

产品目录 Product List

(UL File No.: E213990)

产品类别 Classification	产品名称 Product	特性简述 Feature	固化体系 Curing	填充料 Filler	Tg (DSC, °C)	TD (TGA, °C)
传统 FR-4 Conventional FR-4	NY1140	符合 RoHS, 普通 Tg FR4 RoHS Compatible, Normal Tg FR4	DICY	No	140	310
	NY1150	符合 RoHS, 中 Tg FR4 RoHS Compatible, Mid-Tg FR4	DICY	No	155	330
	NY1170	符合 RoHS, 高 Tg FR4 RoHS Compatible, Hi-Tg FR4	DICY	Yes	175	325
	NY1600	符合 RoHS, 普通 Tg FR4, CTI>600V RoHS Compatible, Normal Tg FR4, CTI>600V	DICY	Yes	140	310
无铅制程因应产品 Lead Free Compatible FR-4	NY2150	高耐热性, 低 CTE, 中 Tg FR4 Excellent Thermal Resistance, Low CTE, Mid-Tg FR4	PN	Yes	155	345
	NY2170	高耐热性, 低 CTE, 高 Tg FR4 Excellent Thermal Resistance, Very Low CTE, Hi-Tg FR4	PN	Yes	175	350
无卤素&无铅制程 因应产品 Halogen free & Lead free Compatible FR-4	NY3140	高耐热性, 低 CTE, 普通 Tg FR4, 无卤素 Excellent Thermal Resistance, Low CTE, Normal Tg FR4, Halogen free	DICY	Yes	145	370
	NY3150	高耐热性, 低 CTE, 中 Tg FR4, 无卤素 Excellent Thermal Resistance, Low CTE, Mid-Tg FR4, Halogen free	PN	Yes	155	375
	NY3170	高耐热性, 低 CTE, 高 Tg FR4, 无卤素 Excellent Thermal Resistance, Very Low CTE, Hi-Tg FR4, Halogen free	PN	Yes	175	375
高频&无铅制程 因应产品 High Frequency & Lead free Compatible FR-4	NY6150	高耐热性, 低 CTE, 中 Tg FR4, 低介电常数 Excellent Thermal Resistance, Low CTE, Mid-Tg FR4, Low Dk & Low Df	--	Yes	155	345
	NY6200	高耐热性, 低 CTE, 高 Tg FR4, 低介电常数 Excellent Thermal Resistance, Low CTE, Hi-Tg FR4, Low Dk & Low Df	--	Yes	210	375

备注 Remark:

- 以上所有产品均符合 RoHS 指令及 SONY SS-00259 标准要求;
All the products listed above are compatible with RoHS directive and SONY SS-00259 standard.
- 以上所有产品都可生产可激光钻孔半固化片和耐阳离子迁移产品;
All the products listed above are available for Laser Drillable Prepreg and Anti-CAF products.
- 以上产品特性数据为测试典型值, 仅供参考。
All the data listed are typical values for your reference only.

产品编号: NY1140

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 Thickness	厚度公差 Tolerance	铜箔 Copper foil	标准供应尺寸 Standard Size
0.03mm to 3.2mm	IPC4101 Class C/M	1/4 oz to 6 oz	915×1220mm (36"×48"), 1020×1220mm (40"×48"), 1070×1220mm (42"×48"), 1830×1220mm (72"×48"), 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 Prepreg	标准供应尺寸 Standard Size	常用玻纤布型号 Normal Glass Type
Anti-CAF LDPP	49.5" ×115 m	For Anti-CAF (106, 1080, 2113, 2313, 3313, 2116, 1652, 1506, 7628) For Laser Drillable (106, 1037, 1067, 1078, 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 NY1140 Prepreg	单位 Units	产品规格 Specification	典型值 Typical Value	测试方法 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 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 (条件1Condition 1 /条件2Condition 2)	Days	180/90	180/90	AABUS
7. 燃烧性 Flammability (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 NY1140 Laminate	单位Units	产品规格 Specification		典型值 Typical Value	测试方法 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 A. 1/2 盎司及以下铜箔 17 micron copper B. 1盎司铜箔 35 micron copper C. 2盎司铜箔 70 micron copper 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) ≥1.05 (6.0) ≥1.40 (8.0) ≥1.58 (9.0)	≥1.05 (6.0) ≥1.40 (8.0) ≥1.93 (11.0) ≥2.10 (12.0)	1.90 (1oz)	2.4.8 2.4.8.2 2.4.8.3
2. 体积电阻 Volume Resistivity, A. 恒温恒湿C-96/35/90 B. 耐湿后After moisture resistance C. 高温下 At elevated temperature E-24/125	MΩ-cm, minimum	10 ⁶ --- 10 ³	--- 10 ⁴ 10 ³	--- 4.9×10 ⁸ 4.7×10 ⁶	2.5.17.1
3. 表面电阻 Surface Resistivity, A. 恒温恒湿C-96/35/90 B. 耐湿后After moisture resistance C. 高温下 At elevated temperature E-24/125	MΩ, minimum	10 ⁴ --- 10 ³	--- 10 ⁴ 10 ³	--- 5.8×10 ⁷ 5.5×10 ⁶	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 2.5.5.5 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 2.5.5.3 2.5.5.9
8. 弯曲强度 Flexural Strength, A. 纵向 Length direction B. 横向 Cross direction	N/mm ² , minimum	- -	415 345	600 500	2.4.4
9. 高温弯曲强度 Flexural Strength at Elevated Temperature, length direction,	N/mm ² 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 A. 未蚀刻 Unetched B. 蚀刻 Etched	10 sec at 288℃	Pass Visual Pass Visual	Pass Visual Pass Visual	Pass 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	℃	--	≥135	140	2.4.24 2.4.25
15. 热分解温度 Decomposition Temperature	℃	--	--	310	TBD (5% wt loss)
16. 膨胀系数Z-Axis CTE A. Alpha 1 B. Alpha 2 C. 50 to 260 ℃	PPM/℃ PPM/℃ %	-- -- --	-- -- --	65 310 4.5	2.4.24
17. 耐热性(除去铜箔) Thermal Resistance (Copper removed) A.T260 B.T288 C.T300	Minutes Minutes Minutes	-- -- --	-- -- --	13 2 --	2.4.24.1
18. 耐CAF性能 CAF Resistance	Pass/Fail	--	--	AABUS	2.6.25

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

● 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.

- 内层电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.

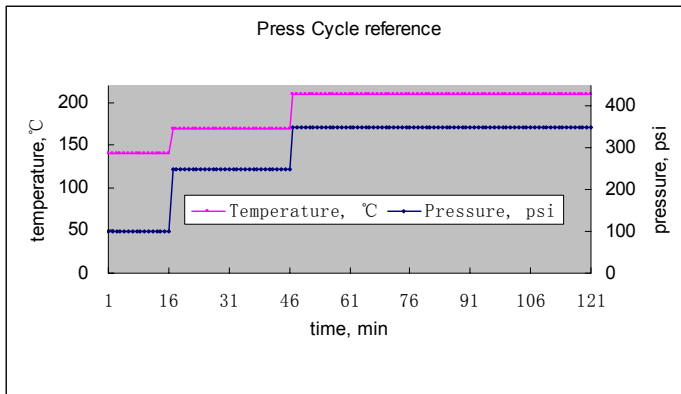
- 固化条件: 压机每本中间层板温必须在 170 摄氏度以上保持 45 分钟，以保证树脂完全固化。

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. ---

产品编号: NY1150

Middle Tg, DICY Curing, UV Block/AOI Compatible

特点

- Tg ≥150℃ 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 ≥150℃ 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.

● NY1150 采购信息 PURCHASING INFORMATION

基板厚度 Thickness	厚度公差 Tolerance	铜箔 Copper foil	标准供应尺寸 Standard Size
0.03mm to 3.2mm	IPC4101 Class C/M	1/4 oz to 6 oz	915×1220mm (36"×48"), 1020×1220mm (40"×48"), 1070×1220mm (42"×48"), 1830×1220mm (72"×48"), 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 Prepreg	标准供应尺寸 Standard Size	常用玻纤布型号 Normal Glass Type
Anti-CAF LDPP	49.5" ×115 m	For Anti-CAF (106, 1080, 2113, 2313, 3313, 2116, 1652, 1506, 7628) For Laser Drillable (106, 1037, 1067, 1078, 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

NY1150 半固化片 NY1150 Prepreg	单位 Units	产品规格 Specification	典型值 Typical Value	测试方法 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 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	%	<1.5	<1.5	2.3.19C
6. 储存期 Shelf Life (条件1Condition 1 /条件2Condition 2)	Days	180/90	180/90	AABUS
7. 燃烧性 Flammability (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℃, 条件2Condition 2/Temp.: <23℃ R.H.: <50%).

● **NY1150基板产品规格表 Specification Sheet for Laminate**

NY1150覆铜箔板 NY1150 Laminate	单位Units	产品规格 Specification		典型值 Typical Value	测试方法 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 A. 1/2 盎司及以下铜箔 17 micron copper B. 1盎司铜箔 35 micron copper C. 2盎司铜箔 70 micron copper D. 3,4,5盎司及以上铜箔 105, 140, 175 micron copper and above	N/mm(lb/inch), minimum	≥0.70 (4.0) ≥0.79 (4.5) ≥0.88 (5.0) ≥0.96 (5.5)	≥0.70 (4.0) ≥1.05 (6.0) ≥1.40 (8.0) ≥1.58 (9.0)	1.80 (1oz)	2.4.8 2.4.8.2 2.4.8.3
2. 体积电阻 Volume Resistivity, A. 恒温恒湿C-96/35/90 B. 耐湿后After moisture resistance C. 高温下 At elevated temperature E-24/125	MΩ-cm, minimum	10 ⁶ --- 10 ³	--- 10 ⁴ 10 ³	--- 4.7×10 ⁸ 4.5×10 ⁶	2.5.17.1
3. 表面电阻 Surface Resistivity, A. 恒温恒湿C-96/35/90 B. 耐湿后After moisture resistance C. 高温下 At elevated temperature E-24/125	MΩ, minimum	10 ⁴ --- 10 ³	--- 10 ⁴ 10 ³	--- 5.4×10 ⁷ 5.2×10 ⁶	2.5.17.1
4. 吸水率 Moisture Absorption	% maximum	-	0.8	0.3	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 2.5.5.5 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 2.5.5.3 2.5.5.9
8. 弯曲强度 Flexural Strength, A. 纵向 Length direction B. 横向 Cross direction	N/mm ² , minimum	- -	415 345	600 500	2.4.4
9. 高温弯曲强度 Flexural Strength at Elevated Temperature, length direction,	N/mm ² 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 A. 未蚀刻 Unetched B. 蚀刻 Etched	10 sec at 288℃	Pass Visual Pass Visual	Pass Visual Pass Visual	Pass 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	℃	--	≥150	155	2.4.24 2.4.25
15. 热分解温度 Decomposition Temperature	℃	--	--	330	TBD (5% wt loss)
16. 膨胀系数Z-Axis CTE A. Alpha 1 B. Alpha 2 C. 50 to 260 °C	PPM/℃ PPM/℃ %	-- -- --	-- -- --	58 300 4.2	2.4.24
17. 耐热性(除去铜箔) Thermal Resistance (Copper removed) A.T260 B.T288 C.T300	Minutes Minutes Minutes	-- -- --	-- -- --	43 5 --	2.4.24.1
18. 耐CAF性能 CAF Resistance	Pass/Fail	--	--	AABUS	2.6.25

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

● **NY1150 产品使用指引 Process guideline**

5. 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.

6. 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

7. 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.

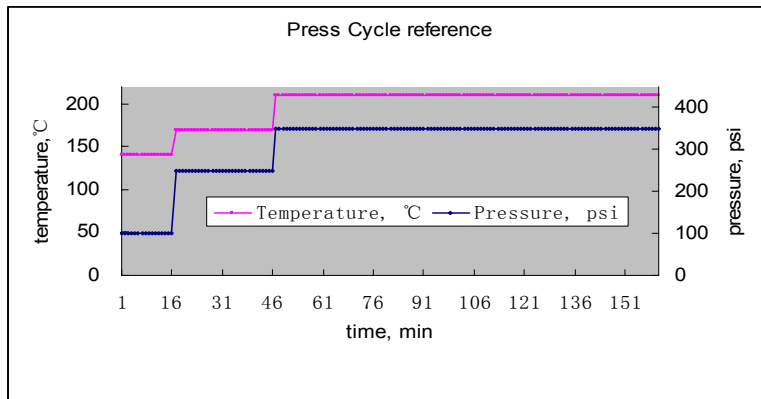
- 固化条件: 压机每本中间层板温必须在 180 摄氏度以上保持 40 分钟，以保证树脂完全固化。

Curing condition: Temperature of the inner boards, keep at least 40 minutes at 180℃ 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**).



