

产品编号: NY1140

Conventional FR-4, Normal Tg, DICY Curing, UV Block/AOI Compatible

特点

- Tg 140°C FR-4 板材
- 优秀的剥离强度
- UV Blocking 和 AOI 兼容
- 较低的吸水率
- 优秀的尺寸安定性

FEATURES

- Tg 140°C FR-4
- Excellent Peel Strength
- UV Blocking/AOI Compatible
- Lower Water Absorption
- Excellent Dimension Stability

应用领域

- 消费电子类
- 仪器仪表类
- 通讯设备类

APPLICATIONS

- Consumer Electronics
- Instrumentations
- Communications, and etc.

● NY1140 采购信息 PURCHASING INFORMATION

| 基板厚度<br>Thickness  | 厚度公差<br>Tolerance    | 铜箔<br>Copper foil | 标准供应尺寸<br>Standard Size   |
|--------------------|----------------------|-------------------|---|
| 0.03mm<br>to 3.2mm | IPC4101<br>Class C/M | 1/4 oz<br>to 6 oz | 915×1220mm (36"×48"), 1020×1220mm (40"×48"),<br>1070×1220mm (42"×48"), 1830×1220mm (72"×48"),<br>2040×1220mm (80"×48"), 2140×1220mm (84"×48") |

\*其它尺寸和厚度亦可供应 Other sheet size and thickness could be available upon request.

| 半固化片<br>Prepreg | 标准供应尺寸<br>Standard Size | 常用玻纤布型号<br>Normal Glass Type                                   |
|-----------------|-------------------------|--|
| Normal          | 49.5" ×300 m            | Normal (106, 1080, 2113, 2313, 3313, 2116, 1652, 1506, 7628)   |
| Anti-CAF        | 49.5" ×150 m            | Anti-CAF (106, 1080, 2113, 2313, 3313, 2116, 1652, 1506, 7628) |
| LDPP (for HDI)  |                         | Laser Drillable (106, 1037, 1067,1078, 1080, 1086)             |

\*其它裁片尺寸和卷长度亦可供应 Other sheet size and roll length could be available upon request.

● 半固化片产品规格表 Specification Sheet for Prepreg

| NY1140 半固化片<br>NY1140 Prepreg                         | 单位<br>Units | 产品规格<br>Specification    | 典型值<br>Typical Value | 测试方法<br>Test Method            |
|---|-------------|--------------------------|----------------------|--------------------------------|
| 1. 玻纤布 Reinforcement                                  | -           | As per IPC-4412 or AABUS |                      |                                |
| 2. 树脂含量 Resin Content                                 | %           | ±2                       | ±2                   | 2.3.16.1C<br>By treated weight |
| 3. 胶化时间 Gel Time                                      | sec         | ±20                      | ±20                  | 2.3.18A                        |
| 4. 树脂流量 Resin Flow                                    | %           | ±5                       | ±5                   | 2.3.17D                        |
| 5. 挥发份含量 Volatile content                             | %           | <0.75                    | <0.75                | 2.3.19C                        |
| 6. 储存期 Shelf Life<br>(条件1Condition 1 /条件2Condition 2) | Days        | 180/90                   | 180/90               | AABUS                          |
| 7. 燃烧性 Flammability<br>(压合后as laminated)              | rating      | V-0                      | V-0                  | UL94                           |
| 8. 其它 Other   | -           | As per IPC-4101 or AABUS |                      |                                |

\*AABUS = 供需双方商定 As agreed upon between user and supplier.

\*储存期 Shelf Life (条件1Condition 1 / Temp.: <5°C, 条件2Condition 2/Temp.: <23°C R.H.: <50%).

