DuPont™ Kapton® EN

Polyimide Film

Description

DuPont™ Kapton® EN is a premium performance polyimide film for use as a dielectric substrate for flexible printed circuits and high density interconnects. Kapton® EN 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. Kapton® EN is offered in a wide range of thickness from 5 µm ultra-thin to 50 µm thick, which provides more design flexibility to the customer.

The excellent electrical characteristics and chemical etchability inherent to Kapton® HN and VN films have been maintained in Kapton® EN polyimide film. Kapton® EN film also has very low moisture absorption and is laser ablatable.

Applications

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

Key Features

- Thinnest polyimide film available Worldwide. Provides for thinner devices and narrower bezel designs
- Excellent dimensional stability with low CTE matching copper
- Low curl, high dynamic flexibility and excellent bend-to-install performance
- Higher modulus film with lower water uptake
- Consistent lot-to-lot quality

Typical Properties of Kapton® EN Polyimide Films

Property	Unit	Direction	20EN	30EN	50EN	100EN	200EN	Test Method
Thickness	µm	-	5.0	7.5	12.5	25	50	JIS K 7130
Tensile strength	MPa	MD	335	350	355	375	345	JIS K 7161
		TD	335	360	380	375	365	
Elongation	%	MD	55	60	65	55	70	JIS K 7161
		TD	55	55	60	55	55	
Modulus	GPa	MD	5.0	5.3	5.3	5.3	5.3	JIS K 7161
		TD	5.0	5.5	5.7	5.3	5.8	
Heat shrinkage [200 °C]	%	MD	0.01	0.01	0.01	0.01	0.01	JIS K 7133
		TD	0.01	0.01	0.01	0.01	0.01	
Tear strength - initial	N/2cm	MD	51	75	135	235	475	JIS C 2151
		TD	55	75	130	225	455	
CTE (50-200 °C)	ppm/°C	MD	16	16	16	15	17	JIS K 7197
		TD	16	14	14	15	13	
MIT	cycles	MD	>20,000	>20,000	>20,000	>20,000	5000	JIS-P-8115
		TD	>20,000	>20,000	>20,000	>20,000	5000	
Surface roughness (Ra)	µm	-	0.02~0.07	0.02~0.07	0.02~0.07	0.02~0.07	0.02~0.07	JIS B 0601
Water absorption	%	-	1.9	1.6	1.6	1.6	1.7	JIS K 7209
Breakdown voltage	kV/mm	-	400	400	400	380	375	JIS C 2151
Flammability	UL-94	-	VTM-0	VTM-0	VTM-0	V-0	V-0	UL test method

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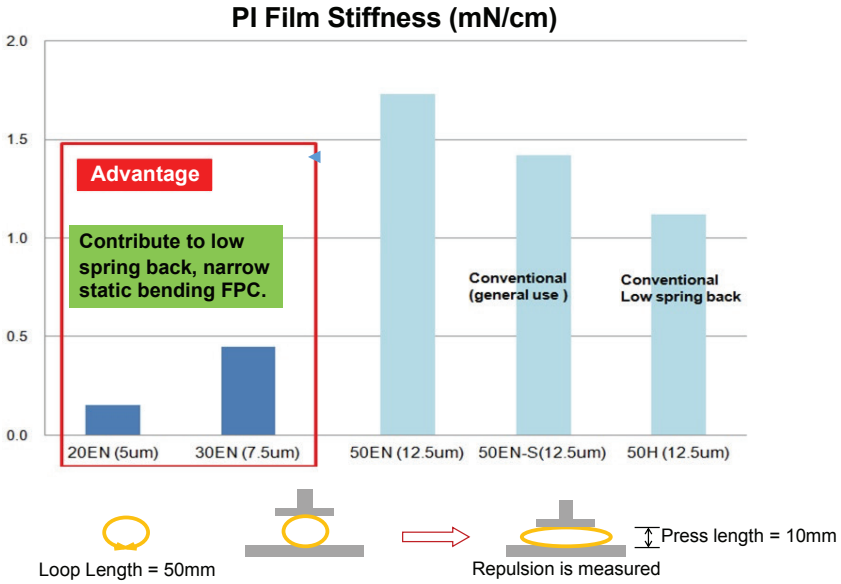
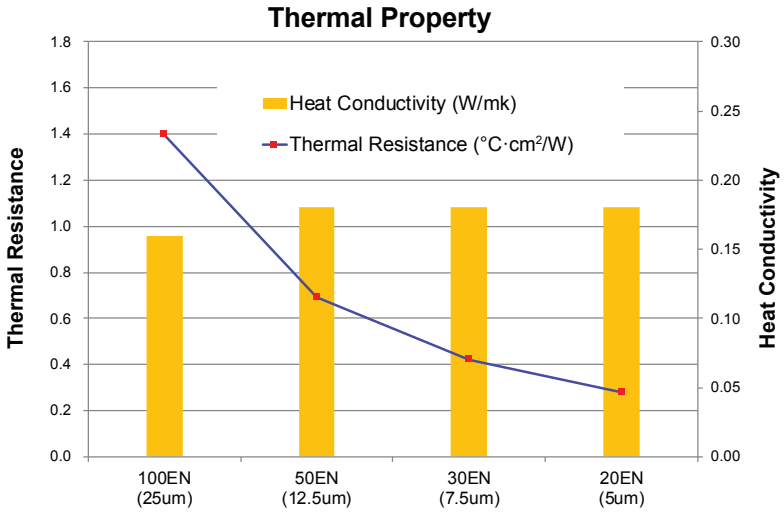
Low Spring Back



Low Thermal Resistance

- Thermal resistance and heat conductivity by thickness



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For more information on DuPont™ Kapton® polyimide films or other DuPont products, please visit our website.

kapton.com

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