



KEY FEATURES

- Nickel-Free Construction, Non-Magnetic
- Broadband
- Reliable Performance

APPLICATIONS

- Cryogenic Environment Application
- Test & Measurement
- Speed data systems
- Instrumentation
- Precision Measurement
- Quantum Computing Applications
- High-Volume Production Test
- R&D Labs & Device Characterization
- Circuit-Level Breadboarding



Generic photo used for illustration purposes only

PRODUCT OVERVIEW

The 86N-Series Hand-Flex™ coaxial cables are ideal for interconnection of coaxial components or subsystems. The cable construction includes silver-plated, copper-clad center conductor which maintains the new shape after bending. The outer shield is tin-soaked copper braid which not only minimizes signal leakage but remains flexible for easy bending. Connectors are nickel-free, gold-plated BeCu.

ABSOLUTE MAXIMUM RATINGS

ELECTRICAL SPECIFICATIONS¹

Operating Frequency (GHz)	18
Impedance (Ω)	50
Velocity of Propagation (%)	69.5
Shielding Effectiveness Min. (dB/m)	100
Voltage Withstand Max. (VDC)	1900
Return Loss Typ. [VSWR]	32.26 dB [1.05:1]
Return Loss Max. [VSWR]	17.69 dB [1.3:1]

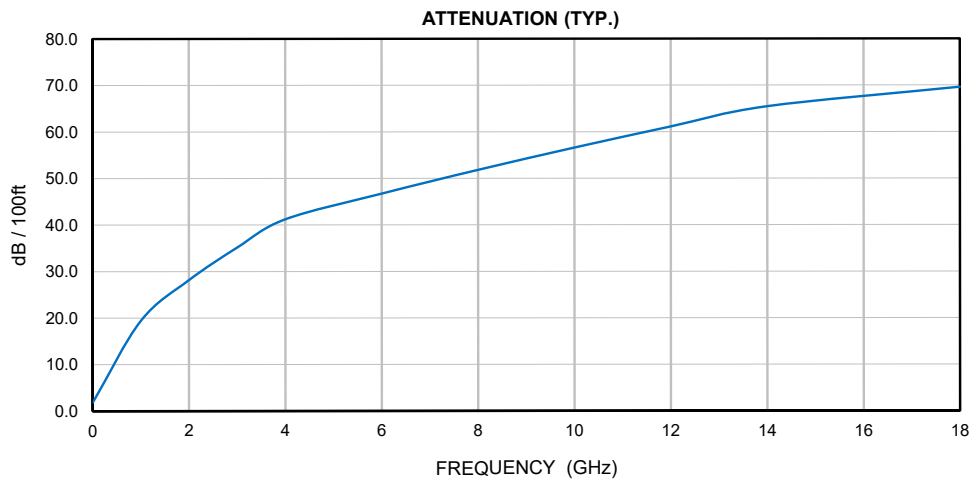
1.,2. Permanent damage may occur if these limits are exceeded.

MECHANICAL & ENVIRONMENTAL SPECIFICATIONS²

Operating Case Temperature ³	-45 °C to +125 °C
Storage Temperature	-45 °C to +125 °C
Bend Radius: Installation mm [in]	8 [0.31]
Bend Radius: Repeated mm [in]	40 [1.57]
Cable Weight ⁴ (g/m) [lbs/1000ft]	14 [9.4087]

3. Temperature extremes are not intended for continuous normal operation.

4. Total connector weight is 3.3 g per cable.

ABSOLUTE MAXIMUM RATINGS (CONT.)⁵

Attenuation (Typical @ 25 °C & VSWR = 1.0) dB

Frequency (MHz)	1000	2000	3000	4000	6000	8000	10000	12000	14000	18000
dB / 100 m	70.07	101.63	126.86	148.81	187.03	220.60	251.22	279.73	306.64	356.91
dB / 100 ft	21.36	30.98	38.66	45.35	56.99	67.23	76.56	85.25	93.45	108.77

$$\text{Calculate Max Attenuation}^5 = [K1 * \sqrt{FMHz} + K2 * FMHz] * 1.1 \text{ dB}^6$$

