IS550H

Halogen Free, High Reliability Laminate and Prepreg

Tg 200°C Td 400°C Dk 4.43 Df 0.016

IPC-4101 /140 UL - File Number E41625

IS550H is our Halogen Free laminate solution for high power & voltage applications that require extreme thermal stability.

PRODUCT FEATURES

Industry Recognition

- UL File Number: E41625
- RoHS Compliant

Performance Attributes

- CAF resistant
- Low moisture absorption
- Lead-free assembly compatible
- Halogen free
- 6x 260°C reflow capable
- 6x 288°C solder float capable

PRODUCT AVAILABILITY

Standard Material Offering: Laminate

- 2 to 59 mil (0.05 to 1.5 mm)

Copper Foil Type

- RTF (Reverse Treat Foil)

Copper Weight

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

Standard Material Offering: Prepreg

- Tooling of prepreg panels
- Moisture barrier packaging

Glass Fabric Availability

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

IS550H was developed in conjunction with a consortium of industry experts for high power & high voltage applications and PEV & HEV automotive electrification. The resulting solution addresses critical application needs for use in a harsh environment where very demanding, long term thermal reliability performance, extreme thermal cycling and very high voltage CAF & electro-migration resistance is required.

PRODUCT ATTRIBUTES

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TYPICAL MARKET APPLICATIONS

AUTOMOTIVE & TRANSPORTATION AEROSPACE & DEFENSE

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		200	°C	2.4.25C
Decomposition Temperature (Td) by TGA @ 5% weight loss		400	°C	2.4.24.6
Time to Delaminate by TMA (Copper removed)	A. T260 B. T288	>60	Minutes	2.4.24.1
Z-Axis CTE	A. Pre-Tg B. Post-Tg C. 50 to 260°C, (Total Expansion)	38 210 2.2	ppm/°C ppm/°C %	2.4.24C
X/Y-Axis CTE	Pre-Tg	13-17	ppm/°C	2.4.24C
Thermal Conductivity		0.7	W/m·K	ASTM E1952
Thermal Stress 10 sec @ 288ºC (550.4ºF)	A. Unetched B. Etched	Pass	Pass Visual	2.4.13.1
Dk, Permittivity	A. @ 2 GHz B. @ 5 GHz C. @ 10 GHz	4.50 4.43 4.43	—	2.5.5.5
Df, Loss Tangent	A. @ 2 GHz B. @ 5 GHz C. @ 10 GHz	0.014 0.014 0.016	—	2.5.5.5
Volume Resistivity	A. C-96/35/90 B. At elevated temperature	5.2×10^{7} 3.2×10^{8}	MΩ-cm	2.5.17.1
Surface Resistivity	A. C-96/35/90 B. At elevated temperature	1.0×10^{8} 3.9×10^{8}	MΩ	2.5.17.1
Dielectric Breakdown		60	kV	2.5.6B
Arc Resistance		>160	Seconds	2.5.1B
Electric Strength (Laminate & laminated prepreg)		46.9(1190)	kV/mm (V/mil)	2.5.6.2A
Comparative Tracking Index (CTI)		3	Class (Volts)	UL 746A ASTM D3638
Peel Strength	A. Standard profile copper 1. After thermal stress 2. At 125ºC (257ºF)	1.45 (8.2) 1.35(7.6)	N/mm (lb/inch)	2.4.8.2A 2.4.8.3
Flexural Strength	A. Length direction B. Cross direction	420 (60.9) 350 (50.8)	MPa (kpsi)	2.4.4B
Tensile Strength	A. Length direction B. Cross direction	214 (31) 186 (27)	MPa (kpsi)	ASTM D3039
Young's Modulus	A. Length direction B. Cross direction	28730 (4167) 24841 (3603)	MPa (ksi)	ASTM D790-15e2
Poisson's Ratio	A. Length direction B. Cross direction	0.174 0.151	—	ASTM D3039
Moisture Absorption		0.25	%	2.6.2.1A
Flammability (Laminate & laminated prepreg)		V-0	Rating	UL 94
Relative Thermal Index (RTI)		150	°C	UL 746

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NOTES

Visit our site http://www.isola-group.com for more details.
Revisions:
A: Initial release - 9/19

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