



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.

www.isola-group.com/products/P95

ORDERING INFORMATION:

Contact your local sales representative or visit www.isola-group.com for further information.

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High Performance

P95/P25 Data Sheet

Tg 260, Td 416
Dk 3.76, Df 0.017
/40 /41 /42

Features

- High Thermal Performance
 - ▶ Tg: 260°C (TMA)
 - ▶ Greater thermal performance over epoxy-bismaleimide blends
- T260: 60 minutes
- T288: 60 minutes
- RoHS Compliant
- Maintains Bond Strength at High Temperature
- Tough Resin System
 - ▶ Improved processing due to less brittleness
 - ▶ Less delamination from machining
- Non-brominated Chemistry, Thermally Stable Laminate System
 - ▶ Full benefits of 100% polyimide performance
- Non-MDA (Methylenedianiline) Chemistry
 - ▶ Meets all OSHA 1910.1050 requirements
- Halogen free
- Core Material Standard Availability
 - ▶ Thickness: 0.002" (0.05 mm) to 0.125" (3.2 mm)
 - ▶ Available in full size sheet or panel form
- Prepreg Standard Availability
 - ▶ Roll or panel form
 - ▶ Tooling of prepreg panels available
- Copper Foil Type Availability
 - ▶ Standard HTE Grade 3
 - ▶ RTF (Reverse Treat Foil)
- Copper Weights
 - ▶ ½, 1 and 2 oz (18, 38 and 70 µm) available
 - ▶ Heavier copper available upon request
 - ▶ Thinner copper foil available upon request
- Glass Fabric Availability
 - ▶ Standard E-glass
- Industry Approvals
 - ▶ IPC-4101D WAM1 /40 /41 /42
 - ▶ UL - File Number E41625

P95/P25 Specifications

Property		Typical Values			
		Typical Value	Specification	Units	Test Method
				Metric (English)	IPC-TM-650 (or as noted)
Glass Transition Temperature (Tg) by DSC		260	250	°C	2.4.25
Decomposition Temperature (Td) by TGA @ 5% weight loss		416	–	°C	ASTM D3850
T260		60	–	Minutes	ASTM D3850
T288		60	–	Minutes	ASTM D3850
CTE, Z-axis	A. Pre-Tg	55	AABUS	ppm/°C	2.4.24
	B. Post-Tg	–	–		
CTE, X-, Y-axes	A. Pre-Tg	13/14	AABUS	ppm/°C	2.4.24
	B. Post-Tg	14/17	–		
Z-axis Expansion (50-260°C)		1.5	–	%	2.4.24
Thermal Conductivity		0.4	–	W/mK	ASTM D5930
Thermal Stress 10 sec @ 288°C (550.4°F)	A. Unetched	Pass	Pass Visual	Rating	2.4.13.1
	B. Etched				
DK, Permittivity (Laminate & prepreg as laminated) Tested at 56% resin	A. @ 100 MHz	3.83	5.4	–	2.5.5.9
	B. @ 500 MHz	3.80	–		2.5.5.9
	C. @ 1 GHz	3.78	–		2.5.5.9
	D. @ 2 GHz	3.76	–		Bereskin Stripline
	E. @ 5 GHz	3.73	–		Bereskin Stripline
	F. @ 10 GHz	3.73	–		Bereskin Stripline
Df, Loss Tangent (Laminate & prepreg as laminated) Tested at 56% resin	A. @ 100 MHz	0.0135	0.035	–	2.5.5.9
	B. @ 500 MHz	0.0151	–		2.5.5.9
	C. @ 1 GHz	0.0172	–		2.5.5.9
	D. @ 2 GHz	0.0179	–		Bereskin Stripline
	E. @ 5 GHz	0.0188	–		Bereskin Stripline
	F. @ 10 GHz	0.021	–		Bereskin Stripline
Volume Resistivity	A. 96/35/90	–	1.0x10 ⁶	MΩ-cm	2.5.17.1
	B. After moisture resistance	3.0x10 ⁹	–		
	C. At elevated temperature	7.0x10 ⁹	1.0x10 ³		
Surface Resistivity	A. 96/35/90	–	1.0x10 ⁴	MΩ	2.5.17.1
	B. After moisture resistance	3.0x10 ⁶	–		
	C. At elevated temperature	2.0x10 ⁹	1.0x10 ³		
Dielectric Breakdown		>55	–	kV	2.5.6
Arc Resistance		130	60	Seconds	2.5.1
Electric Strength (Laminate & prepreg as laminated)		44 (1100)	30 (750)	kV/mm (V/mil)	2.5.6.2
Comparative Tracking Index (CTI)		2 (250-399)	–	Class (Volts)	UL-746A ASTM D3638
Peel Strength	A. Low profile copper foil and very low profile – all copper weights >17 microns	1.14 (6.5)	0.70 (4.0)	N/mm (lb/inch)	2.4.8
	B. Standard profile copper	–	–		2.4.8.2
	1. After thermal stress	1.25 (7.0)	0.80 (4.5)		2.4.8.3
	2. At 125°C (257°F)	1.25 (7.0)	0.70 (4.0)		–
	3. After process solutions	1.14 (6.5)	0.55 (3.0)	–	
Flexural Strength	A. Lengthwise direction	58,700	–	lb/inch ²	2.4.4
	B. Crosswise direction	66,200	–		
Tensile Strength	A. Lengthwise direction	54,540	–	lb/inch ²	–
	B. Crosswise direction	36,111	–		
Young's Modulus	A. Grain direction	3892	–	ksi	ww
	B. Fill direction	3490	–		
Poisson's Ratio	A. Grain direction	0.187	–	–	xx
	B. Fill direction	0.164	–		
Moisture Absorption		0.5	–	%	2.6.2.1
Flammability (Laminate & prepreg as laminated)		HB	–	Rating	UL 94
Max Operating Temperature		140	UL Cert	°C	–

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.

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