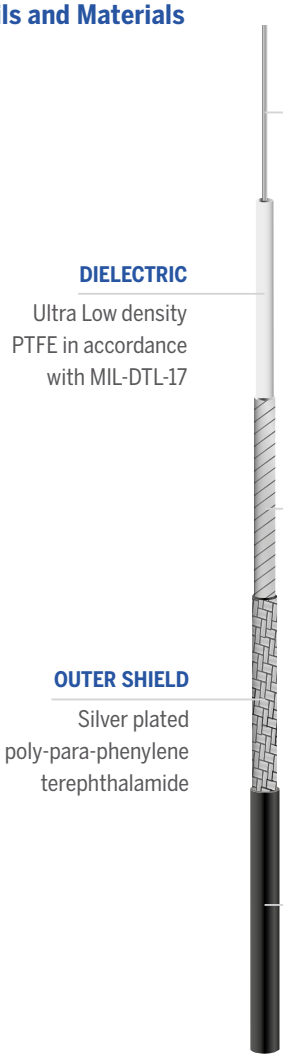
MCJ185A

UTiFLEX®

The MCJ185A coaxial solutions are optimized for spaceflight applications. They provide the lightest weight, lowest insertion loss, and best radiation resistance in a flexible cable construction. The cables utilize our ARACON® for the outer shield, an ultra-low-density PTFE for the dielectric, and a ETFE jacket.

Impedance 50 Ohms | **Operating Temperature** -65°C to +125°C | **RoHS** Compliant

Details and Materials



CENTER CONDUCTOR
Silver plated copper per ASTM B-298

DIELECTRIC
Ultra Low density PTFE in accordance with MIL-DTL-17

OUTER CONDUCTOR
Silver plated copper per ASTM B-298

OUTER SHIELD
Silver plated poly-para-phenylene terephthalamide

JACKET
ETFE-Fluoropolymer, black in color, in accordance with ASTM D-3159

Mechanical/Physical Properties

Jacket Diameter	in	0.185
	mm	4.70
Weight	grams/ft	≤ 12.4
	grams/m	≤ 40.7
Min Static Bend Radius	in	0.375
	mm	9.53
Flex Life[3]	cycles	10,000
Center Conductor Strands		1

Electrical Properties

Velocity of Propagation	(%)	83
RF Shielding	(dB) at 1 GHz	≥ 100
Capacitance	pF/ft	24.35
	pF/m	79.90
Cutoff Frequency	GHz	34.03
Corona Extinction Voltage	VRMS @ 60Hz	3500
Dielectric Withstanding Voltage	VRMS @ 60Hz	5000
Insertion Loss Stability	% Change[2]	≤ 5
K1	Ft (m)	8.08 (0.265)
K2	Ft (m)	0.11 (0.004)

Maximum Attenuation[1], Power, and VSWR[6,7]

(at 20°C and Sea Level)

Frequency GHz	Attenuation dB/100ft	dB/m	Power Watts (CW)	VSWR
0.5	6.0	0.19	1221	1.15
1	8.0	0.27	861	1.15
5	19.0	0.61	380	1.15
10	27.0	0.87	267	1.15
18	36.0	1.19	197	1.15
26.5	45.0	1.46	161	1.20
33	50.0	1.64	146	1.20

