



# Coaxial Cable

## 141SMRC Model Series

50Ω DC to 18 GHz



CASE STYLE: KQ1690-XX

XX= cable length in inches

### The Big Deal

- Hand Formable
- Tight Bend Radius
- Right Angle SMA Connectors, 180° rotated
- Ideal for interconnect of assembled systems

### Product Overview

The 141 Series Hand-Flex Coaxial Cables are ideal for interconnection of coaxial components or sub-systems. The construction includes a silver-plated copper-clad steel center conductor which maintains the shape after bending. The outer shield is copper braid, tin soaked, which minimizes signal leakage and at the same time flexible for easy bend. Dielectric is low loss PTFE. Connectors have passivated stainless-steel coupling nut over a gold plated connector body and gold plated, brass center conductor.

### Key Features

Feature	Advantages
Hand-Formable RF Cables	The 141 Series Hand-Flex cables are hand formable making them ideal for use integrating coaxial components and sub-assemblies without the need for special cable-bending tools and alleviating the risk of damage during the bending process typical of semi-rigid coaxial cable assemblies.
Tight Bend Radius	Capable of only 8mm bend radius, the 141 Hand Flex series is able to make connections in tight spaces making these cables ideal for dense system integration
Excellent Return loss: • 34 dB typ. at 6 GHz • 32 dB typ. at 18 GHz	The 141 Series Hand-Flex Cables are ideally suited for interconnecting a wide variety of RF components while minimizing VSWR ripple contribution due to mating cables & connectors.
Good Power Handling Capability: • 546W at 0.5 GHz • 90W at 18 GHz	Mini-Circuits 141 Series can support medium to high RF power levels enabling these cables to be used in the transmit path. NOTE: power rating is at sea-level altitudes.
Built in Anti-torque nut	Mini-Circuits' 141 Series Hand Flex cables include an anti-torque feature to support the connector body during installation alleviating risk of stress to the connector/cable interface.
Jacketed	Standard 141 Series cables include a blue FEP insulator jacket reducing the risk of accidental shorting of DC power lines or active pins during installation and operation.
Right angle SMA connectors	Avoids multiple right angle bends and improves reliability.

#### 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/MCLStore/terms.jsp](http://www.minicircuits.com/MCLStore/terms.jsp)





# Coaxial Cable

50Ω 2 inch DC to 18 GHz

## 141-2SMRC+

### Maximum Ratings

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

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

### Features

- Wideband frequency coverage, DC to 18 GHz
- Low Loss, 0.21 dB typ. at 18 GHz
- Excellent Return Loss, 24 dB typ. at 18 GHz
- Hand formable to almost any custom shape without special bending tools
- 8mm bend radius for tight installations
- Anti-torque nut prevents cable stress during installation
- Insulated outer jacket standard
- **Ideal for interconnect of assembled systems**

### Applications

- Replacement for custom bent 0.141" semi-rigid cables
- Communication receivers and transmitters
- Military and aerospace system
- Environmental and test chambers



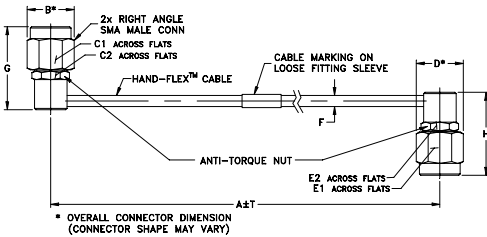
CASE STYLE: KQ1690-2

Connectors	Model
Right Angle SMA-Male	141-2SMRC+

### +RoHS Compliant

The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications

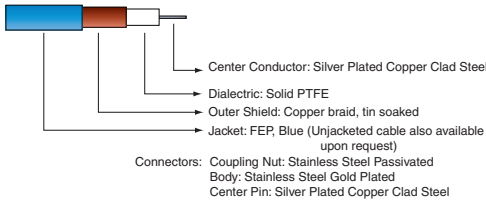
### Outline Drawing



### Outline Dimensions (inch)

A	B	C1	C2	D	E1	E2
2.0	.36	.313	.250	.36	.313	.250
50.80	9.14	7.95	6.35	9.14	7.95	6.35
F	G, H	T	wt			
.163±.004	.728±.02	0.05	grams			
4.14±0.10	18.5±0.5	1.27	8.09			

