

# N7000-2HT LAMINATE

# N7000-3 PREPREG

## Toughened Polyimide Laminate & Prepreg



### Benefits

- Polyimide Resin Chemistry
- Robust Thermal Stability and Reliability
- High Temp Tolerance and Chemical Resistance
- Designed for Use in Severe Conditions

### Applications

- Backplanes
- Fine-Line, Surface-Mount and BGA Multilayers
- Direct Chip Attach
- Underhood Automotive
- Burn-in Boards



N7000-2 HT laminate and N7000-3 prepreg are a series of toughened polyimide material for use in high-reliability multilayers. This combined resin system provides excellent thermal performance, improved processing characteristics and is exceptional for use in a wide variety of applications that include fine geometry multilayer constructions and extreme reliability requirements.

### Polyimide Resin Chemistry

- Robust thermal stability and reliability
- Toughened resin system
- High temperature tolerance

### Excellent Reliability and Performance

- Withstands multiple thermal excursions
- T<sub>g</sub> 260°C by DSC
- T-260 >120 minutes
- Low Z-Axis CTE
- Designed for use in severe conditions

### Reliable Plated-through Holes

- Low Z-Axis CTE and toughened polyimide chemistry providing good dimensional stability

### Reliable Processing

- Improved fracture resistance compared with traditional polyimide systems
- Reduced cure time compared to other traditional polyimide systems

Meets IPC-4101/40, /41 and /42 Specifications

N7000-2HT laminate has a UL 94 V-0 flame rating and N7000-3 prepreg has a UL 94 V-1 flame rating.

Complies with the old GIJ and GIL specifications

UL file number: E36295

Properties	Conditions	Typical Value	Unit	Test Method
<b>Electrical Properties</b>				
Dielectric Constant	@ 2.5 GHz	3.5		IPC-TM-650.2.5.5.5
	@ 10 GHz	3.5		
Dissipation Factor	@ 2.5 GHz	0.009		
	@ 10 GHz	0.009		
Volume Resistivity	C - 96 / 35 / 90	10 <sup>7</sup>	MΩ - cm	IPC-TM-650.2.5.17.1
	E - 24 / 125	10 <sup>7</sup>		
Surface Resistivity	C - 96 / 35 / 90	10 <sup>7</sup>	MΩ	IPC-TM-650.2.5.17.1
	E - 24 / 125	10 <sup>7</sup>		
Electric Strength		4.7x10 <sup>4</sup> (1200)	V/mm (V/mil)	IPC-TM-650.2.5.6.2
<b>Thermal Properties</b>				
*Glass Transition Temperature (Tg)	DSC(°C)	260	°C	IPC-TM-650.2.4.25c
Degradation Temperature (TGA)	Degradation Temp (TGA) (5% wt. loss)	376	°C	IPC-TM-650.2.4.24.6
T-260	Time to delamination @ 260°C	120+	minutes	IPC-TM-650.2.4.24.1
Thermal Conductivity		0.45	W/mK	ASTM E1461
<b>Mechanical Properties</b>				
Peel Strength	1 oz (35μ) Cu After Solder Float	1.31 (7.5)	N/mm (lbf/inch)	IPC-TM-650.2.4.8
X / Y CTE	-40°C to + 125°C	9 / 12	ppm/°C	IPC-TM-650.2.4.41
Z Axis Expansion (43% RC)	50°C to 260°C	< 2.5	%	IPC-TM-650.2.4.24
Young's Modulus (X / Y)		21.1 / 22.2 (3.1 / 3.3)	GN/m <sup>2</sup> (psi x 10 <sup>6</sup> )	ASTM D3039
Poisson's Ratios (X / Y)		0.146 / 0.153		
<b>Chemical / Physical Properties</b>				
Moisture Absorption		0.35	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
- N7000-2HT can be manufactured in laminate thickness from 2 mil (0.05 mm) and up.
- N7000-2HT and N7000-3 are available in most common panel sizes.
- Please contact AGC for availability of any other constructions, copper weights and glass styles including very low profile copper and RTFOIL®

