



FLEXIBLE

# Coaxial Cable

**FL086-4KM+**

50Ω 3 inch DC to 40 GHz 2.92mm-Male

### THE BIG DEAL

- Wideband frequency coverage, DC to 40 GHz
- Low Loss, 0.5 dB typ. up to 40 GHz
- Excellent Return Loss, 29 dB up to 40 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>  | FL086-4KM+  |
| <b>Case Style</b> | SE2929-3    |
| <b>Connectors</b> | 2.92mm-Male |

### APPLICATIONS

- Replacement for custom bent 0.086" 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 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  | 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>• 31 dB typ. up to 18 GHz</li> <li>• 28 dB typ. up to 40 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>• 198W at 0.5 GHz</li> <li>• 13W up to 40 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.  |





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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> |                 | 3    |      |      | inches |
| Insertion Loss      | DC - 6          | —    | 0.1  | 0.4  | dB     |
|                     | 6 - 18          | —    | 0.3  | 0.8  |        |
|                     | 18 - 26.5       | —    | 0.3  | 0.9  |        |
|                     | 26.5 - 40       | —    | 0.5  | 1.2  |        |
| Return Loss         | DC - 18         | 19   | 31   | —    | dB     |
|                     | 18 - 40         | 17   | 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<br>140W at 1 GHz<br>99W at 2 GHz<br>57W at 6 GHz<br>45W at 10 GHz<br>33W at 18 GHz<br>16W at 26.5 GHz<br>13W up to 40 GHz |

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





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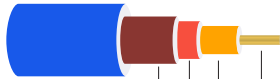
# Coaxial Cable

FL086-4KM+

Mini-Circuits

50Ω 3 inch DC to 40 GHz 2.92mm-Male

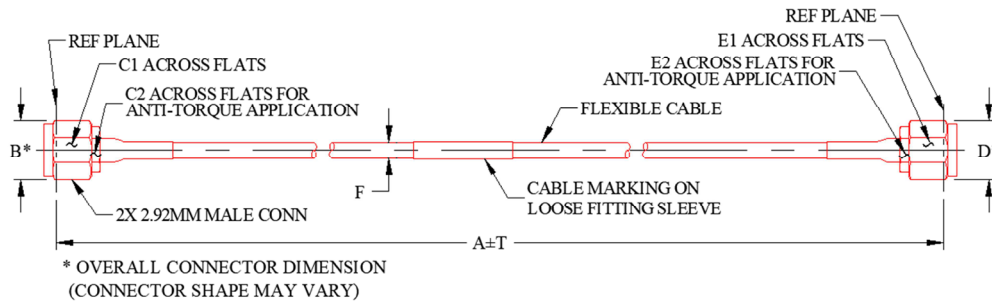
## CABLE CONSTRUCTION



- 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



## OUTLINE DIMENSIONS (Inch/mm)

| A     | B    | C1   | C2 | D    | E1   | E2 | T    | wt    |
|-------|------|------|----|------|------|----|------|-------|
| 3.0   | .36  | .315 | -- | .36  | .315 | -- | 0.05 | grams |
| 76.20 | 9.14 | 8.00 | -- | 9.14 | 8.00 | -- | 1.27 | 7.95  |





