HAND FLEX™

Coaxial Cable

086-12KM+

50Ω 12 inch DC to 40 GHz 2.92 mm-Male

THE BIG DEAL

- Wideband frequency coverage, DC to 40 GHz
- Low Loss, 2.0 dB at 40 GHz
- Excellent Return Loss, 22 dB at 40 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
- Connector interface, meets MIL-STD-348
- Ideal for interconnect of assembled systems

Generic photo used for illustration purposes only

Model No.	086-12KM+
Case Style	RQ2535-12
Connectors	2.92 mm-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 solid copper 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 brass connector body.

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 18 GHz and 24 dB to 40 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: • 61 W at 1 GHz • 7 W at 40 GHz	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.

REV. D
ECO-026483
086-12KM+
MCL NY
250811

ELECTRICAL SPECIFICATIONS AT +25°C

Parameter	Frequency (GHz)	Min.	Typ.	Max.	Units
Frequency Range		DC		40	GHz
Length			12		inches
Insertion Loss	DC - 6 6 - 18 18 - 26.5 26.5 - 40		0.4 0.85 1.3 1.7	0.87 1.58 1.93 2.48	dB
Return Loss	DC - 18 18 - 40	18 15.9	34 24		dB

ABSOLUTE MAXIMUM RATINGS

Parameter	Ratings
Operating Temperature	-55°C to +85°C
Storage Temperature	-55°C to +85°C
Power Handling at +25°C, Sea Level	61 W at 1 GHz 24 W at 6 GHz 16 W at 12 GHz 12 W at 18 GHz 9 W at 26.5 GHz 7 W at 40 GHz

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

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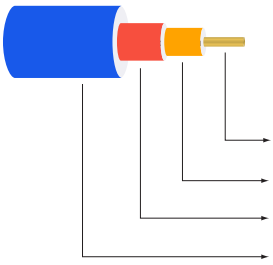
CABLE CONSTRUCTION



Center Conductor: Silver Plated Solid Copper

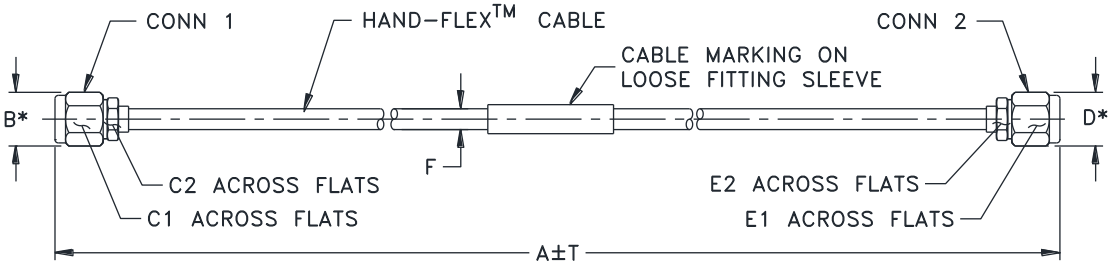
Dielectric: Solid PTFE

Outer Shield: Copper Braid, Tin Soaked

Jacket: FEP, Blue (Unjacked cable also available upon request)

Connectors: Coupling Nut: Stainless Steel, Passivated
Body: Brass, Gold Plated
Center Pin: Beryllium Copper, Gold Plated

OUTLINE DRAWING



* OVERALL CONNECTOR OR CABLE & BOOT DIM.
[CONNECTOR SHAPE MAY VARY]

OUTLINE DIMENSIONS (Inch / mm)

A	B	C1	C2	D	E1	E2	F	T	wt
12.0	.36	.315	.250	.36	.315	.250	.104	.08	grams
304.80	9.14	8.00	6.35	9.14	8.00	6.35	2.64	2.03	14.56

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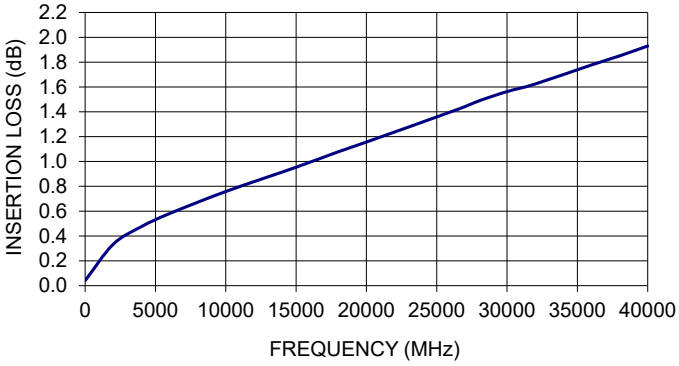
50Ω 12 inch DC to 40 GHz 2.92 mm-Male

