

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

Thermal Properties

Items	Units	Typical Values	Conditions	Methods
Coefficient of Thermal Expansion	ppm/°C	16	100 to 200°C	TMA

Chemical Properties

Items	Units	Typical Values	Conditions	Methods
Water Absorption	%	2.5	D-24/20	ASTM D-570
Coefficient of Humidity Expansion	ppm/%RH	13	50°C	HMA

Mechanical Properties

Items	Units	Typical Values	Conditions	Methods
Tensile Strength MD & TD	MPa	303	20°C	ASTM D882
Tensile Modulus MD & TD	GPa	4.1	20°C	ASTM D882
Elongation MD & TD	%	90	20°C	ASTM D882

Electrical Properties

Items	Units	Typical Values	Conditions	Methods
Volume Resistivity	Ωcm	>10 ¹⁶	20°C	ASTM D-257
Dielectric Constant	-	3.3	20°C, 1 MHz	IPCTM-650
Dielectric Breakdown Voltage	V/μm	320	20°C, 60Hz	ASTM D-149

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

APICAL DIVISION - KANEKA TEXAS CORPORATION

6161 UNDERWOOD ROAD
PASADENA, TEXAS 77507
800-222-8128 FAX 800-562-5284
www.apicalpolyimide.com

APICAL polyimide film possesses an excellent balance of physical, thermal, electrical and chemical properties over a wide range of temperature (-269°C [-452°F] to 400°C [752°F]). More precise thickness control, superior web flatness, plus improved adhesion and excellent dimensional stability are standard features with Apical polyimide films.

Major Applications

- Polyimide base materials for FPC.
- Motor generator insulation.
- Wire and cable insulation.
- Barcode label.
- Pressure sensitive tape.

Thermal Properties

Items	Units	Typical Values	Conditions	Methods
Coefficient of Thermal Expansion	ppm/°C	32	100 to 200°C	TMA

Chemical Properties

Items	Units	Typical Values	Conditions	Methods
Water Absorption	%	2.9	D-24/20	ASTM D-570
Coefficient of Humidity Expansion	ppm/%RH	16	50°C	HMA

Mechanical Properties

Items	Units	Typical Values	Conditions	Methods
Tensile Strength MD & TD	MPa	245	20°C	ASTM D882
Tensile Modulus MD & TD	GPa	3.1	20°C	ASTM D882
Elongation MD & TD	%	115	20°C	ASTM D882

Electrical Properties

Items	Units	Typical Values	Conditions	Methods
Volume Resistivity	Ωcm	>10 ¹⁶	20°C	ASTM D-257
Dielectric Constant	-	3.3	20°C, 1 MHz	IPCTM-650
Dielectric Breakdown Voltage	V/μm	320	20°C, 60Hz	ASTM D-149

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