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1.0	2024/04/09	Hai Bi	Preliminary version

Infrared Type Touch Panel

ES1100 Series

Technical Specification

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1. 规格参数 Specifications

机械规格 Mechanical Specifications

触摸物体 Input Method	手指或其他不透明物体 Finger, gloved hand, or any other opaque stylus
触摸点数 Touch Points	20
书写点数 Writing Points	20
技术原理 Touch Technology	红外线阻挡检测 Infrared rays interception detection, no special surface coatings
尺寸 Available Size	32"/43"/49"/55"/65"
产品结构 Product Structure	PCBA
产品尺寸 Dimensions	见产品图纸 Refer to the Product Drawing 注：可直接当 PCBA 安装图示 Note: It can be directly used as a PCBA installation diagram
触摸有效区 Touch Active Area	见产品图纸 Refer to the Product Drawing
玻璃 Glass	无玻璃 No glass
外壳材质 Shell Material	无外壳 No shell
有效触摸压力 Pressure Required to Trigger Touch Event	无需压力 No pressure required

性能规格 Performance Specifications

分辨率 Controller Reported Resolution	32767×32767 表示触摸屏报点坐标范围为：(0,0)~(32767,32767) The coordinates of the touch screen reporting is: (0,0)~(32767,32767)
5 点响应时间 5 points Response Time	7ms (32\43) 8ms (49\55) 11ms (65) 将 5 点测试工装放置于触摸屏中心位置，使用 Bus Hound 读取最大响应时间。 Place the 5-points flat touch objects in the center of the touch screen, and use Bus Hound to read the maximum response time.
触摸精度 Touch Accuracy	±1mm(中心 center 90% AA) ±2mm(边缘 edge 10% AA) φ8mm 平头精度测试专用笔垂直点击测试, 90% AA =0.95L*0.95W φ8mm special flat touch object test, 90% AA =0.95L*0.95W
触摸物直径 Touch Object Diameter	2mm(1 点 point, 90% AA) ≥3mm(10 点 points, 边缘间距 spacing 30mm,90% AA) ≥5mm(20 点 points, 边缘间距 spacing 20mm,9 0% AA) 以上直径支持画线，注：未布灯覆盖的丝印黑边区域可能不支持触摸 All of the above items support drawing. Note: The black edge area of screen without light coverage may not support touch.

书写失误差 Writing Error rate	1-5 点 points, 失误差率 $\leq 1\%$ ($\phi 3\text{mm}$ 平头笔) 间距 $>30\text{mm}$ 6-10 点 points, 失误差率 $\leq 1.5\%$ ($\phi 5\text{mm}$ 平头笔) 间距 $>30\text{mm}$ 11-20 点 points, 失误差率 $\leq 2\%$ ($\phi 5\text{mm}$ 平头笔) 间距 $>30\text{mm}$ 使用对应平头笔在 $15\text{mm} \times 15\text{mm}$ 方格内书写“正”字 200 个, 按笔画数统计平均失误差率。 注: 多点书写时, 均分区域进行书写统计。 Use the corresponding flat-head pen to write 200 "正" characters in the $15\text{mm} \times 15\text{mm}$ square, and calculate the average error rate according to the number of strokes. Note: When multi-point writing is performed, the writing statistics are evenly divided into regions.
快速画线 Fasted Drawing Speed	1-5 点 points, $\geq 4\text{m/s}$ 6-10 点 points, $\geq 2\text{m/s}$ $\phi 8\text{mm}$ 平头笔, 边缘间距 15mm $\phi 8\text{mm}$ flat touch objects spacing 15mm
触摸输出 Output	触摸点坐标 Coordinates
校准 Calibration	无需校准或四点校准 Not required or Four-point calibration, no drift.
面积识别 Diameter Recognition	$\phi 3/\phi 7/\phi 20\text{ mm}$ 可定制 Customizable

电气规格 Electrical Specifications

接口类型 Interface Type	USB HID
连接类型 Connector Type	Type A
供电 Power	USB 供电($\text{DC}5\text{V} \pm 5\% @ 500\text{mA}$) Powered by USB ($\text{DC}5\text{V} \pm 5\% @ 500\text{mA}$)
功耗 Power Dissipation	$<2.5\text{W}$
MTBF	100000H