### Cable Construction



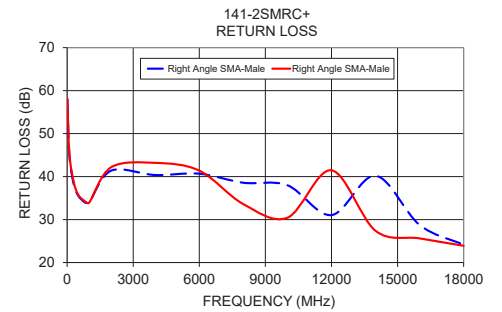
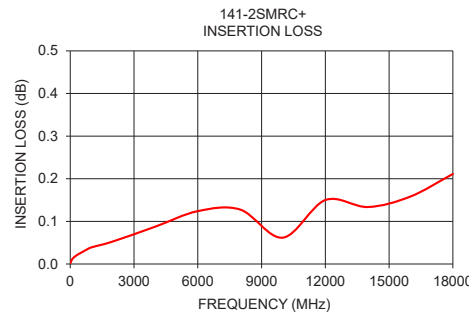
### Electrical Specifications at 25°C

Parameter	Condition (GHz)	Min.	Typ.	Max.	Unit
Frequency Range		DC		18	GHz
Length <sup>1</sup>			2		inches
Insertion Loss	DC - 2	—	0.03	0.3	dB
	2-6	—	0.09	0.5	
	6-10	—	0.12	0.7	
	10-18	—	0.17	0.9	
Return Loss	DC - 2	20	40	—	dB
	2-6	20	35	—	
	6-10	17	32	—	
	10-18	17	31	—	

1. Custom sizes available, consult factory.

### Typical Performance Data

Frequency (MHz)	Insertion Loss (dB)	Return Loss (dB)	
		Right Angle SMA-Male	Right Angle SMA-Male
10	0.00	58.04	58.08
100	0.01	45.07	45.45
300	0.02	38.16	38.75
500	0.03	35.59	35.79
800	0.03	34.02	34.27
1000	0.04	33.99	33.95
2000	0.05	41.39	42.18
4000	0.09	40.37	43.19
6000	0.12	40.67	41.39
8000	0.13	38.57	33.59
10000	0.06	37.99	30.43
12000	0.15	31.04	41.47
14000	0.13	40.20	27.39
16000	0.16	28.76	25.62
18000	0.21	24.13	23.90



