



# 深圳市龙江昌电路有限公司

## LONGJIANG CIRCUITS CO., LTD

### 硬板线路板生产能力

| 项目          |                                           | 样品                                                                                                                   | 批量                                                                                                                   |
|-------------|-------------------------------------------|----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| 层数          |                                           | 0-30层(HDI任意层)                                                                                                        | 0-22层(HDI任意层)                                                                                                        |
| 板材材料        | 供应商                                       | CEM-3, FR-4(生益, 建滔, ILM, 联茂, 腾辉, 伊索拉), BT, 铝基, 罗杰斯 (RO4350/4003/RT5880 etc), 泰康尼, Megtron 6, F4B系列, 铁弗龙, 陶瓷, 无卤素, 等等 | CEM-3, FR-4(生益, 建滔, ILM, 联茂, 腾辉, 伊索拉), BT, 铝基, 罗杰斯 (RO4350/4003/RT5880 etc), 泰康尼, Megtron 6, F4B系列, 铁弗龙, 陶瓷, 无卤素, 等等 |
|             | Tg值                                       | 135°; 150°; 170°; 180°;                                                                                              |                                                                                                                      |
| 接受数据来源      |                                           | Gerber 274, Gerber D, Eagle, DPF, MDA, DXF Protel99se, ODB++, Autocad, 等等                                            | Gerber 274, Gerber D, Eagle, DPF, MDA, DXF Protel99se, ODB++, Autocad, 等等                                            |
| 层间对准度公差     |                                           | ≤2mil(0.05mm)                                                                                                        | ≤2.5mil(0.064mm)                                                                                                     |
| 最大板尺寸       |                                           | 800*1500mm                                                                                                           | 600*1500mm                                                                                                           |
| 最小板尺寸       |                                           | 400mil*200mil(厚度>8mil)                                                                                               | 400*200mil(厚度>16mil)                                                                                                 |
| 内层最小板材厚度/铜厚 |                                           | 4mil(0.10mm) 1/3oz 排除铜厚                                                                                              | 4mil(0.10mm) 1/3oz 排除铜厚                                                                                              |
| 成品板厚度       | 单面板/双面板                                   | 8mil-400mil(喷锡最小厚度: 0.5mm)                                                                                           | 8mil-276mil(喷锡最小厚度: 0.6mm)                                                                                           |
|             | 多层板                                       | 16mil-400mil(喷锡最小厚度: 0.5mm)                                                                                          | 16mil-276mil(喷锡最小厚度: 0.6mm)                                                                                          |
| 板弯板曲        | 单面板                                       | 0.5%; 0.75% & 1.5%                                                                                                   | 0.5%; 0.75%                                                                                                          |
|             | 双面板                                       | 0.5%; 0.75% & 1.5%                                                                                                   | 0.5%; 0.75%                                                                                                          |
|             | 多层板                                       | 0.5%; 0.75%                                                                                                          | 0.5%; 0.75%                                                                                                          |
| 孔径          | 纵横比                                       | 1:10                                                                                                                 | 1:8                                                                                                                  |
|             | 成品公差                                      | 电镀孔: ±3mil; 非电镀孔: ±2mil; 压接电镀孔: ±2mil                                                                                | 电镀孔: ±3mil; 非电镀孔: ±2mil; 压接电镀孔: ±2mil                                                                                |
|             | 沉头孔公差                                     | 电镀孔: ±3mil; 非电镀孔: ±2mil;                                                                                             | 电镀孔: ±4mil; 非电镀孔: ±3mil;                                                                                             |
|             | 孔位公差                                      | 电镀孔: ±3mil 非电镀孔: ±2mil                                                                                               | 电镀孔: ±3mil 非电镀孔: ±2mil                                                                                               |
|             | 机械钻孔                                      | 6mil-240mil (比率1:8(最小孔位距离10mil))                                                                                     | 6mil-240mil (比率1:8(最小孔位距离12mil))                                                                                     |
|             | 激光钻孔                                      | 3mil(0.075mm)                                                                                                        | 4mil(0.10mm)                                                                                                         |
| 外形公差        | 锣板                                        | ±4mil(0.1mm)                                                                                                         | ±5mil(0.13mm)                                                                                                        |
|             | V-CUT                                     | ±3mil(0.08mm)                                                                                                        | ±4mil(0.10mm)                                                                                                        |
|             | 控深锣                                       | ±4mil(0.1mm)                                                                                                         | ±4mil(0.1mm)                                                                                                         |
|             | 金手指斜边                                     | ±4mil(0.1mm)                                                                                                         | ±4mil(0.1mm)                                                                                                         |
