



FLEXIBLE

# Coaxial Cable

## FL86-12SMPVM+

50Ω 12 inch DC to 33 GHz SMP-Female to 2.4mm-Male

### THE BIG DEAL

- Wideband frequency coverage, DC to 33 GHz
- Low Loss, 1.45 dB typ. at 33 GHz
- Excellent Return Loss, 18 dB at 33 GHz
- 6mm bend radius for tight installations, 6mm static bend, 20mm dynamic bend
- 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>	FL86-12SMPVM+
<b>Case Style</b>	SE3057-12
<b>Connectors</b>	SMP-Female to 2.4mm-Male

### APPLICATIONS

- 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 FL86 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 FL86 Series Flexible cables are available in variety of length to meet your requirements.

### KEY FEATURES

Feature	Advantages
Flexible RF Cables	The FL86 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 Static Bend, 20mm Dynamic	Capable bend radius, 6mm static bend, 20mm dynamic, the FL86 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>• 31 dB typ. at 18 GHz</li> <li>• 18 dB typ. at 33 GHz</li> </ul>	The FL86 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>• 13W at 33 GHz</li> </ul>	Mini-Circuits FL86 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	—	33	GHz
Length <sup>1</sup>		12			inches
Insertion Loss	DC - 6	—	0.34	0.95	dB
	6 - 18	—	0.76	1.74	
	18 - 26.5	—	1.09	2.18	
	26.5 - 33	—	1.33	2.46	
Return Loss	DC - 18	17	31.1	—	dB
	18 - 33	14	23.9	—	

1. Custom sizes available, consult factory.

### ABSOLUTE MAXIMUM RATINGS

Parameter	Ratings
Operating Temperature	-55°C to +100°C
Storage Temperature	-55°C to +100°C
Power Handling at 25°C, Sea Level	198 W at 0.5 GHz
	99 W at 2 GHz
	57 W at 6 GHz
	44 W at 10 GHz
	33 W at 18 GHz
	15 W at 26.5 GHz
	13 W at 33 GHz

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





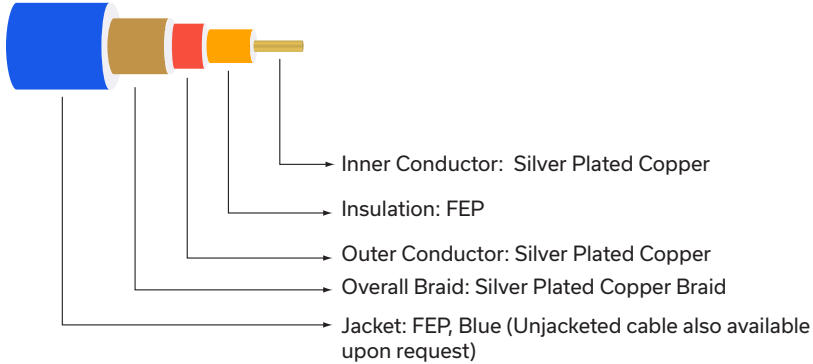
FLEXIBLE

# Coaxial Cable

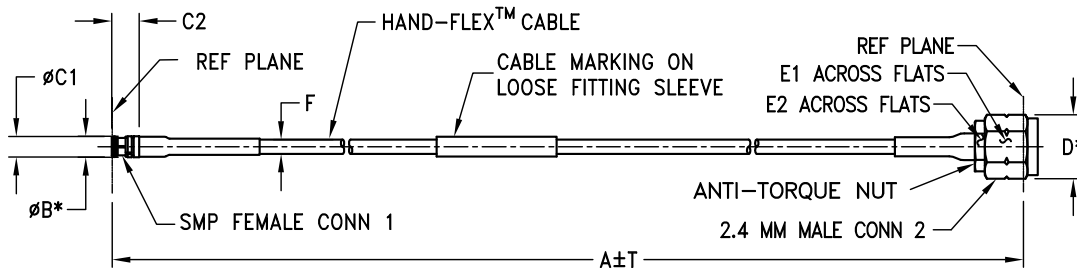
**FL86-12SMPVM+**

50Ω 12 inch DC to 33 GHz SMP-Female to 2.4mm-Male

## CABLE CONSTRUCTION



## OUTLINE DRAWING



## OUTLINE DIMENSIONS (Inch/mm)

A	B	C1	C2	D	E1	E2	T	wt
12.0	.14	.135	.173	.36	.315	.256	0.1	grams
304.80	3.56	3.43	4.39	9.14	8.00	6.50	2.54	9.00