8. 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 的除胶渣条件可能不适合此款材料，建议咨询药水供应商并作适当调整，如除胶时间、温度等。

The typical parameters used to desmear Normal FR-4 may not produce optimum hole topography for NY1150, so you should 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不适合此款材料，建议咨询设备供应商并作适当调整，如冲床力量、模具类型等。

The typical punching parameters may not produce optimum hole topography for NY1150, so you should consult with your equipment supplier to optimize your punching condition, as punching power or die type, etc.

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

产品编号: NY1170

High Tg, DICY Curing, UV Block/AOI Compatible

特点

- Tg ≥170℃ 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 ≥170℃ 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.

● NY1170 采购信息 PURCHASING INFORMATION

基板厚度 Thickness	厚度公差 Tolerance	铜箔 Copper foil	标准供应尺寸 Standard Size
0.03mm to 3.2mm	IPC4101 Class C/M	1/4 oz to 6 oz	915×1220mm (36"×48"), 1020×1220mm (40"×48"), 1070×1220mm (42"×48"), 1830×1220mm (72"×48"), 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 Prepreg	标准供应尺寸 Standard Size	常用玻纤布型号 Normal Glass Type
Anti-CAF LDPP	49.5" ×115 m	For Anti-CAF (106, 1080, 2113, 2313, 3313, 2116, 1652, 1506, 7628) For Laser Drillable (106, 1037, 1067, 1078, 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

NY1170 半固化片 NY1170 Prepreg	单位 Units	产品规格 Specification	典型值 Typical Value	测试方法 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 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	%	<1.5	<1.5	2.3.19C
6. 储存期 Shelf Life (条件1Condition 1 /条件2Condition 2)	Days	180/90	180/90	AABUS
7. 燃烧性 Flammability (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℃, 条件2Condition 2/Temp.: <23℃ R.H.: <50%).

● NY1170基板产品规格表 Specification Sheet for Laminate

NY1170覆铜箔板 NY1170 Laminate	单位Units	产品规格 Specification		典型值 Typical Value	测试方法 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 A. 1/2 盎司及以下铜箔 17 micron copper B. 1盎司铜箔 35 micron copper C. 2盎司铜箔 70 micron copper D. 3,4,5盎司及以上铜箔 105, 140, 175 micron copper and above	N/mm(lb/inch), minimum	≥0.70 (4.0) ≥0.79 (4.5) ≥0.88 (5.0) ≥0.96 (5.5)	≥0.70 (4.0) ≥1.05 (6.0) ≥1.40 (8.0) ≥1.58 (9.0)	1.80 (1oz)	2.4.8 2.4.8.2 2.4.8.3
2. 体积电阻 Volume Resistivity, A. 恒温恒湿C-96/35/90 B. 耐湿后After moisture resistance C. 高温下 At elevated temperature E-24/125	MΩ-cm, minimum	10 ⁶ --- 10 ³	--- 10 ⁴ 10 ³	--- 5.0×10 ⁸ 5.1×10 ⁶	2.5.17.1
3. 表面电阻 Surface Resistivity, A. 恒温恒湿C-96/35/90 B. 耐湿后After moisture resistance C. 高温下 At elevated temperature E-24/125	MΩ, minimum	10 ⁴ --- 10 ³	--- 10 ⁴ 10 ³	--- 5.4×10 ⁷ 5.0×10 ⁶	2.5.17.1
4. 吸水率 Moisture Absorption	% maximum	-	0.8	0.25	2.6.2.1
5. 击穿电压 Dielectric Breakdown	kV minimum	-	40	53	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 2.5.5.5 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 2.5.5.3 2.5.5.9
8. 弯曲强度 Flexural Strength, A. 纵向 Length direction B. 横向 Cross direction	N/mm ² , minimum	- -	415 345	596 502	2.4.4
9. 高温弯曲强度 Flexural Strength at Elevated Temperature, length direction,	N/mm ² minimum	-	-	-	2.4.4.1
10. 耐电弧性 Arc Resistance	S minimum	60	60	114	2.5.1
11. 热应力冲击 Thermal Stress A. 未蚀刻 Unetched B. 蚀刻 Etched	10 sec at 288℃	Pass Visual Pass Visual	Pass Visual Pass Visual	Pass 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	℃	--	≥170	175	2.4.24 2.4.25
15. 热分解温度 Decomposition Temperature	℃	--	--	320	TBD (5% wt loss)
16. 膨胀系数Z-Axis CTE A. Alpha 1 B. Alpha 2 C. 50 to 260 °C	PPM/℃ PPM/℃ %	-- -- --	-- -- --	56 295 4.0	2.4.24
17. 耐热性(除去铜箔) Thermal Resistance (Copper removed) A.T260 B.T288 C.T300	Minutes Minutes Minutes	-- -- --	-- -- --	19 3 --	2.4.24.1
18. 耐CAF性能 CAF Resistance	Pass/Fail	--	--	AABUS	2.6.25

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

● NY1170 产品使用指引 Process guideline

9. 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.

10. 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

11. 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.

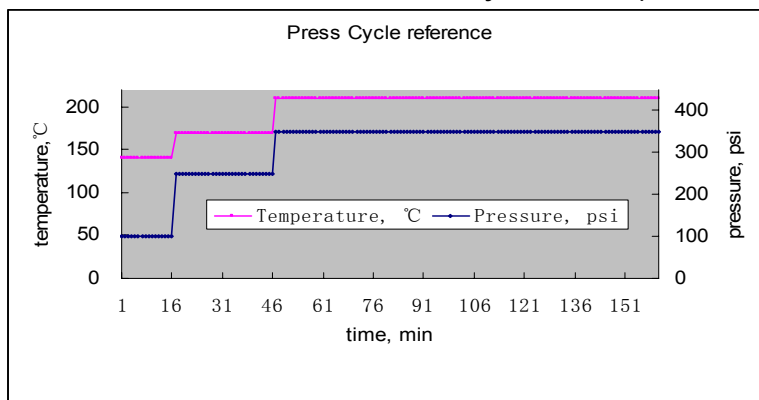
- 固化条件: 压机每本中间层板温必须在 190 摄氏度以上保持 40 分钟，以保证树脂完全固化。

Curing condition: Temperature of the inner boards, keep at least 40 minutes at 190℃ 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).



12. 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 170 摄氏度 2 小时以上，以去除释放机械应力。

To bake after drilling 170℃/ 2 hours, in order to relax the mechanical stress.

- 除胶渣: 一般情况下普通 Fr4 的除胶渣条件可能不适合此款材料，建议咨询药水供应商并作适当调整，如除胶时间、温度等。

The typical parameters used to desmear Normal FR-4 may not produce optimum hole topography for NY1170, so you should 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不适合此款材料，建议咨询设备供应商并作适当调整，如冲床重量、模具类型等。

The typical punching parameters may not produce optimum hole topography for NY1170, so you should consult with your equipment supplier to optimize your punching condition, as punching power or die type, etc.

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

产品编号: NY1600

CTI>600V (Grade 0), Normal Tg, UV Block/AOI Compatible

特点

- 优秀的耐漏电起痕性 CTI>600V (IEC60112 方法)
Excellent Tracking Resistance CTI>600V (IEC60112 Method)
- Tg 140℃ 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℃ FR-4
- Excellent Peel Strength
- UV Blocking/AOI Compatible
- Lower Water Absorption
- Excellent Dimension Stability

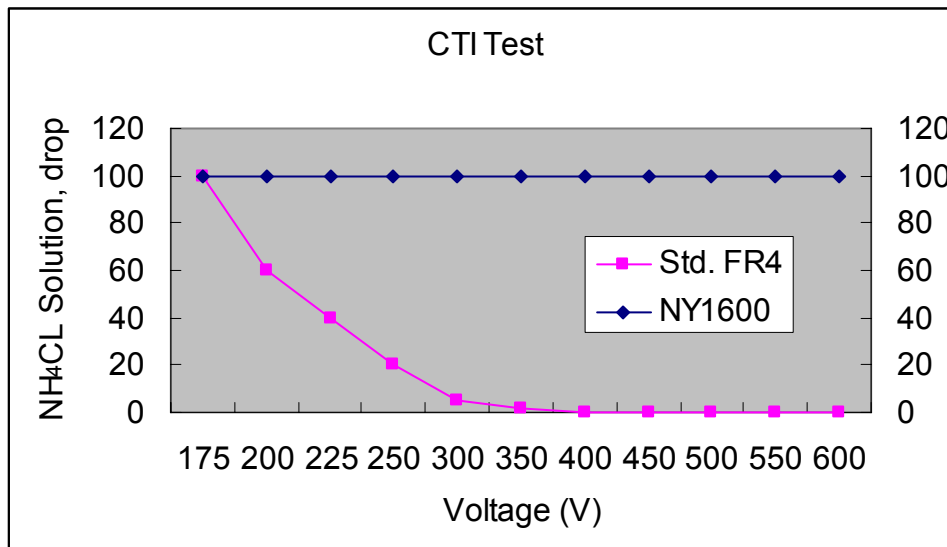
应用领域

- 消费电子类
- 仪器仪表类
- 通讯设备类

APPLICATIONS

- Consumer Electronics
- Instrumentations
- Communications, and etc.

● 优秀的耐漏电起痕性 Excellent Tracking Resistance CTI>600V



● NY1600 采购信息 PURCHASING INFORMATION

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

● **NY1600基板产品规格表 Specification Sheet for Laminate**

NY1600覆铜箔板 NY1600 Laminate	单位Units	产品规格 Specification		典型值 Typical Value	测试方法 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 A. 1/2 盎司及以下铜箔 17 micron copper B. 1盎司铜箔 35 micron copper C. 2盎司铜箔 70 micron copper D. 3,4,5盎司及以上铜箔 105, 140, 175 micron copper and above	N/mm(lb/inch), minimum	≥0.70 (4.0) ≥0.79 (4.5) ≥0.88 (5.0) ≥0.96 (5.5)	≥0.70 (4.0) ≥1.05 (6.0) ≥1.40 (8.0) ≥1.58 (9.0)	1.60 (1oz)	2.4.8 2.4.8.2 2.4.8.3
2. 体积电阻 Volume Resistivity, A. 恒温恒湿C-96/35/90 B. 耐湿后After moisture resistance C. 高温下 At elevated temperature E-24/125	MΩ-cm, minimum	10 ⁶ --- 10 ³	--- 10 ⁴ 10 ³	--- 4.9×10 ⁸ 4.7×10 ⁶	2.5.17.1
3. 表面电阻 Surface Resistivity, A. 恒温恒湿C-96/35/90 B. 耐湿后After moisture resistance C. 高温下 At elevated temperature E-24/125	MΩ, minimum	10 ⁴ --- 10 ³	--- 10 ⁴ 10 ³	--- 5.8×10 ⁷ 5.5×10 ⁶	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 2.5.5.5 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 2.5.5.3 2.5.5.9
8. 弯曲强度 Flexural Strength, A. 纵向 Length direction B. 横向 Cross direction	N/mm ² , minimum	- -	415 345	600 500	2.4.4
9. 高温弯曲强度 Flexural Strength at Elevated Temperature, length direction,	N/mm ² 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 A. 未蚀刻 Unetched B. 蚀刻 Etched	10 sec at 288°C	Pass Visual Pass Visual	Pass Visual Pass Visual	Pass 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 2.4.25
15. 热分解温度 Decomposition Temperature	°C	--	--	310	TBD (5% wt loss)
16. 膨胀系数Z-Axis CTE A. Alpha 1 B. Alpha 2 C. 50 to 260 °C	PPM/°C PPM/°C %	-- -- --	-- -- --	65 310 4.5	2.4.24
17. 耐热性(除去铜箔) Thermal Resistance (Copper removed) A.T260 B.T288 C.T300	Minutes Minutes Minutes	-- -- --	-- -- --	13 2 --	2.4.24.1
18. 耐CAF性能 CAF Resistance	Pass/Fail	--	--	AABUS	2.6.25

