Panasonic INDUSTRY

Dk 2.9 Df 0.002 @14GHz

Water absorption 0.04%

Peel strength 0.8N/mm

Applications

Aerospace/Wireless/Automotive

Avionics/Space applications, Smartphone (Antenna module), Laptop, Tablet PC, 4K/8K display (High-speed FPC cable), Automotive component (Millimeter-wave radar), etc.

FELIOS LCP

Double-sided copper clad

R-F705S

Flexible circuit board materials LCP (Liquid Crystal Polymer)

Good high-frequency properties make this material suitable for high-speed large-volume data transmission by mobile devices. Excellent dielectric properties when moisture is absorbed. Compatible with an antenna's circuit boards for millimeter-wave radar that require water resistance and environmental resistance.

Line-up

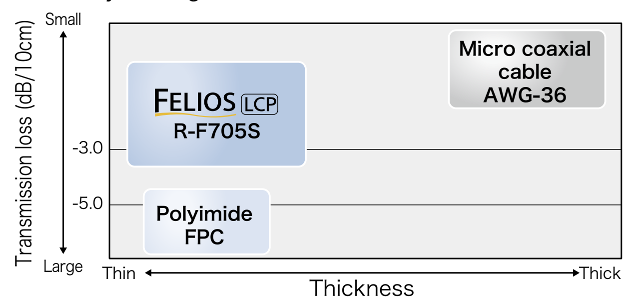
Supports thick plate specifications due to high board thickness accuracy.
Roll-cut type MAX 500mm(TD)
Roll type W=250mm, 500mm

Unit: mils (mm)

Copper foil thickness		Film thickness					
		1.0 (0.025)	2.0 (0.050)	3.0 (0.075)	4.0 (0.100)	5.0 (0.125)	6.0 (0.150)
ED copper foil	1/4oz (9μm)	●	●	●	●	●	●
	1/3oz(12μm)	●	●	●	●	●	●
	1/2oz(18μm)	●	●	●	●	●	●

Concept

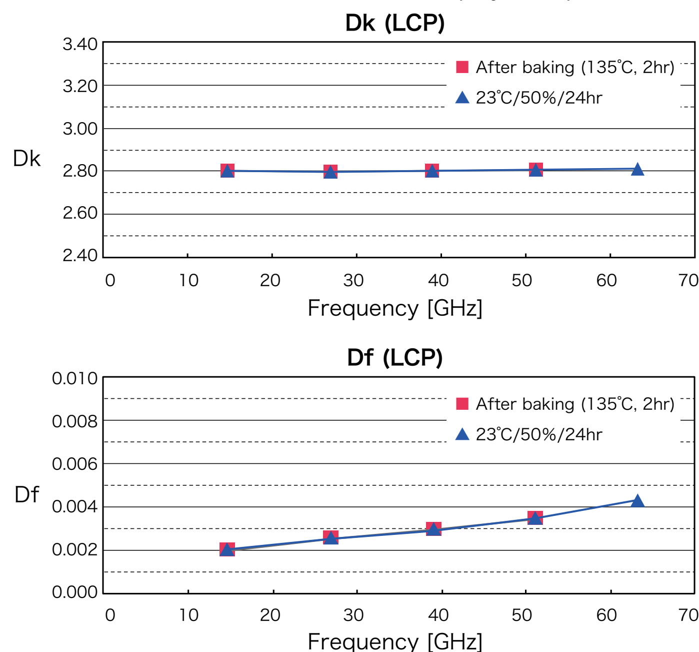
Contributes to miniaturization and weight reduction of devices by making them thinner than coaxial cables.

