

Park Electrochemical Nelco® N4350-13 RF Microwave Performance, Modified Epoxy

Category : Polymer , Thermoset , Epoxy

Material Notes:

The Nelco N4350-13 RF and N4380-13 RF series are enhanced epoxy resin systems specifically engineered to provide a unique solution for design applications that demand outstanding thermal properties, tight dielectric constant tolerances and low signal loss properties. These next generation modified epoxies combine tightly controlled RF electrical properties with the mechanical reliability and competitive advantages of FR-4. Key Features and Benefits: Tg >210°C, outstanding thermal, electrical and signal loss properties, CAF Resistant, Tightly controlled electrical properties, N4000-13 based material, High-Tg FR-4 processing. Applications/Qualifications: 802.11 a, b and g Antennas, Automotive, Power Amplifiers, Hybrid RF Multilayers, Telecommunications, High Speed Computing, Commercial RF Applications, Lead-Free Assembly Substrates. Information provided by Park Electrochemical Corp.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Park-Electrochemical-Nelco-N4350-13-RF-Microwave-Performance-Modified-Epoxy.php

Physical Properties	Metric	English	Comments
Density	1.77 g/cc	0.0639 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	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	5.56 - 7.78 µin/in-°F	X/Y; IPC-TM-650.2.4.41
	@Temperature -40.0 - 125 °C	@Temperature -40.0 - 257 °F	
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-ft ² -°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 δ 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

Thermal Properties Flammability, UL 94	Metric V-0	English V-0	Comments
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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	3.5	3.5	Stripline; IPC-TM-650.2.5.5.5
	@Frequency 1.00e+10 Hz	@Frequency 1.00e+10 Hz	
Dielectric Strength	47.2 kV/mm	1200 kV/in	IPC-TM-650.2.5.6.2
	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
	>= 50000 V	>= 50000 V	IPC-TM-650.2.5.6
Dissipation Factor	0.0065	0.0065	Stripline; IPC-TM-650.2.5.5.5
	@Frequency 1.00e+10 Hz	@Frequency 1.00e+10 Hz	
Arc Resistance	123 sec	123 sec	IPC-TM-650.2.5.1
	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)	>50	IPC-TM-650.2.4.24.1
T288 (minutes)	>8	IPC-TM-650.2.4.24.1
Z Axis Expansion (%)	3.5	50°C to 260°C; IPC-TM-650.2.4.41

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