KB-6167F
HIGH PERFORMANCE MATERIALS

High Reliability, CAF Resistant, Temperature resistant, High Tg
Glass Cloth Based Epoxy Resin
Flame Retardant Copper Clad Laminates

Product Description

The KB-6167F is specially formulated to cope with the increasing stringent demand in high complexity, high layer count, lead-free PCB design and applications. This material includes a high performance, high Tg, multi-functional cured epoxy resin with inorganic fillers. It offers very high resistance to heat and chemical attack. KB-6167F is particularly well-suited for lead-free soldering processes, which subject materials to increasingly greater thermal stresses.

Applications

- High-layer count designs
- Backplanes
- High complexity multi-layers
- Industrial electronics
- High-end servers
- Wireless communication infrastructure
- Automotive applications requiring high thermal resistance

Product Features

- High Tg (DSC) value of 170-180℃
- High Decomposition temperature: > 340℃
- Low water absorbability
- Compatible with lead-free assembly environment passed the lead-free reflow requirement at peak temperature of 260℃
- CAF-enhanced*
- Low z-axis expansion
- Able to withstand high thermal excursion during PCB fabrication and assembly Provide high thermal resistance and long term thermal reliability
- Wide operating window for multilayer processing
- Excellent thermal shock reliability
- Withstand stringent requirements of accelerated Thermal Cycling and IST cycles
- UV blocking for maximum compatibility with automated optical inspection
- Dimensionally stable

* Conductive Anodic Filament testing conditions: 1000 hours at 85℃/85%RH@50V DC

The data contained in this document, while believed to be accurate and based on analytical methods considered to be reliable, is for information purpose only.
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Laminates Specification of KB-6167F

Property	Typical Value	IPC-4101B/126 <0.0197"	Typical Value	IPC-4101B/126 ⩾0.0197"	Units	Method
Peel Strength, minimum 1. After thermal stress 2. At 125°C 3. After process solution	 1.22(7.00) 1.05(6.00) 0.87(5.00)	 0.80(4.57) 0.70(4.00) 0.55(3.14)	 1.39(8.00) 1.13(6.50) 0.96(5.50)	 1.05(6.00) 0.70(4.00) 0.80(4.57)	N/mm (lb/inch)	2.4.8.2 2.4.8.3
Volume Resistivity, minimum A. C-96/35/90 B. After moisture resistance C. At elevated temperature E-24/125	 3.0 x 10^{10} - 5.1 x 10^{10}	 10^6 - 10^3	 - 3.4 x 10^7 1.3 x 10^8	 - 10^4 10^3	MΩ-cm	2.5.17.1
Surface Resistivity, minimum A. C-96/35/90 B. After moisture resistance C. At elevated temperature E-24/125	 2.9 x 10^7 - 4.8 x 10^7	 10^4 - 10^3	 - 3.0 x 10^7 4.1 x 10^7	 - 10^4 10^3	MΩ-cm	2.5.17.1
Moisture Absorption, maximum	0.08	-	0.080	0.5	%	2.6.2.1
Dielectric Breakdown, minimum	-	-	60	40	kV	2.5.6
Permittivity, maximum (Laminate & Prepreg as laminated) 1 MHz 1 GHz	 4.5 4.4	 5.4 -	 4.7 4.6	 5.4 -	-	2.5.5.3
Loss Tangent, minimum (Laminate & Prepreg as laminated) 1 MHz 1 GHz	 0.017 0.019	 0.035 -	 0.017 0.019	 0.035 -	-	2.5.5.3
Flexural Strength, minimum 1. Length direction 2. Cross direction	 - -	 - -	 575 450	 415 345	N/mm²	2.4.4
Arc Resistance, minimum	125	60	125	60	Sec	2.5.1
Thermal Stress 10s at 1. Unetched 2. De-clad	 Pass Pass	 Pass Visual Pass Visual	 Pass Pass	 Pass Visual Pass Visual	Rating	2.4.13.1
Electric Strength, minimum (Laminate & Prepreg as laminated)	45	30	-	-	KV / mm	
Flammability (Laminate & Prepreg as laminated)	V-0	V-0 minimum	V-0	V-0 minimum	Rating	UL94
Glass Transition Temperature	-	-	174.5	170 minimum	℃	2.4.25
Decomposition Temperature	-	-	345	340 minimum	℃	2.4.24.6
Z-Axis CTE A. Alpha1 B. Alpha2 C. 50 -260 Degree C	 - - -	 - - -	 49 208 2.7	 60 maximum 300 maximum 3.0 maximum	 PPM/°C PPM/°C %	2.4.24
Thermal Resistance (Copper removed) A. T260 B. T288 C. T300	 - - -	 - - -	 >120 32.3 14.9	 30 minimum 15 minimum 2 minimum	Minutes	2.4.24.1

