

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

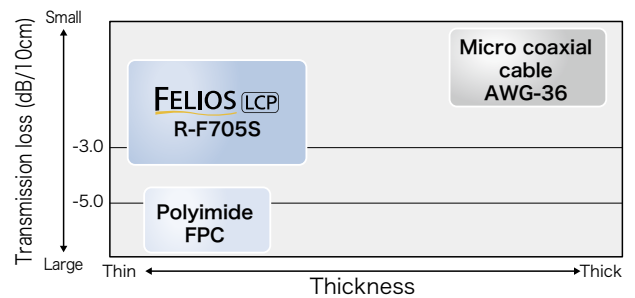
Supports thick plate specifications due to high board thickness accuracy.
Roll-cut type MAX 500mm(TD)
Roll type W=250mm, 500mm

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

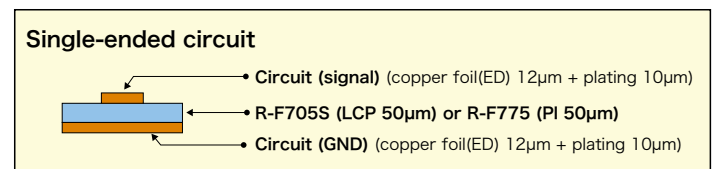
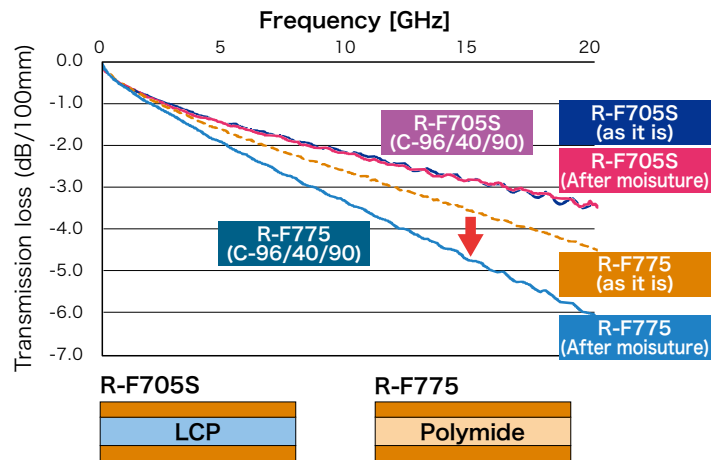
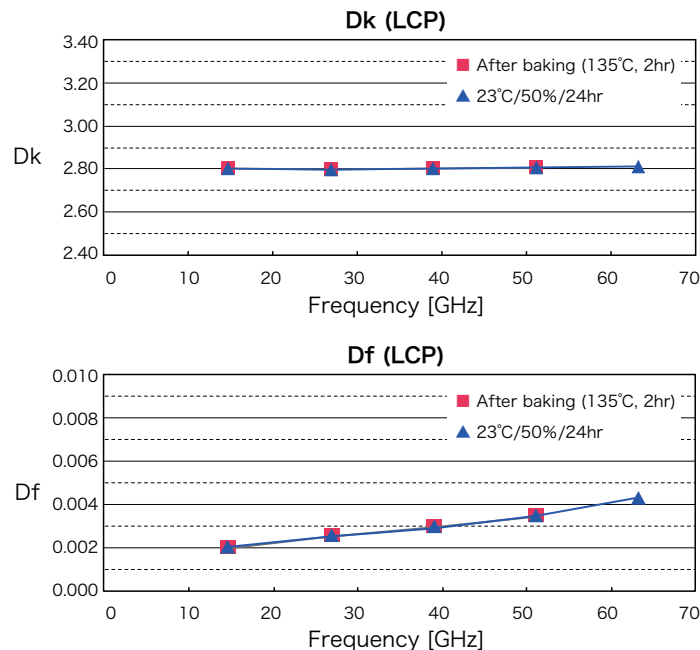
Contributes to miniaturization and weight reduction of devices by making them thinner than coaxial cables.



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.

General properties

Item		Test method	Condition	Unit	FELIOS ^{LCP} R-F705S
Solder heat resistance		IPC-TM-650	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)					0.002
Dielectric constant(Dk)	10GHz	Cavity resonator method	A	—	3.3
Dissipation factor(Df)					0.002
Tensile modulus		ASTM D882	A	GPa	3.5
Surface resistivity		JIS C 6471	A	MΩ	4.0x10 ¹⁰
Water absorption		Internal method	23°C, 24hr immersion	%	0.04
Peel strength	ED:18μm	IPC-TM-650	A 260°C solder float for 5sec	N/mm	0.8
Chemical resistance		JIS C 6471	HCl 2mol/ℓ 23°C 5min	—	No abnormality
			NaOH 2mol/ℓ 23°C 5min		
			IPA 23°C 5min		
Dimensional stability		IPC-TM-650	After etching MD	%	0.008
			After etching TD		0.007
			After E-0.5/150 MD		0.052
			After E-0.5/150 TD		0.035
Outgas	TML*	ASTM E595-07 ASTM E595-15	—	%	0.05
	CVCM*				<0.01
	WVR*				0.04

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

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