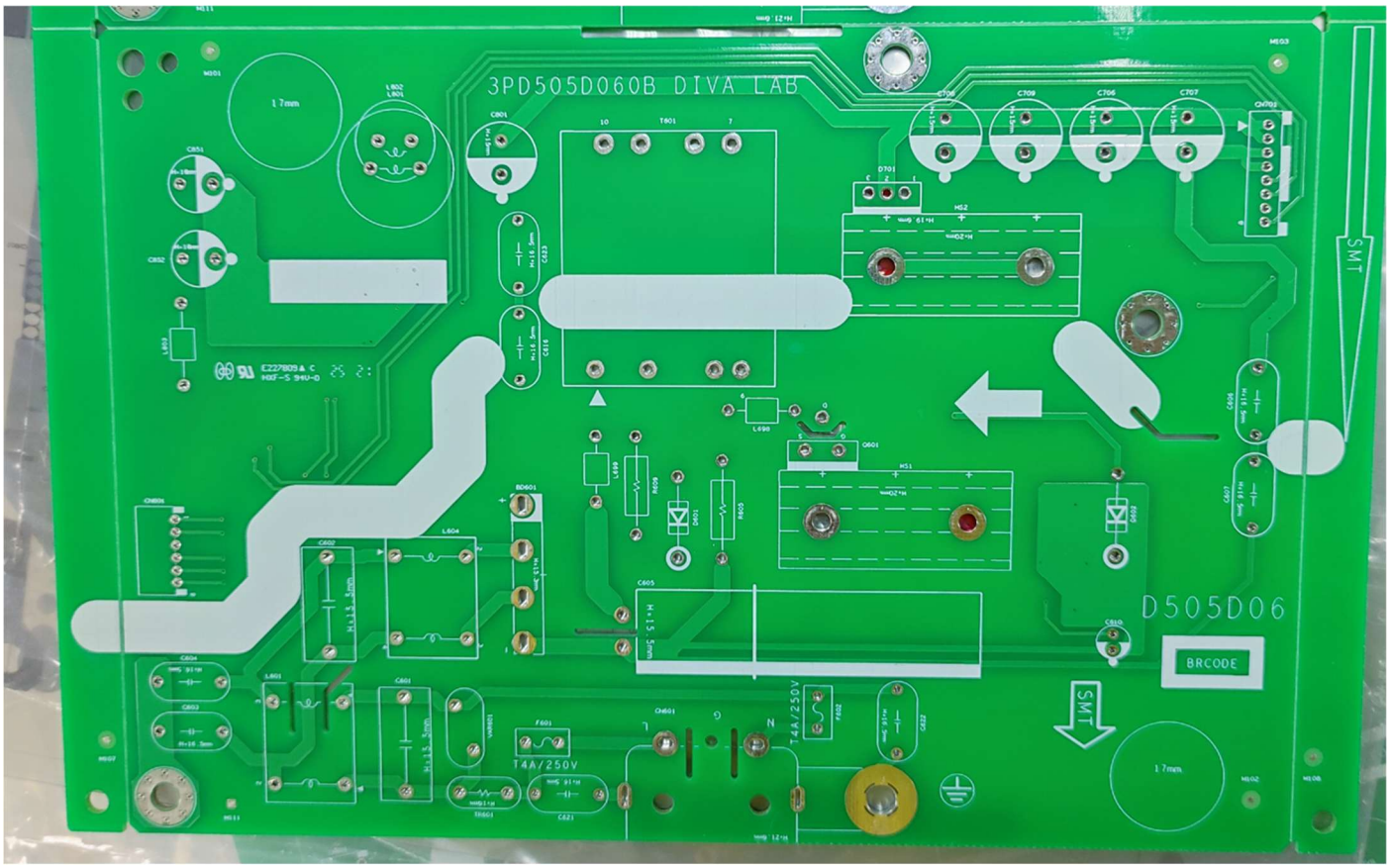
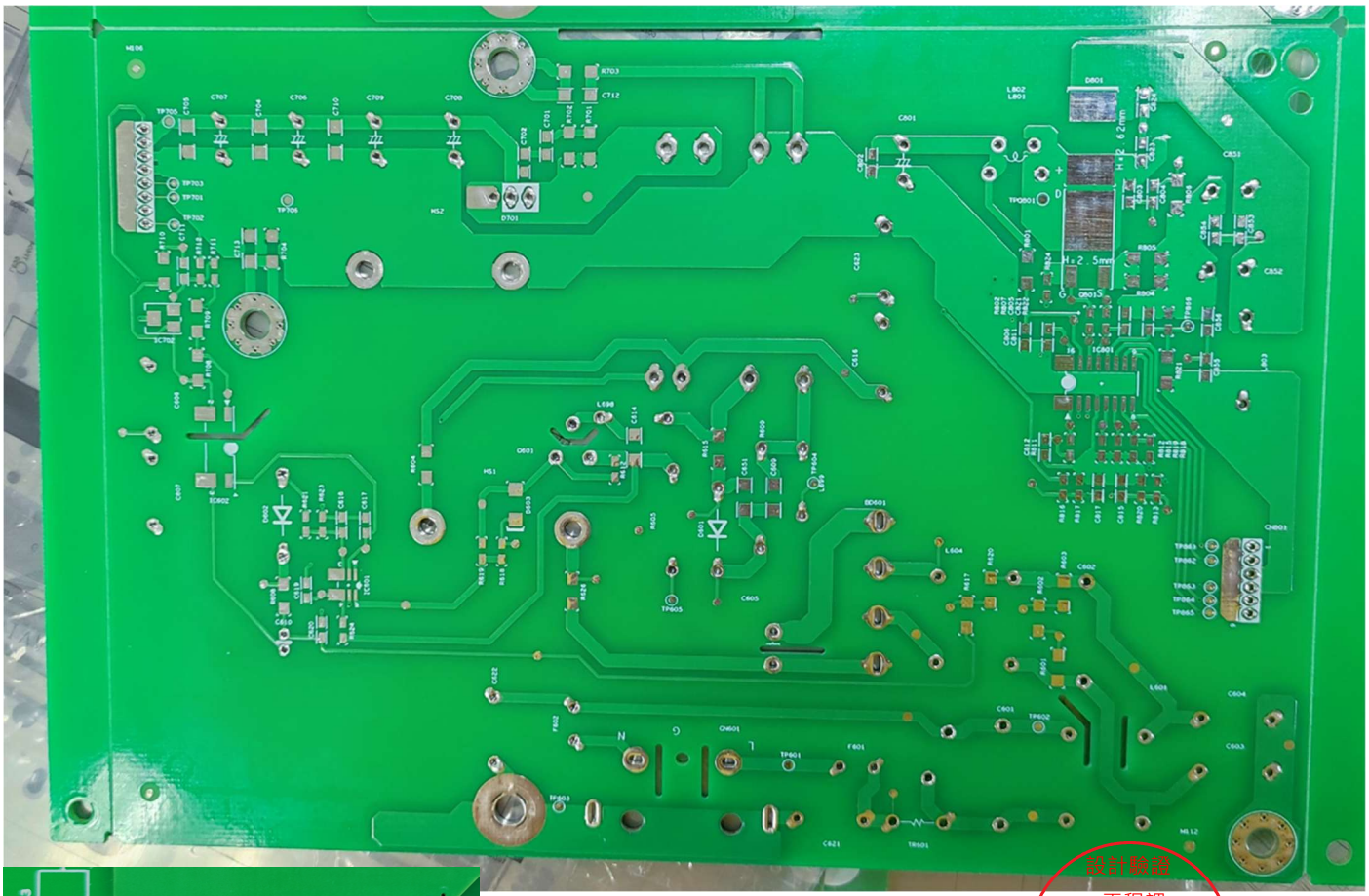





設計驗證
工程課
2025 -09- 09
發行

# 昆 山 市 华 新 电 路 板 有 限 公 司

KUN SHAN HUA XIN CIRCUIT BOARD CO.,LTD

## Sample Acknowledgement

# 样 品 承 认 书

Customer(顾客名称)：DIVA

Customer P/N(顾客料号)：**3PD505D060B**

(P0335)

Date(日期)：2025-5-28

設計驗證
工程課
2025 -09- 09
發行
鈺鏵科技開發股份有限公司


Address： NO.7 Qianyang Road，Qiandeng Town，Kunshan ， Jiangsu PR China

（昆山市千灯镇千扬路 7 号）

Tel： Factory 0512-57472099 ； Marketing 0512-57462303 57461784

Fax： Factory 0512-57472089 ； Marketing 0512-57462301

E-mail：huaxing@pub.ks.js.cn

Webside：www.hxpcb.com

Postcode: 215341


昆山市华新电路板有限公司 品质部

E238400

CPCA

一、Capability Inspection（性能检测 ）

| Description（内容） | | | Requst（要 求） | Result（结果） | Judgement（判断） |
|---|---|---|---|---|---|
| 1 | Material（板材） | Type（种类） | KB6164 | KB6164 | ACC |
| | | Board THK（板厚） | 1.6±9% | 1.61 | ACC |
| | | Copper THK（铜箔厚度） | H/H OZ | H/H OZ | ACC |
| | | Twist & Warp（翘曲度） | <0.55% | 见附页 | ACC |
| 2 | Legend & Marking（字符 & 标记） | Color(颜色) | 白色 | 白色 | ACC |
| | | UL Mark（UL 标记） | 28 88 E227809 HXF-S 94V-0 | 28 88 E227809 HXF-S 94V-0 | ACC |
| | | Date Cord（周期） | YY WW | 25 21 | ACC |
| | | width（最小线宽 mm） | 0.508±15% | 0.506 | ACC |
| | | space（最小线距 mm） | 0.381±15% | 0.383 | ACC |
| | | width（阻抗线宽 mm） | / | / | / |
| | | space（阻抗线距 mm） | / | / | / |
| | | Min.Hole Ring（最小环宽 mm） | 0.127±10% | 0.122 | ACC |
| 4 | Solder Mask（阻焊） | Type(种类) | 海田 | 海田 | ACC |
| | | Color（颜色） | 绿色 | 绿色 | ACC |
| | | Solvent Test（溶济测试） | No Attack（无脱色） | 无脱色 | ACC |
| | | Tape Test（胶带测试） | No Peel Off（无脱落） | 阻焊，字符无剥离 | ACC |
| | | Solderability Test（可焊性测试） | 可焊性良好 | 上锡良好 | ACC |
| 5 | Open/Short（开/短路） | Electron Test（通断测试） | 100% Testing Passed（100% 测试通过） | 100% 测试通过 | ACC |
| 6 | 阻抗测试 | 阻抗测试仪 | / | / | / |
| 7 | Contrast Engineer Date（与工程资料对比） | Contrast Drill Drawing(孔与分孔图) | | 无多孔、少孔 | |
| | | Contrast Trance Film(与原装线路菲林) | | 核对无误 | |
| | | Contrast Solder Mask Film (与原装阻焊菲林) | | 核对无误 | |
| | | Contrast Legend Film(与原装字符菲林) | | 核对无误 | |
| | | Other (其他) | | 无 | |

二、 Hole Size & Slot Size(孔径及槽的尺寸) Unit(单位):mm

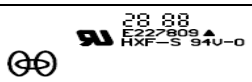
| Code(代号) | Dim. & Tol.（尺寸和公差） | PTH（镀通孔） | Measurement（实测尺寸） | | | Judgement（判断） |
|---|---|---|---|---|---|---|
| 1 | 0.40±0.076 | Y | 塞孔无法测 | | | / |
| 2 | 0.60±0.076 | Y | 0.625 | 0.625 | 0.625 | ACC |
| 3 | 0.80±0.05 | N | 0.825 | 0.825 | 0.825 | ACC |
| 4 | 0.90±0.076 | Y | 0.925 | 0.925 | 0.925 | ACC |
| 5 | 1.00±0.076 | Y | 1.025 | 1.025 | 1.025 | ACC |
| 6 | 1.10±0.076 | Y | 1.125 | 1.125 | 1.125 | ACC |
| 7 | 1.20±0.076 | Y | 1.225 | 1.225 | 1.225 | ACC |
| 8 | 1.30±0.076 | Y | 1.325 | 1.325 | 1.325 | ACC |
| 9 | 1.40±0.076 | Y | 1.425 | 1.425 | 1.425 | ACC |
| 10 | 2.00±0.05 | N | 2.025 | 2.025 | 2.025 | ACC |
| 11 | 2.70±0.076 | Y | 2.725 | 2.725 | 2.725 | ACC |
| 12 | 3.00±0.05 | N | 3.025 | 3.025 | 3.025 | ACC |
| 13 | 3.20±0.05 | N | 3.225 | 3.225 | 3.225 | ACC |
| 14 | 3.50±0.05 | N | 3.525 | 3.525 | 3.525 | ACC |
| 15 | 4.00±0.05 | N | 4.025 | 4.025 | 4.025 | ACC |
| 16 | 4.10±0.05 | N | 4.125 | 4.125 | 4.125 | ACC |
| 17 | 4.40±0.05 | Y | 4.425 | 4.425 | 4.425 | ACC |
| 18 | 0.70*3.00±0.076 | Y | 0.71*3.02 | 0.72*3.01 | 0.73*3.02 | ACC |
| 19 | 1.10*2.50±0.076 | Y | 1.11*2.51 | 1.12*2.51 | 1.13*2.53 | ACC |
| 20 | 1.10*2.70±0.076 | Y | 1.13*2.72 | 1.12*2.71 | 1.11*2.72 | ACC |
| 21 | 1.30*2.00±0.076 | Y | 1.31*2.02 | 1.32*2.01 | 1.32*2.01 | ACC |
| | | | | | | |
| | | | | | | |
| | | | | | | |

三、 Mechanical Dimension Inspection（外型尺寸检查） Unit(单位):mm

| Code(序号) | Dim. & Tol.（尺寸和公差） | Measurement（实测尺寸） | | | Judgement（判断） |
|---|---|---|---|---|---|
| 1 | 248.00±0.127 | 248.03 | 248.01 | 248.02 | ACC |
| 2 | 200.00±0.127 | 200.02 | 200.03 | 200.01 | ACC |
| | | | | | |
| | | | | | |

