N7000-3F

Toughened, Filled Polyimide Laminate and Prepreg

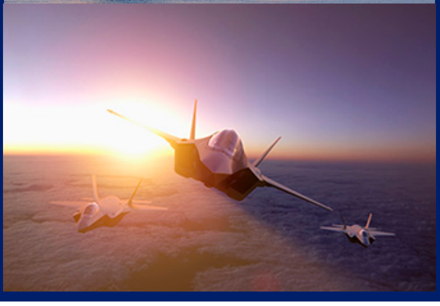
AGC
Your Dreams, Our Challenge

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
- Avionics
- Down-well Petroleum
- Burn-in Boards



N7000-3F is a next-generation high-Tg polyimide using a toughened, filled resin chemistry. The product meets UL 94-V1 designation. N7000-3F is designed to prevent cracking when filling etched areas in polyimide multilayers that contain heavy copper. This advanced material is designed for use in a wide variety of applications that include fine geometry multilayer constructions and extreme reliability. This polyimide also meets NASA requirements for no visible bromine.

Polyimide Resin Chemistry

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

Excellent Reliability and Performance

- Withstands multiple thermal excursions
- Tg 260°C by DSC
- T-260 >120 minutes
- Low Z-Axis CTE

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
- Filled material reduces potential cracking in resin rich areas
- Reduced cure time compared to other traditional polyimide systems

Meets UL 94V-1 and IPC-4101/40, /41 and /42 Specifications
Complies with the old GIJ and GIL specifications
UL file number: E36295

Properties	Conditions	Typical Value	Unit	Test Method
Electrical Properties				
Dielectric Constant	@ 10 GHz	4.0		IPC-TM-650.2.5.5.9
Dissipation Factor	@ 10 GHz	0.014		IPC-TM-650.2.5.5.5
Volume Resistivity	C - 96 / 35 / 90	10^7	MΩ - cm	IPC-TM-650.2.5.17.1
	E – 24 / 125	10^7		
Surface Resistivity	C - 96 / 35 / 90	10^7	MΩ	IPC-TM-650.2.5.17.1
	E - 24 / 125	10^7		
Electric Strength		4.7x10^4 (1200)	V/mm (V/mil)	IPC-TM-650.2.5.6.2
Thermal Properties				
*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
Mechanical Properties				
Peel Strength	1 oz (35μ) Cu After Solder Float	1.09 (6.2)	N/mm (lbf/inch)	IPC-TM-650.2.4.8
X / Y CTE	-40°C to + 125°C	14 / 16	ppm/°C	IPC-TM-650.2.4.41
Z Axis Expansion (63% RC)	50°C to 260°C	< 1.2	%	IPC-TM-650.2.4.24
Young's Modulus (X / Y)		21.1 / 22.2 (3.1 / 3.3)	GN/m^2 (psi x 10^6)	ASTM D3039
Poisson's Ratios (X / Y)		0.146 / 0.153		
Chemical / Physical Properties				
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
- N7000-3F is available in most common thicknesses, copper types and panel sizes.
- Please contact AGC for availability of any other constructions, copper weights and glass styles including very low profile copper and RTFOIL®