



Tachyon 100G

Tachyon 100G laminate materials are designed for very highspeed digital applications up to and beyond speeds of 100 Gb/s.

Tachyon 100G materials exhibit exceptional electrical properties that are very stable over a broad frequency and temperature range. Tachyon 100G is suitable for scaling current products to their

next generation through design of new backplanes and daughter cards, enabling almost 10x improvements from 10 Gb/s data rates. Tachyon 100G targets line cards that require the highest thermal performance. It has identical electricals as Tachyon, but offers a 30% improvement in Z-axis CTEs on high-layer count PCBs. This makes it a perfect choice for higher layer line cards that have

multiple 2 oz. planes and BGAs with pitches at 0.8 mm or less.

Tachyon 100G products use spread glass and reduced profile copper to mitigate skew and improve rise times, reduce jitter, increase eye width and height. Use of ultra smooth copper is enabled by very high adhesive bond between the resin and the metal. Tachyon 100G has a nominal dielectric constant (Dk) of 3.02 that is stable between -55°C and +125°C up to 40 GHz. In addition, Tachyon 100G offers a very low nominal dissipation factor (Df) of 0.0021. Tachyon 100G laminate materials are available in optimized laminate and prepreg forms in typical thicknesses and standard panel sizes to provide a complete material solution for high-speed digital multilayer backplanes and daughter cards.

ORDERING INFORMATION:

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

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Performance

Tg 185°C

Td 380°C

Dk 3.02

Df 0.0021

zIPC- 4101C /21 /24 /26 /98 /101 /126

UL - File Number E41625

Qualified to UL's MCIL Program

Product Features

- Industry Recognition
 - UL File Number: E41625
 - RoHS Compliant
- Performance Attributes
- Processing Advantages

Product Availability

- Standard Material Offering: Laminate
 - 2 to 18 mil (0.5 to 0.46 mm)
 - Available in full size sheet or panel form
- Copper Foil Type
 - HTE Grade 3
 - VLP-2 (2 micron), 1 oz and below
 - RTF (Reverse Treat Foil)
- Copper Weight
 - ½ to 2 oz (18 to 70 µm) available
 - Heavier copper available
 - Thinner copper foil available
- Standard Material Offering: Prepreg
 - Roll or panel form
 - Tooling of prepreg panels
- Glass Fabric Availability
 - Square weave glass
 - Mechanically spread glass

Tachyon 100G Specifications

Property		Typical Value	Units	Test Method
			Metric (English)	IPC-TM-650 (or as noted)
Glass Transition Temperature (Tg) by DMA		220	°C	2.4.25
Glass Transition Temperature (Tg) by DSC		185	°C	2.4.25
Glass Transition Temperature (Tg) by TMA		180	°C	2.4.24
Time to Delaminate by TMA (Copper removed)	A. T260 B. T288 C. T300	>60 >60 >20	Minutes	2.4.24.1
Z-Axis CTE	A. Pre-Tg B. Post-Tg C. 50 to 260°C, (Total Expansion)	45 250 2.5	ppm/°C ppm/°C %	2.4.24
X/Y-Axis CTE	Pre-Tg	15	ppm/°C	2.4.24.1
Thermal Conductivity		0.42	W/mK	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. @ 2 GHz B. @ 5 GHz C. @ 10 GHz	3.04 3.02 3.02	—	2.5.5.5
Df, Loss Tangent	A. @ 2 GHz B. @ 5 GHz C. @ 10 GHz	0.0021	—	2.5.5.5
Volume Resistivity	C-96/35/90	TBD	MΩ-cm	2.5.17.1
Surface Resistivity	C-96/35/90	TBD	MΩ	2.5.17.1
Dielectric Breakdown		60	kV	2.5.6
Arc Resistance		125	Seconds	2.5.1
Electric Strength (Laminate & laminated prepreg)		60 (1500)	kV/mm (V/mil)	2.5.6.2
Comparative Tracking Index (CTI)		2	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]	0.79 (4.5)	N/mm (lb/inch)	2.4.8
	B. Standard profile copper 1. After thermal stress	0.96 (5.5)		2.4.8.2
Flexural Strength	A. Length direction B. Cross direction	44000 41000	lb/inch ²	2.4.4
Tensile Strength	A. Length direction B. Cross direction	30000 25000	lb/inch ²	ASTM D3039
Poisson's Ratio	A. Length direction B. Cross direction	0.165 0.156	—	ASTM D3039
Moisture Absorption		0.05	%	2.6.2.1
Flammability (Laminate & laminated prepreg)		V-0	Rating	UL 94
Max Operating Temperature		130	°C	UL 796

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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Last Updated Aug 2, 2016