● NY1140基板产品规格表 Specification Sheet for Laminate

| NY1140覆铜箔板<br>NY1140 Laminate  | 单位Units                       | 产品规格<br>Specification                                    |  | 典型值<br>Typical Value                              | 测试方法<br>Test Method           |
|--|-------------------------------|--|--|---|-------------------------------|
|  | Metric(English)               | <0.50mm  | ≥0.50mm  | 1.60mm CCL  | IPC-TM-650                    |
| 1. 抗剥强度 Peel Strength, 收货时 As received<br>A. 1/2 盎司及以下铜箔 17 micron copper<br>B. 1盎司铜箔 35 micron copper<br>C. 2盎司铜箔 70 micron copper<br>D. 3,4,5盎司及以上铜箔 105, 140, 175 micron copper and above | N/mm(lb/inch), minimum        | ≥0.79 (4.5)<br>≥1.05 (6.0)<br>≥1.40 (8.0)<br>≥1.58 (9.0) | ≥1.05 (6.0)<br>≥1.40 (8.0)<br>≥1.93 (11.0)<br>≥2.10 (12.0) | 1.90 (1oz)  | 2.4.8<br>2.4.8.2<br>2.4.8.3   |
| 2. 体积电阻 Volume Resistivity,<br>A. 恒温恒湿C-96/35/90<br>B. 耐湿后After moisture resistance<br>C. 高温下 At elevated temperature E-24/125   | MΩ-cm, minimum                | 10 <sup>6</sup><br>---<br>10 <sup>3</sup>                | ---<br>10 <sup>4</sup><br>10 <sup>3</sup>                  | ---<br>4.9×10 <sup>8</sup><br>4.7×10 <sup>6</sup> | 2.5.17.1                      |
| 3. 表面电阻 Surface Resistivity,<br>A. 恒温恒湿C-96/35/90<br>B. 耐湿后After moisture resistance<br>C. 高温下 At elevated temperature E-24/125  | MΩ, minimum                   | 10 <sup>4</sup><br>---<br>10 <sup>3</sup>                | ---<br>10 <sup>4</sup><br>10 <sup>3</sup>                  | ---<br>5.8×10 <sup>7</sup><br>5.5×10 <sup>6</sup> | 2.5.17.1                      |
| 4. 吸水率 Moisture Absorption   | % maximum                     | -  | 0.8  | 0.4   | 2.6.2.1                       |
| 5. 击穿电压 Dielectric Breakdown   | kV minimum                    | -  | 40   | 42  | 2.5.6                         |
| 6. 介电常数 Permittivity at 1 MHz, (Laminate & Prepreg as laminated)   | - maximum                     | <5.4   | <5.4   | 4.6   | 2.5.5.3<br>2.5.5.5<br>2.5.5.6 |
| 7. 介质损耗 Loss Tangent at 1 MHz, (Laminate & Prepreg as laminated)   | - maximum                     | <0.035   | <0.035   | 0.016   | 2.5.5.3<br>2.5.5.3<br>2.5.5.9 |
| 8. 弯曲强度 Flexural Strength,<br>A. 纵向 Length direction<br>B. 横向 Cross direction  | N/mm <sup>2</sup> , minimum   | -<br>-   | 415<br>345   | 600<br>500  | 2.4.4                         |
| 9. 高温弯曲强度 Flexural Strength at Elevated Temperature, length direction,   | N/mm <sup>2</sup> minimum     | -  | -  | -   | 2.4.4.1                       |
| 10. 耐电弧性 Arc Resistance  | S minimum                     | 60   | 60   | 120   | 2.5.1                         |
| 11. 热应力冲击 Thermal Stress<br>A. 未蚀刻 Unetched<br>B. 蚀刻 Etched  | 10 sec at 288°C               | Pass Visual<br>Pass Visual                               | Pass Visual<br>Pass Visual                                 | Pass<br>Pass                                      | 2.4.13.1                      |
| 12. 电气强度 Electric Strength (Laminate & Prepreg as laminated)   | kV/mm minimum                 | 30   | -  | -   | 2.5.6.2                       |
| 13. 燃烧性 Flammability (Laminate & Prepreg as laminated)   | Rating                        | V-0  | V-0  | V-0   | UL94                          |
| 14. 玻璃态转化温度 Glass Transition Temperature   | °C                            | --   | ≥135   | 140   | 2.4.24<br>2.4.25              |
| 15. 热分解温度 Decomposition Temperature  | °C                            | --   | --   | 310   | TBD<br>(5% wt loss)           |
| 16. 膨胀系数Z-Axis CTE<br>A. Alpha 1<br>B. Alpha 2<br>C. 50 to 260 °C  | PPM/°C<br>PPM/°C<br>%         | --<br>--<br>--   | --<br>--<br>--   | 65<br>310<br>4.5                                  | 2.4.24                        |
| 17. 耐热性(除去铜箔) Thermal Resistance (Copper removed)<br>A.T260<br>B.T288<br>C.T300  | Minutes<br>Minutes<br>Minutes | --<br>--<br>--   | --<br>--<br>--   | 13<br>2<br>--                                     | 2.4.24.1                      |
| 18. 耐CAF性能 CAF Resistance  | Pass/Fail                     | --   | --   | AABUS   | 2.6.25                        |

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● **NY1140 产品使用指引 Process guideline**

**1. 搬运及储存要求 Handling and Storage:**

- 半固化片和基板必须水平平坦放置，轻拿轻放，避免折伤。

Prepreg and Laminate should always be stored flat and horizontally. To avoid damage is recommended.

