



FLEXIBLE

# Coaxial Cable

## FL141-12SM+

Mini-Circuits

50Ω 12 inch DC to 18 GHz SMA-Male

### THE BIG DEAL

- Wideband frequency coverage, DC to 18 GHz
- Low Loss, 0.7 dB typ. at 18 GHz
- Excellent Return Loss, 25 dB at 18 GHz
- 10mm 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>	FL141-12SM+
<b>Case Style</b>	SG2637-12
<b>Connectors</b>	SMA-Male

### APPLICATIONS

- Replacement for custom bent 0.141" semi-rigid cables
- Communication Receivers and Transmitters
- Military and Aerospace Systems
- Environmental and Test Chambers
- Test Accessory

#### +RoHS Compliant

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

### PRODUCT OVERVIEW

The FL141 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 FL141 Series Flexible cables are available in variety of length to meet your requirements.

### KEY FEATURES

Feature	Advantages
Flexible RF Cables	The FL141 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	Capable of only 10mm bend radius, the FL141 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>• 30 dB typ. at 6 GHz</li> <li>• 25 dB typ. at 18 GHz</li> </ul>	The FL141 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 FL141 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.





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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	—	0.1	0.3	dB
	2 - 6	—	0.2	0.6	
	6 - 10	—	0.4	0.8	
	10 - 18	—	0.5	1.1	
Return Loss	DC - 2	23	32	—	dB
	2 - 6	23	31	—	
	6 - 10	18	28	—	
	10 - 18	18	28	—	

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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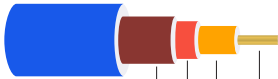
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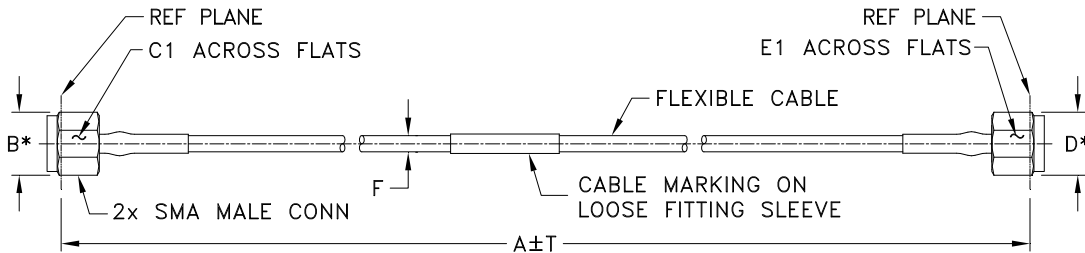
## CABLE CONSTRUCTION



- 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

## OUTLINE DIMENSIONS (Inch/mm)

A	B	C1	C2	D	E1	E2	F	T	wt
12.0	0.36	0.315	--	0.36	0.315	--	0.163±.006	0.10	grams
304.8	9.14	8.0	--	9.14	8.0	--	4.14±0.15	2.54	11.02





