

**KB-6150/6160 (ANSI: FR-4)****Unclad Laminates / 環氧玻纖布無銅板****特點**

- 無覆銅 FR-4 纖維布板（光板）
- 良好的厚度均勻性
- 相容紫外光阻擋及光學自動檢查功能（有要求時）
- 耐熱性能和機械性能與普通 FR-4 相同
- 符合 IPC-4101A 的規範要求

**Features**

- FR-4 without copper foil cladding
- Excellent thickness uniformity
- UV Blocking and AOI compatible (while having requirements)
- Heat resistance and mechanical properties are similar to normal FR-4
- IPC-4101A specification is applicable .

**應用領域****Application**

- 補強板、電位器、電阻片等
- Reinforcement laminate , Potentiometer , Resistance etc

**General Properties 一般特性**

Test Item 測試項目	Unit 單位	Test Method (IPC-TM-650) 測試方法	Test Condition 處理條件	Spec (IPC-4101A) 規格值	Typical Value 典型值
Bow / Twist 彎弓度/翹曲度	%	2.4.22.1	A	≤ 1.0	0.12 / 0.09
Flexural Strength 抗彎強度	N/mm <sup>2</sup>	2.4.4	Warp	≥415	565
			Fill	≥345	415
Flammability 燃燒性	Rating	UL94	UL94	UL94 V-0	V-0
Glass Transition (Tg) 玻璃化转变温度	°C	2.4.25	E-2/105 DSC	≥130	133
Surface Resistance 表面電阻	MΩ	2.5.17.1	C-96/35/90	≥1.0×10 <sup>4</sup>	1.0×10 <sup>7</sup>
Volume Resistance 體積電阻	MΩ-cm	2.5.17.1	C-96/35/90	≥1.0×10 <sup>6</sup>	1.0×10 <sup>9</sup>
Dielectric Constant 介電常數	—	2.5.5.2	Etched/@1 MHZ	≤5.4	4.6
Loss Tangent 介質損耗	—	2.5.5.2	Etched/@1 MHZ	≤0.035	0.022
Arc Resistance 耐電弧性	Sec	2.5.1	D-48/50+D-0.5/23	≥60	125
Moisture Absorption 吸水率	%	2.6.2.1	D-24/23	≤0.35(≥0.51)	0.10
				≤0.80(<0.51)	0.20

Remarks: Specimen Thickness: 1.6 mm 樣品厚度：1.6 mm

A=Maintain original shape,do not make handling 保持原樣,不作處理

C= Temperature and humidity conditioning 在恒溫恒濕的空氣中處理

E=Temperature conditioning 在恒溫的空氣中處理

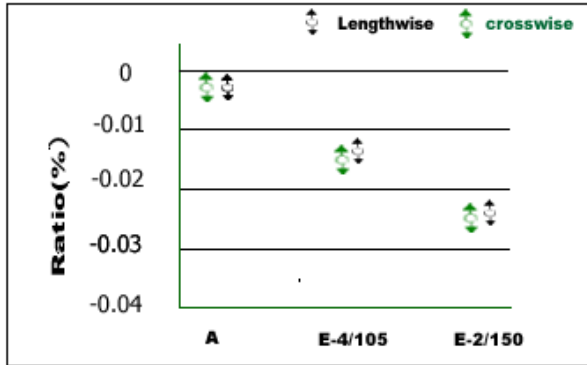
D= Temperature conditioning immersion in distilled water. 浸在恒溫的水中處理

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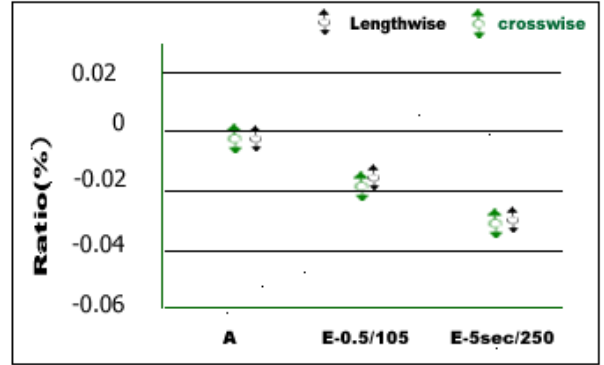
#### Unclad Laminates / 環氧玻纖布無銅板

#### Speciality Chart 板材特性圖

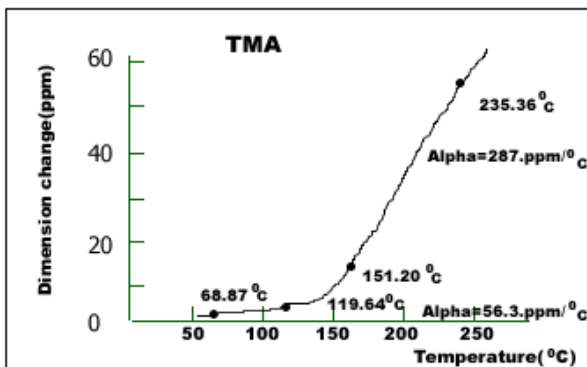
Dimensional stability 尺寸穩定性



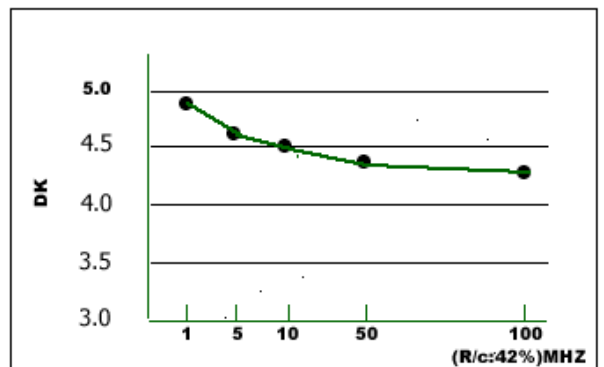
Dimensional stability-PCB process (size:360\*310mm)



Thermal expansion of Z-direction (test by TMA)



Dielectric constant 介電常數



#### Purchasing Information

Base Colour 基材顏色	Thickness 厚度	Regular Size (mm) 常規尺寸
White 白色	0.1mm ~ 3.2mm	1020*1220mm (40"*48")
Blue 藍色		1067*1220mm (42"*48")
Black 黑色		915*1220mm (36"*48")
Yellow 黃色		

Note: Other sheet size and thickness could be available upon request.

可根據客戶要求提供其他尺寸和厚度。