HAND FLEX™

Coaxial Cable

141-4SBSM+

50Ω 4 inch DC to 18 GHz SMA Female Bulkhead to SMA Male

THE BIG DEAL

- Wideband Frequency Coverage, DC to 18 GHz
- Low Insertion Loss, 0.25 dB Typ. at 18 GHz
- Excellent Return Loss, 22 dB Typ. to 18 GHz
- Hand Formable to Almost Any Custom Shape Without Special Bending Tools
- 8 mm Bend Radius for Tight Installations
- Anti-Torque Nut Prevents Cable Stress During Installation
- Insulated Outer Jacket Standard
- Ideal for Interconnect of Assembled Systems



Generic photo used for illustration purposes only

Model No.	141-4SBSM+
Case Style	KQ1688-4
Connectors	SMA Female Bulkhead / SMA Male

+RoHS Compliant
The +Suffix identifies RoHS Compliance.
See our website for methodologies and qualifications

APPLICATIONS

- Replacement for Custom Bent 0.141" Semi-Rigid Cables
- Communication Receivers and Transmitters
- Military and Aerospace Systems
- Environmental and Test Chambers

PRODUCT OVERVIEW

Mini-Circuits' 141 SBSM+ Series Hand-Flex™ Coaxial Cables are ideal for integrating coaxial components and sub-assemblies in tight spaces and dense system configurations. SMA female bulkhead connector at one end is equipped with a gold-plated stainless steel flange for secure connections directly to equipment housing panels. SMA male connector has a passivated stainless steel coupling nut over a gold-plated stainless steel connector body. The outer shield is tin-soaked copper braid, which minimizes signal leakage with high flexibility for easy bending, and dielectric is low loss PTFE. 141 SBSM+ Series Hand-Flex coaxial cables are available in various lengths for different system requirements.

KEY FEATURES

Features	Advantages
Single SMA Female Bulkhead Connector	Eliminates the need for a bulkhead adapter and connects directly to the front panel of rack-mounted equipment, improving reliability and reducing system cost.
Hand Formable	Hand-Flex cables avoid the need for special cable bending tools, alleviating the risk of damage during bending processes used in semi-rigid cable assemblies.
8 mm Bend Radius	Ideal for making connections in tight spaces and dense system layouts.
Excellent Return Loss	Ideal for connecting a wide variety of RF components while minimizing VSWR ripple contribution due to mating cables and connectors.
Good Power Handling Capability: • 546 W at 0.5 GHz • 90 W at 18 GHz	141 SBSM+ coaxial cables 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 on SMA Male Connector	Anti-torque feature supports the SMA connector body during installation, preventing stress to the connector/cable interface.

REV. A
ECO-018960
141-4SBSM+
MCL NY
260529

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	–	0.05	0.20	dB
	2–6	–	0.11	0.40	
	6–10	–	0.16	0.50	
	10–18	–	0.21	0.70	
Return Loss	DC–2	23	42	–	dB
	2–6	23	40	–	
	6–10	17	39	–	
	10–18	17	32	–	

1. Custom sizes available, consult factory.

ABSOLUTE MAXIMUM RATINGS[2]

Parameter	Ratings
Operating Temperature	-55 °C to +105 °C
Storage Temperature	-55 °C to +105 °C
Power Handling at +25 °C, Sea Level	546 W at 0.5 GHz 387 W at 1 GHz 273 W at 2 GHz 156 W at 6 GHz 121 W at 10 GHz 90 W at 18 GHz

