

## KB-6165G Halogen-free Tg150 (ANSI: FR-4.1)

### 无卤素 Tg150 玻纤布覆铜层压板

#### 特点

- 无溴、无锑，废弃物燃烧时无毒性物质产生
- 适用于多层板无铅制程
- 最小 Tg 值 150°C (DSC)
- 优良的耐热性能, T260>120min, T288>30min, Td>360°C
- 较低的 CTE (Z-axis)
- 较低的吸水率
- 优良的耐离子迁移性能

#### Features

- No bromine and Antimony-free, no toxic substances evolution during waste burning
- Suitable for multi-layer lead-free process
- Min Tg150°C (DSC)
- High thermal resistance, T260>120min, T288>30min, Td>360°C
- Low CTE(Z-axis)
- Low moisture absorption
- Excellent CAF resistance

#### General Properties 一般特性

Test Item 测试项目	Unit 单位	Test Method (IPC-TM-650) 测试方法	Test Condition 处理条件	Specification (IPC-4101D/128) 规格值		Typical Value 典型值	
				Thk < 0.5mm	Thk ≥ 0.5mm	Thk < 0.5mm	Thk ≥ 0.5mm
Peel Strength (1 oz.) 铜箔剥离强度	N/mm	2.4.8	125°C	≥0.70	≥0.70	1.05	1.13
			Float 288°C/ 10 Sec	≥0.80	≥1.05	1.22	1.39
			After process solution	≥0.55	≥0.80	0.87	0.96
Flammability 燃烧性	Rating	UL94	E-24/23	UL94 V-0		V-0	
Thermal stress 热应力	Sec	2.4.13.1	Float 288°C/unetched	≥10		180	
Glass Transition (Tg) 玻璃化转变温度	°C	2.4.25	E-2/105 DSC	≥150		157	155
Surface Resistivity 表面电阻	MΩ	2.5.17.1	C-96/35/90	≥1.0×10 <sup>4</sup>	—	2.7×10 <sup>7</sup>	—
			After moisture resistance	—	≥1.0×10 <sup>4</sup>	—	8.4×10 <sup>7</sup>
			At elevated temperature E-24/125	≥1.0×10 <sup>3</sup>	≥1.0×10 <sup>3</sup>	5.4×10 <sup>7</sup>	5.7×10 <sup>7</sup>
Volume Resistivity 体积电阻	MΩ-cm	2.5.17.1	C-96/35/90	≥1.0×10 <sup>6</sup>	—	2.6×10 <sup>10</sup>	—
			After moisture resistance	—	≥1.0×10 <sup>4</sup>	—	5.8×10 <sup>7</sup>
			At elevated temperature E-24/125	≥1.0×10 <sup>3</sup>	≥1.0×10 <sup>3</sup>	3.2×10 <sup>10</sup>	8.3×10 <sup>8</sup>
Flexural Strength 抗弯强度	N/mm <sup>2</sup>	2.4.4	Length direction	—	≥415	—	505
			Cross direction	—	≥345	—	397
Dielectric breakdown 介质击穿	kV	2.5.6	D-48/50+D0.5/23	—	≥40	—	60
Dielectric strength 介质强度	kV/mm	2.5.6.2	D-48/50+D0.5/23	≥30	—	45	—
Dielectric Constant 介电常数	—	2.5.5.2	Etched/@1 MHZ	≤5.4		4.7	
Loss Tangent 介质损耗	—	2.5.5.2	Etched/@1 MHZ	≤0.035		0.017	
Arc Resistance 耐电弧性	Sec	2.5.1	D-48/50+D-0.5/23	≥60		120	
Water Absorption 吸水率	%	2.6.2.1	D-24/23	—	≤0.8	—	0.2
CTE/ Z-Axis Expansion Z-轴热膨胀系数	ppm/°C	2.4.24	Alpha 1	—	≤60	—	45.32
			Alpha 2	—	≤300	—	224.2
	%		50-260°C	—	≤3.5	—	3.027
T-260	min	2.4.24.1	TMA	—	≥30	—	>120
T-288	min	2.4.24.1	TMA	—	≥5	—	>30
TD	°C	2.4.24.6	TGA	—	≥325	—	376.90

#### Remarks:

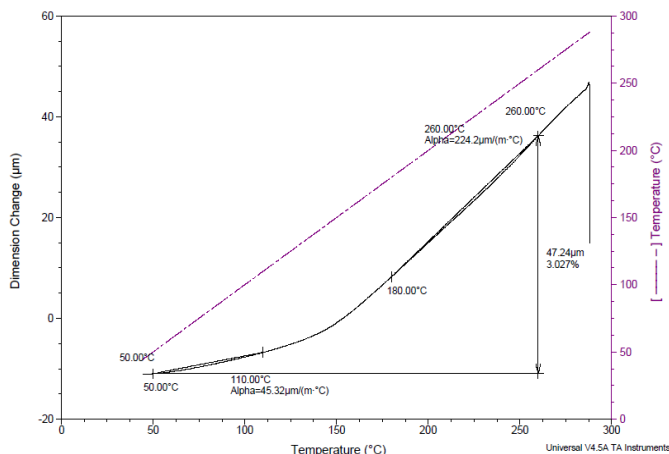
- A = Keep the specimen originally without any process 保持原样, 不作处理  
 C = Temperature and humidity conditioning 在恒温恒湿的空气中处理  
 D = Immersing in distilled water with temperature control 浸在恒温的水中处理  
 E = Temperature conditioning 在恒温的空气中处理

