



Mini-Circuits

HAND  
FLEX™

# Coaxial Cable

086-10SMPR+

50Ω 10 inch DC to 18 GHz Right Angle SMP-Female (Snap-on)

## THE BIG DEAL

- Wideband frequency coverage, DC to 18 GHz
- Low Loss, 0.94 dB at 18 GHz
- Excellent Return Loss, 25 dB at 18 GHz
- Hand formable to almost any custom shape without special bending tools
- 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

|            |                             |
|------------|-----------------------------|
| Model No.  | 086-10SMPR+                 |
| Case Style | KP2131-10                   |
| Connectors | Right Angle SMP-F (Snap-on) |

## +RoHS Compliant

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

## APPLICATIONS

- Communication receivers and transmitters
- Military and aerospace system
- Environmental and test chambers

## PRODUCT OVERVIEW

086-SMPR+ Series Hand-Flex™ interconnect cables are ideal for interconnecting coaxial components and sub-assemblies in a wide range of systems. Rugged, hand-formable cable construction provides a minimum bend radius of 6mm to accommodate tight layouts without the need for bending tools, adapters or brackets. The connector interface meets MIL-STD-348 requirements and an insulated outer jacket protects against wear and tear. 086-SMPR+ cables are available in a variety of lengths to meet your requirements.

## KEY FEATURES

| Feature                                                                                                      | Advantages                                                                                                                                                              |
|--------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Hand-formable RF cables                                                                                      | Facilitates interconnection of assembled systems without the need for special cable-bending tools or adaptors. Reduces the risk of damage during bending.               |
| Tight bend-radius                                                                                            | 6mm bend-radius allows almost any custom shape, accommodating tight layouts.                                                                                            |
| Right-angle SMP-F blind mate snap-on connectors                                                              | Ideal for interconnect of adjacent modules with tight space constraints without sacrificing high-frequency performance due to severe bend near the connector interface. |
| Excellent Return Loss                                                                                        | Minimizes VSWR ripple contribution due to mating cables and connectors.                                                                                                 |
| Low Insertion Loss                                                                                           | Minimizes overall signal path loss.                                                                                                                                     |
| Good power handling <ul style="list-style-type: none"><li>• 87W at 0.5 GHz</li><li>• 15W at 18 GHz</li></ul> | Supports medium to high RF power levels used in transmit paths.                                                                                                         |

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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> |                 | 10   |      |      | inches |
| Insertion Loss      | DC - 2          | —    | 0.21 | 0.5  | dB     |
|                     | 2 - 6           | —    | 0.44 | 0.9  |        |
|                     | 6 - 10          | —    | 0.64 | 1.2  |        |
|                     | 10 - 18         | —    | 0.83 | 1.6  |        |
| Return Loss         | DC - 2          | 20.3 | 41   | —    | dB     |
|                     | 2 - 6           | 20.3 | 29   | —    |        |
|                     | 6 - 10          | 16   | 26   | —    |        |
|                     | 10 - 18         | 16   | 24   | —    |        |

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 | 87W at 0.5 GHz  |
|                                    | 85W at 1 GHz    |
|                                    | 81W at 2 GHz    |
|                                    | 65W at 6 GHz    |
|                                    | 48W at 10 GHz   |
|                                    | 15W at 18 GHz   |

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





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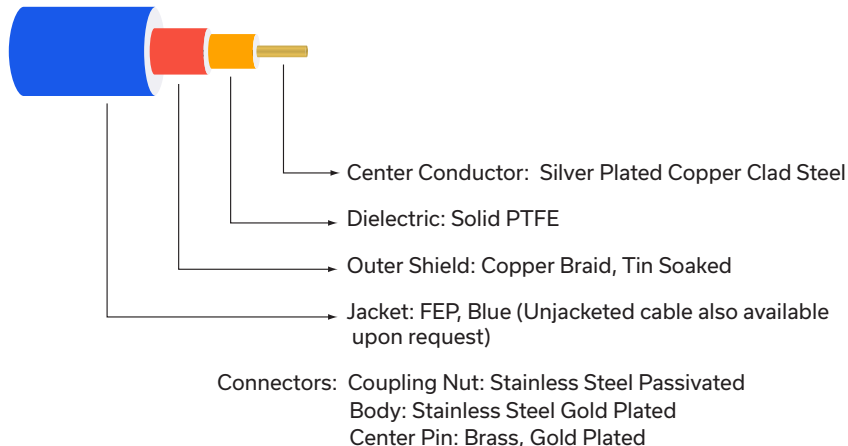
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**FLEX™**

