Park Electrochemical Nelco® N4000-13 High-Speed Multifunctional Epoxy Laminate and Prepreg

Category : Polymer , Thermoset , Epoxy

Material Notes:

The Nelco® N4000-13 series is an enhanced epoxy resin system engineered to provide both outstanding thermal and high signal speed / low signal loss properties. N4000-13 SI® is excellent for applications that require optimum signal integrity and precise impedance control, while maintaining high reliability through CAF and thermal resistance.Key Features and Benefits:Lead-Free Assembly CompatibleTg >210°C, outstanding thermal, electrical and signal loss propertiesCAF ResistantSignal Integrity and Buried Capacitance™ OptionsHigh-Tg FR-4 processingAvailable in a variety of constructionsApplications/Qualifications:Fine-Line MultilayersBackplanesSurface-Mount MultilayersBGA MultilayersMCM-LsCSP AttachmentWireless Communications InfrastructureHigh Speed ServicesHigh Speed Storage NetworksInternet Switching / Routing SystemsInformation provided by Park Electrochemical Corp.

Order this product through the following link:
http://www.lookpolymers.com/polymer_Park-Electrochemical-Nelco-N4000-13-High-Speed-Multifunctional-Epoxy-Laminate-and-Prepreg.php

Physical Properties	Metric	English	Comments
Density	1.91 g/cc	0.0690 lb/in³	50% Resin Content; Internal Method
Water Absorption	0.10 %	0.10 %	IPC-TM-650.2.6.2.1

Mechanical Properties	Metric	English	Comments
Modulus of Elasticity	22.8 GPa	3300 ksi	Y; ASTM D3039
	29.0 GPa	4200 ksi	X; ASTM D3039
Poissons Ratio	0.11	0.11	Y; ASTM D3039
	0.13	0.13	X; ASTM D3039
Peel Strength	1.31 kN/m	7.50 pli	after solder float; IPC-TM-650.2.4.8
	1.42 kN/m	8.10 pli	at elevated temperature; IPC-TM-650.2.4.8.2a
	1.58 kN/m	9.00 pli	after exposure to process solutions; IPC-TM-650.2.4.8

Thermal Properties	Metric	English	Comments
CTE, linear	10.0 - 14.0 µm/m-°C @Temperature -40.0 - 125 °C	5.56 - 7.78 µin/in-°F @Temperature -40.0 - 257 °F	X/Y; IPC-TM-650.2.4.41
	70.06 µm/m-°C @Temperature 50.0 - 210 °C	38.92 µin/in-°F @Temperature 122 - 410 °F	Z-Axis Alpha 1; IPC-TM-650.2.4.41

Thermal Properties	Metric	English	Comments
	280.22 µm/m-°C @Temperature 210 - 260 °C	155.68 µin/in-°F @Temperature 410 - 500 °F	Z-Axis Alpha 2; IPC-TM-650.2.4.41
Specific Heat Capacity	1.21 J/g-°C	0.290 BTU/lb-°F	ASTM E1461
Thermal Conductivity	0.350 W/m-K	2.43 BTU-in/hr-ft²-°F	ASTM E1461
Glass Transition Temp, Tg	200 °C	392 °F	TMA; IPC-TM-650.2.4.24c
	210 °C	410 °F	DSC; IPC-TM-650.2.4.25c
	240 °C	464 °F	DMA (Tan d Peak); IPC-TM-650.2.4.24.3
Decomposition Temperature	350 °C	662 °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	E - 24/125; IPC-TM-650.2.5.17.1
	1.00e+14 ohm-cm	1.00e+14 ohm-cm	C - 96/35/90; 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	3.6 @Frequency 1.00e+10 Hz	3.6 @Frequency 1.00e+10 Hz	Stripline; IPC-TM-650.2.5.5.5
	3.7 @Frequency 1.00e+10 Hz	3.7 @Frequency 1.00e+10 Hz	Split Post Cavity
	3.7 @Frequency 1.00e+9 Hz	3.7 @Frequency 1.00e+9 Hz	RF Impedance; IPC-TM-650.2.5.5.9
	3.7 @Frequency 2.50e+9 Hz	3.7 @Frequency 2.50e+9 Hz	Split Post Cavity
Dielectric Strength	47.2 kV/mm	1200 kV/in	IPC-TM-650.2.5.6.2
Dielectric Breakdown	>= 50000 V	>= 50000 V	IPC-TM-650.2.5.6
Dissipation Factor	0.0080 @Frequency 1.00e+10	0.0080 @Frequency 1.00e+10	Split Post Cavity

Electrical Properties	Metric	English	Comments
	0.0090 @Frequency 2.50e+9 Hz	0.0090 @Frequency 2.50e+9 Hz	Split Post Cavity
	0.0090 @Frequency 1.00e+10 Hz	0.0090 @Frequency 1.00e+10 Hz	Stripline; IPC-TM-650.2.5.5.5
Arc Resistance	123 sec	123 sec	IPC-TM-650.2.5.1

Descriptive Properties	Value	Comments
Methylene Chloride Resistance (% Weight Change)	0.7	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)
T260 (minutes)	>30	IPC-TM-650.2.4.24.1
T288 (minutes)	>10	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