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

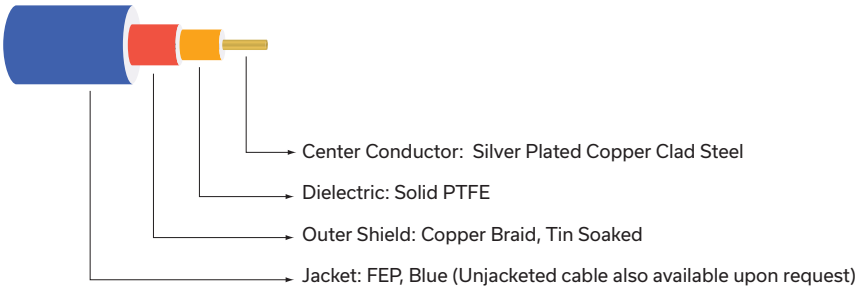
HAND FLEX™

Coaxial Cable

141-4SBSM+

50Ω 4 inch DC to 18 GHz SMA Female Bulkhead to SMA Male

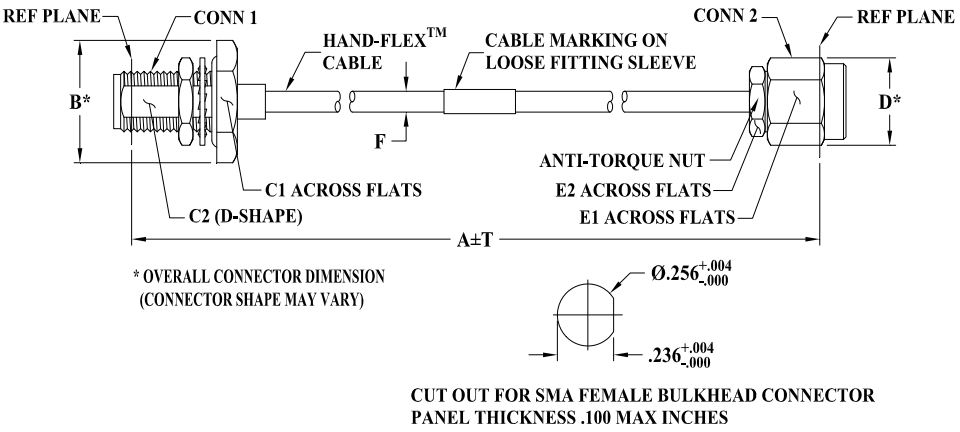
CABLE CONSTRUCTION



Connectors:
SMA Male Connector: Coupling Nut: Stainless Steel Passivated
Body: Stainless Steel Gold Plated
Center Pin: Silver Plated Copper Clad Steel

SMA Female Bulkhead Connector: Body & Hex Nut: Stainless Steel, Gold Plated
Center Contact: Beryllium Copper Gold Plated

OUTLINE DRAWING



OUTLINE DIMENSIONS (Inch / mm)

A	B	C1	C2	D	E1	E2	F	T	wt
4.0	.49	.433	.232	.36	.315	.250	.163±.004	.05	grams
101.60	12.45	11.00	5.89	9.14	8.00	6.35	4.14±0.10	1.27	10.17

