APICAL® 200NP

This film is a tough aromatic polyimide film that has been developed for use in flexible printed circuits and semiconductor assembling base materials.

Characteristics

- Low Coefficient of Thermal Expansion
- Low Coefficient of Humidity Expansion
- High Modulus

Applications

- Polyimide base materials for Chip Scale Package, T-BGA etc.
- Polyimide base materials for Rigid-Flex, Multi-Layered CCL, and MCM, etc.
- Polyimide base materials for FPC
- Polyimide base materials for HDD Suspensions

Construction

Items	Mils	Microns
Nominal Thickness PI	1.97	50.0

Mechanical Properties

Items	Typical Values	Test Method
Tensile Strength MD, kpsi (MPa)	41 (280)	ASTM D882
Tensile Strength TD, kpsi (MPa)	42 (292)	ASTM D882
Tensile Modulus MD, kpsi (GPa)	566 (3.9)	ASTM D882
Tensile Modulus TD, kpsi (GPa)	580 (4.0)	ASTM D882
Elongation MD (TD), %	67 (65)	ASTM D882

Thermal Properties

Items	Typical Values	Test Method
Heat Shrinkage MD %	0.07	200 °C – 2 hrs
Heat Shrinkage TD %	0.03	200 °C – 2 hrs
Coefficient of Thermal Expansion MD, ppm/°C	16	TMA 100–200 °C
Coefficient of Thermal Expansion TD, ppm/°C	15	TMA 100–200 °C

Electrical Properties

Items	Typical Values	Test Method
Dielectric Strength, KV/mil	5.7	ASTM D149
Dielectric Constant, 1kHz	3.2	ASTM D150
Dissipation Factor, 1kHz	0.0020	ASTM D150
Volume Resistivity, Ohm-cm	>1E+16	ASTM D257

Physical Properties

Items	Typical Values	Test Method
Water Absorption, %	2.7	IPC-TM650-2.6.2
Coefficient of Humidity Expansion Typical, ppm/%RH	13	HMA
Density, g/cm^3	1.45	ASTM D1505
Yield, ft^2/lb (m^2/kg)	66 (14)	

The data noted in these technical data sheets are given as examples and are not intended to be read as guaranteed values.

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