# S1170

## (ANSI:FR-4) Excellent Thermal Resistance / High Tg

### 特点

- 无铅兼容FR-4板材。
- 高Tg170℃(DSC)。
- 高耐热性。
- 优异的Anti-CAF性能。
- 低Z-CTE。
- 低吸水率。

### 应用领域

适合于高多层印制线路板，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。

### FEATURES

- Lead-free compatible FR-4 laminate.
- High Tg 170℃(DSC).
- Excellent thermal stability.
- Excellent anti-CAF performance.
- Low Z-axis CTE.
- Low water absorption.

### APPLICATIONS

Suitable for high-count layer PCB.
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 | 175 |
| Flammability | | C-48/23/50 | - | V-0 | V-0 |
| | | E-24/125+des | | | |
| Volume Resistivity | | After moisture resistance | MΩ-cm | ≥ $10^6$ | $3.5\times10^8$ |
| | | E-24/125 | | ≥ $10^3$ | $2.3\times10^6$ |
| Surface Resistivity | | After moisture resistance | MΩ | ≥ $10^4$ | $1.8\times10^5$ |
| | | E-24/125 | | ≥ $10^3$ | $5.1\times10^6$ |
| Arc Resistance | | D-48/50+D-0.5/23 | S | ≥60 | 123 |
| Dielectric Breakdown | | D-48/50+D-0.5/23 | KV | ≥ 40 | 62 |
| Dielectric Constant (1MHz) | | C-24/23/50 | - | ≤ 5.4 | 4.6 |
| Dissipation Factor (1MHz) | | C-24/23/50 | - | ≤ 0.035 | 0.012 |
| Thermal Stress | Unetched | 288℃, solder dip | - | >10s No delamination | 100s No delamination |
| | Etched | | | | |
| Peel Strength | 1oz Cu. Foil | 288℃,10s | N/mm | ≥ 1.05 | 1.45 |
| | | 125℃ | | ≥ 0.70 | 1.23 |
| Flexural Strength | LW | A | MPa | ≥ 415 | 587 |
| | CW | | | ≥ 345 | 531 |
| Water Absorption | | D-24/23 | % | ≤ 0.5 | 0.10 |
| CTE Z-axis | Before Tg | TMA | PPM/℃ | ≤60 | 55 |
| | After Tg | TMA | PPM/℃ | ≤300 | 280 |
| | 50~260℃ | TMA | % | ≤3.5 | 3.3 |
| Td | | 10℃/min,$N_2$,5%Wt Loss | ℃ | ≥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-4101/124 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 ℃ and with the third digit the relative humidity.

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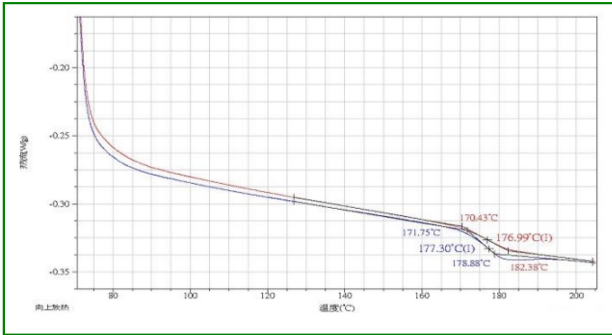
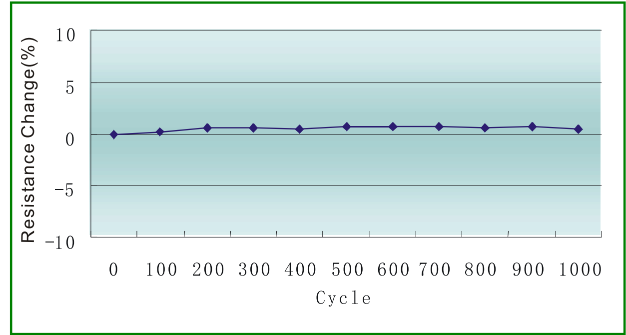
### High Tg