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# Coaxial Cable

## FL141-12SM+

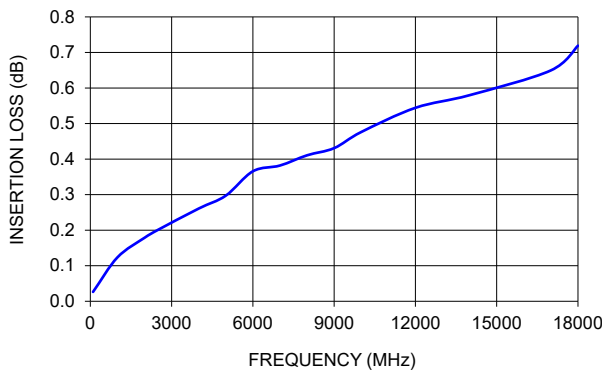
Mini-Circuits

50Ω 12 inch DC to 18 GHz SMA-Male

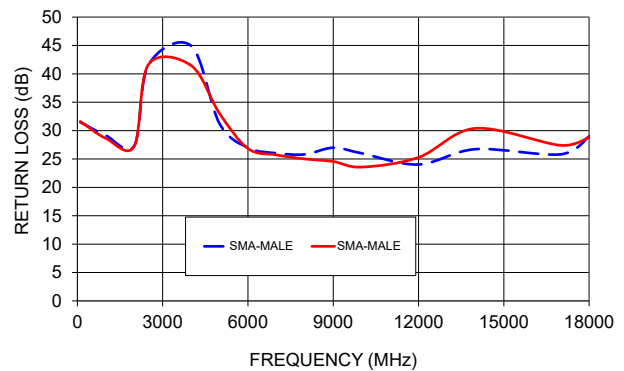
### TYPICAL PERFORMANCE DATA AND CHARTS

Frequency (MHz)	Insertion Loss (dB)	Return Loss (dB)	
		SMA-Male	SMA-Male
100	0.03	31.5	31.6
1000	0.12	29.1	28.6
2000	0.18	27.3	27.2
2500	0.20	41.6	41.6
4000	0.26	44.9	41.5
5000	0.30	31.2	33.0
6000	0.37	27.0	26.9
7000	0.38	26.0	25.7
8000	0.41	25.8	25.0
9000	0.43	27.0	24.6
10000	0.48	26.0	23.6
12000	0.54	24.0	25.3
14000	0.58	26.7	30.4
17000	0.65	25.8	27.4
18000	0.72	29.0	28.8

