

产 品 承 认 书

PRODUCT APPROVAL SHEET

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客 户 承 认 Customer Approval	
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1 保证 Warranty

本公司对本产品品质保证期限是从出货之日起后一年内（注：对本规格书所定使用或储存规格范围外而发生故障时，不属于保证范围之内）。

The company's quality assurance period of the product is from the date of shipment within one year.(Remark: Not according to specifications using standard or storage specifications lead to product failure, not belong to ensure scope.)

2 应用范围 Application

此产品为投射电容触摸屏，常作为常用的电子器件和 OA 设备的输入装置。

The product is projected capacitive touch panel used as the input devices for general electric appliances and OA equipment.

3 结构与规格 Structure and Specification

3.1 结构 Structure

结构 Structure	材料 Materials	描述 Description	备注 Remark
第一层 First Layer	Glass	Glass	厚度: 2.0 mm Thickness : 2.0 mm
第二层 Second Layer	ITO Glass	ITO 玻璃 ITO Glass	厚度: 1.1 mm Thickness : 1.1 mm
出线方式 Tail type	FPC	FPC	镀金 Gold-Plated

3.2 规格 Specification

项目 Item	尺寸 Dimension	单位 Unit
外形尺寸 Dimensional Outline	289.00 (L) × 227.50 (W) × 4.00 (T)	mm
可视区 Viewing Area	247.90 (L) × 186.40 (W)	mm
驱动区 Active Area	247.90 (L) × 186.40 (W)	mm
FPC 长度 FPC Length	120.00	mm

3.3 控制芯片型号 IC Model

项目 Item	规格 Specification
IC	EETI, EXC80W46
Interface	USB、IIC
OS	Android、Linux、Windows (Embedded/CE/XP/2000/Vista/7/8/10)、Mac、QNX

注：IC 详细技术参数，请参考 IC 规格书。
Remark:Regards the IC specification, please refer the IC data sheet from supplier.

4 特性 Characteristics

4.1 环境条件 Environment Conditions

项目 Item	规格 Specification	备注 Remark
工作温湿度范围 Operating temperature & Humidity	-20℃~+70℃, <90%RH	无结露 non condensing
储存温湿度范围 Storage temperature & Humidity	-30℃~+80℃, <90%RH	无结露 non condensing

4.2 电器性能 Electric characteristics

项目 Item	规格 Specification	备注 Remark
触控点 Touch point	10 点 10-Points	触控点同步侦测数量 The number of touch points simultaneously detect
最大使用电压 Max voltage	DC 5V max	/
绝缘阻抗 Insulation resistance	≥20MΩ@25V (直流) ≥20MΩ@25V (DC)	使用高压测试机进行测试或使用绝缘表 (25V) 测试头按压于引线末端进行测试。 Use high-pressure testing machine for testing or use insulation meter (25V) to test the end of FPC.
触控反应时间 Chattering Time	20ms or less	/

4.3 机械性能 Mechanical characteristics

项目 Item	规格 Specification	备注 Remark
输入方式 Input method	手指或专用触摸笔 Finger or exclusive pen	
操作压力 Operation force	≤10g	手指输入 finger input
操作寿命 Operation life	敲击寿命 Tapping durability	≥1 百万次 ≥1 million times
	笔画寿命 Pen sliding durability	≥10 万次 ≥100,000 times
表面硬度 Hardness	≥7H	500g 压力测试 Pressure 500gf test

4.4 光学特性 Optical characteristics

项目 Item	规格 Specification	备注 Remark
透明度 Transparency	≥83%	白光测试

5 外观检验 Appearance Inspection

5.1 检验规则 Inspection Regulation

5.1.1 检查范围 Scope:

此标准只适用于可视区。即所有的外观不良，只要是在可视区以外，对产品功能不造成影响，均

不考虑在内；所有可以使用软布用酒精擦拭得掉的污渍均不考虑在内。

This standard applies only to visual areas. All outside of view area which will not cause influences to the performance and all stain which can be wiped away by using mull with alcohol would not be regarded as a defect.

