



## P96/P26 Polyimide-based Prepreg and Laminate

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

[www.isola-group.com/products/P96](http://www.isola-group.com/products/P96)

### ORDERING INFORMATION:

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

**Isola Group**  
3100 West Ray Road  
Suite 301  
Chandler, AZ 85226  
Phone: 480-893-6527  
Fax: 480-893-1409  
[info@isola-group.com](mailto:info@isola-group.com)

**Isola Asia Pacific (Hong Kong) Ltd.**  
Unit 3512 - 3522, 35/F  
No. 1 Hung To Road, Kwun Tong,  
Kowloon, Hong Kong  
Phone: 852-2418-1318  
Fax: 852-2418-1533  
[info.hkg@isola-group.com](mailto:info.hkg@isola-group.com)

**Isola GmbH**  
Isola Strasse 2  
D-52348 Düren, Germany  
Phone: 49-2421-8080  
Fax: 49-2421-808164  
[info-dur@isola-group.com](mailto:info-dur@isola-group.com)

High Performance

## P96/P26 Data Sheet

Tg 260, Td 396  
Dk 3.76, Df 0.017  
/40 /41 /42

### Features

- High Thermal Performance
  - ▶ Tg: 260°C (TMA)
  - ▶ Greater thermal performance over epoxy-bismaleimide blends
- T260: 60 minutes
- T288: 60 minutes
- RoHS Compliant
- Maintains Bond Strength at High Temperature
- Tough Resin System
  - ▶ Improved processing due to less brittleness
  - ▶ Less delamination from machining
- Brominated Chemistry, Thermally Stable Laminate System
  - ▶ Full benefits of 100% polyimide performance
- Non-MDA (Methylenedianiline) Chemistry
  - ▶ Meets all OSHA 1910.1050 requirements
- Core Material Standard Availability
  - ▶ Thickness: 0.002" (0.05 mm) to 0.125" (3.2 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
- Industry Approvals
  - ▶ IPC-4101C /40 /41 /42
  - ▶ UL - File Number E41625

# P96/P26 Specifications

Property		Typical Values			
				Units	Test Method
		Typical Value	Specification	Metric (English)	IPC-TM-650 (or as noted)
<b>Glass Transition Temperature (Tg) by DSC</b>		260	250	°C	2.4.25
<b>Decomposition Temperature (Td) by TGA @ 5% weight loss</b>		396	–	°C	ASTM D3850
<b>T260</b>		60	–	Minutes	ASTM D3850
<b>T288</b>		60	–	Minutes	ASTM D3850
<b>CTE, Z-axis</b>	A. Pre-Tg	55	AABUS –	ppm/°C	2.4.24
	B. Post-Tg				
<b>CTE, X-, Y-axes</b>	A. Pre-Tg	13/14 14/17	AABUS –	ppm/°C	2.4.24
	B. Post-Tg				
<b>Z-axis Expansion (50-260°C)</b>		–	–	%	2.4.24
<b>Thermal Conductivity</b>		0.4	–	W/mK	ASTM D5930
<b>Thermal Stress 10 sec @ 288°C (550.4°F)</b>	A. Unetched	Pass	Pass Visual	Rating	2.4.13.1
	B. Etched				
<b>Dk, Permittivity (Laminate &amp; prepreg as laminated) Tested at 56% resin</b>	A. @ 100 MHz	3.83	5.4	–	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
<b>Df, Loss Tangent (Laminate &amp; prepreg as laminated) Tested at 56% resin</b>	A. @ 100 MHz	0.0135	0.035	–	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
<b>Volume Resistivity</b>	A. 96/35/90	–	1.0x10 <sup>6</sup>	MΩ-cm	2.5.17.1
	B. After moisture resistance	3.0x10 <sup>8</sup>	–		
	C. At elevated temperature	7.0x10 <sup>8</sup>	1.0x10 <sup>3</sup>		
<b>Surface Resistivity</b>	A. 96/35/90	–	1.0x10 <sup>4</sup>	MΩ	2.5.17.1
	B. After moisture resistance	3.0x10 <sup>6</sup>	–		
	C. At elevated temperature	2.0x10 <sup>8</sup>	1.0x10 <sup>3</sup>		
<b>Dielectric Breakdown</b>		>55	–	kV	2.5.6
<b>Arc Resistance</b>		130	60	Seconds	2.5.1
<b>Electric Strength (Laminate &amp; prepreg as laminated)</b>		44 (1100)	30 (750)	kV/mm (V/mil)	2.5.6.2
<b>Comparative Tracking Index (CTI)</b>		4 (100-174)	–	Class (Volts)	UL-746A ASTM D3638
<b>Peel Strength</b>	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	1.25 (7.0)	0.80 (4.5)		2.4.8.3
	2. At 125°C (257°F)	1.25 (7.0)	0.70 (4.0)		–
	3. After process solutions	1.14 (6.5)	0.55 (3.0)	–	
<b>Flexural Strength</b>	A. Lengthwise direction	83,600	–	lb/inch <sup>2</sup>	2.4.4
	B. Crosswise direction	55,500			
<b>Tensile Strength</b>	A. Lengthwise direction	55,000	–	lb/inch <sup>2</sup>	–
	B. Crosswise direction	35,370			
<b>Young's Modulus</b>	A. Grain direction	3958	–	ksi	ww
	B. Fill direction	3530			
<b>Poisson's Ratio</b>	A. Grain direction	0.189	–	–	xx
	B. Fill direction	0.154			
<b>Moisture Absorption</b>		0.5	–	%	2.6.2.1
<b>Flammability (Laminate &amp; prepreg as laminated)</b>		V-0	–	Rating	UL 94
<b>Max Operating Temperature</b>		140	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.

[www.isola-group.com/products/P96](http://www.isola-group.com/products/P96)

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