FL141-12SM+  
INSERTION LOSS



FL141-12SM+  
RETURN LOSS



#### NOTES

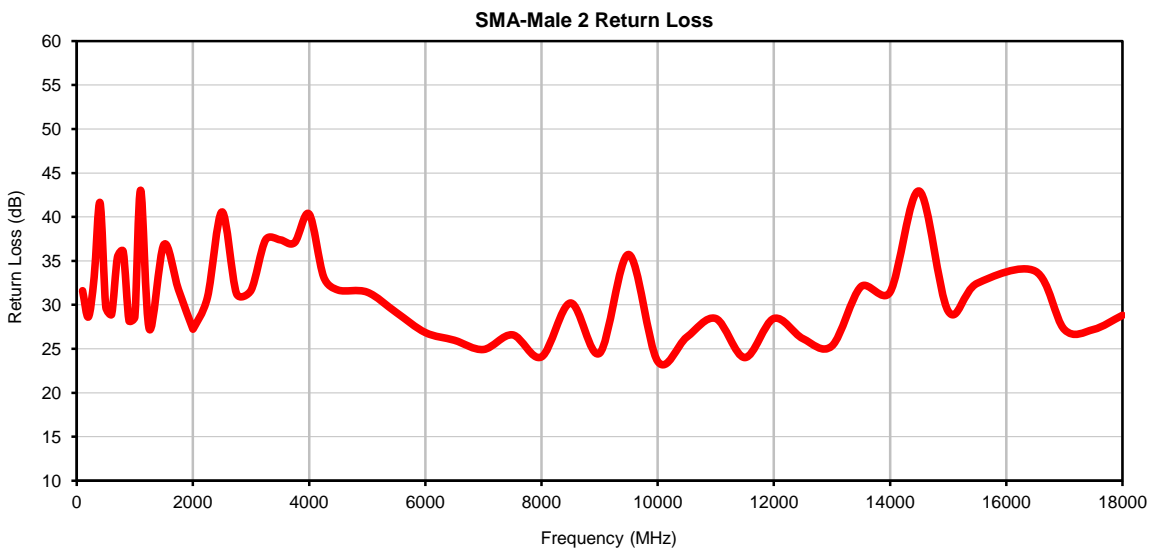
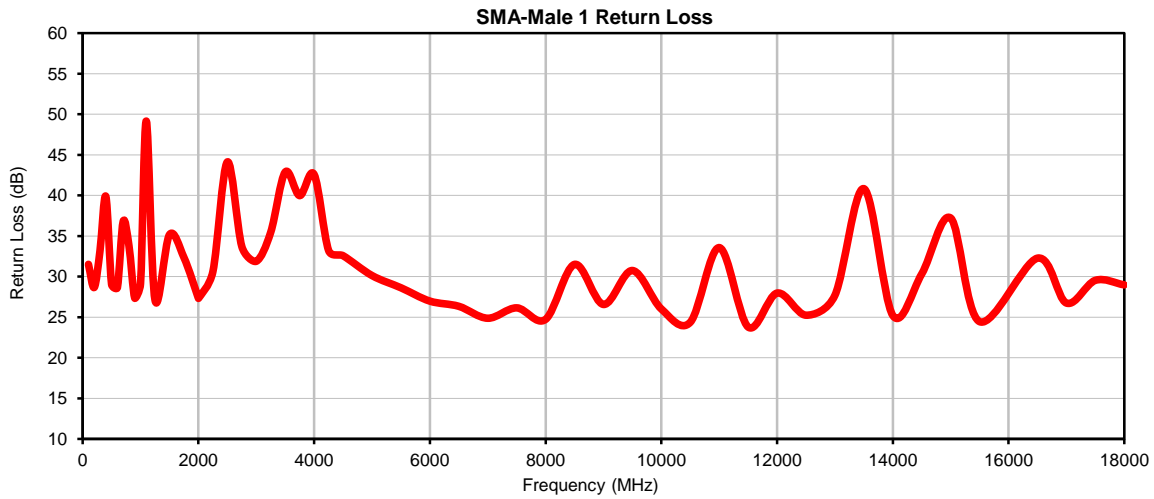
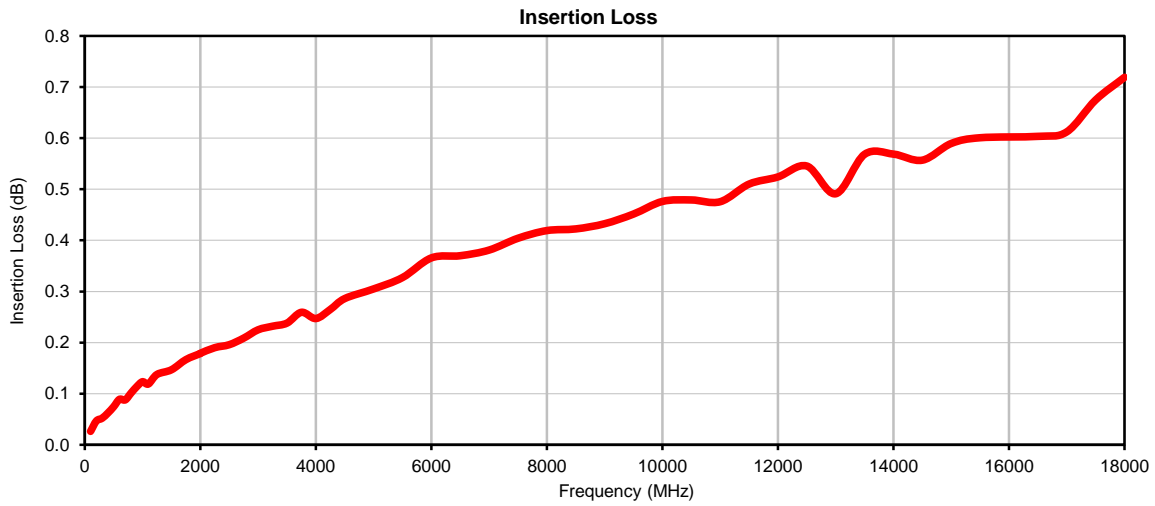
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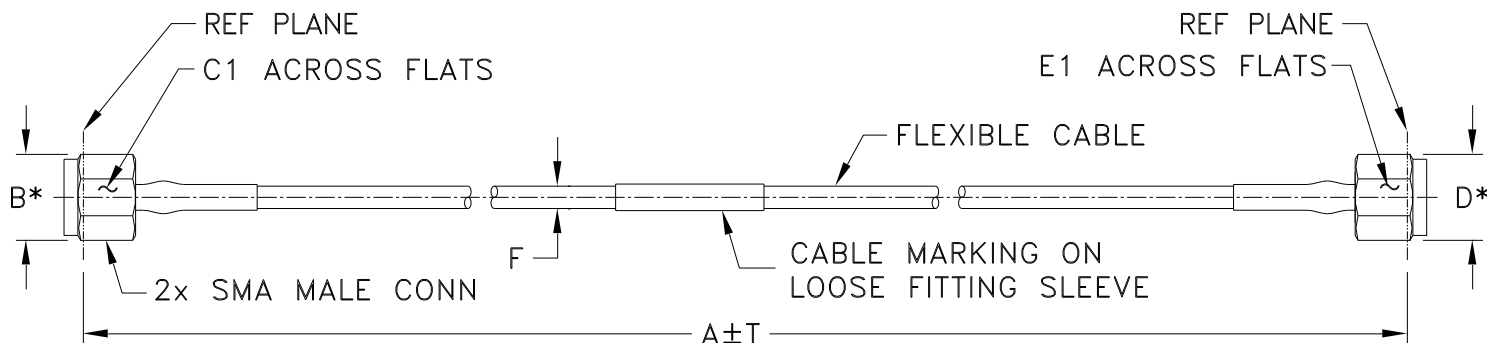
*Typical Performance Data*

