



FLEXIBLE

Coaxial Cable

FL86-12SSMPSMP+

50Ω 12 inch DC to 33 GHz SMPM-Female to SMP-Female

THE BIG DEAL

- Wideband frequency coverage, DC to 33 GHz
- Low Loss, 1.81 dB typ. at 33 GHz
- Excellent Return Loss, 20 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

| | |
|-------------------|---------------------------|
| Model No. | FL86-12SSMPSMP+ |
| Case Style | SE3053-12 |
| Connectors | SMPM-Female to SMP-Female |

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"> • 24 dB typ. to 18 GHz • 20 dB typ. to 33 GHz | 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"> • 13W at 33 GHz | 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 ¹ | | 12 | | | inches |
| Insertion Loss | DC - 6 | — | 0.39 | 0.95 | dB |
| | 6 - 18 | — | 0.86 | 1.74 | |
| | 18 - 26.5 | — | 1.16 | 2.18 | |
| | 26.5 - 33 | — | 1.41 | 2.46 | |
| Return Loss | DC - 18 | 19.1 | 33.2 | — | dB |
| | 18 - 33 | 16.5 | 25.1 | — | |

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 | 198W at 0.5 GHz |
| | 99W at 2 GHz |
| | 57W at 6 GHz |
| | 44W at 10 GHz |
| | 33W at 18 GHz |
| | 15W at 26.5 GHz |
| | 13W at 33 GHz |

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





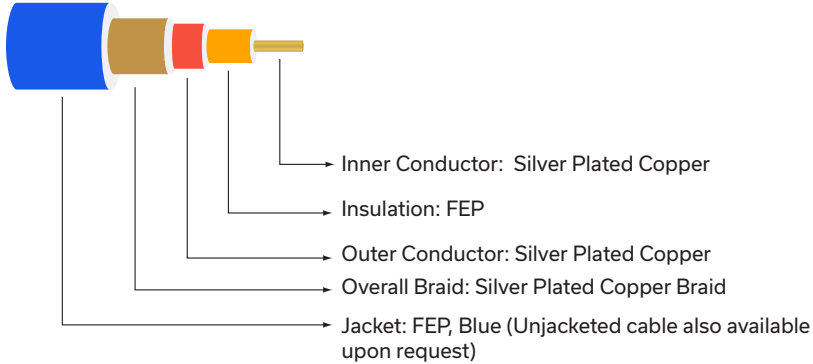
FLEXIBLE

Coaxial Cable

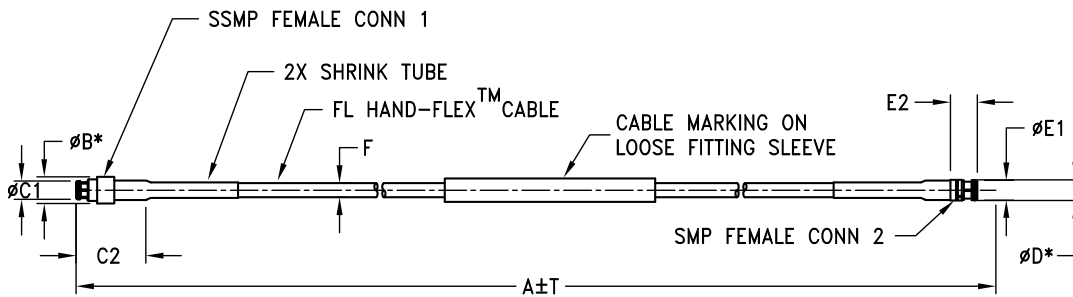
FL86-12SSMPSMP+

50Ω 12 inch DC to 33 GHz SMPM-Female to SMP-Female

CABLE CONSTRUCTION



OUTLINE DRAWING



OUTLINE DIMENSIONS (Inch/mm)

| A | B | C1 | C2 | D | E1 | E2 | T | wt |
|--------|------|------|------|------|------|------|------|-------|
| 12.0 | .14 | .093 | .343 | .14 | .135 | .173 | 0.1 | grams |
| 304.80 | 3.56 | 2.36 | 8.71 | 3.56 | 3.43 | 4.39 | 2.54 | 6.00 |