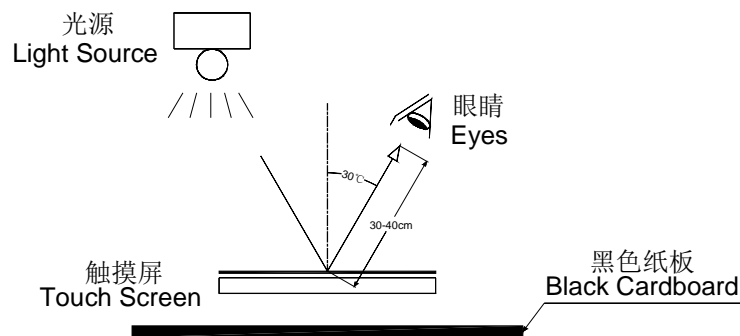
可视区定义：客户装配后可见的区域（一般为玻璃正面视窗），面板的可视区包括面板正面的丝印边框与面板的视窗。

Visual area definition: the visible area after customer assembly (generally indicate for front side of glass Windows), cover glass visual area including silk screen area in the front of the cover glass frame and cover glass windows area.

5.1.2 检查条件 Inspection condition:

视力 1.0 及以上的健康成人（带眼镜亦可），在 20-40W 的冷白色荧光灯下(要求检验台面照度在 1000~1200 Lux 之间)，物体与检测者眼睛距离 30-40 厘米，且在产品下方加以黑色和白色的纸板作为衬托背景，每片产品检测时间不超过 12 秒。如下图：

Staff is 1.0 and above visual acuity in healthy adults (wear glasses also). Source of the lighting for inspection is 20-40 W cool white color of fluorescent light (Required inspection table' illumination between 1000 ~ 1200 Lux) , and viewing distance for inspection between eyes and product is kept 30-40cm. Meanwhile, add a black cardboard and white cardboard under the product as background. Inspection time is less than 12 sec for each piece as the following:



5.2 粒状缺陷 Dot Defects

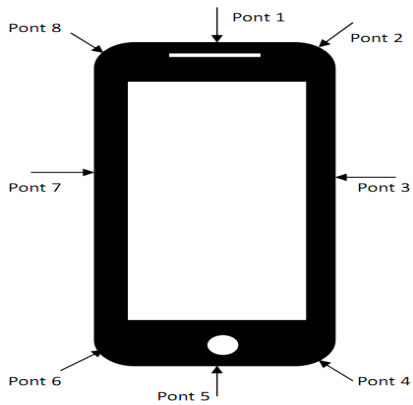
标准 CRITERIA (mm)		判定 DECISION
异色点 (气泡) Different color points(bubble)	$\Phi \leq 0.20$	不计, 但不可密集 Ignored ,Not crowded
	$0.20 < \Phi \leq 0.25$	6
	$0.25 < \Phi \leq 0.35$	4
	$0.35 < \Phi \leq 0.45$	3
	$\Phi > 0.45$	0
备注：任两个可接受缺陷的间距要求 ≥ 25 Note: any two acceptable defects or 25 spacing requirements		

5.3 线状缺陷 Linear Defects

标准 CRITERIA (mm)		判定 DECISION
线宽 W	线长 L	
$W \leq 0.015$	/	不计, 不可密集 Ignored ,Not crowded
$0.015 < W < 0.03$	$L \leq 25$	
$0.03 \leq W \leq 0.05$	$L \leq 20$	5

$0.05 < W \leq 0.08$	$L \leq 8$	3
$W > 0.08$	/	按点状标准 According to the dot standard
备注：任两个可接受缺陷的间距要求 ≥ 20 Note: any two acceptable defects or 20 spacing requirements		

5.4 面板标准 Cover Criteria

项目 ITEM	标准 CRITERIA (mm)
丝印图案倾斜角度 Logo Printing Tilt Angle	$L \leq 10, A \leq 3^\circ$; $10 < L \leq 20, A \leq 1.5^\circ$
平整度 Flatness	<p>在平面上各方向起翘高度: $H \leq 0.25\%$, OK; $H > 0.25\%$, NG. Different directions in the plane case become warped: $H \leq 0.25\%$, OK ; $H > 0.25\%$, NG.</p> 
BM 丝印区 BM Printing Area	丝印区因划伤造成有明显的漏光现象，不可接受。 Printing area have obvious light-leaking phenomenon caused by the scratch, is not acceptable.
	丝印针孔/透光: $\Phi \leq 0.30$ 可接受; 不计个数, 但不可密集。 Printing pinhole/transmission: $\Phi \leq 0.30$ acceptable; Regardless of the number, but not intense.
	面板视窗区边缘丝印凸起或锯齿状, 宽度不超过 0.2, 可接受。 Cover window area edge printing raised or indented, width is not more than 0.2 , is acceptable.
	面板丝印内污、暗影, 不可接受, 可参考限度样板。 Cover printing in the dirt, the shadow, is not acceptable, may refer to limit sample.
丝印 LOGO LOGO Printing	颜色、字体、位置、尺寸符合图纸或样品要求。 Color, font, position, size conform to the requirements of the drawings or samples.
	透光性均匀, 参考限度样板。 The transmission of light evenly, refer to limit sample.
	不可有重影、缺损, 参考限度样板。 There shall be no ghosting, defect, refer to limit sample.