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

产品编号: NY2150

Middle Tg, PN Curing and Contains Fillers, Low Z-CTE, CAF Resistance

特点

- Tg ≥150℃无铅兼容 FR-4 板材
- 优秀的剥离强度
- 低 Z-CTE 值
- 优秀的耐 CAF 性能
- UV Blocking 和 AOI 兼容
- 较低的吸水率
- 优秀的尺寸安定性

FEATURES

- Tg ≥150℃ Lead-free compatible
- Excellent Peel Strength
- Low Z-axis CTE
- Excellent Anti-CAF Performance
- UV Blocking/AOI Compatible
- Lower Water Absorption
- Excellent Dimension Stability

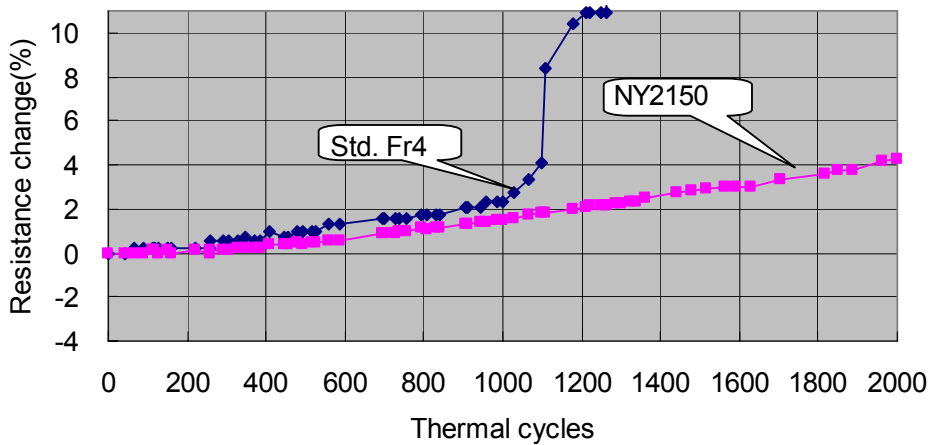
应用领域

- 消费电子类
- 电源、仪器仪表类
- 通讯设备类
- 汽车电子类

APPLICATIONS

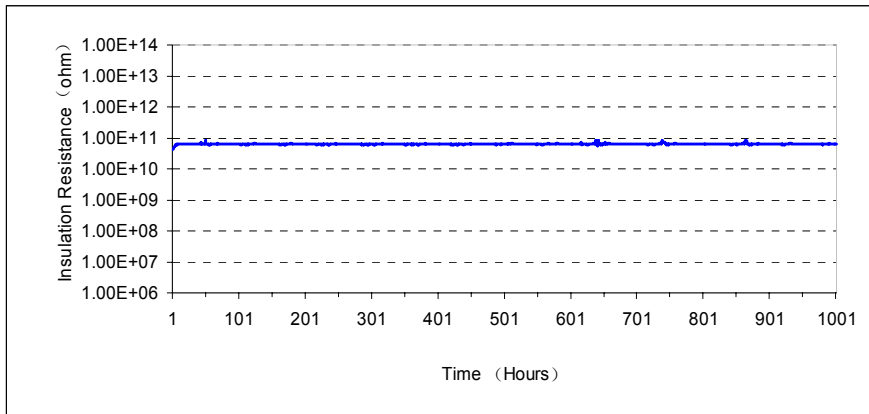
- Consumer Electronics
- Power supplies, Instrumentations
- Communications
- Automotives, and etc.

● 优秀的耐热稳定性 Excellent Thermal Resistance



Test condition:
(IPC-TM-650 2.6.7.2)
-55℃ × 15min. <=> 125℃ × 15mins, transfer time ≤2min.
Test samples: PCB 6 layers, thickness 2.0mm hole diameter: 0.4mm pitch:0.9mm

● 优秀的耐 CAF 稳定性 Excellent Anti-CAF Performance



TEST ITEM	CONDITIONS	RESULTS
TH-TH (0.7mm)		>1000 hr
PA-PA (0.1/0.1mm)	SONY 6 Layer TV	>1000 hr
TH-PA (0.3mm)	85℃/85%RH 50V DC bias	>1000 hr
LA-LA		>1000 hr

● **NY2150 采购信息 PURCHASING INFORMATION**

基板厚度 Thickness	厚度公差 Tolerance	铜箔 Copper foil	标准供应尺寸 Standard Size
0.03mm to 3.2mm	IPC4101 Class C/M	1/4 oz to 6 oz	915×1220mm (36"×48"), 1020×1220mm (40"×48"), 1070×1220mm (42"×48"), 1830×1220mm (72"×48"), 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 Prepreg	标准供应尺寸 Standard Size	常用玻纤布型号 Normal Glass Type
Anti-CAF LDPP	49.5" ×115 m	For Anti-CAF (106, 1080, 2113, 2313, 3313, 2116, 1652, 1506, 7628) For Laser Drillable (106, 1037, 1067,1078, 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**

NY2150 半固化片 NY2150 Prepreg	单位 Units	产品规格 Specification	典型值 Typical Value	测试方法 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 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	%	<1.5	<1.5	2.3.19C
6. 储存期 Shelf Life (条件1Condition 1 /条件2Condition 2)	Days	180/90	180/90	AABUS
7. 燃烧性 Flammability (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℃, 条件2Condition 2/Temp.: <23℃ R.H.: <50%).

● NY2150基板产品规格表 Specification Sheet for Laminate

NY2150覆铜箔板 NY2150 Laminate	单位Units	产品规格 Specification		典型值 Typical Value	测试方法 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 A. 1/2 盎司及以下铜箔 17 micron copper B. 1盎司铜箔 35 micron copper C. 2盎司铜箔 70 micron copper D. 3,4,5盎司及以上铜箔 105, 140, 175 micron copper and above	N/mm(lb/inch), minimum	≥0.70 (4.0) ≥0.79 (4.5) ≥0.88 (5.0) ≥0.96 (5.5)	≥0.70 (4.0) ≥1.05 (6.0) ≥1.40 (8.0) ≥1.58 (9.0)	1.80 (1oz)	2.4.8 2.4.8.2 2.4.8.3
2. 体积电阻 Volume Resistivity, A. 恒温恒湿C-96/35/90 B. 耐湿后After moisture resistance C. 高温下 At elevated temperature E-24/125	MΩ-cm, minimum	10 ⁶ --- 10 ³	--- 10 ⁴ 10 ³	--- 6.5×10 ⁸ 5.6×10 ⁶	2.5.17.1
3. 表面电阻 Surface Resistivity, A. 恒温恒湿C-96/35/90 B. 耐湿后After moisture resistance C. 高温下 At elevated temperature E-24/125	MΩ, minimum	10 ⁴ --- 10 ³	--- 10 ⁴ 10 ³	--- 3.6×10 ⁷ 2.8×10 ⁶	2.5.17.1
4. 吸水率 Moisture Absorption	% maximum	-	0.5	0.12	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	4.8	2.5.5.3 2.5.5.5 2.5.5.6
7. 介质损耗 Loss Tangent at 1 MHz, (Laminate & Prepreg as laminated)	- maximum	<0.035	<0.035	0.015	2.5.5.3 2.5.5.3 2.5.5.9
8. 弯曲强度 Flexural Strength, A. 纵向 Length direction B. 横向 Cross direction	N/mm ² , minimum	- -	415 345	515 405	2.4.4
9. 高温弯曲强度 Flexural Strength at Elevated Temperature, length direction,	N/mm ² minimum	-	-	-	2.4.4.1
10. 耐电弧性 Arc Resistance	S minimum	60	60	105	2.5.1
11. 热应力冲击 Thermal Stress A. 未蚀刻 Unetched B. 蚀刻 Etched	10 sec at 288℃	Pass Visual Pass Visual	Pass Visual Pass Visual	Pass 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	℃	--	≥150	155	2.4.24 2.4.25
15. 热分解温度 Decomposition Temperature	℃	--	≥325	345	TBD (5% wt loss)
16. 膨胀系数Z-Axis CTE A. Alpha 1 B. Alpha 2 C. 50 to 260 °C	PPM/℃ PPM/℃ %	-- -- --	≤60 ≤300 ≤3.5	50 235 3.0	2.4.24
17. 耐热性(除去铜箔) Thermal Resistance (Copper removed) A.T260 B.T288 C.T300	Minutes Minutes Minutes	-- -- --	≥30 ≥5 AABUS	>60 18 --	2.4.24.1
18. 耐CAF性能 CAF Resistance	Pass/Fail	--	AABUS	Pass	2.6.25

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

● **NY2150 产品使用指引 Process guideline**

13. 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.

14. 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

15. 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.

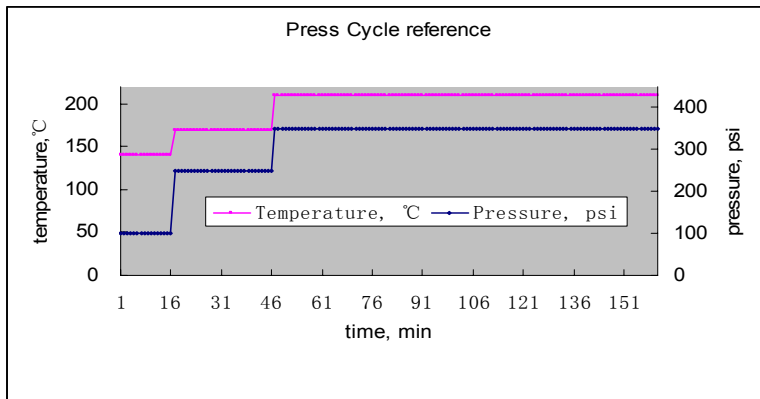
- 固化条件: 压机每本中间层板温必须在 190 摄氏度以上保持 40 分钟，以保证树脂完全固化。

Curing condition: Temperature of the inner boards, keep at least 40 minutes at 190℃ 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).



16. 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 的除胶渣条件可能不适合此款材料，建议咨询药水供应商并作适当调整，如除胶时间、温度等。

The typical parameters used to desmear Normal FR-4 may not produce optimum hole topography for NY2150, so you should 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不适合此款材料，建议咨询设备供应商并作适当调整，如冲床重量、模具类型等。

The typical punching parameters may not produce optimum hole topography for NY2150, so you should consult with your equipment supplier to optimize your punching condition, as punching power or die type, etc.

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

产品编号: NY2170

High Tg, PN Curing and Contains Fillers, Very Low Z-CTE, CAF Resistance

特点

- Tg ≥ 170°C 无铅兼容 FR-4 板材
- 优秀的剥离强度
- 非常低 Z-CTE 值
- 优秀的耐 CAF 性能
- UV Blocking 和 AOI 兼容
- 较低的吸水率
- 优秀的尺寸安定性

FEATURES

- Tg ≥ 170°C Lead-free compatible
- Excellent Peel Strength
- Very Low Z-axis CTE
- Excellent Anti-CAF Performance
- UV Blocking/AOI Compatible
- Lower Water Absorption
- Excellent Dimension Stability

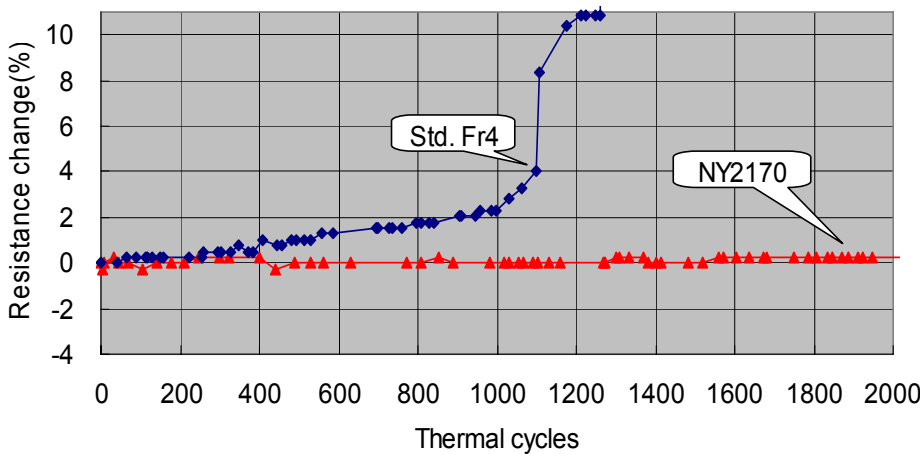
应用领域

- 消费电子类
- 电源、仪器仪表类
- 通讯设备类
- 汽车电子类
- 军工产品类

APPLICATIONS

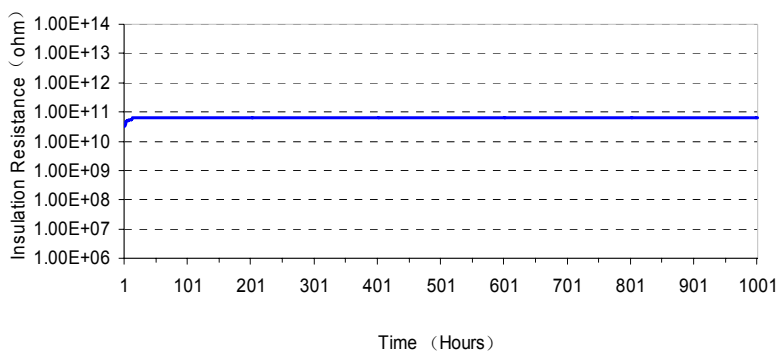
- Consumer Electronics
- Power supplies, Instrumentations
- Communications
- Automotives
- Militaries, and etc.