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# Coaxial Cable

## FL86-12SMPVM+

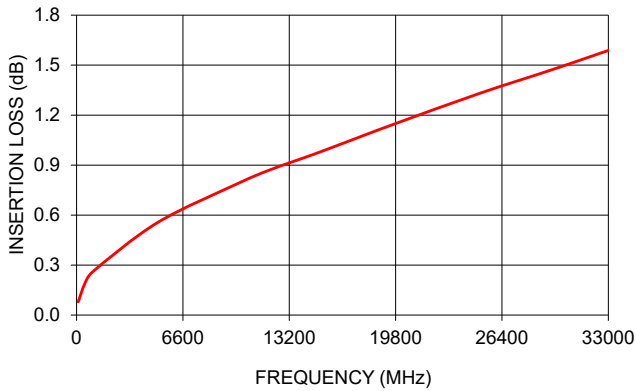


50Ω 12 inch DC to 33 GHz SMP-Female to 2.4mm-Male

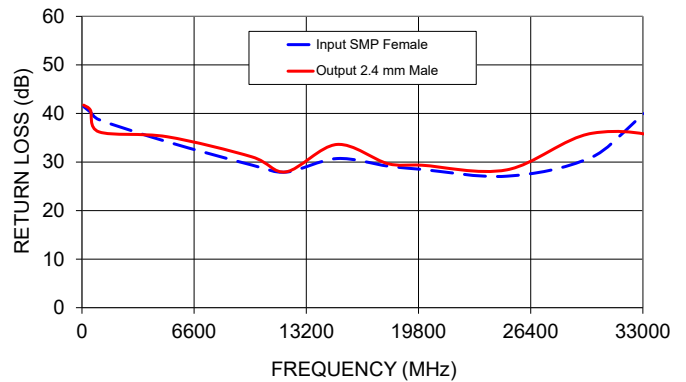
### TYPICAL PERFORMANCE DATA AND CHARTS

Frequency (MHz)	Insertion Loss (dB)	Return Loss (dB)	
		SSMP-Female	2.4mm-Male
100	0.06	39.87	36.91
500	0.14	36.16	32.92
1000	0.20	42.31	34.27
6000	0.52	27.07	26.22
10000	0.69	25.74	29.16
12000	0.75	29.99	26.64
15000	0.86	22.32	29.05
18000	0.92	41.21	40.35
20000	0.99	21.16	24.43
23000	1.02	23.94	23.51
26000	1.11	19.25	27.50
30000	1.18	45.10	20.22
33000	1.45	18.90	18.25