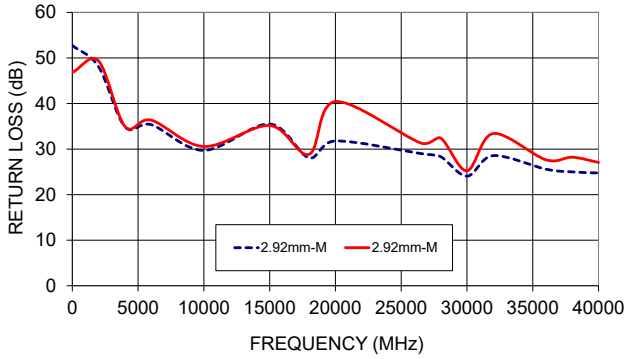
TYPICAL PERFORMANCE DATA AND CHARTS

Frequency (MHz)	Insertion Loss (dB)	Return Loss (dB)	
		2.92 mm-Male	2.92 mm-Male
10	0.04	52.7	46.9
2000	0.33	48.1	49.3
4000	0.48	34.9	35.0
6000	0.58	35.4	36.4
10000	0.76	29.7	30.6
15000	0.95	35.5	35.2
18000	1.08	28.1	28.9
20000	1.16	31.8	40.4
26500	1.42	29.0	31.3
28000	1.49	28.3	32.4
30000	1.56	24.1	25.2
32000	1.62	28.6	33.4
36000	1.78	25.6	27.6
38000	1.85	25.0	28.2
40000	1.93	24.8	27.1

086-12KM+
INSERTION LOSS



086-12KM+
RETURN LOSS

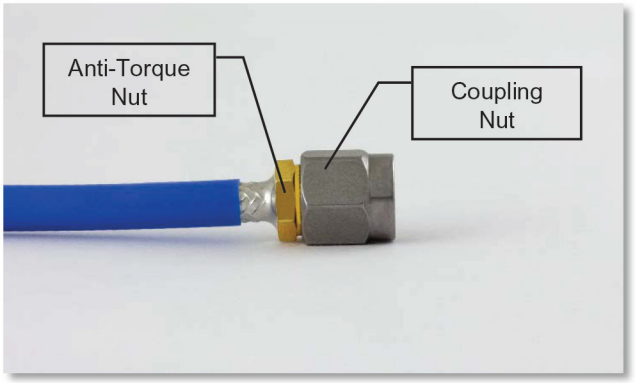


PROPER CABLE CONNECTION USING ANTI-TORQUE NUT

Mini-Circuits 086-series HandFlex™ interconnect cables are constructed with an anti-torque nut adjacent to the connector coupling nut. When used properly, this feature prevents possible damage to the cable due to torquing and twisting when tightening the cable connector.

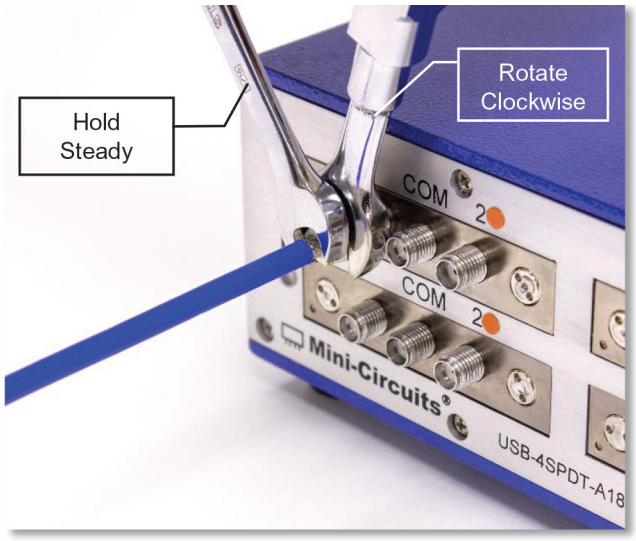
TO PROPERLY TIGHTEN THE CABLE CONNECTOR:

1) The cable connector includes a coupling nut which rotates to fasten the connector, and an anti-torque nut, which is fixed to prevent the cable from twisting during connection.



2) To properly tighten the cable, use a standard 1/4-inch open end wrench to brace the anti-torque nut.

3) Using a 5/16-inch open end wrench, rotate the coupling nut clockwise to tighten the cable connector.



