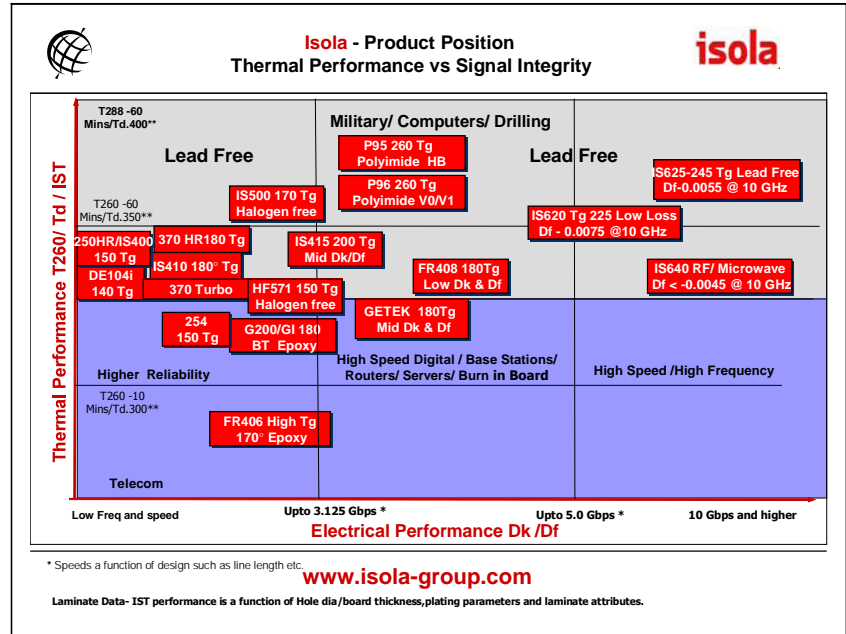




FR-370HR Laminate
PCL-FRP-370HR Prepreg

370HR is a high performance 180°C glass transition temperature (Tg) FR-4 system for multilayer printed wiring board (PWB) applications where maximum thermal performance and reliability are required. 370HR laminate and prepreg products are manufactured with a unique high performance multifunctional epoxy resin, reinforced with electrical grade (E-glass) glass fabric. This system provides improved thermal performance and low expansion rates in comparison to traditional FR-4 while retaining FR-4 processability. In addition to this superior thermal performance the mechanical, chemical and moisture resistance properties all equal or exceed the performance of traditional FR-4 materials. The 370HR system is also laser fluorescing and UV blocking for maximum compatibility with automated optical inspection systems (AOI), optical positioning systems and photoimagable soldermask imaging.



Performance and Processing Advantages

- **High Thermal Performance**
 Tg of 180 C (DSC)
 Low CTE for reliability
- **UV Blocking and AOI Fluorescence**
 High throughput and accuracy during PCB fabrication and assembly
- **Superior Processing**
 Closest to conventional FR-4 processing of all high speed materials

Purchasing Information

- **Industry Approvals**
 IPC-4101B /24, /26, /98, /99, /101, /126
- **Standard Availability**
Thickness: 0.002" [.05 mm] to 0.093" [2.4 mm]
 Available in sheet or panel form
- **Copper Foil Cladding:** Grade 3 (HTE), ½, 1 and 2 oz.
 Foil Options: Reverse treat
- **Prepregs:** Available in roll or panel form
- **Glass Styles:** standard fabrics

370HR Typical Laminate Properties

	English			Metric			Test Method
	Value	Specification	Units	Value	Specification	Units	IPC-TM-650 (or as noted)
Glass Transition Temperature (Tg) by DSC, spec minimum	180	150 - 200	°C	180	150 - 200	°C	2.4.25
Decomposition Temperature (Td) by TGA @ 5% weight loss	340		°C	340		°C	ASTM D3850
T260	60		min	60		min	2.4.25
T288	>10		min	>10		min	
CTE, Z-axis	Pre-Tg	AABUS	ppm/°C	50	AABUS	ppm/°C	2.4.24
	Post-Tg			250			
CTE, X-, Y-axes	Pre-Tg	AABUS	ppm/°C	13	AABUS	ppm/°C	2.4.24
	Post-Tg			14			
Z-Axis Expansion (50 – 260C) %	2.8	AABUS	%	2.8	AABUS	%	2.4.24
Thermal Stress 10 Sec @ 288°C (550.4°F), spec minimum	Unetched	Pass	Pass Visual	Rating	Pass	Pass Visual	Rating
	Etched	Pass	Pass Visual		Pass	Pass Visual	
Dk (Permittivity, Laminate & prepreg as laminated) Berskin Strip line Method	2 Ghz	3.75	5.4		3.75	5.4	2.5.5.3
	5 Ghz	3.75			3.75		2.5.5.9
	10 Ghz	na			na		2.5.5.5
Df, Loss Tangent, spec maximum (Laminate & prepreg as laminated) Berskin Stripline Method	2 Ghz	0.026	0.035		0.026	0.035	2.5.5.3
	5 Ghz	0.026					2.5.5.9
	10 Ghz	na			na		2.5.5.5
Volume Resistivity, spec minimum	96/35/90			M□ -cm			M□ -cm
	After moisture resistance At elevated temperature	3x10 ⁷ 7x10 ⁶	1X10 ⁴ 1x10 ⁴		3x10 ⁷ 7x10 ⁶	1x10 ⁴ 1x10 ³	
Surface Resistivity, spec minimum	96/35/90			M□			M□
	After moisture resistance At elevated temperature	3x10 ⁶ 2x10 ⁹	1X10 ⁴ 1x10 ³		3x10 ⁶ 2x10 ⁹	1x10 ⁴ 1x10 ³	
Thermal Conductivity	.3-.4		/mK				
Dielectric Breakdown, spec minimum	>50	40	kV	>50	40	kV	2.5.6
Arc Resistance, spec minimum	115	60	Seconds	115	60	Seconds	2.5.1
Electric Strength, spec minimum (Laminate & prepreg as laminated)	1350	736	V/mil	54000	29000	V/mm	2.5.6.2
Peel Strength, spec minimum	Low profile copper foil and very low profile – all copper weights >17 microns Standard profile copper -----1. After thermal stress 2. At 125°C (257°F) 3. After process sssolutions	7	4	(lb/inch)	123	70	N/mm
		9	6		158	105	
		7	4		123	70	
		9	4.5		158	80	
Moisture Absorption, spec maximum	0.15	0.8	%	0.15	0.8	%	2.6.2.1
CTI		3					
HWI		0					
HAI		3					
Max Operating Temp		130					
DSR		yes					
	Grain		Fill				
Flexural Strength (ksi)	102		80				
Tensile Strength (Ksi)	na		na				
Poisson's Ratio	na		na				
Youngs Modulus (million psi)	na		na				
Taylors Modulus (million psi)	na		na				

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.

