

# Tate Circuit Industries Ltd PCB manufacturing capabilities

| 序号<br>NO. | 类型<br>type.                                   | 项目<br>item                           | 参数<br>parameter  |  |
|-----------|---|--------------------------------------|--|--|
| 1         | 制造能力<br>manufacture capacity                  | 层数:<br>layer count:                  | 1-36L  |  |
|           |   | 板厚:<br>PCB thickness:                | 0.2-8mm  |  |
|           |   | 板厚公差 :<br>thickness tolerance:       | ≤1.0mm: +/-0.10mm,<br>> 1.0mm:+/-10%.                        |  |
|           |   | 最小成品尺寸 :<br>minimum pcb size         | 2.5x2.5mm need create panel,<br>10x10mm can do single board. |  |
|           |   | 最大成品尺寸 :<br>minimum pcb size         | 500x1500mm   |  |
|           |   | 最大铜厚 :<br>maximum copper.            | 18oz   |  |
| 2         | 板料<br>base material                           | 普通TG standard TG                     | S1141,KB6160,1-GF212   |  |
|           |   | 中TG middle TG                        | S1000,KB6165F  |  |
|           |   | 高TG high TG                          | S1000-2M,KB6167F,IT180A                                      |  |
|           |   | CTI≥600 TG150                        | S1600L   |  |
|           |   | 无卤/TG150/CTI600                      | (宏仁) Grace GA-HF-I6  |  |
|           |   | CTI≥600                              | S1600, KB6160C   |  |
|           |   | 无卤 halogen-free                      | S1155  |  |
|           |   | 无卤/中TG<br>halogen-free/middle TG     | S1150G   |  |
| 3         | 最小线宽<br>间隙<br>Minimum<br>trace<br>width/space | 内层 (完成铜厚) :<br>inner (finish copper) | 18um ( 1/2OZ ) : 2.5/2.5mil                                  |  |
|           |   |                                      | 35um ( 1OZ ) : 3/3mil  |  |
|           |   |                                      | 70um ( 2OZ ) : 4/5mil  |  |
|           |   |                                      | 105um ( 3OZ ) : 6.5/6.5mil                                   |  |
|           |   |                                      | 140um ( 4OZ ) : 8/8mil                                       |  |
|           |   |                                      | 175um ( 5OZ ) : 10/10mil                                     |  |
|           |   |                                      | 210um ( 6OZ ) : 12/12 mil                                    |  |
|           |   | 外层 (完成铜厚) :<br>outer (finish copper) | 25um : 2.5/2.5mil  |  |
|           |   |                                      | 35um ( 1OZ ) : 4/4mil  |  |
|           |   |                                      | 70um ( 2OZ ) : 6/6mil  |  |
|           |   |                                      | 105um ( 3OZ ) : 10/10mil                                     |  |
|           |   |                                      | 140um ( 4OZ ) : 10/13mil                                     |  |
|           |   |                                      | 175um ( 5OZ ) : 12/15mil                                     |  |
|           |   |                                      | 210um ( 6OZ ) : 15/15mil                                     |  |

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| 4 | 线路制造能力<br>copper layer manufacture capacity | 机械过孔内、外层孔环尺寸最小：<br>minimum copper ring for via by machine drill(inner and outer layers) | 4mil  |  |
|   |   | BGA 焊盘直径最小：<br>Min BGA pad.   | 8mil  |  |
|   |   | BGA 夹线线宽：<br>Min trace width on BGA area.   | 2.5mil  |  |
|   |   | BGA 夹线距离：<br>Min trace to BGA pad space.  | 2.5mil  |  |
|   |   | 喷锡 BGA 最小直径：<br>Min BGA pad for HASL  | 10mil   |  |
|   |   | 喷锡铜皮上 BGA 最小直径：<br>Min BGA pad on copper plane area for HASL                            | 12mil   |  |
|   |   | 邦定 IC 宽度/间隙：<br>bonding IC width/space.   | 3/3mil for plating gold,<br>4/4mil for ENIG.  |  |
|   |   | 内层隔离带最小宽度：<br>Min space between copper plane.   | 6mil  |  |
|   |   | 线圈线宽间隙：<br>minimum trace width/space for coil:  | 1oz: 4/4mil<br>2oz: 8/8mil<br>3oz:12/12mil  |  |
|   |   | 阴阳铜厚：<br>different copper at one core   | 18/35um、35/70um、70/105um.   |  |
|   |   | 钻孔到导体最小距离：<br>machine drill to copper space:  | 4L-6L : 4mil ;<br>8L-12L : 5mil ;<br>14L-16L : 6mil ,<br>18L-22L : 7mil ;<br>24L-28L : 8mil ;<br>≥30L: 10mil; |  |
|   | 机械孔孔径：<br>hole size for machine drill       | 0.15-6.4mm  |   |  |

