

# S1000-2

(ANSI:FR-4) Low CTE / Hi-Tg / Excellent Thermal Resistance

## 特点

- 无铅兼容FR-4板材。
- 高Tg170℃(DSC), UV Blocking和AOI兼容。
- 高耐热性。
- 较低Z-CTE值。
- 优异的通孔可靠性。
- 优异的Anti-CAF性能。
- 低吸水性。

## FEATURES

- Lead-free compatible FR-4 laminate.
- Tg 170°C (DSC), UV Blocking / AOI compatible.
- High heat resistance .
- Lower Z-axis CTE.
- Excellent through-hole reliability.
- Excellent anti-CAF performance.
- Low water absorption.

## 应用领域

适合于厚铜、厚径比较大结构的高多层印制线路板，广泛应用于计算机与通讯设备，工业控制用高档仪器仪表、路由器等。

## APPLICATIONS

Suitable for high aspect ratio and high-layer PCB. Widely used in computer, communication equipment, precise apparatus and instrument, router, etc.

## GENERAL PROPERTIES

Test Item	Treatment Condition	Unit	Property Data	
			SPEC	Typical Value
Tg	DSC	°C	≥170	175
Flammability	C-48/23/50	-	V-0	V-0
	E-24/125+des			
Volume Resistivity	After moisture resistance	MΩ-cm	≥ 10 <sup>6</sup>	2.2×10 <sup>8</sup>
	E-24/125		≥ 10 <sup>3</sup>	4.5×10 <sup>7</sup>
Surface Resistivity	After moisture resistance	MΩ	≥ 10 <sup>4</sup>	7.9×10 <sup>6</sup>
	E-24/125		≥ 10 <sup>3</sup>	1.7×10 <sup>7</sup>
Arc Resistance	D-48/50+D-0.5/23	S	≥ 60	100
Dielectric Breakdown	D-48/50+D-0.5/23	KV	≥ 40	63
Dielectric Constant (1MHz)	C-24/23/50	-	≤ 5.4	4.8
Dissipation Factor (1MHz)	C-24/23/50	-	≤ 0.035	0.013
Thermal Stress	Unetched	-	> 10s No delamination	100s No delamination
	Etched			
Peel Strength	1oz	288°C, 10s	N/mm	≥ 1.05 1.38
	Cu. Foil	125°C		
Flexural Strength	LW	A	MPa	≥ 415 562
	CW			≥ 345 518
Water Absorption	D-24/23	%	≤ 0.5	0.10
CTE Z-axis	Before Tg	TMA	PPM/°C	≤60 45
	After Tg	TMA	PPM/°C	≤300 230
	50~260°C	TMA	%	≤3.5 2.95
Td	10°C/min, N <sub>2</sub> , 5%Wt Loss	°C	≥325	335
T288	TMA	min	≥5	10
T260	TMA	min	≥30	60
CTI	IEC60112 Method	V	175~250 (grade3)	200

Remarks: All the data listed above can meet IPC-4101/99 requirement.  
Specimen Thickness:1.6mm

Explanations: C = Humidity conditioning;  
D = Immersion conditioning in distilled water;  
E = Temperature conditioning.

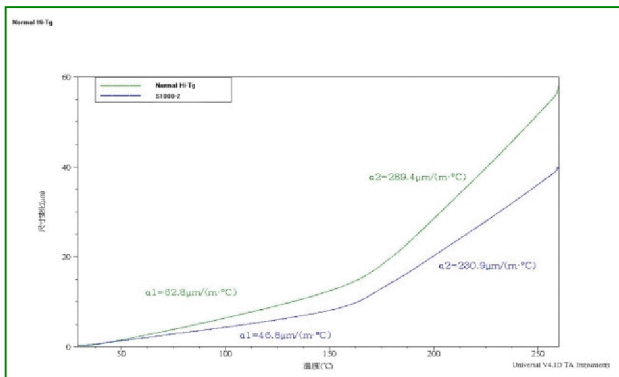
The figures following the letter symbols indicate with the first digit the duration of the preconditioning in hours, with the second digit the preconditioning temperature in °C and with the third digit the relative humidity.



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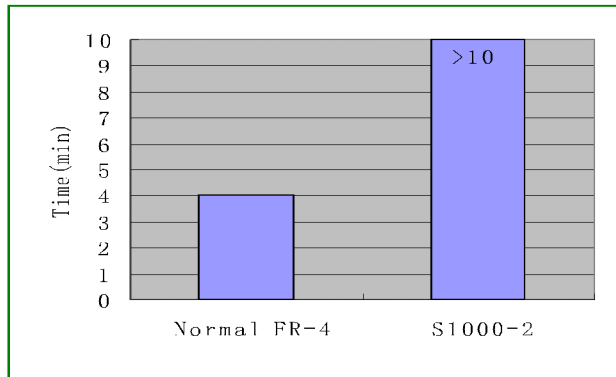
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## Lower Z-axis CTE



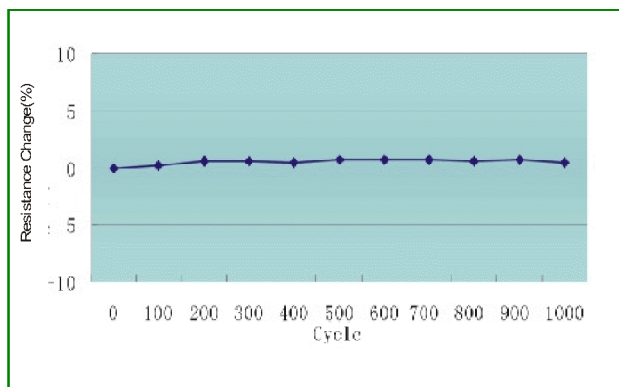
Test Sample: S1000-2 and normal FR-4 CCL  
 Test Method: TMA  
 Test Results: The Z-CTE of S1000-2 is lower than that of normal FR-4

## Excellent Thermal Stress Resistance



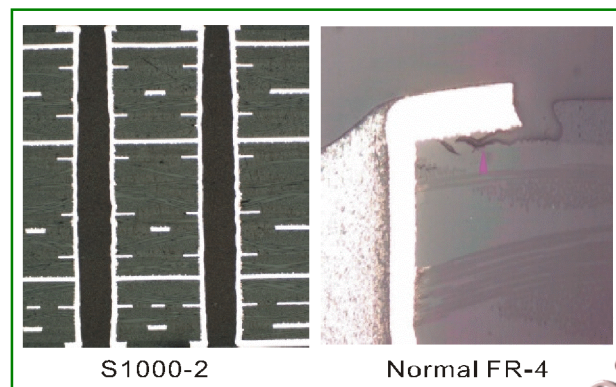
Test Sample: S1000-2 and normal FR-4 CCL  
 Test Method: Solder dip 288 $^\circ\text{C}$   
 Test Results: S1000-2 is better than normal FR-4 (time to delamination)

## High Thermal Shock Resistance



Test Sample: S1000-2 multi-layer board  
 Test Method: Q1000 (-45 $^\circ\text{C}$  ~ 130 $^\circ\text{C}$ )  
 Test Results: Pass 1000 cycles

## Excellent PTH Reliability



Test Sample: S1000-2 and normal FR-4 CCL  
 Test Method: Q1000 and micro-section  
 Test Results: Comparing to normal FR-4, S1000-2 has less lifted lands, barrel crack, and corner crack.

