

## ISOLA LAMINATE SYSTEMS

### Product and 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
    - P95 & P25
  - Specialty Prepregs
- **HDI Materials**
- **Signal Integrity Substrates**
- **Buried Passives Solutions**
- **Packaging Substrates**

### P95 & P25

#### 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 are of an all polyimide resin system suitable for military, commercial or industrial electronic applications requiring superior performance and the utmost in thermal properties. They utilize bismaleimide resin, fully cured without the use of MDA (Methylene Dianiline), resulting in an all polyimide 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
- **Nonbrominated Chemistry, Thermally Stable Laminate System**  
Full benefits of 100% polyimide performance
- **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  
BSI-415
- **Standard Availability**  
Overall Thicknesses: 0.0025" to 0.125"  
Available in sheet or panel form  
Copper Foil Cladding: 1/2, 1, & 2 oz.  
Options - Double-Treat, HTE, Copper-Invar-Copper  
Prepregs: Available in roll or panel form  
Glass Styles - 106, 1080, 2313, 2116, 7628

## Ordering Information

Contact your local sales representative or the Inside Sales Department in La Crosse, WI.

Phone: 1-800-845-2904 or  
608-784-6070

Fax: 1-800-344-1825 or  
608-791-2428

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

For further information visit  
[www.isolalaminatesystems.com](http://www.isolalaminatesystems.com)

## P95 Typical Laminate Properties, 0.008" [0.20mm]

<u>PROPERTY</u>	<u>UNITS</u>	<u>IPC 4101</u>	<u>P95 VALUE</u>	<u>CONDITIONING</u>
Thickness	inches	<0.030	.008	—
	mm	[< 0.78]	[0.20]	—
Construction	—	—	2313/2116	—
Retained Resin	%	—	47	—
<b>Thermal</b>				
T <sub>g</sub> , min. - (TMA)	°C	250	260*	E-2/105
CTE - x-axis	ppm/°C	—	14	Ambient to T <sub>g</sub>
y-axis	ppm/°C	—	17	Ambient to T <sub>g</sub>
z-axis	ppm/°C	—	55	Ambient to 288°C
Thermal Stress, 288°C	seconds	—	>1200	E-2/105
<b>Electrical</b>				
Permittivity (Dk), max. @				
1 MHz (2 Fluid Cell)	—	5.4	4.4	C-40/23/50
500 MHz (HP 4291)	—	—	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	0.016	C-40/23/50
500 MHz (HP 4291)	—	—	0.012	C-40/23/50
1 GHz (HP4291)	—	—	0.014	C-40/23/50
Surface Resistivity, min.	megohms	1x10 <sup>4</sup>	4.0x10 <sup>8</sup>	C-96/35/90
	megohms	6x10 <sup>4</sup>	1.0x10 <sup>8</sup>	E-24/204
Volume Resistivity, min.	megohms-cm	1x10 <sup>4</sup>	4.0x10 <sup>8</sup>	C-96/35/90
	megohms-cm	6x10 <sup>4</sup>	2.4x10 <sup>8</sup>	E-24/204
Electric Strength, min.	volts/mil	737	1200	D-48/50
	[volts/mm]	[2.9x10 <sup>4</sup> ]	[4.7x10 <sup>4</sup> ]	—
Arc Resistance, min.	seconds	120	131	D-48/50
<b>Physical</b>				
Peel Strength, min. - 1 oz.	lb/in	—	6.5	Condition A
	[Kg/M]	—	[116]	Condition A
	lb/in	3.9	7.0	After Thermal Stress
	[Kg/M]	[70]	[125]	After Thermal Stress
	lb/in	3.35	5.5	E-1/170
	[Kg/M]	[60]	[98]	E-1/170
Flammability	—	—	HB	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."