5.5 面板玻璃崩缺 Cover Glass Chipping

正面边、角崩缺，不允许；

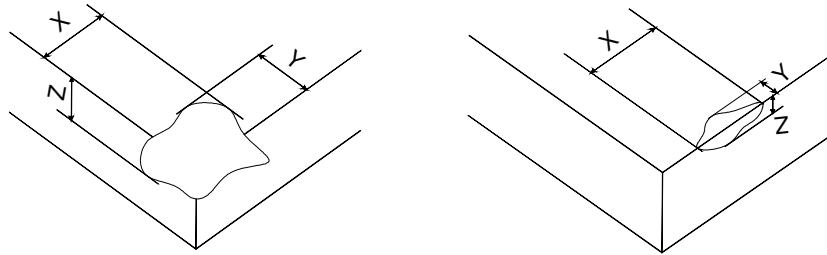
Edge and corner of the front fragment, does not allow;

背面边、角崩缺： $X \leq 0.5\text{mm}$ ， $Y \leq 0.5\text{mm}$ 和 $Z \leq 1/2$ 玻璃厚度，从正面观察不可漏光，每边可接受数量为 3 个，间距要求大于 20mm。

（注：若崩缺位严重影响产品的功能，T/P 属不良品。）

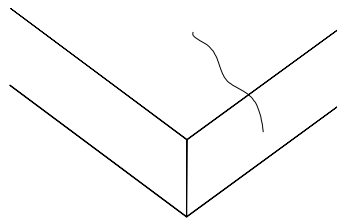
Corner fragment: $X \leq 0.5\text{mm}$ ， $Y \leq 0.5\text{mm}$ and $Z \leq 1/2\text{GT}$, viewed from the front is light-leaking, acceptable number per side for three, more than 20 mm spacing requirements.

（Remark: If the fault bit seriously affect the product's features, T / P is a bad product.）



裂纹：T/P 属不良品。

Progressive: T/P is regarded as defect.



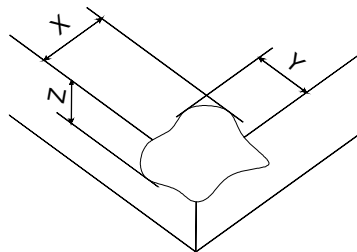
5.6 功能片玻璃崩缺 Sensor Glass Chipping

角崩缺： $X \leq 3.0\text{mm}$ ， $Y \leq 3.0\text{mm}$ 和 $Z \leq$ 玻璃厚度，可以忽略。

（注：若崩缺位严重影响产品的功能，T/P 属不良品。）

Corner fragment: $X \leq 3.0\text{mm}$ ， $Y \leq 3.0\text{mm}$ and $Z \leq \text{GT}$, it is ignored.

（Remark: If the fault bit seriously affect the product's features, T / P is a bad product.）

