



## I-Tera<sup>®</sup> MT Very Low-loss Laminate Material

**I-Tera<sup>®</sup> MT** laminate materials exhibit exceptional electrical properties which are very stable over a broad frequency and temperature range. I-Tera MT is suitable for many of today's high speed digital and RF/microwave printed circuit designs. I-Tera MT features a dielectric constant (Dk) that is stable between -55°C and +125°C up to 20 GHz. In addition, I-Tera MT offers a lower dissipation factor (Df) of 0.0031 making it a cost effective alternative to PTFE and other commercial microwave and high-speed digital laminate materials.

I-Tera MT laminate materials are currently being offered in both laminate and prepreg form in typical thicknesses and standard panel sizes. This provides a complete materials solution package for high-speed digital multilayer, hybrid, RF/microwave, multilayer and double-sided printed circuit designs. I-Tera MT does not require any special through hole treatments commonly needed when processing PTFE-based laminate materials.

[www.isola-group.com/products/i-tera-mt/](http://www.isola-group.com/products/i-tera-mt/)

### 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 Performance

## I-Tera<sup>®</sup> MT Data Sheet

Tg 200, Td 360  
Dk 3.45, Df 0.0031

### Features

- High Thermal Performance
  - ▶ Tg: 200°C (DSC)
  - ▶ Td: 360°C (TGA @ 5% wt loss)
  - ▶ Low CTE in the Z-axis – 2.8% (50-260°C)
- T260: >60 minutes
- T288: >60 minutes
- RoHS Compliant
- Electrical Properties
  - ▶ Dk: 3.45
  - ▶ Df: 0.0031
  - ▶ Typical electrical properties over a broad frequency and temperature range per IPC-TM-650-2.5.5.5
- Core Material Standard Availability
  - ▶ Thickness: 0.0025"-0.018", 0.020" and 0.030"
  - ▶ 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)
  - ▶ VLP-2 (2 micron)
- 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
  - ▶ Spread glass fabric available
- Industry Approvals
  - ▶ UL 94 V-0
  - ▶ UL Qualified - 140 MOT
  - ▶ Non-ANSI
  - ▶ IPC-4103 /17

# I-Tera<sup>®</sup> MT Specifications

Property	Typical Values				
	Typical Value	Specification	Units	Test Method	
			Metric (English)	IPC-TM-650 (or as noted)	
<b>Glass Transition Temperature (Tg) by DSC</b>	200	170-200	°C	2.4.24	
<b>Decomposition Temperature (Td) by TGA @ 5% weight loss</b>	360	–	°C	ASTM D3850	
<b>T260</b>	>60	–	Minutes	–	
<b>T288</b>	>60	–	Minutes	–	
<b>CTE, X-, Y-axes</b>	A. Pre-Tg B. Post-Tg	AABUS –	ppm/°C	2.4.41	
<b>Z-axis Expansion (50-260°C)</b>	2.8	–	%	2.4.41	
<b>Thermal Conductivity (-100-250°C)</b>	0.61	–	W/mK	ASTM 1952	
<b>Thermal Stress 10 sec @ 288°C (550.4°F)</b>	A. Unetched B. Etched	Pass Pass Visual	Rating	2.4.13.1	
<b>Dk, Permittivity</b>	A. @ 2 GHz B. @ 5 GHz C. @ 10 GHz	3.45 3.45 3.45	±0.05 ±0.05 ±0.05	– – –	2.5.5.5
<b>Df, Loss Tangent</b>	A. @ 2 GHz B. @ 5 GHz C. @ 10 GHz	0.0031 0.0031 0.0031	±0.0005 ±0.0005 ±0.0005	– – –	Bereskin Stripline
<b>Volume Resistivity</b>	96/35/90	1.33x10 <sup>7</sup>	1.0x10 <sup>6</sup>	MΩ-cm	2.5.17.1
<b>Surface Resistivity</b>	96/35/90	1.33x10 <sup>5</sup>	1.0x10 <sup>4</sup>	MΩ	2.5.17.1
<b>Dielectric Breakdown</b>	45.4	–	kV	2.5.6	
<b>Arc Resistance</b>	139	60	Seconds	2.5.1	
<b>Electric Strength</b>	45 (1133)	30 (750)	kV/mm (V/mil)	2.5.6.2	
<b>Comparative Tracking Index (CTI)</b>	2	–	Class (Volts)	UL-746A ASTM D3638	
<b>Peel Strength</b>	1 oz. (38µm) EDC foil	1.0 (5.7)	0.53 (3.0)	N/mm (lb/inch)	2.4.8.3
<b>Flexural Strength</b>	A. Lengthwise direction B. Crosswise direction	TBD TBD	–	lb/inch <sup>2</sup>	2.4.4
<b>Tensile Strength</b>	A. Lengthwise direction B. Crosswise direction	TBD TBD	–	lb/inch <sup>2</sup>	–
<b>Young's Modulus</b>	A. Grain direction B. Fill direction	TBD TBD	–	ksi	ww
<b>Poisson's Ratio</b>	A. Grain direction B. Fill direction	TBD TBD	–	–	xx
<b>Moisture Absorption</b>	0.01	–	%	2.6.2.1	
<b>Flammability</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.

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