Inspection by（检查）：沈宇飞 Verified by（审核）柯敏

# PCB List

| | | |
|---|---|---|
| ModelNO. | | |
| Part NO. | 3PD505D060B | |
| PCB Spec | PCB size (mm) | 180.00*124.00 mm |
| | PNL size | 248.00*200.00 mm |
| | Pcs /PNL (mm) | 2PCS/1PNL |
| | Thickness | 1.6+/-9% mm |
| | Outline Tolerance(mm) | +/-0.127 |
| | SLOT Tolerance(mm) | +0.1/-0 |
| | PCB hole tolerance(mm) | PTH：±0.076mmNPTH：±0.05mm |
| | V-cut 残厚(mm) | 0.53±0.08mm |
| Raw Material | Grade | FR-4 |
| | Maker | 建滔 |
| | CCL Name | KB6164 |
| | Copper thickness | 1OZ |
| | UL Symbol |  |
| | Flammability UL Grade | 94V-0 |
| Finish PCB | PCB Type | 2L |
| | Copper thickness | 1OZ |
| Conductor | Min.Width | 0.508+/-10% mm |
| | Min Gap | 0.381+/-10% mm |
| Soler Mask | Maker | 海田 |
| | Type number | HSR-200 GK |
| | Thickness | 0.46mil (min.>0.15mil at the edge of trace) |
| | color | Green |
| Symbol | Maker | 昱谷 |
| | Type number | YG-400WB |
| | Thickness （10-20um ） | 17.22um |
| | Color | white |
| 无铅喷锡 锡厚 | Thickness ( 1um-40um ) | 锡厚6.48UM |
| 化金 处理及镍厚与金厚 | Thickness （ Au：2~6u" / Ni： > 110u" ） | NA |
| | Gold Finger Beveling Angel (30 ±2°) | NA |
| 板弯 Bow | 板弯<长边* 0.55% ; 且<1.6mm ( Min. follow IPC criteria) | 0.28mm |
| 板翘 Twist | 板翘 < PCB/Panel 对角线长 *0.55%; 且<1.6mm ( Min. follow IPC criteria) | 0.19mm |
| 槽与相邻Trace之距离 | ≧ 0.5 mm | PASS |
| PTH 孔铜厚度 | Min. > 0.8 mil , Avg. ≧ 0.9 mil | PASS |
| Hole Quality | PTH 孔环不得有毛边 /毛刺 /破孔 /缺角 /翘铜 /凸起现象 | PASS |
| 焊点偏, 孔偏，文字偏移 | <0.1mm | 0.05mm |
| Multi Min. Trace 宽度, 间距 | 宽度≧4mil ,间距≧ 4mil | PASS |
| Impedance Control | Characteristic impedance ± 10 %<br>Differential impedance ± 10 % | PASS |
| Lonic Contaminiation | ≦1.56ug NaCl/sq.cm$^2$ | 0.31ug NaCl/sq.cm$^2$ |
| BGA & Non BGA via | 所有Via Hole需两面塞绿漆，不得假性漏铜(BGA 处严格执行)，不能具有焊锡性（除非Gerber特别定义） | PASS |
| Via塞孔填充量(蓝漆,树脂) | BGA区域铝片塞孔>60%(严格执行)，其他区域连塞带印>20% | 1042.61um |
| Others | Version Number | A |

Prepare By：沈宇飞　　Confirm With：王平

# 昆 山 市 华 新 电 路 板 有 限 公 司

KUN SHAN HUA XIN CIRCUIT BOARD CO.,LTD

## 开短路测试报告

日期：2025-5-28

| | | |
|---|---|---|
| 客户编号：3PD505D060B | | 客户名称：DIVA |
| 本厂编号：2165AVYA0 | 数量：6SET | 生产周期：25 21 |

| 测试条件 | 测试要求 | 测试结果 |
|---|---|---|
| 飞针测试（移动探针）<br>测试电压：250V<br>导通电阻：50Ω<br>绝缘电阻：34MΩ | 无开路、短路 | 100% PASS |
| | | |
| | | |
| | | |
| | | |

备注：

**良率：**

本料号板子生产数量为 6SET，最终合格数量为 6SET，产品良率为 100％。

**产品追溯性：**

2165AVYA0 板子的每个 pcs 上都有标记如下：




是华新厂标；E227809 是华新厂 UL 标记； S 代表双面板；94v-0 是最高防火等级；25 21. 代表了 25 年第 21 周。

结论：

■ 合格： □ 拒收：

| | | | |
|---|---|---|---|
| 拟 制 | 沈宇飞 | 批 准 | 柯敏 |

# PCB 板弯/板翘测量

| 客户： | DIVA | 料号： | 3PD505D060B | 试验日期： | 2025-5-28 |
|---|---|---|---|---|---|
| 日期代码： | 25 21 | 试验数量： | 6SET | 测量设备： | PIN 针 |
| 测量方法：参见：Qisda Display Product’ s PCB General Rule | | | | | |
| 判定标准：板弯≤0.55%.板翘≤0.55% | | | | | |
| 备注： | | | | | |
| 测试结果：合格 | | | | | |

| 项 目 | 测量值 | | | | | 判定 | |
|---|---|---|---|---|---|---|---|
| | 1 号板 | 2 号板 | 3 号板 | 4 号板 | 5 号板 | 合格 | 不合格 |
| 板 弯 | 0.23% | 0.19% | 0.33% | 0.31% | 0.32% | √ | |
| 板 翘 | 0.20% | 0.15% | 0.21% | 0.31% | 0.30% | √ | |
| | | | | | | | |
| | | | | | | | |

测试结果： 合格

试验：沈宇飞 审核：柯敏

# PCB 防焊/文字附着力测试

| 客户： | DIVA | 料号： | 3PD505D060B | 试验日期： | 2025-5-28 |
|---|---|---|---|---|---|
| 日期代码： | 25 21 | 试验数量： | 6SET | 测量设备： | 3M 胶带 |
| 测量方法：参见：Qisda Display Product’s PCB General Rule | | | | | |
| 判定标准： 防焊层及文字均不能脱落。 | | | | | |
| 备注： | | | | | |
| 测试结果：合格 | | | | | |

| 编 号 | 防焊附着力 | 文字附着力 | 判定 | |
|---|---|---|---|---|
| | | | 合格 | 不合格 |
| 1· | ▭ 脱落 ■ 无脱落 | ▭ 脱落 ■ 无脱落 | √ | |
| 2· | ▭ 脱落 ■ 无脱落 | ▭ 脱落 ■ 无脱落 | √ | |
| 3· | ▭ 脱落 ■ 无脱落 | ▭ 脱落 ■ 无脱落 | √ | |
| 4· | ▭ 脱落 ■ 无脱落 | ▭ 脱落 ■ 无脱落 | √ | |
| 5· | ▭ 脱落 ■ 无脱落 | ▭ 脱落 ■ 无脱落 | √ | |

测试结果：合格

检测： 沈宇飞　　审核：柯敏

# 昆 山 市 华 新 电 路 板 有 限 公 司

KUN SHAN HUA XIN CIRCUIT BOARD CO.,LTD

## 切片检查报告

## MICROSECTION INSPECTION REPORE

**PROD P/N**：2165AVYA0 **DATE CODE**：25 21 **SAMPLE SIZE**：2PCS

CUSTOMER：DIVA **CUST P/N**：3PD505D060B MICROSECTION NO：①

Requirement:(unit:um)

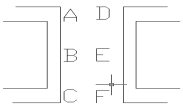
| HOLE WALL COPPER | Roughness | Tin thickess | S/M thickness |
|---|---|---|---|
| Min: ≥20um | Drill: \ | Hole wall: \ | Conductor surface:: ≥11.7um |
| Ave: ≥25um | Plating: \ | Surface: \ | Conductor corner: ≥3.81um |

HOLE WALL CROS-SECTION DATA

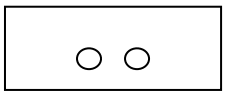
| HOLE WALL COPPER | | | | | | | ROUGHNESS | | TIN THK | |
|---|---|---|---|---|---|---|---|---|---|---|
| A | B | C | D | E | F | AVE | DR | PL | SUR | HOLE |
| 25.4 | 25.6 | 25.8 | 25.3 | 25.2 | 24.9 | 25.37 | \ | \ | \ | \ |
| 24.8 | 24.9 | 25.3 | 25.8 | 25.7 | 25.6 | 25.35 | \ | \ | \ | \ |
| \ | \ | \ | \ | \ | \ | \ | \ | \ | \ | \ |

| CONDUCTOR COPPER | | DIELECTRIC THICKNESS | | S/M THICKNESS | |
|---|---|---|---|---|---|
| LAYER NO. | RESULT | LAYER NO. | RESULT | CONDUCTOR SURFACE | CONDUCTOR CORNER |
| 1 L1 | 38.7 | | | 21.6 | 13.2 |
| 2 L2 | 37.4 | | | 16.2 | 9.8 |

孔铜测量位置




孔位



Disposition: Acc■ Rei □

Tested By: 沈宇飞 Date: 2025-5-28

Approved By: 王平 Date: 2025-5-28

# 昆 山 市 华 新 电 路 板 有 限 公 司

KUN SHAN HUA XIN CIRCUIT BOARD CO.,LTD

## 可焊性测试报告

## SOLDERABILITY TEST REPORT

PROD P/N： 2165AVYA0 DATE CODE： 25 21

CUSTOMER P/N： 3PD505D060B SAMPLE SIZE： 5PCS

CUSTOMER： DIVA

---

APPARATUS ：OVEN，SOLDER POT，THERMOMETER， GRADUATED MAGNIFIER 10X

FLUX： CH-1001 ETC

TEST CONDITION：BAKING TEMPERATURE： 106 ℃, TIME： 2 HOURS

SOLDERING TEMP： 260 ℃, TIME： 10 SECONDS.

TEST METHOD： FLOAT SOLDER

---

TEST RESULT

| ITEM（项目） | APPROVAL STANDARD(允许标准) | TEST RESULT （测试结果） |
|---|---|---|
| APPEARANCE OBSERVATION （外观观察） | 1、NO BLISTERS 、SHIFTING OF THE S/M （阻焊无起泡、脱落现象）<br>2、NO DISCOLOR 、SHIFTING OF THE LEGEND （文字无变色、脱落现象）<br>3、NO DELAMINATION、MEASLING OF THE BAORD（无爆板、白点）<br>4、NO BLOW-HOLE OF THE PTHs（无吹孔） | 1 阻焊无起泡、脱落现象<br>2 文字无变色、脱落现象<br>3 无爆板、白点<br>4 无吹孔 |
| SOLDERBILITY （吃锡性） | GOOD SOLDERBILITY OVER 95% （吃锡 95%以上良好） | 吃锡 100% |

Disposition: Acc ■ Rej □

Tested By: 沈宇飞 Date: 2025-5-28

Approred By: 王平 Date: 2025-5-28

QA26-C 02-2006

# 昆 山 市 华 新 电 路 板 有 限 公 司

KUN SHAN HUA XIN CIRCUIT BOARD CO.,LTD

## 热应力测试报告

## THERMAL STRESS TEST REPORT

PROD P/N：2165AVYA0 DATE CODE：25 21

CUSTOMER P/N：3PD505D060B SAMPLE SIZE：5PCS

CUSTOMER：DIVA

---

APPARATUS：OVEN，SOLDER POT，THERMOCOUPLE INDICATOR，STOPWATCH，MICROSCOPE

FLUX：CH-1001

TEST CONDITION：BAKING TEMPERATURE：126 ℃, TIME：6 HOURS

SOLDERING TEMP：288 ℃, TIME 10 SECONDS.

TEST METHOD：DIP SOLDER

---

### TEST RESULT

| ITEM（项目） | APPROVAL STANDARD(允许标准) | TEST RESULT （测试结果） |
|---|---|---|
| APPEARANCE OBSERVATION （外观观察） | 1、NO BLISTERS 、SHIFTING OF THE S/M （阻焊无起泡、脱落现象）<br>2、NO DISCOLOR 、SHIFTING OF THE LEGEND （文字无变色、脱落现象）<br>3、NO DELAMINATION、MEASLING OF THE BAORD（无爆板、白点） | 1、阻焊无起泡、脱落现象<br>2、文字无变色、脱落现象<br>3、无爆板、白点 |
| MICROSECTION OBSERVATION（切片观察） | 1、NO COMER CRACK （无崩角）<br>2、NO RUPTURE OF THE PLATING(镀层无断裂） | 1、无崩角<br>2、镀层无断裂 |
|  | | |

Disposition: Acc ■ Rej □

Tested By:沈宇飞 Date:2025-5-28

Approved By:王平 Date:2025-5-28

QA11-B 02-2006

# 昆 山 市 华 新 电 路 板 有 限 公 司

KUN SHAN HUA XIN CIRCUIT BOARD CO.,LTD

## 塞孔报告

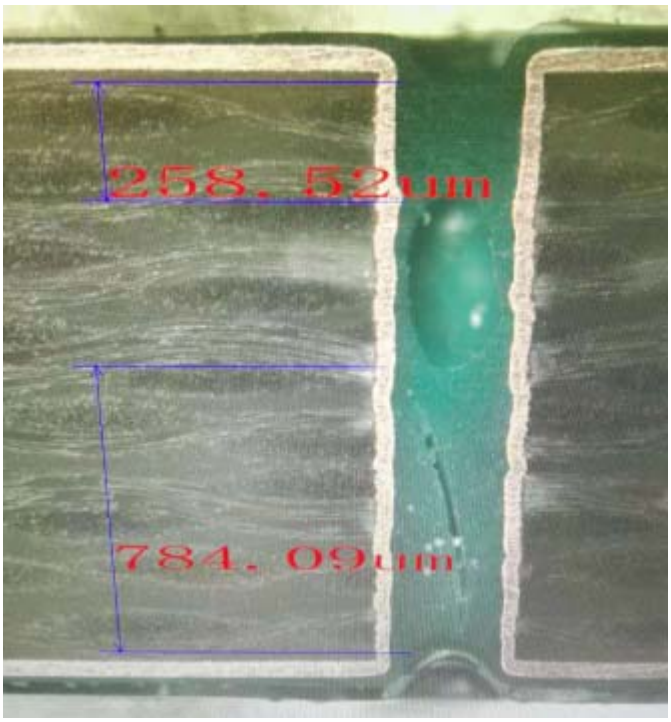
## Plugged Test Via Hole

PROD P/N： 2165AVYA0 DATE CODE： 25 21

CUSTOMER P/N：3PD505D060B SAMPLE SIZE： 1PCS

CUSTOMER： DIVA

| | spec | actual | |
|---|---|---|---|
| plugged of test via(min. 60%) | ＞600um | 1042.61 | um |




