



S1000-2

(UL ANSI:FR-4.0) Low CTE / Hi-Tg

特点

- 无铅兼容FR-4.0板材。
- 高Tg170℃(DSC), UV Blocking和AOI兼容。
- 高耐热性。
- 低的Z轴热膨胀系数。
- 优异的通孔可靠性。
- 优异的Anti-CAF性能。
- 低吸水率。

FEATURES

- Lead-free compatible FR-4.0 laminate.
- Tg 170℃ (DSC), UV Blocking / AOI compatible.
- High heat resistance .
- Low Z-axis CTE.
- Excellent through-hole reliability.
- Excellent anti-CAF performance.
- Low water absorption.

应用领域

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

Widely used in computer, communication equipment, precise apparatus and instrument, router, and etc.

GENERAL PROPERTIES

Test Item		Treatment Condition	Unit	Property Data	
				SPEC	Typical Value
Tg		DSC	℃	≥170	180
		DMA		-	185
Flammability		C-48/23/50	Rating	V-0	V-0
		E-24/125			
Volume Resistivity		After moisture resistance	M Ω -cm	≥ 10 ⁶	2.2×10 ⁸
		E-24/125		≥ 10 ³	4.5×10 ⁶
Surface Resistivity		After moisture resistance	M Ω	≥ 10 ⁴	7.9×10 ⁷
		E-24/125		≥ 10 ³	1.7×10 ⁶
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	288℃, solder dip	-	>10s	100s
	Etched			No delamination	No delamination
Peel Strength	1oz	288℃, 10s	N/mm	≥ 1.05	1.38
	Cu. Foil	125℃		≥ 0.70	1.07
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/℃	≤60	45
	After Tg	TMA	PPM/℃	≤300	220
	50~260℃	TMA	%	≤3.0	2.8
Td		10℃/min, N ₂ , 5%Wt Loss	℃	≥340	345
T288		TMA	min	≥15	20
T260		TMA	min	≥30	60
T300		TMA	min	≥2	5
CTI		IEC60112 Method	Ratinge	PLC 3(175V--249V)	PLC 3

Remarks: 1.Specification sheet:IPC-4101/126, is for your reference only.

2.All the typical value is based on the 1.6mm specimen,while the Tg is for specimen ≥0.50mm.

3.All the typical value listed above is for your reference only, please turn to Shengyi Technology Co., Ltd. for detailed information, and all rights from this data sheet are reserved by Shengyi Technology Co., Ltd.

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 ℃ and with the third digit the relative humidity.

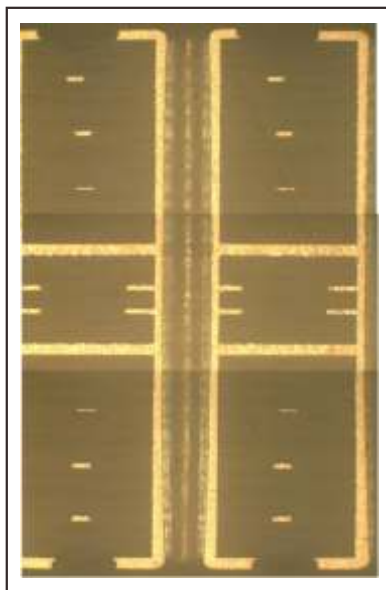


S1000-2

(UL ANSI:FR-4.0)Low CTE / Hi- T_g

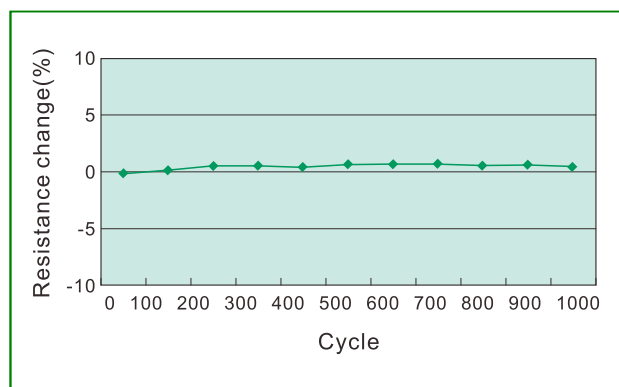
■ High layer count application evaluation

