

# VT-47LT

UL Approval: E214381    Version: 25/02/2025

## IPC4101 / 126 high Tg, Low CTE, high thermal reliability prepreg

### General Information

- > High Tg, Low CTE
- > High Reliability for HDI Designs
- > Better Dimensional Stability

### Application

- > Any-layer HDI Designs
- > Sequential Laminations
- > Automotive
- > Power System
- > Server

### Availability

- > Prepregs are available in roll or panel form
- > E-Glass styles: 1078, 1067 and 1037

Glass Type	R/C (%)	Pressed Thickness		Dk				Df			
		mil	µm	∅	∅	∅	∅	∅	∅	∅	∅
				1GHz	2GHz	5GHz	10GHz	1GHz	2GHz	5GHz	10GHz
1037	70	1.7	43	4.00	3.95	3.90	3.79	0.013	0.015	0.016	0.017
1037	72	1.8	46	3.96	3.91	3.86	3.75	0.014	0.016	0.017	0.018
<b>* 1037</b>	<b>74</b>	<b>2.0</b>	<b>51</b>	<b>3.92</b>	<b>3.87</b>	<b>3.82</b>	<b>3.71</b>	<b>0.014</b>	<b>0.016</b>	<b>0.017</b>	<b>0.018</b>
1037	76	2.2	56	3.88	3.83	3.78	3.67	0.014	0.016	0.017	0.018
1037	78	2.3	58	3.84	3.79	3.74	3.63	0.014	0.016	0.017	0.018
1067	70	2.2	56	4.00	3.95	3.90	3.79	0.013	0.015	0.016	0.017
1067	72	2.4	61	3.96	3.91	3.86	3.75	0.014	0.016	0.017	0.018
<b>* 1067</b>	<b>74</b>	<b>2.5</b>	<b>64</b>	<b>3.92</b>	<b>3.87</b>	<b>3.82</b>	<b>3.71</b>	<b>0.014</b>	<b>0.016</b>	<b>0.017</b>	<b>0.018</b>
1067	76	2.8	71	3.88	3.83	3.78	3.67	0.014	0.016	0.017	0.018
1067	78	2.9	74	3.84	3.79	3.74	3.63	0.014	0.016	0.017	0.018
<b>* 1078</b>	<b>66</b>	<b>3.0</b>	<b>76</b>	<b>4.08</b>	<b>4.03</b>	<b>3.98</b>	<b>3.87</b>	<b>0.013</b>	<b>0.015</b>	<b>0.016</b>	<b>0.017</b>
1078	68	3.2	81	4.04	3.99	3.94	3.83	0.013	0.015	0.016	0.017
1078	70	3.4	86	4.00	3.95	3.90	3.79	0.013	0.015	0.016	0.017
1078	72	3.6	91	3.96	3.91	3.86	3.75	0.014	0.016	0.017	0.018

\*Standard Availability

### Storage Condition

Properties		Prepreg	
Storage Condition	Temperature	Below 23°C (73°F)	Below 5°C (41°F)
	Relative humidity	Below 55% RH	/
Shelf Life		3 months	6 months

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### Properties Sheet

Properties	Test Method	Units	Specification	Typical Value	
<b>Thermal Properties</b>					
Tg	DMA	IPC-TM-650 2.4.24.4	°C	170 minimum	215
	DSC	<b>IPC-TM-650 2.4.25</b>	<b>°C</b>	<b>170 minimum</b>	<b>195</b>
	TMA	IPC-TM-650 2.4.24	°C	170 minimum	185
Td @5%weight loss		ASTM D3850	°C	340 minimum	360
T288		IPC-TM-650 2.4.24.1	Minute	15 minimum	>60
Thermal Stress @ 288°C		IPC-TM-650 2.4.13.1	Second	Pass 10s	>600
Z-axis CTE	<b>Before Tg</b>	<b>IPC-TM-650 2.4.24</b>	<b>ppm/°C</b>	<b>60 maximum</b>	<b>25</b>
	<b>After Tg</b>	<b>IPC-TM-650 2.4.24</b>	<b>ppm/°C</b>	<b>300 maximum</b>	<b>130</b>
	<b>Total Expansion (50~260°C)</b>	<b>IPC-TM-650 2.4.24</b>	<b>%</b>	<b>3.0 maximum</b>	<b>1.5</b>
XY-axis CTE		IPC-TM-650 2.4.24.5	ppm/°C	-	10/12
<b>Electrical Properties</b>					
Dk (RC 50%)	@ 1GHz	Cavity Resonator	-	5.2 maximum	4.4
	@ 10GHz	Cavity Resonator	-	5.2 maximum	4.2
Df (RC 50%)	@ 1GHz	Cavity Resonator	-	0.035 maximum	0.011
	@ 10GHz	Cavity Resonator	-	0.035 maximum	0.015
Volume Resistivity	After Moisture Resistance	IPC-TM-650 2.5.17.1	MΩ-cm	1.0E+4 minimum	7.0E+8
	E-24/125	IPC-TM-650 2.5.17.1	MΩ-cm	1.0E+3 minimum	8.0E+6
Surface Resistivity	After Moisture Resistance	IPC-TM-650 2.5.17.1	MΩ	1.0E+4 minimum	7.0E+7
	E-24/125	IPC-TM-650 2.5.17.1	MΩ	1.0E+3 minimum	8.0E+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	195
<b>Mechanical Properties</b>					
Peel Strength (1oz)	As received	IPC-TM-650 2.4.8	lb/in (N/mm)	-	8.0 (1.4)
	After thermal stress	IPC-TM-650 2.4.8	lb/in (N/mm)	6.0 (1.05) minimum	8.0 (1.4)
Flexural Modulus	Warp	IPC-TM-650 2.4.2.4	MPa	-	650
	Fill	IPC-TM-650 2.4.2.4	MPa	-	550
<b>Physical Properties</b>					
Moisture Absorption		IPC-TM-650 2.6.2.1	%	0.80 maximum	0.10
Flammability		UL-94	Rating	V-0 minimum	V-0

All test data provided are typical values and 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.