HAND FLEX™

Coaxial Cable

086-4SMRSM+

50Ω 4 inch DC to 18 GHz Right Angle SMA Male to SMA Male

THE BIG DEAL

- Right-Angle connection capable of DC to 18 GHz
- Low Loss, 0.57 dB at 18 GHz
- Excellent Return Loss, 19 dB at 18 GHz
- Hand formable to almost any custom shape without special bending tools
- 6mm bend radius for tight installations
- Anti-torque nut prevents cable stress during installation
- Insulated outer jacket standard1
- Connector interface, meets MIL-STD-348
- Ideal for interconnect of assembled systems

Generic photo used for illustration purposes only

Model No.	086-4SMRSM+
Case Style	KP1573-4
Connectors	Right Angle SMA-Male to 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

086 SMRSM model series coaxial cables are ideal for integrating coaxial components and sub-assemblies in tight spaces and dense system configurations. Single right-angle SMA connection minimizes bend-radius at one connection port and is ideal for layouts with connections between perpendicular aspects. Sturdy, hand-formable cable construction maintains shape after bending with bend-radius as small as 6mm. 086 SMRSM coaxial cables have the advantages of wide frequency range, excellent return loss, and high power handling. Available in lengths from 3" to 24".

KEY FEATURES

Feature	Advantages
Hand-Formable	086 SMRSM flex cables avoid the need for cable-bending tools, alleviating the risk of damage during bending processes typical of semi-rigid cable assemblies.
Single Right-Angle SMA Connector	Minimizes bend-radius at connection port saving space.
Excellent Return Loss	Typical return loss of 26 dB to 6 GHz and 19 dB to 18 GHz minimizes VSWR ripple contribution.
High Power Handling • 200W at 0.5 GHz • 35W at 18 GHz	086 SMRSM coaxial cable can support medium to high RF power levels and can be used in the transmit path. (Power rating at sea-level).
Built-in Anti-torque nut	Supports the straight and right-angle SMA connector bodies during installation, preventing stress to the connector/cable interface.
Jacketed and Unjacketed options	FEP insulator jacket reduces risk of accidental shorting of DC power lines or active pins during installation and operation. Unjacketed versions also available upon request.

REV. B
ECO-017366
086-4SMRSM+
MCL NY
231215

ELECTRICAL SPECIFICATIONS AT +25°C

Parameter	Frequency (GHz)	Min.	Typ.	Max.	Units
Frequency Range		DC		18	GHz
Length[1]			4		inches
Insertion Loss	DC - 2	—	0.23	0.4	dB
	2 - 6	—	0.31	0.6	
	6 - 10	—	0.42	0.8	
	10 - 18	—	0.57	1.1	
Return Loss	DC - 2	20	37	—	dB
	2 - 6	20	28	—	
	6 - 10	16	25	—	
	10 - 18	16	19	—	

1. 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.

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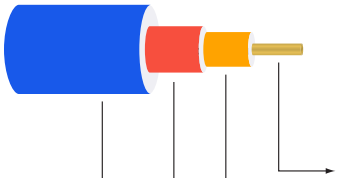
CABLE CONSTRUCTION



