



IS550H

Very Low-CTE Materials with Extreme Thermal Stability

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.

Isola Group
3100 West Ray Road
Suite 301
Chandler, AZ 85226
Phone: 480-893-6527
Fax: 480-893-1409
info@isola-group.com

Isola Asia Pacific (Hong Kong)
Ltd.
Unit 3512 - 3522, 35/F
No. 1 Hung To Road, Kwun
Tong,
Kowloon, Hong Kong
Phone: 852-2418-1318
Fax: 852-2418-1533
info.hkg@isola-group.com

Isola GmbH
Isola Strasse 2
D-52348 Düren,
Germany
Phone: 49-2421-8080
Fax: 49-2421-808164
info-dur@isola-group.com

High Thermal Reliability

Data Sheet

Tg 200°C

Td 410°C

Dk 4.43

Df 0.0016

UL - File Number E41625

Last Updated January 22, 2019
Revision No: A

Product Features

- Industry Recognition
 - UL File Number: E41625
 - RoHS Compliant
- Performance Attributes
 - CAF resistant
 - Lead-free assembly compatible
 - Halogen free
 - 0.8 mm pitch capable
 - 6x 260°C reflow capable
 - 6x 288°C solder float capable
 - FR-4 process compatible

Product Availability

- Standard Material Offering: Laminate
 - 2 to 18 mil (0.05 to 0.46 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

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
Glass Transition Temperature (Tg) by DMA		220	°C	2.4.24.4
Decomposition Temperature (Td) by TGA @ 5% weight loss		410	°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)	Unetched	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	@ 2 GHz	0.0014	—	2.5.5.5
Dk, Permittivity	A. @ 5 GHz B. @ 10 GHz	0.0014 0.0016	—	2.5.5.5
Volume Resistivity	A. C-96/35/90 B. After moisture resistance C. At elevated temperature	— 4.5 x 10 ⁶ 8.6 x 10 ⁶	MΩ-cm	2.5.17.1
Surface Resistivity	A. C-96/35/90 B. After moisture resistance C. At elevated temperature	— 2.8 x 10 ⁵ 5.7 x 10 ⁵	MΩ	2.5.17.1
Dielectric Breakdown		60	kV	2.5.6B
Arc Resistance		TBD	Seconds	2.5.1B
Electric Strength (Laminate & laminated prepreg)		TBD	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)	1.39 (7.9) 1.62 (9.3)	N/mm (lb/inch)	2.4.8.2A 2.4.8.3
Flexural Strength	A. Length direction B. Cross direction	37,400 35,200	ksi	2.4.4B
Tensile Strength	A. Length direction B. Cross direction	TDB TBD	ksi	ASTM D3039
Poisson's Ratio	A. Length direction B. Cross direction	TBD TBD	—	
Moisture Absorption		0.25	%	2.6.2.1A
Flammability (Laminate & laminated prepreg)		V-0	Rating	UL 94
Max Operating Temperature		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.

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