Disposition: Acc ■ Rej □

Tested By: 沈宇飞 Date: 2025-5-28

Approved By: 柯敏 Date: 2025-5-28

QA26-C 02-2006

# PCB Material Supplier List

以下是 Display 2008-09-27 的 PCB 素材板合格供应商清单，请 PCB 厂商遵循。如果需导入新的板材厂商，必须在 Qisda 核实并加入这张 PCB Material Supplier List 表格后方可使用。

| PCB Material Type | Supplier/Material |
|---|---|
| FR-1 (1L) | 斗山 (DS) |
| FR-1 (1L) | 长春 (L) |
| FR-1 (1L) | 长兴 (EC) |
| FR-1 (1L) | 建韬 (Kingboard) |
| FR-4 (2L-6L) | 南亚 (NAYA) |
| FR-4 (2L-6L) | 联鑫 |
| FR-4 (2L-6L) | 台光 (EMC) |
| FR-4 (2L-6L) | ISOLA |
| FR-4 (2L-6L) | 建韬 (Kingboard) |
| FR-4 (2L-6L) | 联茂 (ITEQ) |
| FR-4 (2L-6L) | 斗山 (DS) |
| FR-4 (2L-6L) | 腾辉 |
| CEM-1 (1L) | 斗山 (DS) |
| CEM-1 (1L) | 长春 (L) |
| CEM-1 (1L) | 长兴 (EC) |
| CEM-1 (1L) | 建韬 (Kingboard) |
| CEM-1 (1L) | 南亚 (NAYA) |

Supplier:

# 单层板信赖性测试项目

| | 测试项目 | 测试方法 | 抽样频率 |
|---|---|---|---|
| 1 | 剥离强度 | IPC-TM-650 2.4.28.1 | 1PCS /每客户机种/每季度 |
| 2 | 离子污染度测试 | < 6.0 μg NaCL / inch | 1PCS /每客户机种/每季度 |
| 3 | 冷热冲击 | (-65℃/60 分~125℃/60 分)<br>1 循环<br>共 100 循环试验 | 1PCS /每客户机种/每季度 |
| 4 | SIR 测试 | 85℃ @ 85%RH, X96hrs @ 50V bias | 1PCS /每客户机种/每季度 |
| 5 | 耐湿性 | 40℃ @ 90%RH, 1000H | 1PCS /每客户机种/每季度 |

# 多双层板信赖性测试报告

| | 测试项目 | 测试方法 | 抽样频率 |
|---|---|---|---|
| 1 | 离子污染度测试 | < 6.0 μg NaCL / inch | 1PCS/每客户机种/季度 |
| 2 | Peel Strength 测试 | IPC-TM-650 2.4.8 | 1PCS/每客户机种/季度 |
| 3 | 耐湿性测试 | IPC-TM-650 2.6.3 | 1PCS/每客户机种/季度 |
| 4 | SIR 测试 | 85℃ @ 85%RH, X96hrs @ 50V bias | 1PCS/每客户机种/季度 |
| 5 | thermal shock 测试 | IPC -TM-650. 2.6.7.2 | 1PCS/每客户机种/季度 |
| 6 | 温度循环测试 | IPC-TM-650 2.6.3 | 1PCS/每客户机种/季度 |

KB

# 產 品 技 術 資 料

TECHNICAL INFORMATION

# KB-6160（ANSI：FR-4）

## 覆銅箔環氧玻纖布層壓板

### 特 點

- 優異的尺寸穩定性
- 優良的耐熱性能和機械性能
- 耐漏電起痕指數（CTI150V/175V/300V/600V）
- 符合 IPC-4101B 的規範要求

### Features

- Excellent dimensional stability
- Excellent heat resistance and mechanical properties
- CTI value150V/175V/ 300V / 600V
- IPC-4101B specification is applicable .

### 應用領域

- 電腦、攝像機、儀器儀錶、通訊設備等

### Application

- Computer , VCR, Instrumentation, Communication equipment etc.

### General Properties 一般特性

| Test Item<br>測試項目 | Unit<br>單位 | Test Method<br>(IPC-TM-650)<br>測試方法 | Test Condition<br>處理條件 | Spec<br>（IPC-4101B）<br>規格值 | Typical Value<br>典型值 |
|---|---|---|---|---|---|
| Peel Strength (1OZ)<br>銅箔剝離強度 | N/mm | 2.4.8 | 125℃ | ≥0.7 | 1.70 |
| | | | Float 288℃ / 10Sec | ≥1.05 | 1.75 |
| Thermal stress<br>熱應力 | Sec | 2.4.13.1 | Float288℃/unetched | ≥10 | 60<br>No delamination |
| Bow / Twist<br>彎弓度/翹曲度 | % | 2.4.22.1 | A | ≤ 1.0 | 021 / 0.39 |
| Flexural Strength<br>抗彎強度 | $N/mm^2$ | 2.4.4 | Warp | ≥415 | 560 |
| | | | Fill | ≥345 | 410 |
| Flammability<br>燃燒性 | Rating | UL94 | UL94 | UL94 V-0 | V-0 |
| Glass Transition (Tg)<br>玻璃化转变温度 | ℃ | 2.4.25 | E-2/105（DSC） | ≥130 | 135 |
| Surface Resistance<br>表面電阻 | MΩ | 2.5.17.1 | C-96/35/90 | $\geq 1.0\times10^4$ | $1.0\times10^6$ |
| Volume Resistance<br>體積電阻 | MΩ-cm | 2.5.17.1 | C-96/35/90 | $\geq 1.0\times10^6$ | $1.0\times10^8$ |
| Dielectric Constant<br>介電常數 | — | 2.5.5.2 | Etched/@1 MHZ | ≤5.4 | 4.5 |
| Loss Tangent<br>介質損耗 | — | 2.5.5.2 | Etched/@1 MHZ | ≤0.035 | 0.022 |
| Arc Resistance<br>耐電弧性 | Sec | 2.5.1 | D-48/50+D-0.5/23 | ≥60 | 125 |
| Moisture Absorption<br>吸水率 | % | 2.6.2.1 | D-24/23 | ≤0.80 | 0.12 |
| Z-Axis Expansion<br>A-轴热膨胀系数 | ppm/℃ | 2.4.24 | E-2/105 TMA | — | 48/284 |
| Comparative Tracking Index<br>相比漏電起痕指數 | V | IEC 112 | Etched/0.1%$NH_4Cl$ | AABUS | 150 /175<br>300 / 600 |

Remarks: 可提供不同 CTI 等級的板材 The CCL may offer different CTI grade.
Specimen Thickness: 1.6 mm 1/1 樣品厚度：1.6 mm 1/1
A=Maintain original shape,do not make handling 保持原樣,不作處理
C= Temperature and humidity conditioning 在恒溫恒濕的空氣中處理
E=Temperature conditioning 在恒溫的空氣中處理
D= Temperature conditioning immersion in distilled water. 浸在恒溫的水中處理

KB

# 產 品 技 術 資 料

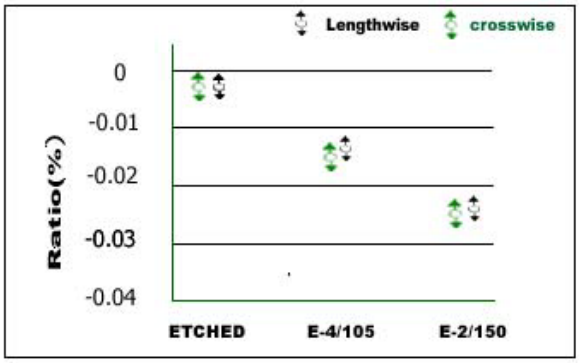
TECHNICAL INFORMATION

# KB-6160（ANSI：FR-4）

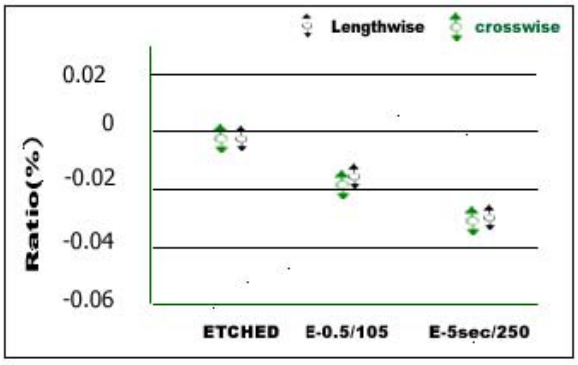
## 覆銅箔環氧玻纖布層壓板

### Speciality Chart 板材特性圖

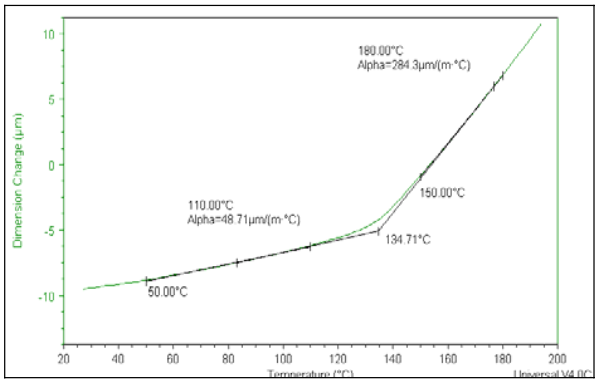
Dimensional stability　尺寸穩定性



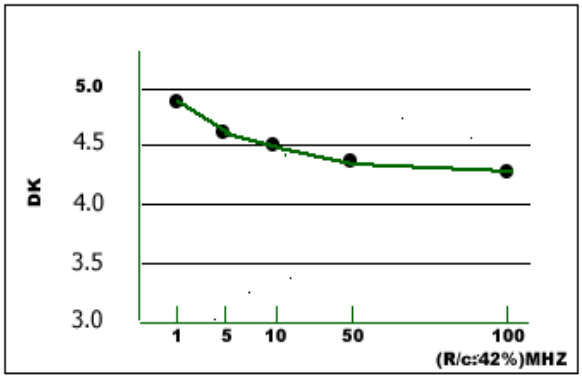

Dimensional stability–PCB process （size:360*310mm）




Thermal expansion of Z-direction (test by TMA)




Dielectric constant　介電常數




### Purchasing Information / 採購資訊

| Base colour<br>基板顏色 | Thickness<br>厚度 | Copper Cladding<br>銅箔厚度 | Regular Size（mm）<br>常規尺寸 | CTI Value<br>CTI 值 |
|---|---|---|---|---|
| 白色 white | 0.5mm ~<br>3.5mm | 18 μ m,<br>35 μ m,<br>70 μ m. | 1020*1220mm （40″*48″）<br>1067*1220mm （42″*48″）<br>915*1220mm （36″*48″）<br>1041*1245mm （41″*49″） | 150V/175V<br>300V/600V |

Note: Other sheet size and thickness could be available upon request.
可根據客戶要求提供其他尺寸和厚度.

ONLINE CERTIFICATIONS DIRECTORY

# ZPMV2.E227809
# Wiring, Printed - Component

Enhanced searching capability for this category can be found in UL's iQ Family of Databases (iq.ul.com).

Page Bottom

## Wiring, Printed - Component

See General Information for Wiring, Printed - Component

**KUNSHAN HUAXIN CIRCUIT BOARD CO LTD** E227809
7 QIAN YANG HWY
QIANDENG TOWN
KUNSHAN, JIANGSU 215341 CHINA

| | Cond Width | | | | Max | | | Max | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Min | Cond | | Area | Solder | | Oper | | Meets | C |
| | Min | Edge | Thk | SS/ | Diam | Limits | | Temp | Flame | UL796 | T |
| Type | mm(in) | mm(in) | mic(mil) | DS | mm(in) | C | sec | C | Class | DSR | I |
| **Multilayer printed wiring boards.** | | | | | | | | | | | |
| **HS-2** | 0.075 (0.003) | 0.23 (0.009) | 17 (0.67) Int:34 | DS | 38.1 (1.5) | 260 | 5 | 130 | V-0 | ▲ | - |
| **HS-3** | 0.075 (0.003) | 0.12 (0.005) | 17 (0.67) Int:34 | DS | 38.1 (1.5) | 288 | 5 | 130 | V-0 | ▲ | - |
| **HX-M** | 0.15 (0.006) | 0.43 (0.017) | 17 (0.67) | DS | 25.4 (1.0) | 260 | 7 | 130 | V-0 | All | * |
| **HX-M (I)** | 0.21 (0.008) | 0.21 (0.008) | 17 (0.67) Int:102 | DS | 25.4 (1.0) | 260 | 7 | 130 | V-0 | All | * |
| **HX-N** | 0.15 (0.006) | 0.43 (0.017) | 17 (0.67) | DS | 12.7 (0.5) | 260 | 7 | 130 | V-0 | All | * |
| **HXF-M** | 0.10 (0.004) | 0.12 (0.005) | 17 (0.67) Int:34 | DS | 25.4 (1.0) | 260 | 10 | 130 | V-0 | All | - |
| **Single layer printed wiring boards.** | | | | | | | | | | | |
| **HX-S** | 0.15 (0.006) | 0.43 (0.017) | 17 (0.67) | DS | 25.4 (1.0) | 260 | 7 | 130 | V-0 | All | * |
| **HX-S (I)** | 0.14 (0.006) | 0.42 (0.017) | 17 (0.67) | DS | 25.4 (1.0) | 260 | 7 | 130 | V-0 | - | * |
| **HX-S (II)** | 0.14 (0.006) | 0.42 (0.017) | 17 (0.67) | DS | 25.4 (1.0) | 260 | 7 | 130 | V-0 | All | * |
| **HX-S (III)** | 0.21 (0.008) | 0.21 (0.008) | 17 (0.67) Int:102 | DS | 25.4 (1.0) | 260 | 7 | 130 | V-0 | All | * |
| **HX-SA** | 0.20 (0.008) | 0.60 (0.024) | 17 (0.67) | DS | 25.4 (1.0) | 260 | 7 | 120 | V-0 | All | * |
| **HX-SB** | 0.20 (0.008) | 0.40 (0.016) | 17 (0.67) | DS | 25.4 (1.0) | 260 | 7 | 130 | V-0 | All | * |
| **HXF-S** | 0.10 (0.004) | 0.12 (0.005) | 17 (0.67) | DS | 25.4 (1.0) | 260 | 10 | 130 | V-0 | ▲ | - |
| **JHS-S** | 0.15 (0.006) | 0.15 (0.006) | 17 (0.67) | DS | 25.4 (1.0) | 260 | 7 | 130 | V-0 | All | - |

* - CTI PLC is marked on individual board.