FREQUENCY (MHz)	INSERTION LOSS (dB)	SMA-MALE 1 RETURN LOSS (dB)	SMA-MALE 2 RETURN LOSS (dB)
100	0.03	31.5	31.6
200	0.05	28.7	28.6
300	0.05	33.2	33.2
400	0.06	39.9	41.6
500	0.07	29.0	29.8
600	0.09	28.6	28.9
700	0.09	36.8	35.4
800	0.10	33.8	36.0
900	0.11	27.3	28.2
1000	0.12	29.1	28.6
1100	0.12	49.2	43.0
1250	0.14	27.1	27.2
1500	0.15	35.2	36.9
1750	0.17	32.4	31.7
2000	0.18	27.3	27.2
2001	0.18	27.3	27.2
2250	0.19	30.6	30.9
2500	0.20	44.1	40.6
2750	0.21	33.7	31.3
3000	0.23	31.9	31.7
3250	0.23	35.5	37.4
3500	0.24	42.9	37.4
3750	0.26	40.0	37.1
4000	0.25	42.6	40.3
4250	0.26	33.2	33.2
4500	0.29	32.6	31.7
5000	0.31	30.1	31.4
5500	0.33	28.6	29.1
6000	0.37	27.0	26.9
6500	0.37	26.3	26.0
7000	0.38	24.9	24.9
7500	0.40	26.1	26.6
8000	0.42	24.7	24.1
8500	0.42	31.5	30.2
9000	0.43	26.6	24.5
9500	0.45	30.7	35.7
10000	0.48	26.0	23.6
10500	0.48	24.4	26.3
11000	0.48	33.6	28.4
11500	0.51	23.8	24.0
12000	0.52	28.0	28.5
12500	0.55	25.2	26.2
13000	0.49	27.7	25.3
13500	0.57	40.8	32.1
14000	0.57	25.2	31.5
14500	0.56	30.3	42.9
15000	0.59	37.2	29.3
15500	0.60	24.5	32.5
16500	0.60	32.3	33.8
17000	0.61	26.7	27.2
17500	0.67	29.5	27.2
18000	0.72	29.0	28.8

Typical Performance Curves



### Outline Dimensions



\* OVERALL CONNECTOR DIMENSION

#### SG2637 SERIES SMA MALE (CONN)

CASE STYLE #	A		B	C1	C2	D	E1	E2	F FL141-ASM+	T		WEIGHT GRAMS
	INCH	MM								INCH	MM	
SG2637-6	6	152.4	.36 (9.14)	.315 (8.0)	-	.36 (9.14)	.315 (8.0)	-	.163±.006 (4.14±0.15)	0.05	1.27	8.11
SG2637-9	9	228.6								0.10	2.54	14.56
SG2637-12	12	304.8								0.10	2.54	17.88
SG2637-24	24	609.6								0.15	3.81	31.17

Unless otherwise specified dimensions are in inches (mm).

Tolerances: 2Pl. ± .03; 3Pl. ± .015

#### Note:

1. 141 Flexible Coaxial Cable.
2. "A" Represents Length of Cable.



P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site



The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: [www.minicircuits.com](http://www.minicircuits.com)

RF/IF MICROWAVE COMPONENTS



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	