



深圳市龙江昌电路有限公司

LONGJIANG CIRCUITS CO., LTD

软硬结合板生产能力

项目		样品	批量
层次		0-20Layer(HDI 3+N+3)	0-16Layer(HDI 3+N+3)
板材	供应商	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, Polyimide/聚酰亚胺 (杜邦), 等等	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, Polyimide/聚酰亚胺 (杜邦), 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		≤2.5mil(0.064mm)	≤3mil(0.08mm)
最大板尺寸		650*1500mm	500*1500mm
最小板尺寸		200mil*120mil(厚度>8mil)	400*200mil(厚度>16mil)
内层最小板材厚度/铜厚		1mil(0.025mm) 1/3oz 排除铜厚	1mil(0.025mm) 1/3oz 排除铜厚
软板与硬板结合处最小距离		距离=1/2 板厚=(弯折度 ≤60度) 距离=板厚(弯折度 90度) 距离=4倍*板厚(弯折度 90-180度)	
软硬结合板成品板厚度	单面板/双面板	8mil-400mil(喷锡最小厚度.0.6mm)	8mil-240mil(喷锡最小厚度.0.6mm)
	多层板	10mil-400mil(喷锡最小厚度.0.6mm)	10mil-240mil(喷锡最小厚度.0.6mm)
软板成品板厚度	单面板/双面板	3mil-250mil	3mil-200mil
	多层板	11.8mil-400mil	11.8mil-200mil
板弯板曲	单面板	0.5%; 0.75% & 1.5%	0.5%; 0.75% & 1.5%
	双面板	0.5%; 0.75% & 1.5%	0.5%; 0.75% & 1.5%
	多层板	0.5%; 0.75%	0.5%; 0.75% & 1.5%
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: ±3mil 非电镀孔: ±2mil
	孔位公差	电镀孔: ±3mil; 非电镀孔: ±2mil;	电镀孔: ±4mil; 非电镀孔: ±3mil;
	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) & ±5mil(0.13mm)
	20mil< L < 40mil	±3mil(0.10mm) & ±4mil(0.10mm)	±4mil(0.10mm) & ±5mil(0.13mm)
	40mil< L < 62mil	±3mil(0.10mm) & ±4mil(0.10mm)	±4mil(0.10mm) & ±5mil(0.13mm)
	≥62mil	±8%mm	±10%mm
成品最小线宽/线隙	1/3oz(=12um)	最小.2/2mil(0.05mm)	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
绝缘层厚度公差	2层或者以上	±10%mm	±10%mm
	单线(ohm)	±5% or ±8% or ±10%	±8% or ±10%
绝缘层厚度公差	差分(ohm)	±8% or ±10%	±10%

控制阻抗线	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
覆盖膜	覆盖膜隔桥	5mil(0.13mm)	8mil(0.20mm)
	覆盖膜 PI 厚度	0.5mil(12.5um);1mil(25um);2mil(50um);3mil(75um);4mil(100um)等等	0.5mil(12.5um);1mil(25um);2mil(50um);3mil(75um);4mil(100um)等等
	覆盖膜胶层厚度	0.5mil(12.5um);1mil(25um);2mil(50um);3mil(75um);4mil(100um)等等	0.5mil(12.5um);1mil(25um);2mil(50um);3mil(75um);4mil(100um)等等
	覆盖膜颜色	黑色, 哑黑色, 白色, 哑白色, 黄色, 哑绿色, 等等	黑色, 哑黑色, 白色, 哑白色, 黄色, 哑绿色, 等等
	位置偏移	4mil(0.10mm)	5mil(0.13mm)
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)	≥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/光板	NA	NA
	沉镍金(ENIG) 或者 镍钯金/ENEPIG)	金厚: 0.001mil-0.004mil; 镍厚:0.08mil~0.25mil; 钯厚:0.004mil-0.02mil	金厚: 0.001mil-0.004mil; 镍厚:0.08mil~0.25mil; 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; 镍厚:0.08mil~0.25mil	金厚: 0.001mil~0.004mil; 镍厚:0.08mil~0.25mil
	电镀硬金/厚金	金厚: 0.004mil~0.04mil; 镍厚:0.08mil~0.25mil	金厚: 0.004mil~0.04mil; 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; 镍厚: 0.08mil-0.25mil; 电阻值: 20-100ohms	金厚: 0.001-0.004mil; 镍厚: 0.08mil-0.25mil; 电阻值: 20-100ohms
	沉镍金+抗氧化/电镀硬金	镍厚: 0.08mil-0.2mil 沉镍金厚: 0.001mil-0.004mil 电金金厚: 0.003mil-0.06mil 抗氧化: 0.008mil-0.025mil	镍厚: 0.08mil-0.2mil 沉镍金厚: 0.001mil-0.004mil 电金金厚: 0.003mil-0.06mil 抗氧化: 0.008mil-0.025mil
	无铅喷锡+电镀硬金	锡厚: ≥0.12mil (最小.) 镍厚: 0.08mil-0.2mil 金厚: 0.003mil-0.06mil	锡厚: ≥0.12mil (最小.) 镍厚: 0.08mil-0.2mil 金厚: 0.003mil-0.06mil
	无铅喷锡+碳油	锡厚: ≥0.12mil (最小.) 电阻值: 20-100ohms	锡厚: ≥0.12mil (最小.) 电阻值: 20-100ohms
	包装	空真+防潮珠	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
地址:	中国广东省深圳市宝安区福永街道福永社区三星工业区二区第4栋319		
电话:	0086 0755 33073990	网址:	www.ljcircuits.com