Center Conductor: Silver Plated Copper Clad Steel

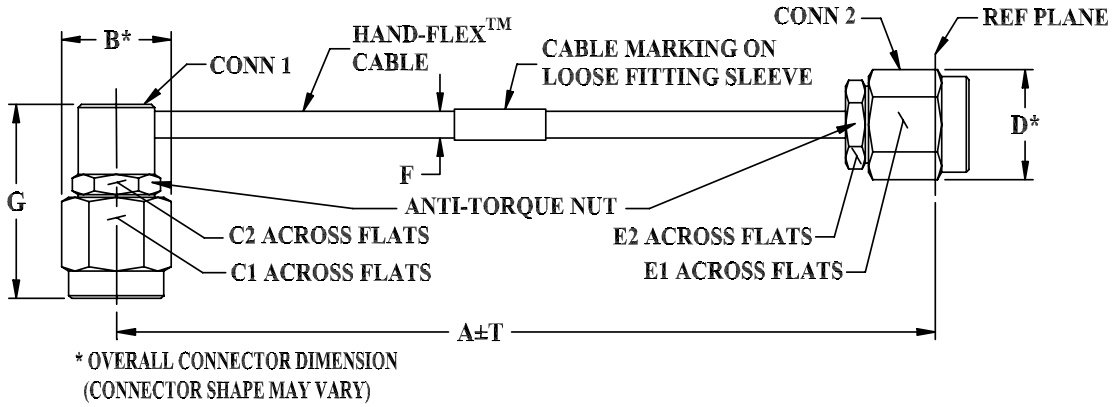
Dielectric: Solid PTFE

Outer Shield: Copper Braid, Tin Soaked

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

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

OUTLINE DRAWING

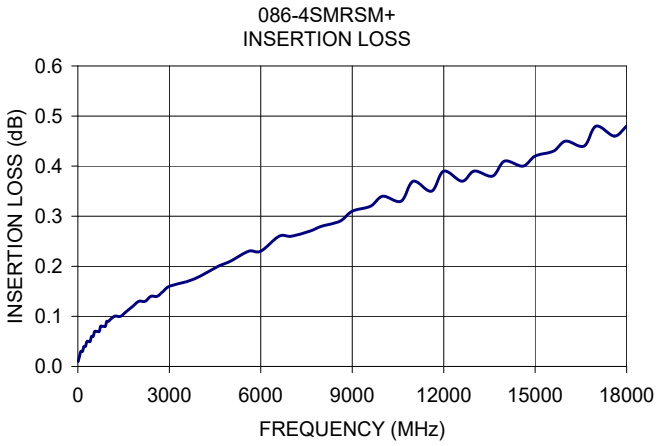


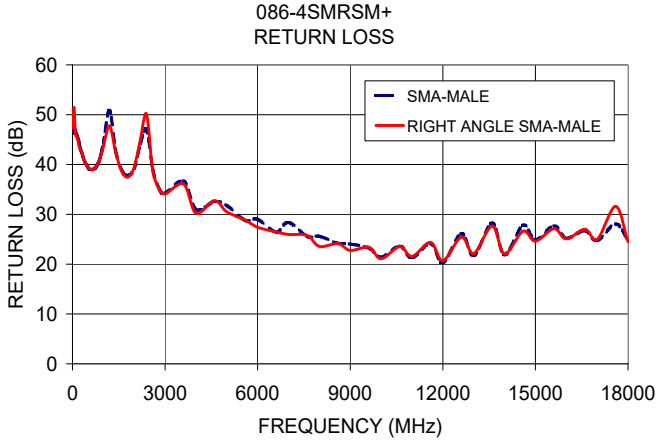
OUTLINE DIMENSIONS (Inch / mm)

A	B	C1	C2	D	E1	E2	F	G	T	wt
4.0	.36	.313	.250	.36	.313	.250	.108	.634	0.05	grams
101.60	9.14	7.95	6.35	9.14	7.95	6.35	2.75	16.10	1.27	7.83

TYPICAL PERFORMANCE DATA AND CHARTS

Frequency (MHz)	Insertion Loss (dB)	Return Loss (dB)	
		SMA-Male	Right Angle SMA-Male
10.0	0.01	46.3	47.4
1000.0	0.09	44.3	43.6
1800.0	0.12	37.8	37.5
2400.0	0.14	47.0	50.1
4000.0	0.18	31.0	30.2
5000.0	0.21	31.8	30.5
6000.0	0.23	29.0	27.4
7000.0	0.26	28.4	26.0
8000.0	0.28	25.6	23.6
9000.0	0.31	24.0	22.8
10000.0	0.34	21.4	21.1
12000.0	0.39	20.3	20.7
14000.0	0.41	21.9	22.0
16000.0	0.45	25.2	25.1
18000.0	0.48	24.8	24.5



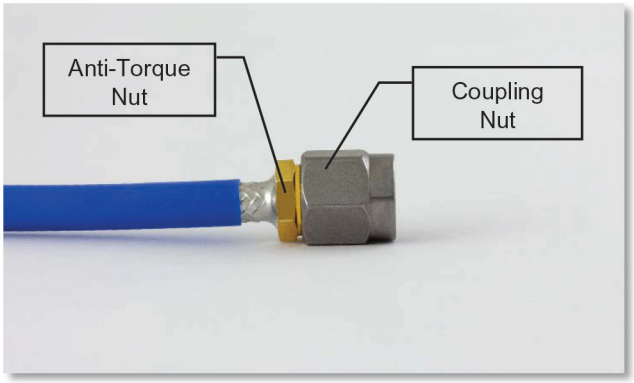


PROPER CABLE CONNECTION USING ANTI-TORQUE NUT

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.

