

VT-90H(P)

UL Approval: E214381 Version: 08/01/2025 /40 /41 /43

High Performance Polyimide

General Information

VT-90H(P) is unique blend of pure polyimide resin and micro-fine proprietary fillers results in superior performance for demanding applications. Compared to conventional polyimide systems, VT-90H(P) has a lower Z-axis expansion and Thermal Conductivity = 0.6 W/mK best-in-class. VT-90H(P) reduces resin cracking and wicking in designs with high density plated through holes and vias. VT-90H(P) prepreg has resin flow characteristics and pressed thickness matching standard polyimides.



Application

- > High process or assembly temperatures (lead-free soldering)
- > Designs with high layer counts and MLB complexity
- > Equipment exposed to extreme temperatures
 - Defense Systems
 - Aircraft Engine Instrumentation
 - Semiconductor Testing (burn-in boards)
 - Petroleum Exploration (down-hole drilling)
 - Under-hood Automotive
 - Industrial Sensor Systems
 - Space and Satellites

Storage Condition and Shelf Life

		Prepreg	
Storage Condition	Temperature	Below 23 °C (73 °F)	Below 5 °C (41 °F)
	Relative Humidity	Below 55% RH	/
Shelf Life		3 Months	3 Months

The prepreg exceeding shelf life should be retested.

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IPC-4101E/40/41/43

Properties		Test Method	Units	Typical Value
Thermal Properties				
Tg	TMA	IPC-TM-650 2.4.24	°C	250
Td		ASTM D3850	°C	410
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	>600
Z-axis CTE	Before Tg	IPC-TM-650 2.4.24	ppm/°C	35
	After Tg		ppm/°C	80
	Total Expansion (50~260°C)		%	≤1.0
X-Y CTE		IPC-TM-650 2.4.41	ppm/°C	11~12
Electrical Properties				
Dk @ 1MHz	RC 54%	IPC-TM-650 2.5.5.9	–	4.20
Df @ 1MHz	RC 54%	IPC-TM-650 2.5.5.9	–	0.009
Volume Resistivity	After Moisture	IPC-TM-650 2.5.17.1	MΩ-cm	5.00E+08
	E-24/125		MΩ-cm	5.00E+06
Surface Resistivity	After Moisture	IPC-TM-650 2.5.17.1	MΩ	5.0E+07
	E-24/125		MΩ	5.00E+06
Electrical Strength		IPC-TM-650 2.5.6.2	Volt/mil (KV/mm)	1372 [54]
Arc Resistance		ASTM D495	Second	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		lb/in (N/mm)	6~9 [1.05~1.58]
Physical Properties				
Moisture Absorption		IPC-TM-650 2.6.2.1	%	0.19
Thermal Conductivity		ISO22007-2	W/mk	0.60
Flammability		UL-94	Rating	HB

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

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Availability

PP Type	Resin Content (%)	Pressed thickness (mm)
1067	70	2.4
1086	64	3.2
3313	59	4.4
2116	54	5.0

Press Condition

Item	VT-90H(P)
Heating rate of material	2.5~4.5°C/min (4.5~8°F/min)
Cure Temperature	≥218°C
Cure Time	>200min
Vacuuming should be continued until over 140°C (284°F) for material.	
Pressure: Start with 100psi, Full pressure should be 350 psi or above.	
Cold Press: Water cooling at 100psi for more than 60 minutes.	

Contact Ventec technical service to discuss the specific condition.