Marking: Company name or trademark  , type designation and Recognized Component Mark,  . May be followed by a suffix to denote factory identification.

Last Updated on 2009-09-17

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Questions? Notice of Disclaimer Page Top

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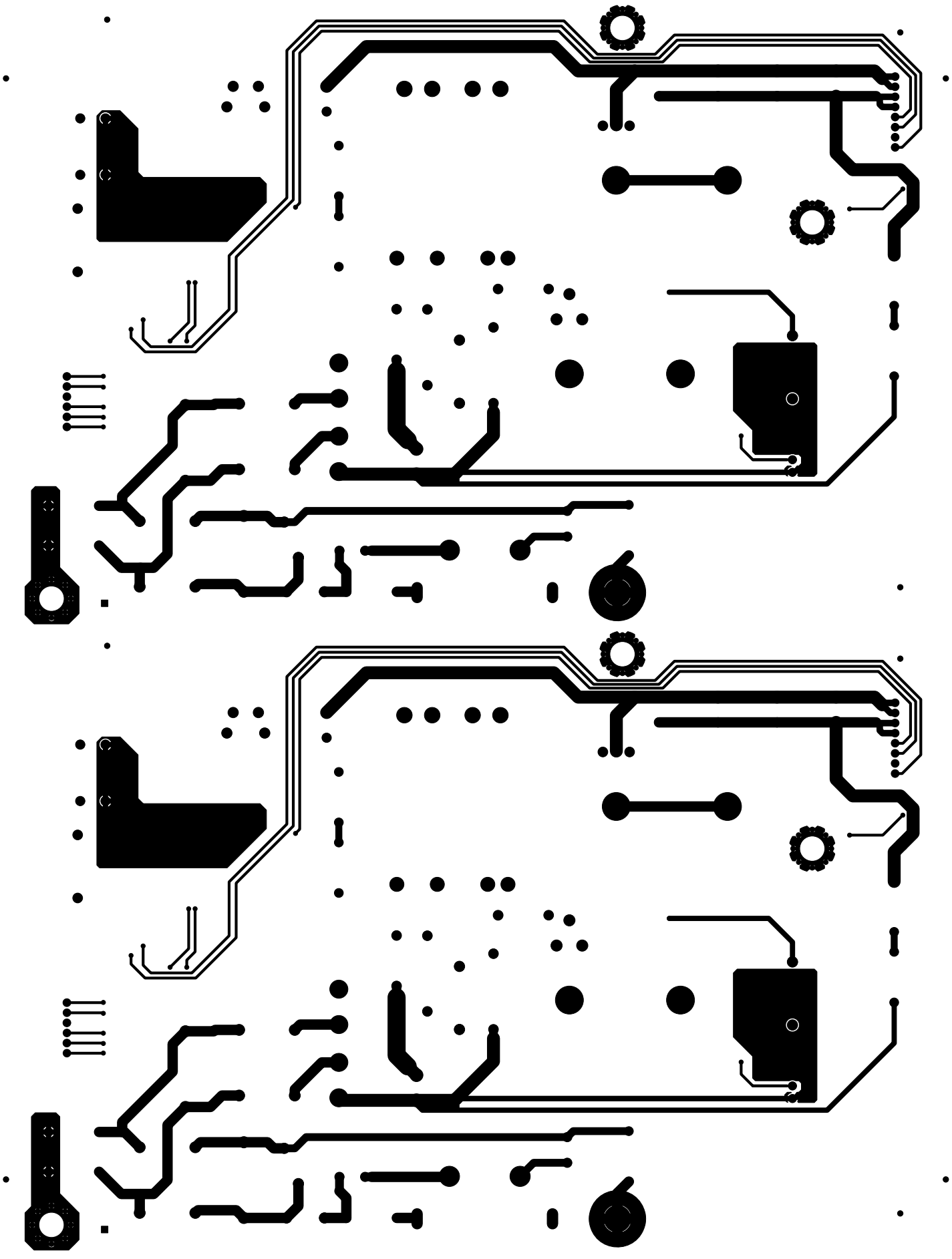
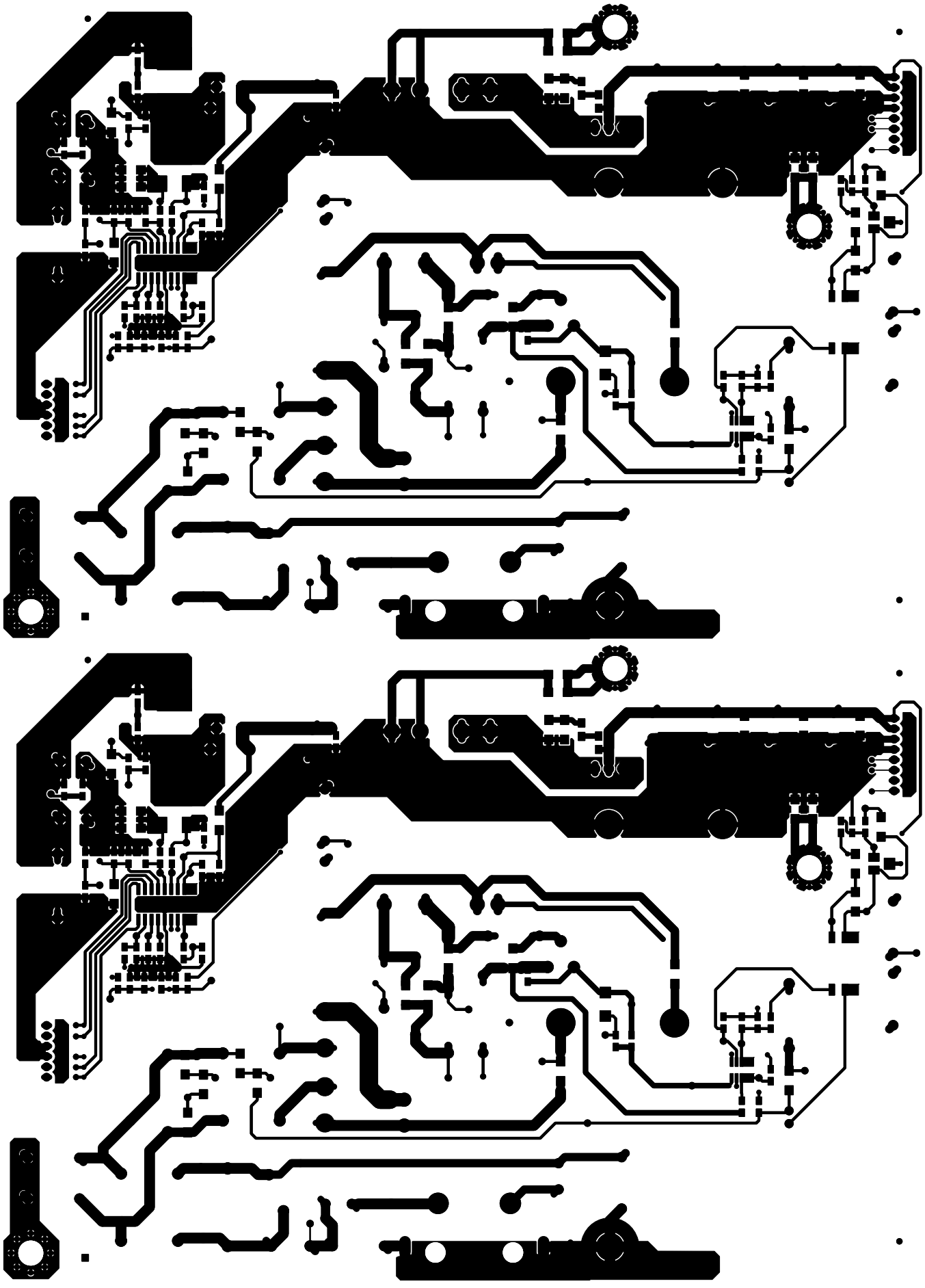
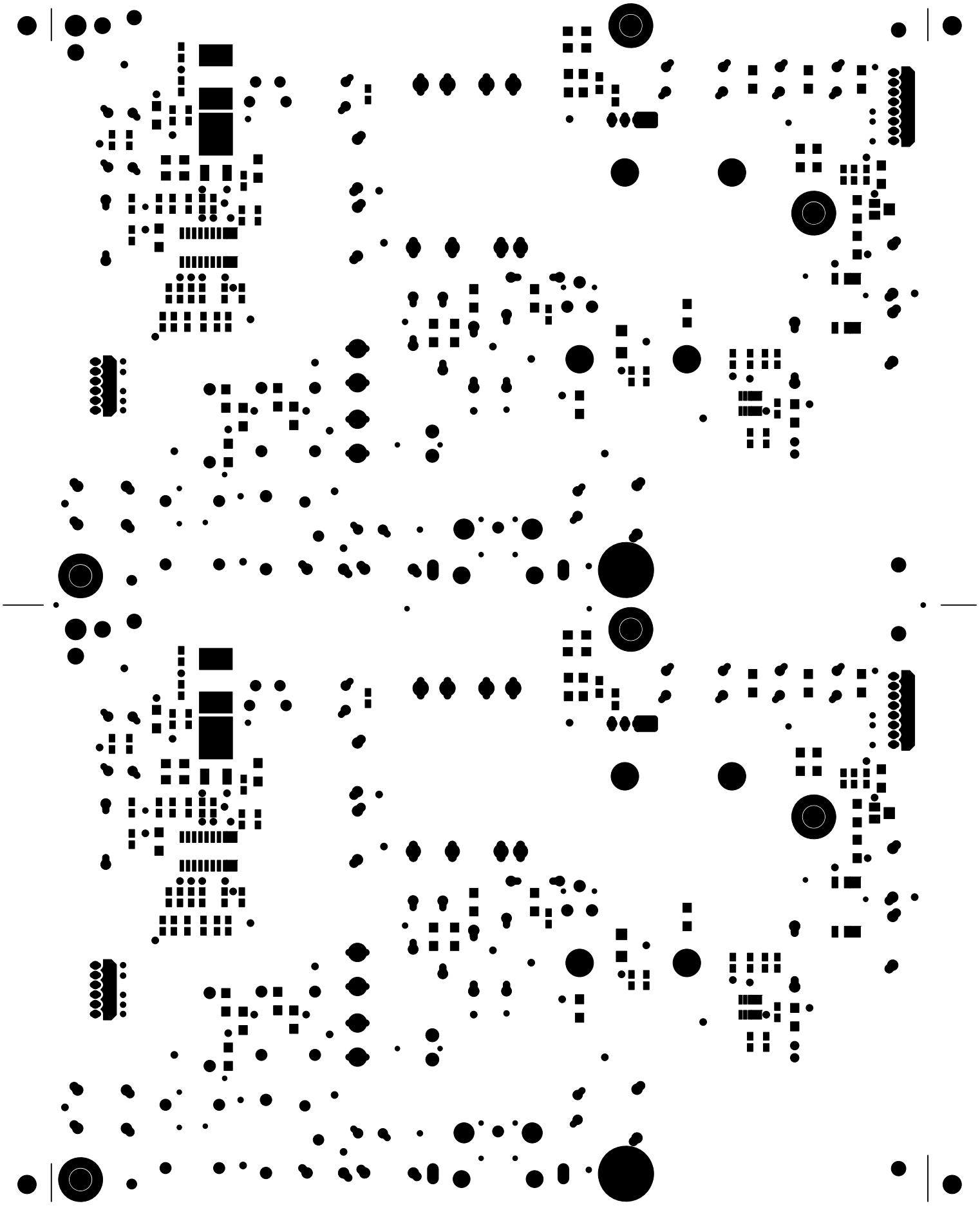
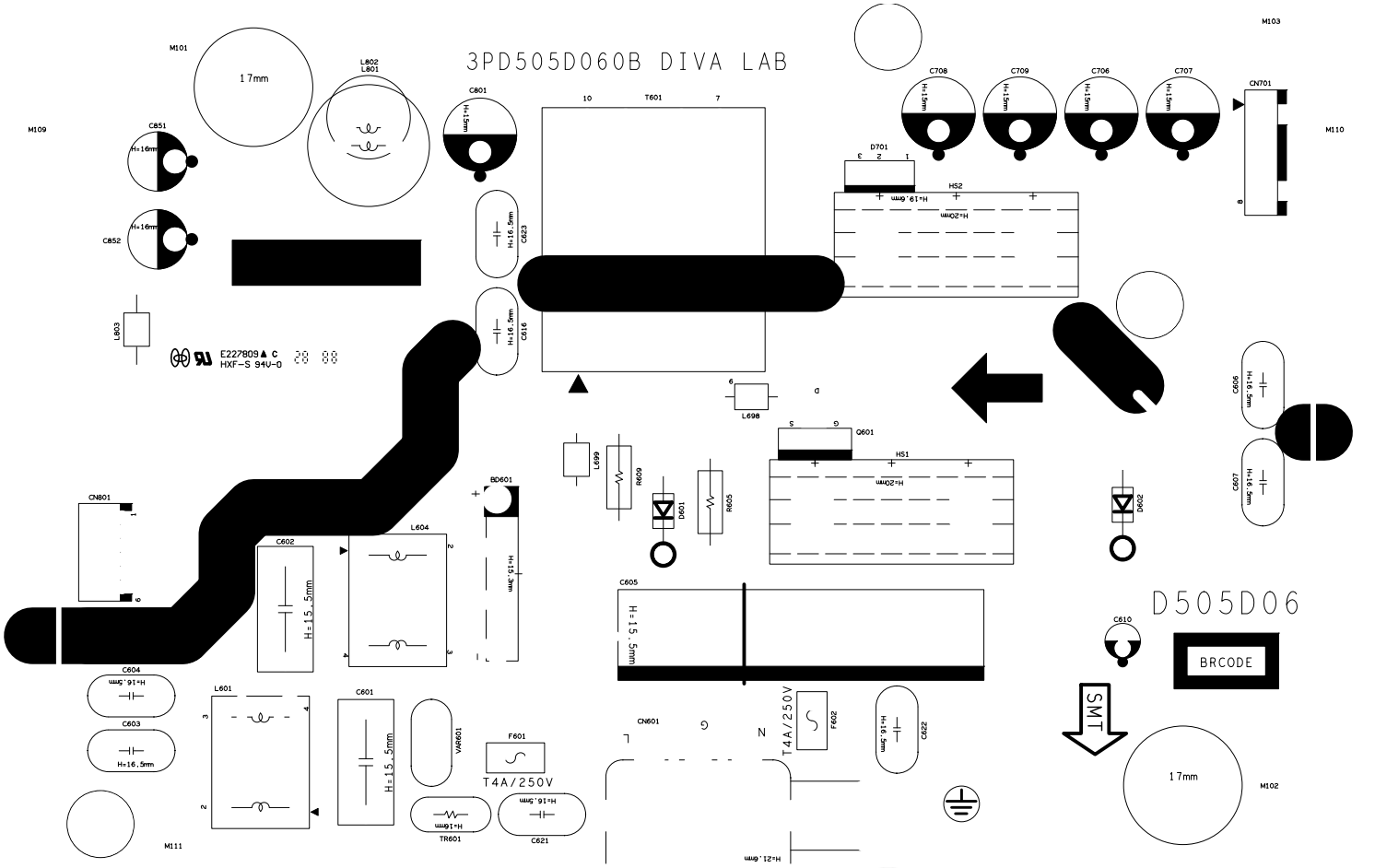
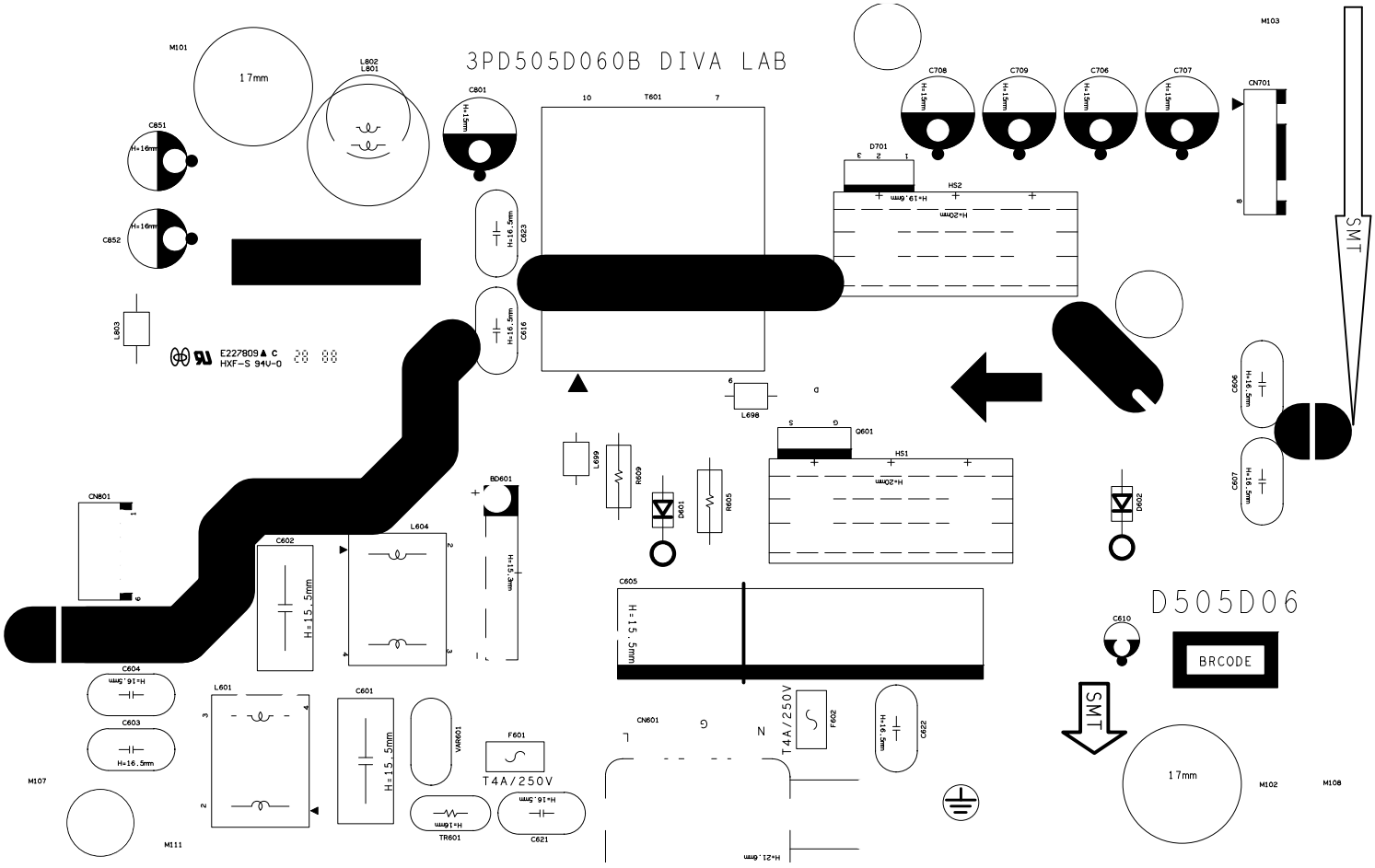