优秀的耐热稳定性 Excellent Thermal Resistance



Test condition:
(IPC-TM-650 2.6.7.2)
-55°C × 15min. <=> 125°C × 15mins, transfer time ≤ 2min.
Test samples: PCB 6 layers, thickness 2.0mm hole diameter: 0.4mm pitch:0.9mm

优秀的耐 CAF 稳定性 Excellent Anti-CAF Performance



TEST ITEM	CONDITIONS	RESULTS
TH-TH (0.7mm)		>1000 hr
PA-PA (0.1/0.1mm)	SONY 6 Layer TV	>1000 hr
	85°C/85%RH	
TH-PA (0.3mm)	50V DC bias	>1000 hr
LA-LA		>1000 hr



● **NY2170 采购信息 PURCHASING INFORMATION**

基板厚度 Thickness	厚度公差 Tolerance	铜箔 Copper foil	标准供应尺寸 Standard Size
0.03mm to 3.2mm	IPC4101 Class C/M	1/4 oz to 6 oz	915×1220mm (36"×48"), 1020×1220mm (40"×48"), 1070×1220mm (42"×48"), 1830×1220mm (72"×48"), 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 Prepreg	标准供应尺寸 Standard Size	常用玻纤布型号 Normal Glass Type
Anti-CAF LDPP	49.5" ×115 m	For Anti-CAF (106, 1080, 2113, 2313, 3313, 2116, 1652, 1506, 7628) For Laser Drillable (106, 1037, 1067,1078, 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**

NY2170 半固化片 NY2170 Prepreg	单位 Units	产品规格 Specification	典型值 Typical Value	测试方法 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 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	%	<1.5	<1.5	2.3.19C
6. 储存期 Shelf Life (条件1Condition 1 / 条件2Condition 2)	Days	180/90	180/90	AABUS
7. 燃烧性 Flammability (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℃, 条件2Condition 2/Temp.: <23℃ R.H.: <50%).

● NY2170基板产品规格表 Specification Sheet for Laminate

NY2170覆铜箔板 NY2170 Laminate	单位Units	产品规格 Specification		典型值 Typical Value	测试方法 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 A. 1/2 盎司及以下铜箔 17 micron copper B. 1盎司铜箔 35 micron copper C. 2盎司铜箔 70 micron copper D. 3,4,5盎司及以上铜箔 105, 140, 175 micron copper and above	N/mm(lb/inch), minimum	≥0.70 (4.0) ≥0.79 (4.5) ≥0.88 (5.0) ≥0.96 (5.5)	≥0.70 (4.0) ≥1.05 (6.0) ≥1.40 (8.0) ≥1.58 (9.0)	1.60 (1oz)	2.4.8 2.4.8.2 2.4.8.3
2. 体积电阻 Volume Resistivity, A. 恒温恒湿C-96/35/90 B. 耐湿后After moisture resistance C. 高温下 At elevated temperature E-24/125	MΩ-cm, minimum	10 ⁶ --- 10 ³	--- 10 ⁴ 10 ³	--- 2.8×10 ⁸ 1.0×10 ⁷	2.5.17.1
3. 表面电阻 Surface Resistivity, A. 恒温恒湿C-96/35/90 B. 耐湿后After moisture resistance C. 高温下 At elevated temperature E-24/125	MΩ, minimum	10 ⁴ --- 10 ³	--- 10 ⁴ 10 ³	--- 2.5×10 ⁷ 3.5×10 ⁶	2.5.17.1
4. 吸水率 Moisture Absorption	% maximum	-	0.5	0.10	2.6.2.1
5. 击穿电压 Dielectric Breakdown	kV minimum	-	40	58	2.5.6
6. 介电常数 Permittivity at 1 MHz, (Laminate & Prepreg as laminated)	- maximum	<5.4	<5.4	4.8	2.5.5.3 2.5.5.5 2.5.5.6
7. 介质损耗 Loss Tangent at 1 MHz, (Laminate & Prepreg as laminated)	- maximum	<0.035	<0.035	0.015	2.5.5.3 2.5.5.3 2.5.5.9
8. 弯曲强度 Flexural Strength, A. 纵向 Length direction B. 横向 Cross direction	N/mm ² , minimum	- -	415 345	580 460	2.4.4
9. 高温弯曲强度 Flexural Strength at Elevated Temperature, length direction,	N/mm ² minimum	-	-	-	2.4.4.1
10. 耐电弧性 Arc Resistance	S minimum	60	60	124	2.5.1
11. 热应力冲击 Thermal Stress A. 未蚀刻 Unetched B. 蚀刻 Etched	10 sec at 288℃	Pass Visual Pass Visual	Pass Visual Pass Visual	Pass 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	℃	--	≥170	175	2.4.24 2.4.25
15. 热分解温度 Decomposition Temperature	℃	--	≥340	350	TBD (5% wt loss)
16. 膨胀系数Z-Axis CTE A. Alpha 1 B. Alpha 2 C. 50 to 260 ℃	PPM/℃ PPM/℃ %	-- -- --	≤60 ≤300 ≤3.0	45 240 2.8	2.4.24
17. 耐热性(除去铜箔) Thermal Resistance (Copper removed) A.T260 B.T288 C.T300	Minutes Minutes Minutes	-- -- --	≥30 ≥15 AABUS	>60 >20 --	2.4.24.1
18. 耐CAF性能 CAF Resistance	Pass/Fail	--	AABUS	Pass	2.6.25

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

● **NY2170 产品使用指引 Process guideline**

17. 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.

18. 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

19. 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.

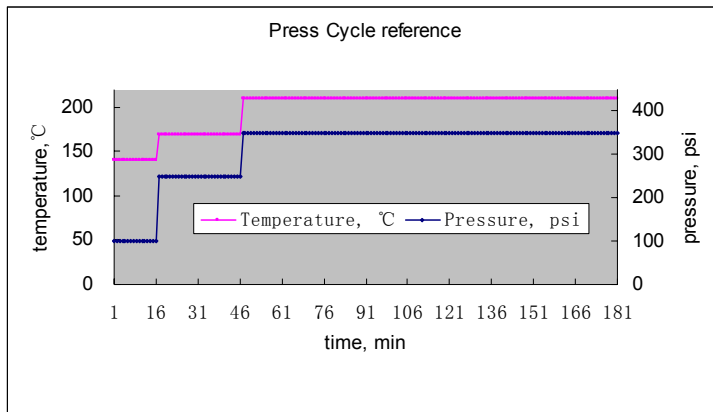
- 固化条件: 压机每本中间层板温必须在 190 摄氏度以上保持 60 分钟，以保证树脂完全固化。

Curing condition: Temperature of the inner boards, keep at least 60 minutes at 190℃ 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).



20. 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 170 摄氏度 2 小时以上，以去除释放机械应力。

To bake after drilling 170℃/ 2 hours, in order to relax the mechanical stress.

- 除胶渣: 一般情况下普通 Fr4 的除胶渣条件可能不适合此款材料，建议咨询药水供应商并作适当调整，如除胶时间、温度等。

The typical parameters used to desmear Normal FR-4 may not produce optimum hole topography for NY2170, so you should 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不适合此款材料，建议咨询设备供应商并作适当调整，如冲床重量、模具类型等。

The typical punching parameters may not produce optimum hole topography for NY2170, so you should consult with your equipment supplier to optimize your punching condition, as punching power or die type, etc.

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

产品编号: NY3140

Normal Tg, Halogen-free, Contains Fillers, CAF Resistance, UL94 V-0

特点

- Tg $\geq 140^{\circ}\text{C}$ 无卤素无铅兼容 FR-4 板材
- 优秀的剥离强度
- 优秀的 PCB 制程加工性
- 优秀的耐 CAF 性能
- UV Blocking 和 AOI 兼容
- 优秀的阻燃性符合 UL94 V-0 要求
- 优秀的尺寸安定性

应用领域

- 消费电子类
- 电源、仪器仪表类
- 通讯设备类
- 汽车电子类

FEATURES

- Tg $\geq 140^{\circ}\text{C}$ Halogen-free and Lead-free compatible
- Excellent Peel Strength
- Excellent PCB Processibility
- Excellent Anti-CAF Performance
- UV Blocking/AOI Compatible
- Excellent Flammability Resistance
- Excellent Dimension Stability

APPLICATIONS

- Consumer Electronics
- Power supplies, Instrumentations
- Communications
- Automotives, and etc.

● 优秀的 PCB 制程加工性 Excellent PCB Processibility

检测韧性之落击试验 Toughness Impact tester



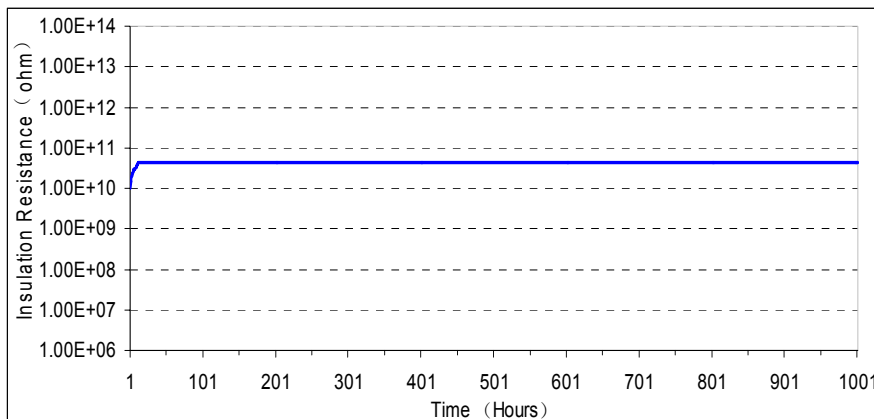
Test Method: Determine the minimum height to generate inter-laminar de-lamination. The higher is the tougher, and the laminate is better for processibility.

Dicy cured Normal FR-4:
Ranking = 5 (excellent)

NY3140 (Halogen Free):
Ranking = 4~5 (excellent)



● 优秀的耐 CAF 稳定性 Excellent Anti-CAF Performance



TEST ITEM	CONDITIONS	RESULTS
TH-TH (0.7mm)		>1000 hr
PA-PA (0.1/0.1mm)	SONY 6 Layer TV	>1000 hr
TH-PA (0.3mm)	85°C/85%RH 50V DC bias	>1000 hr
LA-LA		>1000 hr



● **NY3140 采购信息 PURCHASING INFORMATION**

基板厚度 Thickness	厚度公差 Tolerance	铜箔 Copper foil	标准供应尺寸 Standard Size
0.03mm to 3.2mm	IPC4101 Class C/M	1/4 oz to 6 oz	915×1220mm (36"×48"), 1020×1220mm (40"×48"), 1070×1220mm (42"×48"), 1830×1220mm (72"×48"), 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 Prepreg	标准供应尺寸 Standard Size	常用玻纤布型号 Normal Glass Type
Anti-CAF LDPP	49.5" ×115 m	For Anti-CAF (106, 1080, 2113, 2313, 3313, 2116, 1652, 1506, 7628) For Laser Drillable (106, 1037, 1067,1078, 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**

NY3140 半固化片 NY3140 Prepreg	单位 Units	产品规格 Specification	典型值 Typical Value	测试方法 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 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	%	<1.5	<1.5	2.3.19C
6. 储存期 Shelf Life (条件1Condition 1 / 条件2Condition 2)	Days	180/90	180/90	AABUS
7. 燃烧性 Flammability (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℃, 条件2Condition 2/Temp.: <23℃ R.H.: <50%).

