



S1165

(ANSI:FR-4) High Performance Halogen-Free

特点

- 无铅兼容FR-4板材。
- UV Blocking与AOI兼容。
- 高Tg无卤产品，Tg 170°C (DSC)。
- 板材具备较低的z轴膨胀系数。
- 较低的介电损耗，Df<0.01。

FEATURES

- Lead-free compatible FR-4 laminate.
- UV Blocking/AOI compatible.
- High Tg Halogen-free product, Tg 170°C(DSC).
- Lower Z-axis CTE .
- Lower dissipation, Df<0.01.

应用领域

手机、电脑、仪器仪表、摄像机、电视机、电子游戏机、通讯设备等。

APPLICATIONS

Mobile phone, computer, instrumentation, VCR, TV, electronic game machine, communication equipment ,and etc.

GENERAL PROPERTIES

Test Item	Treatment Condition	Unit	Property Data	
			SPEC	Typical Value
Tg	DSC	°C	≥165	170
Flammability	C-48/23/50	-	V-0	V-0
	E-24/125			
Volume Resistivity	After moisture resistance	MΩ-cm	≥ 10 ⁶	2.0×10 ¹⁰
	E-24/125		≥ 10 ³	2.0×10 ⁸
Surface Resistivity	After moisture resistance	MΩ	≥ 10 ⁴	1.0×10 ⁷
	E-24/125		≥ 10 ³	4.0×10 ⁹
Arc Resistance	D-48/50+D-0.5/23	S	≥ 60	127
Dielectric Breakdown	D-48/50+D-0.5/23	KV	≥ 40	55
Dielectric Constant (1MHz)	C-24/23/50	-	≤ 5.4	4.8
Dissipation Factor (1MHz)	C-24/23/50	-	≤ 0.035	0.007
Thermal Stress	Unetched	288°C, solder dip	>10s	100s
	Etched		No delamination	No delamination
Peel Strength	1oz	288°C, 10s	≥ 1.05	1.5
	Cu. Foil	125°C	≥ 0.70	1.4
Flexural Strength	LW	A	≥ 415	561
	CW		≥ 345	476
Water Absorption	D-24/23	%	≤ 0.5	0.15
CTE z-axis	Before Tg	TMA	PPM/°C	≤60
	After Tg		PPM/°C	≤300
	50-260°C		%	≤3.5
Td	10°C/min, N ₂ , 5%Wt Loss	°C	≥325	360
T260	TMA	min	≥30	60
T288	TMA	min	≥5	60
CTI	IEC60112 Method	V	175~250(grade3)	175

Remarks: All the data listed above can meet IPC-4101/94 requirement.

Specimen Thickness:1.6mm

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

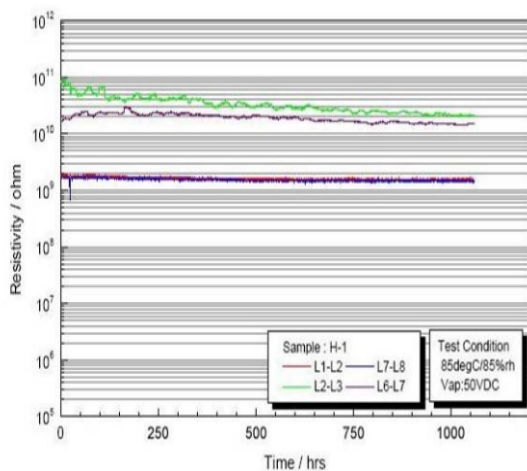
The figures following the letter symbols indicate with the first digit the duration of the preconditioning in hours, with the second digit the preconditioning temperature in °C and with the third digit the relative humidity.



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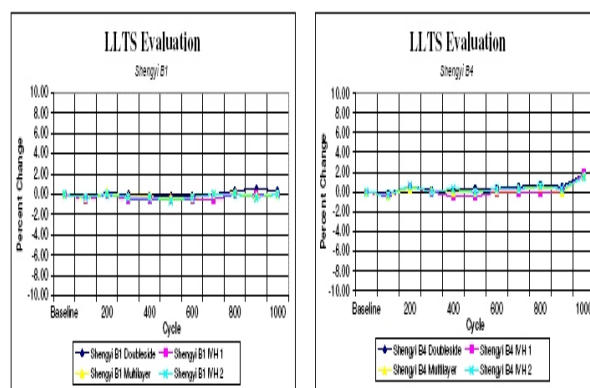
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■ Anti-CAF Test



Test condition: 85°C/85%RH/50V DC/1000hours.
Specimen:8-layer board (Build up,1+6+1)

■ LLTS Test



LLTS condition: -55°C~+125°C, 1000cycles
Resistance change percent <5%
Specimen:8-layer board (Build up,1+6+1)

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") 1,070×1,220mm (42" × 48")	915×1,220mm (36" × 48")

❖ Other sheet size and thickness could be available upon request.

HALOGEN CONTENT TEST

❖ JPCA-ES-01-2003 Standard “Test method of halogen-free materials”

Halogen	JPCA Standard	S1165
Cl	≤0.09%	0.05%
Br	≤0.09%	0.00%



S0165 PREPREG

(ANSI:FR-4) Bonding Prepreg For S1165

特点

- 不含卤素、锑、红磷等成分。
- 高Tg 170℃(DSC)。

FEATURES

- Constituents free of halogen, antimony, red phosphorous, and etc.
- High Tg 170℃(DSC).

PREPREG PARAMETERS

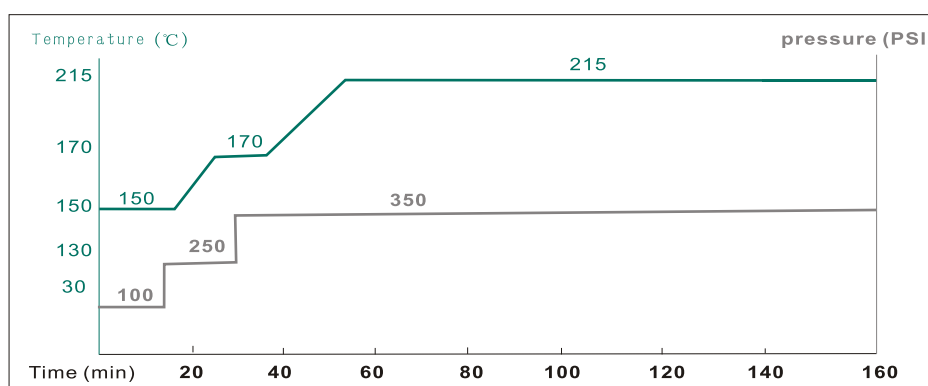
Designation	Glass fabric type	Performance	Gel time (sec)	Resin Content (%)	Resin flow (%)	Cured Thickness (μm)	Standard Size (roll type)
S0165	106	High Performance Halogen Free	150±20	68±3	41±5	50±10	1,260mm×114.3m (125yards)
	106LD			68±3	41±5	50±10	
	1078LD			62±3	42±5	78±10	
	1080			62±3	42±5	78±10	
	1086LD			59±3	42±5	78±10	
	2112			54±3	30±5	90±15	
	2113			53±3	26±5	100±15	
	2313			52±3	26±5	100±15	
	3313			52±3	26±5	100±15	
	2116			50±3	31±5	120±15	
	2165			49±3	26±5	140±15	
	1500			43±3	22±5	160±15	
	7628			41±3	23±5	195±20	

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: 1.5~2.5℃/min (80~140℃)
Curing time:>60min (185~195℃)

STORAGE CONDITION

- Three months when stored at <23℃ and <50% RH .
- Six months when stored at <5℃. 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.