

N7000-3F

Toughened and Ceramic Filled Polyimide 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
- Avionics
- Down-well Petroleum
- Burn-in Boards



N7000-3F is a next-generation high-Tg polyimide using a toughened resin chemistry and ceramic filling. The product meets UL 94-V1 designation. N7000-3F is designed for 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
- Ceramic filling 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	@ 1 GHz	3.5		IPC-TM-650.2.5.5.9
	@ 10 GHz	3.5		IPC-TM-650.2.5.5.5
Dissipation Factor	@ 2.5 GHz	0.009		
	@ 10 GHz	0.009		
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	1.31 (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	< 2.2	%	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 panel sizes.
- Please contact AGC for availability of any other constructions, copper weights and glass styles including very low profile copper and RTFOIL®