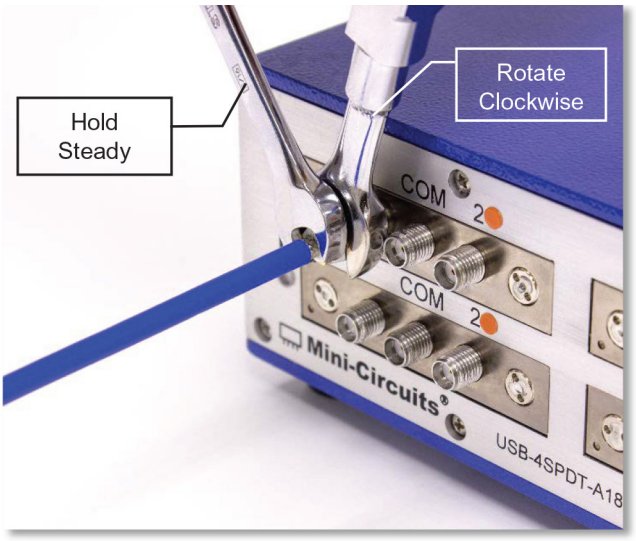
TO PROPERLY TIGHTEN THE CABLE CONNECTOR:

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.

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

Hand-Flex Coaxial Cable

086-4SMRSM+

SMA-Male to Right Angle SMA-Male

Typical Performance Data

FREQUENCY (MHz)	INSERTION LOSS (dB)	SMA-MALE RETURN LOSS (dB)	RIGHT ANGLE SMA-MALE RETURN LOSS (dB)
10.0	0.01	46.3	47.4
50.0	0.02	47.4	51.4
100.0	0.03	46.7	45.9
150.0	0.03	45.8	45.5
200.0	0.04	44.8	44.1
250.0	0.04	43.3	43.0
300.0	0.05	42.4	42.5
350.0	0.05	41.4	41.3
400.0	0.05	40.5	40.5
450.0	0.06	40.0	39.9
500.0	0.06	39.5	39.4
550.0	0.07	39.0	39.2
600.0	0.07	39.0	39.1
650.0	0.07	39.0	38.9
700.0	0.07	39.2	39.2
750.0	0.08	39.4	39.6
800.0	0.08	39.9	39.9
850.0	0.08	40.5	40.5
900.0	0.08	41.4	41.4
950.0	0.09	42.7	42.4
1000.0	0.09	44.3	43.6
1200.0	0.10	50.8	47.8
1400.0	0.10	42.7	42.5
1600.0	0.11	38.8	38.6
1800.0	0.12	37.8	37.5
2000.0	0.13	39.2	39.5
2200.0	0.13	44.2	45.1
2400.0	0.14	47.0	50.1
2600.0	0.14	39.1	38.7
2800.0	0.15	35.2	35.2
3000.0	0.16	34.3	34.1
3600.0	0.17	36.7	36.1
4000.0	0.18	31.0	30.2
4600.0	0.20	32.5	32.8
5000.0	0.21	31.8	30.5
5600.0	0.23	28.8	28.8
6000.0	0.23	29.0	27.4
6600.0	0.26	26.5	26.5
7000.0	0.26	28.4	26.0
7600.0	0.27	25.6	25.8
8000.0	0.28	25.6	23.6
8600.0	0.29	24.2	24.1
9000.0	0.31	24.0	22.8
9600.0	0.32	23.3	23.4
10000.0	0.34	21.4	21.1
10600.0	0.33	23.6	23.5
11000.0	0.37	21.3	21.6
11600.0	0.35	24.2	24.4
12000.0	0.39	20.3	20.7
12600.0	0.37	26.1	25.5
13000.0	0.39	21.7	22.1
13600.0	0.38	28.2	27.6
14000.0	0.41	21.9	22.0
14600.0	0.40	27.8	26.6
15000.0	0.42	24.9	24.6
15600.0	0.43	27.7	27.1
16000.0	0.45	25.2	25.1
16600.0	0.44	26.7	27.0
17000.0	0.48	24.8	25.0
17600.0	0.46	28.1	31.6
18000.0	0.48	24.8	24.5