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# Coaxial Cable

## FL086-4KM+

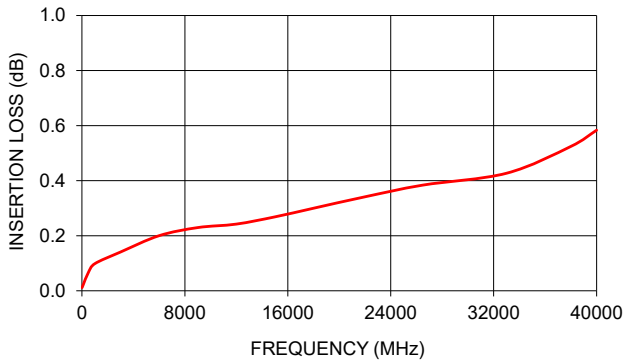
Mini-Circuits

50Ω 3 inch DC to 40 GHz 2.92mm-Male

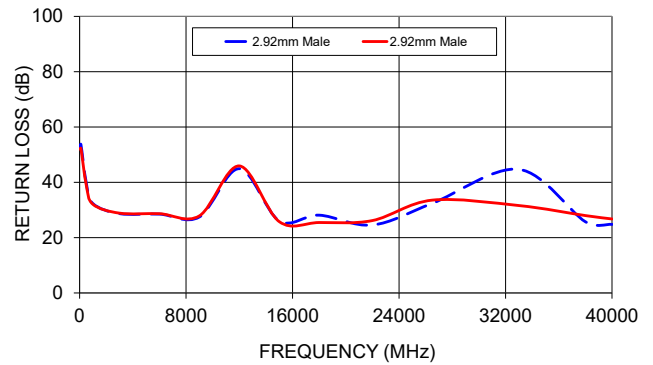
### TYPICAL PERFORMANCE DATA AND CHARTS

| Frequency (MHz) | Insertion Loss (dB) | Return Loss (dB) |             |
|-----------------|---------------------|------------------|-------------|
|                 |                     | 2.92mm-Male      | 2.92mm-Male |
| 10              | 0.01                | 52.53            | 52.05       |
| 100             | 0.02                | 53.67            | 52.28       |
| 500             | 0.07                | 39.89            | 39.06       |
| 1000            | 0.10                | 32.32            | 32.06       |
| 3000            | 0.14                | 28.68            | 28.86       |
| 6000            | 0.20                | 28.51            | 28.66       |
| 9000            | 0.23                | 27.48            | 27.88       |
| 12000           | 0.24                | 44.94            | 45.93       |
| 15000           | 0.27                | 26.07            | 25.79       |
| 18000           | 0.30                | 28.12            | 25.47       |
| 22000           | 0.34                | 24.57            | 26.18       |
| 26500           | 0.38                | 32.41            | 33.57       |
| 33000           | 0.43                | 44.70            | 31.60       |
| 38000           | 0.52                | 25.74            | 27.98       |
| 40000           | 0.58                | 24.79            | 26.76       |

FL086-3KM+  
INSERTION LOSS



FL086-3KM+  
RETURN LOSS



#### NOTES

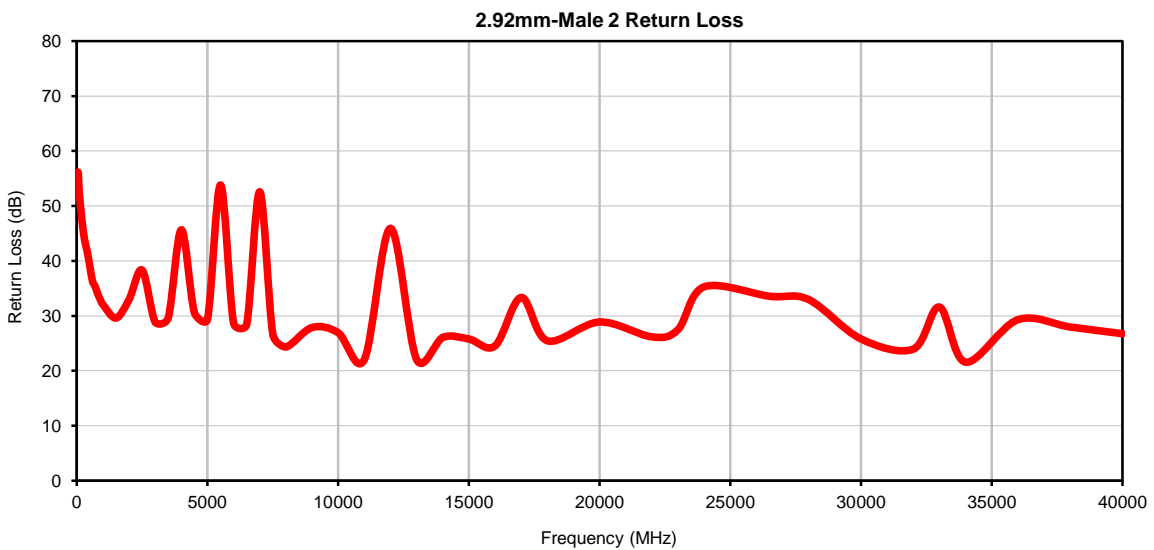
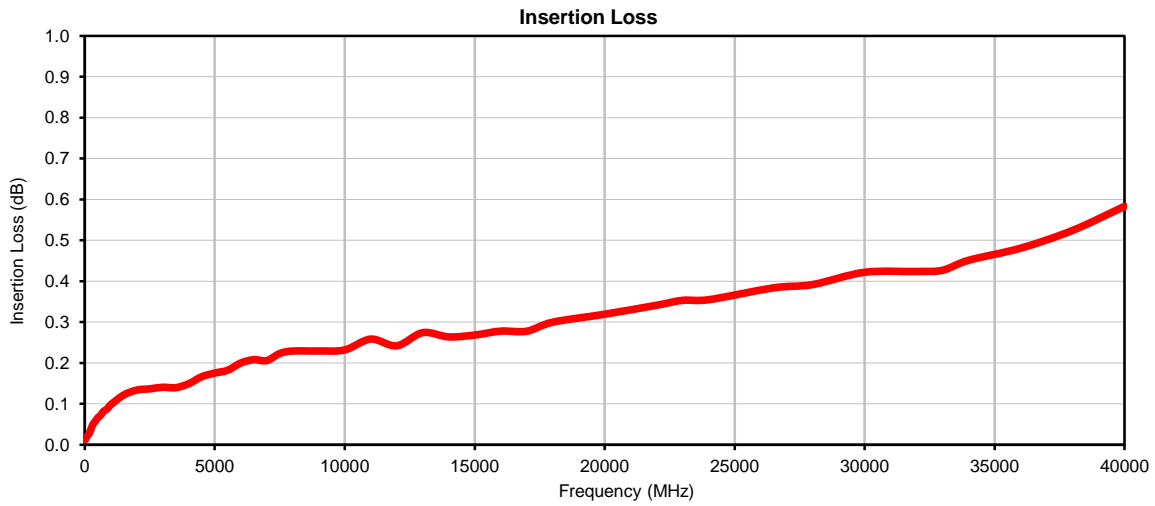
- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.
- B. Electrical specifications and performance data contained in this specification document are based on Mini-Circuit's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

