



FLEXIBLE

# Coaxial Cable

**FL86-12SSMPKM+**

50Ω 12 inch DC to 40 GHz SMPM-Female to 2.92mm-Male

## THE BIG DEAL

- Wideband frequency coverage, DC to 40 GHz
- Low Loss, 1.79 dB typ. at 40 GHz
- Excellent Return Loss, 26 dB at 40 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.  | FL86-12SSMPKM+             |
| Case Style | SE3055-12                  |
| Connectors | SMPM-Female to 2.92mm-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>• 24 dB typ. at 26.5 GHz</li><li>• 20 dB typ. at 40 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>• 12W at 40 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   | —    | 40   | GHz    |
| Length <sup>1</sup> |                 | 12   |      |      | inches |
| Insertion Loss      | DC - 6          | —    | 0.39 | 0.95 | dB     |
|                     | 6 - 18          | —    | 0.86 | 1.74 |        |
|                     | 18 - 26.5       | —    | 1.23 | 2.18 |        |
|                     | 26.5 - 40       | —    | 1.59 | 2.75 |        |
| Return Loss         | DC - 26.5       | 19.1 | 31.7 | —    | dB     |
|                     | 26.5 - 40       | 16.6 | 28.6 | —    |        |

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   |
|                                   | 12 W at 40 GHz   |

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





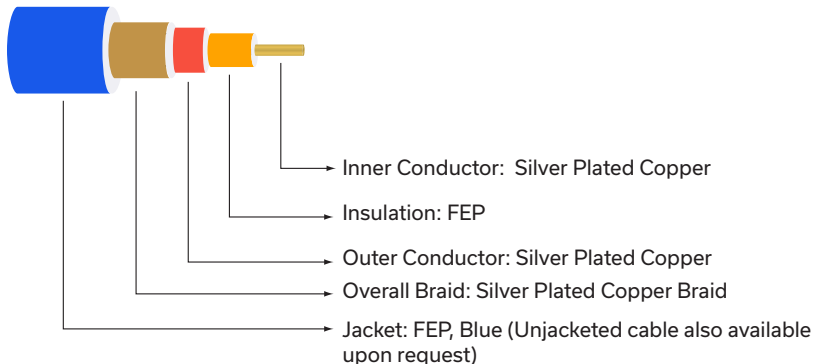
FLEXIBLE

# Coaxial Cable

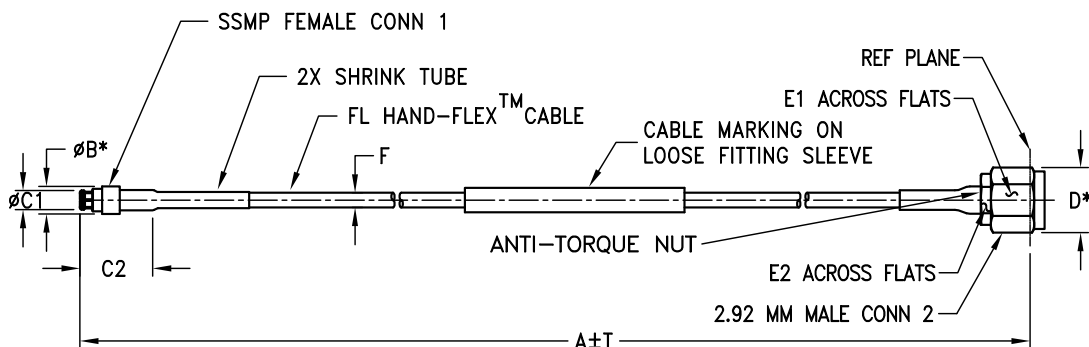
**FL86-12SSMPKM+**

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## CABLE CONSTRUCTION



## OUTLINE DRAWING



## OUTLINE DIMENSIONS (Inch/mm)

| A      | B    | C1   | C2   | D    | E1   | E2   | T    | wt    |
|--------|------|------|------|------|------|------|------|-------|
| 12.0   | .14  | .093 | .343 | .36  | .315 | .256 | 0.1  | grams |
| 304.80 | 3.56 | 2.36 | 8.71 | 9.14 | 8.00 | 6.50 | 2.54 | 9.10  |





