

ISOLA LAMINATE SYSTEMS

Product and Solutions Offering

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

- **PWB Substrates**
- **Advanced PWB Substrates**
 - BT/Epoxy
 - Polyimide
 - Specialty Prepregs
- **HDI Materials**
- **Signal Integrity Substrates**
 - FR408**
- **Buried Passive Solutions**

FR408 Epoxy Laminates and Prepreg Dielectric Solution for Improved Signal Performance

FR408 is a high-performance FR-4 epoxy laminate & prepreg systems designed for advanced circuitry applications. Its low dielectric constant and low dissipation factor make it an ideal candidate for circuit designs requiring faster signal speeds or improved signal integrity. FR408 also brings the board reliability with its high Tg. FR408 is compatible with most FR-4 processes. This feature allows the use of FR408 without adding complexity to current fabrication techniques.

Performance and Processing Advantages

- **High Thermal Performance**
 - T_g of 180°C (DSC)
 - Low CTE for reliability
- **Improved Dielectric Properties**
 - DK <3.8 (50 MHz - 1GHz):
 - Supports increased signal speeds
 - DF <0.010 (50MHz - 1 GHz):
 - Provides better signal integrity
- **UV Blocking & AOI Fluorescence**
 - High throughput and accuracy during PWB fabrication and assembly
- **Superior Processing**
 - Closest to standard FR-4 processing of all high speed materials

Purchasing Information

- **Industry Approvals**
 - IPC 4101/24
 - UL Recognized - FR-4, File Number E41625
 - Qualified to UL's MCIL Program
- **Standard Availability**
 - Thicknesses:** 0.002" [.05mm] to 0.093" [2.4mm]
 - Available in sheet or panel form
 - Copper Foil Cladding:** 1/2, 1, and 2 oz. HTE
 - Options - Double-Treat, Reverse Treat
 - Prepregs:** Available in roll or panel form
 - Glass Styles - 106, 1080, 2113, 2116, 1652, 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

FR408 Typical Laminate Properties, 0.008"

PROPERTY	UNITS	IPC 4101	FR408 VALUE	CONDITIONING
Thickness	inches	<.030	0.008	—
	mm	[<0.78]	[0.20]	—
Construction	—	—	2-2 1 6	—
Retained Resin	%	—	44+2	—
Thermal				
T _g , (DSC)	°C	150-200	180	E-2/105
CTE - x-axis	ppm/°C	—	13	Ambient to T _g
y-axis	ppm/°C	—	13	Ambient to T _g
z-axis	ppm/°C	—	120	Ambient to 288°C
Solder Float, 550°F	seconds	—	>350	Condition A
Electrical				
Permittivity (DK), max. @				
100 MHz (HP4281)	—	5.4	3.8	C-24/23/50
1 GHz (HP4291)	—	—	3.7	C-24/23/50
Loss Tangent (DF), max. @				
100 MHz (HP4291)	—	0.035	0.010	C-24/23/50
1 GHz (HP4291)	—	—	0.010	C-24/23/50
Surface Resistivity, min.	megohms	1×10 ⁴	1×10 ⁶	C-96/35/90
	megohms	1×10 ³	1×10 ⁸	E-24/125
Volume Resistivity, min.	megohms-cm	1×10 ⁶	1×10 ⁸	C-96/35/90
	megohms-cm	1×10 ³	1×10 ⁸	E-24/125
Electric Strength, min.	volts/mil	736	1400	D-48/50
	[volts/mil]	[2.9×10 ⁴]	[5.5×10 ⁴]	D-48/50
Arc Resistance, min.	seconds	60	120	D-48/50
Physical				
Peel Strength, min. - 1 oz.	lb/in	—	7.0	Condition A
	[Kg/M]	—	[125]	Condition A
	lb/in	—	7.0	After Thermal Stress
	[Kg/M]	—	[125]	After Thermal Stress
	lb/in	4.5	6.0	E-1/170
	[Kg/M]	[80]	[105]	—
Flammability	—	94V-0	94V-0	UL94
Moisture Absorption (0.008")	max. %	0.80	0.45	D-24/23
Moisture Absorption (0.028")	max. %	—	0.15	D-24/23

"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."