



Mini-Circuits

COAXIAL

Non-Magnetic Flex Cables

86N SERIES

50Ω DC to 18 GHz SSMP-Male to SMA-Male

KEY FEATURES

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

APPLICATIONS

- Cryogenic Environment Applications
- Test & Measurement
- High-Speed Data Systems
- Instrumentation
- Precision Measurements
- 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 interconnecting coaxial components or sub-systems. The construction includes an unjacketed silver-plated copper-clad center conductor which maintains its shape after bending. The outer shield is a tin soaked, silver-plated copper braid which minimizes signal leakage while remaining flexible for easy bending. Connectors have passivated stainless-steel coupling nuts over gold-plated connector bodies and gold-plated, brass center conductors.

ELECTRICAL SPECIFICATIONS¹

Operating Frequency (GHz)	18
Impedance (Ω)	50
Velocity of Propagation (%)	70
Shielding Effectiveness Min. (dB/m)	100
Voltage Withstand Max. (VDC)	2000
Return Loss Typ. [VSWR]	32.26 dB [1.05:1]
Return Loss Max. [VSWR]	17.69 dB [1.3:1]

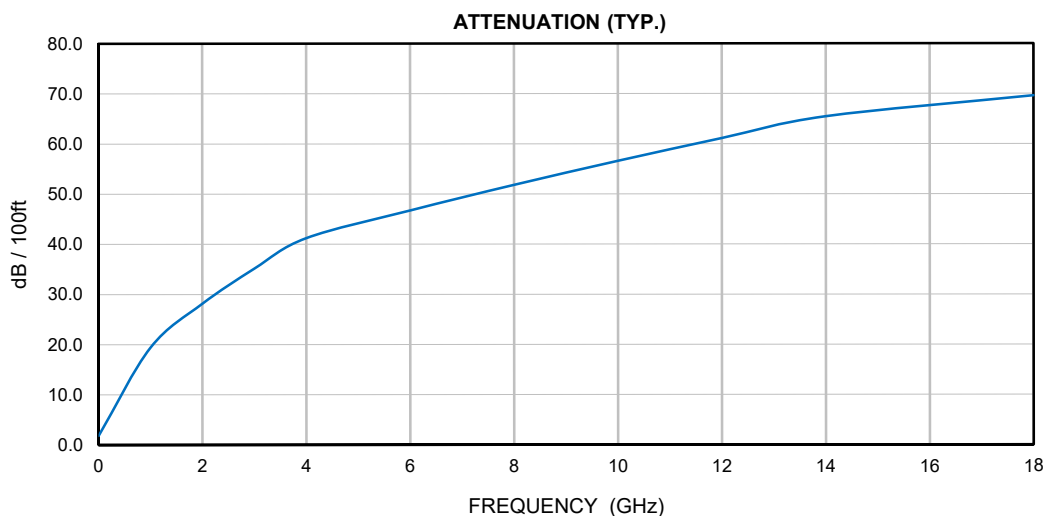
1. Permanent damage may occur if any of these limits are exceeded

MECHANICAL & ENVIRONMENTAL SPECIFICATIONS¹

Operating Case Temperature ²	-45 °C to +125 °C
Storage Temperature	-45 °C to +125 °C
Bend Radius: Installation mm [in]	6 [0.64]
Bend Radius: Repeated mm [in]	30 [1.97]
Cable Weight ³ (g/m) [lbs/1000ft]	14 [9.408]

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

3. Total connector weight is 3.7 g per cable.



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

$$\text{Calculate Max Attenuation}^4 = [K1 * \sqrt{FMHz} + K2 * FMHz] * 1.1 \text{ dB}$$

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

4. For cable only, include 0.5 dB loss for connectors

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

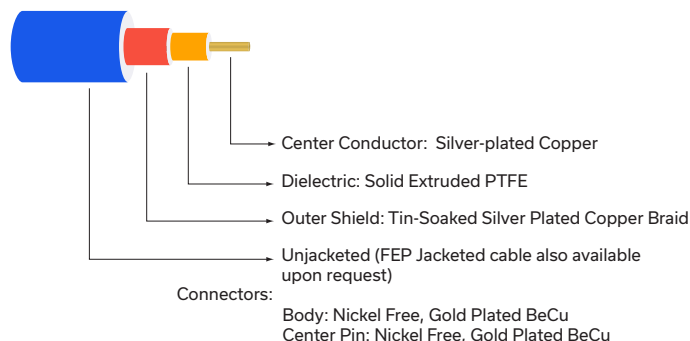
Frequency (MHz)	1000	2000	3000	4000	6000	8000	10000	12000	14000	18000
Avg. Power (kW)	0.280	0.195	0.160	0.140	0.110	0.095	0.85	0.080	0.74	0.065