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## Coaxial Cable

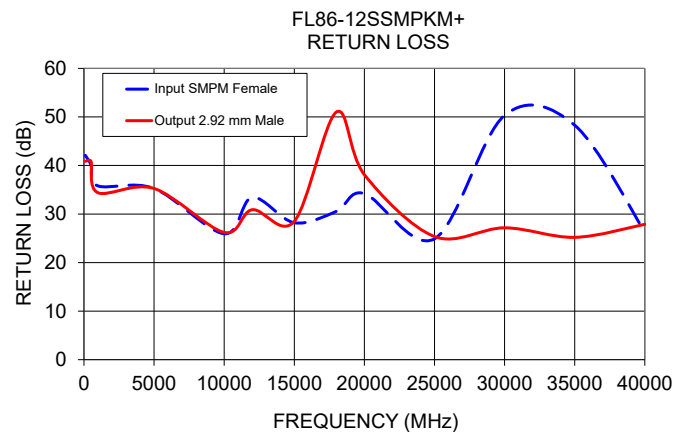
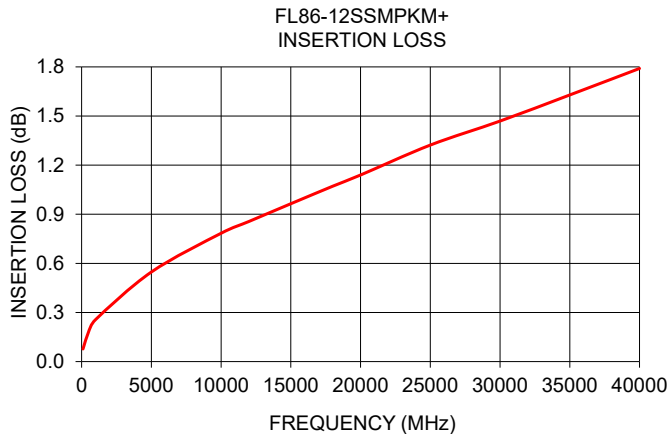
FL86-12SSMPKM+

Mini-Circuits

50Ω 12 inch DC to 40 GHz SMPM-Female to 2.92mm-Male

## TYPICAL PERFORMANCE DATA AND CHARTS

| Frequency (MHz) | Insertion Loss (dB) | Return Loss (dB) |             |
|-----------------|---------------------|------------------|-------------|
|                 |                     | SSMP-Female      | 2.92mm-Male |
| 100             | 0.08                | 42.08            | 40.86       |
| 500             | 0.18                | 40.12            | 40.85       |
| 1000            | 0.26                | 35.79            | 34.39       |
| 5000            | 0.55                | 35.27            | 35.26       |
| 10000           | 0.78                | 25.94            | 26.21       |
| 12000           | 0.86                | 33.41            | 30.88       |
| 15000           | 0.96                | 28.21            | 28.48       |
| 18000           | 1.07                | 30.56            | 51.00       |
| 20000           | 1.14                | 34.22            | 38.11       |
| 25000           | 1.32                | 24.89            | 25.36       |
| 30000           | 1.47                | 50.32            | 27.16       |
| 35000           | 1.63                | 48.29            | 25.20       |
| 40000           | 1.79                | 26.29            | 27.88       |



