



# IS400HR

## High Performance Laminate and Prepreg

IS400HR 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. IS400HR laminate prepreg products are manufactured using Isola's patented technology, reinforced with electrical grade (E-glass) glass fabric. This system delivers a 300°C decomposition temperature and a low Z-axis expansion.

### Product Attributes

High Thermal Reliability

### Typical Market Applications

Computing, Storage & Peripherals

#### ORDERING INFORMATION:

Contact your local sales representative or visit [www.isola-group.com](http://www.isola-group.com) for further information.

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High Thermal Reliability

## Data Sheet

Tg 150°C

Td 330°C

Dk 4.20

Df 0.016

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

UL - File Number E41625

Last Updated April 5, 2018  
Revision No: B

### Product Features

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

### Product Availability

- Standard Material Offering: Laminate
  - 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

# IS400HR Typical Values

Last Updated Apr 5, 2018

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)	40 230 3.0	ppm/°C ppm/°C %	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 C. @ 1 GHz	4.3 4.2 4.2	—	2.5.5.9
Df, Loss Tangent	A. @ 100 MHz B. @ 500 MHz C. @ 1 GHz	0.014 0.015 0.016	—	2.5.5.9
Volume Resistivity	A. C-96/35/90 B. At elevated temperature	$4.0 \times 10^8$ $7.0 \times 10^7$	MΩ-cm	2.5.17.1
Surface Resistivity	A. C-96/35/90 B. At elevated temperature	$3.0 \times 10^6$ $5.4 \times 10^6$	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	0.969 (5.5) 1.06 (5.9) 1.06 (5.9) 0.969 (5.5)	N/mm (lb/inch)	2.4.8C 2.4.8.2A 2.4.8.3 2.4.8.3
Flexural Strength	A. Length direction B. Cross direction	83.0 67.6	ksi	2.4.4B
Tensile Strength	A. Length direction B. Cross direction	50.0 35.0	ksi	ASTM D3039
Young's Modulus	A. Length direction B. Cross direction	4086 3476	ksi	ASTM D790-15e2
Poisson's Ratio	A. Length direction B. Cross direction	0.145 0.124	—	ASTM D3039
Moisture Absorption		0.18	%	2.6.2.1A
Flammability (Laminate & laminated prepreg)		V-0	Rating	UL 94
Max Operating Temperature		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.

[www.isola-group.com/products/all-printed-circuit-materials/is400hr/](http://www.isola-group.com/products/all-printed-circuit-materials/is400hr/)

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## NOTE

Visit our site <http://www.isola-group.com> for more details.  
Revision B: Corrected units for Flexural and Tensile Strength