Note: Data shown are nominal value for reference only.

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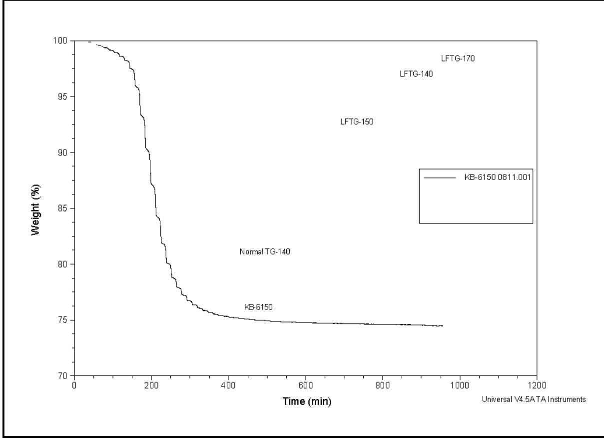
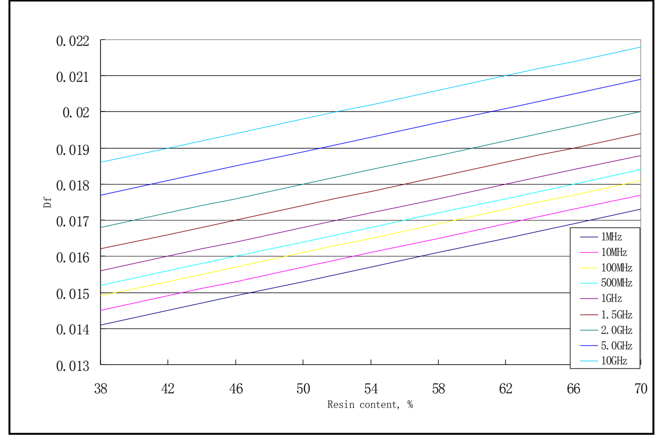
Characteristics Graph of Laminates

Thermal Cycling Test on Various Materials

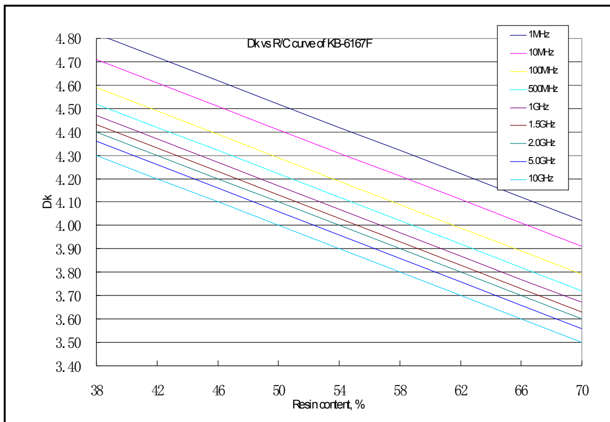
（TGA: Temp. was raised to 260℃ at 10℃/min, then dropped to 200℃, and raised to 260℃,and so on and so on）



Loss Tangent



Dielectric constant



Water absorption when PCT some time (%)