

VT-447(B)

UL Approval: E214381 Version: B5 /127 /128 /130

Laminate/Prepreg

General Information

- > Halogen Free & High Tg
- > Black, Light Blocking
- > Low Z-CTE
- > UV Blocking

Application

Reinforcement for FPC, Mobile Phone, Smart Phone, Computer, Communication Equipment, Instrumentation, LED, Electronic Game Machine, VCR, etc

Availability

- > Core Thickness: 0.006" (0.15mm) to 0.040" (1mm), other thickness on request
- > Available in roll or panel form
- > Copper Foil: 1/4oz to 12oz
- > E-Glass styles: 7628, 1506, 2116, other glass fabric on request

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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IPC-4101E /127 /128 /130

Properties		Test Method	Units	Specification	Typical Value
Thermal Properties					
T _g	DSC	IPC-TM-650 2.4.25	°C	–	–
	TMA	IPC-TM-650 2.4.24	°C	170 minimum	180
T _d		ASTM D3850	°C	–	380
T ₂₆₀		IPC-TM-650 2.4.24.1	Minute	30 minimum	60
T ₂₈₈		IPC-TM-650 2.4.24.1	Minute	–	–
Thermal Stress @ 288°C		IPC-TM-650 2.4.13.1	Second	Pass 10s	150
Z-axis CTE	Before T _g	IPC-TM-650 2.4.24	ppm/°C	–	45
	After T _g	IPC-TM-650 2.4.24	ppm/°C	–	190
	Total Expansion (50~260°C)	IPC-TM-650 2.4.24	%	–	2.3
CTE		IPC-TM-650 2.4.24	ppm/°C	–	11~12
MOT		UL 94	°C	–	130
Electrical Properties					
DK (RC 50%)	@ 1GHz	IPC-TM-650 2.5.5.9	–	5.4 maximum	4.35
DF (RC 50%)	@ 1GHz	IPC-TM-650 2.5.5.9	–	0.035 maximum	0.013
Volume Resistivity	After Moisture Resistance	IPC-TM-650 2.5.17.1	MΩ-cm	1.0E+6 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	1200~1400 (54)
Dielectric Breakdown		IPC-TM-650 2.5.6	KV	40 minimum	60
Comparative Tracking Index (CTI)		ASTM D3638	Rating (Volt)	–	Grade 4 (100~175)
Arc Resistance		ASTM D495	Second	–	240
Mechanical Properties					
Peel Strength (1oz)	As received	IPC-TM-650 2.4.8	lb/in (N/mm)	–	6~8 (1.05~1.40)
	After thermal stress	IPC-TM-650 2.4.8	lb/in (N/mm)	–	6~8 (1.05~1.40)
Flexural Strength	Warp	IPC-TM-650 2.4.4	KPsi (MPa)	60 (415) minimum	72 (500)
	Fill	IPC-TM-650 2.4.4	KPsi (MPa)	50 (345) minimum	58 (400)
Physical Properties					
Moisture Absorption		IPC-TM-650 2.6.2.1	%	0.80 maximum	0.35
Flammability		UL-94	Rating	V-0 minimum	V-0

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

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