METEORWAVE® 3350

High Frequency / Very Low Loss Laminate & Prepreg

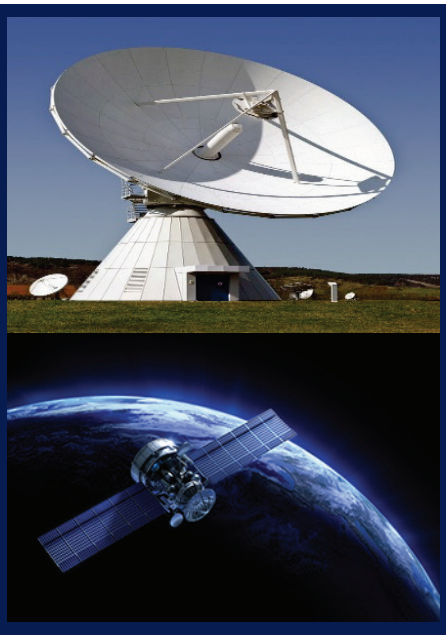
AGC
Your Dreams, Our Challenge

Benefits

- Excellent Electrical Properties
- Controlled Dk/Df electrical performance
- Very high reliability for multiple high temperature
- High Conductive Anodic Filament (CAF) resistance
- Available in a variety of constructions

Applications

- Satellite Communications
- Automotive radar, tolling and communications
- Base Station Equipment
- LNB's, LNA's, GPS



Meteorwave® 3350 high speed / ultra low loss digital and RF electronic materials are tailored to meet the needs of the RF and Microwave markets with advanced electrical performance and high reliability for multiple high temperature lead-free assemblies and high layer count PCB designs. Meteorwave® 3350 offers flexibility and freedom to design high performance RF and Microwave printed wiring boards and antennae.

Excellent Electrical Properties

- Controlled Dk/Df electrical performance for both laminate and prepreg
- Stable Dk/Df versus frequency and temperature
- Very low loss and low PIM
- High aging resistance
- Highest quality and purest materials to insure CAF resistance

RF Substrate Technology

- Single and Double sided
- Mixed hybrid design, Multilayer capability
- Low insertion loss

Thermal and Mechanical Properties

- Designed to withstand multiple lead-free assembly reflow cycles
- Very low Z-axis expansion for high reliability
- Good peel strength
- Excellent IST 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, IPC-4101/102 and IPC 4103/240 specifications
UL file number: E36295

Properties	Conditions	Typical Value	Unit	Test Method
Electrical Properties				
Dielectric Constant	@ 2 GHz	3.5		IPC-TM-650.2.5.5.5
	@ 10 GHz	3.5		IPC-TM-650.2.5.5.5
Dissipation Factor	@ 2 GHz	0.0032		Split-Post Dielectric Resonator
	@ 10 GHz	0.0038		Split-Post Dielectric Resonator
Volume Resistivity	C - 96 / 35 / 90	3.00×10^7	MΩ - cm	IPC-TM-650.2.5.17.1
	E – 24 / 125	5.20×10^8		
Surface Resistivity	C - 96 / 35 / 90	7.60×10^6	MΩ	IPC-TM-650.2.5.17.1
	E - 24 / 125	1.20×10^8		
Electric Strength		3.3×10^4 (1300)	V/mm (V/mil)	IPC-TM-650.2.5.6.2
Thermal Properties				
*Glass Transition Temperature (Tg)	DMA(°C) (Tan d Peak)	200	°C	IPC-TM-650.2.4.24.2
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		0.47	W/mK	ASTM E1461
Specific Heat		0.82	J/gK	ASTM E1461
Mechanical Properties				
Peel Strength	1 oz (35µ) Cu	1.02 (5.8)	N/mm (lbf/inch)	IPC-TM-650.2.4.8
	After Solder Float	1.00 (5.5)	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	50°C to Tg / Tg to 260°C	36 / 200	ppm/°C	IPC-TM-650.2.4.24
Z Axis Expansion (43%)	50°C to 260°C	2.1	%	IPC-TM-650.2.4.24
Young's Modulus (X / Y)		26.9 / 24.1 (3.9 / 3.5)	GN/m^2 (psi x 10^6)	ASTM D3039
Poisson's Ratios (X / Y)		0.163 / 0.146		
Flexural Strength (X / Y)	@125°C	388 / 214 (56.3 / 47.0)	GN/m^2 (psix10^6)	
	@ 150°C	357 / 307 (51.8 / 44.5)	GN/m^2 (psi x 10^6)	
Chemical / Physical Properties				
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® 3350 series can be manufactured in laminate thickness from 2 mil (0.05 mm) and up.
- Meteorwave® 3350 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.

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