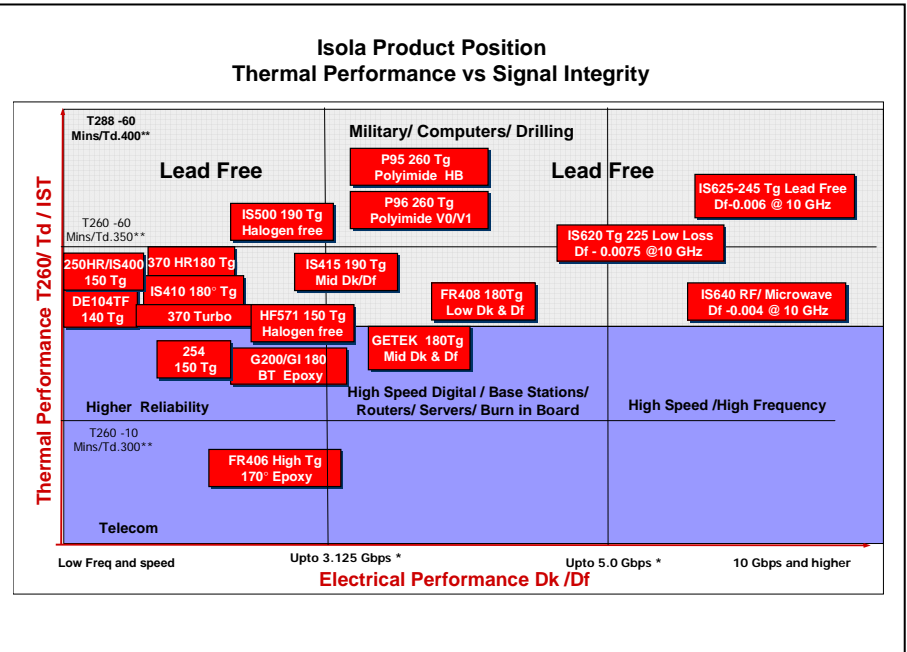




FR-370HR Laminate PCL-FRP-370HR Prepreg

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-4101A /24, /26, /98
UL Recognized – FR-4, File Number E45456
Qualified to UL's MCIL Program
- **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, 0.008” [0.20mm]

		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 @ 1% weight loss @ 5% weight loss		350	—	°C	350	—	°C	ASTM D3850
Thermal								
CTE, Z-axis	Pre-Tg Post-Tg	50 250	AABUS —	ppm/°C	50 250	AABUS —	ppm/°K	2.4.24
CTE, X-, Y-axes	Pre-Tg	14 16	AABUS —	ppm/°C	14 16	AABUS —	ppm/°K	2.4.24
% Z-Axis Expansion (50 – 288C)		2.7	AABUS	%	2.7	AABUS	%	2.4.24
Thermal Stress 10 Sec @ 288°C (550.4°F), spec minimum	Unetched Etched	pass	Pass Visual Pass Visual	Rating	pass	Pass Visual Pass Visual	Rating	2.4.13.1
Electrical								
Dk (Permittivity, Laminate & prepreg as laminated)	2	4.4	5.40 max	—	4.4	5.40 max	—	2.5.5.3
	5	4.4	—		4.4	—		2.5.5.9
	10	4.5	—		4.5	—		2.5.5.5
Df, Loss Tangent, spec maximum (Laminate & prepreg as laminated)	2	.016	0.0350 max	—	.016	0.0350 max	—	2.5.5.3
	5	.017	—		.017	—		2.5.5.9
	10	.018	—		.018	—		2.5.5.5
Volume Resistivity, spec minimum	96/35/90 After moisture resistance At elevated temperature	3x10 ⁷ 7x10 ⁴	10 ⁴ 10 ³	MΩ -cm	3x10 ⁷ 7x10 ⁴	10 ⁴ 10 ³	MΩ -cm	2.5.17.1
Surface Resistivity, spec minimum	96/35/90 After moisture resistance At elevated temperature	3x10 ⁶ 2x10 ⁹	10 ⁴ 10 ³	MΩ	3x10 ⁶ 2x10 ⁹	10 ⁴ 10 ³	MΩ	2.5.17.1
Thermal Conductivity		.03-.04	—	W/mK	.03-.04	—	W/mK	ASTM D5930
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	750	V/mil	54000	30000	KV/mm	2.5.6.2
Comparative Tracking Index (CTI)		3	—	Volts	3	—	Volts	UL-746A ASTM D3638
Physical								
Peel Strength, spec minimum	Low profile copper foil and very low profile – all copper weights >17 microns	6.0	4.0	(lb/inch	158 123 158	70 105 70 80	N/mm	2.4.8 2.4.8.2 2.4.8.3
	Standard profile copper	9.0						
	1. After thermal stress	9.0	6.0					
	2. At 125°C (257°F)	7.0	4.0					
	3. After process solutions	9.0	4.5					
Flexural Strength, minimum	Lengthwise direction Crosswise direction	99000 77000	60,190 50,040	lb/inch ²	685 535	415 345	N/mm ²	2.4.4
Moisture Absorption, spec maximum		.15	0.80	%	.15	0.80	%	2.6.2.1
UL		Value			IPC-4101 Specification		Unit	Test Method
CTI		3.0						
HWI		0						
HAI		3						
Max Operating Temp		140						
DSR		yes						

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.

ORDERING INFORMATION:

Contact your local sales representative or the Customer Service Department in Chandler, AZ
 Isola Group 3100 W Ray Road, Chandler, AZ 85226
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