● NY3140基板产品规格表 Specification Sheet for Laminate

NY3140覆铜箔板 NY3140 Laminate	单位Units	产品规格 Specification		典型值 Typical Value	测试方法 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 A. 1/2 盎司及以下铜箔 17 micron copper B. 1盎司铜箔 35 micron copper C. 2盎司铜箔 70 micron copper D. 3,4,5盎司及以上铜箔 105, 140, 175 micron copper and above	N/mm(lb/inch), minimum	≥0.70 (4.0) ≥0.79 (4.5) ≥0.88 (5.0) ≥0.96 (5.5)	≥0.70 (4.0) ≥1.05 (6.0) ≥1.40 (8.0) ≥1.58 (9.0)	1.60 (1oz)	2.4.8 2.4.8.2 2.4.8.3
2. 体积电阻 Volume Resistivity, A. 恒温恒湿C-96/35/90 B. 耐湿后After moisture resistance C. 高温下 At elevated temperature E-24/125	MΩ-cm, minimum	10 ⁶ --- 10 ³	--- 10 ⁴ 10 ³	--- 4.5×10 ⁸ 4.6×10 ⁶	2.5.17.1
3. 表面电阻 Surface Resistivity, A. 恒温恒湿C-96/35/90 B. 耐湿后After moisture resistance C. 高温下 At elevated temperature E-24/125	MΩ, minimum	10 ⁴ --- 10 ³	--- 10 ⁴ 10 ³	--- 5.6×10 ⁷ 2.8×10 ⁶	2.5.17.1
4. 吸水率 Moisture Absorption	% maximum	-	0.8	0.20	2.6.2.1
5. 击穿电压 Dielectric Breakdown	kV minimum	-	40	48	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 2.5.5.5 2.5.5.6
7. 介质损耗 Loss Tangent at 1 MHz, (Laminate & Prepreg as laminated)	- maximum	<0.035	<0.035	0.012	2.5.5.3 2.5.5.3 2.5.5.9
8. 弯曲强度 Flexural Strength, A. 纵向 Length direction B. 横向 Cross direction	N/mm ² , minimum	- -	415 345	510 400	2.4.4
9. 高温弯曲强度 Flexural Strength at Elevated Temperature, length direction,	N/mm ² minimum	-	-	-	2.4.4.1
10. 耐电弧性 Arc Resistance	S minimum	60	60	105	2.5.1
11. 热应力冲击 Thermal Stress A. 未蚀刻 Unetched B. 蚀刻 Etched	10 sec at 288℃	Pass Visual Pass Visual	Pass Visual Pass Visual	Pass 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	℃	--	≥130	145	2.4.24 2.4.25
15. 热分解温度 Decomposition Temperature	℃	--	≥310	370	TBD (5% wt loss)
16. 膨胀系数Z-Axis CTE A. Alpha 1 B. Alpha 2 C. 50 to 260 ℃	PPM/℃ PPM/℃ %	-- -- --	≤60 ≤300 ≤4.0	50 260 3.5	2.4.24
17. 耐热性(除去铜箔) Thermal Resistance (Copper removed) A.T260 B.T288 C.T300	Minutes Minutes Minutes	-- -- --	≥30 ≥5 AABUS	>60 >60 --	2.4.24.1
18. 耐CAF性能 CAF Resistance	Pass/Fail	--	AABUS	Pass	2.6.25

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

● **NY3140 产品使用指引 Process guideline**

21. 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.

22. 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

23. 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.

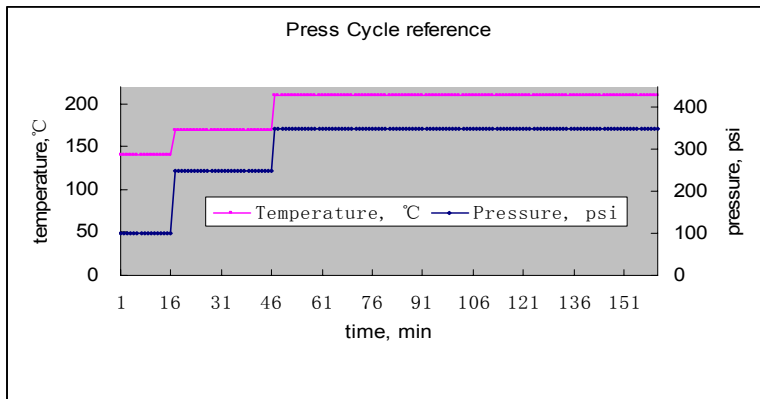
- 固化条件: 压机每本中间层板温必须在 190 摄氏度以上保持 40 分钟，以保证树脂完全固化。

Curing condition: Temperature of the inner boards, keep at least 40 minutes at 190℃ 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).



24. 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 的除胶渣条件可能不适合此款材料，建议咨询药水供应商并作适当调整，如除胶时间、温度等。

The typical parameters used to desmear Normal FR-4 may not produce optimum hole topography for NY3140, so you should 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不适合此款材料，建议咨询设备供应商并作适当调整，如冲床重量、模具类型等。

The typical punching parameters may not produce optimum hole topography for NY3140, so you should consult with your equipment supplier to optimize your punching condition, as punching power or die type, etc.

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

产品编号: NY3150

Middle Tg, Halogen-free, PN Curing and Contains Fillers, CAF Resistance, UL94 V-0

特点

- Tg ≥150℃无卤素无铅兼容 FR-4 板材
- 优秀的剥离强度
- 低 Z-CTE 值
- 优秀的耐 CAF 性能
- UV Blocking 和 AOI 兼容
- 优秀的阻燃性符合UL94 V-0要求
- 优秀的尺寸安定性

FEATURES

- Tg ≥150℃ Halogen-free and Lead-free compatible
- Excellent Peel Strength
- Low Z-axis CTE
- Excellent Anti-CAF Performance
- UV Blocking/AOI Compatible
- Excellent Flammability Resistance
- Excellent Dimension Stability

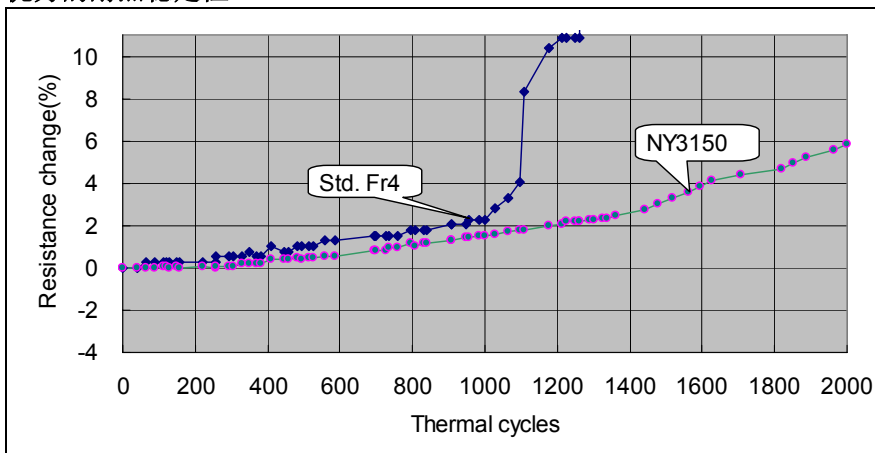
应用领域

- 消费电子类
- 电源、仪器仪表类
- 通讯设备类
- 汽车电子类

APPLICATIONS

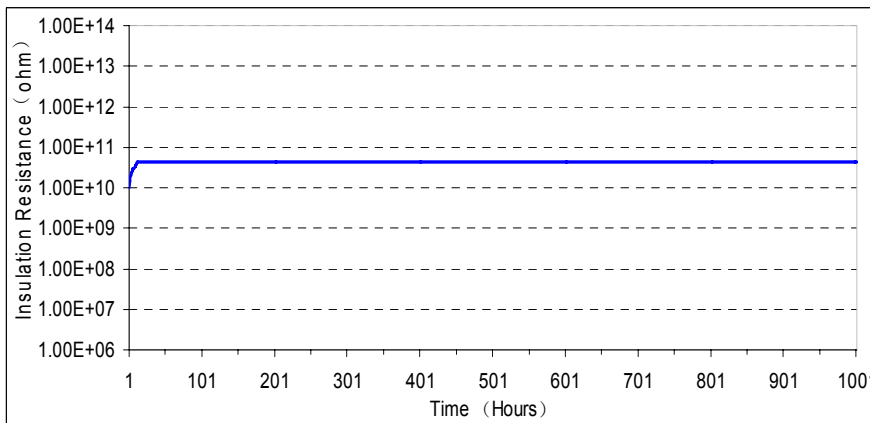
- Consumer Electronics
- Power supplies, Instrumentations
- Communications
- Automotives, and etc.

● 优秀的耐热稳定性 Excellent Thermal Resistance



Test condition:
(IPC-TM-650 2.6.7.2)
-55℃ × 15min. <=> 125℃ × 15mins, transfer time ≤2min.
Test samples: PCB 6 layers, thickness 2.0mm hole diameter: 0.4mm pitch:0.9mm

● 优秀的耐 CAF 稳定性 Excellent Anti-CAF Performance



TEST ITEM	CONDITIONS	RESULTS
TH-TH (0.7mm)	SONY 6 Layer TV 85℃/85%RH 50V DC bias	>1000 hr
PA-PA (0.1/0.1mm)		>1000 hr
TH-PA (0.3mm)		>1000 hr
LA-LA		>1000 hr



● **NY3150 采购信息 PURCHASING INFORMATION**

基板厚度 Thickness	厚度公差 Tolerance	铜箔 Copper foil	标准供应尺寸 Standard Size
0.03mm to 3.2mm	IPC4101 Class C/M	1/4 oz to 6 oz	915×1220mm (36"×48"), 1020×1220mm (40"×48"), 1070×1220mm (42"×48"), 1830×1220mm (72"×48"), 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 Prepreg	标准供应尺寸 Standard Size	常用玻纤布型号 Normal Glass Type
Anti-CAF LDPP	49.5" ×115 m	For Anti-CAF (106, 1080, 2113, 2313, 3313, 2116, 1652, 1506, 7628) For Laser Drillable (106, 1037, 1067,1078, 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**

NY3150 半固化片 NY3150 Prepreg	单位 Units	产品规格 Specification	典型值 Typical Value	测试方法 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 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	%	<1.5	<1.5	2.3.19C
6. 储存期 Shelf Life (条件1Condition 1 / 条件2Condition 2)	Days	180/90	180/90	AABUS
7. 燃烧性 Flammability (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℃, 条件2Condition 2/Temp.: <23℃ R.H.: <50%).

● **NY3150基板产品规格表 Specification Sheet for Laminate**

NY3150覆铜箔板 NY3150 Laminate	单位Units	产品规格 Specification		典型值 Typical Value	测试方法 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 A. 1/2 盎司及以下铜箔 17 micron copper B. 1盎司铜箔 35 micron copper C. 2盎司铜箔 70 micron copper D. 3,4,5盎司及以上铜箔 105, 140, 175 micron copper and above	N/mm(lb/inch), minimum	≥0.70 (4.0) ≥0.79 (4.5) ≥0.88 (5.0) ≥0.96 (5.5)	≥0.70 (4.0) ≥1.05 (6.0) ≥1.40 (8.0) ≥1.58 (9.0)	1.50 (1oz)	2.4.8 2.4.8.2 2.4.8.3
2. 体积电阻 Volume Resistivity, A. 恒温恒湿C-96/35/90 B. 耐湿后After moisture resistance C. 高温下 At elevated temperature E-24/125	MΩ-cm, minimum	10 ⁶ --- 10 ³	--- 10 ⁴ 10 ³	--- 1.5×10 ⁸ 4.0×10 ⁶	2.5.17.1
3. 表面电阻 Surface Resistivity, A. 恒温恒湿C-96/35/90 B. 耐湿后After moisture resistance C. 高温下 At elevated temperature E-24/125	MΩ, minimum	10 ⁴ --- 10 ³	--- 10 ⁴ 10 ³	--- 2.0×10 ⁷ 4.5×10 ⁶	2.5.17.1
4. 吸水率 Moisture Absorption	% maximum	-	0.8	0.15	2.6.2.1
5. 击穿电压 Dielectric Breakdown	kV minimum	-	40	58	2.5.6
6. 介电常数 Permittivity at 1 MHz, (Laminate & Prepreg as laminated)	- maximum	<5.4	<5.4	4.8	2.5.5.3 2.5.5.5 2.5.5.6
7. 介质损耗 Loss Tangent at 1 MHz, (Laminate & Prepreg as laminated)	- maximum	<0.035	<0.035	0.010	2.5.5.3 2.5.5.3 2.5.5.9
8. 弯曲强度 Flexural Strength, A. 纵向 Length direction B. 横向 Cross direction	N/mm ² , minimum	- -	415 345	480 440	2.4.4
9. 高温弯曲强度 Flexural Strength at Elevated Temperature, length direction,	N/mm ² minimum	-	-	-	2.4.4.1
10. 耐电弧性 Arc Resistance	S minimum	60	60	98	2.5.1
11. 热应力冲击 Thermal Stress A. 未蚀刻 Unetched B. 蚀刻 Etched	10 sec at 288℃	Pass Visual Pass Visual	Pass Visual Pass Visual	Pass 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	℃	--	≥150	155	2.4.24 2.4.25
15. 热分解温度 Decomposition Temperature	℃	--	≥325	375	TBD (5% wt loss)
16. 膨胀系数Z-Axis CTE A. Alpha 1 B. Alpha 2 C. 50 to 260 °C	PPM/℃ PPM/℃ %	-- -- --	≤60 ≤300 ≤3.5	40 245 3.0	2.4.24
17. 耐热性(除去铜箔) Thermal Resistance (Copper removed) A.T260 B.T288 C.T300	Minutes Minutes Minutes	-- -- --	≥30 ≥5 AABUS	>60 >60 --	2.4.24.1
18. 耐CAF性能 CAF Resistance	Pass/Fail	--	AABUS	Pass	2.6.25

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

● **NY3150 产品使用指引 Process guideline**

25. 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.