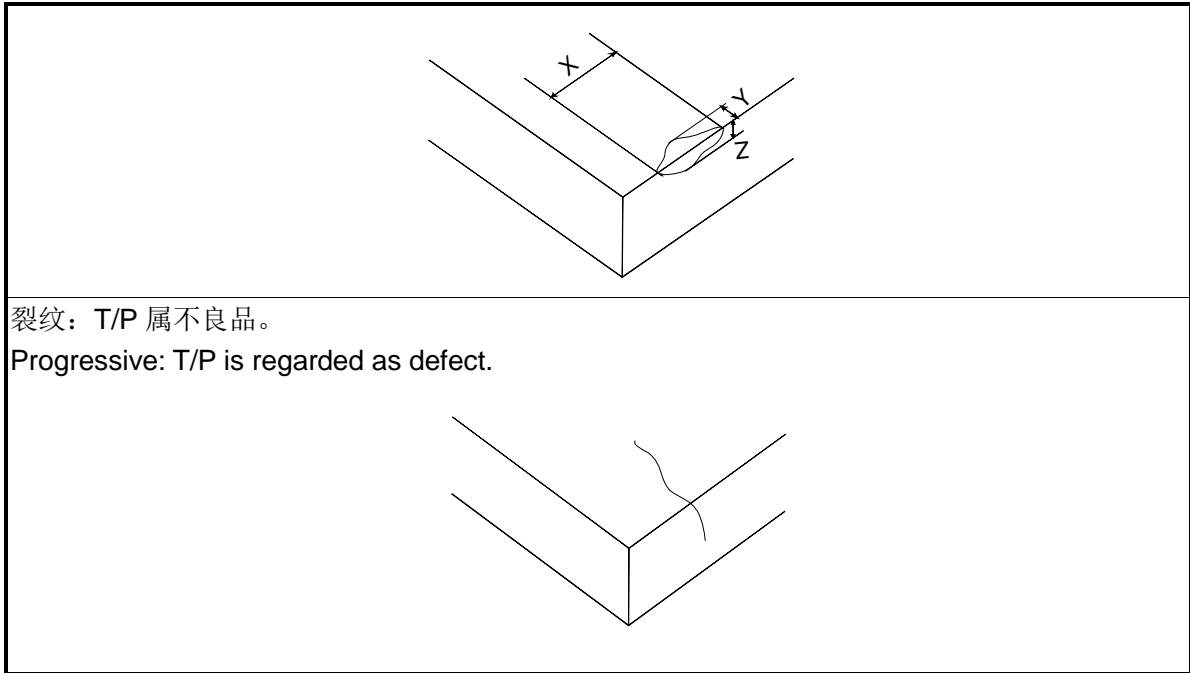


边崩缺： $X \leq 4.0\text{mm}$ ， $Y \leq 2.0\text{mm}$ 和 $Z \leq$ 玻璃厚度，可以忽略。

（注：若崩缺位严重影响产品的功能，T/P 属不良品。）

Side fragment: $X \leq 4.0\text{mm}$ ， $Y \leq 2.0\text{mm}$ and $Z \leq \text{GT}$ it is ignored.

（Remark: If the fault bit seriously affect the product's features, T / P is a bad product.）



5.7 其它:此承认书基本满足产品特性要求，若有其它问题可针对客户实际要求进行协商。

Other: This specification is considered as basic on the products, but details are subject to discussion upon individual customer requirement.

6 信赖性实验 Reliant test

●适用范围 Scope:

- 1) 以下触摸屏的信赖性测试应放在平板上，在非通电状态下进行。
- 1) The following touch screen reliant test should be carried out after placing the screen on the plate in non-power state
- 2) 以下触摸屏的信赖性测试应在标准环境（23℃±5℃、65%RH±10%RH 和 860-1060hPa）下进行，除非有单独说明。
- 2) The following touch screen reliant test should be carried out in standard environment(23℃±5℃、65%RH±10%RH 和 860-1060hPa),unless there is a separate note.

6.1 环境实验 Environment test

6.1.1 高温存储 Heat resistance

将产品放置在 80℃持续 240 小时，然后在常温常湿下放置 24 个小时后进行测试。产品满足“4.2 电器性能”、“4.3 机械性能”里的“操作压力”和“4.4 透光率”项目要求。

The requirements in “4.2 Electric characteristics”、“Operation force” of the item “4.3 Mechanical characteristics” and “4.4 Light transparency” shall be satisfied after exposing samples at 80℃ for 240h, and each item should be measured after exposing them in normal temperature and humidity for 24h.

6.1.2 低温存储 Cold resistance

将产品放置在-30℃持续 240 小时，然后在常温常湿下放置 24 个小时后进行测试。产品满足“4.2 电器性能”、“4.3 机械性能”里的“操作压力”和“4.4 透光率”项目要求。

The requirements in “4.2 Electric characteristics” 、 “Operation force” of the item “4.3 Mechanical characteristics” and “4.4 Light transparency” shall be satisfied after exposing samples at -30℃ for 240h, and each item should be measured after exposing them in normal temperature and humidity for 24h.

6.1.3 高温高湿存储 Temperature and Humidity resistance

将产品放置在60℃，90%RH持续240小时做一个循环，然后在常温常湿下放置24个小时后进行测试。产品满足“4.2电器性能”、“4.3 机械性能”里的“操作压力”和“4.4透光率”项目要求。

The requirements in “4.2 Electric characteristics” 、 “Operation force” of the item “4.3 Mechanical characteristics” and “4.4 Light transparency” shall be satisfied after exposing samples at 60℃,90 %RH for 240h by 1cycle,and each item should be measured after exposing them in normal temperature and humidity for 24h.