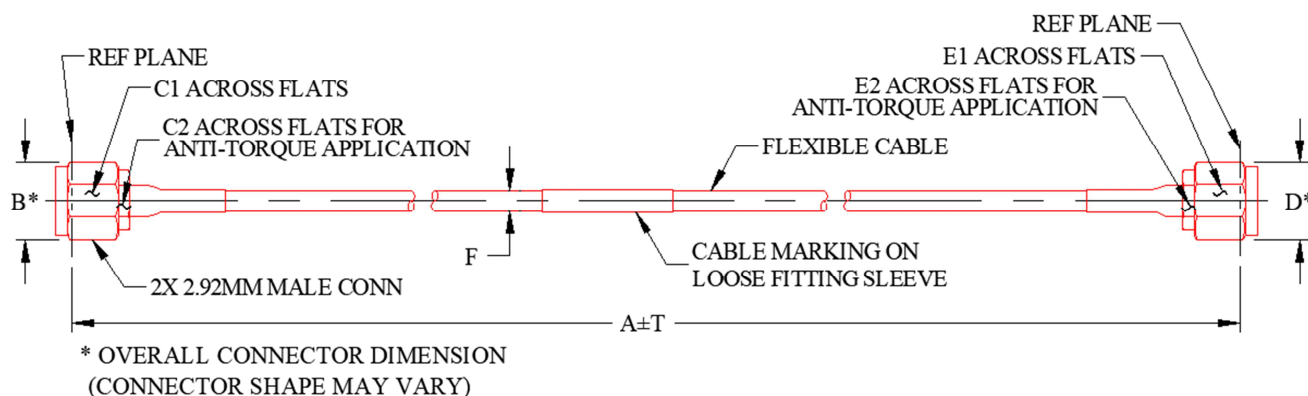
| FREQUENCY<br>(MHz) | INSERTION<br>LOSS<br>(dB) | 2.92mm-MALE 1<br>RETURN LOSS<br>(dB) | 2.92mm-MALE 2<br>RETURN LOSS<br>(dB) |
|--------------------|---------------------------|--------------------------------------|--------------------------------------|
| 10                 | 0.01                      | 52.53                                | 52.05                                |
| 50                 | 0.02                      | 54.93                                | 56.17                                |
| 100                | 0.02                      | 53.67                                | 52.28                                |
| 200                | 0.03                      | 47.53                                | 47.37                                |
| 300                | 0.05                      | 44.34                                | 43.80                                |
| 400                | 0.06                      | 42.48                                | 41.73                                |
| 500                | 0.07                      | 39.89                                | 39.06                                |
| 600                | 0.07                      | 37.41                                | 36.34                                |
| 700                | 0.08                      | 35.61                                | 35.38                                |
| 800                | 0.09                      | 34.36                                | 34.06                                |
| 900                | 0.09                      | 33.51                                | 32.95                                |
| 1000               | 0.10                      | 32.32                                | 32.06                                |
| 1500               | 0.12                      | 29.43                                | 29.60                                |
| 2000               | 0.13                      | 32.93                                | 32.95                                |
| 2500               | 0.14                      | 39.44                                | 38.33                                |
| 3000               | 0.14                      | 28.68                                | 28.86                                |
| 3500               | 0.14                      | 29.06                                | 29.64                                |
| 4000               | 0.15                      | 40.29                                | 45.67                                |
| 4500               | 0.17                      | 30.30                                | 30.58                                |
| 5000               | 0.18                      | 29.83                                | 29.36                                |
| 5500               | 0.18                      | 52.68                                | 53.82                                |
| 6000               | 0.20                      | 28.51                                | 28.66                                |
| 6500               | 0.21                      | 28.31                                | 28.42                                |
| 7000               | 0.21                      | 40.15                                | 52.58                                |
| 7500               | 0.22                      | 26.39                                | 26.66                                |
| 8000               | 0.23                      | 24.61                                | 24.33                                |
| 9000               | 0.23                      | 27.48                                | 27.88                                |
| 10000              | 0.23                      | 27.11                                | 26.93                                |
| 11000              | 0.26                      | 22.09                                | 22.03                                |
| 12000              | 0.24                      | 44.94                                | 45.93                                |
| 13000              | 0.27                      | 22.73                                | 22.07                                |
| 14000              | 0.26                      | 27.82                                | 26.08                                |
| 15000              | 0.27                      | 26.07                                | 25.79                                |
| 16000              | 0.28                      | 24.31                                | 24.53                                |
| 17000              | 0.28                      | 39.44                                | 33.35                                |
| 18000              | 0.30                      | 28.12                                | 25.47                                |
| 20000              | 0.32                      | 26.12                                | 28.89                                |
| 22000              | 0.34                      | 24.57                                | 26.18                                |
| 23000              | 0.35                      | 26.77                                | 27.51                                |
| 24000              | 0.35                      | 33.57                                | 35.29                                |
| 26500              | 0.38                      | 32.41                                | 33.57                                |
| 28000              | 0.39                      | 35.07                                | 32.96                                |
| 30000              | 0.42                      | 23.66                                | 25.79                                |
| 32000              | 0.42                      | 28.72                                | 23.96                                |
| 33000              | 0.43                      | 44.70                                | 31.60                                |
| 34000              | 0.45                      | 28.15                                | 21.57                                |
| 36000              | 0.48                      | 24.76                                | 29.30                                |
| 38000              | 0.52                      | 25.74                                | 27.98                                |
| 40000              | 0.58                      | 24.79                                | 26.76                                |