26. 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

27. 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.

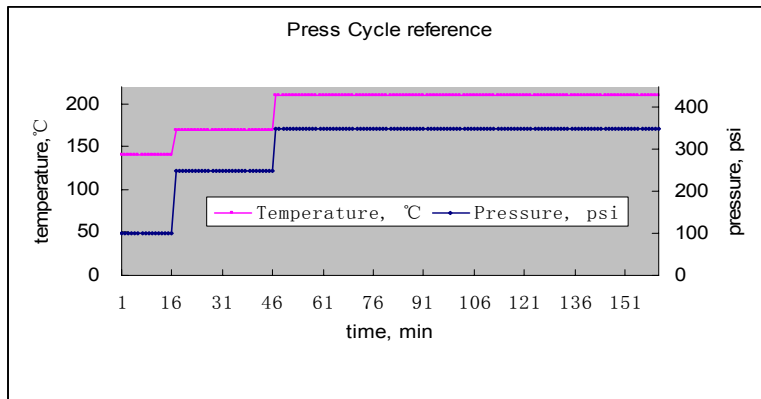
- 固化条件: 压机每本中间层板温必须在 190 摄氏度以上保持 40 分钟，以保证树脂完全固化。

Curing condition: Temperature of the inner boards, keep at least 40 minutes at 190℃ 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).



28. 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 的除胶渣条件可能不适合此款材料，建议咨询药水供应商并作适当调整，如除胶时间、温度等。

The typical parameters used to desmear Normal FR-4 may not produce optimum hole topography for NY3150, so you should 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不适合此款材料，建议咨询设备供应商并作适当调整，如冲床重量、模具类型等。

The typical punching parameters may not produce optimum hole topography for NY3150, so you should consult with your equipment supplier to optimize your punching condition, as punching power or die type, etc.

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

产品编号: NY3170

High Tg, Halogen-free, PN Curing and Contains Fillers, CAF Resistance, UL94 V-0

特点

- Tg ≥170°C无卤素无铅兼容 FR-4 板材
- 优秀的剥离强度
- 低 Z-CTE 值
- 优秀的耐 CAF 性能
- UV Blocking 和 AOI 兼容
- 优秀的阻燃性符合UL94 V-0要求
- 优秀的尺寸安定性

FEATURES

- Tg ≥170°C Halogen-free and Lead-free compatible
- Excellent Peel Strength
- Low Z-axis CTE
- Excellent Anti-CAF Performance
- UV Blocking/AOI Compatible
- Excellent Flammability Resistance
- Excellent Dimension Stability

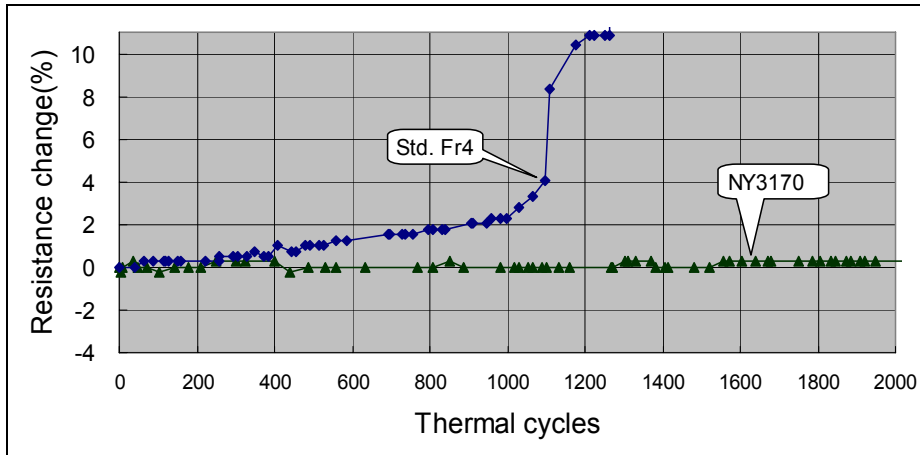
应用领域

- 消费电子类
- 电源、仪器仪表类
- 通讯设备类
- 汽车电子类
- 军工产品类

APPLICATIONS

- Consumer Electronics
- Power supplies, Instrumentations
- Communications
- Automotives
- Militaries, and etc.

● 优秀的耐热稳定性 Excellent Thermal Resistance



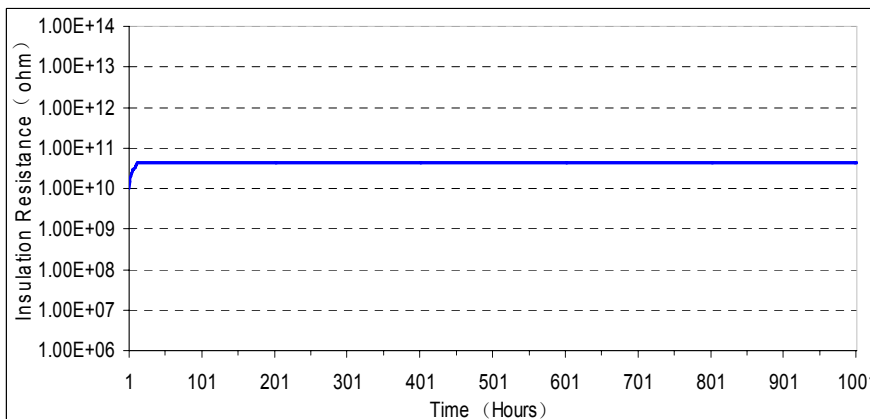
Test condition:

(IPC-TM-650 2.6.7.2)

-55°C × 15min. <=> 125°C × 15mins, transfer time ≤2min.

Test samples: PCB 6 layers, thickness 2.0mm hole diameter: 0.4mm pitch:0.9mm

● 优秀的耐 CAF 稳定性 Excellent Anti-CAF Performance



TEST ITEM	CONDITIONS	RESULTS
TH-TH (0.7mm)	SONY 6 Layer TV 85°C/85%RH 50V DC bias	>1000 hr
PA-PA (0.1/0.1mm)		>1000 hr
TH-PA (0.3mm)		>1000 hr
LA-LA		>1000 hr

● **NY3170 采购信息 PURCHASING INFORMATION**

基板厚度 Thickness	厚度公差 Tolerance	铜箔 Copper foil	标准供应尺寸 Standard Size
0.03mm to 3.2mm	IPC4101 Class C/M	1/4 oz to 6 oz	915×1220mm (36"×48"), 1020×1220mm (40"×48"), 1070×1220mm (42"×48"), 1830×1220mm (72"×48"), 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 Prepreg	标准供应尺寸 Standard Size	常用玻纤布型号 Normal Glass Type
Anti-CAF LDPP	49.5" ×115 m	For Anti-CAF (106, 1080, 2113, 2313, 3313, 2116, 1652, 1506, 7628) For Laser Drillable (106, 1037, 1067, 1078, 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**

NY3170 半固化片 NY3170 Prepreg	单位 Units	产品规格 Specification	典型值 Typical Value	测试方法 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 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	%	<1.5	<1.5	2.3.19C
6. 储存期 Shelf Life (条件1Condition 1 / 条件2Condition 2)	Days	180/90	180/90	AABUS
7. 燃烧性 Flammability (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%).

● **NY3170基板产品规格表 Specification Sheet for Laminate**

NY3170覆铜箔板 NY3170 Laminate	单位Units	产品规格 Specification		典型值 Typical Value	测试方法 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 A. 1/2 盎司及以下铜箔 17 micron copper B. 1盎司铜箔 35 micron copper C. 2盎司铜箔 70 micron copper D. 3,4,5盎司及以上铜箔 105, 140, 175 micron copper and above	N/mm(lb/inch), minimum	≥0.70 (4.0) ≥0.79 (4.5) ≥0.88 (5.0) ≥0.96 (5.5)	≥0.70 (4.0) ≥1.05 (6.0) ≥1.40 (8.0) ≥1.58 (9.0)	1.40 (1oz)	2.4.8 2.4.8.2 2.4.8.3
2. 体积电阻 Volume Resistivity, A. 恒温恒湿C-96/35/90 B. 耐湿后After moisture resistance C. 高温下 At elevated temperature E-24/125	MΩ-cm, minimum	10 ⁶ --- 10 ³	--- 10 ⁴ 10 ³	--- 2.0×10 ⁹ 2.5×10 ⁷	2.5.17.1
3. 表面电阻 Surface Resistivity, A. 恒温恒湿C-96/35/90 B. 耐湿后After moisture resistance C. 高温下 At elevated temperature E-24/125	MΩ, minimum	10 ⁴ --- 10 ³	--- 10 ⁴ 10 ³	--- 1.0×10 ⁸ 5.0×10 ⁶	2.5.17.1
4. 吸水率 Moisture Absorption	% maximum	-	0.8	0.12	2.6.2.1
5. 击穿电压 Dielectric Breakdown	kV minimum	-	40	60	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 2.5.5.5 2.5.5.6
7. 介质损耗 Loss Tangent at 1 MHz, (Laminate & Prepreg as laminated)	- maximum	<0.035	<0.035	0.008	2.5.5.3 2.5.5.3 2.5.5.9
8. 弯曲强度 Flexural Strength, A. 纵向 Length direction B. 横向 Cross direction	N/mm ² , minimum	- -	415 345	490 449	2.4.4
9. 高温弯曲强度 Flexural Strength at Elevated Temperature, length direction,	N/mm ² minimum	-	-	-	2.4.4.1
10. 耐电弧性 Arc Resistance	S minimum	60	60	103	2.5.1
11. 热应力冲击 Thermal Stress A. 未蚀刻 Unetched B. 蚀刻 Etched	10 sec at 288℃	Pass Visual Pass Visual	Pass Visual Pass Visual	Pass 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	℃	--	≥170	175	2.4.24 2.4.25
15. 热分解温度 Decomposition Temperature	℃	--	≥340	375	TBD (5% wt loss)
16. 膨胀系数Z-Axis CTE A. Alpha 1 B. Alpha 2 C. 50 to 260 °C	PPM/℃ PPM/℃ %	-- -- --	≤60 ≤300 ≤3.0	40 230 2.7	2.4.24
17. 耐热性(除去铜箔) Thermal Resistance (Copper removed) A.T260 B.T288 C.T300	Minutes Minutes Minutes	-- -- --	≥30 ≥15 AABUS	>60 >60 --	2.4.24.1
18. 耐CAF性能 CAF Resistance	Pass/Fail	--	AABUS	Pass	2.6.25

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

● **NY3170 产品使用指引 Process guideline**

29. 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.

30. 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

31. 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.

