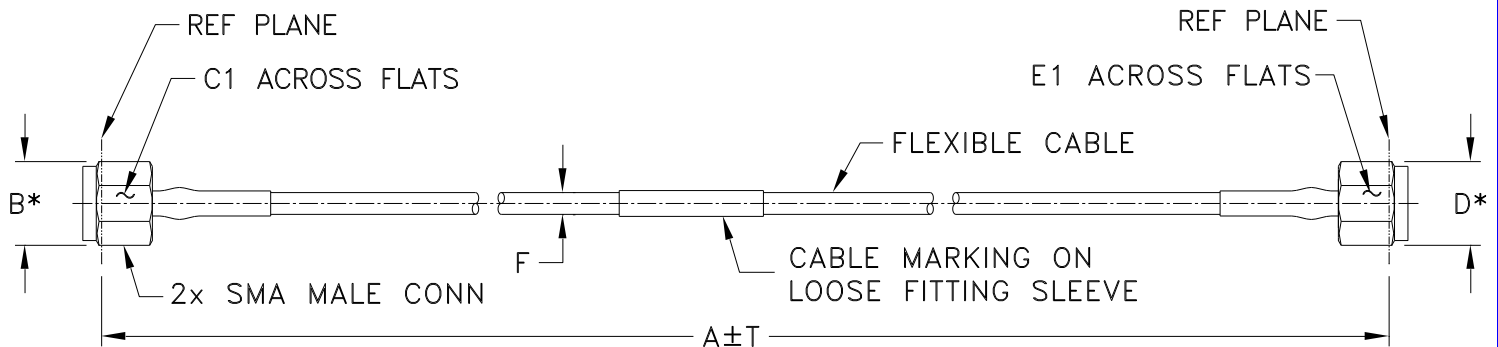
*Typical Performance Data*

FREQUENCY (MHz)	INSERTION LOSS (dB)	SMA-MALE 1 RETURN LOSS (dB)	SMA-MALE 2 RETURN LOSS (dB)
100	0.07	41.1	42.1
200	0.10	36.7	38.1
300	0.11	39.3	39.5
400	0.13	53.2	51.5
500	0.14	38.1	38.6
600	0.16	35.5	35.8
700	0.18	39.9	40.0
800	0.19	41.1	45.2
900	0.20	34.6	34.8
1000	0.21	35.0	34.8
1100	0.22	45.7	45.7
1250	0.24	35.1	34.8
1500	0.26	42.6	43.2
1750	0.28	42.3	43.5
2000	0.30	36.6	35.6
2001	0.30	36.6	35.6
2250	0.31	37.3	35.8
2500	0.33	40.8	40.1
2750	0.35	50.3	44.4
3000	0.36	39.3	35.9
3250	0.38	34.6	32.1
3500	0.40	34.1	32.2
3750	0.41	35.5	34.7
4000	0.42	37.6	33.9
4250	0.44	32.9	29.9
4500	0.46	31.8	29.6
5000	0.48	35.1	33.1
5500	0.50	31.8	30.5
6000	0.53	34.0	32.9
6500	0.55	31.2	30.4
7000	0.57	34.1	33.6
7500	0.60	28.7	28.3
8000	0.62	39.0	35.4
8500	0.65	28.3	28.0
9000	0.67	41.0	40.3
9500	0.69	26.1	25.7
10000	0.70	35.8	46.5
10500	0.72	26.2	26.6
11000	0.72	31.9	36.2
11500	0.76	26.3	26.7
12000	0.78	26.8	27.7
12500	0.80	26.6	25.9
13000	0.84	22.6	22.5
13500	0.83	30.3	27.6
14000	0.87	22.4	21.8
14500	0.87	30.1	25.7
15000	0.91	22.8	21.8
15500	0.91	31.2	28.1
16000	0.93	25.9	24.8
16500	0.94	34.3	30.1
17000	0.96	26.8	26.0
17500	0.96	37.9	34.5
18000	1.00	25.9	24.3

Typical Performance Curves



### Outline Dimensions



\* OVERALL CONNECTOR DIMENSION  
(CONNECTOR SHAPE MAY VARY)

#### SE2634 SERIES SMA MALE (CONN)

CASE STYLE #	A		B	C1	C2	D	E1	E2	F FL086-ASM+	T		WEIGHT GRAMS
	INCH	MM								INCH	MM	
SE2634-6	6	152.4	.36 (9.14)	.315 (8.0)	-	.36 (9.14)	.315 (8.0)	-	.106±.004 (2.64±0.1)	0.05	1.27	8.11
SE2634-9	9	228.6								0.10	2.54	9.31
SE2634-12	12	304.8								0.10	2.54	11.02
SE2634-24	24	609.6								0.15	3.81	16.84
SE2634-36	36	914.4								0.20	5.08	22.66

Unless otherwise specified dimensions are in inches (mm).

Tolerances: 2Pl. ± .03; 3Pl. ± .015

#### Note:

1. 086 Flexible Coaxial Cable.
2. "A" Represents Length of Cable.



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 Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 105°C Ambient Environment	Individual Model Data Sheet
Thermal Shock	-55° to 105°C, 25 cycles	MIL-STD-202F: Method 107G
Multiple Bend Radius	40mm, 5 times for FL141 series cables 30 mm, 5 times for FL086 series cables	
Single Bend Radius	10 mm for FL141 series cables 6 mm for FL086 series cables	