

## TECHNICAL INFORMATION 技術資料

## KB-6150/KB-6150C

KB-6150/KB-6150C 是一種環氧玻璃布基覆銅板，可用作單面/雙面線路板和多層線路板的芯板。具有良好的阻燃性能及尺寸穩定性。

KB-6150/KB-6150C is glass fabric based epoxy resin copper clad laminate, which could be processed into single/double sided printed circuit board or core for multilayer printed circuit board. It has good performances in flame resistance and dimensional stability.

Type 型號	Grade 級別	Construction 組成
KB-6150/KB-6150C	ANSI (NEMA) FR-4	玻璃布、銅箔、環氧樹脂 Glass fabric, Copper foil, Epoxy resin

*Features* 特點

- 紫外光阻擋性 (FR-4 NUV為KB-6150系列之一)  
**UV Blocking**

0.8 mm的板材UV透過率在0.5%以下，能有效地阻擋紫外線通過。

Board with a thickness of 0.8mm could effectively block UV radiation with less than 0.5% UV penetration.

- 良好的尺寸穩定性

**Excellent dimensional stability**

經熱處理後其尺寸變化小，可保證線路的精確定位。受熱時其厚度方面的尺寸變化小，可提高金屬化孔的可靠性。

Small dimension and thickness changes after heated could warrant precise positioning of circuits and improve the reliability of PTH.

- 良好的耐濕、熱性能

**Excellent heat and moisture resistance**

濕、熱條件下能有效抵抗離子遷移，能經受加嚴的濕、熱沖擊而不會產生白斑。  
Ion-migration is effectively minimized in hot and humid environment avoiding the occurrence of measling.

- 良好的厚度均勻性

**Excellent thickness uniformity**

良好的厚度均勻性可提高表面安裝元器件的裝配位置精度，有利于多層板層壓時的厚度控制。

Excellent thickness uniformity improves surface mounting precision which is propitious especially to the thickness control in multilayer PCB.

*Standard Configuration* 標準數據

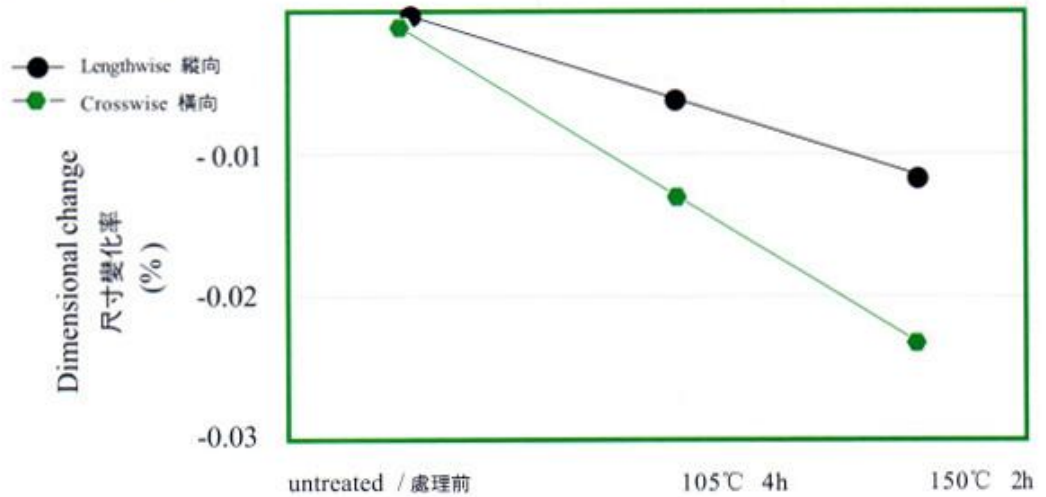
- **Thickness 厚度** : 0.1 mm - 3.2 mm (IPC-4101 Class B)
- **Copper Cladding 銅箔厚度** : 18  $\mu$ m, 35  $\mu$ m, 70  $\mu$ m
- **Regular Size (mm) 常規尺寸** : 914X1220, 1020X1220, 1041X1245, 1067X1220
- **Other Size 其他尺寸** : As specified by customers