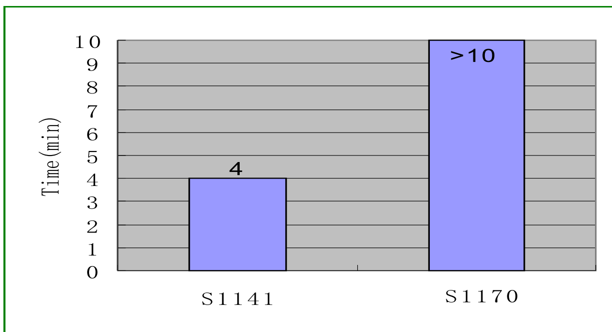

Test Sample: S1170 1.6mm CCL
Test Method: DSC
Test Results: 176.99℃/177.30℃

### Excellent Thermal Shock Resistance（Q1000）



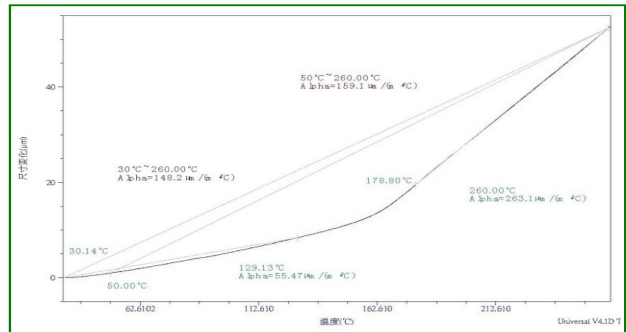

Test Sample: S1170 multi-layer Board
Test Method: Q1000（-45℃～130℃）
Test Results: Pass 1000 cycles

### Excellent Thermal Stress Resistance



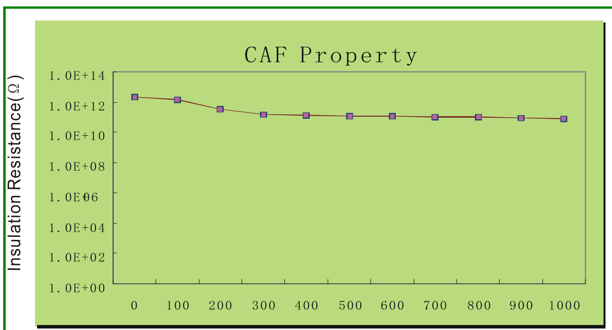

Test Sample: S1170 and Standard FR-4 CCL
Test Method: Solder dip 288℃
Test Results: S1170 is better than Standard FR-4 (time to delamination)

### Low Z-axis CTE



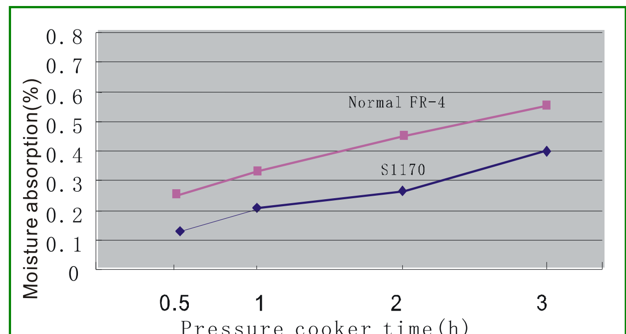
Test Sample: S1170 1.6mm CCL
Test Method: TMA
Test Results: 3.3% (50℃～260℃)

### Excelent Anti-CAF Performance




Test Sample: S1170 multi-layer Board
Test Method: 85℃/85%RH/DC 50V
Test Results: Pass 1000 hours

### Low Water Absorption




Test Sample: S1170 and Standard FR-4 CCL
Test Method: PCT
Test Results: S1170 is better than Standard FR-4

# S0701 PREPREG

## (ANSI:FR-4) Bonding Prepreg For S1170

### 特点

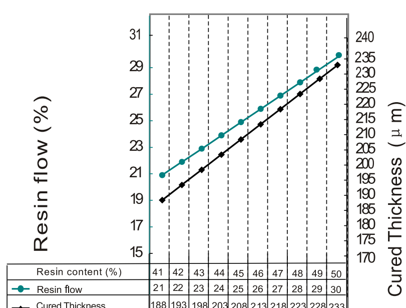
- 高Tg 170℃(DSC)。
- 良好的粘合性能与PCB可加工性能。
- 与S1170芯板配套使用。