6.1.4 冷热冲击 Thermal shock

将产品放置在-30℃（30min）⇔ 80℃（30min）下做10个循环，然后待产品常温常湿下放置24个小时后，再取出进行测试。产品满足“4.2电器性能”、“4.3 机械性能”里的“操作压力”和“4.4透光率”项目要求。

The requirements in “4.2 Electric characteristics” 、 “Operation force” of the item “4.3 Mechanical characteristics” and “4.4 Light transparency” shall be satisfied after exposing samples at -30℃(30 min) ⇔80℃(30 min)by 10 cycles and each item should be measured after exposing them in taking out the samples normal temperature and humidity for 24 h. from a chamber.

6.2 耐久试验 Endurance Test

6.2.1 耐敲击 Tapping durability

使用φ2、60°的橡皮头，250g的力度、频率2次/秒来回敲击1百万次后，满足“4.2 电器性能”项目要求。（耐久试验可能造成产品表面轻微的划伤，但功能保持不变。）

Tapping more than 1 million times with 250g force and 2times/s frequency by φ2 rubber testing head and whose hardness is 60°.The requirements in item “4.2 Electric characteristics” shall be satisfied. (Durability test may cause surface slight scratch yet the function stays intact.)

6.2.2 耐久划线 Pen sliding durability

使用φ2 聚缩醛树脂笔、250g的力度、以速度为60mm/s在相同的位置（10-100mm）来回笔画10万次后，满足“4.2 电器性能”项目要求。（耐久试验可能造成产品表面轻微的划伤，但功能保持不变。）

Sliding more than 100,000 times with 250g force and 60mm/s frequency in the same place (10-100mm) by φ2 Polyacetal pen .The requirements in item “4.2 Electric characteristics” shall be satisfied. (Durability test may cause surface slight scratch yet the function stays intact.)

6.2.3 引线拉力测试 Flexible pattern heat seal peeling strength test:

X方向：1000g（水平方向180度剥离）

X: 1000g (peeling by 180°)

Y方向：500g（朝上方向90度剥离）

Y: 500g (peeling upward by 90°)

Z方向：150g（垂直于产品与引线方向剥离）

Z: 150g (peeling for being vertical with x and y direction)

备注：拉伸速度25 mm/min。 Note:speed 25mm/min.

6.2.4 引线耐弯曲测试 Flexible pattern bending resistance test

弯曲半径为 1mm 弯曲次数为 3 次或 3 次以上，满足“4.2 电器性能”项目要求。

Bending 3 times or more by bending radius R1mm.The requirements in the item “4.2 Electric characteristics” shall be satisfied.

6.2.5 引线耐插拔性 Flexible pattern resistance to inserting

至少 5 次，产品满足“4.2 电器性能”、“4.3 机械性能”里的“操作压力”和“4.4 透光率”项目要求。

at least 5 times,The requirements in “4.2 Electric characteristics”、“Operation force” of the item “4.3 Mechanical characteristics” and “4.4 Light transparency” shall be satisfied.

6.2.6 耐冲击试验 Impact resistance test

当用 130g, Φ 32mm 钢球从 50cm 的高度垂直跌落在产品表面中心一次，玻璃不会损坏。

When using 130g, Φ 32mm ball drop from 50cm height of the vertical surface of center in the product once the glass is not damaged.

6.2.7 耐静压性测试 Static load resistance test

使用拉压力计的平头测试头（直径为 15mm），以 10 mm/min 速度，对产品表面中心垂直施加 8-20kg/cm² 压力，确保玻璃不毁坏破裂。

Pressure gauge with flat pull test head (diameter 15mm), Speed 10 mm/min, Centers on the vertical Product surface put 8-20kg/cm² pressure to ensure destruction of the glass is not broken.

6.2.8 包装跌落测试 Package drop test

包装盒面积最大面从 50cm 高度跌落两次（正反面各一次），产品不破损。（注：此项目仅为一般测试，若客户有特殊要求，我们将针对不同厚度的产品进行测试）。

No damage to the product when the biggest side of package drops about 2 times from 50cm height (each in upper and bottom surface).

(Remark:This item is only common testing. Should our customer have special requirement, we could test according to different product.)

7 注意事项 Attention

7.1 储存 Storage

7.1.1 触摸屏必须被储存放置在如规格书所建议的有环境温度与湿度控制的区域内，勿与化学物品或酸碱物品接触，以免影响面板功能。。

7.1.2 不可将触摸屏直接曝晒在阳光下。

7.1.1 Touch panel should be stored under the environment temperature and humidity controlled as suggested, Away from chemicals as damage from acid and alkali could affect the touch panel.

