

Isola Laminate Systems

Product & Solutions Offering

Isola Laminate Systems' broad range of laminate, prepreg and foil products and solutions includes:

- **PWB Substrates**
FR-4s
Composites
- **Advanced PWB Substrates**
BT/Epoxy
Polyimide
P97 & P27
Specialty Prepregs
- **HDI Materials**
- **Signal Integrity Substrates**
- **Buried Passives Solutions**
- **Packaging Substrates**

P97 & P27

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 4101/41
UL Recognized – GPY, UL File Number E41625
- **Standard Availability**
Overall Thicknesses: 0.0025" to 0.125"
Available in sheet or panel form
Copper Foil Cladding: ½, 1, & 2 oz.
Options – Double-Treat, HTE, Copper-Invar-Copper
Prepregs: Available in roll or panel form
Glass Styles – 106, 1080, 2313, 2116, 7628

P97 Typical Laminate Properties, 0.008" [0.20mm]

Ordering Information

Contact your local representative or
the Inside Sales Department in La Crosse, WI.
Phone: 800/845-2904 or
608/784-6070
Fax: 800/344-1825 or
608/791-2428

Isola Laminate Systems Corp.
230 North Front Street
La Crosse, WI 54601

For further information visit
www.isolalaminatesystems.com

PROPERTY	UNITS	IPC 4101	P97 VALUE	CONDITIONING
Thickness	Inches [mm]	<0.030 [<0.78]	0.008 [0.20mm]	
Construction	-	-	2313/2116	---
Retained Resin	%	-	47	---
<u>Thermal</u>				
Tg, min - (TMA)	°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	-	54	Ambient to 288°C
Thermal Stress, 288 °C	seconds	10	900	E-2/105
<u>Electrical</u>				
Permittivity (DK), max. @				
1 MHz (2 Fluid Cell)	-	5.4	4.4	C-40/23/50
500 MHz (HP4291)	-	-	4.2	C-40/23/50
1 GHz (HP4291)	-	-	4.2	C-40/23/50
Loss Tangent (DF), max. @		-		
1 MHz (2 Fluid Cell)	-	0.035	0.014	C-40/23/50
500 MHz (HP4291)	-	-	0.012	C-40/23/50
1 GHz (HP4291)	-	-	0.014	C-40/23/50
Surface Resistivity, min.	megohms	1.0x10 ⁴	5.0x10 ⁵	C-96/35/90
Volume Resistivity, min.	megohms	6.0x10 ⁴	1.6x10 ⁸	E-24/204
	megohms-cm	1.0x10 ⁴	3.4x10 ⁸	C-96/35/90
	megohms-cm	6.0x10 ⁴	1.3x10 ⁸	E-24/204
Electric Strength, min.	volts/mil [volts/mm]	737 [2.90x10 ⁴]	1340 [5.3x10 ⁴]	D-48/50
Arc Resistance, min.	seconds	120	130	D-48/50
<u>Physical</u>				
Peel Strength, min. - 1 oz	lb/in	-	9.1	Condition A
	[Kg/M]	-	[162]	
	lb/in	3.9	8.6	After Thermal Stress
	[Kg/M]	[70]	[152]	
	lb/in	3.35	7.2	E-1/170
	[Kg/M]	[60]	[130]	
Flammability	-	-	V-0	UL94
Moisture Absorption, max.	%	1.0	.54*	D-24/23

* Material Thickness Tested 0.028"

"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."

Developmental Product
Data Sheet # 5029a/11/00
©1999, Isola Laminate Systems Corp.