# Coaxial Cable

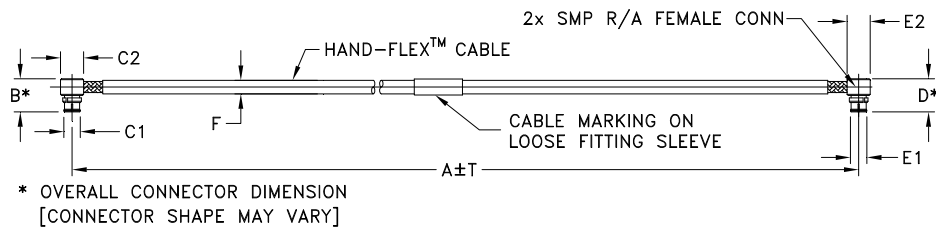
**086-10SMPR+**

50Ω 10 inch DC to 18 GHz Right Angle SMP-Female (Snap-on)

## CABLE CONSTRUCTION



## OUTLINE DRAWING



## OUTLINE DIMENSIONS (Inch/mm)

| A      | B    | C1   | C2   | D    | E1   | E2  | F        | T    | wt    |
|--------|------|------|------|------|------|-----|----------|------|-------|
| 10.0   | .27  | .135 | .19  | .27  | .135 | .19 | .108 NOM | INCH | grams |
| 254.00 | 6.86 | 3.43 | 4.83 | 6.86 | 3.43 | 4.8 | 2.74 NOM | 0.1  | 2.54  |





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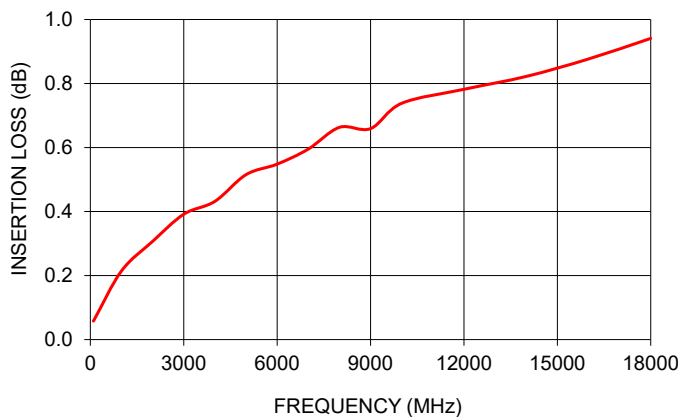
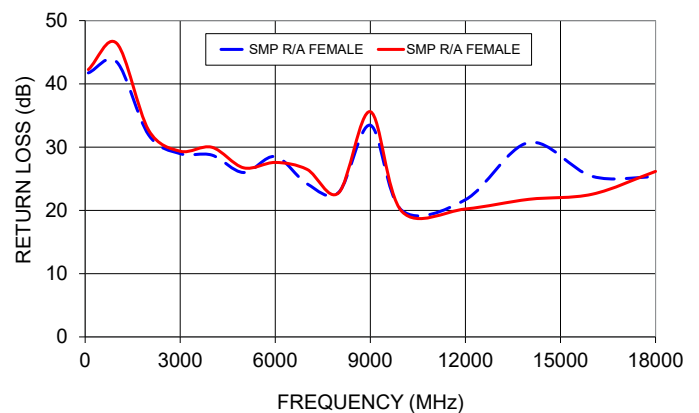
## Coaxial Cable

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## TYPICAL PERFORMANCE DATA AND CHARTS

| Frequency<br>(MHz) | Insertion Loss<br>(dB) | Return Loss<br>(dB)         |                             |
|--------------------|------------------------|-----------------------------|-----------------------------|
|                    |                        | Right Angle<br>SMP - Female | Right Angle<br>SMP - Female |
| 100                | 0.06                   | 41.73                       | 42.26                       |
| 1000               | 0.21                   | 43.44                       | 46.39                       |
| 2000               | 0.31                   | 31.95                       | 32.70                       |
| 3000               | 0.39                   | 28.97                       | 29.35                       |
| 4000               | 0.43                   | 28.74                       | 29.98                       |
| 5000               | 0.52                   | 25.99                       | 26.73                       |
| 6000               | 0.55                   | 28.51                       | 27.58                       |
| 7000               | 0.60                   | 24.21                       | 26.49                       |
| 8000               | 0.66                   | 22.85                       | 22.77                       |
| 9000               | 0.66                   | 33.46                       | 35.60                       |
| 10000              | 0.74                   | 19.96                       | 19.80                       |
| 12000              | 0.78                   | 21.69                       | 20.22                       |
| 14000              | 0.82                   | 30.73                       | 21.75                       |
| 16000              | 0.88                   | 25.38                       | 22.56                       |
| 18000              | 0.94                   | 25.30                       | 26.16                       |