3PD505D060B DIVA LAB
D505D06
BRCODE
SMT
17mm
T4A/250V
E227809 C
HXF-S 94V-0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D505D06
BRCODE
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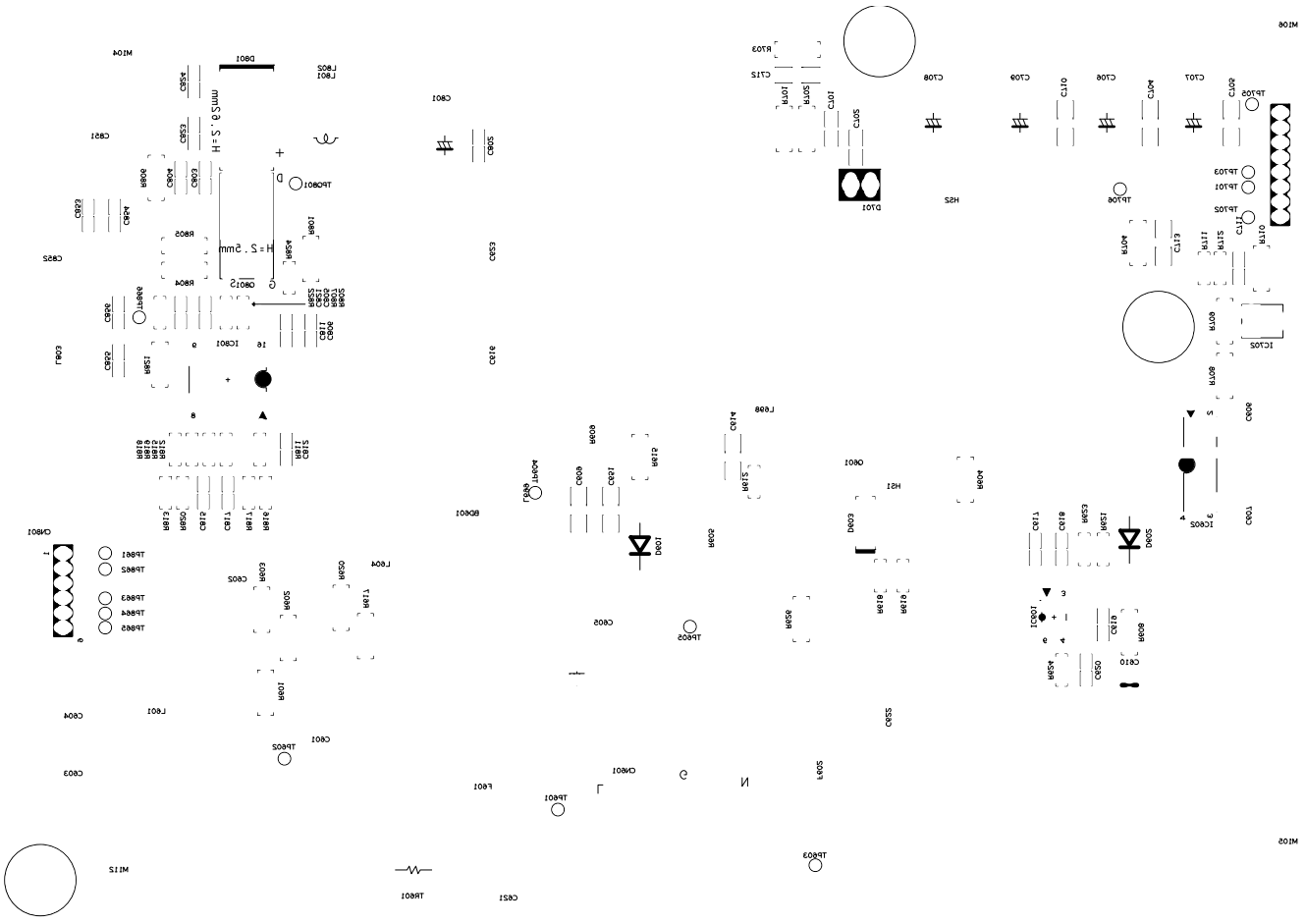
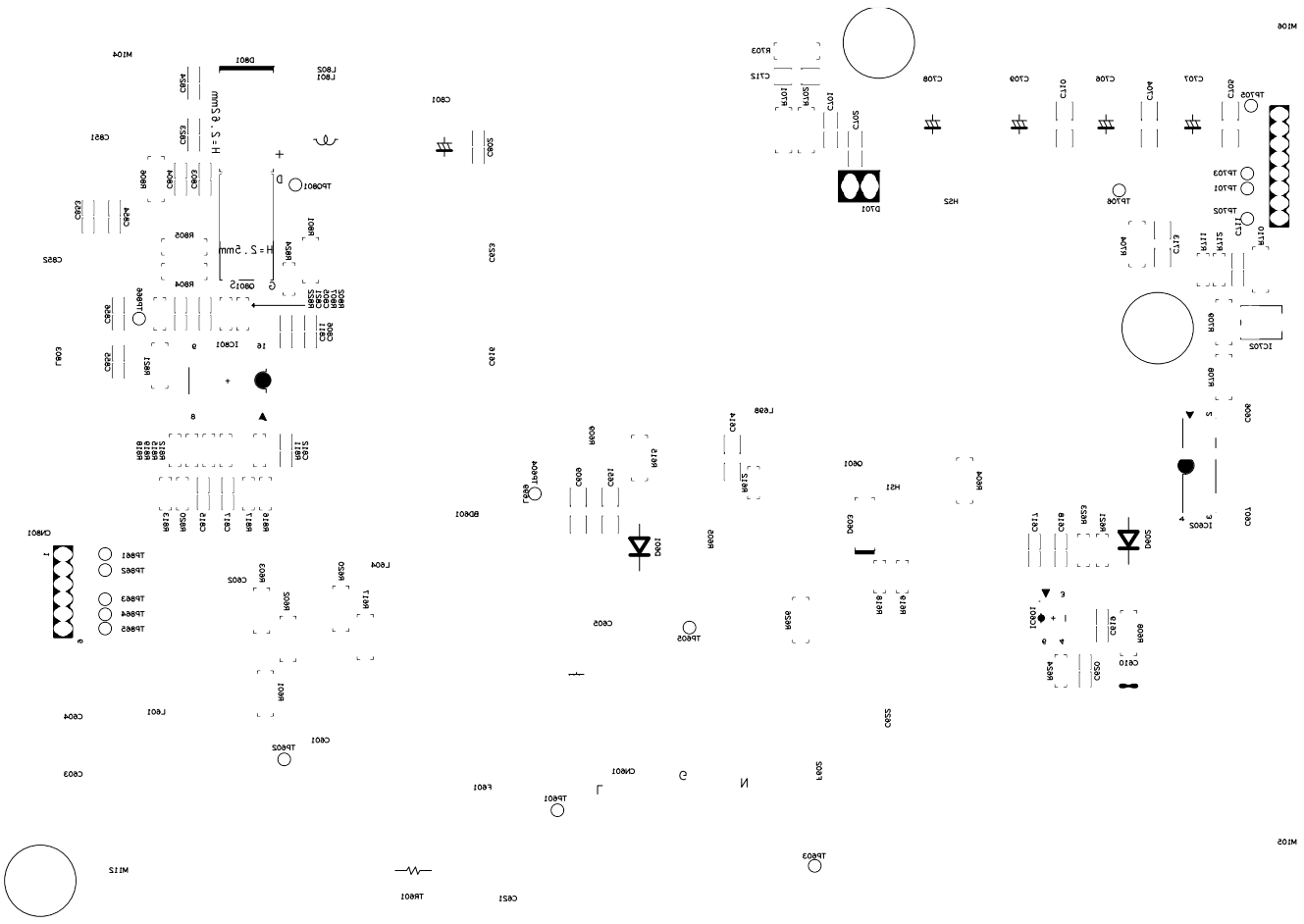
17mm
T4A/250V
E227809 C
HXF-S 94V-0