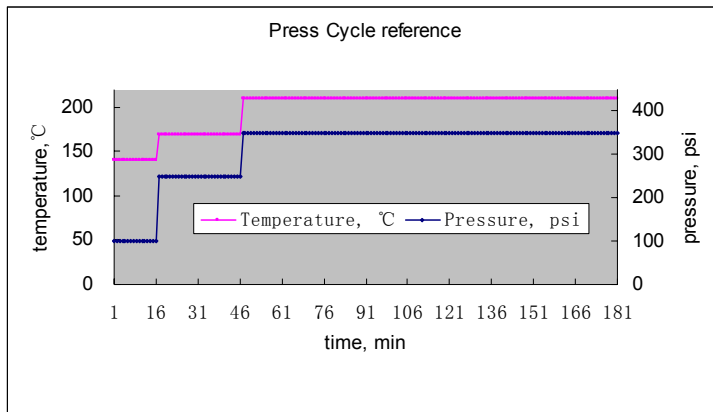
- 固化条件: 压机每本中间层板温必须在 190 摄氏度以上保持 60 分钟，以保证树脂完全固化。

Curing condition: Temperature of the inner boards, keep at least 60 minutes at 190℃ 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).



32. 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 170 摄氏度 2 小时以上，以去除释放机械应力。

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

- 除胶渣: 一般情况下普通 Fr4 的除胶渣条件可能不适合此款材料，建议咨询药水供应商并作适当调整，如除胶时间、温度等。

The typical parameters used to desmear Normal FR-4 may not produce optimum hole topography for NY3170, so you should 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不适合此款材料，建议咨询设备供应商并作适当调整，如冲床重量、模具类型等。

The typical punching parameters may not produce optimum hole topography for NY3170, so you should consult with your equipment supplier to optimize your punching condition, as punching power or die type, etc.

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

产品编号: NY6150

Middle Tg, Low Dk (Dk≤3.6) & Low Df (Df≤0.006), Low Z-CTE, CAF Resistance

特点

- 低介电常数(Dk≤3.6, 1GHz)和介质损耗(Df≤0.006, 1GHz)
Low Dk (Dk≤3.6, 1GHz) and Low loss (Df≤0.006, 1GHz)
- Tg ≥150℃无铅兼容板材
- 优秀的剥离强度
- 优秀的耐 CAF 性能
- UV Blocking 和 AOI 兼容
- 优秀的尺寸安定性

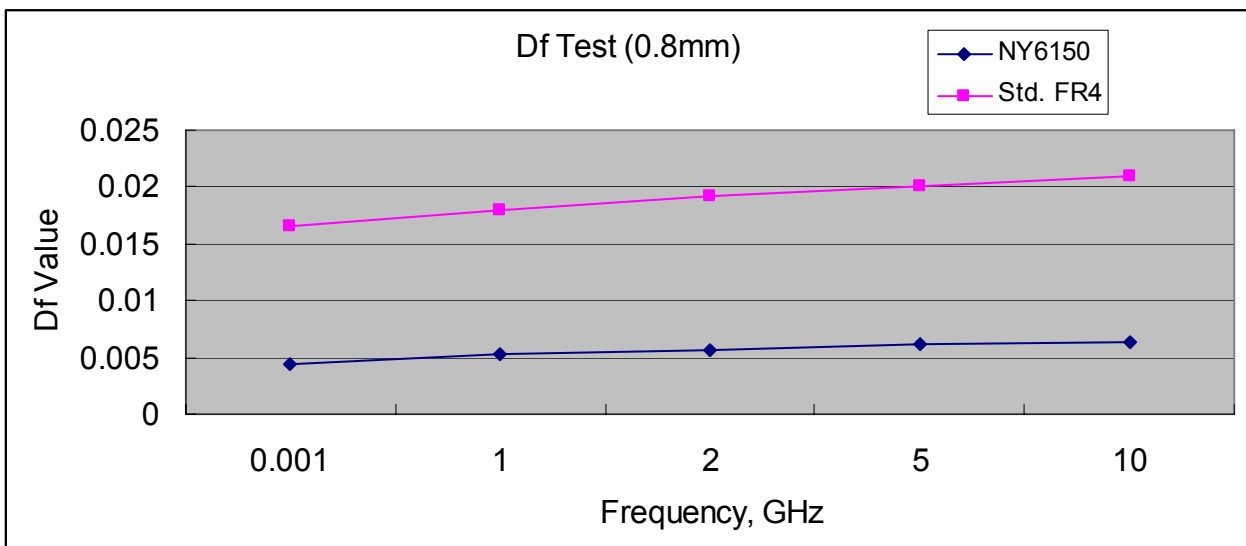
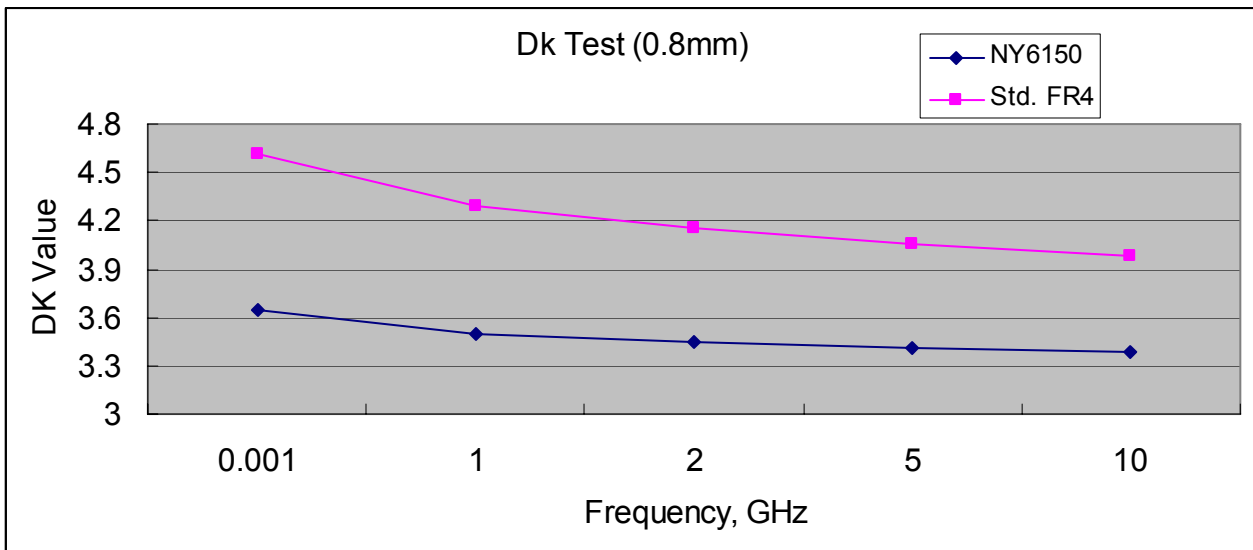
FEATURES

- Tg ≥150℃ Lead-free compatible
- Excellent Peel Strength
- Excellent Anti-CAF Performance
- UV Blocking/AOI Compatible
- Excellent Dimension Stability

应用领域 APPLICATIONS

- 高频、高速、低损耗通讯设备及4C电子产品类
- High Frequency, High Speed, Low Loss Communications or 4CElectronics, and etc.

● Dk & Df 测试



● **NY6150 采购信息 PURCHASING INFORMATION**

基板厚度 Thickness	厚度公差 Tolerance	铜箔 Copper foil	标准供应尺寸 Standard Size
0.03mm to 3.2mm	IPC4101 Class C/M	1/4 oz to 6 oz	915×1220mm (36"×48"), 1020×1220mm (40"×48"), 1070×1220mm (42"×48"), 1830×1220mm (72"×48"), 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 Prepreg	标准供应尺寸 Standard Size	常用玻纤布型号 Normal Glass Type
Anti-CAF LDPP	49.5" ×115 m	For Anti-CAF (106, 1080, 2113, 2313, 3313, 2116, 1652, 1506, 7628) For Laser Drillable (106, 1037, 1067, 1078, 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**

NY6150 半固化片 NY6150 Prepreg	单位 Units	产品规格 Specification	典型值 Typical Value	测试方法 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 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	%	<1.5	<1.5	2.3.19C
6. 储存期 Shelf Life (条件1Condition 1 / 条件2Condition 2)	Days	180/90	180/90	AABUS
7. 燃烧性 Flammability (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%).

● NY6150基板产品规格表 Specification Sheet for Laminate

NY6150覆铜箔板 NY6150 Laminate	单位Units	产品规格 Specification		典型值 Typical Value	测试方法 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 A. 1/2 盎司及以下铜箔 17 micron copper B. 1盎司铜箔 35 micron copper C. 2盎司铜箔 70 micron copper D. 3,4,5盎司及以上铜箔 105, 140, 175 micron copper and above	N/mm(lb/inch), minimum	≥0.70 (4.0) ≥0.79 (4.5) ≥0.88 (5.0) ≥0.96 (5.5)	≥0.70 (4.0) ≥1.05 (6.0) ≥1.40 (8.0) ≥1.58 (9.0)	1.50 (1oz)	2.4.8 2.4.8.2 2.4.8.3
2. 体积电阻 Volume Resistivity, A. 恒温恒湿C-96/35/90 B. 耐湿后After moisture resistance C. 高温下 At elevated temperature E-24/125	MΩ-cm, minimum	10 ⁶ --- 10 ³	--- 10 ⁴ 10 ³	--- 6.5×10 ⁸ 5.6×10 ⁶	2.5.17.1
3. 表面电阻 Surface Resistivity, A. 恒温恒湿C-96/35/90 B. 耐湿后After moisture resistance C. 高温下 At elevated temperature E-24/125	MΩ, minimum	10 ⁴ --- 10 ³	--- 10 ⁴ 10 ³	--- 3.6×10 ⁷ 2.8×10 ⁶	2.5.17.1
4. 吸水率 Moisture Absorption	% maximum	-	0.5	0.12	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	3.6	2.5.5.3 2.5.5.5 2.5.5.6
7. 介质损耗 Loss Tangent at 1 MHz, (Laminate & Prepreg as laminated)	- maximum	<0.035	<0.035	0.006	2.5.5.3 2.5.5.3 2.5.5.9
8. 弯曲强度 Flexural Strength, A. 纵向 Length direction B. 横向 Cross direction	N/mm ² , minimum	- -	415 345	515 405	2.4.4
9. 高温弯曲强度 Flexural Strength at Elevated Temperature, length direction,	N/mm ² minimum	-	-	-	2.4.4.1
10. 耐电弧性 Arc Resistance	S minimum	60	60	105	2.5.1
11. 热应力冲击 Thermal Stress A. 未蚀刻 Unetched B. 蚀刻 Etched	10 sec at 288℃	Pass Visual Pass Visual	Pass Visual Pass Visual	Pass 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	℃	--	≥150	155	2.4.24 2.4.25
15. 热分解温度 Decomposition Temperature	℃	--	≥325	345	TBD (5% wt loss)
16. 膨胀系数Z-Axis CTE A. Alpha 1 B. Alpha 2 C. 50 to 260 °C	PPM/℃ PPM/℃ %	-- -- --	≤60 ≤300 ≤3.5	50 235 3.0	2.4.24
17. 耐热性(除去铜箔) Thermal Resistance (Copper removed) A.T260 B.T288 C.T300	Minutes Minutes Minutes	-- -- --	≥30 ≥5 AABUS	>60 18 --	2.4.24.1
18. 耐CAF性能 CAF Resistance	Pass/Fail	--	AABUS	Pass	2.6.25

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

● **NY6150 产品使用指引 Process guideline**

33. 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.

34. 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

35. 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.

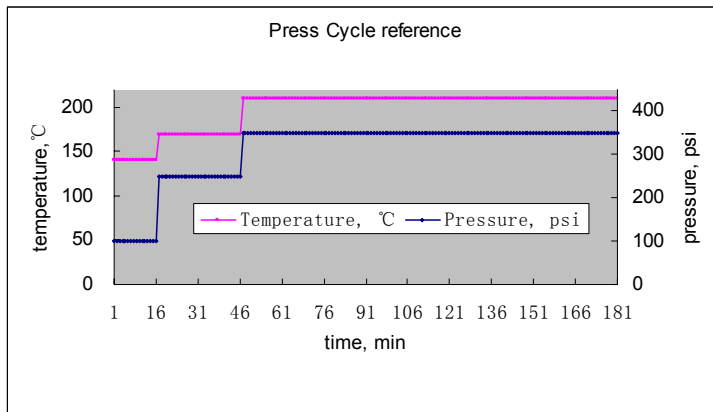
- 固化条件: 压机每本中间层板温必须在 190 摄氏度以上保持 60 分钟，以保证树脂完全固化。

Curing condition: Temperature of the inner boards, keep at least 60 minutes at 190℃ 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**).