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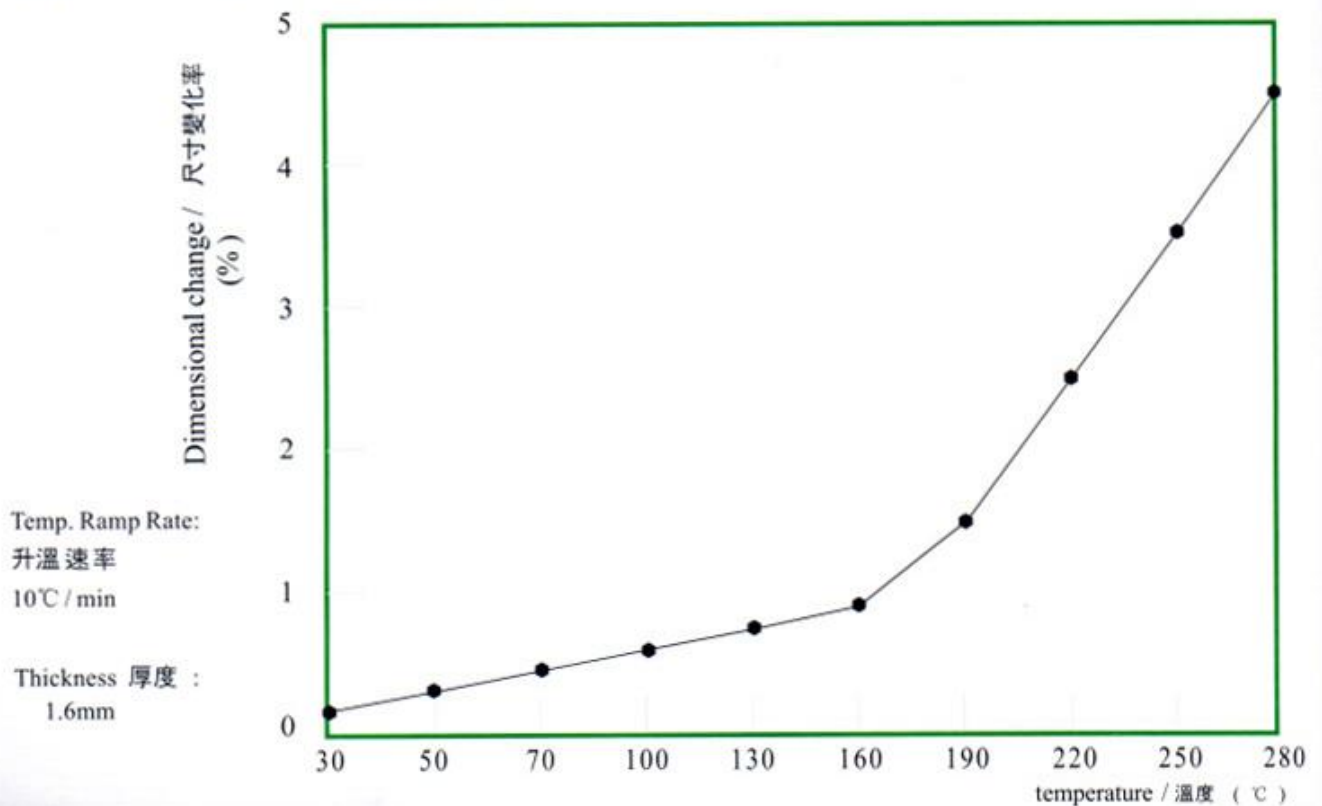
#### KB-6150/KB-6150C

#### Performance 表現

Dimensional change in crosswise and lengthwise direction after heat treatment  
熱處理後板材縱橫向尺寸變化



Relationship between change in thickness and temperature  
厚度方向尺寸變化率與溫度的關係





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#### 金屬化孔耐熱衝擊性

#### Heat resistance of PTH

試驗條件：260℃油中浸10秒 → 20℃流水中沖10秒 → 20℃溶劑中浸10秒，循環直至斷線為止。

Test Condition : dip in oil (260℃) for 10 seconds → wash in flowing water (20℃) for 10 seconds  
→ dip in solution (20℃) for 10 seconds, recycle the process until PTH break off.

