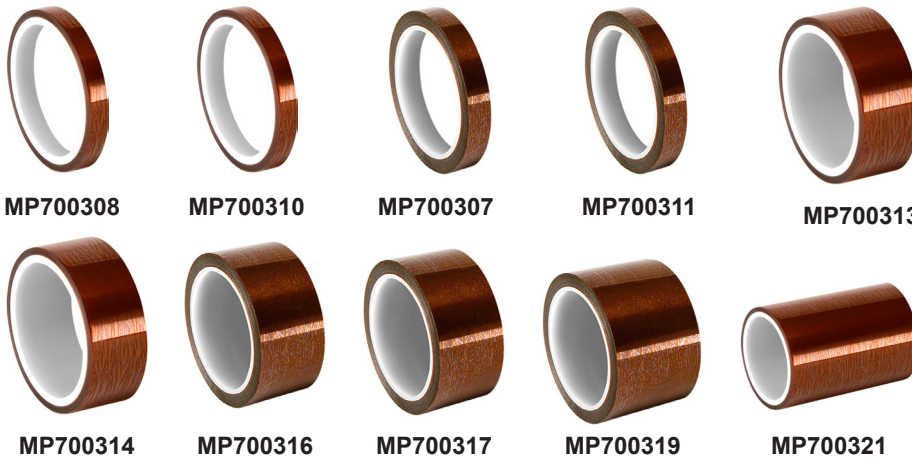


Polyimide Film Tapes - Non-Adhesive

multicomp PRO

**RoHS
Compliant**



Description

Kapton Polyimide Film can be metallized, punched or formed. It is the recommended choice for applications that require polyimide film with an excellent balance of properties over a wide range of temperatures.

Physical Properties of Kapton® HN at 23°C (76°F)

Property	Unit	1 mil. 25µm	5 mil. 125µm	Test Method
Ultimate Tensile Strength at 23°C, (73°F) at 200°C (392°F)	psi (Mpa)	33.5(231) 20(139)	33.5(231) 20(139)	ASTM D-882-91, Method A*
Ultimate Elongation at 23°C, (73°F) at 200°C (392°F)	%	72 83	82 83	ASTM D-882-91, Method A
Tensile Modulus at 23°C, (73°F) at 200°C (392°F)	psi (Gpa)	370 (2.5) 290 (2)	370 (2.5) 290 (2)	ASTM D-882-91, Method A
Density	g/cc	1.42	1.42	ASTM D-1505-90
MIT Folding Endurance	Cycles	285	5,000	ASTM D-2176-89
Tear Strength-propagating (Elmendorf), N (lbf)		0.07 (0.02)	0.58 (0.02)	ASTM D-1922-89
Tear Strength, Initial (Graces), N (lof)		7.2 (1.6)	46.9 (1.6)	ASTM D-1004-90
Yield Point at 3% at 23°C, (73°F) at 200°C (392°F)	Mpa (psi)	69 (10,000) 41 (6000)	69 (10,000) 41 (6000)	ASTM D-882-91
Impact Strength at 23°C, (73°F)	N•cm•(ftlb)	78 (0.58)	78 (0.58)	DuPoint Pneumatic Impact Test
Coefficient of Friction, Kinetic (film-to-film)		0.48	0.48	ASTM D-1894-90
Coefficient of Friction, Static (film-to-film)		0.63	0.63	ASTM D-1894-90
Refractive Index (sodium D line)		1.7	1.7	ASTM D-542-90
Poisson's Ratio		0.34	0.34	Avg. three samples, Elongated at 5%, 7%, 10%
Low temperature flex life		pass	pass	IPC-TM-650, Method 2.6.18

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Thermal Properties of Kapton® HN Film