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Coaxial Cable

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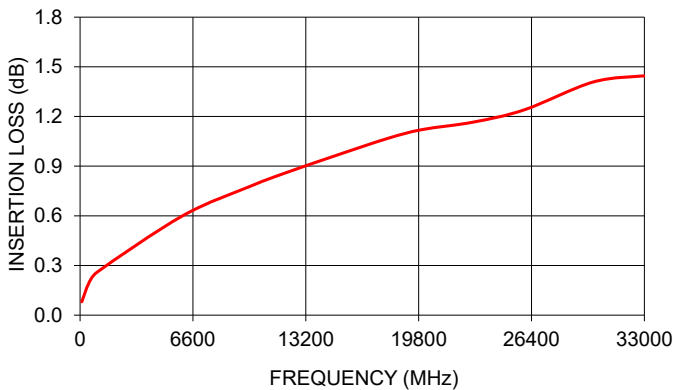


50Ω 12 inch DC to 33 GHz SMPM-Female to SMP-Female

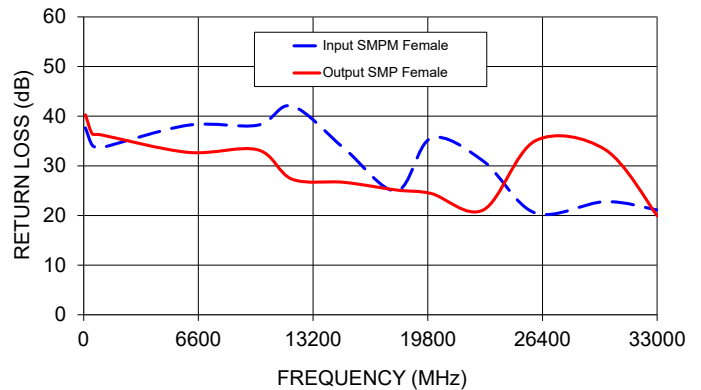
TYPICAL PERFORMANCE DATA AND CHARTS

| Frequency (MHz) | Insertion Loss (dB) | Return Loss (dB) | |
|-----------------|---------------------|------------------|------------|
| | | SSMP-Female | SMP-Female |
| 100 | 0.08 | 37.65 | 40.28 |
| 500 | 0.19 | 34.12 | 36.40 |
| 1000 | 0.26 | 33.65 | 36.24 |
| 6000 | 0.60 | 38.18 | 32.71 |
| 10000 | 0.78 | 38.18 | 33.24 |
| 12000 | 0.86 | 42.03 | 27.30 |
| 15000 | 0.97 | 33.48 | 26.67 |
| 18000 | 1.07 | 24.96 | 25.13 |
| 20000 | 1.12 | 35.58 | 24.42 |
| 23000 | 1.17 | 30.94 | 21.12 |
| 26000 | 1.24 | 20.48 | 35.07 |
| 30000 | 1.41 | 22.80 | 33.28 |
| 33000 | 1.45 | 21.10 | 19.94 |

