



**HAND  
FLEX™**

# Coaxial Cable

**086-24SMR+**

Mini-Circuits

50Ω 24 inch DC to 18 GHz Right Angle SMA-Male

## THE BIG DEAL

- Wideband frequency coverage, DC to 18 GHz
- Low Loss, 2.19 dB typ. at 18 GHz
- Excellent Return Loss, 27 dB typ. at 18 GHz
- Hand formable to almost any custom shape without special bending tools
- 6 mm bend radius for tight installations
- Anti-torque nut prevents cable stress during installation
- Insulated outer jacket standard<sup>1</sup>
- Connector interface, meets MIL-STD-348
- Ideal for interconnect of assembled systems



*Generic photo used for illustration purposes only*

<b>Model No.</b>	086-24SMR+
<b>Case Style</b>	KP1679-24
<b>Connectors</b>	Right Angle SMA-Male

## +RoHS Compliant

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

## APPLICATIONS

- Replacement for custom bent 0.086" semi-rigid cables
- Communication receivers and transmitters
- Military and aerospace system
- Environmental and test chambers

## PRODUCT OVERVIEW

The 086 Series Hand-Flex™ Coaxial Cables are ideal for interconnection of coaxial components or sub-systems. The construction includes a silver-plated copper-clad steel center conductor which maintains the shape after bending. 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 passivated stainless-steel coupling nut over a gold plated connector body and gold plated, brass center conductor.

## KEY FEATURES

Feature	Advantages
Hand-Formable RF Cables	The 086 Series Hand-Flex™ cables are hand formable making them 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 6 mm bend radius, the 086 Hand-Flex™ series is able to make connections in tight spaces making these cables ideal for dense system integration
Excellent Return loss	Supporting typical return loss of 33 dB to 6 GHz and 21 dB to 18 GHz, the 086 Series Hand-Flex™ 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>• 211W at 0.5 GHz</li> <li>• 35W at 18 GHz</li> </ul>	Mini-Circuits 086 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.
Built-in Anti-torque nut	Mini-Circuits 086 Series Hand-Flex™ cables include an anti-torque feature to support the connector body during installation alleviating risk of stress to the connector/cable interface.
Jacketed and Unjacketed options	Standard 086 Series cables include a blue FEP insulator jacket reducing the risk of accidental shorting of DC power lines or active pins during installation and operation. Un-jacketed versions are available upon request.
Right angle SMA connectors	Avoids multiple right angle bends and improves reliability.

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ECO-017476  
086-24SMR+  
MCL NY  
231215

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# Coaxial Cable

## ELECTRICAL SPECIFICATIONS AT +25°C

Parameter	Frequency (GHz)	Min.	Typ.	Max.	Units
Frequency Range		DC		18	GHz
Length <sup>2</sup>		24			inches
Insertion Loss	DC - 2	—	0.5	0.9	dB
	2-6	—	0.9	1.6	
	6-10	—	1.3	2.2	
	10-18	—	1.7	3.0	
Return Loss	DC - 2	20	42	—	dB
	2-6	20	37	—	
	6-10	17	31	—	
	10-18	17	30	—	

1. Unjacketed cable also available upon request.
2. 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	211W at 0.5 GHz 150W at 1 GHz 104W at 2 GHz 59W at 6 GHz 45W at 10 GHz 35W at 18 GHz