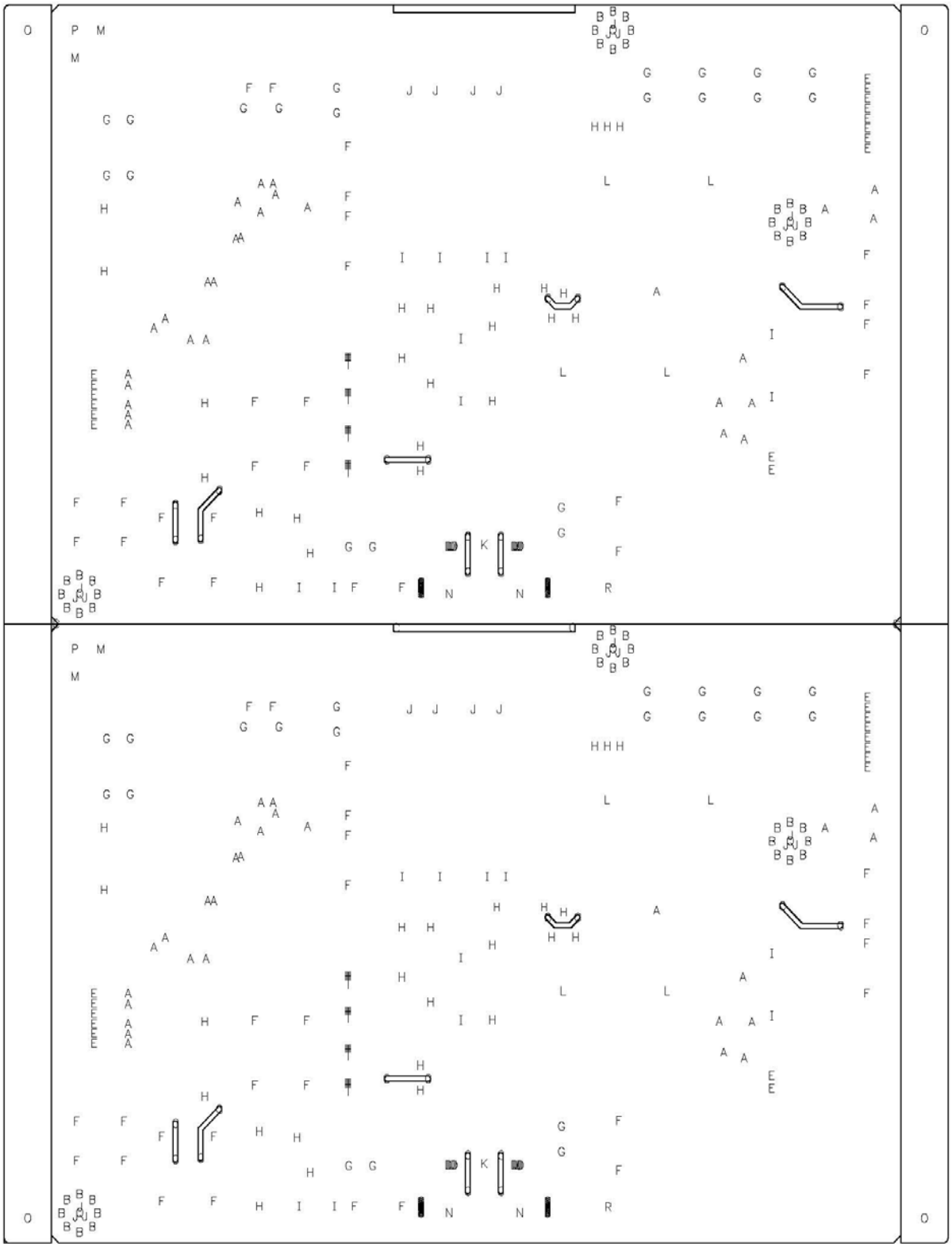


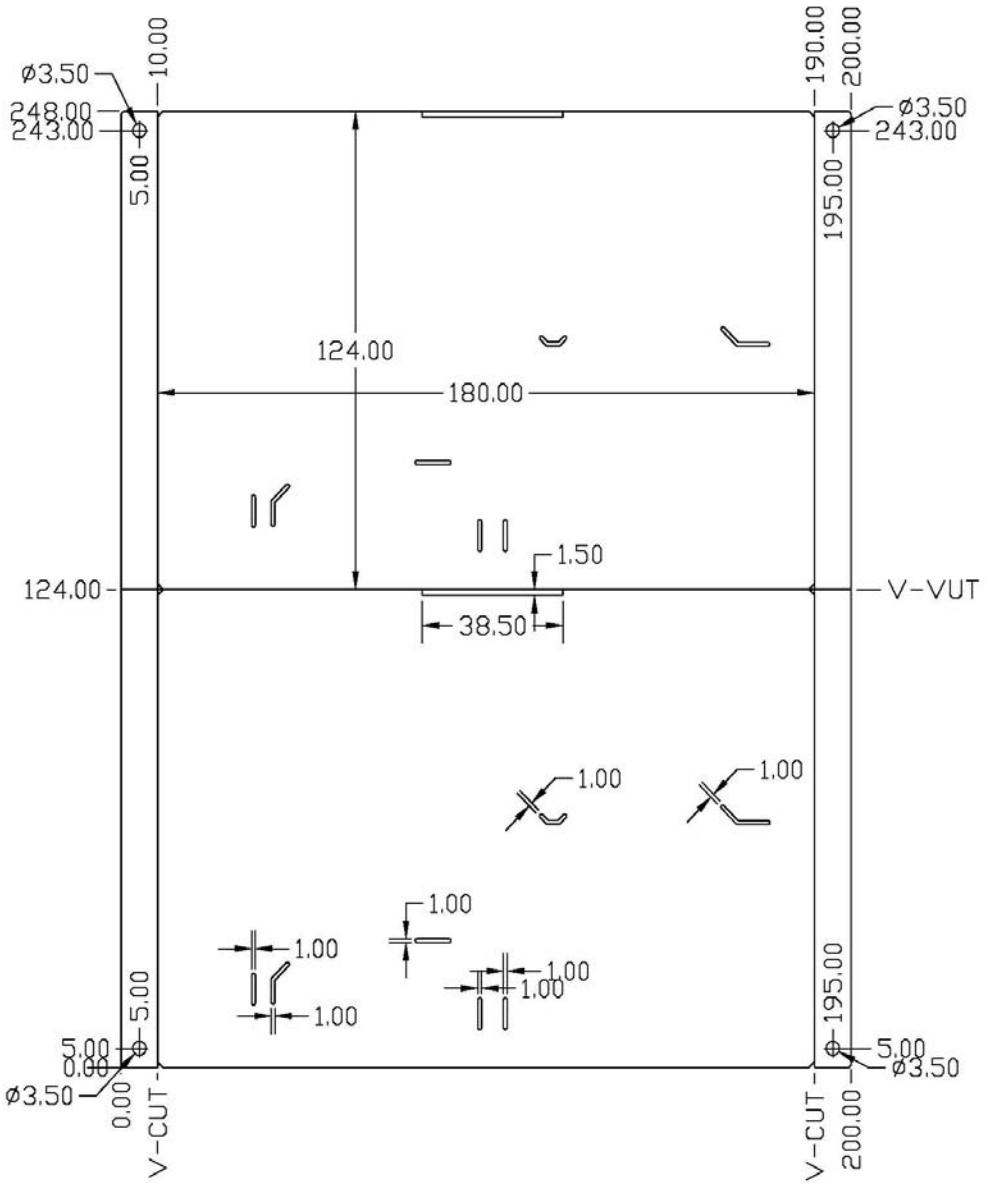


CAM350 PRO V 7.5.1 : Fri May 23 12:29:25 2025 - 2.cam

| TOOL CHART | | | |
|---|---|---|---|
| No. | Size(mm) | Count | Legend |
| 4 | 0.30 | 56 | A |
| 5 | 0.60 | 48 | B |
| 6 | 0.80 | 32 | C |
| 7 | 0.90 | 8 | D |
| 8 | 0.90 | 32 | E |
| 9 | 1.00 | 52 | F |
| 10 | 1.10 | 40 | G |
| 11 | 1.20 | 48 | H |
| 12 | 1.30 | 20 | I |
| 13 | 1.40 | 26 | J |
| 14 | 2.00 | 2 | K |
| 15 | 2.70 | 8 | L |
| 16 | 3.00 | 4 | M |
| 17 | 3.20 | 4 | N |
| 18 | 3.50 | 4 | O |
| 19 | 4.00 | 2 | P |
| 20 | 4.10 | 6 | Q |
| 21 | 4.40 | 2 | R |
| 22 | 0.7*3.0 | 52 | S |
| 23 | 1.1*2.5/2.7 | 60 | T |
| 24 | 1.3*2.0 | 16 | U |
| | Total | 522 | |

CAM350 PRO V 7.5.1 : Fri May 23 12:28:57 2025 - 2.cam




ø3.50
248.00
243.00
10.00
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ø3.50
243.00
195.00
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180.00
1.50
124.00
V-VUT
38.50
1.00
1.00
1.00
1.00
1.00
1.00
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V-CUT
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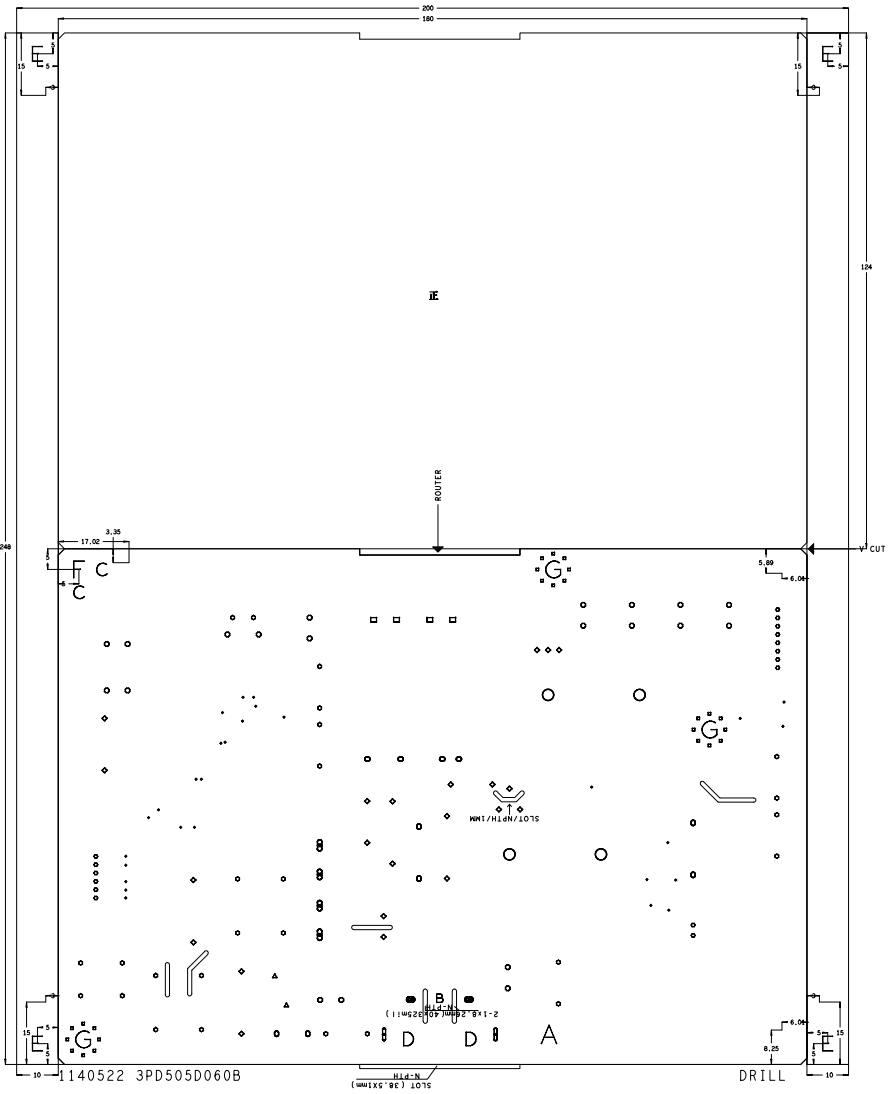
ø3.50
V-CUT
200.00




| DRILL CHART: TOP to BOTTOM | | | | |
|---|---|---|---|---|
| ALL UNITS ARE IN MILS | | | | |
| FIGURE | FINISHED_SIZE | ROTATION | PLATED | QTY |
| · | 16.0 | - | PLATED | 28 |
| ▫ | 24.0 | - | PLATED | 24 |
| ○ | 35.0 | - | PLATED | 16 |
| ○ | 39.0 | - | PLATED | 26 |
| ○ | 43.0 | - | PLATED | 20 |
| ◇ | 47.0 | - | PLATED | 22 |
| △ | 47.24 | - | PLATED | 2 |
| ○ | 50.0 | - | PLATED | 4 |
| ○ | 51.0 | - | PLATED | 6 |
| □ | 55.0 | - | PLATED | 4 |
| O | 106.0 | - | PLATED | 4 |
| A | 173.23 | - | PLATED | 1 |
| B | 79.0 | - | NON-PLATED | 1 |
| C | 118.0 | - | NON-PLATED | 2 |
| D | 126.0 | - | NON-PLATED | 2 |
| E | 138.0 | - | NON-PLATED | 4 |
| F | 157.48 | - | NON-PLATED | 1 |
| G | 161.0 | - | NON-PLATED | 3 |
| ⬬ | 79.0x51.0 | 0.000 | PLATED | 2 |
| ▯ | 98.0x43.0 | 90.000 | PLATED | 2 |
| ▯ | 106.0x43.0 | 90.000 | PLATED | 2 |
| ▯ | 118.0x28.0 | 90.000 | PLATED | 2 |