环境参数 Environmental Specifications

温度 Temperature	工作温度 Operating: $-10 \sim 50^\circ\text{C}$ 存储温度 Storage: $-40 \sim 85^\circ\text{C}$
湿度 Relative Humidity	工作 Operating: $10\% \sim 90\% \text{ RH}$, 40°C 无凝结 non-condensing 存储 Storage: $10\% \sim 90\% \text{ RH}$, 40°C 无凝结 non-condensing
ESD	EN 61000-4-2 2008:L3 B 级: 接触放电 4KV , 空气放电 8KV EN 61000-4-2 2008:level 3 Class B. Contact discharge 4kV , air discharge 8kV on USB connector pins. 通过标准: 测试过程中可能会导致功能和性能暂时失效或降低, 但能自行恢复。 Pass standard: During the testing process, it may cause temporary failure or decrease in functionality and performance, but it can be restored.
EMC	CE, FCC Class B Compatible

兼容系统 OS Support List

系统 OS	单点 Single-point	多点 Multi-points	定制协议 Customized protocol	其他 Other
Windows 11	√	√	√	可提供私有协议、SDK 开发包，支持二次开发。Private protocols and SDK development packages can be provided, supporting secondary development.
Windows 10	√	√	√	
Windows 7	√	√	√	
Windows XP	√		√	
Linux	√	√	√	
Android	√	√	√	
Mac OS X	√	可定制 Customizable	√	
Chrome	√	√	√	

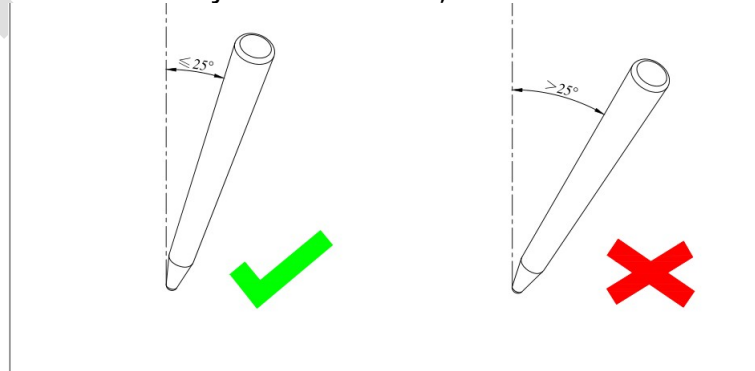
2. 测试方法 Testing Method

测试环境 Testing Environment

设备 Device	备注 Notes
测试平台 Test Platform	大于触摸屏 PCBA 外尺寸的玻璃面或直接装成整机测试，要求玻璃平面变形量 $\leq 2\text{mm}$ 。 Need a glass larger than the outer size of the touch screen PCBA or install the touch screen PCBA into a machine for testing, ensure that the glass deformation is $\leq 2\text{mm}$.
OS	Win7、Win10
触摸笔 Touch Object	$\phi 6$ 单点平头笔、 $\phi 6\text{mm}$ 多点平头笔(多点边缘间距 $\geq 20\text{mm}$) $\phi 6$ single-point flat touch object, $\phi 6\text{mm}$ multi-points flat touch object (spacing $\geq 20\text{mm}$)
测试工具 Test Tools	SaberSeriesTools