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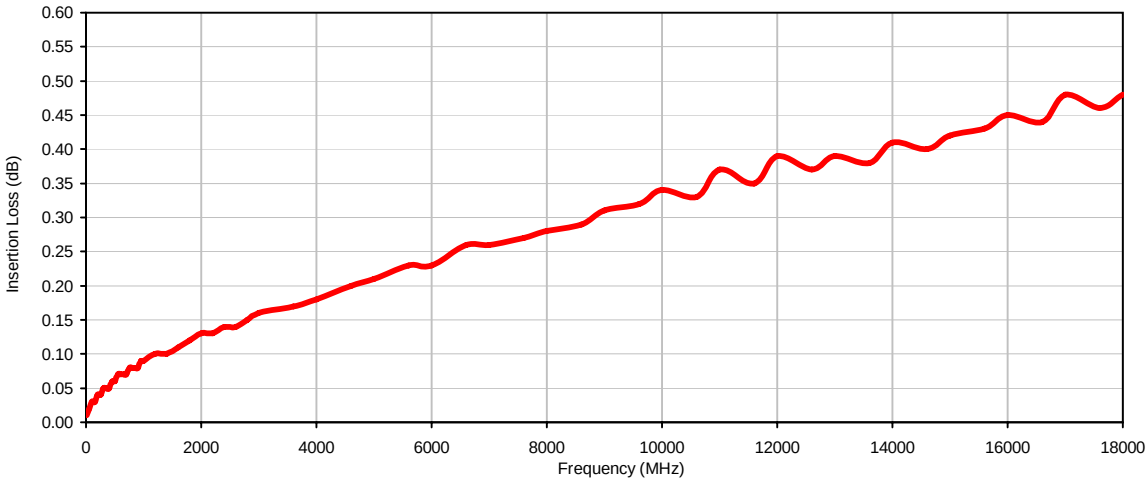
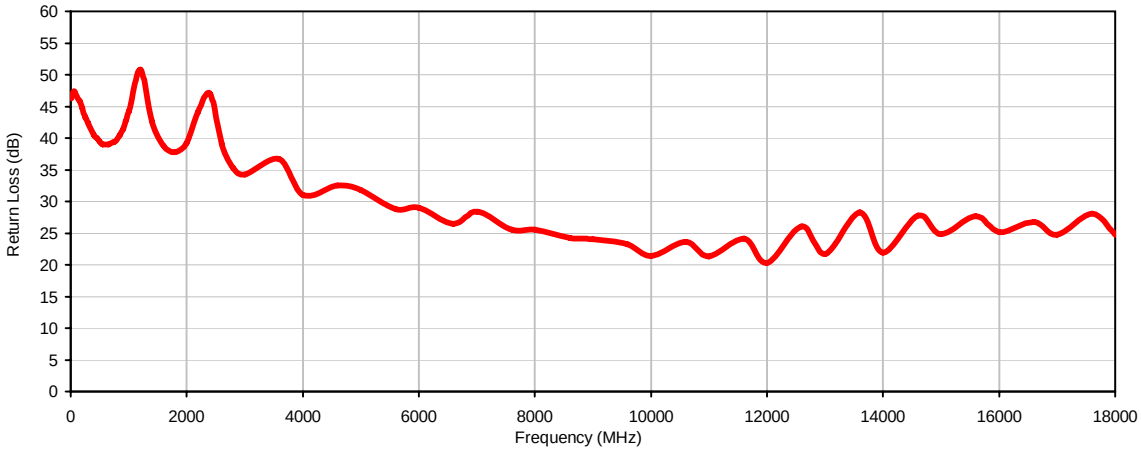
SMA-Male to Right Angle SMA-Male