FL86-12SMPVM+  
INSERTION LOSS



FL86-12SMPVM+  
RETURN LOSS



#### NOTES

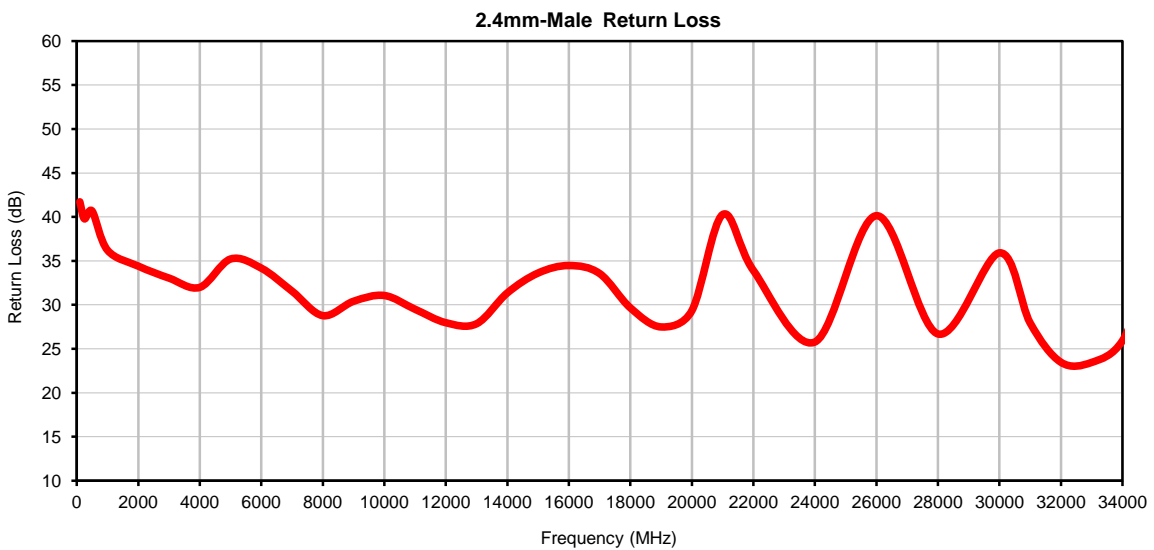
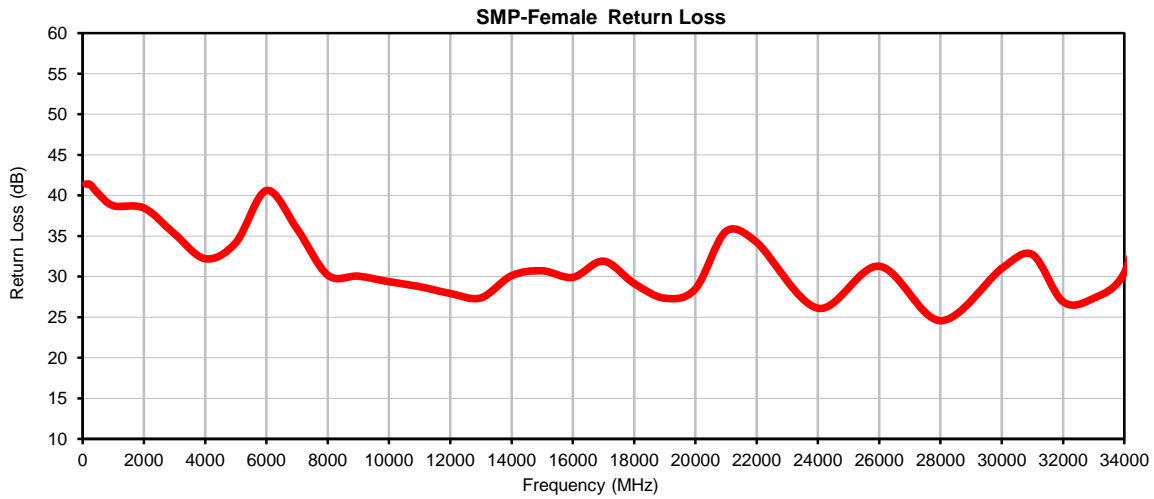
- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
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*Typical Performance Data*