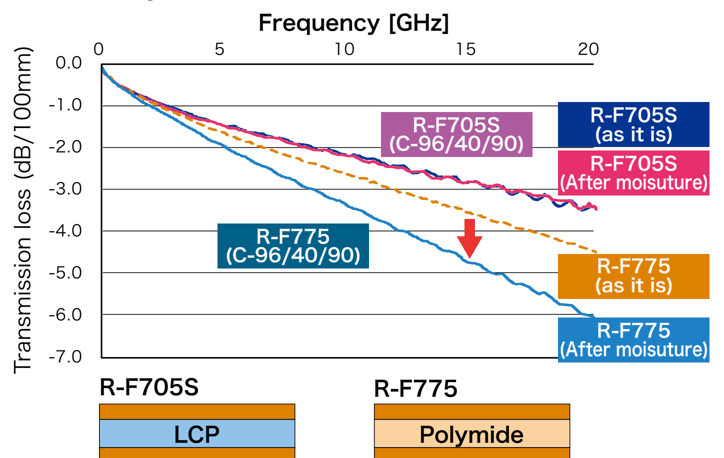


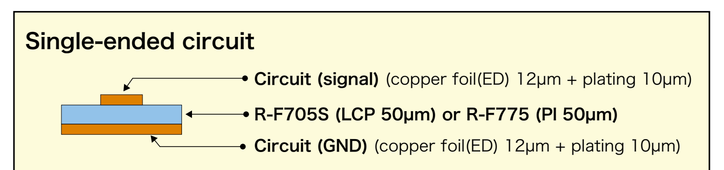
In addition the thickness advantage, one FPC cable can replace several coaxial cables.

Dielectric properties during moisture absorption

R-F705S has lower transmission loss than polyimide products even when absorbing moisture.







Our Halogen-free materials are based on JPCA-ES-01-2003 standard and others.
The above data are typical values and not guaranteed values.

Please refer to the next page for General properties.

General properties

Item		Test method	Condition	Unit	FELIOS LCP R-F705S
Solder heat resistance		JIS C 6471	288°C solder float for 1min	–	**No abnormality**
Moisture absorption solder heat resistance		Internal Method	C-96/40/90 260°C solder float for 1min	–	**No abnormality**
Dielectric constant(Dk)	14GHz	Balanced-type circular disk resonator method	A	–	**2.9**
Dissipation factor(Df)	14GHz	Balanced-type circular disk resonator method	A	–	**0.002**
Dielectric constant(Dk)	10GHz	Cavity resonator method	A	–	**3.3**
Dissipation factor(Df)	10GHz	Cavity resonator method	A	–	**0.002**
Tensile modulus		ASTM D882	A	GPa	**3.5**
Surface resistivity		JIS C 6471	A	MΩ	**$4.0x10^{10}$**
Water absorption		Internal method	25°C 50h immersion	%	**0.04**
Peel strength	ED:18μm	IPC-TM-650 2.4.8	A 260°C solder float for 5sec	N/mm	**0.8**
Chemical resistance		JIS C 6471	HCl 2mol/ℓ 23°C 5min NaOH 2mol/ℓ 23°C 5min IPA 23°C 5min	–	**No abnormality**
Dimensional stability		IPC-TM-650 2.2.4	After etching MD	%	**0.008**
Dimensional stability		IPC-TM-650 2.2.4	After etching TD	%	**0.007**
Dimensional stability		IPC-TM-650 2.2.4	After E-0.5/150 MD	%	**0.052**
Dimensional stability		IPC-TM-650 2.2.4	After E-0.5/150 TD	%	**0.035**
Flammability		UL	A and E-168/70	–	**94VTM-0**
Outgas	TML*	ASTM E595-07 ASTM E595-15	–	%	**0.05**
Outgas	CVCM*	ASTM E595-07 ASTM E595-15	–	%	**<0.01**
Outgas	WVR*	ASTM E595-07 ASTM E595-15	–	%	**0.04**

The sample thickness is 0.1mm.
* TML: Total Mass Loss
CVCM: Collected Volatile Condensable Materials
WVR: Water Vapor Recovered

ED(TP4S) 18-100-18

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Please see our website for Notes before you use.

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