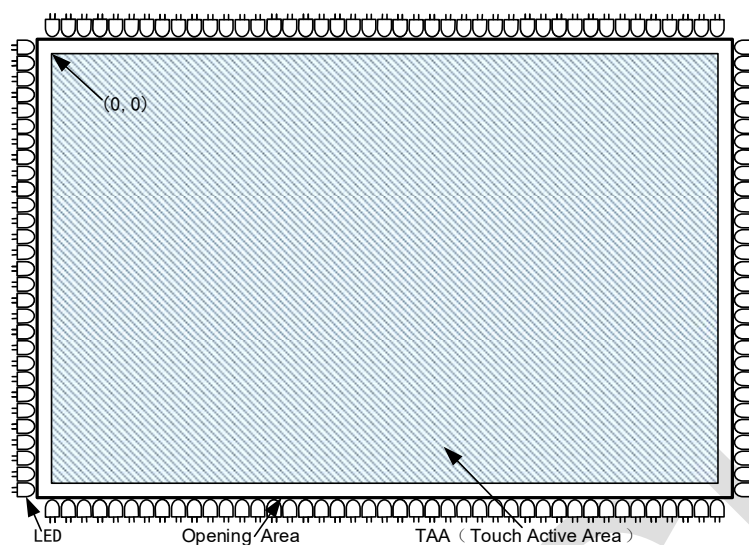
测试要求 Testing Requirements

- 1) 拼装及测试 PCBA 时要求做好静电防护，配戴防静电手套或防静电手环；
When installing and testing PCBA, it is important to avoid static electricity, it is better wear anti-static gloves or anti-static wrist strap;
- 2) 测试时旁边不要有其它红外触摸屏同时工作，避免相互干扰；
During testing, there should be no other infrared touch screens working nearby to avoid interference;
- 3) 避免在正在工作的大功率设备附近测试，以免受到干扰；
Avoid testing near high-power equipment in operation to avoid interference;
- 4) 建议将触摸屏接地后测试，以减小电源干扰；
Suggest grounding the touch screen for testing to reduce power interference;
- 5) 若 PC 同时连接鼠标，画线测试过程中，请勿移动鼠标；
If the PC is connected to the mouse at the same time, do not move the mouse during the drawing test;
- 6) 画线时触摸笔倾角须 $\leq 25^\circ$ ，如下图：
The inclination angle of the touch object must be $\leq 25^\circ$, as shown in the following:



7) 屏幕开口区及 AA 区示意图

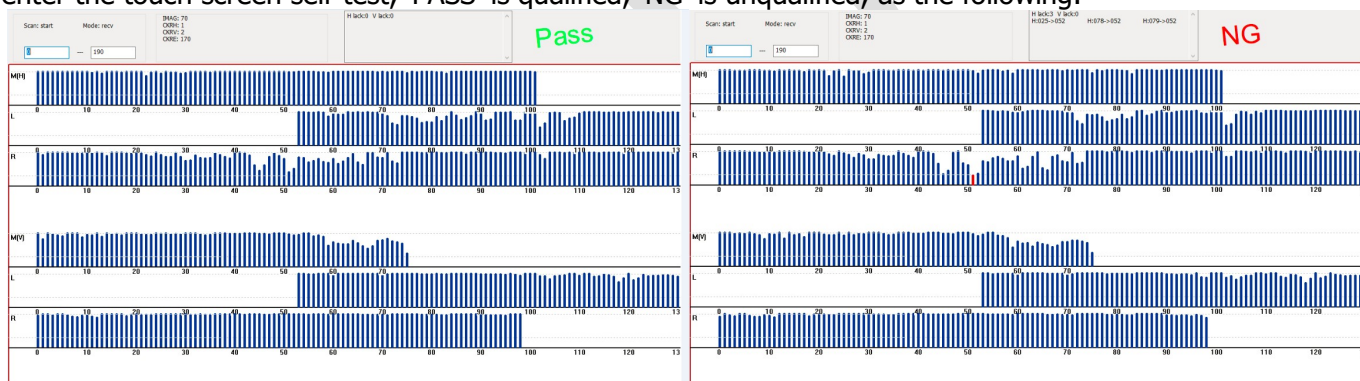
Panel Opening Area and Touch Active Area:



硬件测试 Hardware Testing

触摸屏 USB 线连接至电脑，打开软件“SaberSeriesTools”，点击“ANA”进入红外触摸屏自测模式，“PASS”为合格；“NG”为不合格，参考下图：

Connect the touch screen USB cable to the computer, open the software "SaberSeriesTools", click "ANA" to enter the touch screen self-test, 'PASS' is qualified, 'NG' is unqualified, as the following:

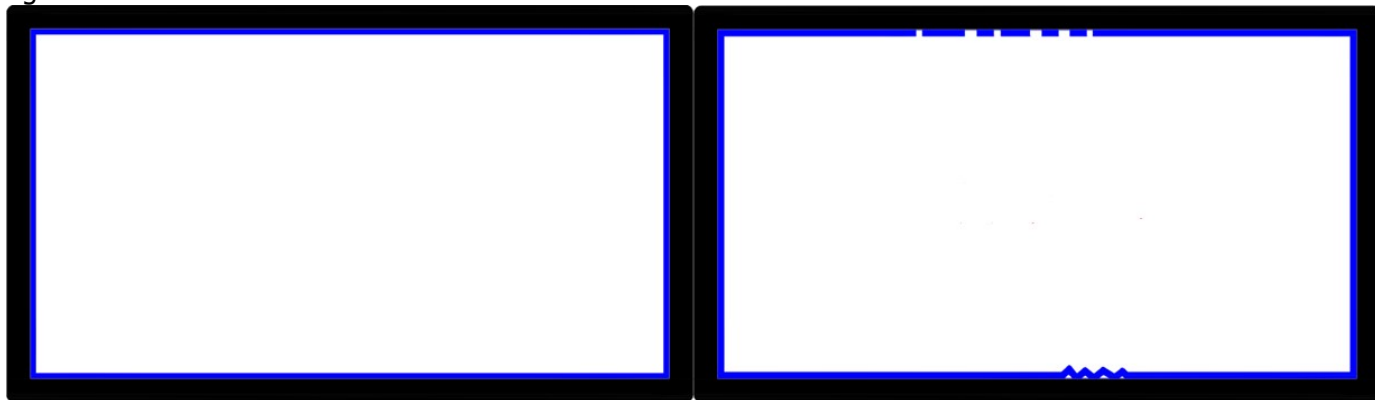


功能测试 Function Testing

单点画线 Single-point Drawing

打开"SaberSeriesTools"，点击"SKETCHPAD"打开画图界面，用 $\phi 6$ 单点平头笔沿 AA 区四边匀速画线，无断线为合格，如下图左，出现断线、锯齿等，为不合格，如下图右：

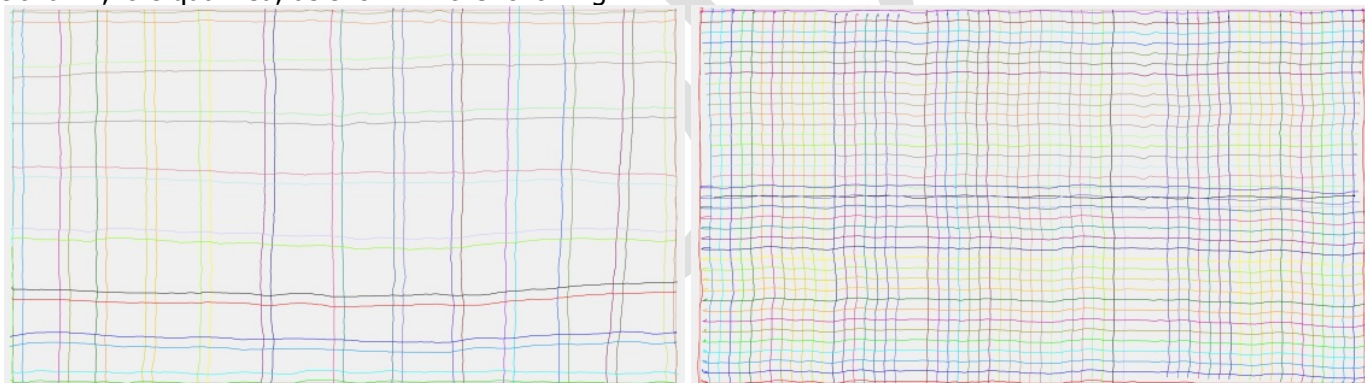
Open "SaberSeriesTools", click "SKETCHPAD" to open the drawing interface, and use $\phi 6$ single-point flat touch object to draw lines uniformly along the four sides of the AA. If there is no broken, it is qualified, as shown in the following left figure. If there is broken, serrations, etc., it is unqualified, as shown in the following right figure:



多点画线测试 Multi-points Drawing

使用 $\phi 6$ 多点平头笔（边缘间距 20mm）画线，要求 90%AA 区域无断线、无拉线，参考下图：

Use $\phi 6$ multi-points flat touch object (spacing 20mm) to draw lines, if there is no broken or pulled lines in the 90% AA, it is qualified, as shown in the following:



可靠性测试 Reliability Testing

项目 Items	标准 Testing Standards
低温工作 Low Temperature Operation	-20°C, 48h, 通电, 结束后常温放置 2h。 -20°C, powered on for 48h, and then place the sample at room temperature for 2h.
低温存储 Low Temperature Storage	-40°C, 48h, 不通电, 结束后常温放置 2h。 -40°C, no power for 48h, and then place the sample at room temperature for 2h.
低温启动 Low Temperature Start	-20°C, 4h (第 2h/第 4h 时 USB 插拔 10 次)。 -20°C, 4h (USB plug 10 times at 2h and 4h).
高温工作 High Temperature Operation	60°C, 48h, 通电, 结束后常温放置 2h。 60°C, powered on for 48h, and then place the sample at room temperature for 2h.
高温高湿工作 High Temperature and Humidity Operation	60°C, 90%RH, 无凝结物, 48h, 通电, 结束后常温放置 2h。 60°C, 90% RH, no condensation, powered on for 48h, and then place the sample at room temperature for 2h.
高温高湿存储 High Temperature and Humidity Storage	60°C, 90%RH, 无凝结物, 48h, 不通电, 结束后常温放置 2h。 60°C, 90% RH, no condensation, no power for 48h, and then place the sample at room temperature for 2h.
冷热冲击 Cold and Hot Shock	-45°C到 85°C, 50 个循环, 结束后常温放置 2h。 -45°C to 85°C, 50 cycles, and then place the sample at room temperature for 2h.
包装振动试验 Packaging Vibration	GB/T 4857.18
包装跌落试验 Packaging Drop	GB/T 4857.18

