CABLE ASSEMBLIES

Flexible cable 2.6/50 S (ECO316X)



ECO-Friendly cable
Cost effective solution

P/N: C291 171 083

APPLICATION NOTE

Designed by Radiall, ECO316X is an alternative solution to ECO316 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 ECO316.
- **Environmental advantages:** halogen and sulphur free, this cable does not emit any toxic substance when submitted to fire. The flame retardant jacket allows ECO316X to meet fire resistance standards.
- **Advantageous in term of price:** ECO316X design has integrated all Radiall knowledge to reach the best performance with a very competitive price.

ECO316X 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	Stranded SPC[1]	0.54	0.021
Dielectric	X foam PE[2]	1.54	0.061
Inner shield	SPC[1] braid	2.05	0.081
Jacket	Blue LSZH PE[3]	2.52	0.099

ELECTRICAL CHARACTERISTICS

Characteristic impedance	50Ω ± 2Ω	
Operating frequency range	DC - 3 GHz	
Shielding effectiveness	35 dB	
Voltage withstanding	3 000 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	5 mm	0.197 inch
Weight	16 g / m	0.011 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 / 20 °C)

GHz	dB / m	dB / ft	Watts
0.1	0.27	0.08	285
0.3	0.49	0.15	164
0.5	0.65	0.20	127
0.6	0.72	0.22	116
0.8	0.84	0.26	101
1.0	0.96	0.29	90
1.5	1.22	0.37	73
2.0	1.45	0.44	64
2.5	1.66	0.50	57
3.0	1.85	0.56	52
Attenuation calculation (dB/m)	(0.81 x √f GHz) + (0.15 x f GHz)		
Power calculation (W)	90 / √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 2.6/50 D (ECO316D: alternative to RD316)



ECO-Friendly cable
Cost effective solution

P/N: C291 999 905

APPLICATION NOTE

Designed by Radiall, ECO316D is an alternative solution to RD316:

- **Advantageous in term of electrical performance:** its optimized construction allows better attenuation and screening effectiveness than RD316.
- **Environmental advantages:** halogen and sulphur free, this cable does not emit any toxic substance when submitted to fire. The flame retardant jacket allows ECO316D to meet fire resistance standards.
- **Advantageous in term of price:** ECO316D design has integrated all Radiall knowledge to reach the best performance with a very competitive price.

ECO316D is UL style 1375 approved.
This cable is compatible with a large range of connector series.

CONSTRUCTION / DIMENSIONS

	Material	mm	Inches
Center conductor	Solid OFC[1]	0.55	0.022
Dielectric	Foam PE[2]	1.55	0.061
Inner shield	OFC[1] braid	1.90	0.075
Outer shield	OFC[1] braid	2.30	0.091
Jacket	Black LSZH PE[3]	2.80	0.110

ELECTRICAL CHARACTERISTICS

Characteristic impedance	50Ω ± 2Ω	
Operating frequency range	DC - 3 GHz	
Shielding effectiveness	65 dB	
Voltage withstanding	2 000 V rms	
Peak power	1.4 kW	
Capacitance	84 pF / m	25.5 pF / ft
Velocity of propagation	80 % (4.15 ns / m)	

MECHANICAL CHARACTERISTICS

Recommended minimum bending radius	15 mm	0.590 inch
Weight	16 g / m	0.0106 lbs / ft

ENVIRONMENTAL CHARACTERISTICS

Operating temperature range	-40 / +85 °C	-40 / +185 °F
Fire resistance	Yes (UL 1581 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
0.1	0.24	0.07	120
0.2	0.33	0.10	85
0.3	0.41	0.12	69
0.5	0.53	0.16	54
1.0	0.76	0.23	38
1.5	0.94	0.28	31
2.0	1.09	0.33	27
2.5	1.22	0.37	24
3.0	1.34	0.41	22
Attenuation calculation (dB/m)	(0.74 x √f GHz) + (0.02 x f GHz)		
Power calculation (W)	38 / √f GHz		

[1] OFC = Oxygen Free Copper
[2] PE = PolyEthylene
[3] LSZH PE = Low Smoke Zero Halogen PolyEthylene