MTC-97/ MPP-97

產品特點

- 使用四官能基環氧樹脂提高 Tg 并得到更好的尺寸安定性及通孔可靠性
- 富熒光樹脂,可增加 A.O.I 檢查机之對比性
- 通用 UV 型阻焊劑，可雙面同時曝光增加產量
- 其它性能与 TC-97/PP-97 一致

Features

- Tetra-functional epoxy is designed for a higher Tg and better dimensional stability and through hole reliability
- High luminance of epoxy contrast with copper for AOI
- General UV Solder mask may be applied simultaneously to both sides increasing productivity
- Other properties are similar to TC-97/PP-97

名稱說明 Designation Introduction

MTC-97	單雙面板及多層線路板用芯板 Single or double side PCB and thin core for multi-layer PCB	ANSI 等級: FR-4 ANSI grade: FR-4
MPP-97	多層線路板用半固化片 Prepreg for multi-layer PCB	

UL 認証 Certification UL (File No: E186152)

Model	Min. Thickness (Inch)	Clad cond. Thickness		Max. Area Diameter (mm)	Solder Lts.		UL 94 Flame Class	MOT (℃)
		Min. (μm)	Max. (μm)		Temp. (℃)	Time (sec)		
MTC-97/ MPP-97	0.002	9	204	50.8	288	30	94V-0	130
	0.015	9	204	50.8	288	30	94V-0	130

MTC-97/ MPP-97

Performance List for Laminate (Specification sheet IPC-4101/21)

Characteristic		Unit	Condition	Typical Values	SPEC.
Volume Resistivity		MΩ-cm	C-96/35/90	6.3×10^{8}	≧ 10^{6}
Surface Resistivity		MΩ	C-96/35/90	1.5×10^{7}	≧ 10^{4}
Permittivity (RC50%)	At 1MHz	-	C-24/23/50	4.50	≦ 5.4
	At 1GHZ		C-24/23/50	4.13	
Loss Tangent (RC50%)	At 1MHz	-	C-24/23/50	0.016	≦ 0.035
	At 1GHZ		C-24/23/50	0.020	
Arc Resistance		Sec	D-48/50+D-0.5/23	120	≧ 60
Dielectric Breakdown		KV	D-48/50	40	≧ 40
Moisture Absorption		%	D-24/23	0.150	≦ 0.8
Flammability		-	C-24/23/50+E-24/125	94 V-0	94 V-0
Peel Strength (HTE 1OZ)		Lb/in(N/mm)	After thermal stress 288℃×10Sec solder floating	11(1.93)	≧ 6(1.05)
Thermal Stress Test		-	288℃×10Sec×6cycle floating	Pass	Pass
Flexural Strength	LW	N/mm^2	A	679	≧ 415
	CW	N/mm^2	A	624	≧ 345
CTE-X		PPM/℃	TMA	16	-
CTE-Y		PPM/℃		18	-
Z-Axis CTE	Alpha 1	PPM/℃	TMA	55	-
	Alpha 2	PPM/℃		300	-
Z-Axis CTE (50~260℃)		%		4.5	-
Time to Delaminate (Copper removed)	T260	Min	TMA	10	-
Td (5% Weight loss)		℃	TGA	305	-
Glass Transition Temperature		℃	DSC	141	≧130

注:測試樣品規格為 62mil 1/1 基板(無特殊說明情況下).

Note: Test sample is 62mil 1/1(without special remark).

MTC-97/ MPP-97

一般規格 Normal Size & Thickness

Thickness Inch (mm)	Copper Cladding OZ (µm)	Size Inch mm	Thickness Tolerance
0.002 (0.051) To 0.125 (3.2)	1/3(12) 0.5(17) 1.0(35) 2.0(70) 3.0(105) 4.0(140)	49×36.8 1244×0935 49×40.7 1244×1035 49×42.7 1244×1085	IPC-4101 Class C/M

注:

1.層壓板有效面積為 36 "(經) ×48", 40" (經) ×48" , 42" (經) ×48".