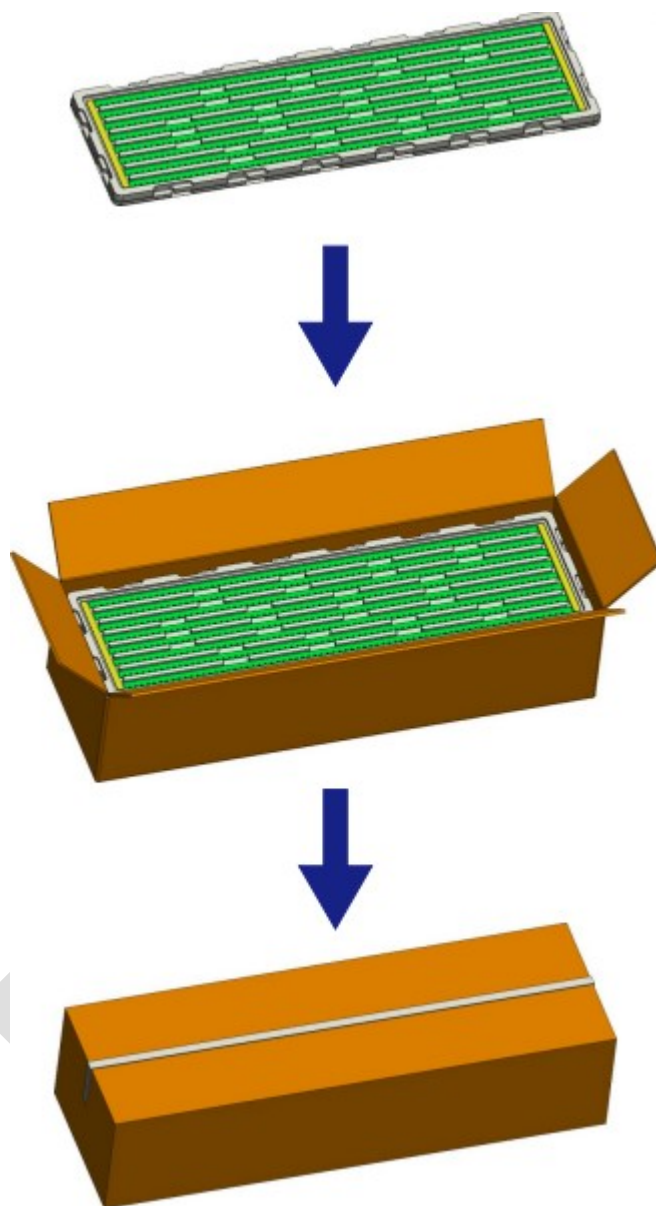
3. 注意事项 Note

- 1) 请避免长时间将 PCBA 暴晒阳光下, 否则电子元器件可能损坏。
Please avoid exposing PCBA to sunlight for a long time, otherwise electronic components may be damaged.
- 2) 请避免 PCBA 扭曲或弯曲。
Please avoid PCBA twisting or bending.
- 3) 请避免 PCBA 直接重叠堆放。
Please avoid overlapping PCBA directly.
- 4) 接触 PCBA 时请佩戴防静电手套或防静电手环, 以免因静电冲击损坏电子元器件。
When touching PCBA, please wear anti-static gloves or anti-static wrist strap to avoid damaging electronic components due to statics.
- 5) 请按 PCBA 组装图纸连接触摸屏, 避免连接器连接错位以及元器件碰撞。
Please install the touch screen according to the PCBA assembly drawing to avoid connector misalignment and component collisions.
- 6) 组装环境须良好接地。
The installing environment must be well grounded.

4. 包装示意 Packaging

PCBA 放入托盘中，再将托盘堆叠入纸箱，用胶带封箱。

Put the PCBA into the tray, then put the trays into the box and seal the box.