- 半固化片可以在干冷的环境下保存 3 个月（温度<23℃，相对湿度: <50%）

Shelf life is 3 months when prepreg stored in a cool dry environment (Temp.: <23℃ R.H.: <50%).

- 基板可以在常温干燥的环境下保存 1 年。

Shelf life is 1 year when laminate stored in a dry environment.

**2. PCB 内层制作指引 PCB Inner Layer Process guideline:**

- 基板在用于量产前，必须先做首板测试并得到合适制作参数（尺寸补偿系数等）。

First around must be taken and find a suitable parameter (as dimension compensation, etc) before mass production.

- 内层线路板在棕化后必须烘烤 120 摄氏度 30 分钟以上，以去除水气。

Inner layers should be baked for at least 30 min at 120℃ after black or brown oxides treatment

**3. PCB 压合制作参考 Multi-layer Lamination Suggestion:**

- 升温速率 Heating rate (80℃~ 140℃) / 高压设定 Highest Pressure:

慢升温速率: 1.0~2.0℃/min 高压设定: 350~400 psi, 快升温速率: 2.0~3.0℃/min 高压设定: 300~350 psi.

Slow heating rate: 1.0~2.0℃/min, Pressure: 305~400 psi. Fast heating rate: 2.0~3.0℃/min, Pressure: 300~350 psi.

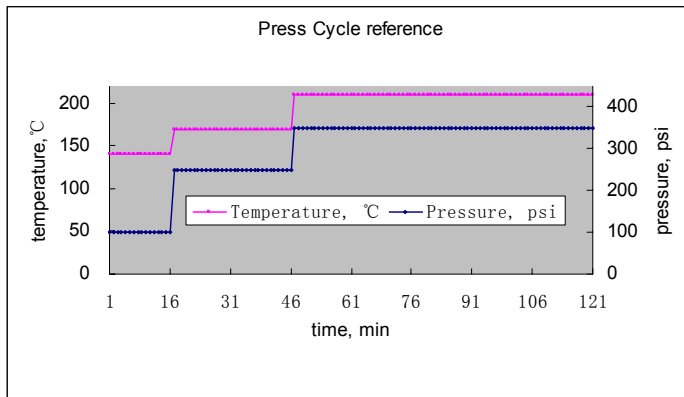
- 固化条件: 压机每本中间层板温必须在 170 摄氏度以上保持 45 分钟，以保证树脂完全固化。

Curing condition: Temperature of the inner boards, keep at least 45 minutes at 170℃ and above.

- 降温速率: 中间层板温高于 140 摄氏度时，降温速率应在 2.0℃/min 以下，以确保热应力完全释放。

Cooling rate: <2.0℃/min, when the temperature of the inner boards is over 140℃, in order to relax the thermal stress.

(建议压合程式如下图 Recommended Press Cycle as below).



**4. 其它制程 The other processes:**

- 钻孔: 钻孔参数必须依据钻咀质量、孔径、铜厚、板厚、层数、及叠板高度等条件设定，并且在量产前必须进行首板试验。

Drilling parameters are mainly dependent on the drill bit quality, hole size, copper thickness, layer thickness, layer number and stack height, and etc. First around must be taken and find a suitable parameter before mass production.

- 烘烤: 建议钻孔后及除胶渣前烘烤 150 摄氏度 2 小时以上，以去除释放机械应力。

To bake after drilling 150℃/ 2 hours, in order to relax the mechanical stress.

- 除胶渣: 一般情况下普通 Fr4 的除胶渣条件可能适合此款材料，如有需要可咨询药水供应商并作适当调整。

The typical parameters used to desmear Normal FR-4 may produce optimum hole topography for NY1140. If you need, you can consult with your chemical supplier to optimize your desmear condition, as desmear time or temperature, etc.

- 外型加工: 一般情况下普通的冲模条件可能适合此款材料，如有需要可咨询设备供应商并作适当调整，如冲床、模具类型等。

The typical punching parameters may produce optimum hole topography for NY1140. If you need, you can consult with your equipment supplier to optimize your punching condition.

--- 以上指引，仅供参考。The above process guideline is for general reference only. ---