

High Performance, High Reliability Multilayer Circuits Utilizing Advanced Liquid Crystalline Polymer Substrate Materials

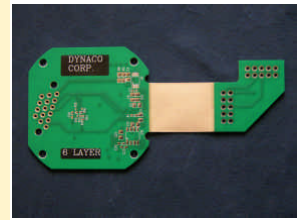
Dynaco has successfully mastered the use of liquid crystal polymer substrate materials for use in today's most demanding multilayer circuit designs. The characteristics of the material system make it one of the most attractive material options available today. Inherently flame retardant, it is naturally "green", containing no halogenated flame retardants or brominated compounds. It also has extremely low moisture absorption properties and truly outstanding electrical performance at high frequencies or data rates.



Dynaco, when it has to be done RIGHT!

Multilayer Rigid Flex Designs

As a replacement for traditional rigid or flex polyimide or epoxy based circuit materials, the utilization of flexible liquid crystal polymer materials in conjunction with other rigid high performance material systems enables true high frequency rigid flex designs for the first time ever.

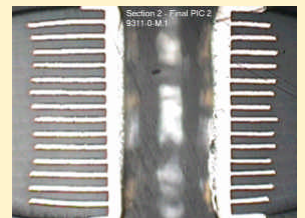


LCP/R04350 Rigid-Flex

Thin dielectric layers, low loss tangent and very stable dielectric constant over frequency, coupled with low moisture absorption, make Liquid Crystal Polymer circuit materials an excellent choice for the ultimate in high reliability designs.

Multilayer Capability

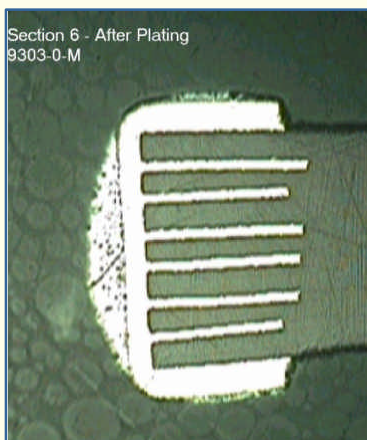
Dynaco is one of the few companies in the world that can point to a wide variety of multilayer circuits manufactured with liquid crystal polymer materials. We have demonstrated ability to manufacture 4 layer through 16 layers in either pure LCP stack-ups or in hybrid configurations with other high performance materials.



16 layer all LCP design

RELIABILITY

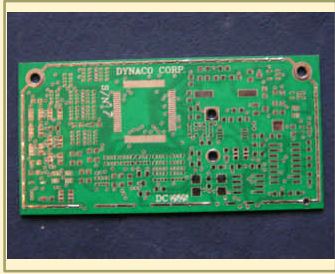
Interconnect Stress Testing



8 Layer IST Coupon

Dynaco is working with Rogers Corporation to demonstrate the reliability of LCP multilayer circuits through the use of interconnect stress testing. An 8 layer test circuit standard is being used on a variety of materials to generate comparative data. The test program consists of a 1500 cycle test, with an ambient to 150 C cycle. Initial test results have been very positive, with the first 8 layer all LCP test circuits surviving 1000-1500 cycles.

MULTILAYER CIRCUITS

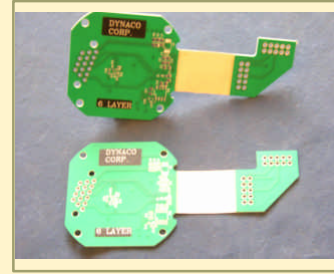
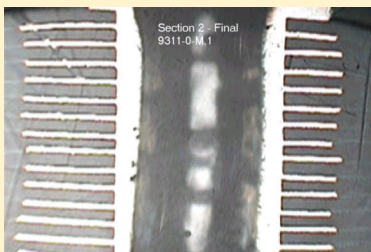


16 layer rigid

Rigid Configurations

Liquid crystal polymer materials can be used in the same circuit configurations as more conventional reinforced systems.

- n *Laminate thicknesses of .001" to .004"*
- n *Bond ply thicknesses of .002" to .004"*
- n *Circuits up to 20 layers available*

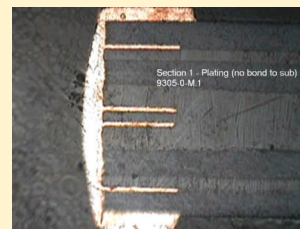


6 layer rigid-flex

Rigid-Flex Configurations

Dynaco can use LCP circuit materials in place of polyimide flex and rigid materials in rigid-flex constructions.

- n *Flex layer thicknesses of .001" and .002"*
- n *Rigid thicknesses of .001" to .004"*
- n *Rigid-Flex circuits up to 12 layers available*



Contact Dynaco today for more information regarding our capabilities to fabricate circuits using Liquid Crystal Polymer circuit materials.

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