产品实物展示

☐ 07 ☐ 16

IRTOUCH-JL-YF-32B

☐ 07 ☐ 16

SHEET 1 OF 1

会签栏

☐ 02

☐ 03

☐ 05

☐ 06

☐ 07

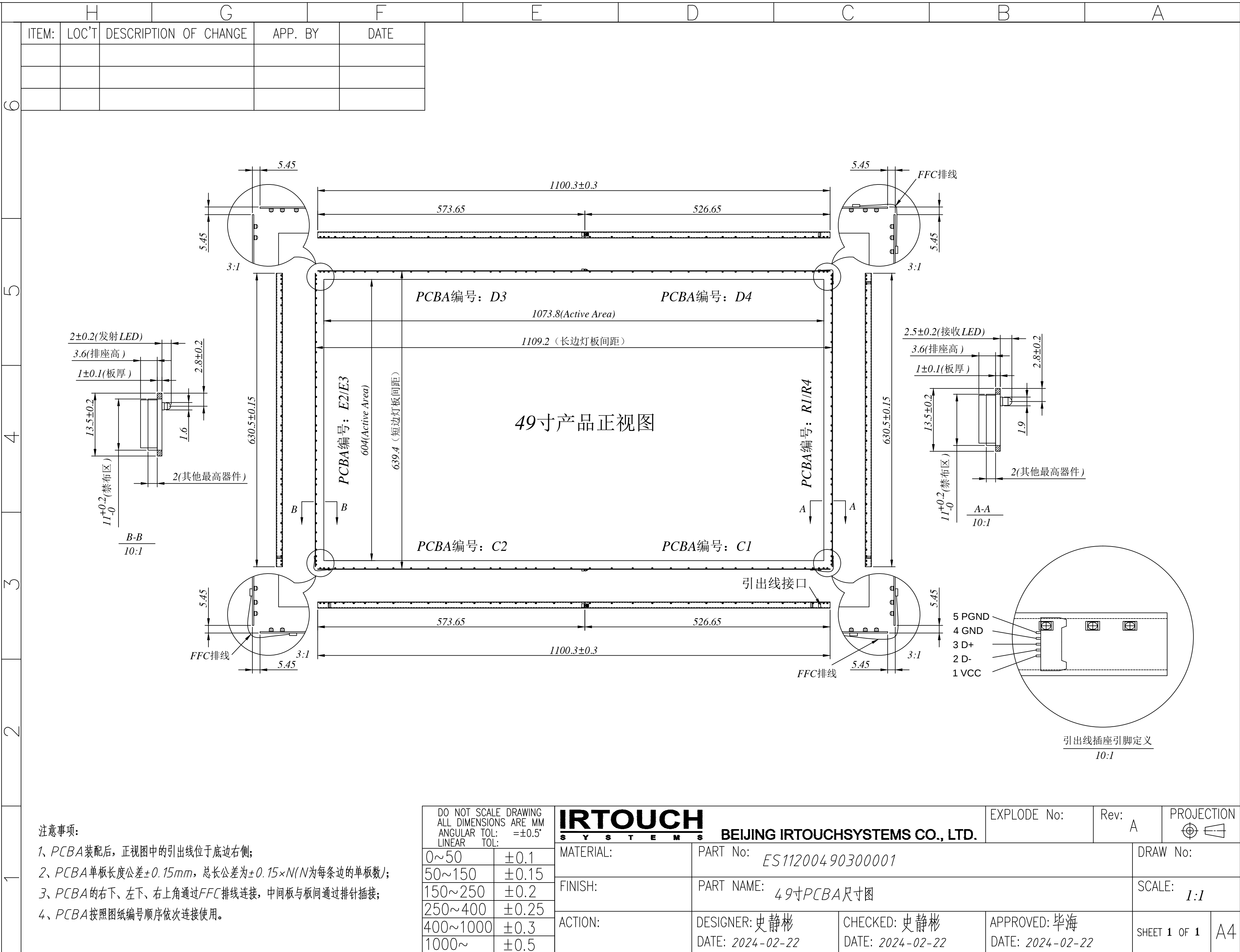
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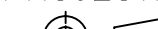
分发栏

