

METEORWAVE® 8350

High Speed / Extremely Low Loss 3.5 Dk Laminate

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 T₃₀₀ > 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 x 10 ⁶	MΩ - cm	IPC-TM-650.2.5.17.1
	E - 24 / 125	8.8 x 10 ⁷		
Surface Resistivity	C - 96 / 35 / 90	3.1 x 10 ⁵	MΩ	IPC-TM-650.2.5.17.1
	E - 24 / 125	3.6 x 10 ⁷		
Electric Strength		5.9x10 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-650.2.4.24.3
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®

