

VT-481 DATASHEETS

VT-481 Laminate / Prepreg

UL Approval: E214381 Version: Rev. B3.1

General Information

- Mid-Tg FR-4
- Phenolic Cure System & Lead Free Compatible
- Excellent Thermal Reliability
- Low Z-CTE
- CAF Resistance
- UV Blocking

Application

Computer, Communication equipment, Instrumentation, Electronic game machine, Automotive, etc

Availability

- Core Thickness: .002" (0.05mm) to .200" (5mm), available in sheet or panel form
- Copper Foil: 1/4oz to 12oz
- Prepregs are available in roll or panel form
- E-Glass styles: 7628, 1506, 1500, 2113, 2313, 3313, 2116, 1080, 1086, 1078, 106 & 1067, etc

Note: For cores ≤ .005", it is recommended to use the reverse treated copper due to the low profile. The peel strength for RT foil is ≈ 1-2lbs/in (0.35Kg/m) less than Standard foil.

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 Life		3 Months	6 Months	24 Months (airproof)

Note: The pre-prep exceeding shelf life should be retested.

VT-481

DATASHEETS

Properties Sheets

IPC-4101C Slash Sheet(s)/99(most compliant), /21, /24, /97, /98, /101

Properties	Test Method	Units	Specification	Typical Value
Thermal Properties				
Glass Transition Temp. (Tg)				
DSC	IPC-TM-650 2.4.25	°C	145 minimum	155
TMA	IPC-TM-650 2.4.24	°C	-	-
Td	ASTM D3850	°C	325 minimum	345
T260	IPC-TM-650 2.4.24.1	Minute	30 minimum	>60
T288	IPC-TM-650 2.4.24.1	Minute	5 minimum	25
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	45
After Tg	IPC-TM-650 2.4.24	ppm/°C	300 maximum	220
Total Expansion (50~260°C)	IPC-TM-650 2.4.24	%	3.5 maximum	2.6
MOT	UL 94	°C	-	130
Electrical Properties				
Dielectric Constant @ 1GHz RC 50%	IPC-TM-650 5.5.5.9	-	5.4 maximum	4.3
Dissipation Factor @ 1GHz RC 50%	IPC-TM-650 5.5.5.9	-	0.035 minimum	0.015
Volume Resistivity				
After Moisture Resistance	IPC-TM-650 2.5.17.1	MΩ-cm	10 ⁴ 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 3 (175~250)
Arc Resistance	ASTM D495	Second	60 minimum	147
Mechanical Properties				
Peel Strength (1oz)				
As received	IPC-TM-650 2.4.8	lb/in (N/mm)	-	7.5~10 (1.3~1.75)
After thermal stress	IPC-TM-650 2.4.8	lb/in (N/mm)	6 (1.05) minimum	7.5~10 (1.3~1.75)
Flexural Strength				
Warp	IPC-TM-650 2.4.4	Kpsi (MPa)	60 (415) minimum	80 (560)
Fill	IPC-TM-650 2.4.4	Kpsi (MPa)	50 (345) minimum	65 (450)
Physical Properties				
Moisture Absorption	IPC-TM-650 2.6.2.1	%	0.80 maximum	0.12
Flammability	UL-94	Rating	V0 minimum	V0

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