Panasonic INDUSTRY

Halogen -free

FELIOS LCP

Double-sided copper clad
R-F705S

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.

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

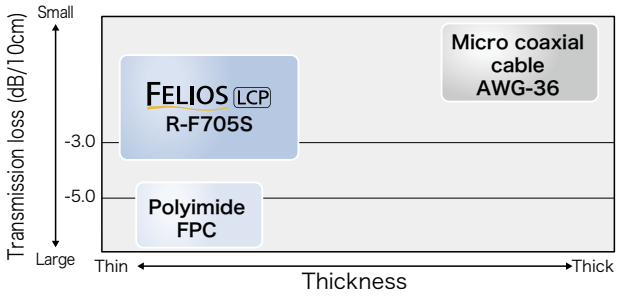
Supports thick plate specifications due to high board thickness accuracy.
Roll-cut type MAX 500mm(TD)
Roll type W=250mm, 500mm

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

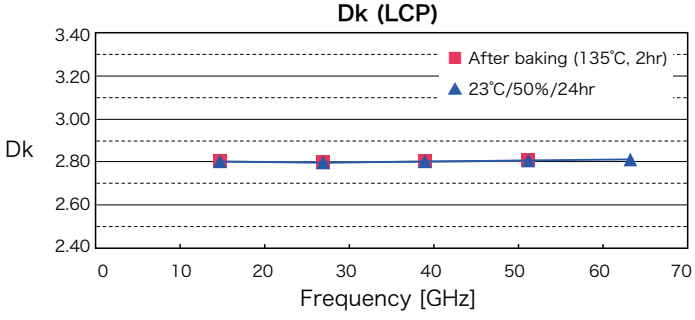
Contributes to miniaturization and weight reduction of devices by making them thinner than coaxial cables.

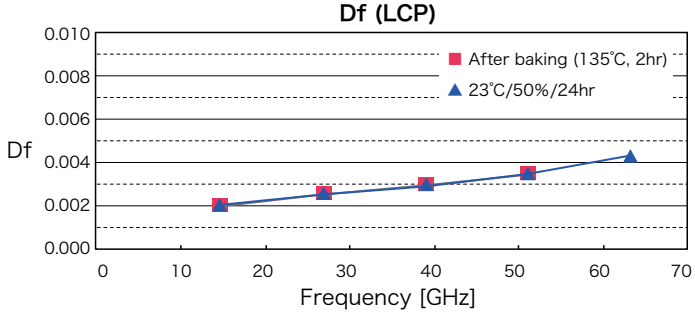


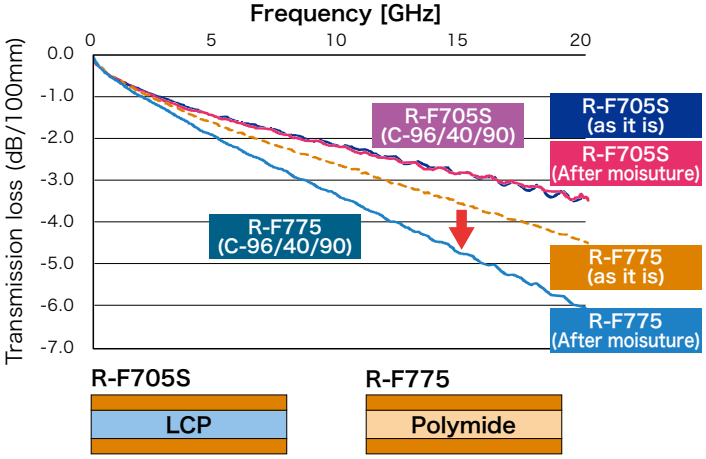
In addition the thickness advantage,
one FPC cable can replace several coaxial cables.

Dielectric properties during moisture absorption

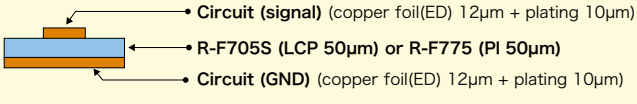
R-F705S has lower transmission loss than polyimide products even when absorbing moisture.







Single-ended circuit



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		IPC-TM-650	270℃ solder float for 1min	–	**No abnormality**
Dielectric constant(Dk)	14GHz	Balanced-type circular disk resonator method	A	–	**2.9**
Dissipation factor(Df)					**0.002**
Dielectric constant(Dk)	10GHz	Cavity resonator method	A	–	**3.3**
Dissipation factor(Df)					**0.002**
Water absorption		Internal method	23℃, 24hr immersion	%	**0.04**
Peel strength	ED: 12μm	IPC-TM-650	A	N/mm	**0.7**
Dimensional stability		IPC-TM-650	After etching MD	%	**0.022**
			After etching TD		**-0.007**
			After E-0.5/150 MD		**0.064**
			After E-0.5/150 TD		**0.017**
Outgas	TML*	ASTM E595-07 ASTM E595-15	–	%	**0.05**
	CVCM*				**<0.01**
	WVR*				**0.04**

The sample thickness is film 100μm, copper foil 12μm.
* TML: Total Mass Loss
CVCM: Collected Volatile Condensable Material
WVR: Water Vapor Recovered

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