CABLE ASSEMBLIES

Flexible cable 2/50 S (non magnetic RG178 type)



P/N: ST291 140 087 (MIL-C-17/93-RG178)

APPLICATION NOTE

Based on MIL-C17/93 US standard, this cable is used where non magnetic is required.

In addition the solid inner conductor allows reduced attenuation in comparison with standard RG178.

The insulation and jacket materials allow this cable to be used in severe thermal conditions.

CONSTRUCTION / DIMENSIONS

	Material	mm	Inches
Center conductor	Solid SPC[1]	0.29	0.0114
Dielectric	Solid PTFE[2]	0.84	0.033
Inner shield	SPC[1] braid	1.30	0.051
Outer shield	-	-	-
Jacket	Brown FEP[3]	1.80	0.071

ELECTRICAL CHARACTERISTICS

Characteristic impedance	50Ω ± 2Ω	
Operating frequency range	DC - 3 GHz	
Shielding effectiveness	40 dB	
Voltage withstanding	2 000 V rms	
Peak power	1 kW	
Capacitance	100 pF / m	30 pF / ft
Velocity of propagation	70 % (4.8 ns / m)	

MECHANICAL CHARACTERISTICS

Recommended minimum bending radius	9 mm	0.354 inch
Weight	8 g / m	0.0053 lbs / ft

ENVIRONMENTAL CHARACTERISTICS

Operating temperature range	-55 / +200 °C	-67 / +392 °F
Fire resistance	Yes (CSA FT6 / IEC 332-2)	
Halogen free	No	

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

GHz	dB / m	dB / ft	Watts
0.1	0.42	0.13	253
0.2	0.59	0.18	179
0.3	0.72	0.22	146
0.5	0.94	0.28	113
1.0	1.34	0.41	80
1.5	1.65	0.50	65
2.0	1.92	0.58	57
2.5	2.16	0.65	51
3.0	2.37	0.72	46
Attenuation calculation (dB/m)	(1.30 x √f GHz) + (0.04 x f GHz)		
Power calculation (W)	80 / √f GHz		

[1] SPC = Silver Plated Copper
[2] PTFE = PolyTetraFluoroEthylene
[3] FEP = Fluorinated Ethylene Propylene

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

Flexible cable 2/50 D (124416 type)



P/N: ST291 146 087

APPLICATION NOTE

Due to its small diameter this cable will be used for applications requiring flexibility.

Its low bending moment allows an easy routing during installation.

The double braid provides a higher level of shielding in comparison with 2mm single braided cables.

In addition the solid inner conductor provides a very good attenuation level.

The insulation and jacket materials allow this cable to be used in severe thermal conditions.

CONSTRUCTION / DIMENSIONS

	Material	mm	Inches
Center conductor	Solid SPC[1]	0.29	0.011
Dielectric	Solid PTFE[2]	0.84	0.033
Inner shield	SPC braid	1.27	0.050
Outer shield	SPC braid	1.60	0.063
Jacket	Brown FEP[3]	2.10	0.083

ELECTRICAL CHARACTERISTICS

Characteristic impedance	50Ω ± 2Ω	
Operating frequency range	DC - 3 GHz	
Shielding effectiveness	80 dB	
Voltage withstanding	3 000 V rms	
Peak power	1.8 kW	
Capacitance	105 pF / m	32 pF / ft
Velocity of propagation	69 % (4.8 ns / m)	

MECHANICAL CHARACTERISTICS

Recommended minimum bending radius	12.5 mm	0.49 inch
Weight	12.5 g / m	0.0083 lbs / ft

ENVIRONMENTAL CHARACTERISTICS

Operating temperature range	-90 / +200 °C	-130 / +392 °F
Fire resistance	Yes (UL94V0)	
Halogen free	No	

FREQUENCY / ATTENUATION (typ.) / CW MAX POWER (sea level / 40 °C)

GHz	dB / m	dB / ft	Watts
0.1	0.42	0.13	253
0.2	0.59	0.18	179
0.3	0.72	0.22	146
0.5	0.94	0.28	113
1.0	1.34	0.41	80
1.5	1.65	0.50	65
2.0	1.92	0.58	57
2.5	2.16	0.65	51
3.0	2.37	0.72	46
Attenuation calculation (dB/m)	(1.30 x √f GHz) + (0.04 x f GHz)		
Power calculation (W)	80 / √f GHz		

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[2] PTFE = PolyTetraFluoroEthylene
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