



IS400

High Performance Laminate and Prepreg

IS400 is a proprietary, temperature resistant resin system with a Tg of 150°C.

It is intended for multilayer Printed Wiring Board (PWB) applications where demanding thermal performance and high reliability are required. IS400 laminate and prepreg products are manufactured using Isola's patented technology, reinforced with electrical grade (E-glass) glass fabric. This system delivers a 330°C decomposition temperature and a low Z-axis expansion.

Product Attributes

High Thermal Reliability

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 150°C

Td 330°C

Dk 3.90

Df 0.022

IPC-4101 - / 97 / 98 / 99 / 101

UL - File Number E41625

Last Updated May 17, 2019
Revision No: C

Product Features

- Industry Recognition
 - UL File Number: E41625
 - RoHS Compliant
- Performance Attributes
 - CAF resistant
- Processing Advantages

Product Availability

- Standard Material Offering: Laminate
 - 2 to 93 mil (0.05 to 2.4 mm)
 - Available in full size sheet or panel form
- Copper Foil Type
 - HTE Grade 3
 - RTF (Reverse Treat Foil)
- Copper Weight
 - ½ to 2 oz (18 to 70 µm) available
 - Heavier copper available
 - Thinner copper foil available
- Standard Material Offering: Prepreg
 - Roll or panel form
 - Tooling of prepreg panels
- Glass Fabric Availability
 - E-glass
 - Square weave glass

Property	Typical Value	Units		Test Method
		Metric (English)	IPC-TM-650 (or as noted)	
Glass Transition Temperature (Tg) by DSC	150	°C	2.4.25C	
Decomposition Temperature (Td) by TGA @ 5% weight loss	330	°C	2.4.24.6	
Time to Delaminate by TMA (Copper removed)	A. T260 B. T288	>60 >10	Minutes	2.4.24.1
Z-Axis CTE	A. Pre-Tg B. Post-Tg C. 50 to 260°C, (Total Expansion)	50 250 3.3	ppm/°C ppm/°C %	2.4.24C 2.4.24C
X/Y-Axis CTE	Pre-Tg	13	ppm/°C	2.4.24C
Thermal Conductivity		0.36	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. @ 100 MHz B. @ 500 MHz	4.00 3.90	—	2.5.5.3 2.5.5.9
Df, Loss Tangent	A. @ 100 MHz B. @ 500 MHz	0.020 0.022	—	2.5.5.3 2.5.5.9
Volume Resistivity	A. C-96/35/90 B. At elevated temperature	4.0×10^8 7.0×10^7	MΩ-cm	2.5.17.1
Surface Resistivity	A. C-96/35/90 B. At elevated temperature	3.0×10^6 5.4×10^6	MΩ	2.5.17.1
Dielectric Breakdown		>50	kV	2.5.6B
Arc Resistance		120	Seconds	2.5.1B
Electric Strength (Laminate & laminated prepreg)		48 (1100)	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] B. Standard profile copper 1. After thermal stress 2. At 125°C (257°F) 3. After process solutions	1.05 (6.0) 1.45 (9.0) 1.25 (8.0) 1.45 (9.0)	N/mm (lb/inch)	2.4.8C 2.4.8.2A 2.4.8.3 2.4.8.2A
Flexural Strength	A. Length direction B. Cross direction	82.0 66.6	ksi	2.4.4B
Tensile Strength	A. Length direction B. Cross direction	51.2 41.7	ksi	ASTM D3039
Young's Modulus	A. Length direction B. Cross direction	3663 3328	ksi	ASTM D790-15e2
Poisson's Ratio	A. Length direction B. Cross direction	0.183 0.151	—	ASTM D3039
Moisture Absorption		0.18	%	2.6.2.1A
Flammability (Laminate & laminated prepreg)		V-0	Rating	UL 94
Relative Thermal Index (RTI)		130	°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/is400/>

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NOTE

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Revisions:

A: Initial release - 4/17

B: Corrected units for Flexural and Tensile Strength - 8/18

C: Change MOT to RTI 5/19