2.可根据客户的不同需要選用高溫伸長率銅箔，超高溫伸長率銅箔，雙面處理銅箔，反轉銅箔,VLP 銅箔及超薄銅箔等多种不同類型的覆銅箔.

3.保持芯板与基材經緯方向的一致,對保証多層板的平整度非常重要,其經緯方向標識可參考品質保証書.

Note:

1. The effective area of laminate is 36" (Grain) ×48", 40" (Grain) ×48", 42" (Grain) ×48".
2. Copper cladding type can be selected from HTE, super HTE, double treated, reversed, very low profile or ultra thin copper foil, depended on customer needs.
3. Keeping the core and prepreg in the same grain direction is critical to ensure flatness of the multilayer boards. Grain direction is shown on the "Certificate of Conformance".

半固化片性能表 Performance List for prepreg

Nominal thickness (mm)	Glass Style	Resin Content (%)	Resin Flow (%)	Gel Time (sec)	Volatile Content (%)	Scaled Flow Thickness (per ply)	
						mm	mil
0.20	7628	52 ± 3	34 ± 5	140±20	≦ 0.75	0.170±0.013	6.7 ± 0.5
0.20	7628	50 ± 3	31 ± 5			0.168±0.013	6.6 ± 0.5
0.20	7628	48 ± 3	30 ± 5			0.165±0.013	6.5 ± 0.5
0.20	7628	43 ± 3	22 ± 5			0.160±0.013	6.3 ± 0.5
0.15	1506	50 ± 3	30 ± 5			0.147±0.010	5.8 ± 0.4
0.10	2116	53 ± 3	33 ± 5			0.102±0.010	4.0 ± 0.4
0.10	2116	50 ± 3	29 ± 5			0.097±0.010	3.8 ± 0.4
0.10	2116	48 ± 3	27 ± 5			0.094±0.010	3.7 ± 0.4
0.06	1080	61 ± 3	39 ± 5			0.058±0.010	2.3 ± 0.4
0.03	106	68±3	43±5			0.046±0.010	1.8 ± 0.4

注:針對客户要求,我司可提供特殊的規格.

Note: Grace can provide special specifications to meet customers' requirement.

半固化片儲存要求 Prepreg Storage Requirement

IPC-4101 3.17

儲存條件 1: 從生產日期起在低于 5℃環境中保存 6 個月

Condition 1: Six months when stored at <5°C

儲存條件 2 : <23℃, <50%RH 3 個月

Condition 2: Three months when stored at <23°C and <50 % RH

注:

1. PP 必須避免儲存在接觸 UV 光和有輻射的外部環境

2. PP 超過儲存期，當使用時必須重新測試各項物性，確認合格方可使用。

Note:

1. Prepreg should be stored in the absence of a catalytic environment such as UV light or excessive radiation.

2. Prepreg exceeding the shelf life requirements prior to shipment to the user must be retested and recertified to agree upon specifications.

建議壓合參數 Recommended Press Parameter

1. 材料實際溫度為 90~130℃升溫速率建議:
   低升溫速率:1.2~2.5℃/min,高壓壓力:350~400psi
   高升溫速率:3.2~5.5℃/min,高壓壓力:250~300psi
2. 材料實際溫度升至 170℃后,需保持 40 分鐘以上,使環氧樹脂固化完全
3. 冷卻過程中材料溫度高于 100℃時,降溫速率建議控制在 1.5℃/min 以下以避免引起板翹

注:以上設定僅供參考,具體程式須依熱壓機及排版狀況作相應調整.

1. Heating rate suggestions when material temperature range is 90~130℃
   Heating rate: 1.2~2.5℃/min for 350~400psi pressure
   Heating rate: 3.2~5.5℃/min for 250~300psi pressure
2. Temperature of material reach 170℃ must is held for at least 40min to allow epoxy resin to cure fully.
3. In order to avoid warpage and twist issue, cooling rate of material suggest to be kept under 1.5℃/min, when the temperature of material is still above 100℃

Note: All values mentioned above are just for reference, clients can modify relative parameters according to the machines and designs.