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



HAND FLEX™

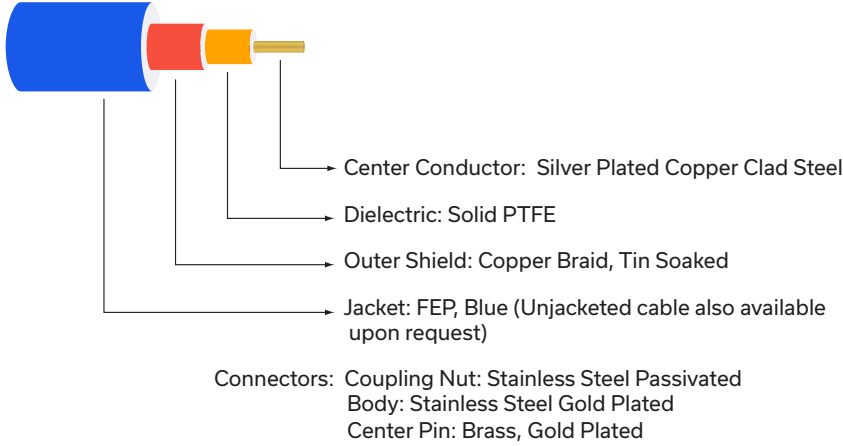
# Coaxial Cable

086-24SMR+

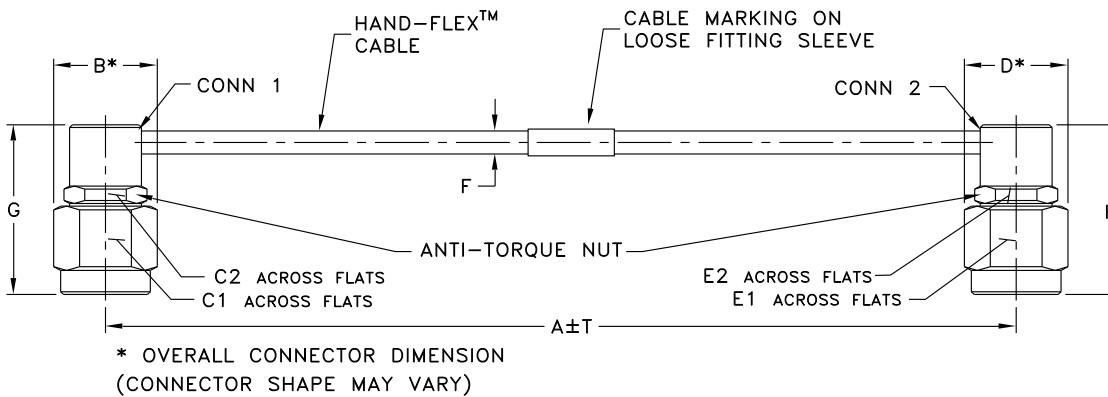
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50Ω 24 inch DC to 18 GHz Right Angle SMA-Male

## CABLE CONSTRUCTION



## OUTLINE DRAWING



## OUTLINE DIMENSIONS (Inch/mm)

A	B	C1	C2	D	E1	E2	F	G	H	T	wt
24.0	.36	.313	.250	.36	.313	.250	.108	0.634	0.634	0.15	grams
609.60	9.14	7.95	6.35	9.14	7.95	6.35	2.75	16.10	16.10	3.81	17.77





HAND FLEX™

# Coaxial Cable

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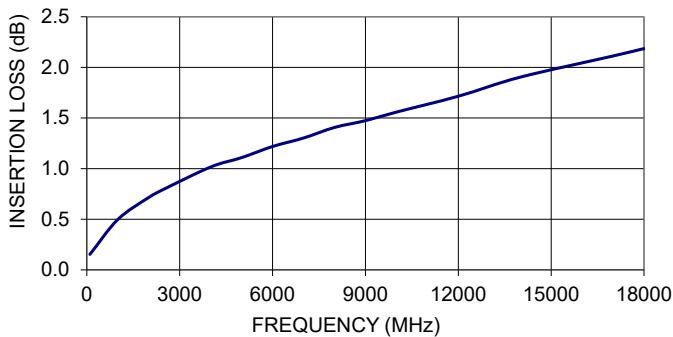
Mini-Circuits