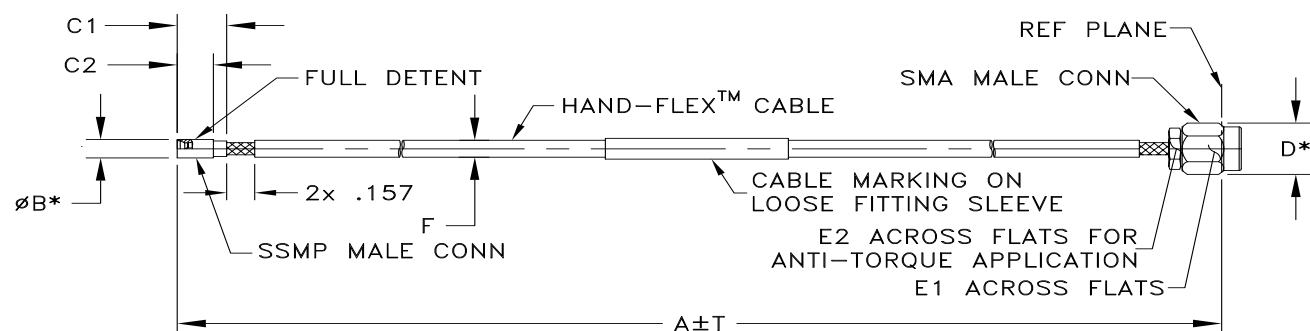
COAXIAL CONNECTIONS

Description	Connector 1	Connector 2
Connector Type	SSMP-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	.13 (3.28)	.276 (7.00)	.202 [5.12]	.36 (9.14)	.315 (8.00)	.250 (6.35)	.091 (2.31)	±.05	±1.27	5.10
7.87	200								±.10	±2.54	6.50
11.81	300								±.10	±2.54	7.90
19.69	500								±.15	±3.81	10.70

PRODUCT MARKING*: 86N-XXCSSMPMSM

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



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ADDITIONAL INFORMATION IS AVAILABLE ON OUR DASHBOARD

CLICK HERE

Performance Data & Graphs	Data
	Graphs
	S-Parameter (S2P Files) Data Set (.zip file)
Case Style	KP3827
RoHS Status	Compliant
Environmental Ratings	ENV157

NOTES

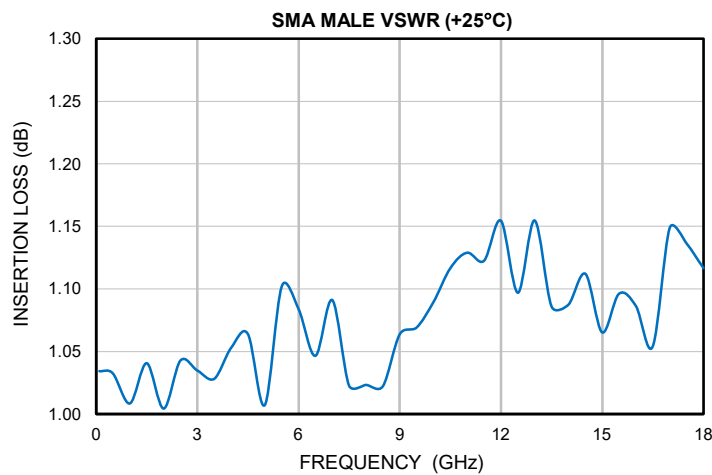
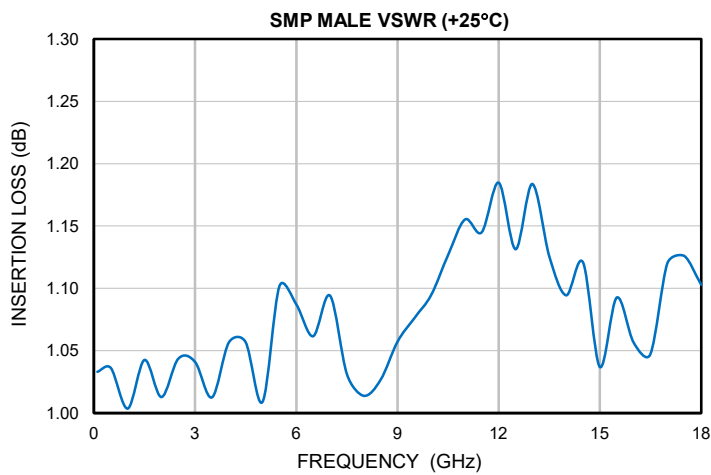
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Typical Performance Data

