

## Park Electrochemical Nelco® N7000-1 Polyimide Laminate and Prepreg

Category : Polymer , Thermoset , Polyimide, TS

### Material Notes:

The Nelco N7000-1 series of polyimide laminate and prepreg has low Z-axis expansion and high Tg offering PCB manufacturers consistent board performance and reliability. N7000-1 is a good choice for applications requiring the superior thermal stability and chemical resistance provided by a polyimide. Key Features and Benefits: Polyimide resin chemistry Lead-free assembly compatibility Supports current and previous military and industrial standards Reliable plated-through holes Proven processing and performance Applications/Qualifications: Fine-Line Multilayers Backplanes Surface-Mount Multilayers BGA Multilayers MCM-Ls Direct Chip Attach High Speed Computing Burn-in Boards Information provided by Park Electrochemical Corp.

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_Park-Electrochemical-Nelco-N7000-1-Polyimide-Laminate-and-Prepreg.php](http://www.lookpolymers.com/polymer_Park-Electrochemical-Nelco-N7000-1-Polyimide-Laminate-and-Prepreg.php)

Physical Properties	Metric	English	Comments
Density	1.68 g/cc	0.0607 lb/in <sup>3</sup>	50% Resin Content; Internal Method
Water Absorption	0.35 %	0.35 %	IPC-TM-650.2.6.2.1

Mechanical Properties	Metric	English	Comments
Modulus of Elasticity	26.9 GPa	3900 ksi	X; ASTM D3039
	26.9 GPa	3900 ksi	Y; ASTM D3039
Poissons Ratio	0.12	0.12	X; ASTM D3039
	0.12	0.12	Y; ASTM D3039
Peel Strength	1.05 kN/m	6.00 pli	at elevated temperature; IPC-TM-650.2.4.8.2a
	1.23 kN/m	7.00 pli	after exposure to process solutions; IPC-TM-650.2.4.8
	1.31 kN/m	7.50 pli	after solder float; IPC-TM-650.2.4.8

Thermal Properties	Metric	English	Comments
CTE, linear	12.0 - 15.0 $\mu\text{m}/\text{m}\cdot\text{C}$	6.67 - 8.33 $\mu\text{in}/\text{in}\cdot\text{F}$	IPC-TM-650.2.4.41
	@Temperature -40.0 - 125 °C	@Temperature -40.0 - 257 °F	
Glass Transition Temp, Tg	250 °C	482 °F	TMA; IPC-TM-650.2.4.24c
	260 °C	500 °F	DSC; IPC-TM-650.2.4.25c
Decomposition Temperature	389 °C	732 °F	5% weight loss; TGA; IPC-TM-650.2.4.24.6

Flammability UL 94 Thermal Properties	V-0 Metric	V-0 English	Comments
Electrical Properties	Metric	English	Comments
	Volume Resistivity	1.00e+13 ohm-cm	1.00e+13 ohm-cm
	1.00e+13 ohm-cm	1.00e+13 ohm-cm	E - 24/125; IPC-TM-650.2.5.17.1
Surface Resistance	1.00e+13 ohm	1.00e+13 ohm	C - 96/35/90; IPC-TM-650.2.5.17.1
	1.00e+13 ohm	1.00e+13 ohm	E - 24/125; IPC-TM-650.2.5.17.1
Dielectric Constant	3.8	3.8	Stripline; IPC-TM-650.2.5.5.5
	@Frequency 1.00e+10 Hz	@Frequency 1.00e+10 Hz	
	3.9	3.9	Split Post Cavity
	@Frequency 1.00e+10 Hz	@Frequency 1.00e+10 Hz	
	3.9	3.9	RF Impedance; IPC-TM-650.2.5.5.9
@Frequency 1.00e+9 Hz	@Frequency 1.00e+9 Hz		
Dielectric Strength	3.9	3.9	Stripline; IPC-TM-650.2.5.5.5
	@Frequency 2.50e+9 Hz	@Frequency 2.50e+9 Hz	
	53.1 kV/mm	1350 kV/in	IPC-TM-650.2.5.6.2
Dielectric Breakdown	>= 50000 V	>= 50000 V	IPC-TM-650.2.5.6
Dissipation Factor	0.0095	0.0095	Split Post Cavity
	@Frequency 1.00e+10 Hz	@Frequency 1.00e+10 Hz	
	0.015	0.015	Stripline; IPC-TM-650.2.5.5.5
	@Frequency 2.50e+9 Hz	@Frequency 2.50e+9 Hz	
0.016	0.016	Stripline; IPC-TM-650.2.5.5.5	
@Frequency 1.00e+10 Hz	@Frequency 1.00e+10 Hz		
Arc Resistance	136 sec	136 sec	IPC-TM-650.2.5.1

Descriptive Properties	Value	Comments
Methylene Chloride Resistance (% Weight Change)	0.42	IPC-TM-650.2.3.4.3
	Pass	60 min then solder dip @288°C until failure (max 10 min.); IPC-TM-650.2.6.16

<b>Pressure Cooker Descriptive Properties</b>	<b>Value</b>	<b>(modified) Comments</b>
T260 (minutes)	12+	IPC-TM-650.2.4.24.1
Z Axis Expansion (%)	1.8	50°C to 260°C; IPC-TM-650.2.4.41

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