

isola

P95/P25

Polyimide-based Prepreg and Laminate

Isola offers a product line of polyimide-based prepreg (P25) and core material (P95) for high temperature printed circuit applications.

These products consist of an HB flammability rated polyimide resin system suitable for military, commercial or industrial electronic applications requiring superior performance and the utmost in thermal properties. These products utilize a polyimide and thermoplastic blend resin, fully cured without the use of MDA (Methylenedianiline). This results in a polymer with a high Tg without the characteristic difficulties of brittleness and low initial bond strength associated with traditional thermoset polyimides.

Product Attributes

High Thermal Reliability , Polyimide

Typical Market Applications

Aerospace & Defense , Automotive & Transportation

High Thermal Reliability

Data Sheet

Tg 260°C

Td 416°C

Dk 3.76

Df 0.017

IPC-4101/40 /41

UL - File Number E41625

Last Updated December 7, 2017
Revision No: 11

Product Features

Product Availability

P95/P25 Typical Values

Last Updated Dec 7, 2017

Property	Typical Value	Units	Test Method	
		Metric (English)	IPC-TM-650 (or as noted)	
Glass Transition Temperature (Tg) by DSC	260	°C	2.4.25C	
Decomposition Temperature (Td) by TGA @ 5% weight loss	416	°C	2.4.24.6	
Time to Delaminate by TMA (Copper removed)	A. T260 B. T288	60	Minutes	2.4.24.1
Z-Axis CTE	A. Pre-Tg B. 50 to 260°C, (Total Expansion)	55 1.5	ppm/°C %	2.4.24C
X/Y-Axis CTE	Pre-Tg	13/14	ppm/°C	2.4.24C
Thermal Conductivity		0.4	W/mK	ASTM E1952
Thermal Stress 10 sec @ 288°C (550.4°F)	A. Unetched B. Etched	Pass	Pass Visual	2.4.13.1
Dk, Permittivity	A. @ 100 MHz B. @ 500 MHz C. @ 1 GHz D. @ 2 GHz E. @ 5 GHz F. @ 10 GHz	3.83 3.80 3.78 3.76 3.73 3.73	—	2.5.5.9 2.5.5.9 2.5.5.9 Bereskin Stripline Bereskin Stripline Bereskin Stripline
Df, Loss Tangent	A. @ 100 MHz B. @ 500 MHz C. @ 1 GHz D. @ 2 GHz E. @ 5 GHz F. @ 10 GHz	0.0135 0.0151 0.0172 0.0179 0.0188 0.021	—	2.5.5.9 2.5.5.9 2.5.5.9 Bereskin Stripline Bereskin Stripline Bereskin Stripline
Volume Resistivity	A. After moisture resistance B. At elevated temperature	3.0 x 10 ⁸ 7.0 x 10 ⁸	MΩ-cm	2.5.17.1
Surface Resistivity	A. After moisture resistance B. At elevated temperature	3.0 x 10 ⁶ 2.0 x 10 ⁸	MΩ	2.5.17.1
Dielectric Breakdown		>55	kV	2.5.6B
Arc Resistance		130	Seconds	2.5.1B
Electric Strength (Laminate & laminated prepreg)		44 (1100)	kV/mm (V/mil)	2.5.6.2A
Comparative Tracking Index (CTI)		2 (250-399)	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 125°C (257°F) 3. After process solutions	1.14 (6.5) 1.25 (7.0) 1.25 (7.0) 1.14 (6.5)	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	58,700 66,200	ksi	2.4.4B
Tensile Strength	A. Length direction B. Cross direction	54,540 36,111	ksi	ASTM D3039
Young's Modulus	A. Length direction B. Cross direction	3892 3490	ksi	ASTM D790-15e2
Poisson's Ratio	A. Length direction B. Cross direction	0.187 0.164	—	ASTM D3039
Moisture Absorption		0.5	%	2.6.2.1A
Flammability (Laminate & laminated prepreg)		HB	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.