**Printing information**

| | |
|---|---|
| Layer:NCDRILL_LEGEND | Part No.:4H.LXXXX.XXX |
| Filename:QDII_PW_BOARD | Date:22-05-25 Rev.:0 |
| Model No.:LED_DRIVER_BD | Sheet 7 of X |
| Doc. No.: 9J.64765.000-Q30-305-003 | |

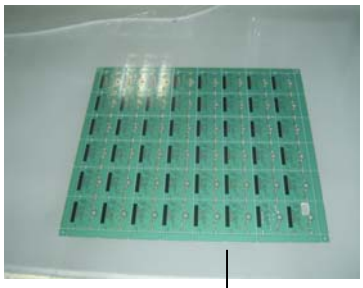
| Layer | Side |
|---|---|
| L1 | Top |
| L2 | Bottom |
| L3 | XXXX |
| L4 | XXXX |
| L5 | XXXX |
| L6 | XXXX |
| L7 | XXXX |
| L8 | XXXX |
| L9 | XXXX |
| L10 | XXXX |

| | | |
|---|---|---|
| CTI value:XXXXXX | Tg:Normal TG | |
| Material(LAM) | FR-4 | |
| Thickness | 1.6 mm | |
| PCS(W*L) | 180 X 124 mm | |
| PNL(W*L) | 200 X 248 mm+-0.127mm | |
| PCB Utility Rate | XX.XX % | |
| Impedance control | XXX ohm | |
| Surface Finishes | ENIG | |
| PCS/PNL | 2 / 1 | |
| V-Cut: x1 | Router: xX | |
| SXX Printing | Top White | Bottom White |
| AXX Printing | Top White | Bottom White |
| JR Q'ty | JRxx/xxx | |
| JW Q'ty | JWxx/xxx | |
| Other | N/A | |

# Part Packing Specification

华新料号:2165AVYA0　　明基料号： 3PD505D060B

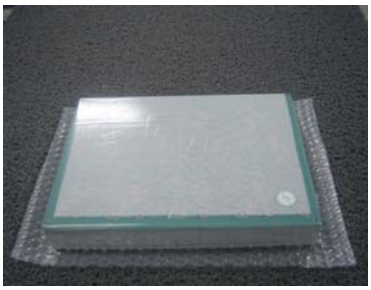
包装方法及流程如下：



每SET有2PCS组成



贴标签和GP标识。



每一小包真空包装 25 SET,
共50PCS.均为同一周期。



包装好后用透明胶带封箱



每箱包装8包,共400PCS

检查：沈宇飞
日期：2025-5-28

审核：柯敏
日期：2025-5-28

# Sample Acknowledgement
# 样 品 承 认 书

| | | | |
|---|---|---|---|
| Customer (顾客名称) | DIVA | Customer P/N (顾客料号) | 3PD505D060B |
| KCTC P/N (华新料号) | 2165AVYA0 | Sample QTY. (样板数量) | 3SET |
| INSP. Date (检查日期) | 2025-5-28 | Acknowledgement Date (确认日期) | 2025-5-28 |

| Customer Acknowledgement Result (客户确认结果) | | | |
|---|---|---|---|
| ☐ PASS (合格 ) ☐ REJ (不合格) ☐Rework Sample (再做样)<br>☐Requst Corrective , See Remark (需改善, 见备注)。 | | | |
| Should Requst Corrective the items when batch produce (批量生产时应改善事项): | | | |
| Remark (备注): | | | |
| Approved by (批准) | | Date (日期) | |

| | Inspection by (检查) | Verified by (审核) | Approved by (批准) |
|---|---|---|---|
| 签名 (Signature) | 沈宇飞 | 柯敏 | 王平 |
| 日期 (Date) | 2025-5-28 | 2025-5-28 | 2025-5-28 |

# 昆 山 市 华 新 电 路 板 有 限 公 司

KUN SHAN HUA XIN CIRCUIT BOARD CO.,LTD

| 技术数据 TECHNICAL DATA（BOM） | | | |
|---|---|---|---|
| 1 | 产品品种 product type | | 双面板/多层板 |
| 2 | 基板材料 base material | | FR-4 |
| 3 | 成品尺寸 finished board size | | |
| | 最大成品板尺寸 S/S MAX | | 248×200 mm |
| 4 | 成品孔径直径 finished hold dia | | |
| | 最小圆孔直径 min hold dia | | 0.40 mm |
| | 最小异型孔宽度 min abmormity hold dia | | 0.70 mm |
| 5 | 导线宽度和导线间距 conductor width & space | | |
| | 最小导线宽度 min.width | | 0.508 mm |
| | 最小导线间距 min.space | | 0.381 mm |
| 6 | 阻焊油墨种类 solder mask options | | |
| | 丝印光固油墨 | | NA |
| | photic cure solder mask | | 海田 |
| | 颜色 colour | | 绿色 |
| 7 | 文字印刷 legend printing | | |
| | 文字印刷颜色 legend printing colour | | 白色 |
| | 字符最小宽度 min.legend width | | 0.127 mm |
| 8 | 表面处理 surface treatment | | 无铅喷锡 |
| | 锡厚 1-40UM | | 锡厚 6.48UM |
| 9 | 电检测 electronic testing | | |
| | 测试方法 method | | 双面测试 |
| | 最大可测试尺寸 max.testing panel size | | 450×380 mm |
| 10 | V 形槽 “V”CUT | | |
| | 深度误差 depth tolerance | | ±0.08 mm |
| | 定位槽精度 positioning tolerance | | ±0.127 mm |
| 11 | 外形加工公差 profile tolerance | | ±0.127 mm |
| 12 | 翘曲度 D/S and ML warp | | < 0.55% |
| 13 | 光绘 laser photoop lotter system | | |
| | 最大绘图面积 max.plot.area | | 660×508 mm |
| | 精度 accruacy | | 8000×4000 |
| | 重复精度 repeatability | | 0.0127 mm |
| 14 | 绝缘电阻 insulation resistance | | $1\times10^{10}$ |
| 15 | 抗剥强度 peel strebgth | | > 1.4N/MM |
| 16 | 阻焊剂硬度 solder mask abrasion | | > 5H |
| 17 | 耐热冲击 thermal strength | | 288℃±5℃ 10sec |
| 18 | 可燃性 falmmability | | 94V-0 |
| 19 | 通断测试电压 E-test voltage | | 150V~250V |
| | | | |

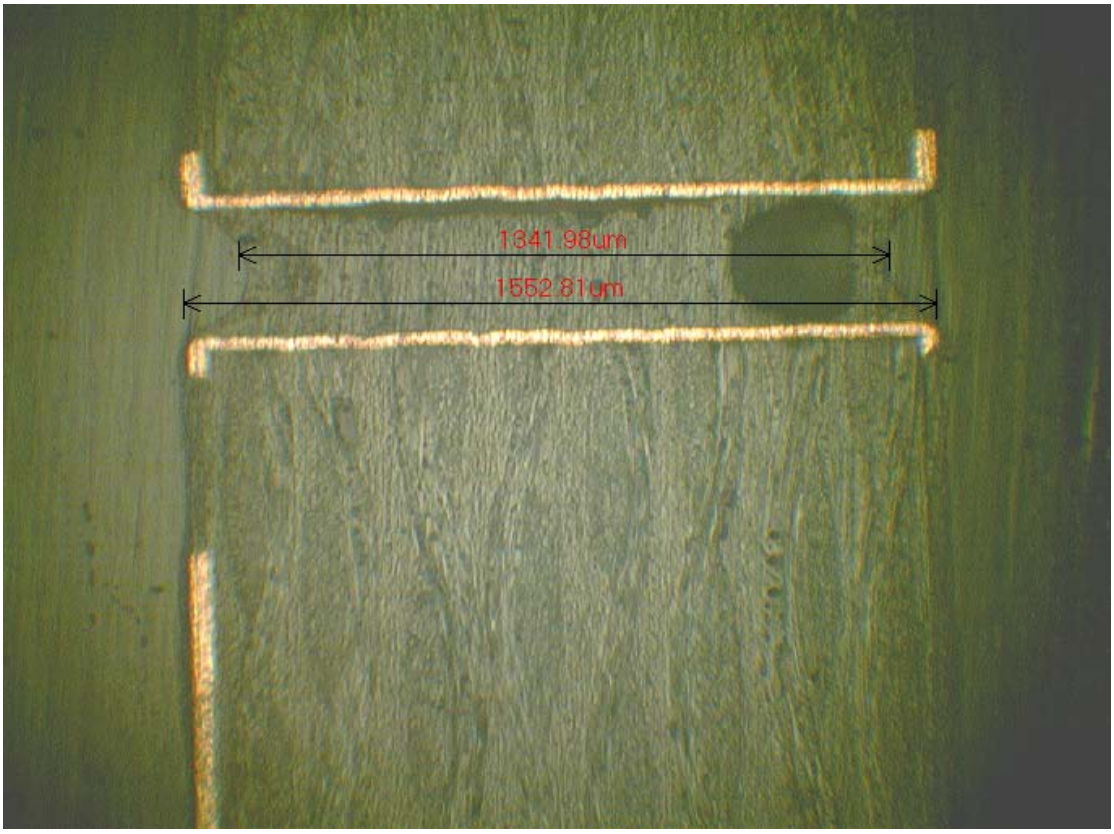
# 昆山市华新电路板有限公司

# 塞孔切片报告

PROD P/N：2165AVYA0 DATE CODE：25 21

CUSTOMER P/N: 3PD505D060B SAMPLE SIZE：1PCS

CUSTOMER：DIVA 塞孔饱满度：86%



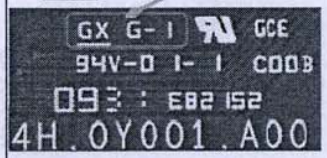

Disposition: Acc■ Rej □

测试员：沈宇飞 审核：王平

# Qisda Display Product's PCB General Rule

| No. | Final Surface Finish | Spec. | Checking Area | Vendor Check |
|---|---|---|---|---|
| A-1 | Sn/Ag/Cu (Sn/Cu) Thickness(HASL) | 120 μ" ~ 600 μ" | BGA / SMD IC Pad | OK |
| A-2 | Electroless Nickel /Immersion Gold Thickness ( If no specified ) | Au : 2 ~ 6 μ" / Ni : >110 μ" | BGA / SMD IC Pad | OK |
| A-3 | OSP Thickness | 0.25 ~ 0.45 μm (Ref. Page 8/9 , H01/H02) | PCB trace / pad | OK |
| A-4 | Immersion Silver Thickness | 6.5 ~ 16μ" (Ref. Page 8/9, H03/H04) | BGA / SMD IC Pad | OK |
| A-5 | Immersion Tin Thickness | ≧35 μ" | BGA / SMD IC Pad | OK |
| A-6 | Plated Gold Thickness | Au : ≧30 μ" / Ni : > 110 μ" | Gold Finger | OK |
| A-7 | Conductor Width / Pad / Spacing Tolerance ( Spec. > 10 mil. ) | ± 15 % ( If No Specified ) | Conductor / Pad | OK |
| A-8 | Conductor Width / Pad / Spacing Tolerance ( Spec. ≦ 10 mil. ) | ± 10 % ( If No Specified ) | Conductor / Pad | OK |
| A-9 | Connector wing pad 間距 tolerance | ≦ 10 % ( If No Specified ) | Wing pad 間距 | OK |
| A-10 | Holes Registration ---- PTH hole (Minimum annular ring ) | ≧ 6 mil ( If No Specified ) | PTH | OK |
| A-11 | Holes Registration ---- Via hole (Minimum annular ring ) | > 1 mil ( If No Specified ) | Via | OK |
| A-12 | Hole Roughness | ≦ 0.75 mil.( If no specified ) | BGA via /Via/PTH | OK |
| A-13 | Wicking | < 4.0 mil | Hole / PTH | OK |
| A-14 | Hole Diameter Tolerance (If no specified ) | PTH : ± 3 mil. , Un-plated : ± 2 mil. | PTH / BGA via | OK |
| A-15 | Internal Layer Foil ( If no specified ) | 1 OZ | PTH / BGA via | OK |
| A-16 | External Layer Foil ( If no specified ) | 0.5 OZ | PTH / BGA via | OK |
| A-17 | Cleanliness ( Ionic contamination ) | < 6.0 μg NaCl / inch²; (HASL ≦9.0μg NaCl / inch²) | PCB | OK |
| A-18 | Adding radius of finished board 4 corners. | R x 79 mil ( R x 2 mm ) | Panel's corners | OK |
| A-19 | 材料方向 | Core 需與 PP 同一方向 | PCB | OK |
| A-20 | PCB outline dimension tolerance | ± 0.127 mm | Outline | OK |

| No. | Final Surface Finish | Spec. | Checking Area | Vendor Check |
|---|---|---|---|---|
| B-1 | Solder Mask color | 1. GP Halogen free PCB : 藍色<br>2. The others : 綠色 (If gerber file no specified) | Solder mask | Ok |
| B-2 | Solder Mask Coating Thickness ( If no specified ) | 1. Min. 0.46 mil, & Min. > 0.15 mil at the edge of trace.<br>2. 不得有漏銅/假性漏銅現象 | Conductor / Trace | Ok |
| B-3 | BGA & Non BGA via | 除非Gerber file 防焊層開口定義有指定該via禁止綠漆塞孔外（如噴錫孔, 電測用孔—），所有Via Holes 需兩面塞綠漆(不得假性露銅/不能具有錫蝕性) | Via | Ok |
| B-4 | Solder resist coverage | 不容許綠漆/文字/標示漆沾附於孔環及 Pad 上，及禁止侵犯流入或殘留於 PTH 孔壁處 | Pad / PTH | Ok |
| B-5 | V-Cut Thickness --- Support ( If no specified ) | 1/3 板厚±0.08 mm( 板厚≧1.6 mm);<br>0.45 mm ±0.08 mm( 板厚<1.6 mm) | Support | Ok |
| B-6 | V-Cut Angle | 30°, 45° ( If No Specified ) | V Cut | Ok |
| B-7 | Gold Finger Beveling Angle ( Θ) | 30 ± 2° ( If No Specified ) | Gold Finger | Ok |
| B-8 | Finish Board Thickness Tolerance | ±9 % ( If no specified ) | PCB thickness | Ok |
| B-9 | Dielectric Thickness | > 3.5 mil ( If no specified ) | Dielectric | Ok |
| B-10 | 焊錫面零件腳位置如有特別之標示如套加白漆圓圈 | 標示之白漆圓圈內經與零件 Pad 防焊漆外緣之間隙 ≧ 0.3mm<br>(線材位置不適用) | Component Pad | Ok |
| B-11 | Copper Purity<br>Elongation and Tensile Strength<br>( If no specified ) | Purity > 99.5% pure,<br>Tensile strength > 36,000 PSI [248 MPa],<br>Elongation > 12%. | PTH | Ok |

| No. | Final Surface Finish | Spec. | Checking Area | Vendor Check |
|---|---|---|---|---|
| B-12 | 客戶或本公司 Logo Marking | 除非 Gerber 有明列,否則禁止加入 | PCB Marking | ok |
| B-13 | The other Marking<br><br>(如果 PCB gerber file 上對本項目有定義, 請 PCB 廠遵循該 gerber 上之定義，如其未做明確定義，則遵循本規定) | 1. 需 Marking Date Code<br>2. 需 Marking PCB 耐燃等級(如94V-0)<br>3. 需 Marking PCB 製造廠 Brand/Logo<br>4. 需 Marking 本公司 PCB 料號<br>5. 需 Marking UL 安規標記(如圖 1 所示)及其號碼 (如 EXXXXXX)<br>6. 需 Marking UL Type designation 標記(如圖 4 所示)<br>  圖 1  圖 2<br>7. 需 Marking e1 標記( 如圖 2 所示 )<br>8. 如為 Halogen free 無鹵素板材, 需 Marking "HF" 標記 (如圖 3 所示)<br>  圖 3<br>圖4 (UL type designation)<br>  <br>以上之標示/標記禁止印刷於廢材上 | PCB Marking | ok |