dB / 100 m	K1 =	1.8898	K2 =	0.00394
dB / 100 ft	K1 =	0.57600	K2 =	0.00120

5,.6. For cable only, include 0.5 dB loss for connectors

Max Power (VSWR = 1.0; 25 °C; Sea Level) W

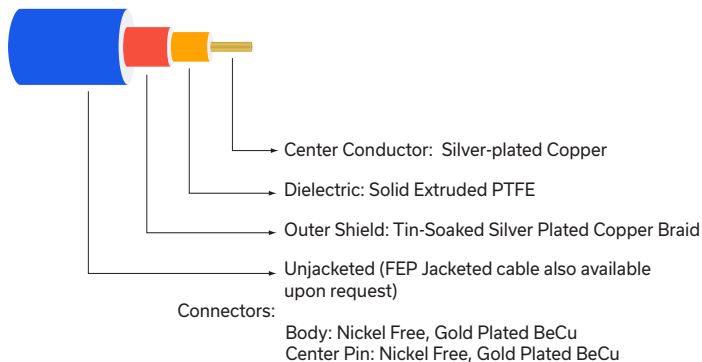
Frequency (MHz)	1000	2000	3000	4000	6000	8000	10000	12000	14000	18000
Avg. Power (kW)	0.280	0.195	0.160	0.140	0.110	0.095	0.85	0.080	0.74	0.065



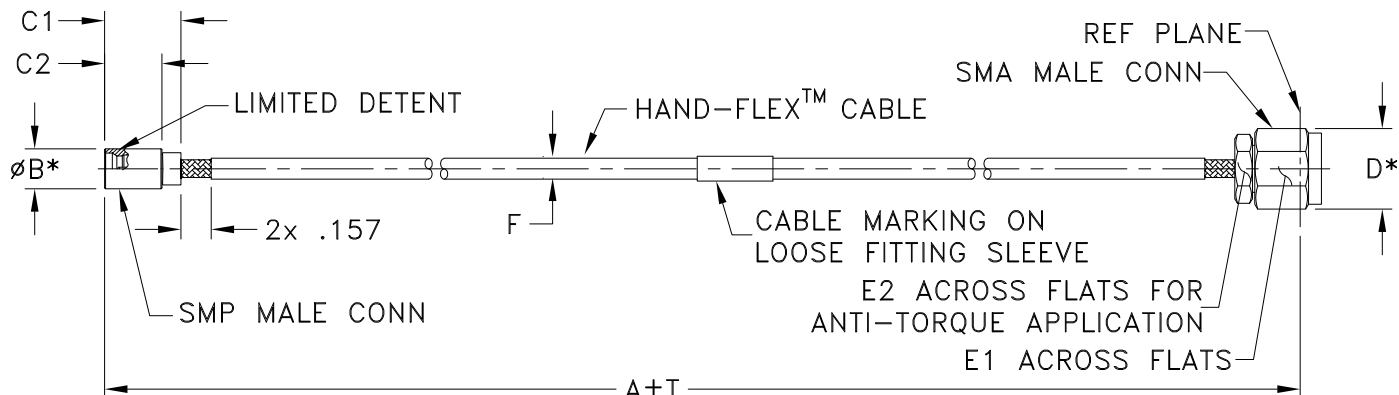
COAXIAL CONNECTIONS

Description	Connector 1	Connector 2
Connector Type	SMP Male	SMA Male
Orientation	Straight	Straight

CABLE CONSTRUCTION



CASE STYLE DRAWING



A		B	C1	C2	D	E1	E2	F	T		Wt. grams
Inch	MM								Inch	MM	
3.94	100	.18 (4.60)	.346 (8.80)	.260 [6.60]	.36 (9.14)	.315 (8.00)	.250 (6.35)	.091 (2.31)	±.05	±1.27	5.90
7.87	200								±.10	±2.54	7.50
11.81	300								±.10	±2.54	9.10
19.69	500								±.15	±3.81	12.31

PRODUCT MARKING*: 86N-XXCSMPMSM+

*Marking may contain other features or characters for internal lot control.



