

# N4000-6

## High-Tg Multifunctional Epoxy Laminate and Prepreg



### Benefits

- Proven High-Tg Material
- High Tg
- Ease of Processing

### Applications

- Fine-Line, Surface-Mount and BGA Multilayers
- Backplanes
- Automotive
- Underhood Automotive



N4000-6 is a high-Tg epoxy laminate and prepreg system that provide a wide range of performance versatility and ease of processing for demanding high-layer count applications.

### Thermal and Mechanical Properties

- Tg 175°C
- Years of field use with consistent results
- Passed the stringent Q1000 thermal cycling requirement.

### Standard FR-4 processing

- Key processing parameters of drilling, desmear and lamination use standard FR-4 methods
- 60 min press at 182°C and 200-300 psi

Meets UL 94V-0 and IPC-4101/21, /24 and /26 Specifications  
UL file number: E36295

Properties	Conditions	Typical Value	Unit	Test Method
<b>Electrical Properties</b>				
Dielectric Constant	@ 1 GHz	4.1		IPC-TM-650.2.5.5.9
	@ 2.5 GHz	4.0		IPC-TM-650.2.5.5.5
Dissipation Factor	@ 2.5 GHz	0.022		IPC-TM-650.2.5.5.5
Volume Resistivity	C - 96 / 35 / 90	8.10 x 10 <sup>8</sup>	MΩ - cm	IPC-TM-650.2.5.17.1
	E - 24 / 125	1.90 X 10 <sup>7</sup>		
Surface Resistivity	C - 96 / 35 / 90	5.60 X 10 <sup>7</sup>	MΩ	IPC-TM-650.2.5.17.1
	E - 24 / 125	1.80 x 10 <sup>7</sup>		
Electric Strength		5.1x10 <sup>4</sup> (1300)	V/mm (V/mil)	IPC-TM-650.2.5.6.2
<b>Thermal Properties</b>				
*Glass Transition Temperature (Tg)	DSC(°C)	175	°C	IPC-TM-650.2.4.25c
Degradation Temperature (TGA)	Degradation Temp (TGA) (5% wt. loss)	325	°C	IPC-TM-650.2.3.40
T-260	Time to delamination @ 260°C	4 - 8	minutes	IPC-TM-650.2.4.24.1
Thermal Conductivity		0.3 – 0.4	W/mK	ASTM E1461
<b>Mechanical Properties</b>				
Peel Strength	1 oz (35μ) Cu After Solder Float	1.58 (9.0)	N/mm (lbf/inch)	IPC-TM-650.2.4.8
X / Y CTE	-40°C to + 125°C	12 / 15	ppm/°C	IPC-TM-650.2.4.41
Z Axis Expansion (43% RC)	50°C to 260°C	3.7	%	IPC-TM-650.2.4.24
Young's Modulus (X / Y)		29.9 / 25.1 (4.4 / 3.7)	GN/m <sup>2</sup> (psi x 10 <sup>6</sup> )	ASTM D3039
Poisson's Ratios (X / Y)		0.16 / 0.14		
<b>Chemical / Physical Properties</b>				
Moisture Absorption		0.10	wt. %	IPC-TM-650.2.6.2.1

\* DMA is the preferred method for measuring Tg - other methods may be less accurate.

- All test data provided are typical values and not intended to be specification values. For review of critical specification tolerances, please contact a company representative directly
- N4000-6 can be manufactured in laminate thickness from 2 mil (0.05 mm) and up.
- N4000-6 is available in most common panel sizes.
- Please contact AGC for availability of any other constructions or glass styles