5 钻孔  
drill hole

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| 半孔最小钻头直径：<br>minimum drill bit for half hole.                        | 0.5MM  |  |
| 连孔最小钻头直径：<br>overlapped hole drill bit                               | 0.6mm (use slot drill bit)                                   |  |
| 机械钻孔孔径与板厚关系：<br>drill bit for finish thickness:                      | 0.15mm ( pcb thickness≤1.2mm )<br>0.2mm(pcb thickness≤1.6mm) |  |
| 板厚孔径比(厚径比)：<br>pcb thickness/hole size ratio                         | Maximum:12 : 1   |  |
| 孔位置公差：<br>hole location tolerance                                    | ±3mil  |  |
| 压接孔径公差：<br>fit press hole tolerance:                                 | ±2mil  |  |
| NPTH孔公差：<br>NPTH tolerance:  | ±2mil  |  |
| 树脂塞孔孔径范围：<br>hole size for fill resin and copper capped.             | 0.15-0.5mm   |  |
| 控深钻孔最小直径：<br>Counter bores minimum size                              | 0.3mm  |  |
| 背钻深度精度公差：<br>back drill depth tolerance.                             | ±0.05mm  |  |
| 沉头孔深度公差：<br>countsink depth tolerance                                | ±0.15mm  |  |
| 沉头孔孔径公差：<br>countsink diameter tolerance                             | ±0.20mm  |  |
| 沉头孔角度：<br>countsink angle:   | 90°  |  |
| 相同网络孔壁之间最小距离<br>(补偿后)：<br>space between drill bit for same net.      | minimum 6mil   |  |
| 不同网络孔壁之间最小距离<br>(补偿后)：<br>space between drill bit for different net. | minimum 12mil  |  |

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|   |                        | 控深铣 NPTH 槽/边深度公差：<br>NPTH depth routing tolerance. | ±0.15mm   |  |
| 6 | 表面处理<br>surface finish | 表面处理工艺：<br>surface finish technology               | 无铅喷锡/有铅喷锡、电镀铅锡（抗蚀刻）、电镀硬金、沉金、沉锡、沉银、OSP、沉金+OSP,喷锡+金手指、沉金+金手指、水金+选择性硬金、镍钯金、OSP+金手指，电无镍金；<br>LF HASL, plating NI/AU, plating hard Gold, ENIG, Immersion Tin, Immersion silver, OSP, ENIG+OSP, HASL+plating hard Gold, ENIG+plating hard Gold, plating gold+plating hard Gold, ENEPIG, OSP+plating hard Gold , Nickel-less gold plating. |  |
|   |                        | 无铅喷锡/有铅喷锡：<br>LF HASL/HASL with Lead               | production panel size:<br>Min.size: 150x230mm,<br>Max. size: 520x650mm,<br>thickness:1-40um<br>PCB thickness: 0.5-3.5mm   |  |
|   |                        | 电镀铅锡（抗蚀刻）<br>Plating Lead /Tin(Etching resist)     | 铅含量100PPM<br>lead content 100PPM  |  |
|   |                        | 沉金：<br>ENIG  | production panel size:<br>Min.size: 150x230mm,<br>Max. size: 520x800mm,<br>thickness: NI:100-200U" AU:1-4U"<br>PCB thickness: 0.2-6.5mm   |  |
|   |                        | 无镍金：<br>Nickel-less gold plating                   |   |  |
|   |                        | 垂直沉锡：<br>Vertical immersion Tin                    | production panel size:<br>Min.size: 60x80mm,<br>Max. size: 500x600mm,<br>thickness: 0.8-6um<br>pcb thickness: 0.3-5.0mm   |  |
|   |                        | 水平沉银：<br>Horizontal immersion silver               | production panel size:<br>Min.size: 60x80mm,<br>Max. size: one side ≤500mm<br>thickness: 6-12u"<br>pcb thickness: 0.3-5.0mm   |  |
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|                 |  | OSP                                   | production panel size:<br>Min.size: 60x80mm,<br>Max. size: one side ≤500mm |  |
|                 |  |                                       | thickness: 0.2-0.4um   |  |
|                 |  |                                       | pcb thickness: 0.3-5.0mm   |  |
|                 |  | 电镀硬金 :<br>Plating hard Gold           | production panel size:<br>Min.size: 150x230mm,<br>Max. size: 450x500mm     |  |
|                 |  |                                       | thickness: 2-50u"  |  |
|                 |  |                                       | pcb thickness: 0.2-5.0mm   |  |
|                 |  | 镍钯金 :<br>ENEPIG                       | production panel size:<br>Min.size: 150x230mm,<br>Max. size: 520x800mm,    |  |
|                 |  |                                       | thickness: NI:100-200U" AU:1-4U"<br>PD:1-6U"                               |  |
|                 |  |                                       | PCB thickness: 0.2-6.5mm   |  |
| 7 外形<br>outline | 外形尺寸公差 :<br>outline dimension<br>tolerance:  | standard;±0.13mm,<br>minimum:±0.10mm. |  |  |
|                 | 外形位置公差 :<br>outline location<br>tolerance:   | ±0.10mm                               |  |  |
|                 | 铣外形不露铜的外层线路最<br>小距离 :<br>minimum space from<br>outer layer copper to<br>milling for avoid copper<br>exposed. | 0.20mm                                |  |  |
|                 | 铣外形不露铜的内层线路最<br>小距离 :<br>minimum space from<br>inner layer copper to<br>milling for avoid copper<br>exposed. | 0.25mm                                |  |  |
|                 | 金手指倒角不伤到 TAB 的<br>最小距离 :<br>minimum space finger to<br>beveling for avoid<br>damage fingers.                 | 0.15mm                                |  |  |
|                 | 金手指倒角深度公差 :<br>beveling depth tolerance.   | ±0.20mm                               |  |  |
|                 | V-CUT 角度公差 :<br>V-CUT angle tolerance:   | ±5°                                   |  |  |