HAND FLEX™

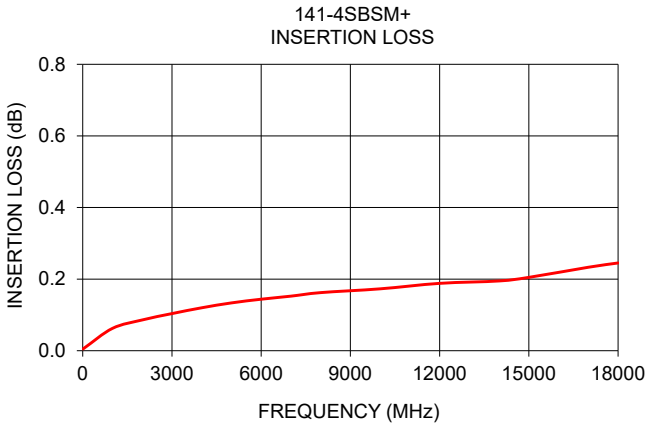
Coaxial Cable

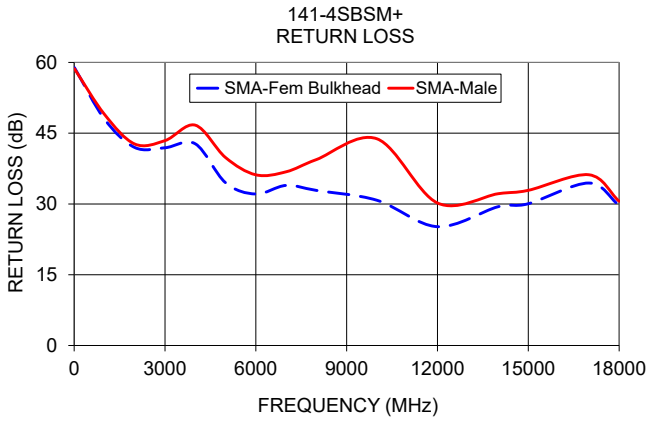
141-4SBSM+

50Ω 4 inch DC to 18 GHz SMA Female Bulkhead to SMA Male

TYPICAL PERFORMANCE DATA AND CHARTS

Frequency (MHz)	Insertion Loss (dB)	Return Loss (dB)	
		SMA Female Bulkhead	SMA Male
10	0.00	58.89	58.65
1000	0.06	48.00	49.00
2000	0.09	41.97	42.70
3000	0.10	41.92	43.43
4000	0.12	42.75	46.70
5000	0.13	34.50	39.83
6000	0.14	32.10	36.18
7000	0.15	33.93	36.82
8000	0.16	32.87	39.40
10000	0.17	30.78	43.81
12000	0.19	25.18	30.20
14000	0.19	29.41	32.17
15000	0.20	30.05	32.89
17000	0.23	34.43	36.19
18000	0.25	29.68	30.56





NOTES

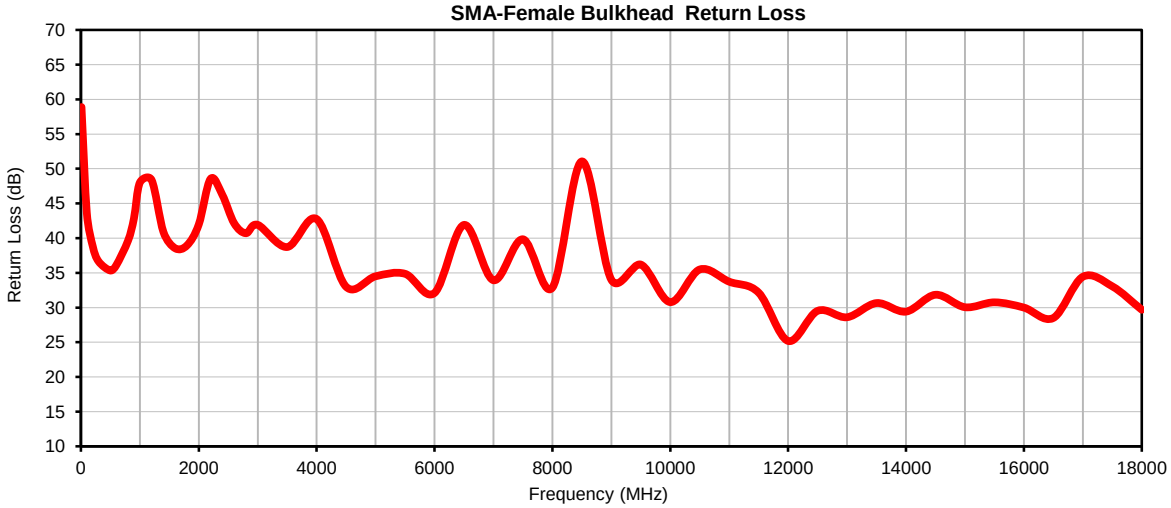
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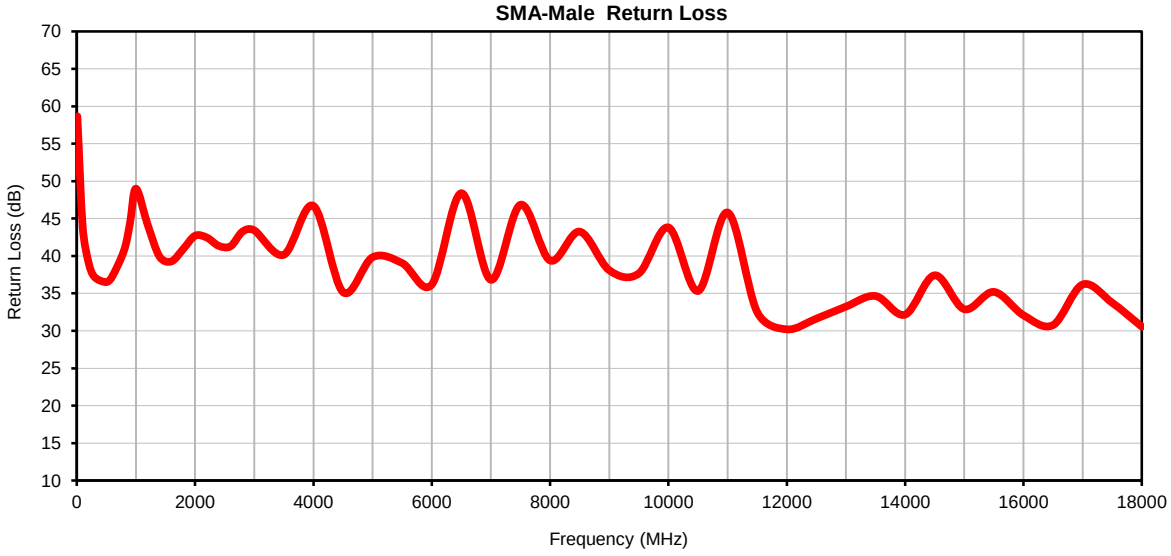
Typical Performance Data