Thermal Property	Typical Value	Test Condition	Test Method
Melting Point	None	None	ASTM E-794-85 (1989)
Thermal Coefficient Linear Expansion	20 ppm/°C (11 ppm/°F)	-14 to 38°C (7 to 100°F)	ASTM D-696-91
Coefficient of Thermal Conductivity, $\frac{w/m \cdot k}{cm \cdot sec \cdot ^\circ C}$ $\frac{cal}{cm \cdot sec \cdot ^\circ C}$	0.12 2.87×10^4	296 K 23°C	ASTM F-433-77 (1987)
Specific Heat. J/g•K (cal/g•°C)	1.09 (0.261)		Differential calorimetry
Heat Sealability	not heat sealable		
Solder Float	pass		IPC-TM-650, method 2.4.13A
Smoke Generation	$D_n < 1$	NBS smoke chamber	NFPA-258
Shrinkage, % 30 min at 150°C 120 min at 400°C	0.17 1.25		IPC-TM-650 Method 2.2.4A; ASTM D-5214-91
Limiting Oxygen Index, %	37-45		ASTM D-2863-87
Glass Transition Temperature (T ₁)	A second order transition occurs in Kapton® between 360°C(680°F) and 410°C (770°F) and is assumed to be the glass transition temperature. Different measurement techniques produce different results within the above temperature range.		

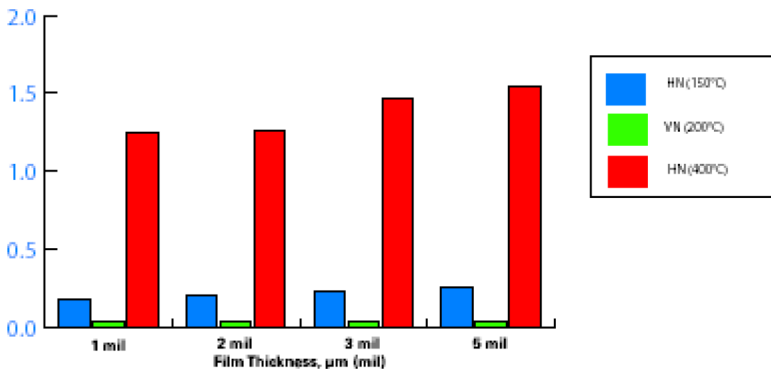
Typical Electrical Properties of Kapton® HN Film at 23°C (73°F), 50% RH

Property Film Gage	Typical Value	Test Condition	Test Method
Dielectric Strength 25 µm (1 mill) 50 µm (2 mill) 75 µm (3 mill) 125 µm (5 mill)	V/m kV/mm (V/mill) 303 (7700) 240 (5100) 205 (5200) 154 (3900)	60 Hz 1/4 in electrodes 500 V/sec rise	ASTM D-149-91
Dielectric Constant 25 µm (1 mill) 50 µm (2 mill) 75 µm (3 mill) 125 µm (5 mill)	3.4 3.4 3.5 3.5	1 kHz	ASTM D-150-92
Dissipation Factor 25 µm (1 mill) 50 µm (2 mill) 75 µm (3 mill) 125 µm (5 mill)	0.0018 0.0020 0.0020 0.0028	1 kHz	ASTM D-150-92
Volume Resistivity 25 µm (1 mill) 50 µm (2 mill) 75 µm (3 mill) 125 µm (5 mill)	•cm 1.6×10^{11} 1.5×10^{11} 1.4×10^{11} 1.0×10^{11}		ASTM D-257-91

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Residua Shrinkage vs. Exposure Temperature and Thickness, Kapton® HN and VN Films



Thermally Exposed

Temperature Range, °C, (°F)	ppm/°C
30-100 (86-212)	17
100-200 (212-392)	32
200-300 (392-572)	40
300-400 (572-752)	44
30-400 (86-752)	34

Part Number Table

Description	Part Number
Polyimide None-Adhesive Tape, 1/2" × 100ft	MP700308
Polyimide Film Tape - Non-Adhesive, 1/2" × 50ft	MP700310
Polyimide None-Adhesive Tape, 1" × 100ft	MP700307
Polyimide None-Adhesive Tape, 1" × 50ft	MP700311
Polyimide None-Adhesive Tape, 2" × 100ft	MP700313
Polyimide None-Adhesive Tape, 2" × 50ft	MP700314
Polyimide None-Adhesive Tape, 3" × 100ft	MP700316
Polyimide None-Adhesive Tape, 3" × 50ft	MP700317
Polyimide None-Adhesive Tape, 4" × 100ft	MP700319
Polyimide None-Adhesive Tape, 6" × 100ft	MP700321

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