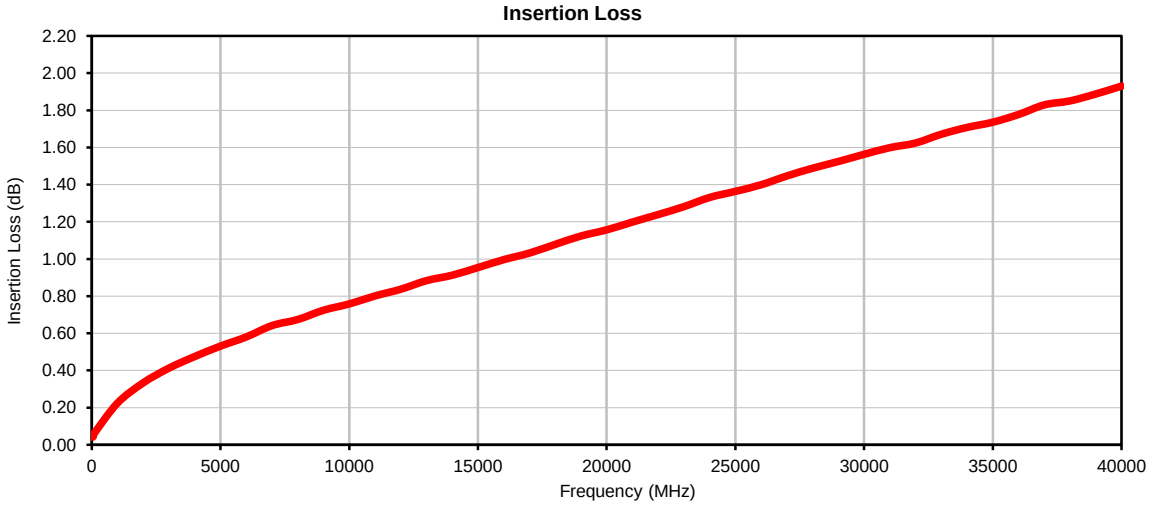
*NOTE: Mini-Circuits recommends using a 5/16-inch open end wrench calibrated to 8 inch-pounds maximum torque to prevent damage due to over-torqueing the connector.

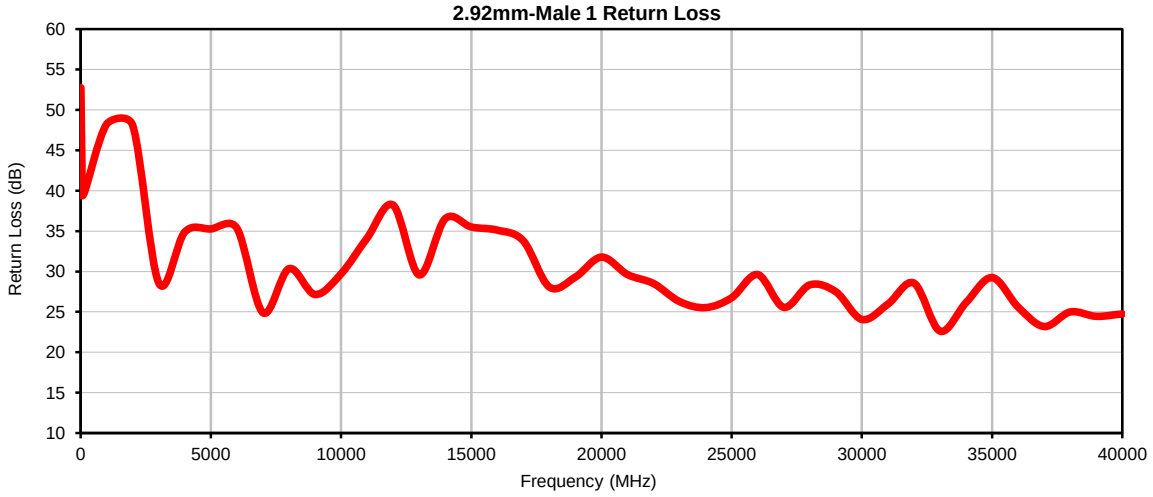
Hand-Flex Coaxial Cable, 2.92mm-M/2.92mm-M 086-12KM+