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|   |                      | v-cut 角度规格：<br>V-CUT angle:                        | 20°、30°、45°   |  |
|   |                      | V-CUT 余厚公差：<br>V-CUT web tolerance:                | ±0.10mm   |  |
|   |                      | V-CUT 板厚范围：<br>PCB thickness for V-CUT             | 0.4-3.2mm   |  |
|   |                      | 跳刀 V-cut 安全距离：<br>Jump V-cut safe space:           | 8mm ( pcb thickness≤1.6mm)  |  |
| 8 | 阻焊<br>solder<br>mask | 阻焊品牌：<br>solder mask brand                         | KSM-S6189(green, black, yellow,<br>red, blue, matte gree, matte black)<br>Taiyo PSR-4000 G23K (green)<br>ABQ RS-2000 V-5 (purple)   |  |
|   |                      | 阻焊油墨颜色：<br>solder mask colour:                     | 绿色、黄色、黑色、蓝色、红色、白<br>色、绿色哑光、黑色哑光、橙色、紫<br>色。<br>green, yellow, black, blue, red,<br>white, matte gree, matte black,<br>orange , purple.   |  |
|   |                      | 阻焊桥最小宽度：<br>solder mask dam:                       | 成品铜厚铜≤1OZ：4mil ( 绿色 ) ,<br>5mil ( 其它颜色 ) .<br>finish copper≤1oz: 4mil=green,<br>5mil=other colour.  |  |
|   |                      | 绿油盖线宽度单边最小：<br>solder mask cover trace:            | 2mil ( allow partly 1.5mil )  |  |
|   |                      | 阻焊厚度：<br>solder mask thickness:                    | 最厚：25UM ( 印两次 )<br>标准：铜面盖油：10-18um；过孔盖<br>油：≥5um；线路拐角处≥5um ( 一<br>次印刷 )<br>max:25um (print two times)<br>standard(print one time):<br>copper plane area:10-18um,<br>via edge:≥5um,<br>copper trace edge:≥5um. |  |
|   |                      | 阻焊塞孔最大直径：<br>max via size for plug<br>solder mask: | 0.5mm   |  |
|   |                      | 字符油墨颜色：<br>silkscreen colour:                      | 白色、黄色、黑色<br>white, yellow, black  |  |
|   |                      | 字符品牌：<br>solder silkscreen brand                   | 广信KSM-388 white/black<br>太阳Taiyo S-380W white<br>安然晟ATA-5000 yellow   |  |

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| 9  | 字符<br>silkscreen    | 字符线宽与高度最小：<br>silkscreen line width and text height:      | 线宽 5mil、高度 27mil<br>line width 5mil, text height 27mil. |  |
|    |                     | 字符打印标记类型（仅限白色字符）：<br>character printer(only white)        | 序列号、条形码、二维码。<br>serial, bar code, QR code.              |  |
|    |                     | 字符与焊盘最小距离：<br>silkscreen to solder pad space:             | 6mil  |  |
| 10 | 碳油<br>carbon        | 碳油品牌：<br>carbon brand:                                    | CCI303  |  |
|    |                     | 碳油厚度：<br>carbon thickness:                                | 10-50um ,   |  |
|    |                     | 碳油阻值：<br>carbon resistance:                               | can't control carbon resistance.                        |  |
|    |                     | 碳油与碳油最小距离：<br>space between carbon patterns:              | 12mil   |  |
|    |                     | 碳油最小宽度：<br>carbon minimum width:                          | 16mil   |  |
| 11 | 蓝胶<br>peelable mask | 蓝胶品牌：<br>peelable mask brand:                             | Peters SD2955   |  |
|    |                     | 蓝胶厚度：<br>peelable mask thickness:                         | 0.3-1.0mm   |  |
|    |                     | 蓝胶最小宽度：<br>minimum peelable width:                        | 1.0mm   |  |
|    |                     | 蓝胶塞孔最大直径：<br>max hole size for plug peelable mask         | 6.5mm   |  |
|    |                     | 蓝胶与焊盘最小距离：<br>space between peelable mask and solder pad: | 14mil   |  |
| 12 | 测试<br>testing       | 阻抗测试  |   |  |
|    |                     | 离子污染测试  |   |  |
|    |                     | 可焊性测试   |   |  |
|    |                     | A/B测试条  | According IPC-2221                                      |  |
|    |                     | 飞针测试  |   |  |
|    |                     | 测试架   |   |  |
| 12 | 证书                  | UL  | ,   |  |
|    |                     | ROHS  | YES   |  |
|    |                     | REACH   | YES   |  |
|    |                     | ISO9001   | YES   |  |