

UL Approval Pending and IPC-4101 /126

370HR Ultra is the industry's "best in class" very low CTE, lead-free compatible product for high-reliability applications across a wide range of markets.

PRODUCT FEATURES

Industry Recognition

- UL Approval Pending

Performance Attributes

- CAF resistant

Processing Advantages

- FR-4 process compatible
- UV blocking and AOI fluorescence
- Multiple reflow capable
- HDI technology compatible

PRODUCT AVAILABILITY

Standard Material Offering: Laminate

- 2 to 125 mil (0.05 to 3.2 mm)

Copper Foil Type

- HTE Grade 3
- RTF (Reverse Treat Foil)
- Embedded resistor foil

Copper Weight

- ½, 1 and 2 oz (18, 35 and 70 µm) available
- Heavier copper foil available
- Thinner copper foil available

Standard Material Offering: Prepreg

- Tooling of prepreg panels

Glass Fabric Availability

- E-glass
- Square weave glass
- Mechanically spread glass

370HR Ultra laminates and prepregs are engineered using a patented high-performance 180°C Tg FR-4 multifunctional epoxy resin system. Building on the proven foundation of the original 370HR material, 370HR Ultra features targeted modifications to provide a lower Coefficient of Thermal Expansion (CTE) and enhanced thermal performance specifically for HDI and Ultra HDI (UHDI) applications. These advancements build on the proven manufacturability and global availability of the original 370HR material. We manufacture 370HR Ultra with high-quality E-glass fabric to ensure superior Conductive Anodic Filament (CAF) resistance. This material delivers industry-leading thermal reliability and mechanical, chemical, and moisture resistance properties that meet or exceed traditional FR-4 standards. Proven in thousands of complex designs, 370HR Ultra remains best-in-class for ease of processing and reliability in sequential lamination environments.

PRODUCT ATTRIBUTES



HIGH DENSITY
INTERCONNECT



HIGH THERMAL
RELIABILITY

TYPICAL MARKET APPLICATIONS



AUTOMOTIVE &
TRANSPORTATION



NETWORKING &
COMMUNICATIONS



AEROSPACE
& DEFENSE



COMPUTING, STORAGE
& PERIPHERALS



CONSUMER
ELECTRONICS



MEDICAL, INDUSTRIAL
& INSTRUMENTATION

ORDERING INFORMATION:

Contact your local sales representative or contact info@isola-group.com for further information.

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Typical Values Table

Property		Typical Value	Units	Test Method
			Metric (English)	IPC-TM-650 (or as noted)
Glass Transition Temperature (Tg) by DSC		180	°C	2.4.25C
Decomposition Temperature (Td) by TGA @ 5% weight loss		360	°C	2.4.24.6
Time to Delaminate by TMA (Copper removed)	A. T260	60	Minutes	2.4.24.1
	B. T288	50		
Z-Axis CTE	A. Pre-Tg	27	ppm/°C	2.4.24C
	B. Post-Tg	155	ppm/°C	
	C. 50 to 260°C, (Total Expansion)	1.8	%	
X/Y-Axis CTE	Pre-Tg	11/13	ppm/°C	2.4.24C
Thermal Conductivity		0.5	W/m·K	ASTM E1952
Thermal Stress 10 sec @ 288°C (550.4°F)	A. Unetched	Pass	Pass Visual	2.4.13.1
	B. Etched			
Dk, Permittivity	A. @ 10 GHz	4.20	—	Bereskin Stripline
Df, Loss Tangent	A. @ 10 GHz	0.0125	—	Bereskin Stripline
			—	
Volume Resistivity	A. After moisture resistance B. At elevated temperature	-	MΩ-cm	2.5.17.1
Surface Resistivity	A. After moisture resistance B. At elevated temperature	-	MΩ	2.5.17.1
Dielectric Breakdown		66	kV	2.5.6B
Arc Resistance		115	Seconds	2.5.1B
Electric Strength (Laminate & laminated prepreg)		120	kV/mm (V/mil)	2.5.6.2A
Comparative Tracking Index (CTI)		3 (175-249)	Class (Volts)	UL 746A ASTM D3638
Peel Strength	A. Low profile copper foil and very low profile copper foil all copper foil >17 µm [0.669 mil]	1.016 (5.8)	N/mm (lb/inch)	2.4.8C
	B. Standard profile copper	1.016 (5.8)		2.4.8.2A
	1. After thermal stress	-		2.4.8.3
	2. At 125°C (257°F)	-		2.4.8.3
Flexural Strength	A. Length direction	574 (83.2)	MPa (kpsi)	2.4.4B
	B. Cross direction	460 (66.8)		
Tensile Strength	A. Length direction	45	MPa (kpsi)	ASTM D3039
	B. Cross direction	40		
Young's Modulus	A. Length direction	-	ksi	ASTM D790-15e2
	B. Cross direction			
Poisson's Ratio	A. Length direction	0.177	—	ASTM D3039
	B. Cross direction	0.171		
Moisture Absorption		0.1	%	2.6.2.1A
Flammability (Laminate & laminated prepreg)		V-0	Rating	UL 94
Relative Thermal Index (RTI)		130	°C	UL 796

NOTES

Visit our site <http://www.isola-group.com> for more details.

Revisions:

A: Initial release - 10/21