

Park Electrochemical Nelco® N4000-7 EF® Halogen-Free Epoxy

Category : Polymer , Thermoset , Epoxy

Material Notes:

The Nelco® N4000-7 EF® series of laminates and prepregs is a total environmental solution. This advanced halogen-free resin system provides superior CAF resistance for high temperature, lead-free assembly designs. Key Features and Benefits: Outstanding moisture resistance and thermal stability Uncompromised electrical values Halogen-Free CAF resistant High Tg FR-4 processing Applications/Qualifications: Lead-Free Assemblies Fine-Line Multilayers Backplanes Surface-Mount Multilayers BGA Multilayers Automotive Electronics MCM-Ls Direct Chip Attach Wireless Communications Telecommunications Infrastructure RoHS Compliant Meets IPC-4101/94 Specifications Information provided by Park Electrochemical Corp.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Park-Electrochemical-Nelco-N4000-7-EF-Halogen-Free-Epoxy.php

Physical Properties	Metric	English	Comments
Density	1.92 g/cc	0.0694 lb/in ³	50% Resin Content; Internal Method
Water Absorption	0.10 %	0.10 %	IPC-TM-650.2.6.2.1

Mechanical Properties	Metric	English	Comments
Peel Strength	0.982 kN/m	5.60 pli	after exposure to process solutions; IPC-TM-650.2.4.8
	0.999 kN/m	5.70 pli	at elevated temperature; IPC-TM-650.2.4.8.2a
	1.17 kN/m	6.70 pli	after solder float; IPC-TM-650.2.4.8

Thermal Properties	Metric	English	Comments
CTE, linear	12.0 - 17.0 $\mu\text{m}/\text{m}\cdot\text{°C}$	6.67 - 9.44 $\mu\text{in}/\text{in}\cdot\text{°F}$	X/Y; IPC-TM-650.2.4.41
	@Temperature -40.0 - 125 °C	@Temperature -40.0 - 257 °F	
	65.0 $\mu\text{m}/\text{m}\cdot\text{°C}$	36.1 $\mu\text{in}/\text{in}\cdot\text{°F}$	Z-Axis Alpha 1; IPC-TM-650.2.4.41
	@Temperature 50.0 - 165 °C	@Temperature 122 - 329 °F	Z-Axis Alpha 2; IPC-TM-650.2.4.41
	250 $\mu\text{m}/\text{m}\cdot\text{°C}$	139 $\mu\text{in}/\text{in}\cdot\text{°F}$	
	@Temperature 165 - 260 °C	@Temperature 329 - 500 °F	
Specific Heat Capacity	0.962 J/g- °C	0.230 BTU/lb- °F	ASTM E1461-92
Thermal Conductivity	0.470 W/m-K	3.26 BTU-in/hr-ft ² - °F	ASTM E1461-92
Glass Transition Temp, Tg	155 °C	311 °F	TMA; IPC-TM-650.2.4.24c

Thermal Properties	165 °C Metric	329 °F English	DSC: IPC-TM-650.2.4.25c Comments
	190 °C	374 °F	DMA; IPC-TM-650.2.4.24.3
Decomposition Temperature	425 °C	797 °F	5% weight loss; TGA; IPC-TM-650.2.4.24.6
Flammability, UL94	V-0	V-0	

Electrical Properties	Metric	English	Comments
Volume Resistivity	1.00e+13 ohm-cm	1.00e+13 ohm-cm	C - 96/35/90; IPC-TM-650.2.5.17.1
	1.00e+13 ohm-cm	1.00e+13 ohm-cm	E - 24/125; IPC-TM-650.2.5.17.1
Surface Resistance	1.00e+12 ohm	1.00e+12 ohm	C - 96/35/90; IPC-TM-650.2.5.17.1
	1.00e+12 ohm	1.00e+12 ohm	E - 24/125; IPC-TM-650.2.5.17.1
Dielectric Constant	3.8	3.8	Split Post Cavity; Internal Method
	@Frequency 1.00e+10 Hz	@Frequency 1.00e+10 Hz	
	4.0	4.0	RF Impedance; IPC-TM-650.2.5.5.9
	@Frequency 1.00e+9 Hz	@Frequency 1.00e+9 Hz	
	4.1	4.1	TFC/LCR Meter; IPC-TM-650.2.5.5.3
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	
Dielectric Strength	39.4 kV/mm	1000 kV/in	IPC-TM-650.2.5.6.2
Dielectric Breakdown	>= 50000 V	>= 50000 V	IPC-TM-650.2.5.6
Dissipation Factor	0.013	0.013	TFC/LCR Meter; IPC-TM-650.2.5.5.3
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	
	0.016	0.016	Split Post Cavity; Internal Method
	@Frequency 1.00e+10 Hz	@Frequency 1.00e+10 Hz	
Arc Resistance	158 sec	158 sec	IPC-TM-650.2.5.1

Descriptive Properties	Value	Comments
Methylene Chloride Resistance (% Weight Change)	0.02	IPC-TM-650.2.3.4.3
Pressure Cooker	Pass	60 min then solder dip @288°C until failure (max 10 min.); IPC-TM-650.2.6.16 (modified)

<small>T260 (minutes)</small> Descriptive Properties	<small>>30</small> Value	<small>IPC-TM-650.2.4.24.1</small> Comments
T288 (minutes)	2-4	IPC-TM-650.2.4.24.1
Z Axis Expansion (%)	3.5	50°C to 260°C; IPC-TM-650.2.4.41

Contact Songhan Plastic Technology Co.,Ltd.

Website : www.lookpolymers.com

Email : sales@lookpolymers.com

Tel : +86 021-51131842

Mobile : +86 13061808058

Skype : lookpolymers

Address : United North Road 215,Fengxian District, Shanghai City,China