VT-90H

Laminate/Prepreg

UL Approval: E214381 Version: B7/40 /41

General Information

- Tg 250˚C
- High Td
- Improved Fracture Toughness
- Low Z-axis CTE
- Non-Brominated Chemistry

Application

- Chip Manufacturers
- Engine/Flight Controls
- Power Supply/Backplane
- Military and Burn-in Board

Availability

- Core Thickness: 0.002" (0.05mm) to 0.125"(3mm), available in sheet or panel form
- Copper Foil: 1/4oz to 6oz
- Prepregs are available in roll or panel form
- E-Glass styles: 7628, 1506, 2113, 2313, 3313, 2116, 1080, 106 etc

Note: Double side treated copper foil and reverse copper foil are not suggested using on VT-90H laminates because the peel strength would not be as good as conventional materials.

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.

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IPC-4101E /40 /41

Properties		Test Method	Units	Specification	Typical Value
Thermal Properties					
Tg	DSC	IPC-TM-650 2.4.25	˚C	–	–
	TMA	IPC-TM-650 2.4.24	˚C	200 minimum	250
Td		ASTM D3850	˚C	–	408
T260		IPC-TM-650 2.4.24.1	Minute	–	>60
T288		IPC-TM-650 2.4.24.1	Minute	–	>60
Thermal Stress @ 288˚C		IPC-TM-650 2.4.13.1	Second	Pass 10s	>1200
Z-axis CTE	Before Tg	IPC-TM-650 2.4.24	ppm/˚C	–	50
	After Tg	IPC-TM-650 2.4.24	ppm/˚C	–	145
	Total Expansion (50~260˚C)	IPC-TM-650 2.4.24	%	–	1.2
X/Y CTE		IPC-TM-650 2.4.24	ppm/˚C	–	11~12
MOT		UL 94	˚C	–	140
Electrical Properties					
Dielectric Constant @ 1GHz RC 40%		IPC-TM-650 2.5.5.9	–	5.4 maximum	4.05
Dissipation Factor @ 1GHz RC 40%		IPC-TM-650 2.5.5.9	–	0.035 maximum	0.012
Volume Resistivity	After Moisture Resistance	IPC-TM-650 2.4.17.1	MΩ-cm	1.0E+6 minimum	5.0E+8
	E-24/125	IPC-TM-650 2.5.17.1	MΩ-cm	1.0E+6 minimum	5.0E+6
Surface Resistivity	After Moisture Resistance	IPC-TM-650 2.5.17.1	MΩ	1.0E+6 minimum	5.0E+7
	E-24/125	IPC-TM-650 2.5.17.1	MΩ	1.0E+6 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	120 minimum	150
Mechanical Properties					
Peel Strength (1oz)	As received	IPC-TM-650 2.4.8	lb/in (N/mm)	–	6~9 (1.05~1.58)
	After thermal stress	IPC-TM-650 2.4.8	lb/in (N/mm)	5.14 (0.90) minimum	6~9 (1.05~1.58)
Flexural Strength	Warp	IPC-TM-650 2.4.4	KPsi (MPa)	60 (415) minimum	600 (87)
	Fill	IPC-TM-650 2.4.4	KPsi (MPa)	47 (325) minimum	500 (72)
Physical Properties					
Moisture Absorption		IPC-TM-650 2.6.2.1	%	1.0 maximum	0.28
Flammability		UL-94	Rating	HB minimum	HB

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

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