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## Typical Performance Data

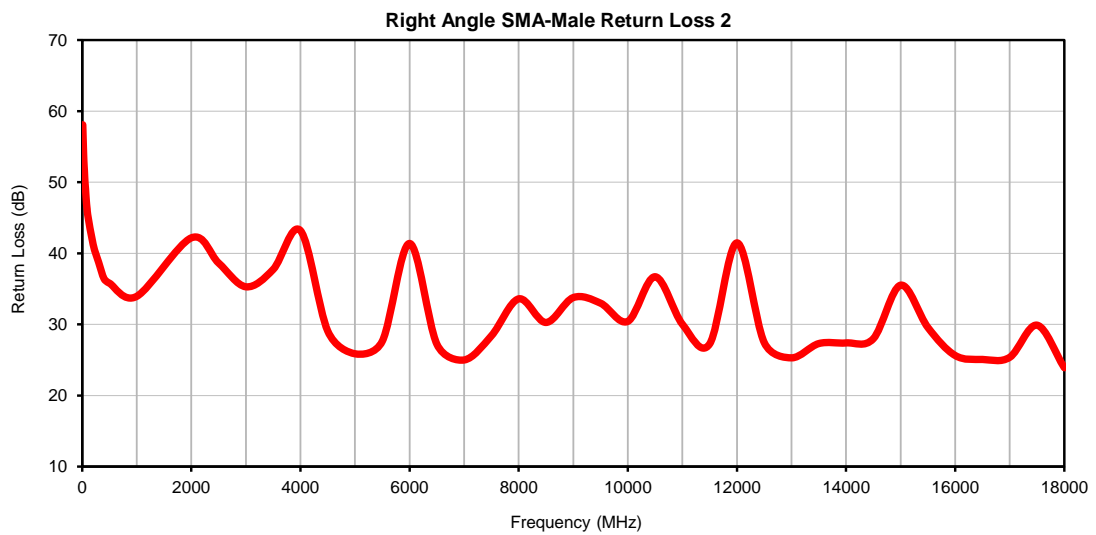
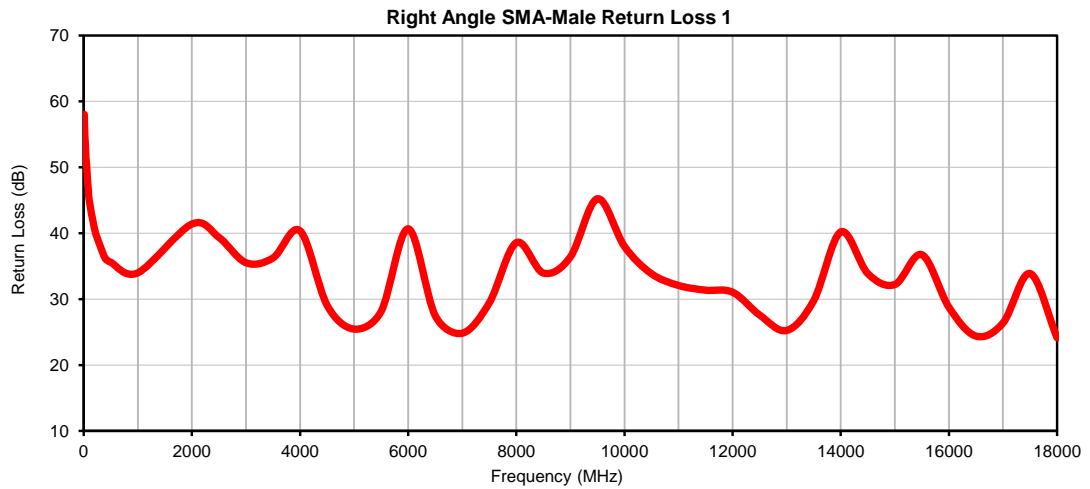
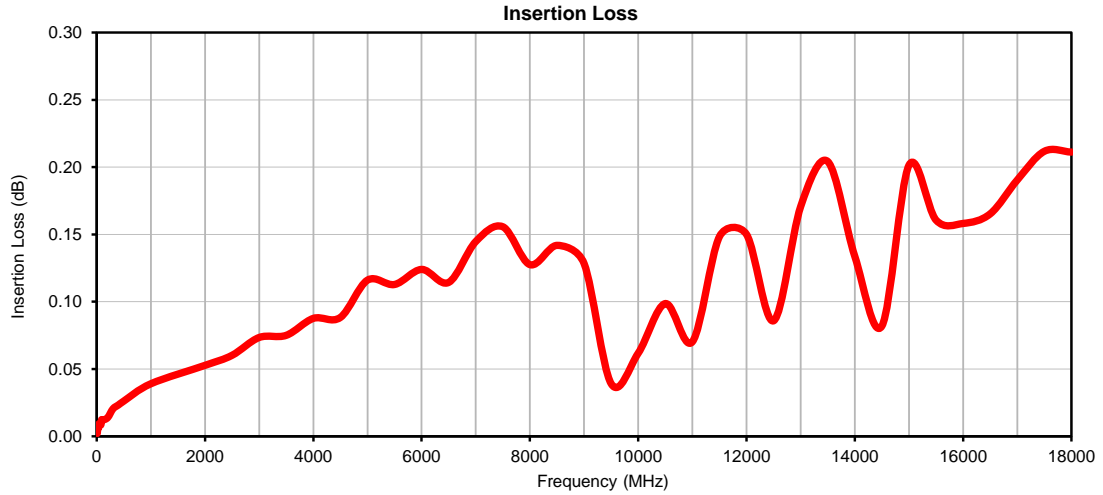
FREQUENCY (MHz)	INSERTION LOSS (dB)	RIGHT ANGLE SMA-MALE 1 RETURN LOSS (dB)	RIGHT ANGLE SMA-MALE 2 RETURN LOSS (dB)
10	0.002	58.04	58.08
20	0.006	54.99	55.31
30	0.006	53.51	52.99
40	0.009	51.58	51.58
50	0.009	50.75	50.05
60	0.009	49.40	49.05
70	0.008	48.12	47.87
80	0.009	47.08	46.91
90	0.012	46.02	46.19
100	0.012	45.07	45.45
200	0.014	40.64	41.24
300	0.020	38.16	38.75
400	0.023	36.15	36.43
500	0.026	35.59	35.79
1000	0.039	33.99	33.95
2000	0.053	41.39	42.18
2500	0.060	39.37	38.63
3000	0.073	35.52	35.29
3500	0.075	36.24	37.73
4000	0.088	40.37	43.19
4500	0.088	29.08	29.06
5000	0.116	25.44	25.87
5500	0.113	28.13	27.64
6000	0.124	40.67	41.39
6500	0.114	27.48	27.22
7000	0.145	24.82	25.00
7500	0.156	29.43	28.40
8000	0.128	38.57	33.59
8500	0.142	33.95	30.27
9000	0.128	36.40	33.77
9500	0.039	45.23	32.99
10000	0.062	37.99	30.43
10500	0.099	33.85	36.70
11000	0.070	32.07	30.02
11500	0.148	31.35	27.26
12000	0.150	31.04	41.47
12500	0.086	27.58	27.44
13000	0.171	25.24	25.30
13500	0.204	29.79	27.30
14000	0.134	40.20	27.39
14500	0.082	33.87	27.99
15000	0.201	32.21	35.52
15500	0.161	36.74	29.56
16000	0.158	28.76	25.62
16500	0.165	24.38	25.07
17000	0.190	26.37	25.37
17500	0.212	33.88	29.89
18000	0.211	24.13	23.90

