無溶劑圖案化絕緣材料

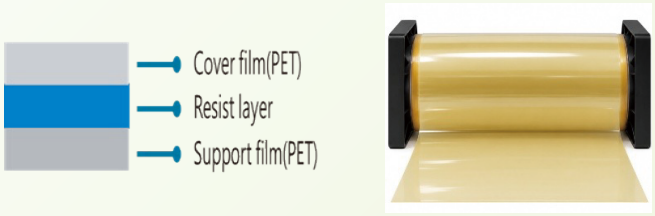
Solvent-free patterned insulating materials

隨著光耦封裝、MEMS及先進封裝需求提升，產業亟需發展無溶劑、厚膜化、高解析圖案化之國產絕緣材料，以解決傳統材料溶劑含量高、厚膜製程不易等問題，提升製程效率與材料自主性。

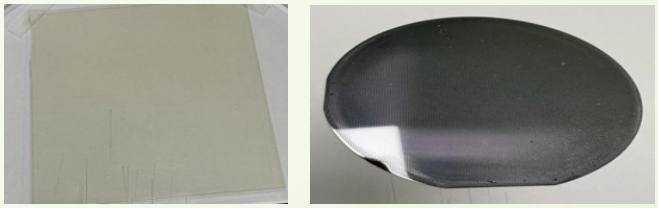
This technology demonstrates the entire PCB process—from low-carbon resin to CCL/PCB to module to application environment—using power module boards, and promotes UL certification. It establishes transferable formulation/process kits and patents, enabling the mass production of low-carbon raw materials and the commercialization of "low-carbon PCB solutions." This perfects the conditions for mass production implementation and establishes auditable carbon reduction criteria. Furthermore, it strengthens the resilience of the local supply chain and enhances the international competitiveness of Taiwan's CCL/PCB industry in the commercialization and certification of low-carbon materials.

技術特色

- 無溶劑配方樹脂結構設計　Solvent-free resin structure design
- 高深寬比圖案化配方系統　High aspect ratio patterned formulation system
- 熱熔融塗佈及製程工序　Hot melt coating and processing steps



無溶劑絕緣材料乾膜
Solvent-free insulating material Dry film



無溶劑絕緣材料硬化膜材及貼合
Solvent-free insulating material hardening film and lamination

解決方案/應用案例

本技術透過低熔融環氧樹脂、交聯劑及感光劑組成整合，搭配熱熔融塗佈製程，實現100%無溶劑及200 μm厚膜可收卷，並兼具高深寬比圖案化、高耐電壓，有助於降低溶劑耗用與製程負擔，並建立國內自主之無溶劑圖案化絕緣材料技術應用於光耦封裝元件。

This technology integrates low-melting-point epoxy resin, crosslinking agent, and photosensitizer, combined with a hot melt coating process, to achieve 100% solvent-free and 200 μm thick film that can be rolled up. It also features high aspect ratio patterning and high voltage resistance, which helps reduce solvent consumption and process burden. Furthermore, it establishes a domestically independent solvent-free patterned insulating material technology for application in optocoupler packaging components.

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