

VT-42C

UL Approval: E214381 Version: Rev. 6

DATASHEETS - CTI 600 MATERIAL

VT-42C /Laminate VT-42C PP/Prepreg

General Information

- Comparative Tracking Index(CTI): over 600 Volts
- Dicy Cured System
- Standard FR-4
- UV Blocking
- Laser Fluorescing

Application

For Single Side\Double Side\Multilayer PWB working in special environment Applications.

Availability

VT-42C Laminates are available in thickness from 0.039 inches to 0.200 inches, and with the copper foil from 1/4oz to 12 oz. As CTI value is closely related with the surface roughness, we would like to supply reverse treated copper foil when customer ask for laminates with copper foil over 2 oz.

VT-42C prepregs are available in E-Glass styles, mainly is 7628, etc.

Storage Condition & Shelf Life

		Prepreg		Laminate
Storage Condition	Temperature	Below 23°C (73°F)	Below 5°C (41°F)	Room
	Relative Humidity	Below 55% RH	/	/
Shelf Time*		3 Months	6 Months	12 Months (airproof)

*The pre-preg exceeding shelf time should be retested.

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PROPERTIES SHEETS

IPC-4101C Specification Sheet(s)/21

Properties	Test Method	Units	Specification	Typical Value
Thermal Properties				
Glass Transition Temp. (Tg)				
DSC	IPC-TM-650 2.4.25	°C	110 minimum	125-130
TMA	IPC-TM-650 2.4.24	°C	-	-
Decomposition Temp. (Td) By TGA (at 5% weight loss)	ASTM D3850	°C	-	310
Time to Delamination---T260	IPC-TM-650 2.4.24.1	Minute	-	25
Time to Delamination---T288	IPC-TM-650 2.4.24.1	Minute	-	2
Z-axis CTE				
Before Tg	IPC-TM-650 2.4.24	ppm/°C	-	40
After Tg	IPC-TM-650 2.4.24	ppm/°C	-	220
Total Expansion (50-260°C)	IPC-TM-650 2.4.24	%	-	3.5
Thermal Stress @ 288°C	IPC-TM-650 2.4.13.1	Second	Pass 10s	300
Electrical Properties				
Dielectric Constant @ 1GHz	IPC-TM-650 5.5.5.9	-	5.4 maximum	4.8
Dissipation Factor @ 1GHz	IPC-TM-650 5.5.5.9	-	0.035 minimum	0.018
Volume Resistivity				
After Moisture Resistance	IPC-TM-650 2.5.17.1	MΩ-cm	10 ⁶ minimum	5*10 ⁸
E-24/125	IPC-TM-650 2.5.17.1	MΩ-cm	10 ³ minimum	5*10 ⁶
Surface Resistivity				
After Moisture Resistance	IPC-TM-650 2.5.17.1	MΩ	10 ⁴ minimum	5*10 ⁷
E24/125	IPC-TM-650 2.5.17.1	MΩ	10 ³ minimum	5*10 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 0 (≥600)
Arc Resistance	IPC-TM-650 2.5.1	Second	60 minimum	65
Mechanical Properties				
Peel Strength (1oz)				
As received	IPC-TM-650 2.4.8	lb/in (N/mm)	-	10~12 (1.7~2.0)
After thermal stress	IPC-TM-650 2.4.8	lb/in (N/mm)	6 (1.05) minimum	9~12 (1.5~2.0)
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)	50 (345) minimum	72 (500)
Physical Properties				
Moisture Absorption	IPC-TM-650 2.6.2.1	%	0.80 maximum	0.25
Flammability	UL-94	Rating	V0 minimum	V0

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

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PROCESS GUIDELINE

Press Condition

1. Heating rate (Rise of Rate) of material: 1.5-3.0°C/min [5-10°F/min]. [Material Temperature]
2. Curing Temperature & Time: >45min at more than 170°C [338°F] [Material Temperature] °C
3. Full Pressure: ≥300psi
4. Vacuuming should be continued until over 140°C [284°F] [Material Temperature]

Typical Drilling Parameters (φ0.3-1.0 mm)

1. Spindle Speed:	64-105	KRPM
2. Feed Rate:	100-150	inch / min
3. Retract Rate:	596-600	inch / min
4. Chip Load:	0.7-2.0	mil / Rev.

Desmearing Process

Standard FR-4 Desmear Process

Others

A rough and dirty surface will reduce the CTI value

CTI value of laminates will change after being coated with solder mask.