CABLE ASSEMBLIES

Semi-rigid cable .047 (Copper)



P/N: ST291 855 001 (MIL-C-17/151-00001)

APPLICATION NOTE

This is the smallest semi-rigid cable size available through Radiall.

Its reduced size allows it to be easily handformable during integration operations.

CONSTRUCTION / DIMENSIONS

	Material	mm	Inches
Center conductor	Solid SPCCS[1]	0.29	0.011
Dielectric	Solid PTFE[2]	0.94	0.037
Inner shield	Copper tubing	1.19	0.047
Outer shield	-	-	-
Jacket	-	-	-

ELECTRICAL CHARACTERISTICS

Characteristic impedance	50Ω ± 2.5Ω	
Operating frequency range	DC - 20 GHz	
Shielding effectiveness	110 dB	
Voltage withstanding	2 000 V rms	
Peak power	1.1 kW	
Capacitance	100 pF / m	30 pF / ft
Velocity of propagation	70 % (4.8 ns / m)	

MECHANICAL CHARACTERISTICS

Recommended minimum bending radius	3.17 mm	0.125 inch
Weight	6.0 g / m	0.0040 lbs / ft

ENVIRONMENTAL CHARACTERISTICS

Operating temperature range	-40 / +100 °C	-40 / +212 °F
Fire resistance	N/A	
Halogen free	No	

FREQUENCY / ATTENUATION (typ.) / CW MAX POWER (sea level / 25 °C)

GHz	dB / m	dB / ft	Watts
1.0	1.14	0.35	30
2.0	1.64	0.50	21
3.0	2.03	0.61	17
6.0	2.93	0.89	12
8.0	3.43	1.04	11
10.0	3.88	1.18	9.5
12.4	4.37	1.32	8.5
18.0	5.39	1.63	7.1
20.0	5.72	1.73	6.7
Attenuation calculation (dB/m)	(1.10 x √f GHz) + (0.04 x f GHz)		
Power calculation (W)	30 / √f GHz		

[1] SPCCS = Silver Plated Copper Covered Steel
[2] PTFE = PolyTetraFluoroEthylene

Semi-rigid cable .047 (Tinned copper)



P/N: ST291 855 065 (MIL-C-17/151-00002)

APPLICATION NOTE

This is the smallest semi-rigid cable size available at Radiall.

Its reduced size allows it to be easily handformable during integration operations.

Due to the outer conductor coating (tin), this cable will be used instead of standard .047 copper for applications requiring high corrosion resistance and improved solderability.

CONSTRUCTION / DIMENSIONS

	Material	mm	Inches
Center conductor	Solid SPCCS[1]	0.29	0.011
Dielectric	Solid PTFE[2]	0.94	0.037
Inner shield	TC[3] tubing	1.19	0.047
Outer shield	-	-	-
Jacket	-	-	-

ELECTRICAL CHARACTERISTICS

Characteristic impedance	50Ω ± 2.5Ω	
Operating frequency range	DC - 20 GHz	
Shielding effectiveness	110 dB	
Voltage withstanding	2 000 V rms	
Peak power	1.1 kW	
Capacitance	100 pF / m	30 pF / ft
Velocity of propagation	70 % (4.8 ns / m)	

MECHANICAL CHARACTERISTICS

Recommended minimum bending radius	3.17 mm	0.125 inch
Weight	6.0 g / m	0.0040 lbs / ft

ENVIRONMENTAL CHARACTERISTICS

Operating temperature range	-40 / +100 °C	-40 / +212 °F
Fire resistance	N/A	
Halogen free	No	

FREQUENCY / ATTENUATION (typ.) / CW MAX POWER (sea level / 25 °C)

GHz	dB / m	dB / ft	Watts
1.0	1.14	0.35	30
2.0	1.64	0.50	21
3.0	2.03	0.61	17
6.0	2.93	0.89	12
8.0	3.43	1.04	11
10.0	3.88	1.18	9.5
12.4	4.37	1.32	8.5
18.0	5.39	1.63	7.1
20.0	5.72	1.73	6.7
Attenuation calculation (dB/m)	(1.10 x √f GHz) + (0.04 x f GHz)		
Power calculation (W)	30 / √f GHz		

[1] SPCCS = Silver Plated Copper Covered Steel
[2] PTFE = PolyTetraFluoroEthylene
[3] TC = Tinned Copper

Note:
Typical attenuation for a couple of connectors (dB) = 0.045 x √f (GHz)