FL86-12SSMPSMP+
INSERTION LOSS



FL86-12SSMPSMP+
RETURN LOSS



NOTES

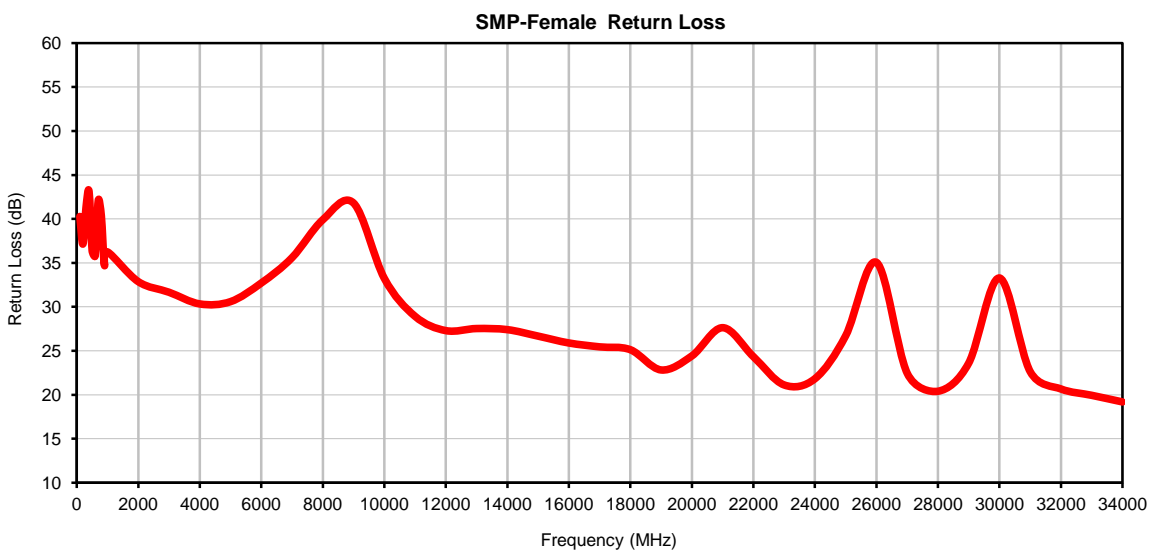
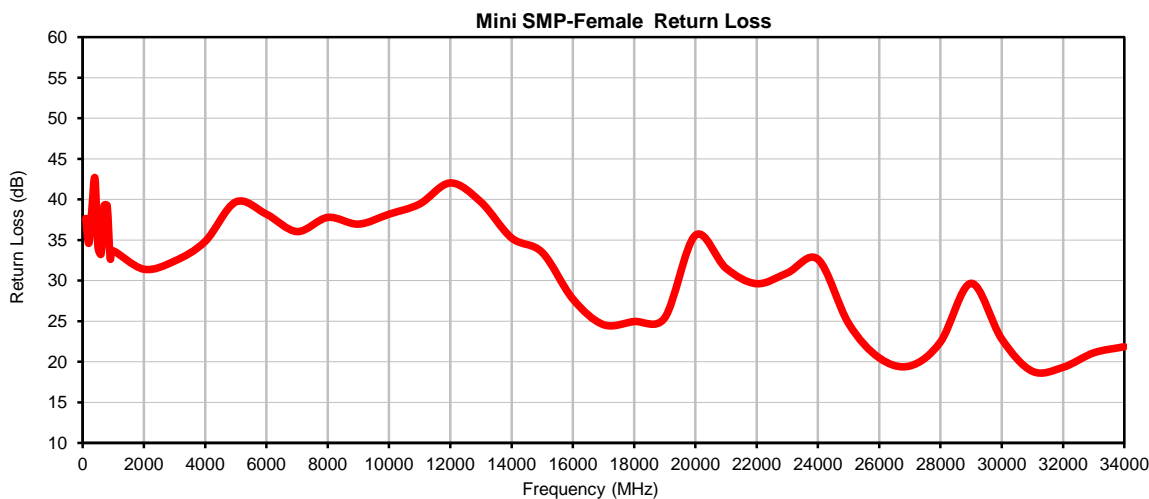
- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
- B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's 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



Typical Performance Data

| FREQUENCY (MHz) | INSERTION LOSS (dB) | Mini SMP-FEMALE RETURN LOSS (dB) | SMP-FEMALE RETURN LOSS (dB) |
|--------------------|------------------------|--|-----------------------------------|
| 100 | 0.08 | 37.65 | 40.28 |
| 200 | 0.12 | 34.59 | 37.15 |
| 300 | 0.14 | 38.74 | 41.26 |
| 400 | 0.17 | 42.59 | 43.12 |
| 500 | 0.19 | 34.12 | 36.40 |
| 600 | 0.20 | 33.27 | 35.80 |
| 700 | 0.22 | 39.24 | 42.11 |
| 800 | 0.23 | 39.23 | 40.33 |
| 900 | 0.25 | 32.71 | 34.78 |
| 1000 | 0.26 | 33.65 | 36.24 |
| 2000 | 0.36 | 31.40 | 32.87 |
| 3000 | 0.43 | 32.41 | 31.66 |
| 4000 | 0.50 | 34.83 | 30.33 |
| 5000 | 0.55 | 39.70 | 30.59 |
| 6000 | 0.60 | 38.18 | 32.71 |
| 7000 | 0.65 | 36.04 | 35.59 |
| 8000 | 0.69 | 37.79 | 39.91 |
| 9000 | 0.74 | 36.96 | 41.81 |
| 10000 | 0.78 | 38.18 | 33.24 |
| 11000 | 0.82 | 39.44 | 28.92 |
| 12000 | 0.86 | 42.03 | 27.30 |
| 13000 | 0.89 | 39.69 | 27.53 |
| 14000 | 0.93 | 35.26 | 27.41 |
| 15000 | 0.97 | 33.48 | 26.67 |
| 16000 | 1.00 | 27.73 | 25.89 |
| 17000 | 1.04 | 24.57 | 25.45 |
| 18000 | 1.07 | 24.96 | 25.13 |
| 19000 | 1.11 | 25.41 | 22.82 |
| 20000 | 1.12 | 35.58 | 24.42 |
| 21000 | 1.13 | 31.52 | 27.63 |
| 22000 | 1.15 | 29.62 | 24.34 |
| 23000 | 1.17 | 30.94 | 21.12 |
| 24000 | 1.17 | 32.62 | 21.83 |
| 25000 | 1.19 | 24.72 | 26.71 |
| 26000 | 1.24 | 20.48 | 35.07 |
| 27000 | 1.32 | 19.48 | 22.46 |
| 28000 | 1.38 | 22.44 | 20.40 |
| 29000 | 1.39 | 29.67 | 23.60 |
| 30000 | 1.41 | 22.80 | 33.28 |
| 31000 | 1.46 | 18.82 | 22.64 |
| 32000 | 1.48 | 19.31 | 20.66 |
| 33000 | 1.45 | 21.10 | 19.94 |
| 34000 | 1.22 | 21.85 | 19.19 |