# Hand-Flex Coaxial Cable

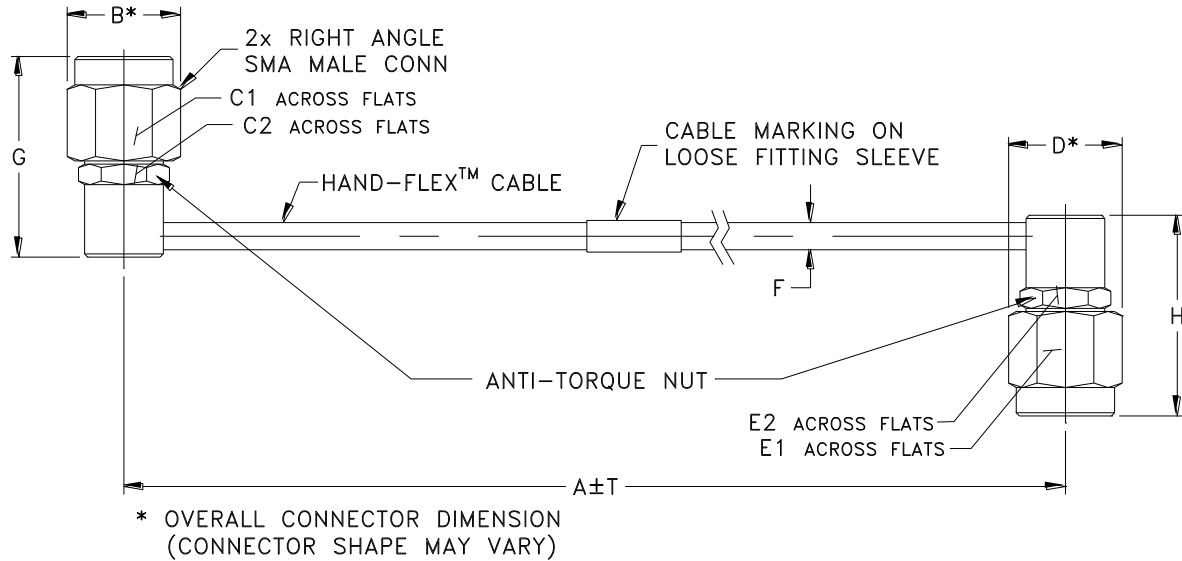
141-2SMRC+

Right Angle SMA-Male to Right Angle SMA-Male

## Typical Performance Curves



### Outline Dimensions



KQ1690 SERIES  
 RIGHT ANGLE SMA MALE (CONN-1)  
 RIGHT ANGLE SMA MALE (CONN-2)

CASE STYLE #	A		B	C1	C2	D	E1	E2	F		G	H	T		WEIGHT GRAMS
	INCH	MM							141U-ASMRC+	141-ASMRC+			INCH	MM	
KQ1690-2	2.00	50.80	.36 (9.14)	.313 (7.95)	.250 (6.35)	.36 (9.14)	.313 (7.95)	.250 (6.35)	.141 $\pm$ .003 (3.58 $\pm$ 0.07)	.163 $\pm$ .004 (4.14 $\pm$ 0.10)	.728 $\pm$ .020 (18.50 $\pm$ 0.50)	.728 $\pm$ .020 (18.50 $\pm$ 0.50)	.05	1.27	8.09
KQ1690-3	3.00	76.20											.05	1.27	9.23
KQ1690-4	4.00	101.60											.05	1.27	10.37
KQ1690-5	5.00	127.00											.05	1.27	11.52
KQ1690-6	6.00	152.40											.05	1.27	12.66
KQ1690-9	9.00	228.60											.05	1.27	16.09
KQ1690-12	12.00	304.80											.10	2.54	19.52

Unless otherwise specified dimensions are in inches (mm).

Tolerances: 2Pl.  $\pm$  .03; 3Pl.  $\pm$  .015

**Note:**

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



INTERNET <http://www.minicircuits.com>  
 P.O. Box 350166, Brooklyn, New York 11235-0003 (718) 934-4500 Fax (718) 332-4661  
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 Mini-Circuits ISO 9001 & ISO 14001 Certified



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	