50Ω 24 inch DC to 18 GHz Right Angle SMA-Male

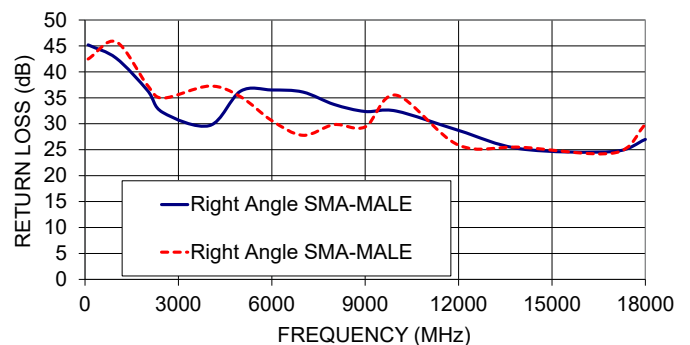
## TYPICAL PERFORMANCE DATA AND CHARTS

Frequency (MHz)	Insertion Loss (dB)	Return Loss (dB)	
		Right Angle SMA-Male	Right Angle SMA-Male
100	0.15	45	42
1000	0.50	43	46
2000	0.72	36	37
2500	0.80	32	35
4000	1.02	30	37
5000	1.11	36	35
6000	1.22	37	31
7000	1.30	36	28
8000	1.41	34	30
9000	1.47	32	29
10000	1.56	32	36
12000	1.72	29	26
14000	1.90	25	25
17000	2.11	25	24
18000	2.19	27	30

086-24SMR+  
INSERTION LOSS



086-24SMR+  
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)