Typical Performance Curves

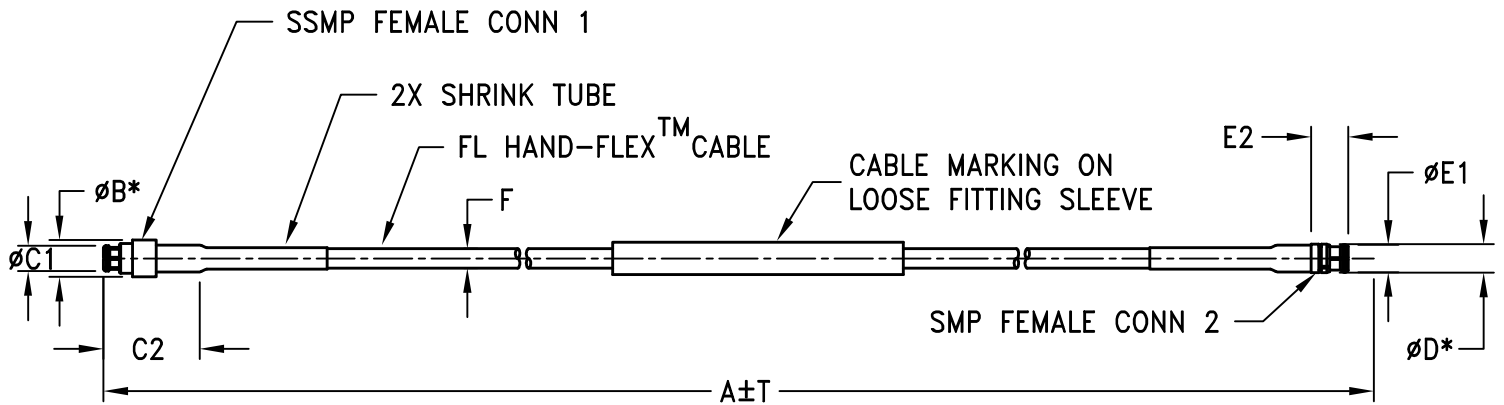


Case Style

SE

Outline Dimensions

SE3053



SE3053 SERIES

SSMP FEMALE (CONN 1)

SMP FEMALE (CONN 2)

| CASE STYLE # | A | | B | C1 | C2 | D | E1 | E2 | F FL86-ASSMPSMP+ | T | | WT. (GRAMS) |
|--------------|-------|--------|---------------|----------------|----------------|---------------|----------------|----------------|-------------------------|------|------|----------------|
| | INCH | MM | | | | | | | | INCH | MM | |
| SE3053-12 | 12.00 | 304.80 | | | | | | | | .10 | 2.54 | 6.00 |
| | | | .14 [3.56] | .093 [2.36] | .343 [8.70] | .14 [3.56] | .135 [3.43] | .173 [4.40] | .106±.004 [2.64±0.1] | | | |
| | | | | | | | | | | | | |

Unless otherwise specified dimensions are in inches (mm).

Tolerances: 2 Pl. ±.03; 3 Pl. ±.015

Note:

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



ISO 9001 ISO 14001 CERTIFIED



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The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: 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 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 |