Mini-Circuits

COAXIAL

Non-Magnetic Flex

86N SERIES

50Ω DC to 18 GHz SMP Male to SMA Male

ADDITIONAL INFORMATION IS AVAILABLE ON OUR DASHBOARD

CLICK HERE

Performance Data & Graphs	Data
	Graphs
	S-Parameter (S2P Files) Data Set (.zip file)
Case Style	KP3757
RoHS Status	Compliant
Environmental Ratings	ENV157

NOTES

- 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.
- Electrical specifications and performance data contained in this specification document are based on Mini-Circuits' applicable established test performance criteria and measurement instructions.
- 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



Non-Magnetic Flex Cable SMP Male to SMA Male

86N-50CSMPMSM

Typical Performance Data

FREQ.	INSERTION LOSS	SMP MALE VSWR	SMA MALE VSWR
(GHz)	(dB)	(dB)	(dB)
0.01	0.06	1.01	1.01
0.10	0.13	1.04	1.04
0.15	0.27	1.03	1.03
1.00	0.38	1.01	1.01
2.00	0.54	1.04	1.04
2.50	0.60	1.02	1.01
3.00	0.66	1.03	1.03
3.50	0.72	1.05	1.04
4.00	0.78	1.02	1.03
4.50	0.83	1.03	1.02
5.00	0.88	1.07	1.06
5.50	0.93	1.05	1.04
6.00	0.97	1.05	1.03
6.50	1.01	1.07	1.06
7.00	1.05	1.04	1.03
7.50	1.09	1.04	1.02
8.00	1.13	1.04	1.03
8.50	1.17	1.03	1.03
9.00	1.21	1.05	1.04
9.50	1.25	1.07	1.06
10.00	1.30	1.09	1.07
10.50	1.33	1.09	1.08
11.00	1.37	1.14	1.12
11.50	1.40	1.13	1.09
12.00	1.44	1.13	1.09
12.50	1.48	1.19	1.15
13.00	1.50	1.14	1.09
13.50	1.53	1.10	1.06
14.00	1.57	1.12	1.10
14.50	1.59	1.07	1.07
15.00	1.62	1.06	1.06
15.50	1.66	1.08	1.09
16.00	1.70	1.06	1.09
16.50	1.73	1.08	1.09
17.00	1.77	1.11	1.11
17.50	1.79	1.05	1.06
18.00	1.83	1.13	1.12



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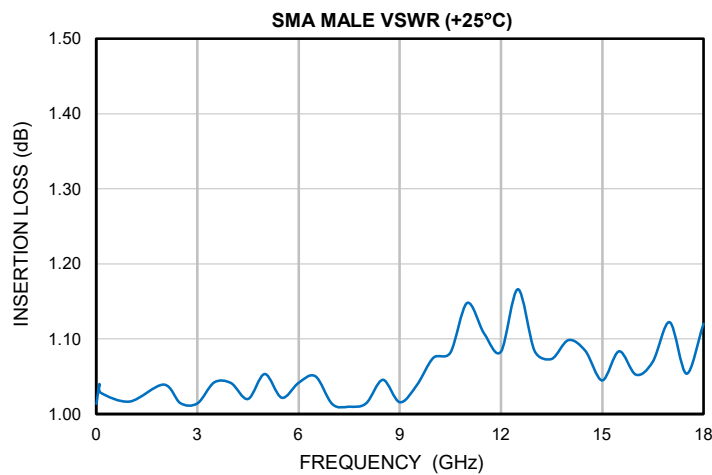
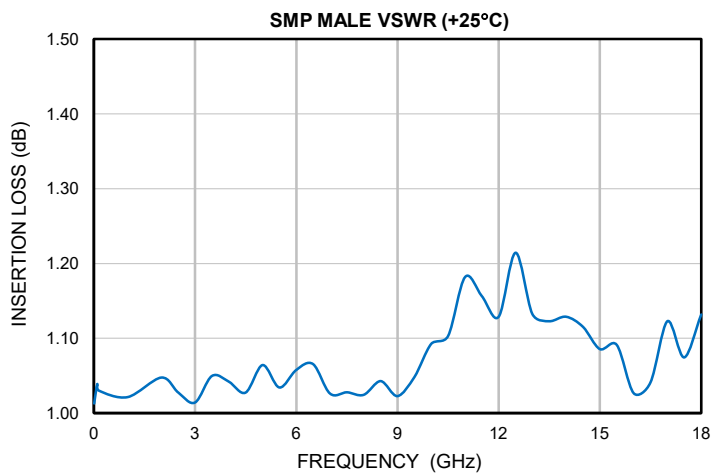
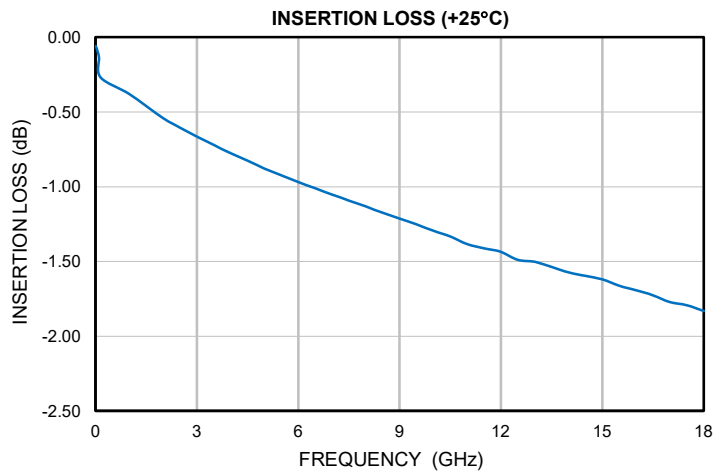