### FEATURES

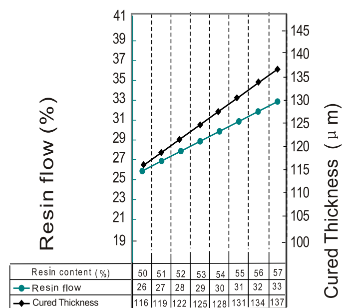
- High Tg 170℃ (DSC).
- Excellent adhesion property and PCB processability.
- Coordinate with S1170 T/C.

## PREPREG PARAMETERS

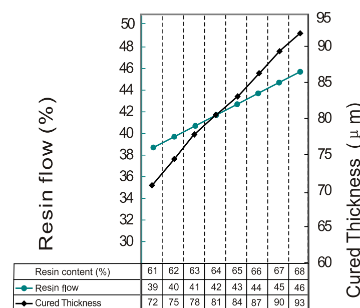
### 7628 TYPE PREPREG




### 2116 TYPE PREPREG




### 1080 TYPE PREPREG




| Designation | Glass fabric type | Performance | Gel time (sec) | Resin Content (%) | Resin flow (%) | Cured Thickness (μm) | Standard Size (roll type) |
|---|---|---|---|---|---|---|---|
| S0701 | 106 | High Performance | 90±20 | 71±3 | 47±5 | 50±10 | 1,260mm×114.3m (125yards) |
| | 106LD | | | 71±3 | 47±5 | 50±10 | |
| | 1080 | | | X±3 | X±5 | X±10 | |
| | 1080LD | | | 61±3 | 39±5 | 76±10 | |
| | 2112 | | | 57±3 | 30±5 | 92±15 | |
| | 2113 | | | 56±3 | 26±5 | 102±15 | |
| | 2313 | | | 55±3 | 26±5 | 102±15 | |
| | 3313 | | | 55±3 | 26±5 | 102±15 | |
| | 2116 | | | X±3 | X±5 | X±15 | |
| | 2165 | | | 52±3 | 26±5 | 143±15 | |
| | 1500 | | | 45±3 | 22±5 | 163±15 | |
| | 7628 | | | X±3 | X±5 | X±20 | |

*Type, Resin Content and Size Could be Available Upon Request*

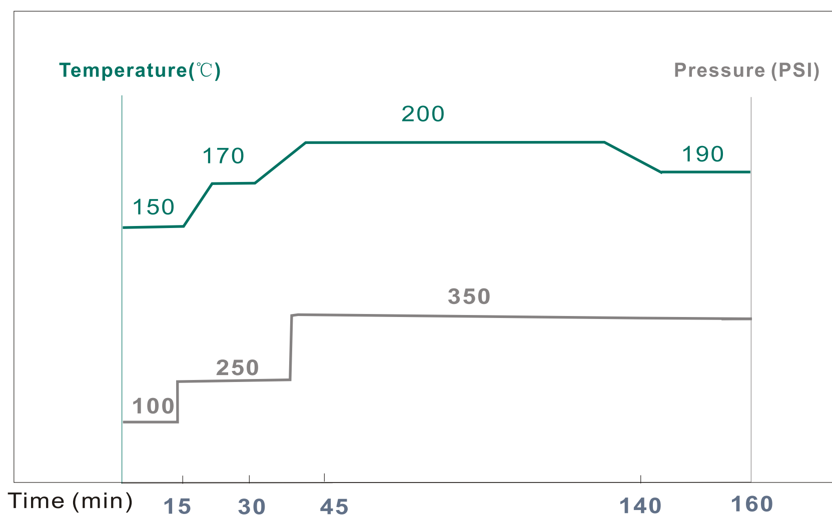
## PREPREG TEST METHOD

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

# S0701 PREPREG

(ANSI:FR-4) Bonding Prepreg For S1170

## HOT PRESSING CYCLE




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

## STORAGE CONDITION

- For short term storage, keep in 20℃, 50% RH within 3 months .
- For long term storage, keep in 5℃ within 6 months. 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.