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LCP Film

Special Solution Casting Technology

Thermotropic Liquid Crystalline Polyester Film



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Features 1

- ★ Utilizing our own developed special thermoplastic resin.
- ★ Molecules will be aligned(liquid crystal state) when melted (Alpha Moss condition).
- ★ With our casting method (molding using a solvent), instead of melt molding (Melt molding), in order to eliminate imbalance due to unbalanced center of gravity, suppleness and high strength characteristics can be realized.
- ★ It is an aromatic polyester resin obtained by ester linkage in a linear chain with basic structure such as parahydroxybenzoic acid.

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Features 2

- ★ **Excellent heat resistance (>270°C)** Appropriate for solder flow
High melting point
High glass transition temperature stance
- ★ **Excellent Flame retardancy**
- ★ **Excellent Stiffness like metal & Softness like rubber**
High Tensile Strength(crystallinity) and Tensile modulus
High rigidity
- ★ **Low viscosity, High fluidity**
- ★ **Low Moisture absorption**

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Features 3

- ★ **Excellent High insulation properties at high frequencies**
- ★ **Excellent Low dielectric properties at high frequencies**
- ★ **Excellent Chemical resistance**
- ★ **Excellent Gas barrier property**
- ★ **Excellent Energy characteristics at high frequencies.**
- ★ **Non-oriented LCP Film**

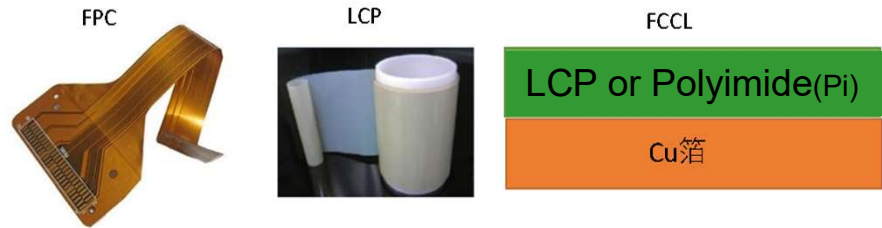
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Property

Property	Unit	Conditions	Results
Electrical Characteristics			
Relative permittivity	-	1GHz	3.09
Volume resistivity	$\Omega \cdot \text{cm}$	23°C	39×10^{17}
Water absorption Characteristics			
Water absorption	ppm/°C	85°C/85%RH@168hr	< 0.1
Mechanical Characteristics			
Tensile Strength	Mpa	25°C	60 ^{*1}
Modulus of elasticity	Mpa	25°C	3000 ^{*1}
Growth rate	%	25°C	7 ^{*1}
Heat Characteristics			
Solar heat resistance	-	270°C/30 sec	PASS
Melting Point		300°C/3 sec	PASS
Melting Point	°C	DSC method	316
Thermal Conductivity	W/m · K	-	0.38

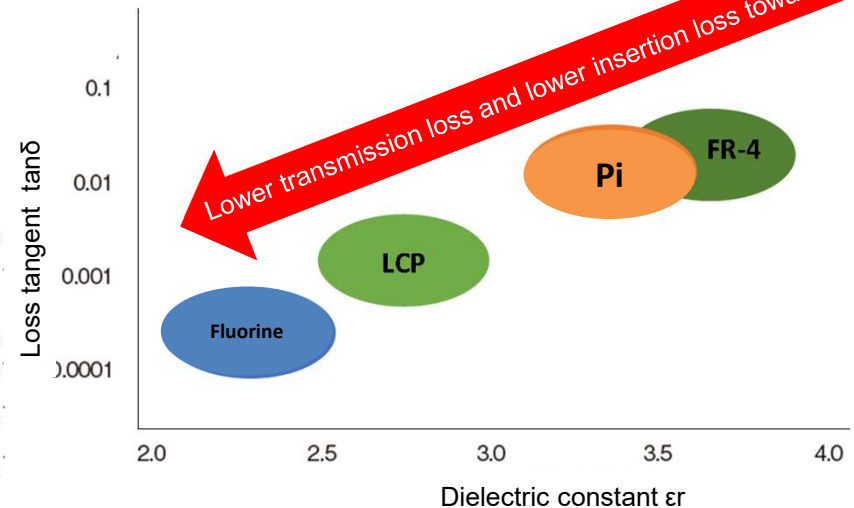
*1 Aneling : 300°C/60min

LCP for FPC and FCCL



FCCL configuration	Relative permittivity (1MHz)
Polyimide	3.3
Epoxy adhesive	3.5~5.0
LCP	≤ 3.0

