



GA-600F

GA-600F is an advanced Halogen-free medium Tg150(DSC) high CTI multifunctional epoxy laminate. Excellent heat resistance, CAF resistance and Low CTE performance, apply to white home appliance field, such as refrigerators, washing machines etc. Environmental-friendly material, absence of highly toxic dioxins, Antimony-free and no toxic evolution during waste burning.

Laminate:GA-600F

Prepreg: GA-600FB

Key Features

- **Tg: 155°C(DSC)**

This material with high performance multi-function resin, Tg values can reach above 150 °C(DSC).

- **CTI: 0 PLC (≥600Volt)**

High CTI performance, ensure the reliability of high humidity environment. Apply to white home appliance field.

- **Z-CTE(50-260):2.9%**

Its remarkable very low expansion coefficient, is more suitable for making high multilayer PCB, ensure the reliability of high temperature welding.

- **Td: 350°C**

Excellent resistance to aging temperature, keep the material performance in high thermal shock or high temperature environment impact.

Applications

- Multilayer PCB
- White goods

Industrial Approvals

- IPC-4101E/127/128
- UL File Number : e186152
- UL Type Designation : FR-15.1
- Flammability Rating : 94V-0
- Maximum Operating Temperature : 130°C

Normal Size & Thickness

Thickness Inch (mm)	Size		Thickness Tolerance
	Inch	mm	
0.002 (0.05)	49x37	1244x0940	IPC-4101 Class C/M
To	49x41	1244x1042	
0.125 (3.2)	49x43	1244x1093	

Characteristic GA-600F		Unit	Test Method	Typical Values	SPEC.
			IPC-TM-650 (or as noted)		
Volume Resistivity		MΩ-cm	2.5.17.1	7X10 ⁹	≥ 10 ⁴
Surface Resistivity		MΩ	2.5.17.1	2X10 ⁸	≥ 10 ⁴
Permittivity (RC 50%)	At 1MHz	-	2.5.5.9	5.14	≤ 5.40
	At 1GHz		2.5.5.9/2.5.5.13	4.64/4.80	/
Loss Tangent (RC 50%)	At 1MHz	-	2.5.5.9	0.0115	≤ 0.035
	At 1GHz		2.5.5.9/2.5.5.13	0.0148/0.0151	/
Arc Resistance		Sec	2.5.1	120	≥ 60
Dielectric Breakdown		KV	2.5.6	40	≥ 40
Electric Strength(thickness<0.5mm)		KV/mm	2.5.6.2	35	≥ 30
CTI		PLC(V)	ASTM D3638	0(≥ 600)	/
Thermal Stress Test		-	2.4.13.1	Pass	Pass
Td (5% Weight loss)		°C	2.4.24.6	350	≥ 325
Glass Transition Temperature	DMA	°C	2.4.24.4	170	/
	DSC	°C	2.4.25	155	≥ 150
Thermal Conductivity		W/mK	ASTM D5470	0.70	/
Most Operation Temperature(MOT)		°C	UL Cert	130	/
T288		Min	2.4.24.1	≥ 60	≥ 5
X/Y-Axis CTE	Before Tg	PPM/°C	2.4.24	13/15	/
Z-Axis CTE	Before Tg	PPM/°C		40	≤ 60
	After Tg	PPM/°C	240	≤ 300	
Z-Axis CTE (50~260°C)		%	2.4.24	2.9	≤ 3.5
Peel Strength (HTE 1OZ)		Lb/in(N/mm)	2.4.8	8(1.40)	≥ 6(1.05)
Flexural Strength	LW	N/mm ²	2.4.4	580	≥ 415
	CW	N/mm ²		440	≥ 345
E-modulus	LW/CW	Gpa	---	25/24	/
Flexural Modulus	LW/CW	Gpa	---	22/21	/
Moisture Absorption		%	2.6.2.1	0.10	≤ 0.8
Flammability		-	UL94	V-0	V-0

Note: 1. Test sample is 40 mil 1/1(without special remark).

2. The data above is only for reference, and the actual data will have deviation, according to varieties of test equipment and method.