254

High Performance, Mid-Tg Laminate and Prepreg Materials

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The 254 system is also laser fluorescing and UV blocking for maximum compatibility with Automated Optical Inspection (AOI) systems, optical positioning systems and photoimagable solder mask imaging.

Product Attributes

Legacy Materials

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Data Sheet

Tg 150°C
Td 340°C
Dk 4.30
Df 0.020

IPC-4101/21 /24

UL - File Number E41625

Last Updated December 7, 2017
Revision No: 4

Product Features

Product Availability

254 Typical Values

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Property		Typical Value	Units	Test Method
			Metric (English)	IPC-TM-650 (or as noted)
Test data generated from rigid laminate		50	%	2.3.16.2
Glass Transition Temperature (Tg) by DSC		150	°C	2.4.25C
Decomposition Temperature (Td) by TGA @ 5% weight loss		340	°C	2.4.24.6
Time to Delaminate by TMA (Copper removed)	A. T260 B. T288	30 >5	Minutes	2.4.24.1
Z-Axis CTE	A. Pre-Tg B. Post-Tg C. 50 to 260°C, (Total Expansion)	65 250 3.4	ppm/°C ppm/°C %	2.4.24C
X/Y-Axis CTE	Pre-Tg	13	ppm/°C	2.4.24C
Thermal Conductivity		0.45	W/mK	ASTM E1952
Thermal Stress 10 sec @ 288ºC (550.4ºF)	A. Unetched B. Etched	Pass	Pass Visual	2.4.13.1
Dk, Permittivity	A. @ 2 GHz B. @ 5 GHz	4.30 4.20	—	Bereskin Stripline
Df, Loss Tangent	@ 2 GHz	0.020	—	Bereskin Stripline
Dk, Permittivity	@ 5 GHz	0.022	—	Bereskin Stripline
Volume Resistivity	A. C-96/35/90 B. After moisture resistance C. At elevated temperature	— 2.4×10^8 2.3×10^8	MΩ-cm	2.5.17.1
Surface Resistivity	A. C-96/35/90 B. After moisture resistance C. At elevated temperature	— 2.6×10^8 2.8×10^8	MΩ	2.5.17.1
Dielectric Breakdown		>50	kV	2.5.6B
Arc Resistance		105	Seconds	2.5.1B
Electric Strength (Laminate & laminated prepreg)		54 (1350)	kV/mm (V/mil)	2.5.6.2A
Comparative Tracking Index (CTI)		3 (175-249)	Class (Volts)	UL 746A ASTM D3638
Peel Strength	A. Low profile copper foil and very low profile copper foil all copper foil >17 µm [0.669 mil] B. Standard profile copper 1. After thermal stress 2. At 125ºC (257ºF) 3. After process solutions	1.05 (6.0) 1.56 (6.0) 1.23 (4.0) 1.58 (4.5)	N/mm (lb/inch)	2.4.8C 2.4.8.2A 2.4.8.3 2.4.8.3
Flexural Strength	A. Length direction B. Cross direction	79,800 67,900		2.4.4B
Tensile Strength	A. Length direction B. Cross direction	53,900 41,160		ASTM D3039
Poisson's Ratio	A. Length direction B. Cross direction	0.174 0.54	—	ASTM D3039
Moisture Absorption		0.3	%	2.6.2.1A
Flammability (Laminate & laminated prepreg)		V-0	Rating	UL 94
Max Operating Temperature		130	°C	UL 796

The data, while believed to be accurate and based on analytical methods considered to be reliable, is for information purposes only. Any sales of these products will be governed by the terms and conditions of the agreement under which they are sold.