

N 4 5 0 0 - 6 T

Multifunctional Epoxy Thermount® Laminate & Prepreg



Product Application Environments

N4500-6T Epoxy Thermount® RT™

MicroVia Multilayers	◆
Fine Line Multilayers	◆
Surface Mount Multilayers	◆
BGA Multilayers	×
PCMCIA	×
MCM-Ls	◆
Direct Chip Attach	◆
Wireless Communication	◆

- × suitable for application
◆ exceptional for application

Nelco's N4500-6T series of laminate and prepreg utilizes a cost effective epoxy combined with Thermount® RT™ nonwoven aramid reinforcement technology. As a 180° C Tg DSC (170° C TMA) product, the N4500-6T fills a widening gap in the industry's demand for high Tg multifunctional epoxy materials that offer an excellent substrate for laser drilling of microvias.

Designed specifically for the high volume commercial market, this material boasts a very low X/Y Axis CTE (8 - 12 ppm/°C), providing it with excellent dimensional stability.

Thermount® RT™ has a 100% aramid composition which distinguishes the N4500-6T from other nonwoven laminates that are based on p-aramid fibers. The combined technologies result in a random in-plane orientation of the fibers, a very smooth and consistent surface with a thin dielectric layer and uniform thicknesses in panels ranging from sub .002" to .060".

Although the targeted markets for the N4500-6T cover a broad spectrum, it is ideally suited for redistribution multilayers, surface mount multilayers, MCM-Ls, direct chip attach and wireless communications. It is also a natural fit for BGA multilayers and PCMCIA applications.

When you combine the outstanding features of this material with its notably low price/performance range - you can't go wrong!

Thermount® RT™ is a registered trademark of El Dupont de Nemours & Co.



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Typical Engineering Values

Mechanical	N4500-6T	Electrical	N4500-6T
Peel Strength - 1 oz. Cu (lbs/in)		Dielectric Constant (50% resin content)	
After Solder Float	6.9	@ 1 MHz	3.9
At Elevated Temperature	5.7	@ 1 GHz	3.5
After Exposure to Process Solutions	TBD	Dissipation Factor (50% resin content)	
X/Y CTE (ppm/°C) [-40°C to 125°C]	8 - 12	@ 1 MHz	.024
Z CTE (%) [50°C to 260°C]	4.0	@ 1 GHz	.022
Young's Modulus (X/Y psi x 10 ⁵)	2.1 / 2.1	Volume Resistivity (Megohms/cm)	
Poisson's Ratios (X/Y)	.32 / .32	C - 96/35/90	TBD
Density (g/cm ³) (50% resin content)	1.06	E - 24/125	10 ⁶
Thermal		Surface Resistivity (Megohms)	
Glass Transition Temperature (T _g)		C - 96/35/90	TBD
DSC (°C) *	* 180	E - 24/125	10 ⁶
TMA (°C)	170	Electric Strength (Volts/Mil)	> 750
DMA (°C)	205	Dielectric Breakdown (Kilovolts)	> 50
Degradation Temp. by TGA (°C 5% wt. loss)	374	Chemical	
Arc Resistance (seconds minimum)	125	Methylene Chloride Resistance (% wt. chg.)	TBD
Moisture Absorption (%)	.5		
Pressure Cooker			
- 2 Hr. (10 Sec. solder dip @ 287°C)	Pass		
T ₂₆₀ (minutes)	12+	* Tg nominal on laminates. Finished board value may be lower due to printed circuit processes.	

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*what you need...
when you need it...
where you need it...*

