



IS550H

Halogen-free, Very Low Loss Material

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

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

High Thermal Reliability , Halogen Free

Typical Market Applications

Automotive & Transportation

ORDERING INFORMATION:

Contact your local sales representative or visit www.isola-group.com for further information.

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High Thermal Reliability

Data Sheet

Tg 200°C

Td 400°C

Dk 4.43

Df 0.016

IPC-4101 - / /140

UL - File Number E41625

Last Updated September 18, 2019
Revision No: C

Product Features

- Industry Recognition
 - UL File Number: E41625
 - RoHS Compliant
- Performance Attributes
 - CAF resistant
 - Lead-free assembly compatible
 - 0.8 mm pitch capable
 - 6x 260°C reflow capable
 - 6x 288°C solder float capable

Product Availability

- Standard Material Offering: Laminate
 - 2 to 60 mil (0.05 to 1.5 mm)
- Copper Foil Type
 - HTE Grade 3
 - RTF (Reverse Treat Foil)
- Copper Weight
 - ½ to 2 oz (18 to 70 µm) available
 - Heavier copper available
- Standard Material Offering: Prepreg
 - Tooling of prepreg panels
 - Moisture barrier packaging
- Glass Fabric Availability
 - E-glass
 - Mechanically spread glass

IS550H Typical Values

Last Updated Sep 18, 2019

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/mK	ASTM E1952
Thermal Stress 10 sec @ 288°C (550.4°F)	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	—	Bereskin Stripline
Volume Resistivity	C-96/35/90	5.2×10^7	MΩ-cm	2.5.17.1
Surface Resistivity	A. C-96/35/90 B. At elevated temperature	1.33×10^5 3.2×10^8	MΩ	2.5.17.1
Dielectric Breakdown		60.0	kV	2.5.6B
Arc Resistance		TBD	Seconds	2.5.1B
Electric Strength (Laminate & laminated prepreg)		46.9(1.19)	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 125°C (257°F)	1.45 (8.2) 1.35(7.6)	N/mm (lb/inch)	2.4.8C
Flexural Strength	A. Length direction B. Cross direction	60.9 50.8	ksi	2.4.4B
Tensile Strength	A. Length direction B. Cross direction	TBD	ksi	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 796

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.

<https://www.isola-group.com/products/all-printed-circuit-materials/is550h/>

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Revisions:

A: Initial release - 9/19