高頻高速用多孔聚醯亞胺薄膜

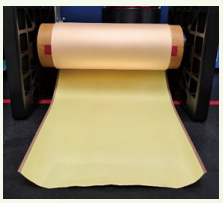
Porous Polyimide Film for High-Frequency High-Speed Applications

隨著5G/6G、高速運算與高頻通訊快速發展，低介電、低損耗基板材料需求日益提升，本技術以多孔聚醯亞胺結構降低Dk與Df，並結合Roll-to-Roll連續塗佈製程，兼具耐熱、薄型化與生產潛力，適用於高頻高速電子基板。

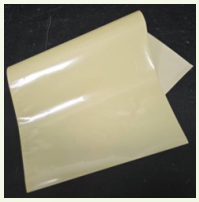
With the rapid development of 5G/6G, high-performance computing, and high-frequency communications, demand for substrate materials with low dielectric constant and low dielectric loss continues to increase. This technology utilizes a porous polyimide structure to reduce Dk and Df, combined with a continuous Roll-to-Roll (R2R) coating process. It offers high thermal resistance, thin-film capability, and mass-production potential, making it suitable for high-frequency and high-speed electronic substrates.

技術特色

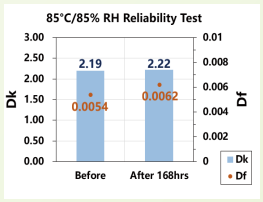
- **低介電、低損耗**
  Low dielectric constant and low dielectric Loss
- **高耐熱、高尺寸穩定性**
  High thermal resistance and excellent dimensional stability
- **R2R連續生產**
  Continuous Roll-to-Roll production



Adhesiveless Single-sided FCCL



Porous PI Membrane



材料特性 Material properties

Item	Porous polyimide
Thickness (μm)	30
Pore size(μm)	1~6
Glass transition temperature, Tg (°C)	255
Decomposition temperature, Td 5% (°C)	444
Coefficient of thermal expansion (ppm/°C)	20
Tensile strength (MPa)	24.9
Young's modulus (GPa)	2.0
Dielectric constant (Dk), 10GHz	2.2
Dielectric loss (Df), 10GHz	0.005

解決方案/應用案例

- **R2R塗佈→ PI成孔乾燥→收卷，製成多孔聚醯亞胺單面覆銅板捲材**
  R2R coating → PI pore formation and drying → rewinding, producing porous polyimide single-sided copper-clad laminate rolls.
- **應用於FPC、5G/6G天線及AI/HPC高速互連，降低傳輸損耗並提升訊號完整性**
  Applicable to FPCs, 5G/6G antennas, and AI/HPC high-speed interconnects, helping to reduce transmission loss and improve signal integrity.

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