# Hand-Flex Coaxial Cable

# 086-24SMR+

Right Angle SMA-Male to Right Angle SMA-Male

Typical Performance Data

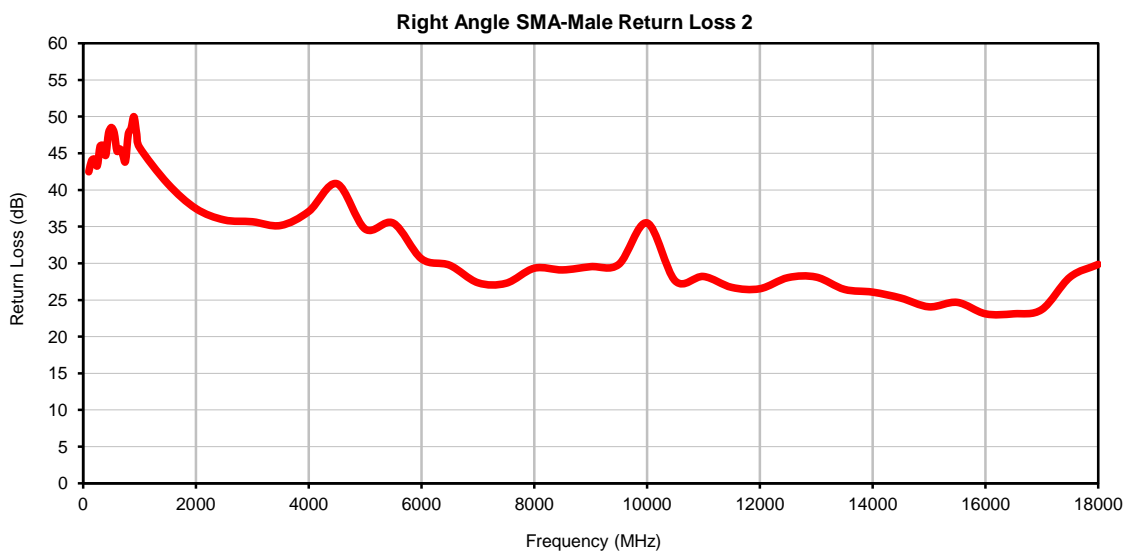
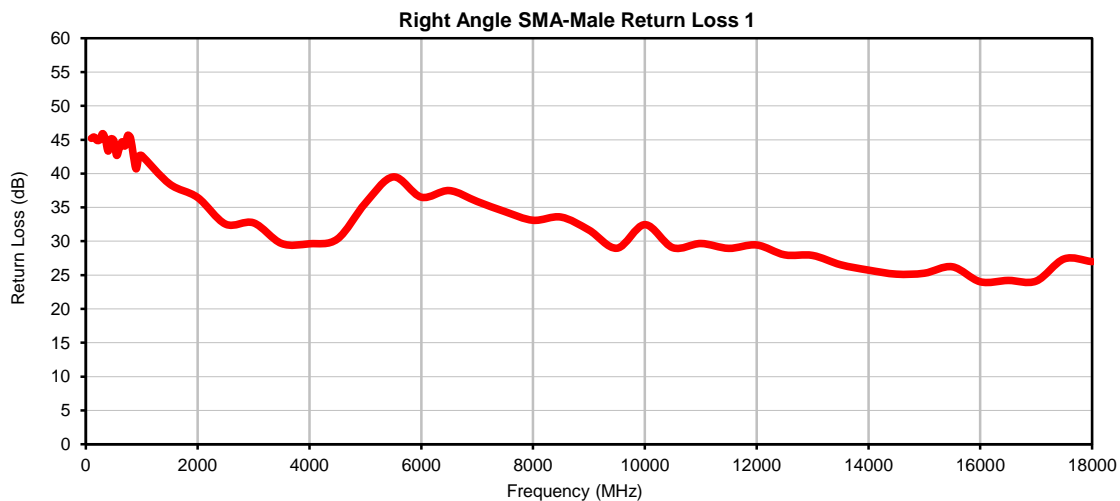
FREQUENCY (MHz)	INSERTION LOSS (dB)	RIGHT ANGLE SMA-MALE 1 RETURN LOSS (dB)	RIGHT ANGLE SMA-MALE 2 RETURN LOSS (dB)
100	0.15	45.2	42.5
150	0.19	45.4	44.0
200	0.22	44.9	44.2
250	0.25	45.0	43.3
300	0.27	45.9	45.9
350	0.29	45.1	46.1
400	0.31	43.3	44.7
450	0.33	45.1	47.8
500	0.35	44.9	48.5
550	0.36	42.7	47.8
600	0.39	43.8	45.3
650	0.40	44.7	45.6
700	0.41	44.1	44.9
750	0.43	45.6	43.9
800	0.44	45.2	47.6
850	0.45	42.7	48.4
900	0.47	40.7	50.0
950	0.48	42.6	47.6
1000	0.50	42.6	45.8
1500	0.61	38.5	40.9
2000	0.72	36.5	37.5
2500	0.81	32.5	35.9
3000	0.89	32.7	35.7
3500	0.95	29.7	35.2
4000	1.02	29.6	37.1
4500	1.08	30.3	40.9
5000	1.11	35.6	34.7
5500	1.14	39.5	35.5
6000	1.22	36.5	30.6
6500	1.23	37.5	29.7
7000	1.30	35.9	27.3
7500	1.38	34.4	27.3
8000	1.40	33.1	29.3
8500	1.43	33.6	29.1
9000	1.46	31.7	29.5
9500	1.53	29.0	29.9
10000	1.56	32.4	35.5
10500	1.60	29.0	27.6
11000	1.62	29.7	28.2
11500	1.69	28.9	26.7
12000	1.71	29.4	26.5
12500	1.77	28.0	28.0
13000	1.81	27.9	28.1
13500	1.90	26.5	26.4
14000	1.93	25.7	26.1
14500	1.95	25.1	25.3
15000	2.05	25.3	24.1
15500	2.07	26.2	24.7
16000	2.07	24.0	23.1
16500	2.06	24.2	23.1
17000	2.10	24.1	23.7
17500	2.13	27.4	28.1
18000	2.19	27.0	29.9

