

Isola Laminate Systems

Product & Solutions Offering

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

- **PWB Substrates**
FR-4s -
FR404
Composites
- **Advanced PWB Substrates**
BT/Epoxy
Polyimide
Specialty Prepregs
- **HDI Materials**
- **Signal Integrity Substrates**
- **Buried Passives Solutions**
- **Packaging Substrates**

FR404

Multifunctional Epoxy Laminate and Prepreg

FR404 GOLDLAM™ is a multifunctional FR-4 epoxy laminate systems designed to meet today's demanding circuitry applications. GOLDLAM's uniquely formulated resin system supports both AOI and UV blocking technologies. GOLDLAM can support you FR-4 multilayer needs, ranging from four-layer to you most complicated multilayer boards, producing high yields using standard FR-4 processing.

Performance and Processing Advantages

- **Economic High Performance Epoxy**
T_g of 150 °C (DSC)
Improved reliability
- **UV Blocking and AOI Compatible**
Increased throughput and accuracy during fabrication and assembly
- **Standard FR-4 Processing**
No post bake after pressing.
Drilling parameters and hole wall preparation are standard

Purchasing Information

- **Industry Approvals**
IPC 4101/21
UL Recognized – FR-4, File Number E41625
(Part of Isola's UL FR-4 Family)
BSI-415
CSA
- **Availability**
Thickness: 0.002" [.05 mm] to 0.125" [3.2 mm]
Available in sheet or panel form
Copper Foil Cladding: ½, 1, and 2 oz. HTE
Options: double treat, reverse treat
Prepregs: Available in roll or panel form
Glass styles: 106, 1080, 2113, 2313, 2116, 1652, 7628, 7629

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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

FR404 Typical Laminate Properties, 0.008" [0.20 mm]

PROPERTY	UNITS	IPC	FR404	CONDITIONING
		4101	VALUE	
Thickness	inches	.<030	0.008	-
	mm	[<0.78]	[0.20]	-
Construction	-	-	2-2116	-
Retained Resin	%	-	44	-
<u>Thermal</u>				
Tg, min. (DSC)	°C	110	150	E-2/105
CTE x-axis	ppm/°C	-	14	Ambient to Tg
y-axis	ppm/°C	-	13	Ambient to Tg
z-axis	ppm/°C	-	155	Ambient to 288°C
Solder Float, 288°C	seconds	-	>220	Condition A
<u>Electrical</u>				
Permittivity (DK), max. @				
1 MHz (2 Fluid Cell)	-	5.4	4.7	C-24/23/50
500 MHz (HP4291)	-	-	4.26	C-24/23/50
1 GHz (HP4291)	-	-	4.25	C-24/23/50
Loss Tangent (DF), max. @				
1 MHz (2 Fluid Cell)	-	0.035	0.025	C-24/23/50
500 MHz (HP4291)	-	-	0.014	C-24/23/50
1 GHz (HP4291)	-	-	0.014	C-24/23/50
Surface Resistivity, min.	megohms	1x10 ⁴	2x10 ⁸	C-96/35/90
	megohms	1x10 ³	7x10 ⁸	E-24/125
Volume Resistivity, min.	megohms-cm	1x10 ⁶	1x10 ⁸	C-96/35/90
	megohms-cm	1x10 ³	7.5x10 ⁸	E-24/125
Electric Strength, min.	volts/mil	737	1350	D-48/50
	[volts/mm]	[2.90x10 ⁴]	[5.3x10 ⁴]	
Arc Resistance, min.	seconds	60	115	D-48/50
<u>Physical</u>				
Peel Strength, min. - 1 oz	lb/in	-	8.0	Condition A
	[Kg/M]	-	[143]	
	lb/in	4.5	8.0	After Thermal Stress
	[Kg/M]	[80]	[143]	
	lb/in	3.9	6.0	E-1/125
	[Kg/M]	[70]	[107]	
Flammability	---	V-0	V-0	UL94
Moisture Absorption, max.	%	.80*	.20*	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."