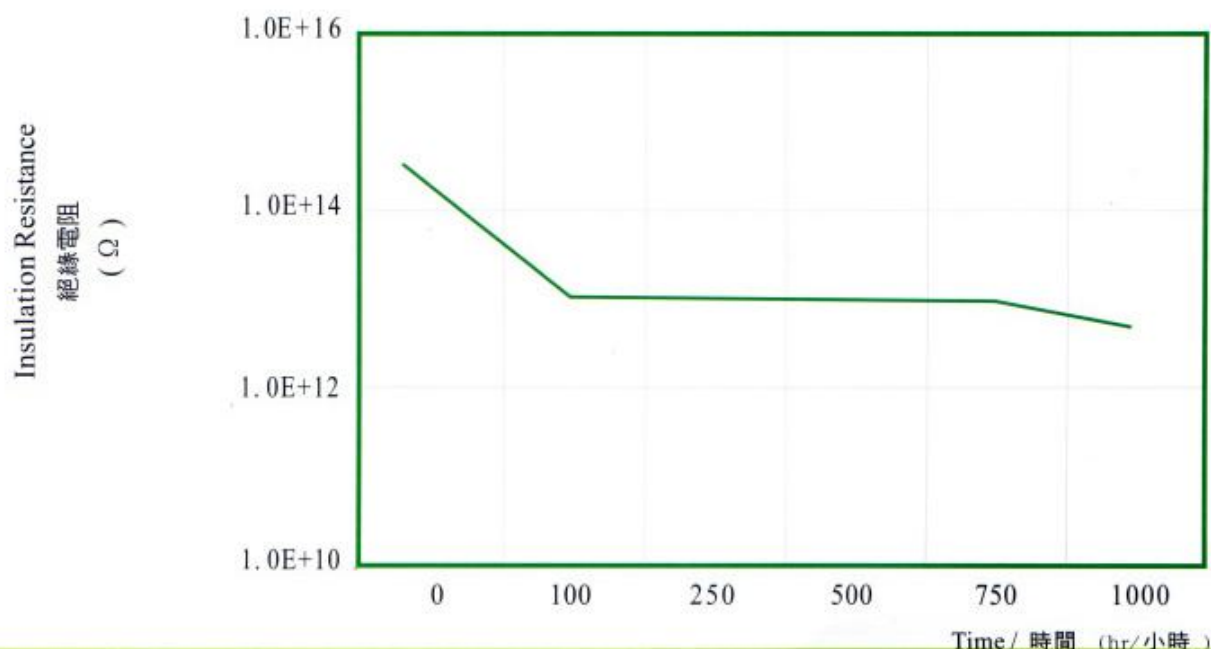
鍍層厚度 Thickness of PTH plating	25 μm	40 μm
循環次數 Number of cycles	36	69

#### 耐金屬離子遷移性

#### Resistance of ion-migration

在濕、熱 (40℃, RH93%) 條件下，施加直流電壓 (500V) 處理後測定絕緣電阻。

Test insulation resistance after applied with DC 500V in condition of 40℃, RH93%.



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#### KB-6150/KB-6150C (600V)

#### General Properties 一般特性

Properties 特性	Unit 單位	Test Condition 處理條件	IPC-4101A Testing Method IPC-4101測試方法	IPC-4101A Requirement IPC-4101要求	Typical Value 典型值	
					KB-6150	KB-6150C
Flexural Strength 抗彎強度	Kg/m <sup>2</sup>	Lengthwise Crosswise	2.4.4	Above 4.23 X 10 <sup>7</sup> Above 3.52 X 10 <sup>7</sup>	5.58 X 10 <sup>7</sup> 4.54 X 10 <sup>7</sup>	5.34 X 10 <sup>7</sup> 4.28 X 10 <sup>7</sup>
Peel Strength (1 oz) 抗剝強度 (1 安士)	Kg/cm	A	2.4.8	above 1.43	2.00	1.80
Flammability 耐燃性	Sec/秒	E24 / 23	2.3.10	Average Burn = 5 Max Burn = 10	1.6 7.0	2.3 7.0
Glass Transition(Tg) 玻璃化轉變溫度	°C	E2 / 105	2.4.25	above 130	135	133
Thermal Stress 耐焊性	Sec/秒	Float 288°C	2.4.13.1	above 20	above 180	165
Surface Resistance 表面電阻	MΩ	C96/35/90	2.5.17.1	above 1.0 X 10 <sup>4</sup>	1.0 X 10 <sup>7</sup>	1.0 X 10 <sup>7</sup>
Volume Resistivity 體積電阻率	MΩ-cm	C96/35/90	2.5.17.1	above 1.0 X 10 <sup>6</sup>	1.0 X 10 <sup>9</sup>	1.0 X 10 <sup>9</sup>
Permittivity 介電常數	—	Etched/@1MHZ	2.5.5.3	less than 5.4	4.6	4.4
Loss Tangent 介質損耗	—	Etched/@1MHZ	2.5.5.3	less than 0.035	0.020	0.022
CTI Value 相對漏電起痕指數	V/伏	E2/105 0.1%NH <sub>4</sub> Cl	—	Upper than 175	175	600
Moisture Absorption 吸水率	%	D24/23	2.6.2.1	less than 0.5	0.10	0.13
Coefficient of Thermal Expansion in the Z-Axis Z-軸熱膨脹系數	ppm/°C	E2/105 TMA	—	AABUS	45/246	49/249

Remarks: Typical values for reference only

註：典型值只作參考