

## tec-speed 7.0 / 7.1 - VT-463 / VT-463(LK)

UL Approval: E214381    Version: B1

### Laminate/Prepreg

## General Information

- > High Tg (Tg 200°C)
- > Ultra Low Loss & Low Dk
- > Excellent Thermal Reliability

## Application

- > Core Router & Switches
- > High Frequency & High Speed
- > HPC
- > Satellite Communication
- > Navigation Systems

## Availability

- > Core Thickness: 0.002" (0.05mm) to 0.030" (0.75mm), available in sheet or panel form
- > Copper Foil: 1/3oz to 3oz
- > Prepregs are available in roll or panel form
- > E-Glass styles: 2116, 3313, 1080, 1078, 1035 & 1027
- > LK-Glass styles: 2116, 3313, 1078, 1035

Properties		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)

The prepreg exceeding shelf life should be retested.

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## Properties Sheet IPC-4101E /91 /102

Properties		Test Method	Units	Specification	tec-speed 7.0 VT-463	tec-speed 7.1 VT-463(LK)
<b>Thermal Properties</b>						
Tg	DSC	IPC-TM-650 2.4.25	°C	170 minimum	200	200
Td		ASTM D3850	°C	340 minimum	410	410
T288		IPC-TM-650 2.4.24.1	Minute	15 minimum	>120	>120
Thermal Stress @ 288°C		IPC-TM-650 2.4.13.1	Second	Pass 10s	>600	>600
Z-axis CTE	Before Tg	IPC-TM-650 2.4.24	ppm/°C	60 maximum	40	40
	After Tg	IPC-TM-650 2.4.24	ppm/°C	300 maximum	220	220
	Total Expansion (50~260°C)	IPC-TM-650 2.4.24	%	3.5 maximum	2.5	2.5
<b>Electrical Properties</b>						
DK (RC 54%)	@ 1GHz	IPC-TM-650 2.5.5.9	-	5.2 maximum	3.6	3.3
	@ 10GHz	Resonator Cavity	-	-	3.5	3.2
DF (RC 54%)	@ 1GHz	IPC-TM-650 2.5.5.9	-	0.035 maximum	0.0018	0.0010
	@ 10GHz	Resonator Cavity	-	-	0.0028	0.0018
Volume Resistivity	After Moisture Resistance	IPC-TM-650 2.5.17.1	MΩ-cm	1.0E+4 minimum	5.0E+8	5.0E+8
	E-24/125	IPC-TM-650 2.5.17.1	MΩ-cm	1.0E+3 minimum	5.0E+6	5.0E+6
Surface Resistivity	After Moisture Resistance	IPC-TM-650 2.5.17.1	MΩ	1.0E+4 minimum	5.0E+7	5.0E+7
	E-24/125	IPC-TM-650 2.5.17.1	MΩ	1.0E+3 minimum	5.0E+6	5.0E+6
Electrical Strength		IPC-TM-650 2.5.6.2	Volt/mil (KV/mm)	762 (30) minimum	1200~1400 (54)	1200~1400 (54)
Dielectric Breakdown		IPC-TM-650 2.5.6	KV	40 minimum	60	60
Comparative Tracking Index (CTI)		ASTM D3638	Rating (Volt)	-	Grade 3 (175~250)	Grade 3 (175~250)
Arc Resistance		ASTM D495	Second	-	195	195
<b>Mechanical Properties</b>						
Peel Strength (HVLP 1oz)	As received	IPC-TM-650 2.4.8	lb/in (N/mm)	-	4.5 (0.8)	4.5 (0.8)
	After thermal stress	IPC-TM-650 2.4.8	lb/in (N/mm)	-	4.5 (0.8)	4.5 (0.8)
Flexural Strength	Warp	IPC-TM-650 2.4.4	Kpsi (MPa)	60 (415) minimum	80 (560)	80 (560)
	Fill	IPC-TM-650 2.4.4	Kpsi (MPa)	50 (345) minimum	65 (450)	65 (450)
<b>Physical Properties</b>						
Moisture Absorption		IPC-TM-650 2.6.2.1	%	0.80 maximum	0.10	0.10
Flammability		UL-94	Rating	V-1 minimum	V-0	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.

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