Typical Performance Curves

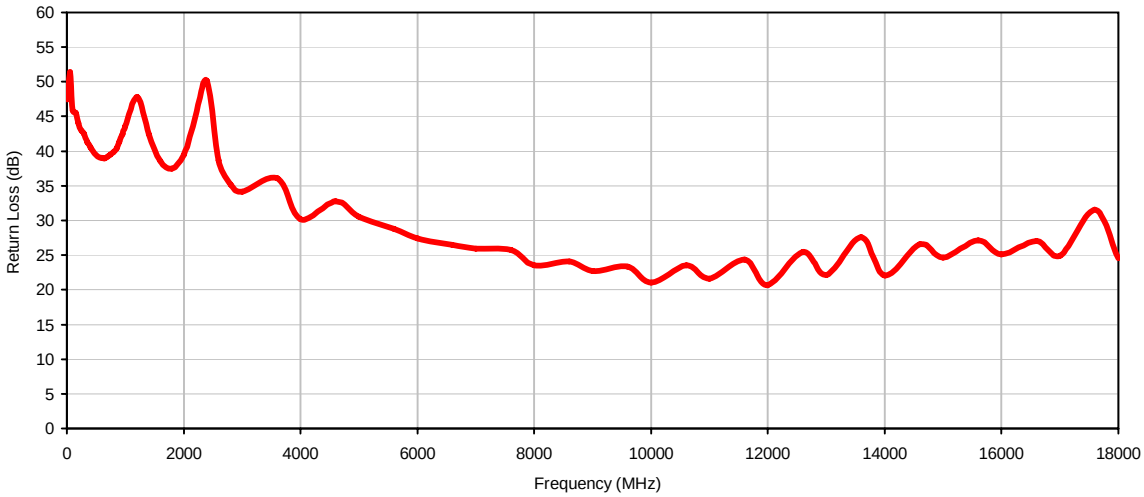
Insertion Loss



SMA-Male Return Loss



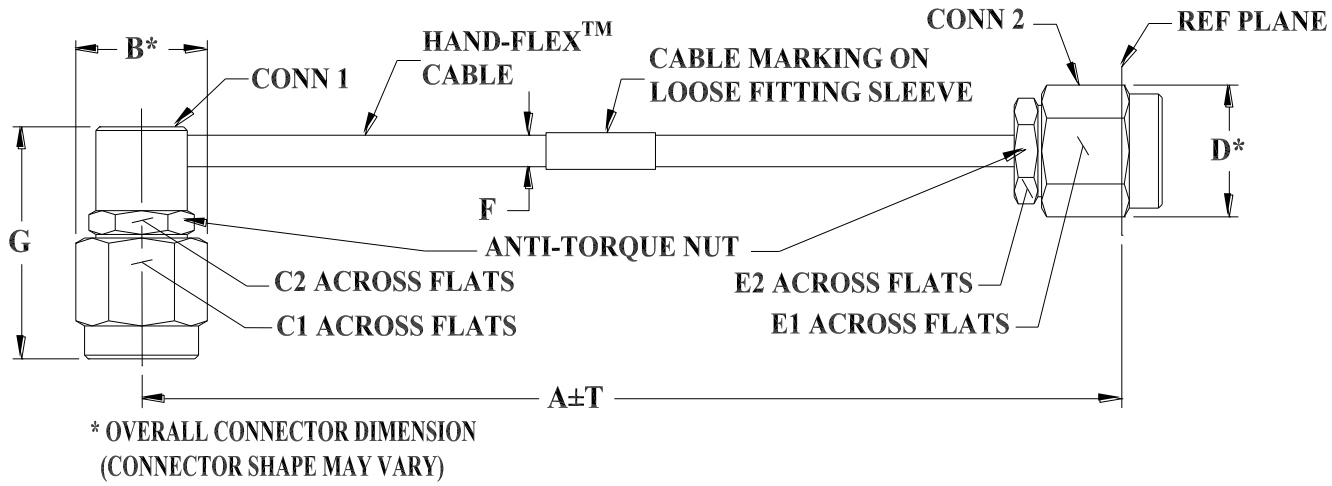
Right Angle SMA-Male Return Loss



Case Style KP

KP1573

Outline Dimensions



KP1573 SERIES
RIGHT ANGLE SMA MALE (CONN-1)
SMA MALE (CONN-2)

CASE STYLE #	A		B	C1	C2	D	E1	E2	F		G	H	T		WEIGHT GRAMS
	INCH	MM							086U-ASMRSM+	086-ASMRSM+			INCH	MM	
KP1573-3	3.00	76.20											.05	1.27	7.37
KP1573-4	4.00	101.60											.05	1.27	7.83
KP1573-5	5.00	127.00											.05	1.27	8.27
KP1573-6	6.00	152.40											.05	1.27	8.74
KP1573-7	7.00	177.80											.10	2.54	9.20
KP1573-8	8.00	203.20											.10	2.54	9.66
KP1573-9	9.00	228.60											.10	2.54	10.11
KP1573-10	10.00	254.00	.36 (9.14)	.313 (7.95)	.250 (6.35)	.36 (9.14)	.313 (7.95)	.250 (6.35)	.089∀.002 (2.26∀.05)	.108 NOM (2.74 NOM)	.634 (16.10)	-- --	.10	2.54	10.57
KP1573-11	11.00	279.40											.10	2.54	11.03
KP1573-12	12.00	304.80											.10	2.54	11.48
KP1573-14	14.00	355.60											.15	3.81	12.40
KP1573-15	15.00	381.00											.15	3.81	12.86
KP1573-16	16.00	406.40											.15	3.81	13.31
KP1573-18	18.00	457.20											.15	3.81	14.23
KP1573-24	24.00	609.60											.15	3.81	16.97

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®
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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	

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