L1	H 02
L1-2	prepreg 2*106
L2	H 02
L2-3	Cure 0.076
L3	1 02
L3-4	prepreg 1080H+3313
L4	H 02
L4-5	Cure 0.089
L5	1 02
L5-6	prepreg 106+2116
L6	H 02
L6-7	Cure 0.114
L7	H 02
L7-8	prepreg 2*1080H
L8	1 02
L8-9	Cure 0.114
L9	2 02
L9-10	prepreg 2*1080H
L10	1 02
L10-11	Cure 0.100
L11	1 02
L11-12	prepreg 2*1080H
L12	2 02
L12-13	Cure 0.114
L13	1 02
L13-14	prepreg 2*1080H
L14	H 02
L14-15	Cure 0.114
L15	H 02
L15-16	prepreg 2116+106
L16	1 02
L16-17	Cure 0.089
L17	H 02
L17-18	prepreg 3313+1080H
L18	1 02
L18-19	Cure 0.076
L19	H 02
L19-20	prepreg 2*106
L20	H 02



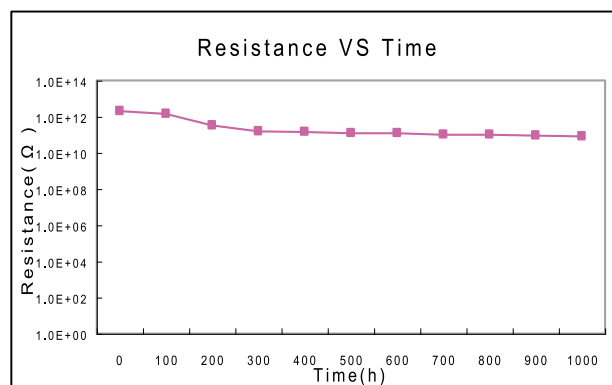
Structure : 20-Layer,
0.25mm/0.8Pitch
Overall thickness : 2.8mm
Test : 260°C reflow 5times

■ High Thermal Shock Resistance



Test Sample: S1000-2 multi-layer board
Test Method: Q1000 (-45°C ~ 130°C)
Test Results: Pass 1000 cycles

■ Anti-caf



Test Condition: 85°C/85%RH, DC 50V
Sample Condition: 1.6H/H pitch 0.8 mm
Hole size 0.30 mm

PURCHASING INFORMATION

Thickness	Copper foil	Standard Size	
0.05mm to 3.2mm	12 μ m to 105 μ m	1,020×1,220mm (40" × 48")	915×1,220mm (36" × 48")
		1,070×1,220mm (42" × 48")	

- ❖ Other sheet size and thickness could be available upon request.
- ❖ UL certificated Single/Double side PCB min. thickness 0.38mm.



S1000-2B PREPREG

(UL ANSI:FR-4.0) Bonding Prepreg For S1000-2

PREPREG PARAMETERS

Glass fabric type	Resin content (%)	Cured thickness (mm)	DK(1GHz)	Df(1GHz)	Standard size (Roll type)
106/1037	70	0.046	4.0	0.020	1.260m X150m
	73	0.052	3.9	0.021	
	76	0.060	3.8	0.022	
	78	0.065	3.8	0.022	
1080/1078	62	0.070	4.2	0.019	1.260m X300m
	65	0.077	4.1	0.019	
	68	0.086	4.0	0.020	
2313/3313	54	0.094	4.4	0.017	
	57	0.102	4.3	0.017	
2116	53	0.117	4.4	0.017	1.260m X250m
	56	0.127	4.3	0.017	
	58	0.134	4.3	0.018	
1506	44	0.150	4.6	0.015	1.260m X150m
	49	0.170	4.5	0.016	
7628	43	0.187	4.6	0.014	
	45	0.196	4.6	0.015	
	48	0.210	4.5	0.016	
	50	0.222	4.5	0.016	