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IF/RF MICROWAVE COMPONENTS

REV. OR
86N-50CSMPMSM
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Typical Performance Curves

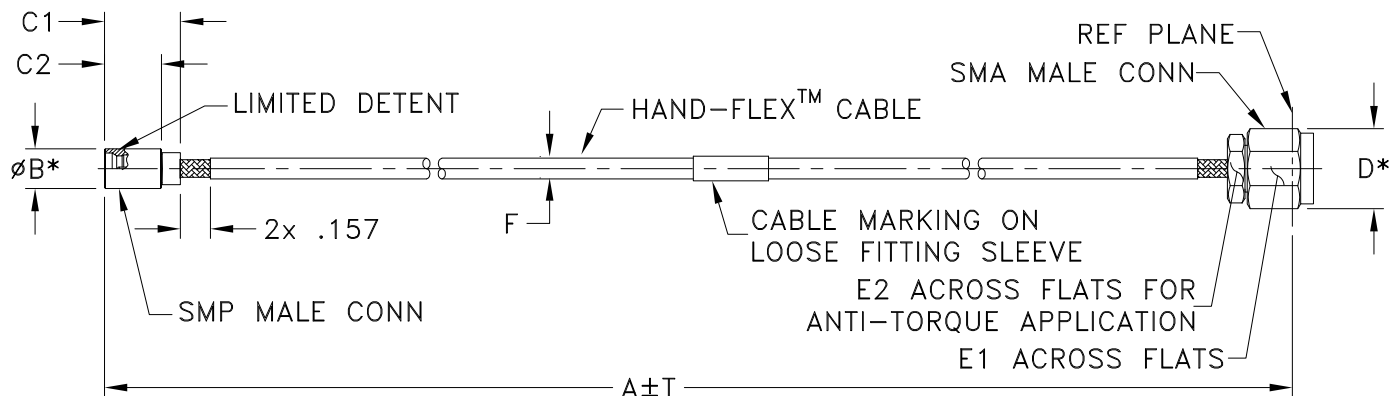


Case Style

KP

Outline Dimensions

KP3757



* OVERALL CONNECTOR DIMENSION
[CONNECTOR SHAPE MAY VARY]

Case Style #	A		B	C1	C2	D	E1	E2	F		T		WT. (GRAMS)
	INCH	MM							086U-ASMPMSM+ 086UCU-ASMPMSM+	086-ASMPMSM+ 086CU-ASMPMSM+	INCH	MM	
KP3825-3.94	3.94	100.00	.18 [4.60]	.346 [8.80]	.260 [6.60]	.36 [9.14]	.315 [8.00]	.250 [6.35]	.091 MAX [2.31 MAX]	.123 MAX [3.12 MAX]	.05	1.27	5.90
KP3823-7.87	7.87	200.00									.10	2.54	7.50
KP3823-11.8	11.81	300.00									.10	2.54	9.10
KP3823-19.7	19.69	500.00									.15	3.81	12.31

Unless Otherwise Specified dimensions are in inches [mm],
Tolerances: 2 Pl. ±0.03; 3 Pl. ±0.015 inches

Notes:

1. 086 Hand-Flex™ 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	-45° C to 125° C Ambient Environment	Individual Model Data Sheet
Storage Temperature	-45° C to 125° C Ambient Environment	Individual Model Data Sheet
Thermal Shock	-55° to 125°C, 100 Cycles	MIL-STD-202, 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	
Connector Durability	500 mating/unmating cycles	MIL-PRF-39012E, PARAGRAPH 4.6.12