IS580G

Halogen-free, Very Low Loss Material

Tg 205°C Td 385°C Dk 3.80 Df 0.006

IPC-4101 /140 UL - File Number E41625

IS580G is a halogen-free 205°C Tg resin system for multilayer PWB applications where maximum thermal performance and reliability are required.

PRODUCT FEATURES

Industry Recognition

- UL File Number: E41625
- RoHS Compliant

Performance Attributes

- CAF resistant
- Halogen free
- 6x 288°C solder float capable

Processing Advantages

- FR-4 process compatible
- Excellent Fill and Flow
- Multiple lamination cycles
- HDI technology compatible

PRODUCT AVAILABILITY

Standard Material Offering: Laminate

- 2 to 30 mil (0,05 to 0.75 mm)

Copper Foil Type

- RTF (Reverse Treat Foil)

Copper Weight

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

Standard Material Offering: Prepreg

- Roll or panel form
- Tooling of prepreg panels
- Moisture barrier packaging

Glass Fabric Availability

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

ORDERING INFORMATION:

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

IS580G laminate and prepreg products are manufactured with Isola's high performance, low loss, multi-functional resin system, reinforced with electrical grade (E-glass) glass fabric. The unique resin system delivers a >25% improvement in Z-axis expansion while maintaining good flow and fill properties. These properties, coupled with superior moisture resistance at reflow, result in a halogen-free product with an industry-leading combination of thermal and electrical performance.

PRODUCT ATTRIBUTES

HIGH DENSITY INTERCONNECT

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HIGH THERMAL RELIABILITY

TYPICAL MARKET APPLICATIONS

AUTOMOTIVE & TRANSPORTATION

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AEROSPACE & DEFENSE

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Isola Group
6565 West Frye RoadChandler, AZ 85226 Phone: 480-893-6527 Fax: 480-893-1409

Isola Asia Pacific
(Hong Kong) Ltd.12/F, Kin Sang Commercial Centre, 49 King Yip Street, Kwun Tong, Kowloon, Hong KongPhone: 852-2418-1318 Fax: 852-2418-1533

Isola GmbH
Isola Strasse 2 D-52348 Düren, GermanyPhone: 49-2421-8080 Fax: 49-2421-808164

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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 DMA		205	°C	2.4.24.4
Glass Transition Temperature (Tg) by TMA		190	°C	2.4.24C
Decomposition Temperature (Td) by TGA @ 5% weight loss		385	°C	2.4.24.6
Time to Delaminate by TMA (Copper removed)	A. T288 B. T300	60+	Minutes	2.4.24.1
Z-Axis CTE	A. Pre-Tg B. Post-Tg C. 50 to 260°C, (Total Expansion)	30 190 1.8	ppm/°C ppm/°C %	2.4.24C
X/Y-Axis CTE		13/14	ppm/°C	2.4.24C
Thermal Conductivity		0.5	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. @ 5 GHz B. @ 10 GHz C. @ 20 GHz	3.8	—	Bereskin Stripline
Df, Loss Tangent	A. @ 5 GHz B. @ 10 GHz C. @ 20 GHz	0.006	—	Bereskin Stripline
Volume Resistivity	C-96/35/90	$3x10^8$	MΩ-cm	2.5.17.1
Surface Resistivity	C-96/35/90	$3.5x10^8$	MΩ	2.5.17.1
Dielectric Breakdown		70	kV	2.5.6B
Arc Resistance		190	Seconds	2.5.1B
Electric Strength (Laminate & laminated prepreg)		63(1600)	kV/mm (V/mil)	2.5.6.2A
Comparative Tracking Index (CTI)		2 (250-399)	Class (Volts)	UL 746A ASTM D3638
Peel Strength	A. Low Profile copper foil and very low profile copper foil >17 um B. Low profile copper foil and very low profile copper foil 1. After thermal stress	0.73 (4.2) 0.75 (4.3)	N/mm (lb/inch)	2.4.8C 2.4.8.2A
Flexural Strength	A. Length direction B. Cross direction	537 (78) 393 (57)	MPa (kpsi)	2.4.4B
Tensile Strength	A. Length direction B. Cross direction	241 (35) 145 (21)	MPa (kpsi)	ASTM D3039
Young's Modulus	A. Length direction B. Cross direction	25,000 (3,625) 23,000 (3,335)	MPa (ksi)	ASTM D790-15e2
Flexural Modulus	A. Lengthwise B. Crosswise	16.1 (2330) 13.0 (1885)	GPa (kpsi)	ASTM D790-15e2
Poisson's Ratio	A. Length direction B. Cross direction	0.170 0.155	—	ASTM D3039
Moisture Absorption		0.10	%	2.6.2.1A
Flammability (Laminate & laminated prepreg)		V-0	Rating	UL 94
Relative Thermal Index (RTI)		160	°C	UL 746

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NOTES

Visit our site http://www.isola-group.com for more details.
Revisions:
A: Initial release - 10/23
B: Removed DSC Tg - 03/24

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