Typical Performance Data

FREQUENCY (MHz)	INSERTION LOSS (dB)	2.92mm-MALE 1 RETURN LOSS (dB)	2.92mm-MALE 2 RETURN LOSS (dB)
10	0.04	52.7	46.9
50	0.04	43.1	41.6
100	0.06	39.5	39.2
1000	0.22	48.3	48.6
2000	0.33	48.1	49.3
3000	0.41	28.6	28.5
4000	0.48	34.9	35.0
5000	0.53	35.3	38.9
6000	0.58	35.4	36.4
7000	0.64	24.9	25.0
8000	0.67	30.3	30.9
9000	0.72	27.2	27.5
10000	0.76	29.7	30.6
11000	0.80	34.1	34.0
12000	0.84	38.2	41.6
13000	0.88	29.6	30.1
14000	0.91	36.5	34.5
15000	0.95	35.5	35.2
16000	1.00	35.1	35.9
17000	1.03	33.8	32.7
18000	1.08	28.1	28.9
19000	1.12	29.3	32.2
20000	1.16	31.8	40.4
21000	1.20	29.6	32.3
22000	1.24	28.5	30.5
23000	1.28	26.3	34.6
24000	1.33	25.5	27.7
25000	1.36	26.7	29.9
26000	1.40	29.6	34.5
27000	1.45	25.6	26.7
28000	1.49	28.3	32.4
29000	1.52	27.5	29.8
30000	1.56	24.1	25.2
31000	1.60	26.0	27.3
32000	1.62	28.6	33.4
33000	1.67	22.6	24.2
34000	1.71	26.1	26.8
35000	1.74	29.2	34.2
36000	1.78	25.6	27.6
37000	1.83	23.2	24.2
38000	1.85	25.0	28.2
39000	1.89	24.4	26.0
40000	1.93	24.8	27.1

Typical Performance Curves

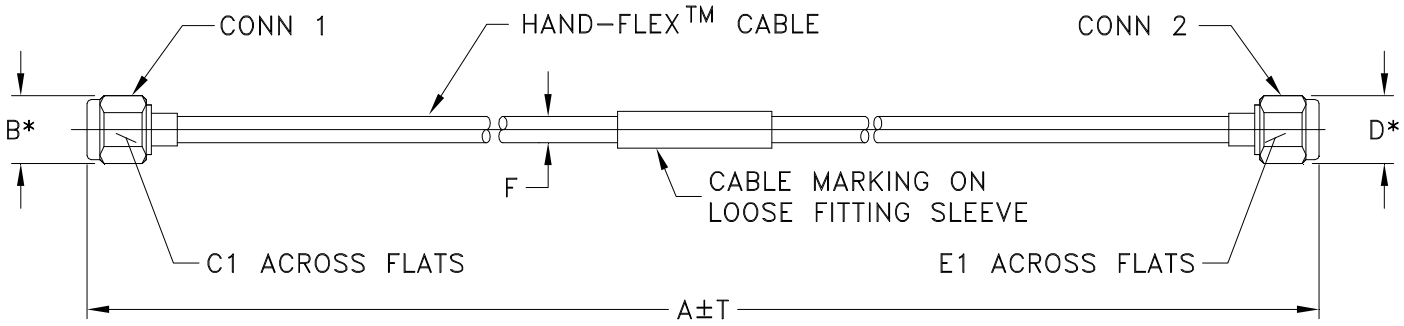




Case Style RQ

RQ2535

Outline Dimensions



*OVERALL CONNECTOR OR CABLE & BOOT DIM
[CONNECTOR SHAPE MAY VARY]

RQ2535 SERIES
2.92mm MALE (CONN-1)
2.92mm MALE (CONN-2)

CASE STYLE #	A		B	C1	C2	D	E1	E2	F	T		WEIGHT GRAMS
	INCH	MM							086-AKM+	INCH	MM	
RQ2535-3	3.00	76.20	.36 (9.14)	.315 (8.00)	-- --	.36 (9.14)	.315 (8.00)	-- --	.104 (2.65)	.08	2.00	9.64
RQ2535-4	4.00	101.60								.08	2.00	10.19
RQ2535-6	6.00	152.40								.08	2.00	11.28
RQ2535-9	9.00	228.60								.08	2.00	12.92
RQ2535-12	12.00	304.80								.08	2.00	14.56
RQ2535-15	15.00	381.00								.15	3.81	16.21
RQ2535-18	18.00	457.20								.15	3.81	17.85
RQ2535-24	24.00	609.60								.15	3.81	21.13

Unless otherwise specified dimensions are in inches (mm).
Tolerances: 2Pl. ± .03; 3Pl. ± .015

Note:
1. 086 Hand-Flex™ Coaxial Cable.
2. "A" Represents Length of Cable.

Mini-Circuits

Environmental Specifications **ENV52**

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	