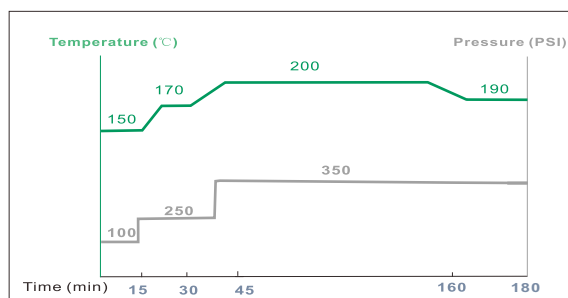
Remark: DK and Df are tested according to IPC TM-650 2.5.5.9

Prepreg type, resin content and size could be available upon request.

PREPREG TEST METHOD

- Resin Content, Resin Flow, Gel Time: IPC-TM-650

HOT PRESSING CYCLE



Heat-up rate: 1.0~2.5°C/min (80~140°C)

Curing time: >60min (185~195°C)

The hot pressing parameters is for your reference only, please turn to

Shengyi Technology Co., Ltd for detailed information.

STORAGE CONDITION

- Three months when stored at <23 °C and <50% RH .
- Six months when stored at <5°C. Normalize in room temperature for at least 4h before using.
- Beware of moisture, always keep wrapped in damp-proof material. Were kept in normal condition, prepreg might absorb moisture and its bonding strength would be weakened.
- Avoid UV-rays and strong light.

Based Material Line Up

S1000-2/S1000-2B

1. CORE (C-STAGE)

Thickness		ply-up	RC (%)	Dk				Df			
mm	mil			1 GHz	3 GHz	5 GHz	10 GHz	1 GHz	3 GHz	5 GHz	10 GHz
0.050	2.00	1x106	72	3.92	3.81	3.76	3.72	0.021	0.021	0.021	0.022
0.063	2.52	1x1065	65	4.09	4.01	3.96	3.92	0.019	0.020	0.020	0.021
0.076	3.04	1x1080	64	4.12	4.04	3.99	3.95	0.019	0.019	0.020	0.021
0.090	3.60	1X3313/2313	52	4.41	4.37	4.33	4.29	0.016	0.017	0.017	0.018
0.100	4.00	1x2313	55	4.34	4.29	4.25	4.21	0.017	0.018	0.018	0.019
0.100	4.00	2x106	72	3.92	3.81	3.76	3.72	0.021	0.021	0.021	0.022
0.110	4.40	1x2116	49	4.49	4.45	4.42	4.38	0.016	0.016	0.017	0.018
0.110	4.40	1x2313	59	4.24	4.18	4.13	4.09	0.018	0.018	0.019	0.020
0.125	5.00	1x2116	56	4.31	4.26	4.22	4.18	0.017	0.018	0.018	0.019
0.125	5.00	2x106	76	3.82	3.70	3.65	3.60	0.022	0.022	0.022	0.023
0.150	6.00	1x1500/1506	44	4.61	4.59	4.56	4.52	0.015	0.015	0.016	0.017
0.156	6.24	2x1080	65	4.09	4.01	3.96	3.92	0.019	0.020	0.020	0.021
0.200	8.00	2x2313/2113	55	4.34	4.29	4.25	4.21	0.017	0.018	0.018	0.019
0.200	8.00	1x7628	45	4.59	4.57	4.53	4.49	0.015	0.015	0.016	0.017
0.240	9.60	2x2116	53	4.39	4.34	4.30	4.26	0.017	0.017	0.018	0.019
0.300	12.00	2116+1080+2116	47	4.54	4.51	4.47	4.43	0.015	0.016	0.016	0.017
0.350	14.00	2x7628	40	4.71	4.70	4.67	4.63	0.014	0.014	0.015	0.016
0.380	15.00	2x7628	43	4.64	4.63	4.59	4.54	0.015	0.016	0.017	0.015
0.400	16.00	2x7628	45	4.59	4.57	4.53	4.49	0.015	0.015	0.016	0.017