## NOTES

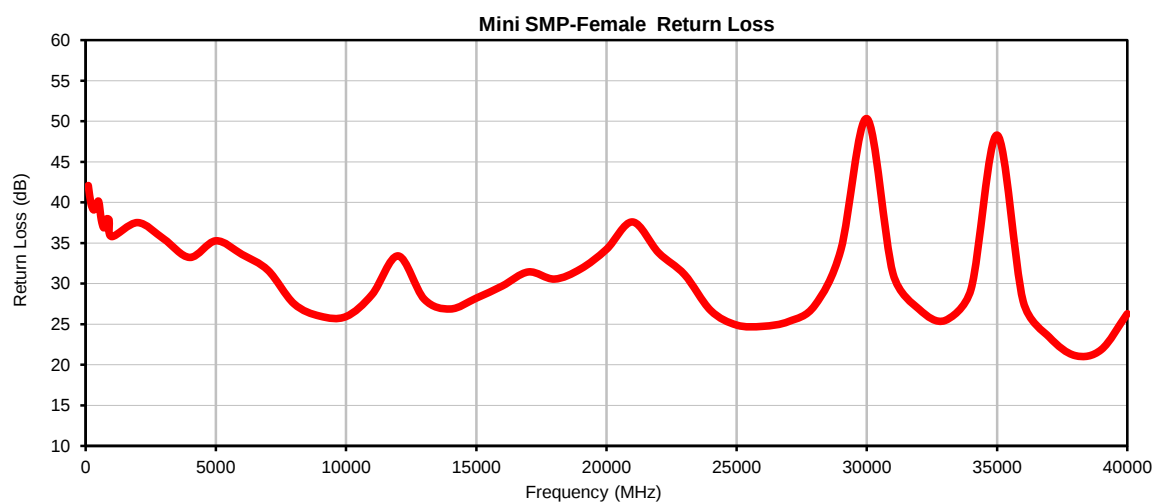
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*Typical Performance Data*

| FREQUENCY<br>(MHz) | INSERTION LOSS<br>(dB) | Mini SMP-FEMALE<br>RETURN LOSS<br>(dB) | 2.92mm-MALE<br>RETURN LOSS<br>(dB) |
|--------------------|------------------------|----------------------------------------|------------------------------------|
| 100                | 0.08                   | 42.08                                  | 40.86                              |
| 200                | 0.11                   | 39.92                                  | 38.07                              |
| 300                | 0.14                   | 39.09                                  | 38.15                              |
| 400                | 0.16                   | 39.49                                  | 42.39                              |
| 500                | 0.18                   | 40.12                                  | 40.85                              |
| 600                | 0.20                   | 37.87                                  | 36.24                              |
| 700                | 0.21                   | 36.87                                  | 37.34                              |
| 800                | 0.23                   | 37.97                                  | 46.32                              |
| 900                | 0.24                   | 37.84                                  | 37.58                              |
| 1000               | 0.26                   | 35.79                                  | 34.39                              |
| 2000               | 0.35                   | 37.52                                  | 33.97                              |
| 3000               | 0.43                   | 35.50                                  | 33.83                              |
| 4000               | 0.49                   | 33.22                                  | 33.91                              |
| 5000               | 0.55                   | 35.27                                  | 35.26                              |
| 6000               | 0.60                   | 33.60                                  | 30.78                              |
| 7000               | 0.65                   | 31.64                                  | 29.15                              |
| 8000               | 0.70                   | 27.52                                  | 26.65                              |
| 9000               | 0.74                   | 25.99                                  | 25.97                              |
| 10000              | 0.78                   | 25.94                                  | 26.21                              |
| 11000              | 0.82                   | 28.65                                  | 28.59                              |
| 12000              | 0.86                   | 33.41                                  | 30.88                              |
| 13000              | 0.90                   | 28.08                                  | 26.80                              |
| 14000              | 0.93                   | 26.87                                  | 26.22                              |
| 15000              | 0.96                   | 28.21                                  | 28.48                              |
| 16000              | 1.00                   | 29.71                                  | 32.20                              |
| 17000              | 1.03                   | 31.44                                  | 41.13                              |
| 18000              | 1.07                   | 30.56                                  | 51.00                              |
| 19000              | 1.11                   | 31.79                                  | 37.78                              |
| 20000              | 1.14                   | 34.22                                  | 38.11                              |
| 21000              | 1.18                   | 37.60                                  | 36.21                              |
| 22000              | 1.21                   | 33.80                                  | 35.46                              |
| 23000              | 1.24                   | 31.10                                  | 37.08                              |
| 24000              | 1.28                   | 26.69                                  | 28.77                              |
| 25000              | 1.32                   | 24.89                                  | 25.36                              |
| 26000              | 1.36                   | 24.73                                  | 24.49                              |
| 27000              | 1.39                   | 25.33                                  | 24.51                              |
| 28000              | 1.41                   | 27.31                                  | 25.40                              |
| 29000              | 1.44                   | 34.16                                  | 27.04                              |
| 30000              | 1.47                   | 50.32                                  | 27.16                              |
| 31000              | 1.50                   | 31.24                                  | 27.02                              |
| 32000              | 1.53                   | 26.86                                  | 31.59                              |
| 33000              | 1.56                   | 25.45                                  | 37.07                              |
| 34000              | 1.59                   | 29.31                                  | 32.57                              |
| 35000              | 1.63                   | 48.29                                  | 25.20                              |
| 36000              | 1.67                   | 27.83                                  | 21.47                              |
| 37000              | 1.72                   | 23.42                                  | 20.27                              |
| 38000              | 1.76                   | 21.13                                  | 20.02                              |
| 39000              | 1.78                   | 21.86                                  | 22.37                              |
| 40000              | 1.79                   | 26.29                                  | 27.88                              |