☐ 02 ☐ 03

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☐ 07 ☐ 16



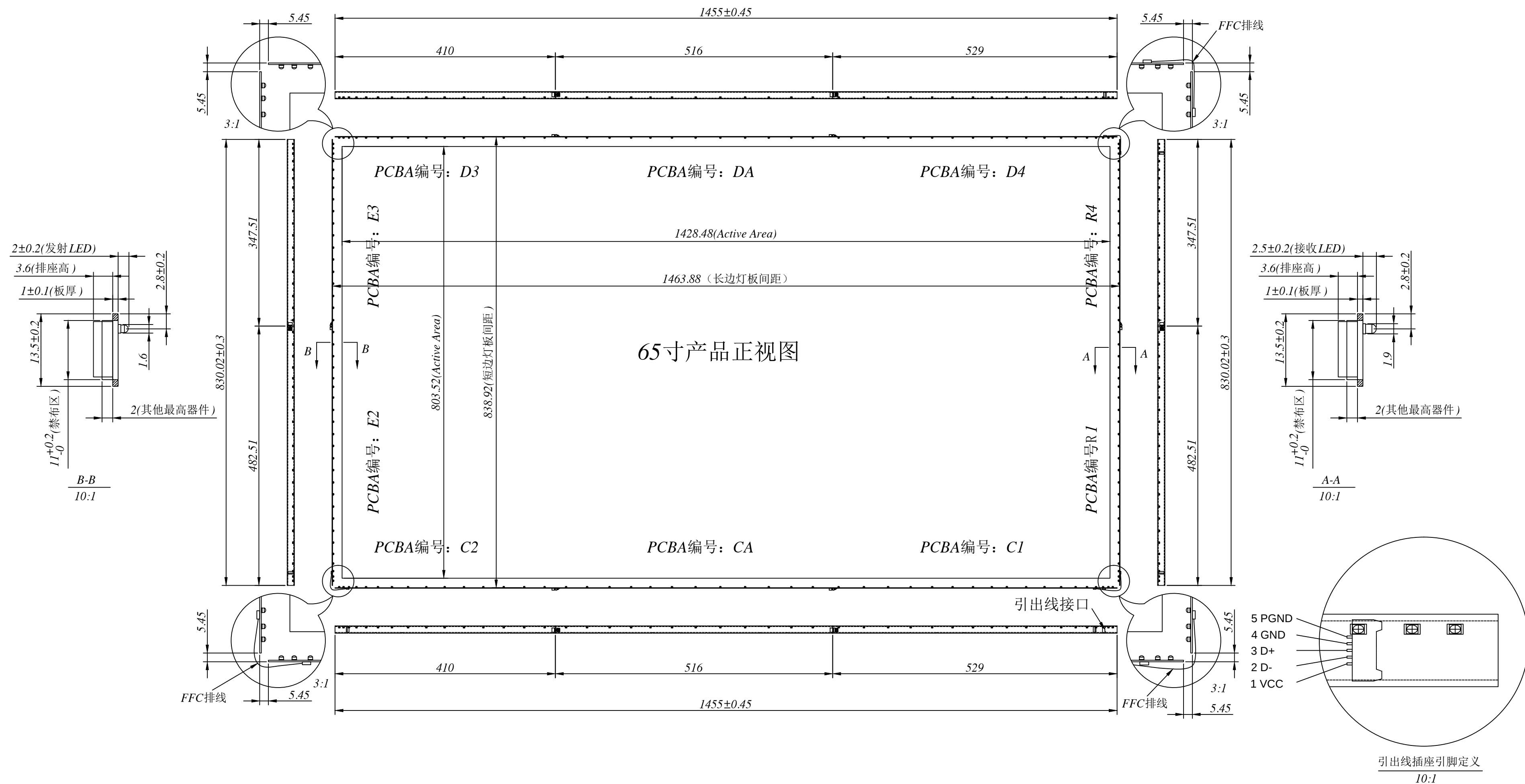
DO NOT SCALE DRAWING ALL DIMENSIONS ARE MM ANGULAR TOL: =±0.5° LINEAR TOL:		IRTOUCH S Y S T E M S BEIJING IRTOUCHSYSTEMS CO., LTD.				EXPLODE No:		Rev: A		PROJECTION 			
0~50	±0.1	MATERIAL:		PART No:		ES112004 90300001		DRAW No:					
50~150	±0.15	FINISH:		PART NAME:		49寸PCBA尺寸图		SCALE: 1:1					
150~250	±0.2	ACTION:		DESIGNER: 史静彬		CHECKED: 史静彬		APPROVED: 毕海		SHEET 1 OF 1		A4	
250~400	±0.25			DATE: 2024-02-22		DATE: 2024-02-22		DATE: 2024-02-22					
400~1000	±0.3												
1000~	±0.5												

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H		G		F		E	D	C	B	A
ITEM:	LOC'T	DESCRIPTION OF CHANGE	APP. BY	DATE						



- 1、PCBA装配后，正视图中的引出线位于底边右侧；
- 2、PCBA单板长度公差 $\pm 0.15\text{mm}$ ，总长公差为 $\pm 0.15 \times N$ (N 为每条边的单板数)；
- 3、PCBA的右下、左下、右上角通过FFC排线连接，中间板与板间通过排针插接；
- 4、PCBA按照图纸编号顺序依次连接使用。

DO NOT SCALE DRAWING ALL DIMENSIONS ARE MM ANGULAR TOL: =±0.5° LINEAR TOL:		IRTOUCH S Y S T E M S		BEIJING IRTOUCHSYSTEMS CO., LTD.		EXPLODE No:		Rev: A		PROJECTION 	
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50~150	±0.15										
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250~400	±0.25										
400~1000	±0.3	ACTION:		DESIGNER: 史静彬		CHECKED: 史静彬		APPROVED: 毕海		SHEET 1 OF 1	
1000~	±0.5			DATE: 2024-02-22		DATE: 2024-02-22		DATE: 2024-02-22			

