

Polyimide Laminate and Prepreg

Isola Laminate Systems offers a product line of polyimide-based prepreg and copper clad laminates for high temperature printed circuit applications. These products consist of a flame resistance, polyimide resin system suitable for military, commercial or industrial electronic applications requiring superior performance and the utmost in thermal properties. They utilize a polyimide and thermoplastic blend resin, fully cured without the use of MDA (Methylene Dianiline). 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.

Performance and Processing Advantages

- **High Tg - 260 °C (TMA)**
Greater thermal performance over epoxy-bismaleimide blends
- **Maintains Bond Strength at High Temperature**
- **Tough Resin System**
Improved processing due to less brittleness
Less delamination from machining
- **Flammability Rating V-0**
- **Non-MDA (Methylene Dianiline) Chemistry**
Meets all OSHA 1910.1050 requirements

Purchasing Information

- **Industry Approvals**
IPC-4101A /41
UL Recognized - GPY, File Number E41625
- **Standard Availability**
Thickness: 0.0025" [.05 mm] to 0.125" [3.2 mm]
Available in sheet or panel form
Copper Foil Cladding: Grade 3 (HTE), ½, 1 and 2 oz.
Foil Options: Double treat, Copper-Invar-Copper
Prepregs: Available in roll or panel form
Glass Styles: 106, 1080, 2313, 2116, and 7628

P97 Typical Laminate Properties, 0.008" [0.20mm]

PROPERTY	UNITS	IPC-4101A Spec /41	P97 Value	CONDITIONING
Thickness	inches	<.030	.008	—
	mm	[<0.78]	[0.20]	—
Glass Construction	—	—	2313/2116	—
Retained Resin	%	—	47	—
Thermal				
Tg (DSC)	°C	250	260	E-2/105
CTE x-axis	ppm/°C	—	17	Ambient to Tg
y-axis	ppm/°C	—	14	Ambient to Tg
z-axis	ppm/°C	—	57	Ambient to 288°C
Thermal Stress, 10 s @, 288°C	seconds	pass visual	NA	Condition A
Thermal Stress, 10 s @, 288°C	seconds	—	>900	E-2/105
Electrical				
Permittivity (DK) @				
1 MHz (2 Fluid Cell)	—	5.4 max.	4.4	C-24/23/50
500 MHz (HP4291)	—	—	4.2	C-24/23/50
1GHz (HP4291)	—	—	4.2	C-24/23/50
Loss Tangent (DF) @				
1 MHz (2 Fluid Cell)	—	0.035 max.	0.014	C-24/23/50
500 MHz (HP4291)	—	—	0.012	C-24/23/50
1 GHz (HP4291)	—	—	0.014	C-24/23/50
Volume Resistivity				
	megohms-cm	1x10 ⁴ min.	3.4x10 ⁸	C-96/35/90
	megohms-cm	6x10 ⁴ min.	1.3x10 ⁸	E-24/204
Surface Resistivity				
	megohms	1x10 ⁴ min.	5.0x10 ⁵	C-96/35/90
	megohms	6x10 ⁴ min.	1.6x10 ⁸	E-24/204
Electric Strength				
	volt/mil	737 min.	1340	D-48/50
	[volts/mm]	[2.90x10 ⁴]	[5.3x10 ⁴]	D-48/50
Arc Resistance				
	seconds	120 min.	130	D-48/50
Comparative Tracking Index				
	volts	—	>175	ASTM D-36/38-85
	PLC-UL	—	3	UL 746A
Physical				
Peel Strength, RTF ½ oz.				
	lb/in	AABUS*	5.0	After Thermal Stress
	[Kg/M]	AABUS*	[90]	After Thermal Stress
Peel Strength, Std. 1oz.				
	lb/in	4.57 min.	8.6	After Thermal Stress
	[Kg/M]	[80] min.	[152]	After Thermal Stress
	lb/in	3.43	7.2	E-1/170
	[Kg/M]	[60]	[130]	E-1/170
Flexural Strength				
LW	psi	—	75,000	Condition A
LW	[N/mm ²]	—	[520]	Condition A
CW	psi	—	53,200	Condition A
CW	[N/mm ²]	—	[367]	Condition A
Flammability				
	rating	HB	V-0	UL94
Moisture Absorption				
	%	1.0 max.	0.54*	D-24/23

* Material Thickness Tested 0.028"

ORDERING INFORMATION

Contact your local sales representative or the Customer Service Department in La Crosse, WI

Isola Laminate Systems Corp.
230 North Front Street
La Crosse, WI 54601
Phone: 800/845-2904 or
608/784-6070
Fax: 800/344-1825 or
608/791-2428

For further information visit
www.isola-usa.com

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