AGC
Your Dreams, Our Challenge

nelco

meteorwave® 8350

High Speed / Extremely Low Loss

3.50 Dk Laminate

Laminate Part Number Meteorwave 8000L
Prepreg Part Number Meteorwave 8000P

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.

Key Features

Excellent Electrical Properties utilizing Nelco 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 and environmental conditions
- Designed for 100 Gbs applications

Highly CAF Resistant

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

Thermal and Mechanical Properties

- Good peel strength on ultra smooth copper
- Outstanding thermal reliabilty. T300 > 40 minutes.
- Meets NASA outgasing specification

High-Tg FR-4 Processing

- Processes similar to other high-Tg materials
- 30 minute lamination at 177°C plus 90 minutes cure at 216°C and 250 - 400 psi.

Applications

Base Station Equipment

- •Filters, combiners andcomponents

Automotive

- •Radar
- •Broadband communication
- •Road tolling

Satellite Communication

- •LNB's / LNA's
- •GPS Military
- •High reliability communications
- •Guidance
- •Radar

Available in a variety of constructions

- Available in a wide variety of constructions, copper weights and glass styles including ultra low profile copper, standard copper, double treat and RTFOIL®
- Available in laminate thicknesses from 1.2 mil and up.
- Meets UL 94V-0 and IPC4105 /102 and IPC 4103 /11 specifications
- All of AGC Nelco's PCB materials are RoHS compliant

UL file number: E36295

TOMOE 巴工業株式会社

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Mechanical Properties	Meteorwave® 8350	U.S. Units	Meteorwave® 8350	Metric	Test Method
Peel Strength - 1 oz. (35 micron) Cu	3.0	lb / inch	0.52	N / mm	IPC-TM-650.2.4.8
After Solder Float	3.1	lb / inch	0.54	N / mm	IPC-TM-650.2.4.8
At Elevated Temperature	3.3	lb / inch	0.58	N / mm	IPC-TM-650.2.4.8.2a
After Exposure to Process Solutions	3.5	lb / inch	0.61	N / mm	IPC-TM-650.2.4.8
X / Y CTE [-40°C to +125°C]	14 / 16	ppm / °C	14 / 16	ppm / °C	IPC-TM-650.2.4.41
Z Axis CTE Alpha 1 [50°C to Tg] 55% RC	35	ppm / °C	35	ppm / °C	IPC-TM-650.2.4.24
Z Axis CTE Alpha 2 [Tg to 260°C] 55% RC	185	ppm / °C	185	ppm / °C	IPC-TM-650.2.4.24
Z Axis Expansion [50°C to 260°C] 55% RC	2.5	%	2.5	%	IPC-TM-650.2.4.24
Young's Modulus (X / Y)	2.9 / 2.7	psi x 10^6	1.99 / 1.86	GN / m^2	ASTM D3039
Poisson's Ratios (X / Y)	0.177 / 0.163		0.177 / 0.163		ASTM D3039
Flexural Strength (X / Y)	44,989 / 55,199	psi	0.31 / 0.381	GN / m^2	ASTM D3039
Felxural Strength @ 150°C (X / Y)	34,000 / 22,000	psi`	0.234 / 0.151	GN / m^2	ASTM D3039
Thermal Conductivity	0.51	W / mK	0.51	W / mK	ASTM E1461
Specific Heat	0.943	J / gK	0.943	J / gK	ASTM E1461
Electrical Properties					
Dielectric Constant (75% RC)					
@ 2 GHz (Stripline)	3.52		3.52		IPC-TM-650.2.5.5.5
@ 10 GHz (Stripline)	3.50		3.50		IPC-TM-650.2.5.5.5
Dissipation Factor (75% RC)					
@ 2 GHz (Split Post Cavity)	0.0014		0.0014		
@ 10 GHz (Split Post Cavity)	0.0018		0.0018		
Volume Resistivity					
C - 96 / 35 / 90	$4.2x10^6$	MΩ - cm	$4.2x10^6$	MΩ - cm	IPC-TM-650.2.5.17.1
E - 24 / 125	$8.8x10^7$	MΩ - cm	$8.8x10^7$	MΩ - cm	IPC-TM-650.2.5.17.1
Surface Resistivity					
C - 96 / 35 / 90	$3.1x10^5$	MΩ	$3.1x10^5$	MΩ	IPC-TM-650.2.5.17.1
E - 24 / 125	$3.6x10^7$	MΩ	$3.6x10^7$	MΩ	IPC-TM-650.2.5.17.1
Electric Strength	1500	V / mil	$5.9x10^4$	V / mm	IPC-TM-650.2.5.6.2
Dielectric Breakdown	>50	kV	>50	kV	IPC-TM-650.2.5.6
Arc Resistance	184	seconds	184	seconds	IPC-TM-650.2.5
Thermal Properties					
*Glass Transition Temperature (Tg)					
TMA (°C)	165	°C	165	°C	IPC-TM-650.2.4.24c
DMA (°C) (Tan d Peak)	185	°C	185	°C	IPC-TM-650.2.4.24.3
Degradation Temp (TGA) (5% wt. loss)	376	°C	376	°C	IPC-TM-650.2.3.40
Pressure Cooker-60 min then solder dip @288°C until failure (max 10 min.)	pass		pass		IPC-TM-650.2.6.16 (modified)
T288	>120	minutes	>120	minutes	IPC-TM-650.2.4.24.1
T300	40	minutes	40	minutes	IPC-TM-650.2.4.24.1
Chemical / Physical Properties					
Moisture Absorption	0.01	wt. %	0.01	wt. %	IPC-TM-650.2.6.2.1
Methylene Chloride Resistance	0.21	% wt. chg.	0.21	% wt. chg.	IPC-TM-650.2.3.4.3
Density [50% resin content]	1.85	g / cm^3	1.85	g / cm^3	

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.

*DMA is the preferred method for measuring Tg - other methods may be less accurate.

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