

IPC-4101 /40 /41 UL - File Number E41625

Isola offers a product line of polyimide-based prepreg (P26) and core material (P96) for high temperature printed circuit applications.

### PRODUCT FEATURES

#### Industry Recognition

- UL File Number: E41625
- RoHS Compliant

#### Performance Attributes

- Lead-free assembly compatible

#### Processing Advantages

- Good flow and fill
- Multiple reflow capable

### PRODUCT AVAILABILITY

#### Standard Material Offering: Laminate

- 2 to 125 mil (0.05 to 3.2 mm)

#### Copper Foil Type

- HTE Grade 3

#### Copper Weight

- ½, 1 and 2 oz (18, 35 and 70 µm) available
- Heavier copper foil available
- Thinner copper foil available

#### Standard Material Offering: Prepreg

- Tooling of prepreg panels
- Moisture barrier packaging

#### Glass Fabric Availability

- E-glass

These products consist of a flame resistant, polyimide resin system suitable for military, commercial or industrial electronic applications requiring superior performance and the utmost in thermal properties. These products utilize a polyimide and thermoplastic blend resin, fully cured without the use of MDA (Methylenedianiline). This results in a polymer with a high Tg without the characteristic difficulties of brittleness and low initial bond strength associated with traditional thermoset polyimides.

### PRODUCT ATTRIBUTES



### TYPICAL MARKET APPLICATIONS



### ORDERING INFORMATION:

Contact your local sales representative or contact [info@isola-group.com](mailto:info@isola-group.com) for further information.

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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 DSC		260		°C	2.4.25C
Decomposition Temperature (Td) by TGA @ 5% weight loss		396		°C	2.4.24.6
Time to Delaminate by TMA (Copper removed)	A. T260 B. T288	60		Minutes	2.4.24.1
Z-Axis CTE	A. Pre-Tg B. 50 to 260°C, (Total Expansion)	55 1.5		ppm/°C %	2.4.24C
X/Y-Axis CTE	Pre-Tg	13/14		ppm/°C	2.4.24C
Thermal Conductivity		0.4		W/m·K	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	3.83		—	2.5.5.9
	B. @ 500 MHz	3.80			2.5.5.9
	C. @ 1 GHz	3.78			2.5.5.9
	D. @ 2 GHz	3.76			Bereskin Stripline
	E. @ 5 GHz	3.73			Bereskin Stripline
	F. @ 10 GHz	3.73			Bereskin Stripline
Df, Loss Tangent	A. @ 100 MHz	0.0135		—	2.5.5.9
	B. @ 500 MHz	0.0151			2.5.5.9
	C. @ 1 GHz	0.0172			2.5.5.9
	D. @ 2 GHz	0.0179			Bereskin Stripline
	E. @ 5 GHz	0.0188			Bereskin Stripline
	F. @ 10 GHz	0.021			Bereskin Stripline
Volume Resistivity	A. After moisture resistance	$3.0 \times 10^8$		MΩ-cm	2.5.17.1
	B. At elevated temperature	$7.0 \times 10^8$			
Surface Resistivity	A. After moisture resistance	$3 \times 10^6$		MΩ	2.5.17.1
	B. At elevated temperature	$2 \times 10^8$			
Dielectric Breakdown		>55		kV	2.5.6B
Arc Resistance		130		Seconds	2.5.1B
Electric Strength (Laminate & laminated prepreg)		44 (1100)		kV/mm (V/mil)	2.5.6.2A
Comparative Tracking Index (CTI)		4 (100-174)		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]	1.14 (6.5)		N/mm (lb/inch)	2.4.8C
	B. Standard profile copper	1.25 (7.0)			2.4.8.2A
	1. After thermal stress	1.25 (7.0)			2.4.8.3
	2. At 125°C (257°F)	1.14 (6.5)			2.4.8.3
Flexural Strength	A. Length direction	576 (83.6)		MPa (kpsi)	2.4.4B
	B. Cross direction	383 (55.5)			
Tensile Strength	A. Length direction	383 (55.5)		MPa (kpsi)	ASTM D3039
	B. Cross direction	238 (35.4)			
Young's Modulus	A. Length direction	3958		ksi	ASTM D790-15e2
	B. Cross direction	3530			
Poisson's Ratio	A. Length direction	0.189		—	ASTM D3039
	B. Cross direction	0.154			
Moisture Absorption		0.5		%	2.6.2.1A
Flammability (Laminate & laminated prepreg)		V-0		Rating	UL 94
Relative Thermal Index (RTI)		140		°C	UL 796

## NOTES

Visit our site <http://www.isola-group.com> for more details.

Revisions:

A: Initial release - 4/17

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

C: Corrected MOT value to match UL file - 11/18

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