Typical Performance Curves



## Outline Dimensions

SE2929



### SE2929 SERIES 2.92MM MALE (CONN)

| CASE STYLE # | A     |         | B             | C1             | C2             | D             | E1             | E2             | F<br>FL086-AKM+         | T    |       | WEIGHT GRAMS |
|--------------|-------|---------|---------------|----------------|----------------|---------------|----------------|----------------|-------------------------|------|-------|--------------|
|              | INCH  | MM      |               |                |                |               |                |                |                         | INCH | MM    |              |
| SE2929-3     | 3.00  | 76.20   | .36<br>(9.14) | .315<br>(8.00) | .250<br>(6.35) | .36<br>(9.14) | .315<br>(8.00) | .250<br>(6.35) | .106±.004<br>(2.64±0.1) | .05  | 1.27  | 8.95         |
| SE2929-4     | 4.00  | 101.60  |               |                |                |               |                |                |                         | .05  | 1.27  | 9.40         |
| SE2929-6     | 6.00  | 152.40  |               |                |                |               |                |                |                         | .05  | 1.27  | 10.30        |
| SE2929-12    | 12.00 | 304.80  |               |                |                |               |                |                |                         | .10  | 2.54  | 11.20        |
| SE2929-18    | 18.00 | 457.20  |               |                |                |               |                |                |                         | .15  | 3.81  | 15.70        |
| SE2929-24    | 24.00 | 609.60  |               |                |                |               |                |                |                         | .15  | 3.81  | 18.40        |
| SE2929-60    | 60.00 | 1524.00 |               |                |                |               |                |                |                         | .40  | 10.16 | 34.60        |

Unless otherwise specified dimensions are in inches (mm).

Tolerances: 2Pl.±.03; 3Pl. ± .015

#### Note:

- 086 Flexible Coaxial Cable.
- "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<br>Ambient Environment  | Individual Model Data Sheet |
| Storage Temperature   | -55° to 105°C<br>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<br>30 mm, 5 times for FL086 series cables |                             |
| Single Bend Radius    | 10 mm for FL141 series cables<br>6 mm for FL086 series cables                   |                             |