086-10SMPR+  
INSERTION LOSS086-10SMPR+  
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)



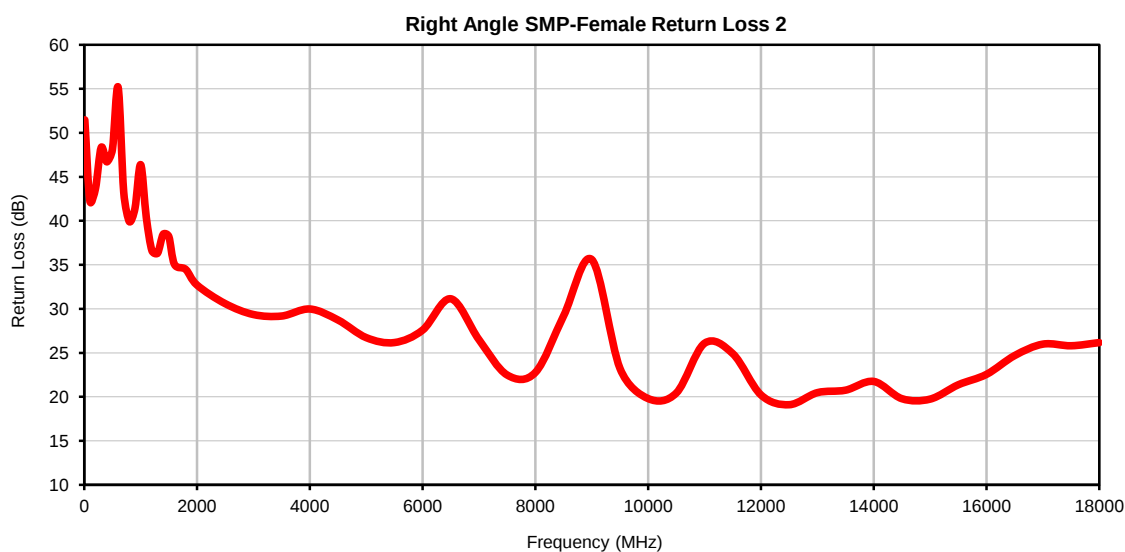
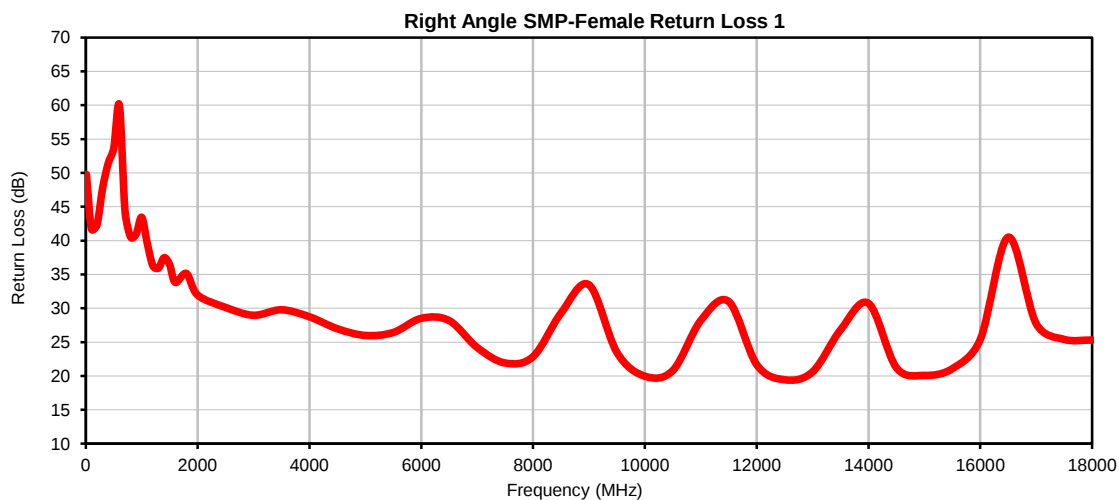
## Typical Performance Data

