

VT-901

UL Approval: E214381 Version: 23/02/2024 /40 /41 /42

Laminate/Prepreg

General Information

- > Tg 250°C
- > High Td 395°C
- > Low Z-axis CTE
- > Meets NASA requirements for no visible bromine



Application

- > Chip Manufacturers
- > Engine/Flight Controls
- > Power Supply/Backplane
- > Military & Aerospace
- > Burn-in Board
- > Downhole Drilling

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

Storage Condition

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)

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Properties Sheet IPC-4101E /40 /41 /42

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	–	395
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	–	150
	Total Expansion (50~260°C)	IPC-TM-650 2.4.24	%	–	1.4
X-Y CTE		IPC-TM-650 2.4.24	ppm/°C	–	11~12
MOT		UL 94	°C	–	140
Electrical Properties					
Dk @ 1GHz RC 40%		IPC-TM-650 2.5.5.9	–	5.4 maximum	4.05
Df @ 1GHz RC 40%		IPC-TM-650 2.5.5.9	–	0.035 maximum	0.012
Volume Resistivity	After Moisture Resistance	IPC-TM-650 2.5.17.1	MΩ-cm	1.0E+6 minimum	5.0E+8
	E-24/204	IPC-TM-650 2.5.17.1	MΩ-cm	1.0E+6 minimum	9.0E+8
Surface Resistivity	After Moisture Resistance	IPC-TM-650 2.5.17.1	MΩ	1.0E+6 minimum	5.0E+7
	E-24/204	IPC-TM-650 2.5.17.1	MΩ	1.0E+6 minimum	1.0E+8
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)	RTF	IPC-TM-650 2.4.8	lb/in (N/mm)	–	5~8 (0.88~1.40)
	HTE	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	87 (600)
	Fill	IPC-TM-650 2.4.4	Kpsi (MPa)	47 [325] minimum	72 (500)
Physical Properties					
Moisture Absorption		IPC-TM-650 2.6.2.1	%	1.0 maximum	0.2
Flammability		UL-94	Rating	HB minimum	V-0

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

Disclaimer: The information and data contained in this technical literature is based on data and knowledge correct at the time of publishing/printing and is believed to be accurate and is offered in good faith for the benefit of the user. The user should make his own tests to verify the suitability of this product for any application before its use. All data are typical values only and subject to change without notice.