



## Low Loss

### Flat Response Over Frequency

IS620 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 IS620 is uniquely formulated for high-speed applications ranging from 2 to 15 GHz, providing a low, flat loss response over the entire range. It is optimal for digital designs and is available in both laminate and prepreg in all typical thicknesses and standard panel sizes. IS620 offers the designer and fabricators the flexibility of digital design, the assurance of supply, and the ease of conventional FR-4 processing. IS620 is the first material in its class to offer the complete package of each of the critical items: low loss with a flat response over frequency, availability in both laminate and prepreg form in typical thicknesses and sizes, and the ability to use conventional fabrication techniques.

### Industry Approvals

IPC-4101B /30

UL Recognized – GPY, File Number E41625

### High Thermal Performance

Tg of 225 °C (DSC)

Td of 364 °C (TGA)

### Improved 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

### PCB Fabrication

Utilizes conventional FR-4 processes

### Standard Availability Thickness:

0.002" [0.05 mm] to 0.093" [2.4 mm] Available in sheet or panel form

**Copper Foil Cladding:** Grade 3 (HTE), ½, 1 and 2 oz. greater on request.

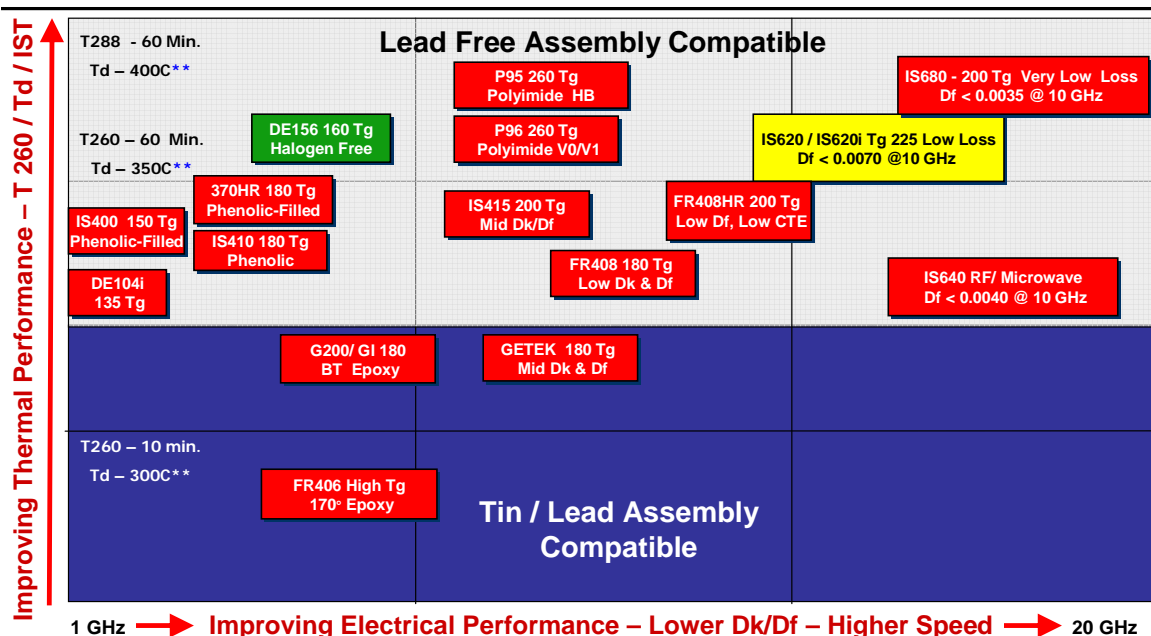
**Foil Options:** Double treat, reverse treat

**Prepregs:** Available in roll or panel form

**Glass Styles:** 106, 1080, 2113, 3070, 2116, 3313,



## Isola - Product Position Thermal Performance vs Signal Integrity



Speed is a function of design such as line length etc.

\*\* Laminate Data - IST performance is a function of Hole diameter, board thickness, plating parameters and laminate attributes.

IS620					
Property	Typical Values				
	Typical Value	Specification	Units	Test Method	
			Metric (English)	IPC-TM-650 (or as noted)	
Glass Transition Temperature (Tg) by DSC, spec minimum	225	110-220	°C	2.4.25	
Decomposition Temperature (Td) @ 5% wt loss	364	—	°C	ASTM D3850	
CTE, Z-axis	A. Pre-Tg	55	AABUS	ppm/°C	2.4.24
	B. Post-Tg	180	—		
CTE, X-, Y-axes	A. Pre-Tg	13	AABUS	ppm/°C	2.4.24
	B. Post-Tg	14	—		
% Z-Axis Expansion (50-260C)	2.8	—	%	2.4.24	
Thermal Conductivity	0.35	—	W/mK	ASTM D5930	
Thermal Stress 10 Sec @ 288°C (550.4°F), spec min	A. Unetched	pass	Pass Visual	Rating	2.4.13.1
	B. Etched	pass	Pass Visual		
Permittivity, spec maximum (Laminate & prepreg as laminated)	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
Loss Tangent, spec maximum (Laminate & prepreg as laminated)	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, spec minimum	A. 96/35/90	—	1.0 x 10 <sup>8</sup>	MΩ -cm	2.5.17.1
	B. After moisture resistance	8.9x10 <sup>8</sup>	—		
	C. At elevated temperature	6.5x10 <sup>8</sup>	1.0 x 10 <sup>3</sup>		
Surface Resistivity, spec minimum	A. 96/35/90	—	1.0 x 10 <sup>4</sup>	MΩ	2.5.17.1
	B. After moisture resistance	2.21x10 <sup>6</sup>	—		
	C. At elevated temperature	4.4x10 <sup>8</sup>	1.0 x 10 <sup>3</sup>		
Dielectric Breakdown, spec minimum	>50	—	kV	2.5.6	
Arc Resistance, spec minimum	110	60	Seconds	2.5.1	
Electric Strength, spec minimum (Laminate & prepreg as laminated)	55	30	kV/mm	2.5.6.2	
	1400	750	(V/mil)		
Comparative Tracking Index (CTI)	2 (250 -399)	—	Class/volts	UL-746A ASTM D3638	
Peel Strength, Spec Minimum	A. Low profile copper foil and very low profile – all copper weights >17 microns	6.5(1.14)	4.0(0.70)	lb/inch(N/mm)	2.4.8
	B. Standard profile copper	—	—		2.4.8.2
	1. After thermal stress	5.5(0.96)	4.5(0.8)	lb/inch(N/mm)	2.4.8.3
	2. At 125°C (257°F)	—	4.0(0.70)		—
	3. After process solutions	5.1(0.09)	3.0(0.55)		—
Flexural Strength, minimum	A. Lengthwise direction	67,000	—	lb/inch <sup>2</sup>	2.4.4
	B. Crosswise direction	62,000	—		
Moisture Absorption, spec maximum	0.24	—	%	2.6.2.1	
Flammability (Laminate & prepreg as laminated), spec min	V0	—	Rating	UL-94	
HWI	0	—	—	—	
Max Operating Temperature	130 (150)	UL Cert (tested)	Deg C	—	
DSR	yes	—	—	—	

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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