Based Material Line Up

0.450	18.00	2X7628+1080	48	4.51	4.48	4.44	4.41	0.016	0.016	0.017	0.018
0.500	20.00	2X7628+2116	47	4.54	4.51	4.47	4.43	0.015	0.016	0.016	0.017
0.600	24.00	3X7628	45	4.59	4.57	4.53	4.49	0.015	0.015	0.016	0.017
0.710	28.00	4X7628	40	4.71	4.70	4.67	4.63	0.014	0.014	0.015	0.016
0.800	32.00	4X7628	45	4.59	4.57	4.53	4.49	0.015	0.015	0.016	0.017
1.000	40.00	5X7628	45	4.59	4.57	4.53	4.49	0.015	0.015	0.016	0.017
1.200	47.00	6X7628	45	4.59	4.57	4.53	4.49	0.015	0.015	0.016	0.017

2. PREPREG (B-STAGE)

Glass style	RC (%) Nominal	Thickness		Dk				Df			
		mm	mil	1GHz	3GHz	5GHz	10GHz	1 GHz	3 GHz	5 GHz	10 GHz
1067	74	0.072	2.83	3.87	3.76	3.70	3.66	0.022	0.022	0.024	0.023
106/1037	70	0.050	1.97	3.97	3.87	3.82	3.78	0.021	0.021	0.023	0.022
	73	0.055	2.17	3.90	3.79	3.73	3.69	0.021	0.022	0.023	0.022
	76	0.063	2.48	3.82	3.70	3.65	3.61	0.022	0.022	0.024	0.023
	78	0.070	2.76	3.77	3.65	3.59	3.55	0.022	0.023	0.024	0.024
1080/1078	62	0.076	2.99	4.17	4.10	4.05	4.00	0.019	0.019	0.021	0.020
	64	0.078	3.07	4.12	4.04	3.99	3.95	0.019	0.019	0.020	0.021
	65	0.080	3.15	4.09	4.01	3.96	3.92	0.020	0.020	0.022	0.020
	68	0.089	3.50	4.02	3.93	3.88	3.83	0.020	0.021	0.022	0.021
2313	54	0.100	3.94	4.36	4.32	4.27	4.23	0.017	0.018	0.019	0.018
	57	0.106	4.17	4.29	4.24	4.19	4.14	0.018	0.018	0.020	0.018
2116	53	0.122	4.80	4.39	4.35	4.30	4.26	0.017	0.018	0.019	0.017

Based Material Line Up

	56	0.130	5.12	4.31	4.27	4.22	4.17	0.018	0.018	0.020	0.018
	58	0.140	5.51	4.27	4.21	4.16	4.11	0.018	0.019	0.020	0.019
1506	44	0.150	5.91	4.61	4.60	4.56	4.51	0.015	0.016	0.017	0.015
	49	0.175	6.89	4.49	4.46	4.42	4.37	0.016	0.017	0.018	0.016
7628	43	0.193	7.60	4.64	4.63	4.59	4.54	0.015	0.016	0.017	0.015
	45	0.200	7.87	4.59	4.58	4.53	4.48	0.015	0.016	0.017	0.015
	48	0.216	8.50	4.51	4.49	4.44	4.40	0.016	0.017	0.018	0.016
	50	0.225	8.86	4.46	4.44	4.39	4.34	0.017	0.017	0.019	0.017

3. REMARK

- 1) Test by SPDR method
- 2) The data above show actual values and are not guaranteed.
- 3) Last update: July, 2018