FREQUENCY (MHz)	INSERTION LOSS (dB)	SMA-FEMALE BULKHEAD RETURN LOSS (dB)	SMA-MALE RETURN LOSS (dB)
10	0.00	58.9	58.7
100	0.02	43.7	43.9
200	0.03	38.9	39.1
300	0.03	36.6	37.2
500	0.04	35.3	36.5
600	0.05	36.1	37.3
800	0.06	39.6	40.8
900	0.06	42.8	44.4
1000	0.06	48.0	49.0
1200	0.07	48.4	44.1
1400	0.07	40.9	39.9
1600	0.08	38.5	39.3
1800	0.08	39.0	40.9
2000	0.09	42.0	42.7
2200	0.09	48.5	42.5
2400	0.09	46.2	41.3
2600	0.10	42.1	41.3
2800	0.10	40.7	43.2
3000	0.10	41.9	43.4
3500	0.11	38.7	40.2
4000	0.12	42.8	46.7
4500	0.13	33.0	35.2
5000	0.13	34.5	39.8
5500	0.14	34.9	39.0
6000	0.14	32.1	36.2
6500	0.15	41.9	48.4
7000	0.15	33.9	36.8
7500	0.16	39.8	46.8
8000	0.16	32.9	39.4
8500	0.17	51.1	43.2
9000	0.17	34.0	38.1
9500	0.18	36.2	37.7
10000	0.17	30.8	43.8
10500	0.19	35.5	35.3
11000	0.18	33.7	45.8
11500	0.20	32.1	32.5
12000	0.19	25.2	30.2
12500	0.20	29.5	31.6
13000	0.20	28.6	33.2
13500	0.21	30.6	34.7
14000	0.19	29.4	32.2
14500	0.22	31.8	37.4
15000	0.20	30.0	32.9
15500	0.22	30.7	35.2
16000	0.22	30.0	32.1
16500	0.23	28.5	30.8
17000	0.23	34.4	36.2
17500	0.24	33.1	33.7
18000	0.25	29.7	30.6

