CABLE ASSEMBLIES

Flexible cable 5/50 D (ECO142X)



ECO-Friendly cable
Cost effective solution

P/N: ST291 320 180

APPLICATION NOTE

Designed by SYNERGY, ECO142X is an alternative solution to ECO142 when higher power level is required:

- **Advantageous in term of electrical performance:** the crosslink foam polyethylene used as dielectric material allows higher temperature level (thus power range) than ECO142.
- **Environmental advantages::** halogen and sulphur free, this cable does not emit any toxic substance when submitted to fire. The flame retardant jacket allows ECO142X to meet fire resistance standards.
- **Advantageous in term of price:** ECO142X design has integrated all Radiall knowledge to reach the best performance with a very competitive price.

ECO142X is UL style 1375 and 3651 approved.
This cable is compatible with a large range of standard connector series.

CONSTRUCTION / DIMENSIONS

	Material	mm	inches
Center conductor	Solid SPC[1]	0.95	0.037
Dielectric	X foam PE[2]	2.98	0.117
Inner shield	SPC[1] braid	3.64	0.143
Outer shield	SPC[1] braid	4.30	0.169
Jacket	Black with blue stripe LSZH PE[3]	5.00	0.197

ELECTRICAL CHARACTERISTICS

Characteristic impedance	50Ω ± 2Ω	
Operating frequency range	DC - 6 GHz	
Shielding effectiveness	75 dB (DC - 5 GHz)	
Voltage withstanding	5 000 V rms	
Capacitance	94.5 pF / m	28.7 pF / ft
Velocity of propagation	71 % (4.7 ns / m)	

MECHANICAL CHARACTERISTICS

Recommended minimum bending radius	30 mm	1.18 inch
Weight	60 g / m	0.0433 lbs / ft

ENVIRONMENTAL CHARACTERISTICS

Operating temperature range	-40 / +105 °C	-40 / +221 °F
Fire resistance	Yes (UL1581 VW1 / IEC 332-1)	
Halogen free	Yes (IEC 754-2)	

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

GHz	dB / m	dB / ft	Watts
0.5	0.36	0.11	354
1.0	0.54	0.16	250
1.5	0.69	0.21	204
2.0	0.83	0.25	177
2.5	0.95	0.29	158
3.0	1.07	0.32	144
3.5	1.18	0.36	134
4.0	1.29	0.39	125
5.0	1.50	0.45	112
6.0	1.70	0.51	102
Attenuation calculation (dB/m)	(0.44 x √f GHz) + (0.103 x f GHz)		
Power calculation (W)	250 / √f GHz		

[1] SPC = Silver Plated Copper
[2] X foam PE = Crosslink foam PolyEthylene
[3] LSZH PE = Low Smoke Zero Halogen PolyEthylene

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

Flexible cable 5/50 D (Power 142: alternative to RG142)



P/N: ST291 325 270

APPLICATION NOTE

Designed by SYNERGY, POWER142 is an alternative solution to ECO142 when high power level is required:

- **Advantageous in term of electrical performance:** its optimized construction allows better attenuation and screening effectiveness than RG142 and higher power level than ECO142.
- **Environmental advantages::** the flame retardant jacket allows POWER142 to meet fire resistance standards.
- **Advantageous in term of price:** POWER142 design has integrated all Radiall knowledge to reach the best performance with a very competitive price.

POWER142 is UL style 1375 approved.
This cable is compatible with a large range of connector series.

CONSTRUCTION / DIMENSIONS

	Material	mm	Inches
Center conductor	Solid SPC[1]	0.92	0.036
Dielectric	Solid PTFE[2]	2.97	0.117
Inner shield	Al[3] foil	3.20	0.126
Outer shield	TC[4] braid	3.60	0.142
Jacket	Black LSZH PE[5]	4.50	0.177

ELECTRICAL CHARACTERISTICS

Characteristic impedance	50Ω ± 2Ω	
Operating frequency range	DC - 3 GHz	
Shielding effectiveness	90 dB (DC - 3 GHz)	
Voltage withstanding	5 000 V rms	
Peak power	3.4 kW	
Capacitance	97 pF / m	29.3 pF / ft
Velocity of propagation	69 % (4.8 ns / m)	

MECHANICAL CHARACTERISTICS

Recommended minimum bending radius	25 mm	0.980 inch
Weight	40 g / m	0.0269 lbs / ft

ENVIRONMENTAL CHARACTERISTICS

Operating temperature range	-40 / +105 °C	-40 / +221 °F
Fire resistance	Yes (UL1581 VW1 / IEC 332-1)	
Halogen free	No	

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

GHz	dB / m	dB / ft	Watts
0.2	0.18	0.05	470
0.4	0.26	0.08	332
0.6	0.32	0.10	271
0.8	0.37	0.11	235
1.0	0.41	0.12	210
1.5	0.50	0.15	171
2.0	0.58	0.18	148
2.5	0.66	0.20	133
3.0	0.72	0.22	121
Attenuation calculation (dB/m)	(0.402 x √f GHz) + (0.008 x f GHz)		
Power calculation (W)	210 / √f GHz		

[1] SPC = Silver Plated Copper
[2] PTFE = PolyTetraFluoroEthylene
[3] Al = Aluminum
[4] TC = Tinned Copper
[5] LSZH PE = Low Smoke Zero Halogen PolyEthylene