CABLE ASSEMBLIES

Semi-rigid cable .250 (RG401 - KS3)



P/N: ST291 870 001 (MIL-C-17/129-RG401) (NF-C-93/551-KS3)

APPLICATION NOTE

RG401 will be used for application requiring very low attenuation, high power and high screening effectiveness.

Note: reduced operating temperature range.

CONSTRUCTION / DIMENSIONS

	Material	mm	Inches
Center conductor	Solid SPC[1]	1.63	0.064
Dielectric	Solid PTFE[2]	5.31	0.209
Inner shield	Copper tubing	6.35	0.250
Outer shield	-	-	-
Jacket	-	-	-

ELECTRICAL CHARACTERISTICS

Characteristic impedance	50Ω ± 0.5Ω	
Operating frequency range	DC - 18 GHz	
Shielding effectiveness	110 dB	
Voltage withstanding	7 500 V rms	
Peak power	6.1 kW	
Capacitance	89 pF / m	27 pF / ft
Velocity of propagation	70 % (4.8 ns / m)	

MECHANICAL CHARACTERISTICS

Recommended minimum bending radius	9.53 mm	0.375 inch
Weight	140 g / m	0.0945 lbs / ft

ENVIRONMENTAL CHARACTERISTICS

Operating temperature range	-40 / +90 °C	-40 / +194 °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	0.21	0.06	900
2.0	0.31	0.09	636
3.0	0.41	0.12	520
6.0	0.64	0.20	367
8.0	0.79	0.24	318
10.0	0.92	0.28	285
12.4	1.08	0.33	256
18.0	1.42	0.43	212
20.0	1.54	0.47	201
Attenuation calculation (dB/m)	(0.165 x √f GHz) + (0.04 x f GHz)		
Power calculation (W)	900 / √f GHz		

[1] SPC = Silver Plated Copper
[2] PTFE = PolyTetraFluoroEthylene

Semi-rigid cable .250 (Aluminum)



P/N: ST291 874

APPLICATION NOTE

Based on RG401 standard, this cable will be selected for application requiring easy conformability and/or application requiring reduced weight.
Due to the aluminum outer conductor, this cable can be hand formed with exceptional ease with no spring back effect.
Cable can be reshaped, eliminating the need for costly drawings.
The outer conductor material (aluminum) slightly increases the attenuation compared to standard RG401.

CONSTRUCTION / DIMENSIONS

	Material	mm	Inches
Center conductor	Solid SPC[1]	1.63	0.064
Dielectric	Solid PTFE[2]	5.31	0.209
Inner shield	TPAl[3] tubing	6.35	0.250
Outer shield	-	-	-
Jacket	-	-	-

ELECTRICAL CHARACTERISTICS

Characteristic impedance	50Ω ± 1Ω	
Operating frequency range	DC - 18 GHz	
Shielding effectiveness	110 dB	
Voltage withstanding	7 500 V rms	
Peak power	6.1 kW	
Capacitance	89 pF / m	27 pF / ft
Velocity of propagation	70 % (4.8 ns / m)	

MECHANICAL CHARACTERISTICS

Recommended minimum bending radius	9.53 mm	0.375 inch
Weight	79.5 g / m	0.0530 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	0.22	0.07	550
2.0	0.33	0.10	389
3.0	0.43	0.13	318
6.0	0.68	0.21	225
8.0	0.83	0.25	194
10.0	0.97	0.29	174
12.4	1.13	0.34	156
18.0	1.48	0.45	130
20.0	1.60	0.49	123
Attenuation calculation (dB/m)	(0.18 x √f GHz) + (0.04 x f GHz)		
Power calculation (W)	550 / √f GHz		

[1] SPC = Silver Plated Copper
[2] PTFE = PolyTetraFluoroEthylene
[3] TPAl = Tin Plated Aluminum

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