## Typical Performance Curves

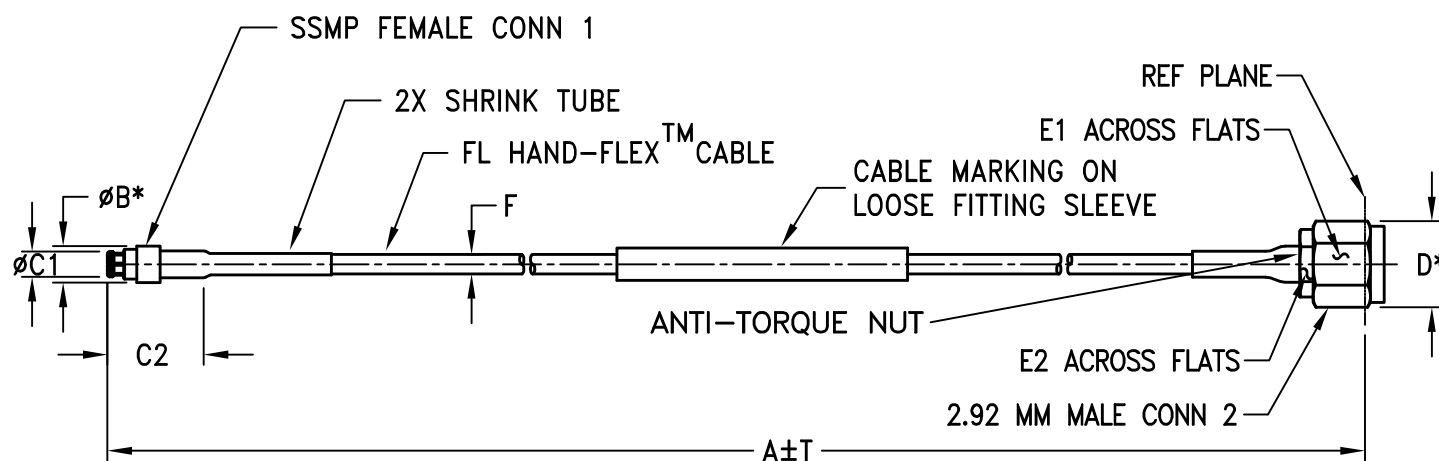


# Case Style

## Outline Dimensions

# SE

## SE3055



### SE3055 SERIES

SSMP FEMALE (CONN 1)

2.92 MM MALE (CONN 2)

| CASE<br>STYLE # | A     |        | B      | C1     | C2     | D      | E1     | E2     | F<br>FL86-ASSMPKM+ | T    |      | WT.<br>(GRAMS) |
|-----------------|-------|--------|--------|--------|--------|--------|--------|--------|--------------------|------|------|----------------|
|                 | INCH  | MM     |        |        |        |        |        |        |                    | INCH | MM   |                |
| SE3055-12       | 12.00 | 304.80 |        |        |        |        |        |        |                    | .10  | 2.54 | 9.10           |
|                 |       |        | .14    | .093   | .343   | .36    | .315   | .256   | .106 $\pm$ .004    |      |      |                |
|                 |       |        | [3.56] | [2.36] | [8.70] | [9.14] | [8.00] | [6.50] | [2.64 $\pm$ 0.1]   |      |      |                |
|                 |       |        |        |        |        |        |        |        |                    |      |      |                |

Unless otherwise specified dimensions are in inches (mm).

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

### Note:

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



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