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

Generic photo used for illustration purposes only

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

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.

REV. OR
ECO-028797
86N-XXCSSMPMSM
MCL NY
260312

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ELECTRICAL SPECIFICATIONS[1]

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]

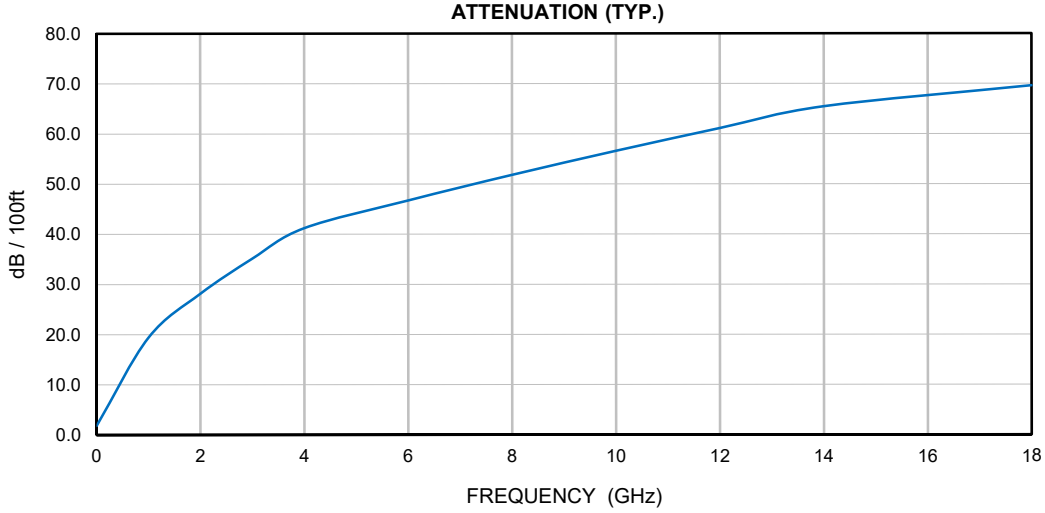
1. Permanent damage may occur if any of these limits are exceeded

MECHANICAL & ENVIRONMENTAL SPECIFICATIONS[1]

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 (TYP.)



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

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

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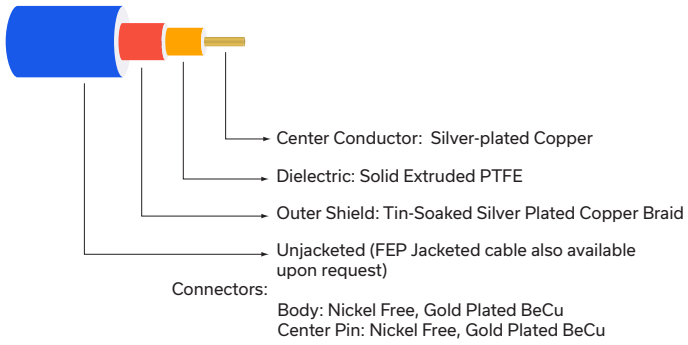
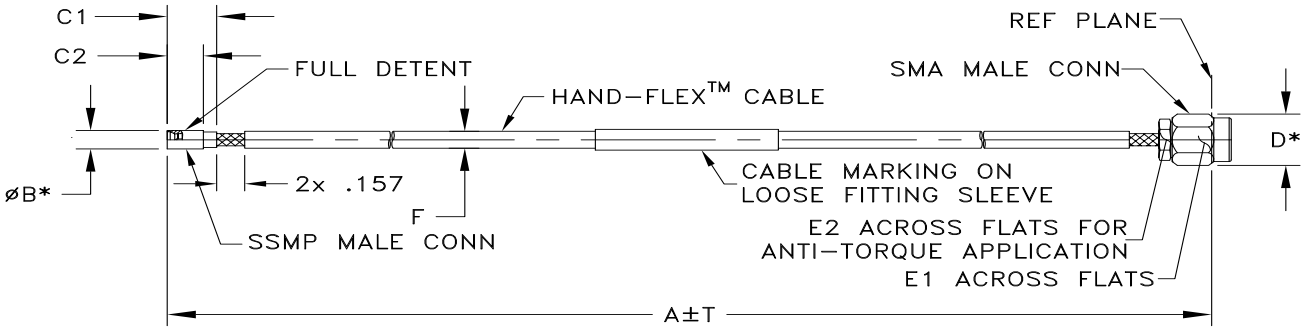
COAXIAL CONNECTIONS

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

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

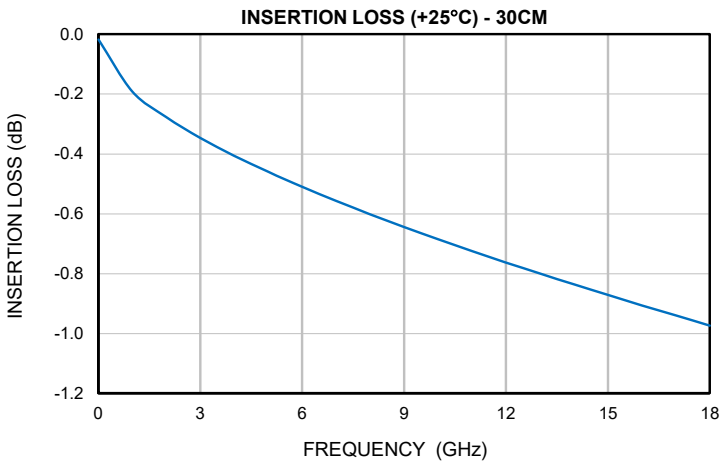
Non-Magnetic Flex Cable SSMP Male to SMA Male — 86N-30CSSMPMSM

