



# DuPont™ Kapton® E

## POLYIMIDE FILM

### Technical Data Sheet

DuPont™ Kapton® E is a premium performance polyimide film for use as a dielectric substrate for flexible printed circuits and high density interconnects. Kapton® E is the preferred dielectric film for very fine pitch circuitry due to its superior dimensional stability, lay-flat, high modulus, and a coefficient of thermal expansion match to copper. The excellent electrical characteristics and chemical etchability inherent to Kapton® HN and VN films have been maintained in Kapton® E polyimide film. Kapton® E film also has very low moisture absorption and is laser ablatable.

#### Applications

- Flexible printed circuits
- Fine pitch circuitry
- Chip scale packaging
- High density interconnects

#### Product Specifications

Kapton® E is manufactured, slit and packaged according to the product specifications listed in H-38487, Bulletin FC-97-6.

#### Certification

Kapton® E meets IPC 4202/1 requirements.



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**Table 1  
Typical Properties of Kapton® E Film**

Property	Unit	Typical Value	Test Method
<b>Mechanical</b>			
Tensile Strength	Kpsi	50	IPC-TM-650, Method 2.4.19
Tensile Modulus	Kpsi	800	ASTM D-882
Elongation	%	50	IPC-TM-650, Method 2.4.19
Elmendorf Tear	gm/mil	12	IPC-TM-650, Method 2.4.16
MIT Fold	cycles	>20,000	ASTM D-2176
Poisson's Ratio	RT	0.32	
<b>Electrical</b>			
Dielectric Strength	v/mil	7000	ASTM D-149
Dielectric Constant@1Khz		3.1	IPC-TM-650, Method 2.5.5.3
Dissipation Factor		0.002	IPC-TM-650, Method 2.5.5.3
Volume Resistivity	ohm/cm	1.0 x 10 <sup>7</sup>	IPC-TM-650, Method 2.5.17
Surface Resistivity	ohm/cm	1.0 x 10 <sup>7</sup>	IPC-TM-650, Method 2.5.17
<b>Thermal</b>			
Meltpoint, polyimide	°C	none	ASTM E-794
CTE (50°-200°C)	ppm/°C (50-200°C)	16	TMA
Tg	°C	354	DMA
Dimensional Stability@150°C	%	0.05	IPC-TM-650, Method 2.2.4A
Flammability		94 V-0	UL-94
Temperature Index	min/°C	200	UL-746B
<b>Chemical</b>			
Moisture Absorption@100% RH	%	1.8	IPC-TM-650, Method 2.6.2
Water Vapor Permeability	gm/m <sup>2</sup> /day (50 micron)	5	ASTM E-96
CHE	ppm/% RH	8	DuPont

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Caution: Do not use in medical applications involving permanent implantation in the human body, or contact with internal body fluids or tissues. For other medical applications, see "DuPont Medical Caution Statement," H-50102.

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