| FREQUENCY<br>(MHz) | INSERTION LOSS<br>(dB) | RIGHT ANGLE<br>SMP-FEMALE 1<br>RETURN LOSS<br>(dB) | RIGHT ANGLE<br>SMP-FEMALE 2<br>RETURN LOSS<br>(dB) |
|--------------------|------------------------|----------------------------------------------------|----------------------------------------------------|
| 10                 | 0.01                   | 49.79                                              | 51.47                                              |
| 100                | 0.06                   | 41.73                                              | 42.26                                              |
| 200                | 0.09                   | 42.34                                              | 43.69                                              |
| 300                | 0.11                   | 47.74                                              | 48.32                                              |
| 400                | 0.13                   | 51.41                                              | 46.70                                              |
| 500                | 0.15                   | 53.70                                              | 48.13                                              |
| 600                | 0.16                   | 59.99                                              | 55.18                                              |
| 700                | 0.18                   | 44.44                                              | 43.26                                              |
| 800                | 0.19                   | 40.54                                              | 39.91                                              |
| 900                | 0.20                   | 40.95                                              | 41.43                                              |
| 1000               | 0.21                   | 43.44                                              | 46.39                                              |
| 1100               | 0.23                   | 39.55                                              | 40.40                                              |
| 1200               | 0.24                   | 36.26                                              | 36.61                                              |
| 1300               | 0.25                   | 35.94                                              | 36.32                                              |
| 1400               | 0.26                   | 37.48                                              | 38.48                                              |
| 1500               | 0.26                   | 36.43                                              | 38.21                                              |
| 1600               | 0.27                   | 33.82                                              | 35.06                                              |
| 1800               | 0.29                   | 35.14                                              | 34.48                                              |
| 2000               | 0.31                   | 31.95                                              | 32.70                                              |
| 2500               | 0.35                   | 30.12                                              | 30.59                                              |
| 3000               | 0.39                   | 28.97                                              | 29.35                                              |
| 3500               | 0.41                   | 29.78                                              | 29.18                                              |
| 4000               | 0.43                   | 28.74                                              | 29.98                                              |
| 4500               | 0.47                   | 26.97                                              | 28.73                                              |
| 5000               | 0.52                   | 25.99                                              | 26.73                                              |
| 5500               | 0.54                   | 26.43                                              | 26.17                                              |
| 6000               | 0.55                   | 28.51                                              | 27.58                                              |
| 6500               | 0.56                   | 28.17                                              | 31.14                                              |
| 7000               | 0.60                   | 24.21                                              | 26.49                                              |
| 7500               | 0.64                   | 21.91                                              | 22.48                                              |
| 8000               | 0.66                   | 22.85                                              | 22.77                                              |
| 8500               | 0.65                   | 29.29                                              | 29.20                                              |
| 9000               | 0.66                   | 33.46                                              | 35.60                                              |
| 9500               | 0.69                   | 23.48                                              | 23.24                                              |
| 10000              | 0.74                   | 19.96                                              | 19.80                                              |
| 10500              | 0.74                   | 20.80                                              | 20.44                                              |
| 11000              | 0.73                   | 28.19                                              | 26.09                                              |
| 11500              | 0.75                   | 31.00                                              | 24.91                                              |
| 12000              | 0.78                   | 21.69                                              | 20.22                                              |
| 12500              | 0.79                   | 19.44                                              | 19.11                                              |
| 13000              | 0.80                   | 20.60                                              | 20.48                                              |
| 13500              | 0.81                   | 26.80                                              | 20.76                                              |
| 14000              | 0.82                   | 30.73                                              | 21.75                                              |
| 14500              | 0.85                   | 21.22                                              | 19.79                                              |
| 15000              | 0.86                   | 20.08                                              | 19.74                                              |
| 15500              | 0.86                   | 21.07                                              | 21.37                                              |
| 16000              | 0.88                   | 25.38                                              | 22.56                                              |
| 16500              | 0.89                   | 40.50                                              | 24.69                                              |
| 17000              | 0.91                   | 27.73                                              | 25.99                                              |
| 17500              | 0.92                   | 25.41                                              | 25.80                                              |
| 18000              | 0.94                   | 25.30                                              | 26.16                                              |

# Hand-Flex Coaxial Cable

086-10SMPR+

Right Angle SMP-Female to Right Angle SMP-Female



**Mini-Circuits®**  
ISO 9001 ISO 14001 AS 9100 CERTIFIED

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

IF/RF MICROWAVE COMPONENTS

REV. OR  
086-10SMPR+  
1/6/2020  
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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 or -55° to 85° C (see datasheet)<br>Ambient Environment       | Individual Model Data sheet |
| Storage Temperature   | -55° to 105° C or -55° to 85° C (see data sheet)<br>Ambient Environment      | Individual Model Data Sheet |
| Thermal Shock         | -55° to 100°C, 100 Cycles                                                    | MIL-STD-202F; Method 107G   |
| Multiple Bend Radius  | 40 mm, 5 times for 141 series cables<br>30 mm, 5 times for 086 series cables |                             |
| Single Bend Radius    | 8 mm for 141 series cables<br>6 mm for 086 series cables                     |                             |