VT-47

UL Approval: E214381 Version: Rev. B2.3

DATASHEETS

VT-47 Laminate / Prepreg

General Information

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

Application

Computer, Communication equipment, Instrumentation, Precise apparatus & instrument, Server, Router, Automotive, Medical, 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 23ºC (73ºF)	Below 5ºC (41ºF)	Room
	Relative Humidity	Below 55% RH	/	/
Shelf Life		3 Months	6 Months	24 Months (airproof)

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

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Properties Sheets

IPC-4101C Slash Sheet(s)/126(most compliant), / 21, /24, /26, /97, /98, /99, /101

Properties	Test Method	Units	Specification	Typical Value
Thermal Properties				
Glass Transition Temp. (Tg)				
DSC	IPC-TM-650 2.4.25	°C	170 minimum	180
TMA	IPC-TM-650 2.4.24	°C	–	180
Td @5% weight loss	ASTM D3850	°C	340 minimum	355
Time to Delamination---T260	IPC-TM-650 2.4.24.1	Minute	30 minimum	>60
Time to Delamination---T288	IPC-TM-650 2.4.24.1	Minute	15 minimum	>30
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	190
Total Expansion (50~260°C)	IPC-TM-650 2.4.24	%	3.0 maximum	2.3
MOT	UL 94	°C	–	130
Electrical Properties				
Dielectric Constant @ 1GHz RC 50%	IPC-TM-650 2.5.5.9	–	5.2 maximum	4.27
Dissipation Factor @ 1GHz RC 50%	IPC-TM-650 2.5.5.9	–	0.035 minimum	0.016
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	72 (500)
Fill	IPC-TM-650 2.4.4	Kpsi (MPa)	50 (345) minimum	61 (420)
Physical Properties				
Moisture Absorption	IPC-TM-650 2.6.2.1	%	0.50 maximum	0.12
Thermal Conductivity	ISO22007-2	W/M·K	–	0.5
Flammability	UL-94	Rating	V0 minimum	V0

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

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