



IS620i High Performance Laminate and Prepreg

IS620i is the first material in the digital-products class built upon existing technologies, yet offering significant advantages for today's digital world. The resin matrix of IS620i is uniquely formulated for high-speed applications ranging from 2 to 15 GHz, and offers designers and fabricators the flexibility of digital design, the assurance of supply and the ease of conventional FR-4 processing. IS620i is the first material in its class to offer the complete package of these critical features: low loss with a flat response over frequency, availability in both laminate and prepreg form in all typical thicknesses and sizes and the ability to use conventional fabrication techniques.

www.isola-group.com/products/IS620i

ORDERING INFORMATION:

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

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High Performance

IS620i Data Sheet

Tg 225, Td 364
Dk 3.58, Df 0.006
/135

Features

- High Thermal Performance
 - ▶ Tg: 225°C (DSC)
 - ▶ Td: 364°C (TGA @ 5% wt loss)
- T260: 60 minutes
- T288: >20 minutes
- RoHS Compliant
- Improves Dielectric Properties
 - ▶ Supports increased signal speeds
 - ▶ Flat loss response over frequency
- UV Blocking and AOI Fluorescence
 - ▶ High throughput and accuracy during PCB fabrication and assembly
- Core Material Standard Availability
 - ▶ Thickness: 0.002" (0.05 mm) to 0.060"/0.062" (1.5 mm)
 - ▶ Available in full size sheet or panel form
- Prepreg Standard Availability
 - ▶ Roll or panel form
 - ▶ Tooling of prepreg panels available
- Copper Foil Type Availability
 - ▶ Standard HTE Grade 3
 - ▶ RTF (Reverse Treat Foil)
- Copper Weights
 - ▶ ½, 1 and 2 oz (18, 35 and 70 µm) available
 - ▶ Heavier copper available upon request
 - ▶ Thinner copper foil available upon request
- Glass Fabric Availability
 - ▶ Standard E-glass
 - ▶ Square weave glass fabric available
- Industry Approvals
 - ▶ IPC-4101D WAM1 /135 (IPC-4101C /30)
 - ▶ UL Recognized – Non-ANSI, File Number E41625

IS620i Specifications

Property		Typical Values			
		Typical Value	Specification	Units	Test Method
				Metric (English)	IPC-TM-650 (or as noted)
Glass Transition Temperature (Tg) by DSC		225	170-200	°C	2.4.25
Decomposition Temperature (Td) by TGA @ 5% weight loss		364	–	°C	ASTM D3850
T260		60	–	Minutes	ASTM D3850
T288		>20	–	Minutes	ASTM D3850
CTE, Z-axis	A. Pre-Tg	55	AABUS	ppm/°C	2.4.24
	B. Post-Tg	230	–		
CTE, X-, Y-axes	A. Pre-Tg	13	AABUS	ppm/°C	2.4.24
	B. Post-Tg	14	–		
Z-axis Expansion (50-260°C)		2.8	–	%	2.4.24
Thermal Conductivity		0.35	–	W/mK	ASTM D5930
Thermal Stress 10 sec @ 288°C (550.4°F)	A. Unetched	Pass	Pass Visual	Rating	2.4.13.1
	B. Etched				
Dk, Permittivity (Laminate & prepreg as laminated) Tested at 50% resin	A. @ 100 MHz (HP4285A)	3.59	5.4	–	2.5.5.3
	B. @ 1 GHz (HP4291A)	3.58	–		2.5.5.9
	C. @ 2 GHz (Bereskin Stripline)	3.58	–		2.5.5.5
	D. @ 5 GHz (Bereskin Stripline)	3.54	–		2.5.5.5
	E. @ 10 GHz (Bereskin Stripline)	3.54	–		2.5.5.5
Df, Loss Tangent (Laminate & prepreg as laminated) Tested at 50% resin	A. @ 100 MHz (HP4285A)	0.0051	0.035	–	2.5.5.3
	B. @ 1 GHz (HP4291A)	0.0059	–		2.5.5.9
	C. @ 2 GHz (Bereskin Stripline)	0.0060	–		2.5.5.5
	D. @ 5 GHz (Bereskin Stripline)	0.0066	–		2.5.5.5
	E. @ 10 GHz (Bereskin Stripline)	0.0071	–		2.5.5.5
Volume Resistivity	A. 96/35/90	–	1.0x10 ⁶	MΩ-cm	2.5.17.1
	B. After moisture resistance	8.9x10 ⁸	–		
	C. At elevated temperature	6.5x10 ⁸	1.0x10 ³		
Surface Resistivity	A. 96/35/90	–	1.0x10 ⁴	MΩ	2.5.17.1
	B. After moisture resistance	2.21x10 ⁶	–		
	C. At elevated temperature	4.4x10 ⁸	1.0x10 ³		
Dielectric Breakdown		>50	–	kV	2.5.6
Arc Resistance		110	60	Seconds	2.5.1
Electric Strength (Laminate & prepreg as laminated)		55 (1400)	30 (750)	kV/mm (V/mil)	2.5.6.2
Comparative Tracking Index (CTI)		2 (250-399)	–	Class (Volts)	UL-746A ASTM D3638
Peel Strength	A. Low profile copper foil and very low profile – all copper weights >17 microns	1.14 (6.5)	0.70 (4.0)	N/mm (lb/inch)	2.4.8
	B. Standard profile copper	–	–		2.4.8.2
	1. After thermal stress	0.96 (5.5)	0.80 (4.5)		2.4.8.3
	2. At 125°C (257°F)	–	0.70 (4.0)		–
	3. After process solutions	0.90 (5.1)	0.55 (3.0)	–	–
Flexural Strength	A. Lengthwise direction	69,200	–	lb/inch ²	2.4.4
	B. Crosswise direction	62,400			
Tensile Strength	A. Lengthwise direction	42,065	–	lb/inch ²	–
	B. Crosswise direction	39,650			
Young's Modulus	A. Grain direction	3217	–	ksi	ww
	B. Fill direction	3207			
Poisson's Ratio	A. Grain direction	0.166	–	–	xx
	B. Fill direction	0.164			
Moisture Absorption		0.24	–	%	2.6.2.1
Flammability (Laminate & prepreg as laminated)		V-0	–	Rating	UL 94
Max Operating Temperature		130	UL Cert	°C	–

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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