



Micro Systems Technologies

Advanced LCP Substrates for HF & Microwave Applications

HIGHLIGHTS

- Liquid Crystal Polymer (LCP) substrates with excellent high frequency properties
- Fine line patterning (down to 25 μm)
- Precise cavity generation
- Air bridges
- Application of heat sinks and lids
- DYCONEX is EN 9100 certified



DYCONEX

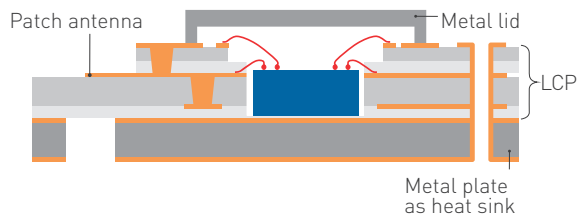
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Advanced LCP Substrates for HF & Microwave Applications

Liquid Crystal Polymer (LCP) is a superior organic multilayer material for RF applications with stable electrical and mechanical characteristics across a range of frequencies up to 100 GHz. Due to its very low water absorption, LCP properties remain nearly constant regardless of the presence of moisture, allowing its use for near-hermetic packages.

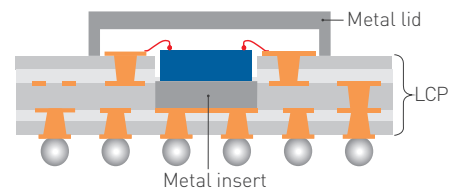
LCP Substrate with Heat Sink

High power density application
Direct bonding to heat sink
Operating temperature up to 180°C
Gold wire bondable surface: ENEPIG
RF tracks covered by metal lid



LCP BGA Package

Laser blind vias 50 or 75 µm
Lines / spaces: > 25 / 25 µm
Lid sealing for near-hermetic package
Heat dissipation via metal insert and thermal vias

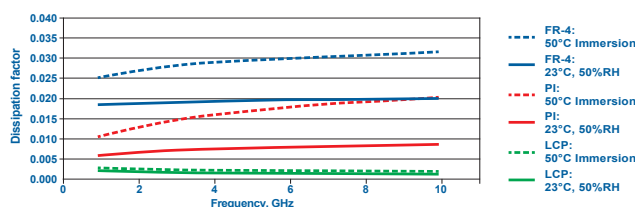


LCP Base Material

Very flexible thermoplast
Excellent high frequency properties: $\epsilon_r = 2.9$, $\tan \theta = 0.0025$
High temperature stability: $T_g > 280^\circ\text{C}$, $T_d > 320^\circ\text{C}$
Very low water absorption: $< 0.04\%$
Low weight: 1.4 g / cm^3

LCP HF Properties

Dissipation factor variation with moisture
LCP, Polyimide (PI) and FR4 laminates

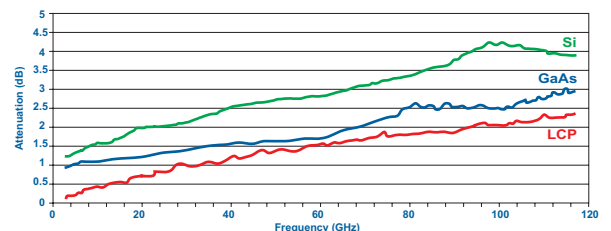


LCP Substrate Features

Directly bondable to a variety of materials to control CTE
Wire bondable cavity ledges to access inner layers without lossy vias
Air bridges
Thermal vias for heat dissipation
Application of heat sinks and metal lids

LCP HF Properties

Signal Attenuation



DYCONEX

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Based in Switzerland, DYCONEX has been in the PCB business for more than 50 years and delivers leading edge interconnect solutions in flex, rigid-flex and rigid technology. DYCONEX core competence lies in the production of highly complex HDI, high-frequency and high-reliability circuit boards for medical, defense, aerospace, industrial and semiconductor applications. DYCONEX is an MST company.

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