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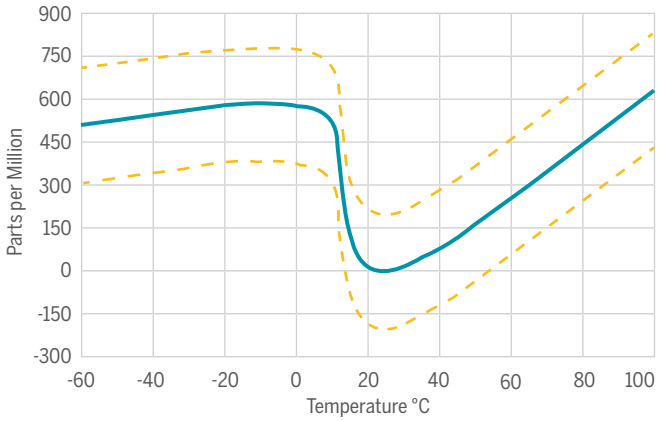
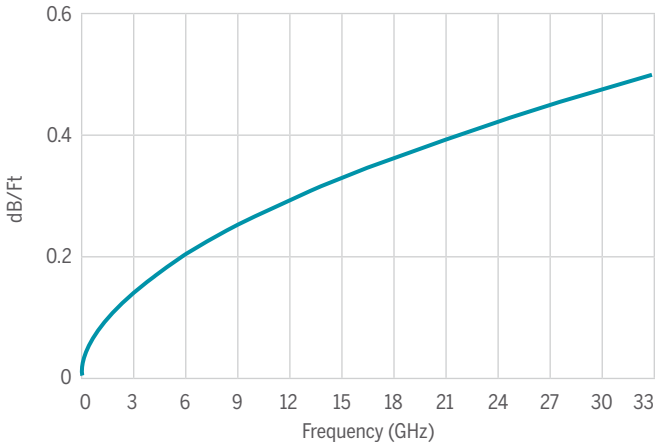
Environmental Properties

Thermal Shock	MIL-STD-202, Method 107, 20 Cycles, -65 to 125 °C (cable and SMA connectors only)
Aging Stability	MIL-DTL-17, Paragraph 4.8.16, +125°C for 168 hours (cable and SMA connectors only)
Vibration	MIL-STD-202, Method 204, Test Condition B
High Pressure	Pressure increased ≤ 10 bar/min to 100 +/- 2 bar for 12 hrs.
Low Pressure	SAE-AS-13441, Method 1004.1
Humidity	MIL-STD-810, Method 507.5, Procedure 1 and 2
Salt Fog	MIL-STD-810, Method 509, Procedure 1
Sand and Dust	MIL-STD-810, Method 510, Procedure 1
Stress Crack Resistance	MIL-DTL-17, Paragraph 4.8.17
Cold Bend Test	MIL-DTL-17, Paragraph 4.8.19
Outgassing	Less than 1% TML and 0.1% CVCM
Radiation Resistance	100 Mrads

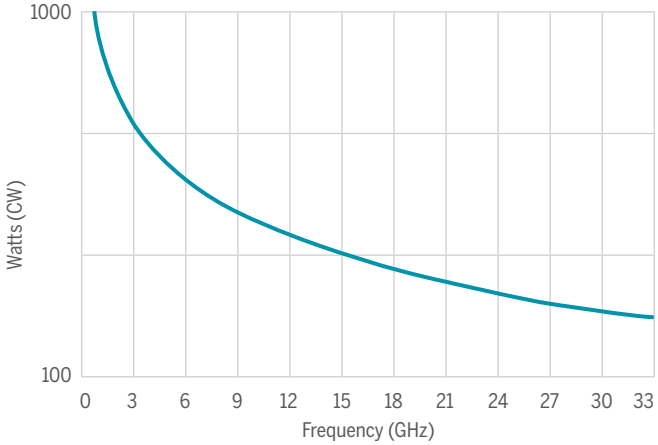
Typical Phase Change vs. Temperature[5]



Maximum Insertion Loss



Maximum Power Handling



Notes

1. Attenuation (db/100Ft) = K1.√F + K2.F where F is Frequency in GHz.
2. Insertion Loss change, while vibrated at a frequency of 6 Hz and an amplitude of 1 inch.
3. Connect both ends of cable to flex (snake) machine. The movement of the flex machine arm from 36 inches to 18 inches, stopping, and then returning to 36 inches shall be 1 flex cycle.
4. Not used.
5. Cable assemblies of equal length and connectors made from the same cable manufacturing lot shall phase track within 200 PPM of each other.
6. Test Plots required with Shipment (Attenuation and VSWR).
7. VSWR testing to be performed on 20-foot minimum lengths with gating used to remove connector contributions. Minimum frequency points shall be 1601.

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