METEORWAVE® 8350

High Speed / Extremely Low Loss
3.5 Dk Laminate

AGC
Your Dreams, Our Challenge

Benefits
- Excellent Electrical Properties utilizing SI® Technology
- Robust Thermal and Mechanical Properties
- Highly CAF Resistant
- High-Tg FR-4 Processing

Applications
- Base Station Equipment
- Automotive Radar and Communications
- Satellite Radar Communications
- Broadband and GPS

Meteorwave® 8350 high frequency very low loss digital and RF electronic material is tailored to meet the needs of the RF and Microwave markets. Meteorwave® 8350 is a controlled Dk 3.5 +/- 0.05 laminate based on Meteorwave® 8000. The very advanced electrical performance and very high reliability of Meteorwave® 8350 is designed for multiple high temperature lead-free assemblies and high layer count printed circuit board designs requiring very high levels of reliability. Meteorwave® 8350 laminate and Meteorwave® 8000 prepreg offers flexibility and freedom to design high performance RF and Microwave printed wiring boards and antennae.

Excellent Electrical Properties utilizing SI® Technology
- Controlled Dk 3.5 +/- 0.05 for all laminate thicknesses
- Extremely low Df electrical performance - 0.0018 @ 10 GHz
- Stable electrical properties versus frequency when tested over environmental conditions
- Designed for 100 Gbs applications

Thermal and Mechanical Properties
- Good peel strength on ultra-smooth copper
- Outstanding thermal reliability
- Time to Delamination T_{300} > 40 minutes
- Meets NASA outgassing specification

Highly CAF Resistant
- All constructions utilize super spread weaves and fiberglass finishes optimized for CAF performance.

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, IPC4101 /102 and IPC4103 /240 specifications
UL file number: E36295

Properties	Conditions	Typical Value	Unit	Test Method
Electrical Properties				
Dielectric Constant	@ 2 GHz	3.52		IPC-TM-650.2.5.5.5
	@ 10 GHz	3.50		
Dissipation Factor	@ 2 GHz	0.0014		
	@ 10 GHz	0.0018		
Volume Resistivity	C - 96 / 35 / 90	4.2×10^6	MΩ - cm	IPC-TM-650.2.5.17.1
	E – 24 / 125	8.8×10^7		
Surface Resistivity	C - 96 / 35 / 90	3.1×10^5	MΩ	IPC-TM-650.2.5.17.1
	E - 24 / 125	3.6×10^7		
Electric Strength		5.9×10^4 (1500)	V/mm (V/mil)	IPC-TM-650.2.5.6.2
Thermal Properties				
*Glass Transition Temperature (Tg)	TMA(°C)	165	°C	IPC-TM-650.2.4.24c
	DMA(°C) (Tan d Peak)	185	°C	IPC-TM-650.2.4.24.2
Degradation Temp (TGA)	Degradation Temp (TGA) (5% wt. loss)	376	°C	IPC-TM-650.2.3.40
T-300	Time to delamination @ 300°C	40	minutes	IPC-TM-650.2.4.24.1
Thermal Conductivity		0.51	W/mK	ASTM E1461
Mechanical Properties				
Peel Strength	1 oz (35µ) Cu	0.91 (5.2)	N/mm (lbf/inch)	IPC-TM-650.2.4.8
	After Solder Float	0.86 (4.9)	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 CTE Alpha 1 / Alpha 2	50°C to Tg / Tg to 260°C	35 / 185	ppm/°C	IPC-TM-650.2.4.24
Z Axis Expansion	50°C to 260°C	2.5	%	IPC-TM-650.2.4.24
Young's Modulus (X / Y)		19.9 / 18.6 (2.9 / 2.7)	GN/m^2 (psi $x10^6$)	ASTM D3039
Poisson's Ratios (X / Y)		0.177 / 0.163		
Flexural Strength (X / Y)	@ 125°C	0.31 / 0.381 (4.50 / 5.52)	GN/m^2 (psi $x10^6$)	
	@ 150°C	0.234 / 0.151 (3.40 / 2.20)	GN/m^2 (psi $x10^6$)	
Chemical / Physical Properties				
Moisture Absorption		0.01	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® 8350 series can be manufactured in laminate thickness from 1.2 mil (0.031 mm) and up.
- Meteorwave® 8350 series is available in most common panel sizes.
- Please contact AGC for availability of any other constructions, copper weights and glass styles including ultra-low profile copper and RTFOIL®
- The resistor foil manufacturer covers the warranty for the copper foil that includes the resistor layer, as well as the performance and workability related to the copper foil. Our company does not take responsibility for the processing of resistor layers and the performance or workability of the final products.

agc-ml.multimaterial@agc.com