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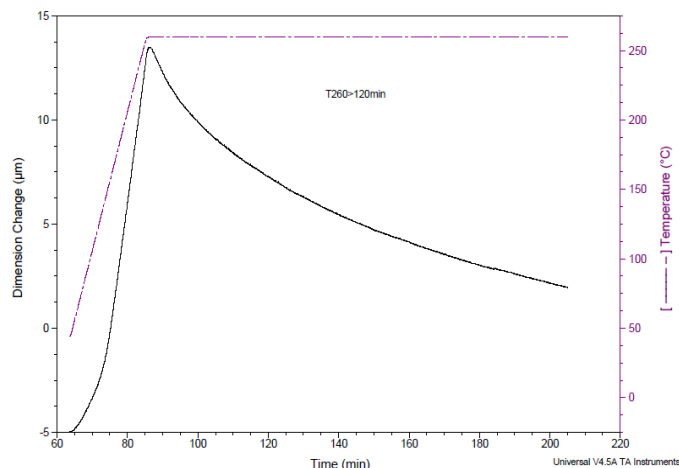
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#### Speciality Chart 板材特性图

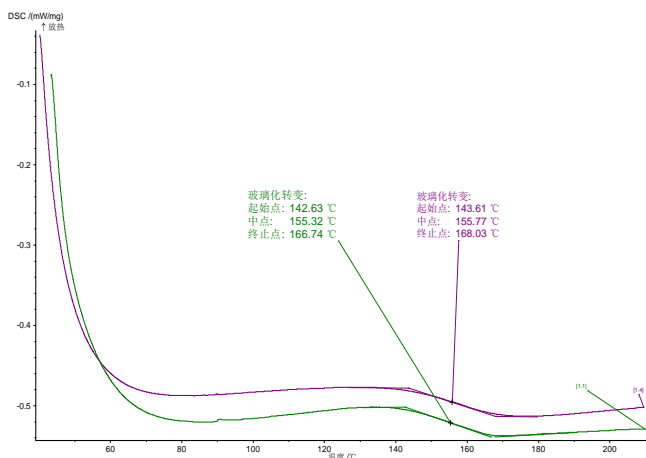
Lower CTE(Z-axis)



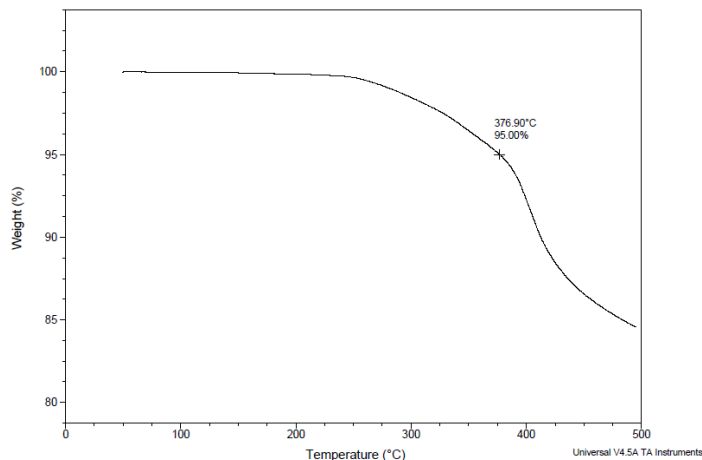
Long De-lamination Time: TMA-T260>120min



Tg(DSC)=155.77 $^{\circ}\text{C}$



High Td:TGA-Td(5% Wt Loss,10 $^{\circ}\text{C}/\text{min}$ )=376.90 $^{\circ}\text{C}$



#### Applications 应用领域

- 计算机及外围设备、通讯设备、仪器仪表、办公自动设备等  
Computer peripherals, communication equipment, instrument, office automation equipment, etc.

#### Purchasing Information 采购信息

Base Color 基材颜色	Thickness 厚度	Copper Cladding 铜箔厚度	Regular Size (mm) 常规尺寸	CTI Value CTI 值
淡黄色 Pale Yellow	0.2mm ~ 1.6mm	18 $\mu\text{m}$ 35 $\mu\text{m}$ 70 $\mu\text{m}$	915*1220mm (36"*48") 1020*1220mm (40"*48") 1067*1220mm (42"*48")	175V

Note: Other sheet size and thickness could be available upon request.  
可根据客户要求提供其它尺寸和厚度