

VT-464GS

UL Approval: E214381 Version: Preliminary 1 /130

Laminate/Prepreg

General Information

- > Halogen Free & High Tg
- > Low Dk & Very Low Loss
- > Excellent Thermal Reliability
- > High Modulus & Low CTE
- > Suitable for CSP, Flip Chip Package, SIP, BGA & PGA, etc

Application

Handheld Equipment, High Frequency & High Speed, Satellite Communication, Navigation, GPS, LTE, etc

Availability

- > Core Thickness: 0.002" (0.05mm) to 0.031" (0.8mm), available in sheet or panel form
- > Copper Foil: 1/7oz to 2oz
- > Prepregs are available in roll or panel form, thickness 0.002-0.1mm

Properties		Prepreg		Laminate
Storage Condition	Temperature	Below 23°C (73°F)	Below 5°C (41°F)	Room
	Relative humidity	Below 55% RH	/	/
Shelf Life		3 months	6 months	24 months (airproof)

The prepreg exceeding shelf life should be retested.

CORPORATE HEADQUARTERS

Ventec Electronics Co. Ltd.
308 TaiShan Rd,
New District Suzhou,
Jiangsu, P.R. China 215129
T: +86 512-68091810
Email: sales@ventec.com.cn

EMEA REGIONAL HEADQUARTERS

Ventec Europe
Unit 1 Trojan Business Centre,
Tachbrook Park Estate,
Leamington-Spa, CV34 6RH, UK
T: +44 1926-889822
Email: sales@ventec-europe.com

AMERICAS REGIONAL HEADQUARTERS

Ventec USA
720 Lee St., Elk Grove Village,
Illinois, IL 60007,
United States of America
T: +1 630-4221627
Email: saleseast@ventec-usa.com

www.ventec laminates.com

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Properties Sheet IPC-4101E /130

Properties		Test Method	Units	Specification	Typical Value
Thermal Properties					
Tg	TMA	IPC-TM-650 2.4.24	°C	170 minimum	260
	DMA	IPC-TM-650 2.4.24.4	°C	-	300
Td		ASTM D3850	°C	340 minimum	450
T260		IPC-TM-650 2.4.24.1	Minute	30 minimum	>60
T288		IPC-TM-650 2.4.24.1	Minute	15 minimum	>60
Thermal Stress @ 288°C		IPC-TM-650 2.4.13.1	Second	Pass 10s	>600
Z-axis CTE	Before Tg	IPC-TM-650 2.4.24	ppm/°C	60 maximum	20
	After Tg	IPC-TM-650 2.4.24	ppm/°C	300 maximum	NA
	Total Expansion (50~260°C)	IPC-TM-650 2.4.24	%	3.0 maximum	0.8
X-Y CTE		IPC-TM-650 2.4.24	ppm/°C	-	6~8
MOT		UL 94	°C	-	130
Electrical Properties					
DK (RC 70%)	@ 2GHz	Cavity Resonator	-	5.2 maximum	3.5
DF (RC 70%)	@ 2GHz	Cavity Resonator	-	0.035 maximum	0.005
Volume Resistivity	After Moisture Resistance	IPC-TM-650 2.5.17.1	MΩ-cm	1.0E+4 minimum	5.0E+8
	E-24/125	IPC-TM-650 2.5.17.1	MΩ-cm	1.0E+3 minimum	5.0E+6
Surface Resistivity	After Moisture Resistance	IPC-TM-650 2.5.17.1	MΩ	1.0E+4 minimum	5.0E+7
	E-24/125	IPC-TM-650 2.5.17.1	MΩ	1.0E+3 minimum	5.0E+6
Electrical Strength		IPC-TM-650 2.5.6.2	Volt/mil (KV/mm)	762 (30) minimum	1400 (55)
Dielectric Breakdown		IPC-TM-650 2.5.6	KV	40 minimum	60
Comparative Tracking Index (CTI)		ASTM D3638	Rating (Volt)	-	Grade 3 (175~250)
Arc Resistance		ASTM D495	Second	60 minimum	195
Mechanical Properties					
Peel Strength (1oz)	As received	IPC-TM-650 2.4.8	lb/in (N/mm)	-	7.5 (1.3)
	After thermal stress	IPC-TM-650 2.4.8	lb/in (N/mm)	6 (1.05) minimum	7.5 (1.3)
Flexural Modulus	Warp	IPC-TM-650 2.4.24.4	GPa	-	30~31
	Fill	IPC-TM-650 2.4.24.4	GPa	-	30~31
Physical Properties					
Moisture Absorption		IPC-TM-650 2.6.2.1	%	0.80 maximum	0.15
Flammability		UL-94	Rating	V-0	V-0

All test data provided are typical values and not intended to be specification values.

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