



SM-780-H

Lead Free Tg200 Low CTE Laminate

(IPC-4101/126)

尚茂電子材料股份有限公司

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Website: <http://www.shinemore.com.tw>

UL/ANSI: FR-15.0 UL FILE: E199230

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General Specification:

Thickness		Copper Cladding		Standard Size	
<u>inch</u>	<u>(mm)</u>	<u>oz</u>	<u>(μm)</u>	<u>inch</u>	<u>(mm)</u>
0.003	(0.076)	3/8	(12)	37 x 49	(941 x 1246)
to		to		41 x 49	(1043 x 1246)
0.125	(3.175)	12	(420)	43 x 49	(1094 x 1246)

Characteristics

- Superior thermal stable material with ANSI grade of FR-15.0
- Multi-functional Epoxy with improved thermal, mechanical & electrical properties
- Different E-woven glass available (including 1027/1037/106/1067/1086/1080/3313/2116/1506/7628)
- Different copper foil types available (including HTE, RTF and VLP)

Features

- Higher Tg (Tg>200°C, measured by DSC)
- Lower CTE in Z direction
- Suitable for IC substrate making
- Lead-free compatible
- Compliant with RoHS regulation
- Excellent dimensional stability and thickness uniformity
- Superior thermal and chemical resistance
- PCB process-friendly, with good toughness and high modulus
- Designed in UV blocking function and AOI applicability
- With lower D_k/D_f compared with general FR-4.0/FR-15.0 laminates
- Superior CAF resistance and reliability properties

Applications

- High Layer Count(HLC) Server/Cloud storage device
- Communications/ Telecom
- Instrumentation/ Industry PC/ Medical
- Infrastructure
- Automotive Electronics

Test Items		Units Metric (English)	Test Condition	IPC Spec.	Typical Value	Test Method (IPC-TM-650)
Electrical	Dielectric Constant (D _k of RC50%)	1GHz	C-24/23/50	—	4.22	2.5.5.9
		5GHz		—	4.17	2.5.5.13
	Dissipation Factor (D _f of RC50%)	1GHz	C-24/23/50	—	0.019	2.5.5.9
		5GHz		—	0.021	2.5.5.13
	Volume Resistivity	MΩ -cm	C-96/35/90	> 10 ⁶	> 10 ¹¹	2.5.17.1
Surface Resistivity	MΩ	C-96/35/90	> 10 ⁴	> 10 ¹⁰	2.5.17.1	
Physical	Flexural Strength	N/mm ²	Length direction Cross direction	>415 >345	>450 >375	2.4.4
	Moisture absorption	%	E-24/50+D-24/23	< 0.5	< 0.1	2.6.2.1
	Peel strength (1oz)	N/mm (lb/in)	As Received	1.05 (6.0)	1.14 (6.5)	2.4.8
Thermal	Glass Transition Temp	°C	DSC	> 170	> 200	2.4.25
	Z-Axis alpha 1	ppm/°C	Before Tg	< 60	< 40	2.4.24
	Z-Axis alpha 2	ppm/°C	After Tg	< 300	< 180	2.4.24
	Z-Axis CTE	%	Expansion (50~260°C)	< 3.0	< 2.0	2.4.24
	X/Y-Axis CTE	ppm/°C	Before Tg	—	10/15	2.4.24
	Time to Delaminate	min	TMA (Unclad, 288°C)	> 15	>60	2.4.24.1
	Decomposition Temp.	°C	TGA (5% wt loss)	>340	>350	2.4.24.6
	Thermal stress	sec	288°C Solder dipping	> 10	> 120	2.4.13.1
	Flame Resistance	—	A&E-24/125	V-0	V-0	UL94

※Specification Sheet : IPC-4101/126

● Ordering Information

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NOTE

1. Typical Values are for information purpose only.
2. Any sale of these products will be governed by the terms and conditions of the agreement under which they are sold.