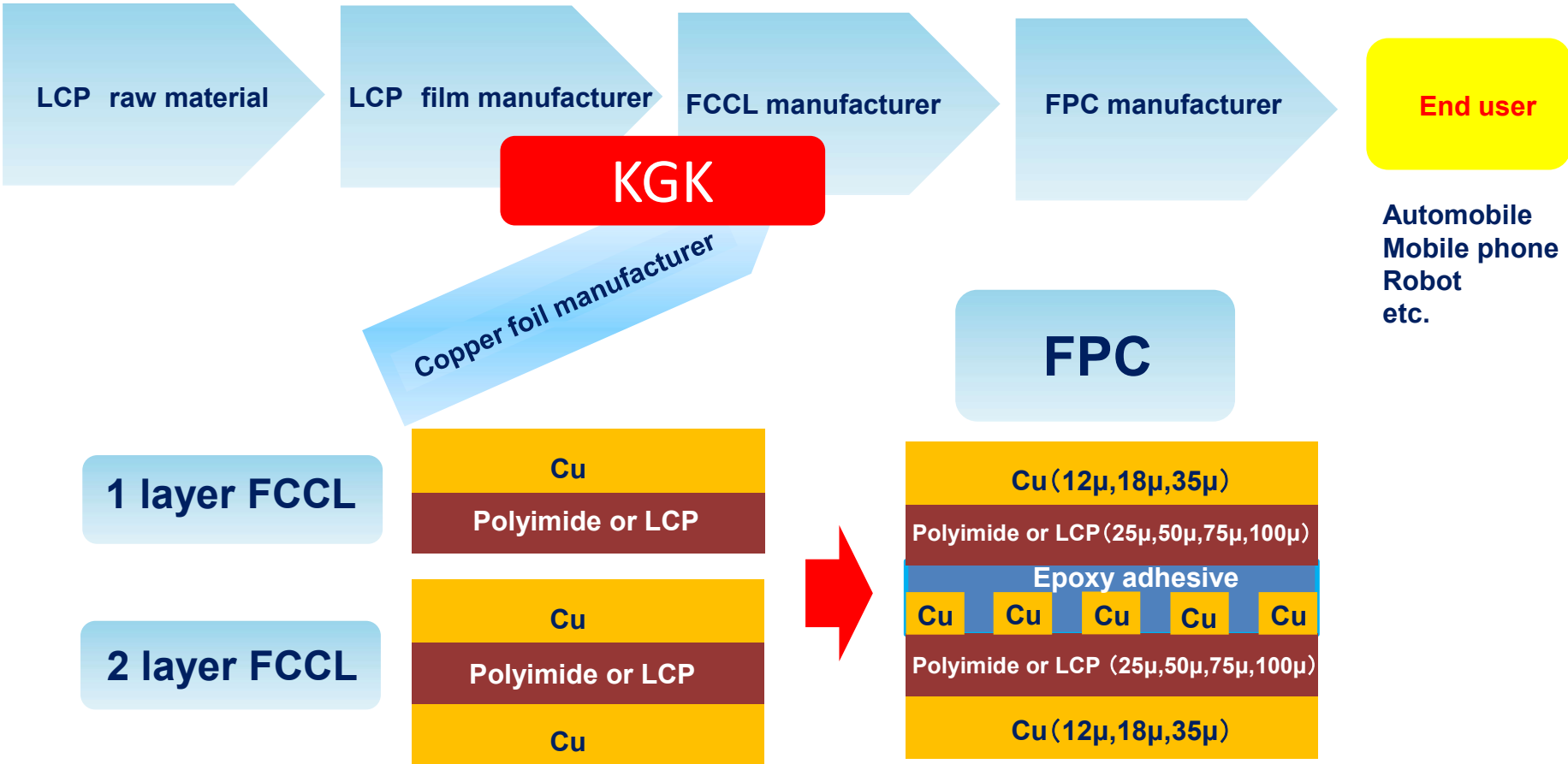
Characteristics of various substrate materials



【LCP for FPC and FCCL】

In addition to excellent electrical properties in low dielectric constant and low dielectric loss tangent, LCP resin excellent in low water absorption, heat resistance and mold ability is indispensable for high speed communication. Since the coefficient of linear expansion in flow direction is as good as that of metal and is superior in compatibility with copper foil, it is suitable for use in flexible printed circuit board (FPC). Especially, it is expected to be used for FPC for next generation high speed communication 5 G and millimeter wave radar of car.

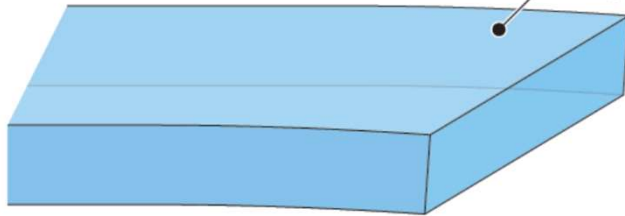
LCP Supply Chain



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Available Sizes

Structure:



LCP Film 13 μ m~35 μ m

Sizes:

Products	Thickness(μ m)	Color	Standard Roll Size
SAR 13	13	Brown	300mm x 20M
SAR 20	20		
SAR 25	25		
SAR 30	30		
SAR 35	35		

***Please inquire for more different thickness and width**

FCCL(LCP//Copper Multi layer film)

Features :

- Excellent heat resistance
- Low moisture absorption (low dielectric)
- 250 thermoforming of at °C
- Gas barrier properties
- Very high tensile strength (to 200 MPa) and tensile modulus (to 30,000 MPa)
- Non-oriented film

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Applications :

- FPC circuit board
- LED board

Sizes:

Products	Thickness	Structure	Standard Roll Size
SAR25C12	0.037	LCP(25 μ m)//Copper(12 μ m)	300mm \times 20M

***Please inquire for more different thickness and width**

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User is responsible for determining whether the KGK product is fit for a particular purpose and suitable for user's method of application. Please remember that many factors can affect the use and performance of a KGK product in a particular application. The materials to be bonded with the product, the surface preparation of those materials, the product selected for use, the conditions in which the product is used, and the time and environmental conditions in which the product is expected to perform are among the many factors that can affect the use and performance of a KGK product. Given the variety of factors that can affect the use and performance of a KGK product, some of which are uniquely within the user's knowledge and control. It is essential that the user evaluate the KGK product to determine whether it is fit for a particular purpose and suitable for the user's method of application. KGK make no warranties on above data.



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