36. 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 的除胶渣条件可能不适合此款材料，建议咨询药水供应商并作适当调整，如除胶时间、温度等。

The typical parameters used to desmear Normal FR-4 may not produce optimum hole topography for NY6150, so you should consult with your chemical supplier to optimize your desmear condition, as desmear time or temperature, etc.

- 外型加工: 不可采用冲模外型加工。Not to punch for the materials.

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

产品编号: NY6200

Very High Tg, Low Dk ($Dk \leq 3.8$) & Low Df ($Df \leq 0.008$), Low Z-CTE, CAF Resistance

特点

- 低介电常数($Dk \leq 3.8$, 1GHz)和介质损耗($Df \leq 0.008$, 1GHz)
Low Dk ($Dk \leq 3.8$, 1GHz) and Low loss ($Df \leq 0.008$, 1GHz)
- Tg $\geq 200^\circ\text{C}$ 无铅兼容板材
- 优秀的剥离强度
- 优秀的耐 CAF 性能
- UV Blocking 和 AOI 兼容
- 优秀的尺寸安定性

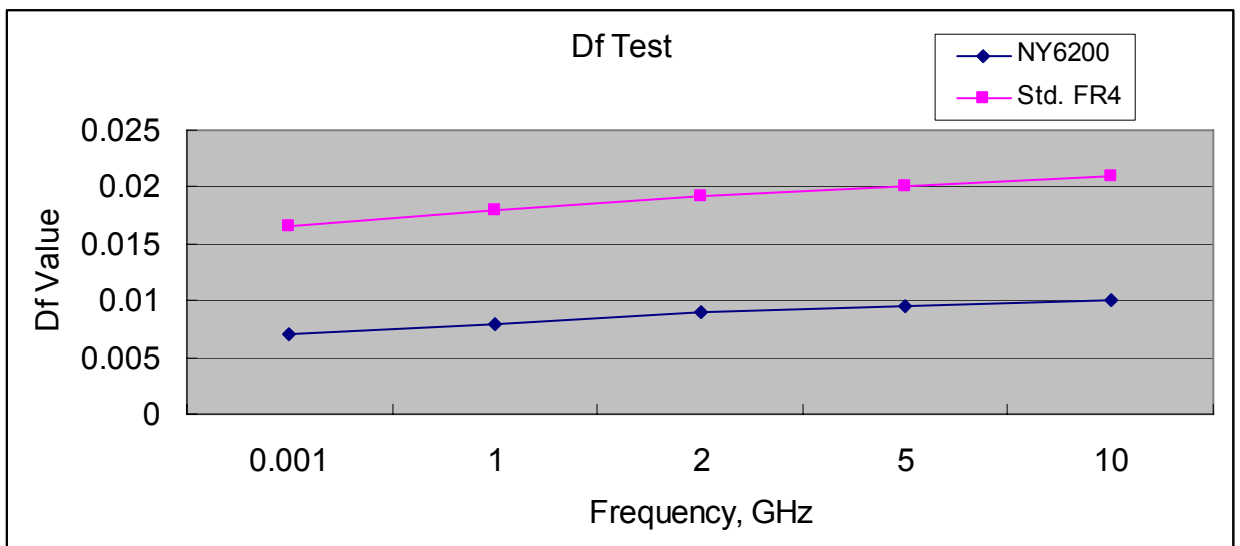
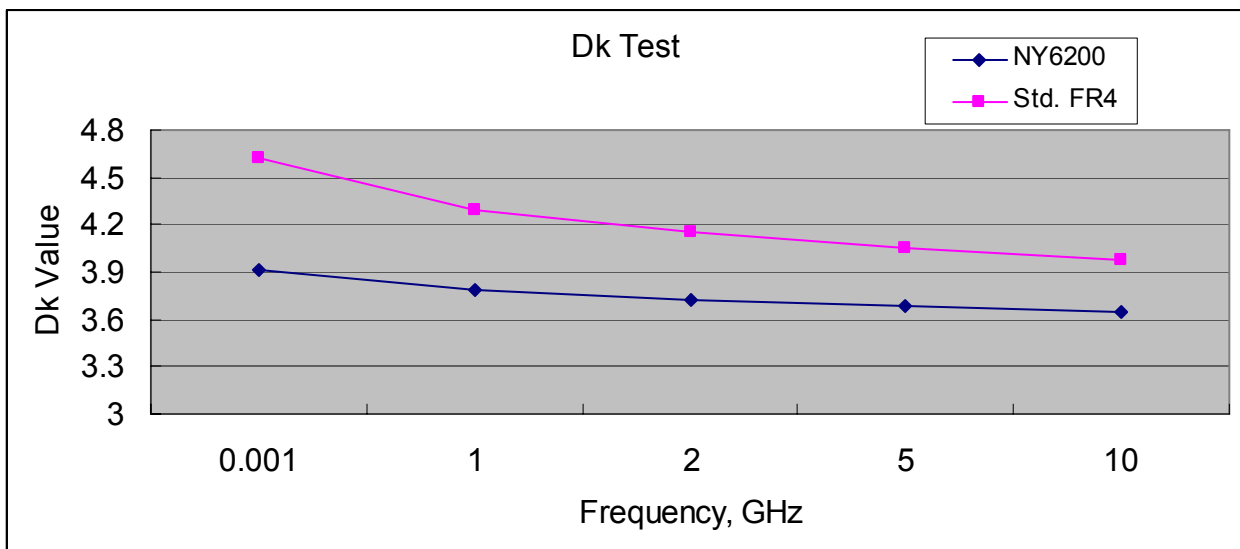
FEATURES

- Tg $\geq 200^\circ\text{C}$ Lead-free compatible
- Excellent Peel Strength
- Excellent Anti-CAF Performance
- UV Blocking/AOI Compatible
- Excellent Dimension Stability

应用领域 APPLICATIONS

- 高频、高速、低损耗通讯设备及4C电子产品类
- High Frequency, High Speed, Low Loss Communications or 4CElectronics, and etc.

● Dk & Df 测试



● **NY6200 采购信息 PURCHASING INFORMATION**

基板厚度 Thickness	厚度公差 Tolerance	铜箔 Copper foil	标准供应尺寸 Standard Size
0.03mm to 3.2mm	IPC4101 Class C/M	1/4 oz to 6 oz	915×1220mm (36"×48"), 1020×1220mm (40"×48"), 1070×1220mm (42"×48"), 1830×1220mm (72"×48"), 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 Prepreg	标准供应尺寸 Standard Size	常用玻纤布型号 Normal Glass Type
Anti-CAF LDPP	49.5" ×115 m	For Anti-CAF (106, 1080, 2113, 2313, 3313, 2116, 1652, 1506, 7628) For Laser Drillable (106, 1037, 1067, 1078, 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**

NY6200 半固化片 NY6200 Prepreg	单位 Units	产品规格 Specification	典型值 Typical Value	测试方法 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 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	%	<1.5	<1.5	2.3.19C
6. 储存期 Shelf Life (条件1Condition 1 / 条件2Condition 2)	Days	180/90	180/90	AABUS
7. 燃烧性 Flammability (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%).

● **NY6200基板产品规格表 Specification Sheet for Laminate**

NY6200 覆铜箔板 NY6200 Laminate	单位Units	产品规格 Specification		典型值 Typical Value	测试方法 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 A. 1/2 盎司及以下铜箔 17 micron copper B. 1盎司铜箔 35 micron copper C. 2盎司铜箔 70 micron copper D. 3,4,5盎司及以上铜箔 105, 140, 175 micron copper and above	N/mm(lb/inch), minimum	≥0.70 (4.0) ≥0.79 (4.5) ≥0.88 (5.0) ≥0.96 (5.5)	≥0.70 (4.0) ≥1.05 (6.0) ≥1.40 (8.0) ≥1.58 (9.0)	1.50 (1oz)	2.4.8 2.4.8.2 2.4.8.3
2. 体积电阻 Volume Resistivity, A. 恒温恒湿C-96/35/90 B. 耐湿后After moisture resistance C. 高温下 At elevated temperature E-24/125	MΩ-cm, minimum	10 ⁶ --- 10 ³	--- 10 ⁴ 10 ³	--- 2.0×10 ⁹ 2.5×10 ⁷	2.5.17.1
3. 表面电阻 Surface Resistivity, A. 恒温恒湿C-96/35/90 B. 耐湿后After moisture resistance C. 高温下 At elevated temperature E-24/125	MΩ, minimum	10 ⁴ --- 10 ³	--- 10 ⁴ 10 ³	--- 1.0×10 ⁸ 5.0×10 ⁶	2.5.17.1
4. 吸水率 Moisture Absorption	% maximum	-	0.5	0.12	2.6.2.1
5. 击穿电压 Dielectric Breakdown	kV minimum	-	40	60	2.5.6
6. 介电常数 Permittivity at 1 MHz, (Laminate & Prepreg as laminated)	- maximum	<5.4	<5.4	3.8	2.5.5.3 2.5.5.5 2.5.5.6
7. 介质损耗 Loss Tangent at 1 MHz, (Laminate & Prepreg as laminated)	- maximum	<0.035	<0.035	0.008	2.5.5.3 2.5.5.3 2.5.5.9
8. 弯曲强度 Flexural Strength, A. 纵向 Length direction B. 横向 Cross direction	N/mm ² , minimum	- -	415 345	490 449	2.4.4
9. 高温弯曲强度 Flexural Strength at Elevated Temperature, length direction,	N/mm ² minimum	-	-	-	2.4.4.1
10. 耐电弧性 Arc Resistance	S minimum	60	60	103	2.5.1
11. 热应力冲击 Thermal Stress A. 未蚀刻 Unetched B. 蚀刻 Etched	10 sec at 288℃	Pass Visual Pass Visual	Pass Visual Pass Visual	Pass 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	℃	--	≥200	210	2.4.24 2.4.25
15. 热分解温度 Decomposition Temperature	℃	--	≥340	375	TBD (5% wt loss)
16. 膨胀系数Z-Axis CTE A. Alpha 1 B. Alpha 2 C. 50 to 260 °C	PPM/℃ PPM/℃ %	-- -- --	≤60 ≤300 ≤3.0	40 230 2.7	2.4.24
17. 耐热性(除去铜箔) Thermal Resistance (Copper removed) A.T260 B.T288 C.T300	Minutes Minutes Minutes	-- -- --	≥30 ≥15 AABUS	>60 >60 --	2.4.24.1
18. 耐CAF性能 CAF Resistance	Pass/Fail	--	AABUS	Pass	2.6.25

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

● **NY6200 产品使用指引 Process guideline**

37. 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.

38. 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

39. 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.

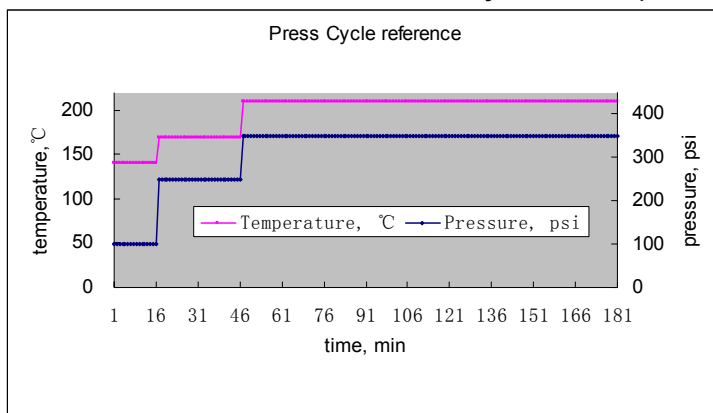
- 固化条件: 压机每本中间层板温必须在 190 摄氏度以上保持 60 分钟，以保证树脂完全固化。

Curing condition: Temperature of the inner boards, keep at least 60 minutes at 190℃ 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).



40. 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 200 摄氏度 2 小时以上，以去除释放机械应力。

To bake after drilling 200℃/ 2 hours, in order to relax the mechanical stress.

- 除胶渣: 一般情况下普通 Fr4 的除胶渣条件可能不适合此款材料，建议咨询药水供应商并作适当调整，如除胶时间、温度等。

The typical parameters used to desmear Normal FR-4 may not produce optimum hole topography for NY6200, so you should consult with your chemical supplier to optimize your desmear condition, as desmear time or temperature, etc.

- 外型加工: 不可采用冲模外型加工。Not to punch for the materials.

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