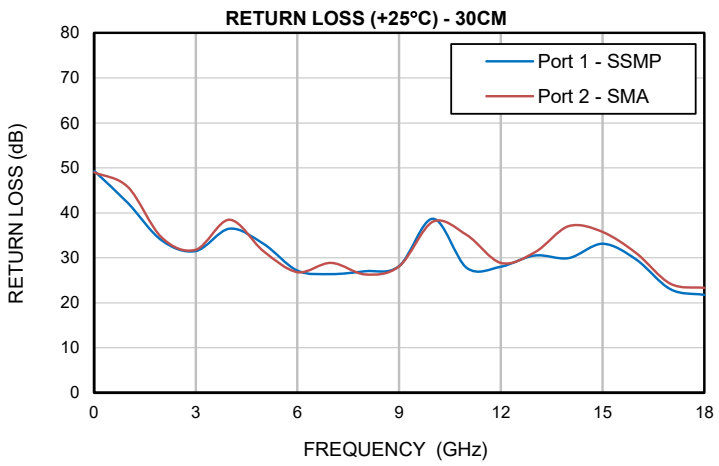
Typical Performance Data

FREQ.	INSERTION LOSS	SSMP MALE RETURN LOSS IN	SMA MALE RETURN LOSS OUT
(GHz)	(dB)	(dB)	(dB)
0	0.02	49.30	48.97
1	0.19	42.16	45.75
2	0.28	33.86	34.46
3	0.35	31.49	31.78
4	0.41	36.46	38.43
5	0.46	33.10	31.46
6	0.51	27.16	26.83
7	0.56	26.40	28.89
8	0.60	26.99	26.28
9	0.64	28.12	28.11
10	0.69	38.71	38.01
11	0.72	27.72	35.04
12	0.76	28.01	28.85
13	0.80	30.52	31.22
14	0.84	29.90	37.01
15	0.87	33.10	35.73
16	0.91	29.57	30.96
17	0.94	22.99	24.21
18	0.97	21.76	23.29

Non-Magnetic Flex Cable SSMP Male to SMA Male 86N-30CSSMPMSM

Typical Performance Curves

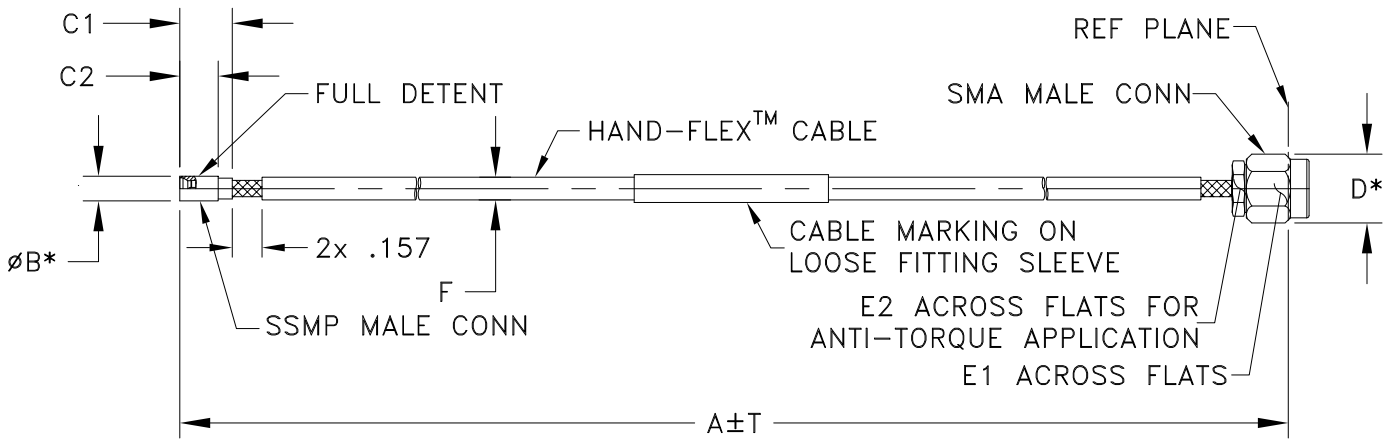




Case Style KP

Outline Dimensions

KP3827



* OVERALL CONNECTOR DIMENSION
[CONNECTOR SHAPE MAY VARY]

Case Style #	A		B	C1	C2	D	E1	E2	F		T		WT. (GRAMS)
	INCH	MM							086UC-ASSMPMSM+ 086U-ASSMPMSM+	086C-ASSMPMSM+ 086-ASSMPMSM+	INCH	MM	
KQ3827-3.94	3.94	100.00	.13 [3.28]	.276 [7.00]	.202 [5.12]	.36 [9.14]	.315 [8.00]	.250 [6.35]	.091 MAX [2.31 MAX]	.123 MAX [3.12 MAX]	.05	1.27	5.40
KQ3827-7.87	7.87	200.00									.10	2.54	6.80
KQ3827-11.8	11.81	300.00									.10	2.54	8.20
KQ3827-19.7	19.69	500.00									.15	3.81	11.00

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

Environmental Specifications **ENV157**

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