

# METEORWAVE 1000NF

High Speed / Very Low Loss Materials

No-Flow Prepreg



## Benefits

- Advanced Electrical Performance
- Stable dielectric performance over a wide frequency range
- Minimal and consistent resin flow
- High Conductive Anodic Filament (CAF) resistance
- Lead-Free Compatibility

## Applications

- High Speed Switches & networks
- Wireless Communication
- Bonding rigid-flex
- Attaching heat sinks
- Anywhere minimal and uniform resin flow is required



Meteorwave® 1000NF (“No Flow”) is based on proven Meteorwave 1000 resin system. It is a high speed / very low loss digital material offering very advanced performance and high reliability. It is designed for bonding, flex circuitry and bonding heat sinks to rigid circuit boards. This prepreg adheres well to most substrates. It’s minimal and consistent flow is controlled through precise rheological and prepreg process control.

Meteorwave 1000 NF prepreg is designed for multiple high temperature lead-free assemblies and high layer count printed circuit board designs which require very high levels of reliability.

## Excellent Electrical Properties

- Very low Dk/Df electrical performance
- Stable electrical properties when tested over various environmental conditions
- CAF resistant material after high temperature reflow

Available Prepreg			
Glass Style	RC%	Flow (mils)	Thickness (inches)
106	65	50 - 120	0.0016
1080	61	50 - 120	0.0027

## Thermal and Mechanical Properties

- Very low Z-axis expansion for high reliability
- Consistent flow characteristics with enhanced bonding
- Designed to withstand multiple lead-free assembly reflow cycles at 260°C
- High Tg material
- Excellent IST performance

## Typical Flow specification

- Tested per IPC TM-650 2.3.17.2
- Flow migration 50 -120 mils
- Available glass styles 106 and 1080

## High-Tg FR-4 Processing

- Processes similar to other high-Tg materials
- 90 minutes cure at 216°C and 400-500 psi

Meets UL 94V-0 and IPC-4101/102 Specifications

UL file number: E36295

Properties	Conditions	Typical Value	Unit	Test Method
<b>Electrical Properties</b>				
Dielectric Constant	@ 2 GHz	3.46		IPC-TM-650.2.5.5.5
	@ 10 GHz	3.41		
Dissipation Factor	@ 2 GHz	0.0038		
	@ 10 GHz	0.0047		
Volume Resistivity	C - 96 / 35 / 90	1.93 x 10 <sup>8</sup>	MΩ - cm	IPC-TM-650.2.5.17.1
	E - 24 / 125	3.22 X 10 <sup>8</sup>		
Surface Resistivity	C - 96 / 35 / 90	6.12 X 10 <sup>7</sup>	MΩ	IPC-TM-650.2.5.17.1
	E - 24 / 125	9.34 x 10 <sup>7</sup>		
Electric Strength		4.2x10 <sup>4</sup> (1667)	V/mm (V/mil)	IPC-TM-650.2.5.6.2
<b>Thermal Properties</b>				
*Glass Transition Temperature (Tg)	DMA(°C) (Tan d Peak)	240	°C	IPC-TM-650.2.4.24.3
Degradation Temperature (TGA)	Degradation Temp (TGA) (5% wt. loss)	390	°C	IPC-TM-650.2.3.40
T-300	Time to delamination @ 300°C	>120	minutes	IPC-TM-650.2.4.24.1
Thermal Conductivity		0.46	W/mK	ASTM E1461
<b>Mechanical Properties</b>				
Peel Strength	1 oz (35μ) Cu	1.05 (6.0)	N/mm (lbf/inch)	IPC-TM-650.2.4.8
	After Solder Float	1.16 (6.6)	N/mm (lbf/inch)	IPC-TM-650.2.4.8
X / Y CTE	-40°C to + 125°C	10 / 14	ppm/°C	IPC-TM-650.2.4.41
Z Axis CTE Alpha 1 / Alpha 2 (55% RC)	50°C to Tg / Tg to 260°C	55 / 260	ppm/°C	IPC-TM-650.2.4.24
Z Axis Expansion (43% RC)	50°C to 260°C	1.5	%	IPC-TM-650.2.4.24
Young's Modulus (X / Y)		24.4 / 21.7 (3.6 / 3.2)	GN/m <sup>2</sup> (psi x 10 <sup>6</sup> )	ASTM D3039
Poisson's Ratios (X / Y)		0.148 / 0.132		
<b>Chemical / Physical Properties</b>				
Moisture Absorption		0.12	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.
- Meteorwave® 1000NF is available in most common panel sizes.
- Please contact AGC for availability of any other construction or styles