FREQUENCY (MHz)	INSERTION LOSS (dB)	SMP-FEMALE RETURN LOSS (dB)	2.4mm-MALE RETURN LOSS (dB)
100	0.08	41.40	41.72
250	0.12	41.32	39.78
500	0.19	40.27	40.66
1000	0.26	38.73	36.22
2000	0.36	38.45	34.41
3000	0.43	35.26	33.05
4000	0.50	32.20	31.99
5000	0.55	34.18	35.21
6000	0.61	40.60	34.18
7000	0.66	35.87	31.56
8000	0.71	30.18	28.77
9000	0.75	30.05	30.41
10000	0.79	29.37	31.06
11000	0.83	28.76	29.50
12000	0.87	27.92	27.97
13000	0.91	27.38	27.85
14000	0.94	30.11	31.36
15000	0.97	30.71	33.62
16000	1.01	29.91	34.47
17000	1.05	31.90	33.57
18000	1.08	29.15	29.66
19000	1.13	27.34	27.49
20000	1.16	28.48	29.34
21000	1.19	35.59	40.27
22000	1.22	34.22	33.91
24000	1.30	26.10	25.78
26000	1.36	31.28	40.14
28000	1.43	24.56	26.69
30000	1.49	31.01	35.92
31000	1.54	32.71	27.94
32000	1.58	26.90	23.47
33000	1.62	27.34	23.46
34000	1.64	30.45	25.92
35000	1.65	42.21	34.07
36000	1.68	34.64	35.68
37000	1.71	35.09	33.40
38000	1.73	31.00	37.76
39000	1.77	24.51	29.72
40000	1.81	20.38	24.28

Typical Performance Curves

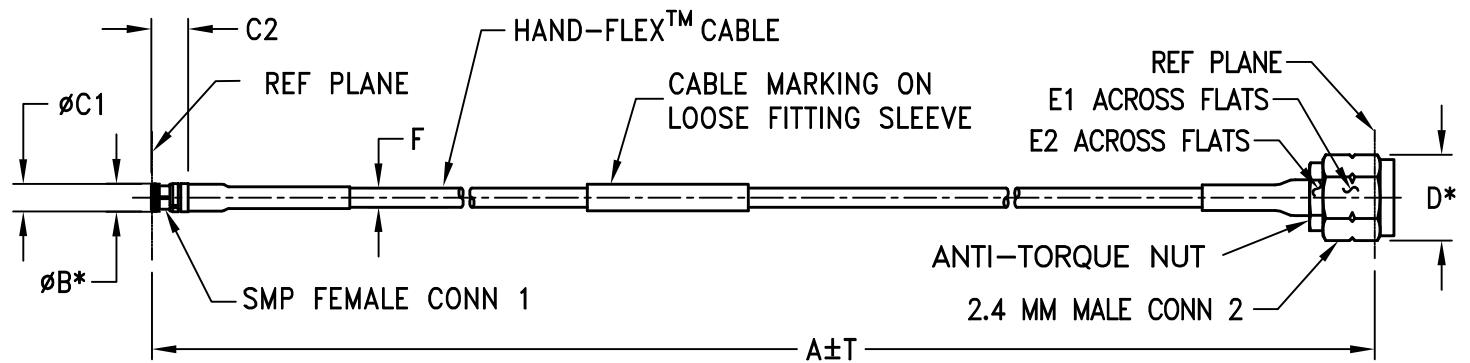


# Case Style

# SE

## Outline Dimensions

## SE3057



### SE3057 SERIES

SMP FEMALE (CONN 1)

2,4MM MALE (CONN 2)

CASE STYLE #	A		B	C1	C2	D	E1	E2	F		T		WT. (GRAMS)
	INCH	MM							FL86-ASMPVM+	INCH	MM		
SE3057-12	12.00	304.80									.10	2.54	9.00
			.14 [3.56]	.135 [3.43]	.173 [4.40]	.36 [9.14]	.315 [8.00]	.256 [6.50]	.106±.004 [2.64±0.1]				

Unless otherwise specified dimensions are in inches (mm).

Tolerances: 2 Pl.±.03; 3 Pl. ±.015

Note:

- 086 Flexible Coaxial Cable.
- "A" Represents Length of Cable.

**Mini-Circuits®**  
ISO 9001 ISO 14001 CERTIFIED

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minicircuits.com

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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 100°C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-55° to 100° C Ambient Environment	Individual Model Data Sheet
Thermal Shock	-55° to 85°C, 25 cycles	MIL-STD-202F: Method 107G