PRODUCT DATASHEET

RCF12-50JFN

1/2" RCF RADIAFLEX Cable, Halogen Free, Flame/Fire Retardant, Low Smoke

- RADIAFLEX® functions as a distributed antenna to provide communications in tunnels, mines and large building complexes and is the solution for any application in confined areas.
- Slots in the outer conductor allow a controlled portion of the internal RF energy to be radiated into the surrounding environment. Conversely, a signal transmitted near the cable will couple into the slots and be carried along the cable length.
- RADIAFLEX® is used for both one-way and two-way communication systems and because of its broadband capability, a single radiating cable can handle multiple communication systems simultaneously.
- This RADIAFLEX® radiating cable utilize a low-loss cellular polyethylene foam dielectric and a corrugated copper or aluminum outer conductor which offers a combination of remarkable flexibility, high strength and excellent electrical performance.



RCF cable

FEATURES / BENEFITS

- Broadband radiating cable supporting all wireless application between 75 MHz to 6000 MHz
- Ideally suited for application that require low bending radius
- Robust radiating cable operational under all enviromental conditions as e.g. harsh tunnels or mines
- Ideal for In-train, Vehicle-to-Everything communication and In aircraft to wireless/satellite networks

Technical features

GENERAL SPECIFICATIONS

Size		1/2

ELECTRICAL SPECIFICATIONS

Max. Operating Frequency	MHz	6000
Cable Type		RCF
Impedance	Ohm	50 +/- 2
Velocity, percent	%	88
Capacitance	pF/m (pF/ft)	76 (23.2)
Inductance, uH/m (uH/ft)	µH/m (µH/ft)	0.19 (0.058)
DC-resistance inner conductor, ohm/km (ohm/1000ft)	Ω/km (Ω/1000ft)	1.57 (0.48)
DC-resistance outer conductor, ohm/km (ohm/1000ft)	Ω/km (Ω/1000ft)	3.48 (1.06)
Stop bands	MHz	None
Frequency Selection	MHz	600, 900, 1800/1900, 2200, 2400, 2500, 2700, 6000

All values nominal unless tolerances provided; information contained in the present datasheet is subject to confirmation at time of ordering

MECHANICAL SPECIFICATIONS

Jacket		Flame Retardant
Jacket Color		Standard Black, other colors on request
Jacket Description		Halogen free, non corrosive, flame retardant, low smoke
Slot Design		Milled (Two-Row)
Inner Conductor Material		Copper Clad Aluminum Wire
Outer Conductor Material		Annularly Corrugated Copper Tube
Diameter Inner Conductor	mm (in)	4.8 (0.19)
Diameter Outer Conductor	mm (in)	13.8 (0.54)
Diameter over Jacket Nominal	mm (in)	16 (0.63)
Minimum Bending Radius, Single Bend	mm (in)	125 (5)
Cable Weight	kg/m (lb/ft)	0.22 (0.15)
Tensile Force	N (lb)	1100 (247)
Recommended / Maximum Clamp Spacing	m (ft)	0.6 (2)
Minimum Distance to Wall	mm (in)	50 (2)

TESTING AND ENVIRONMENTAL

Jacket Testing Methods		Test methods for fire behaviour of cable : IEC 60754-1/-2 smoke emission, halogen free, non corrosive IEC 61034 low smoke IEC 60332-1 flame retardant

TEMPERATURE SPECIFICATIONS

Storage Temperature	°C(°F)	-70 to 85 (-94 to 185)
Installation Temperature	°C(°F)	-25 to 60 (-13 to 140)
Operation Temperature	°C(°F)	-40 to 85 (-40 to 185)

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ATTENUATION

Frequency, MHz	Longitudinal Loss, dB/100 m (dB/100 ft)	Coupling Loss 50%, dB	Coupling Loss 95%, dB
75	2.20 (0.67)	50	62
150	3.15 (0.96)	59	71
450	5.70 (1.74)	67	79
800	7.83 (2.39)	67	79
870	8.25 (2.51)	66	79
900	8.40 (2.56)	66	78
960	8.65 (2.64)	66	78
1800	13.1 (3.99)	68	80
1900	13.6 (4.15)	69	81
2000	14.0 (4.27)	72	84
2200	14.7 (4.48)	70	82
2400	15.3 (4.66)	70	82
2600	15.9 (4.85)	70	82
5000	24.8 (7.56)	75	87
5200	25.7 (7.83)	75	87
5800	27.6 (8.41)	75	87
6000	29.9 (8.81)	75	87

External Document Links

Notes

- Coupling loss as well as longitudinal attenuation of RADIAFLEX® cables are measured by the free space method according to IEC 61196-4.
- Coupling loss values are average values of all three spatial orientations (radial, parallel and orthogonal) of dipole antenna.
- Coupling loss values are given with a tolerance of +10 dB and longitudinal loss values with a tolerance of +5%. Note: Measured values below nominal are better. They are not limited by any tolerance-range.
- As with any radiating cable, the performance in building or tunnel environments may deviate from figures based on free space method.

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