Typical Performance Curves



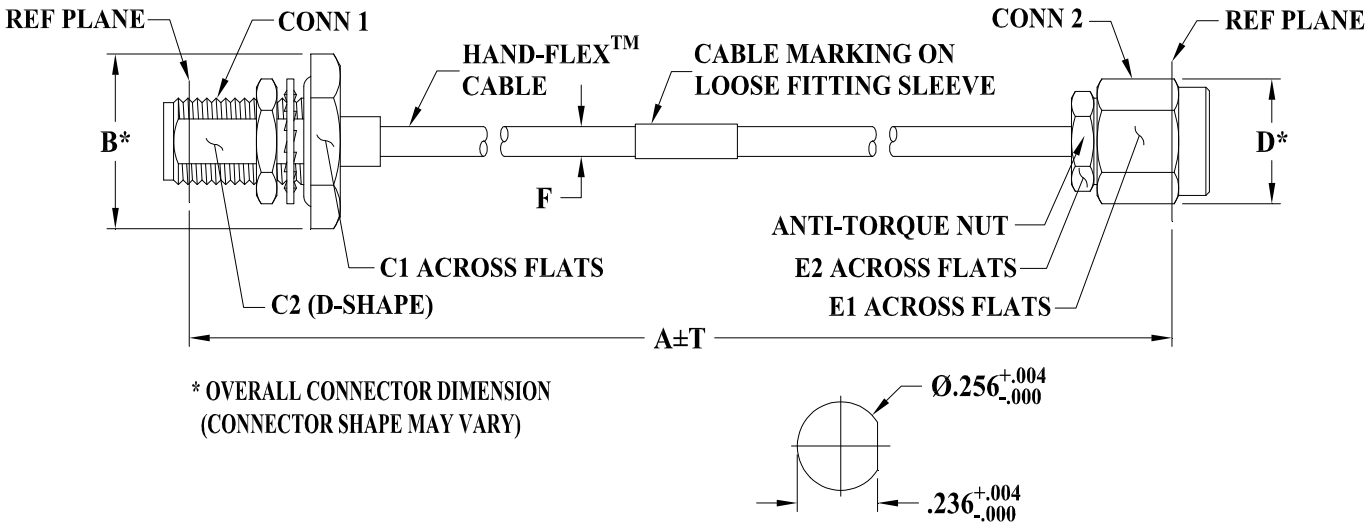




Case Style KQ

KQ1688

Outline Dimensions



CUT OUT FOR SMA FEMALE BULKHEAD CONNECTOR
PANEL THICKNESS .100 MAX INCHES

KQ1688 SERIES
SMA FEMALE BULKHEAD (CONN-1)
SMA MALE (CONN-2)

CASE STYLE #	A		B	C1	C2	D	E1	E2	F		T		WEIGHT GRAMS
	INCH	MM							141U-ASBSM+	141-ASBSM+	INCH	MM	
KQ1688-4	4.00	101.60	.49 (12.45)	.433 (11.00)	.232 (5.89)	.36 (9.14)	.315 (8.00)	.250 (6.35)	.141±.003 (3.58±0.07)	.163±.004 (4.14±0.10)	.05	1.27	10.17
KQ1688-7	7.00	177.80									.10	2.54	13.60
KQ1688-12	12.00	304.80									.10	2.54	19.32
KQ1688-24	24.00	609.60									.15	3.81	33.03

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

Note:

1. 141 Hand-Flex™ Coaxial Cable.
2. "A" represents length of cable.

Mini-Circuits®
INTERNET http://www.minicircuits.com
P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661
Distribution Centers NORTH AMERICA 800-654-7949 • 417-335-5935 • Fax 417-335-5945 • EUROPE 44-1252-832600 • Fax 44-1252-837010
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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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