# Hand-Flex Coaxial Cable

086-24SMR+

Right Angle SMA-Male to Right Angle SMA-Male

## Typical Performance Curves



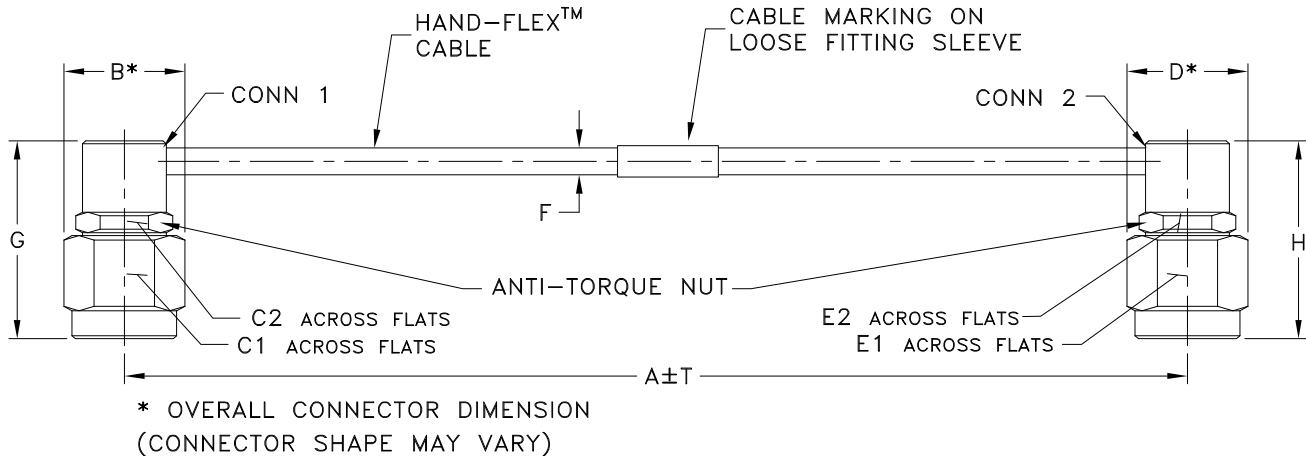
P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 • Fax (718) 332-4661 For detailed performance specs & shopping online see Mini-Circuits web site  
The Design Engineers Search Engine Provides ACTUAL Data Instantly From MINI-CIRCUITS At: [www.minicircuits.com](http://www.minicircuits.com)



IF/RF MICROWAVE COMPONENTS

REV. OR  
086-24SMR+  
6/21/2018  
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### Outline Dimensions



#### KP1679 SERIES

RIGHT ANGLE SMA MALE (CONN-1)

RIGHT ANGLE SMA MALE (CONN-2)

CASE STYLE #	A		B	C1	C2	D	E1	E2	F		G	H	T		WEIGHT GRAMS
	INCH	MM							086U-ASMR+	086-ASMR+			INCH	MM	
KP1679-2	2.00	50.80	.36 (9.14)	.315 (8.00)	.250 (6.35)	.36 (9.14)	.315 (8.00)	.250 (6.35)	.089 $\sqrt{.002}$ (2.26 $\sqrt{.05}$ )	.108 NOM (2.74 NOM)	.654 (16.61)	.654 (16.61)	.05	1.27	7.71
KP1679-3	3.00	76.20											.05	1.27	8.17
KP1679-4	4.00	101.60											.05	1.27	8.63
KP1679-5	5.00	127.00											.05	1.27	9.09
KP1679-6	6.00	152.40											.05	1.27	9.54
KP1679-7	7.00	177.80											.10	2.54	10.00
KP1679-8	8.00	203.20											.10	2.54	10.46
KP1679-9	9.00	228.60											.10	2.54	10.91
KP1679-10	10.00	254.00											.10	2.54	11.37
KP1679-11	11.00	279.40											.10	2.54	11.83
KP1679-12	12.00	304.80											.10	2.54	12.28
KP1679-14	14.00	355.60											.15	3.81	13.20
KP1679-18	18.00	457.20											.15	3.81	15.03
KP1679-24	24.00	609.60											.15	3.81	17.77

Unless otherwise specified dimensions are in inches (mm).

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

#### Note:

- 086 Hand-Flex™ Coaxial Cable.
- "A" represents length of cable.



INTERNET <http://www.minicircuits.com>

P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661

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Mini-Circuits ISO 9001 & ISO 14001 Certified



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) Ambient Environment	Individual Model Data sheet
Storage Temperature	-55° to 105° C or -55° to 85° C (see data sheet) 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 30 mm, 5 times for 086 series cables	
Single Bend Radius	8 mm for 141 series cables 6 mm for 086 series cables	