FREQ.	INSERTION LOSS	SMP MALE VSSWR	SMA MALE VSSWR
(GHz)	(dB)	(dB)	(dB)
0.1	-0.07	1.03	1.03
0.50	-0.12	1.01	1.01
1.00	-0.17	1.01	1.01
1.50	-0.20	1.01	1.01
2.00	-0.23	1.02	1.01
2.50	-0.26	1.02	1.01
3.00	-0.28	1.03	1.03
3.50	-0.31	1.04	1.04
4.00	-0.33	1.07	1.07
4.50	-0.35	1.06	1.06
5.00	-0.38	1.08	1.08
5.50	-0.40	1.08	1.07
6.00	-0.42	1.07	1.06
6.50	-0.43	1.04	1.03
7.00	-0.45	1.05	1.04
7.50	-0.46	1.03	1.02
8.00	-0.48	1.05	1.04
8.50	-0.49	1.06	1.05
9.00	-0.51	1.03	1.03
9.50	-0.52	1.04	1.04
10.00	-0.54	1.06	1.05
10.50	-0.56	1.10	1.08
11.00	-0.57	1.11	1.09
11.50	-0.60	1.16	1.15
12.00	-0.62	1.18	1.16
12.50	-0.61	1.13	1.12
13.00	-0.62	1.14	1.12
13.50	-0.64	1.11	1.09
14.00	-0.65	1.10	1.08
14.50	-0.66	1.08	1.07
15.00	-0.66	1.05	1.02
15.50	-0.67	1.04	1.06
16.00	-0.70	1.03	1.04
16.50	-0.71	1.07	1.06
17.00	-0.72	1.05	1.04
17.50	-0.74	1.06	1.05
18.00	-0.76	1.14	1.12

Typical Performance Curves

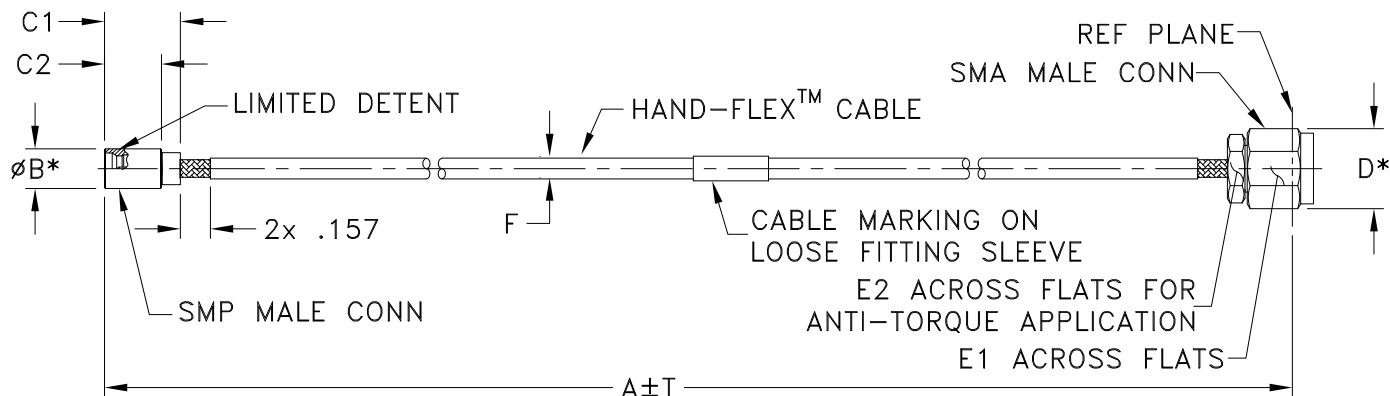


Case Style

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.

Mini-Circuits®
ISO 9001 ISO 14001 CERTIFIED

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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