Confidential

| No. | Final Surface Finish | Spec. | Checking Area | Vendor Check |
|---|---|---|---|---|
| C-1 | Gold Finger Board Edge | IPC -A- 600G Class-II (if No Specified) | Board Edge | ok |
| C-2 | Gold Finger Surface | IPC -A- 600G Class-II (if No Specified) | Contact Finger | |
| C-3 | Base Material Surface / Surface Plating | IPC -A- 600G Class-II (if No Specified) | Board Surface | |
| C-4 | Holes Plated Through | IPC -A- 600G Class-II (if No Specified) | Hole / PTH | |
| C-5 | Conductive Patterns ( Definition/Dimensional ) | IPC -A- 600G Class-II (if No Specified) | Conductor / Trace | |
| C-6 | Dielectric Material | IPC -A- 600G Class-II (if No Specified) | Dielectric | |
| C-7 | Conductors / Traces / Pads / Lands / Ground / Voltage Planes | IPC -A- 600G Class-II (if No Specified) | Conductor / Pad | |
| C-8 | Solder Mask Surface | IPC -A- 600G Class-II (if No Specified) | PCB Surface | |
| C-9 | Marking / Legend | IPC -A- 600G Class-II (if No Specified) | PCB | |

| No. | Copper Foil | Internal layer foil thickness | External conductor thickness | PTH copper thickness , [mil ] | | Blind vias thickness copper, ( mil ) | | Buried vias thickness, copper ( mil ) | | Vendor Check |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Min. | Avg. | Min. | Avg. | Min. | Avg. | |
| D-1 | 3/8 OZ | > 0.33 mil | > 1.0 mil | > 0.80 | ≧ 0.90 | > 0.45 | > 0.55 | > 0.65 | > 0.75 | ok |
| D-2 | 1/2 OZ | > 0.49 mil | > 1.40 mil | | | | | | | |
| D-3 | 1.0 OZ | > 0.98 mil | > 1.80 mil | | | | | | | |
| D-4 | 2.0 OZ | > 2.35 mil | > 3.15 mil | | | | | | | |
| D-5 | Final finish board open test | | ≦ 50Ω ( If no specified ) | | Final finish board short test | | | > 10MΩ ( If no specified ) | | |

| No. | Raw material requirement for Pb-free ( Laminate/ Prepreg ) | | Vendor Check |
|---|---|---|---|
| E-1 | Normal Tg( If No Specified ) | Tg > 140 , Td > 310 ℃ , T260 > 30 min , T288 > 5 min | ok |
| E-2 | Mid Tg ( If No Specified ) | Tg > 150 , Td > 335 ℃ , T260 > 40 min , T288 > 10 min | |
| E-3 | Hi Tg ( If No Specified ) | Tg > 170 , Td > 350 ℃ , T260 > 50 min , T288 > 20 min | ok |

| No. | Base material | PCB Laminate/Prepreg / Ink / Paint spec. for Halogen free | | | | | | | | Vendor Check |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Tg (℃) | Td (℃) | T260 (min.) | T288 (min.) | T300 (min.) | Chlorine (dppm) | Bromine (dppm) | Chlorine + Bromine (dppm) | ok |
| E-4 | Normal Tg FR4 Halogen free | > 140 | > 335 | > 35 | > 10 | - | < 900 | < 900 | < 1500 | ok |
| E-5 | Mid Tg FR4 Halogen free | > 150 | > 340 | > 40 | > 15 | - | < 900 | < 900 | < 1500 | ok |
| E-6 | Halogen free Ink /Solder resist | - | - | - | - | - | < 900 | < 900 | < 1500 | ok |
| E-7 | Halogen free Paint | - | - | - | - | - | < 900 | < 900 | < 1500 | ok |
| E-8 | PCB finish board (Halogen free Normal Tg) | > 140 | > 335 | > 35 | > 10 | - | < 900 | < 900 | < 1500 | ok |
| E-9 | PCB finish board (Halogen free Mid Tg) | > 150 | > 340 | > 40 | > 15 | - | < 900 | < 900 | < 1500 | ok |

| PCB Reliability test items by PCB vendor | |
|---|---|
| Must | Item F1, F2, F3, F4, F5, F6, , G2, G3, G4, G5, G8, G10, G11 |
| TBD | Item G1, G2, G5, G6, G7, G9, G10 |

ok

| No. | Item | Test Method | Spec. | Test Freq. | Sampling Size | vendor check |
|---|---|---|---|---|---|---|
| F-1 | S/M Adhesion | IPC-TM-650 2.4.28.1 | No Peel Off , No Flaking | Per D/C Lot ( If No Specified ) | Per D/C Lot x 1 pcs. ( If No Specified ) | OK |
| F-2 | Bow And Twist | IPC-TM-650 2.4.22 | Twist : < 0.50 %<br>Bow : < 0.50 %<br>"量測方式請參考 Page 9/9" | | | |
| F-3 | Surface Plating Adhesion | IPC-TM-650 2.4.1 | No Peel Off , No Flaking | | | |
| F-4 | Thermal Stress (Float Solder) | IPC-TM-650 , 2.6.8.<br>288 ℃ x 10 Sec. -->20 ℃ x 10 Min. -->x 4 Cycles | 1. Resistance change < 10 %<br>2. No Plating Crack / Break<br>No voids , No Delamination<br>No Separation ,No blistering<br>No Measling , | | | |
| F-5 | Outline dimension | | Follow Gerber | | | |
| F-6 | Impedance Control ( If No Specified ) | IPC-TM-650 2.5.5.7. | Characteristic impedance ± 8 %<br>Differential impedance ± 10 % | | 100 % | |

| No. | Item | Test Method | Spec. | Test Freq. | Sampling Size | vendor check |
|---|---|---|---|---|---|---|
| G-1 | Dielectric Withstanding Voltage | IPC-TM-650 2.5.7. DC : 500 +15 / -0 V . 30 sec | No Leakage / Sparkling . No Breakdown Between Test Layer | 1. 次/半年<br>2. F.A.I. Of new Model ( If No Specified ) | 1片 / Model ( If No Specified ) | ok |
| G-2 | Volume Resistivity | IPC-TM-650 2.5.17 C/96/35/90 | >1.0 x $10^{13}$ Ω-cm | | | |
| G-3 | Peel Strength | IPC-TM-650 2.4.8 | 0.5 OZ > 6 lb / inch . 1.0 OZ > 8 lb / inch . 2.0 OZ > 10 lb / inch | | | |
| G-4 | Bonding Strength | IPC-TM-650 2.4.21 | > 500 lb / inch² | | | |
| G-5 | 玻璃轉換溫度 | IPC – TM-650 2.4.24 | Tg ≧ Spec. , △ Tg ≦ 4℃ | | | |
| G-6 | Porosity Of Gold Plating | IPC-TM-650 , 2.3.24 70% HNO3 Vapor x 30 Min. | < 8 defects / cm² ( By x 15 ~ 20 Scope ) | | | |
| G-7 | Rework Simulation | IPC-TM-650 2.4.36 | No Delaminating / Separation , No Land Lifting | | | |
| G-8 | Surface Resistivity | IPC-TM-650 2.5.17 C/96/35/90 | >1.0 x $10^{10}$ Ω | | | |
| G-9 | Electro -migration | Bellcore GR-78-core 13.2.7 : 85℃@ 85%RH , x 500hrs @ 50V bias , Test voltage : 100VDC | 1. Bellcore GR-78-Core 13.2.7 2. Option inspection(30X) should no evidence of whisker growth | | | |
| G-10 | Thermal Shock | IPC-TM-650 2.6.7.2 -65 ℃x 30 Min. ---> 125 ℃x 30 Min. ---> ( > 500 cycles ) 溫度變化須於 2分鐘內完成 | 1. Resistance change < 10 % 2. No Plating Crack / Break No voids , No Delaminating No Separation .No blistering No Measling , | | | |
| G-11 | Ionic contamination | IPC-TM-650 2.3.25 Test liquid > 45 M Ω, x 15 Mn. | < 6.0 µg NaCl / inch² , (HASL ≦ 9.0µg NaCl / inch²) | 1. 次/季<br>2. FAI of new model | | |

| NO. | OSP chemical solution type for PCB surface finish | | | Vendor Check |
|---|---|---|---|---|
| | OSP chemical solution supplier | OSP chemical solution type | OSP thickness | |
| H01 | Shikoku Chemicals Corp. | Glicoat - SMD(F2) / SMDF2(LX) / SMD(F2)-Plus | 0.25 μm ~ 0.40 μm | ok |
| H02 | Cookson Electronics ( Enthone Inc. ) | Entek Plus CU – 106 HT / Entek Plus CU - 106A(X)HT | 0.30 μm ~ 0.45 μm | |

| NO. | Immersion Ag chemical solution type for PCB surface finish | | | Vendor Check |
|---|---|---|---|---|
| | **Imm Ag chemical solution supplier** | **Imm Ag chemical solution type** | **Imm Ag thickness** | |
| H03 | Mac Dermid | Sterling™ Silver (75097# , 75098#) | 10~ 16 μ" (1.5 x1.5 /2 x 2 mm pad ) 6.5 ~8 μ" ( 5 x 5 mm 以上 pads ) | ok |
| H04 | Cookson Electronics ( Enthone Inc. ) | Alpha STAR # | 10~ 14 μ" (1.5 x 1.5 / 2 x 2 mm pad ) 6 ~ 8 μ" ( 5 x 5 mm 以上 pads ) | |

* PCB must be packaged by vacuum within 12 hrs while OSP/Imm Ag is finished

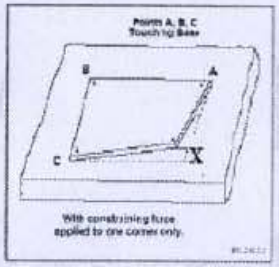
** PCB 於 HASL / OSP / Imm Ag Process 最多只能進行二次（含重工）

| No. | Solderability test ( Insp. In per D/C Lot x 2 pcs.) | | | Vendor Check |
|---|---|---|---|---|
| | Product type | Test Method | Spec. | |
| I-01 | Pb-free | Reflow x 2 times ( Peak temp. Avg. > 245 ℃, above 217 ℃ time Avg . > 50 sec. ) -----> Wave soldering( 250 ~ 255 ℃ x 2.2~2.6 sec. ) | 1. Wetting > 100 %<br>2. All PTH Solder fill up x 100 % | ok |

*** The composition of Pb-free solder alloy to be used in test shall be : Sn-Ag-Cu (SAC305)**

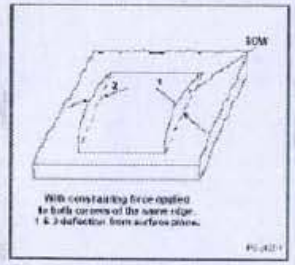
*** The fux for solderability test shall be a standard activated rosin flux (Type ROL1)**

| PCB 出貨之檢驗項目即應附之檢驗及量測報告 | | | | | | | | | Vendor Check |
|---|---|---|---|---|---|---|---|---|---|
| 01 | Internal Layer Foil Thickness | 04A | Sn Thickness(HASL) | 04C | ENIG Thickness | | | | OK |
| 02 | External Conductor Thickness | 04C | Plated Gold Thickness | 04D | Immersion Tin Thickness | | | | |
| 03 | PTH Copper Thickness ( BGA via /via) | 04E | OSP Thickness | 04F | Immersion Silver Thickness | | | | |
| 05 | Solder Mask Coating Thickness | 06 | Conductor Width / Spacing Tolerance | | | | | | |
| 07 | Finish Board Thickness Tolerance | 08 | Hole Roughness (Via / PTH) | | | 09 | Wicking | | |
| 10 | Thermal Stress | 11 | Solderability | 12 | S/M Adhesion | 13 | Bow And Twist | | |
| | | | | | | | | | |




**Measuring method of PCB Twist**

X : < $\overline{AC}$ (PCB/Panel 對角線長) x 0.5 %




**Measuring method of PCB Bow**

1 + 2 : < (PCB/Panel 邊線長) x 0.5 %

Check By 吳文霞

Approval By 郭官生