



TerraGreen

TerraGreen laminate materials exhibit exceptional electrical properties which are very stable over a broad frequency and temperature range.

TerraGreen is engineered for such highperformance applications as power amplifier boards for LTE base stations, internet infrastructure and cloud computing. TerraGreen features a Dielectric Constant (Dk) that is stable between -55°C and 125°C, up to 20 GHz.

TerraGreen is a lead-free assembly material and is easy to process. This high-performance material utilizes a short-lamination cycle; the product is easy to drill, does not require plasma desmear, and the prepreg shelf life is similar to FR-4 materials. TerraGreen is suitable for high-layer count, high-speed digital backplanes and is compatible with Isola's FR-4 materials for hybrid designs.

TerraGreen meets UL 94 V-0 and is halogen free.

ORDERING INFORMATION:

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

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Performance

Tg 200°C

Td 390°C

Dk 3.44

Df 0.0039

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

UL - File Number E41625

Qualified to UL's MCIL Program

Product Features

- Industry Recognition
 - RoHS Compliant
- Performance Attributes
 - Lead-free assembly compatible
- Processing Advantages
 - FR-4 process compatible
 - UV blocking and AOI fluorescence

Product Availability

- Standard Material Offering: Laminate
 - 2 to 60 mil (0.5 to 1.5 mm)
 - Available in full size sheet or panel form
- Copper Foil Type
 - VLP-2 (2 micron), 1 oz and below
- 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
 - E-glass
 - Square weave glass
 - Mechanically spread glass

TerraGreen Specifications

Property		Typical Value	Units	Test Method
			Metric (English)	IPC-TM-650 (or as noted)
Glass Transition Temperature (Tg) by DSC		200	°C	2.4.25
Decomposition Temperature (Td) by TGA @ 5% weight loss		390	°C	2.4.24.2
Time to Delaminate by TMA (Copper removed)	A. T260 B. T288	60	Minutes	2.4.24.1
Z-Axis CTE	50 to 260°C, (Total Expansion)	2.9	%	2.4.24
X/Y-Axis CTE	Pre-Tg	16	ppm/°C	2.4.24.1
Thermal Conductivity		0.32	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	3.44	—	2.5.5.5
Df, Loss Tangent	A. @ 2 GHz B. @ 5 GHz C. @ 10 GHz	0.0039	—	Bereskin Stripline
Volume Resistivity	C-96/35/90	1.33×10^7	MΩ-cm	2.5.17.1
Surface Resistivity	C-96/35/90	1.33×10^5	MΩ	2.5.17.1
Dielectric Breakdown		45.4	kV	2.5.6
Arc Resistance		139	Seconds	2.5.1
Electric Strength (Laminate & laminated prepreg)		45 (1133)	kV/mm (V/mil)	2.5.6.2
Comparative Tracking Index (CTI)		In Testing	Class (Volts)	UL 746A ASTM D3638
Peel Strength	A. 0.5 oz. EDC foil B. 1 oz. EDC foil	0.88 (5.0)	N/mm (lb/inch)	2.4.8 2.4.8.2
Flexural Strength	A. Length direction B. Cross direction	75,500 60,000	lb/inch ²	2.4.4
Tensile Strength	A. Length direction B. Cross direction	40,000 39,000	lb/inch ²	ASTM D3039
Poisson's Ratio	A. Length direction B. Cross direction	0.238 0.231	—	ASTM D3039
Moisture Absorption		0.5	%	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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