|             | 啤/模具冲板                                    | ±2mil(0.05mm) & ±4mil(0.1mm)                                                                                         | ±4mil(0.1mm)                                                                                                         |
|             | 激光切割                                      | ±2mil(0.05mm)                                                                                                        | ±3mil(0.08mm) & ±4mil(0.1mm)                                                                                         |
| 成品板厚公差      | ≤20mil(0.508mm)                           | ±2mil(0.05mm)                                                                                                        | ±4mil(0.10mm)                                                                                                        |
|             | 20mil< L < 40mil                          | ±3mil(0.10mm) & ±4mil(0.10mm)                                                                                        | ±4mil(0.10mm)                                                                                                        |
|             | 40mil< L < 62mil                          | ±3mil(0.10mm) & ±4mil(0.10mm)                                                                                        | ±4mil(0.10mm)                                                                                                        |
|             | ≥62mil                                    | ±8%mm                                                                                                                | ±10%mm                                                                                                               |
| 成品最小线宽/线隙   | 1/3oz(=12um)                              | 最小. 2.5/2.5mil(0.064mm)                                                                                              | 最小. 3/3mil(0.08mm)                                                                                                   |
|             | H/Hoz(=17.5um)                            | 最小. 3/3mil(0.08mm)                                                                                                   | 最小. 3/3mil(0.08mm)                                                                                                   |
|             | 1/1oz(=35um)                              | 最小. 3/3.5mil(0.08mm/0.09mm)                                                                                          | 最小. 4/4mil(0.10mm)                                                                                                   |
|             | 2/2oz(=70um)                              | 最小. 5/4.5mil(0.13mm/0.11mm)                                                                                          | 最小. 6/5.5mil(0.15mm/0.14mm)                                                                                          |
|             | 3/3oz(=105um)                             | 最小. 7/6mil(0.18mm/0.15mm)                                                                                            | 最小. 8/6mil(0.20mm/0.15mm)                                                                                            |
|             | 4/4oz(=140um)                             | 最小. 9/8.5mil(0.23mm/0.22mm)                                                                                          | 最小. 10/9mil(0.254mm/0.23mm)                                                                                          |
|             | 5/5oz(=175um)                             | 最小. 11/9mil(0.28mm/0.23mm)                                                                                           | 最小. 12/10mil(0.305mm/0.254mm)                                                                                        |
|             | 6/6oz(=210um)                             | 最小. 13/12.5mil(0.33mm/0.31mm)                                                                                        | 最小. 14/12.5mil(0.36mm/0.31mm)                                                                                        |
|             | 7/7oz(=245um)                             | 最小. 15.5/15mil(0.40mm/0.38mm)                                                                                        | 最小. 16/15.5mil(0.41mm/0.40mm)                                                                                        |
| 绝缘层厚度公差     | ≥8oz(=280um)                              | 需要真实的资料确认                                                                                                            | 需要真实的资料确认                                                                                                            |
|             | 单层                                        | ±8%mm                                                                                                                | ±10%mm                                                                                                               |
|             | 2层或者以上                                    | ±10%mm                                                                                                               | ±10%mm                                                                                                               |
| 控制阻抗线       | 单线(ohm)                                   | ±5% or ±8% or ±10%                                                                                                   | ±8% or ±10%                                                                                                          |
|             | 差分(ohm)                                   | ±8% or ±10%                                                                                                          | ±10%                                                                                                                 |
|             | 嵌入式差分共面Diff embedded coplanar strips(ohm) | ±8% or ±10%                                                                                                          | ±10%                                                                                                                 |
|             | 差分共面Diff offset coplanar strips(ohm)      | ±8% or ±10%                                                                                                          | ±10%                                                                                                                 |
| 控制阻抗线宽/线隙   | 公差                                        | ±8%                                                                                                                  | ±10%                                                                                                                 |
| 成品线宽/线隙     | 公差                                        | ±8% 或者 依据IPC II标准                                                                                                    | ±10% 或者 依据IPC II标准                                                                                                   |

|                |                                                 |                                                                                                   |                                                                                                   |
|----------------|-------------------------------------------------|---------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| BGA PAD        | PAD与PAD距离                                       | 4mil(0.10mm)                                                                                      | 5mil(0.13mm)                                                                                      |
|                | Pad大小                                           | 8mil(0.20mm)                                                                                      | 10mil(0.254mm)                                                                                    |
| 成品铜厚           | 外层                                              | 1/3~15oz                                                                                          | 1/3~12oz                                                                                          |
|                | 内层                                              | 1/2~15oz                                                                                          | 1/2~12oz                                                                                          |
| 阻焊             | 阻焊桥                                             | 3mil(0.075mm)                                                                                     | 4mil(0.10mm)                                                                                      |
|                | 阻焊厚度                                            | ≥0.4mil(10um)                                                                                     | ≥0.4mil(10um)                                                                                     |
|                | 阻焊颜色                                            | 绿色, 黑色, 白色, 蓝色, 黄色, 哑绿色, 哑黑色, 哑白色, 红色, 等等                                                         | 绿色, 黑色, 白色, 蓝色, 黄色, 哑绿色, 哑黑色, 哑白色, 红色, 等等                                                         |
|                | 曝光精度                                            | 1mil(0.025mm)                                                                                     | 1.5mil(0.038mm)                                                                                   |
|                | 塞孔大小                                            | 6mil-18mil(0.15mm-0.45mm)                                                                         | 6mil-18mil(0.15mm-0.45mm)                                                                         |
|                | 位置偏移                                            | 1.5mil(0.038mm)                                                                                   | 2.5mil(0.064mm)                                                                                   |
|                | 字符                                              | 厚度                                                                                                | ≥0.2mil(5um)                                                                                      |
| 公差             |                                                 | ±7mil(0.18mm)                                                                                     | ±8mil(0.20mm)                                                                                     |
| 颜色             |                                                 | 绿色, 黑色, 白色, 蓝色, 黄色, 红色, 等等                                                                        | 绿色, 黑色, 白色, 蓝色, 黄色, 红色, 等等                                                                        |
| 表面处理           | 不需要表面处理                                         | NA                                                                                                | NA                                                                                                |
|                | 沉镍金(ENIG) 或者 镍钯金/ENEPIG)                        | 金厚: 0.001mil-0.004mil;<br>镍厚:0.08mil~0.25mil;<br>钯厚:0.004mil-0.02mil                              | 金厚: 0.001mil-0.004mil;<br>镍厚:0.08mil~0.25mil;<br>钯厚:0.004mil-0.02mil                              |
|                | 无铅喷锡                                            | 锡厚: ≥0.12mil (最小.)                                                                                | 锡厚: ≥0.12mil (最小.)                                                                                |
|                | 有铅喷锡                                            | 锡厚: ≥0.12mil (最小.)                                                                                | 锡厚: ≥0.12mil (最小.)                                                                                |
|                | 抗氧化                                             | 0.008mil-0.03mil                                                                                  | 0.008mil-0.03mil                                                                                  |
|                | 沉锡                                              | 锡厚: ≥0.032mil (最小.)                                                                               | 锡厚: ≥0.032mil (最小.)                                                                               |
|                | 沉银                                              | 银厚: 0.008mil-0.016mil                                                                             | 银厚: 0.008mil-0.012mil                                                                             |
|                | 全板电金                                            | 金厚: 0.001mil~0.004mil;<br>镍厚:0.08mil~0.25mil                                                      | 金厚: 0.001mil~0.004mil;<br>镍厚:0.08mil~0.25mil                                                      |
|                | 电镀硬金/厚金                                         | 金厚: 0.004mil~0.04mil;<br>镍厚:0.08mil~0.25mil                                                       | 金厚: 0.004mil~0.04mil;<br>镍厚:0.08mil~0.25mil                                                       |
|                | 碳油                                              | 电阻值: 20-100ohms                                                                                   | 电阻值: 20-100ohms                                                                                   |
|                | 沉镍金+碳油                                          | 金厚: 0.001-0.004mil;<br>镍厚: 0.08mil-0.25mil;<br>电阻值: 20-100ohms                                    | 金厚: 0.001-0.004mil;<br>镍厚: 0.08mil-0.25mil;<br>电阻值: 20-100ohms                                    |
|                | 沉镍金+抗氧化/电镀硬金                                    | 镍厚: 0.08mil-0.2mil<br>沉镍金厚: 0.001mil-0.004mil<br>电金金厚: 0.003mil-0.06mil<br>抗氧化: 0.008mil-0.025mil | 镍厚: 0.08mil-0.2mil<br>沉镍金厚: 0.001mil-0.004mil<br>电金金厚: 0.003mil-0.06mil<br>抗氧化: 0.008mil-0.025mil |
|                | 无铅喷锡+电镀硬金                                       | 锡厚: ≥0.12mil (最小.)<br>镍厚: 0.08mil-0.2mil<br>金厚: 0.003mil-0.06mil                                  | 锡厚: ≥0.12mil (最小.)<br>镍厚: 0.08mil-0.2mil<br>金厚: 0.003mil-0.06mil                                  |
|                | 无铅喷锡+碳油                                         | 锡厚: ≥0.12mil (最小.)<br>电阻值: 20-100ohms                                                             | 锡厚: ≥0.12mil (最小.)<br>电阻值: 20-100ohms                                                             |
| 包装             | 空真+防潮珠                                          | Yes                                                                                               | Yes                                                                                               |
|                | 防静电袋+防潮珠                                        | Yes                                                                                               | Yes                                                                                               |
| 检测/接受标准        | IPC-6012/IPC6013/IPC-300/IPC-A-600H Class II, 等 |                                                                                                   |                                                                                                   |
| 制作: Liyingying | 审核: Zhangyong                                   |                                                                                                   | 更新日期: 2020-01-18                                                                                  |
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