7.1.2 Do not store a touch panel in direct sunlight.

7.2 清洁 Cleaning

- 7.2.1 若要清洁触控屏，请尽量避免使用诸如强酸或强碱之类的任何化学溶剂。
- 7.2.2 若要清洁触控面板，我们建议使用中性的清洁剂或异丙醇和酒精等等。
- 7.2.1 Prevent using any kind of the chemical solvent, acidic or alkali solution when cleaning.
- 7.2.2 Neutral detergent or isopropyl alcohol was suggested if the panel is cleaned.

7.3 取放与组装 Handling and Assembly

- 7.3.1 拿取时请捧住玻璃边缘，并将 Film 面朝上，以避免 Film 的刮伤或脏污。
- 7.3.2 触控屏在组装时，请不要过度施力导致玻璃表面发生诸如变形或扭曲等形变现象的发生。
- 7.3.3 对于 FPC 或 COF 的作业时，过度的拉力或绷紧作业是必须被禁止与避免的。
- 7.3.1 Hold by the glass edge of the product to avoid sticking dirt or scratches on the film.
- 7.3.2 Do not apply rough force such as bending or twisting to the touch panel during assembly.
- 7.3.3 Excessive force or strain to the panel or FPC/COF is prohibited.

7.4 操作 Operation

- 7.4.1 触控面板必须在稳定的环境状况下被使用，环境状态的突然急遽变化有可能会产生导致触控面板的机能性失效的发生。
- 7.4.2 为确保触控面板的功能得以稳定有效的发挥呈现，请务必确认系统的接地回路与电源供应器的接地回路被正确的衔接与执行（与大地作共地的接地回路是最佳的设计）。
- 7.4.3 触控面板在操作的过程中，请勿任意插拔触控面板与系统端的界面连接器。
- 7.4.4 触控面板在操作的过程中，请务必禁止与避免使用任何尖锐或硬质物体去敲击碰触。
- 7.4.1 The panel must be operated in a steady environment, the abrupt change of the environment conditions may cause the malfunction of the panel.
- 7.4.2 In order to guarantee all functions of a touch panel stable, please make sure that system is grounded or a power adapter is connected correctly to ground loop (Connection to earth ground is suggested).
- 7.4.3 Do not pull the interface connector in or out while the touch panel is operating.
- 7.4.4 Any sharp edged or hard objects are interdiction to hitting when touch panel operation.

8 附件 Attachment

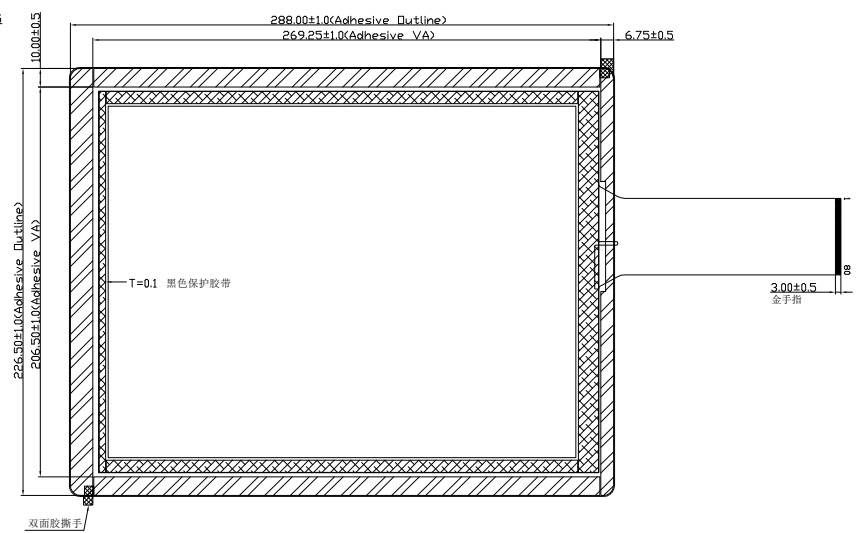
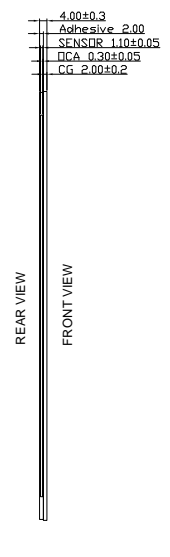
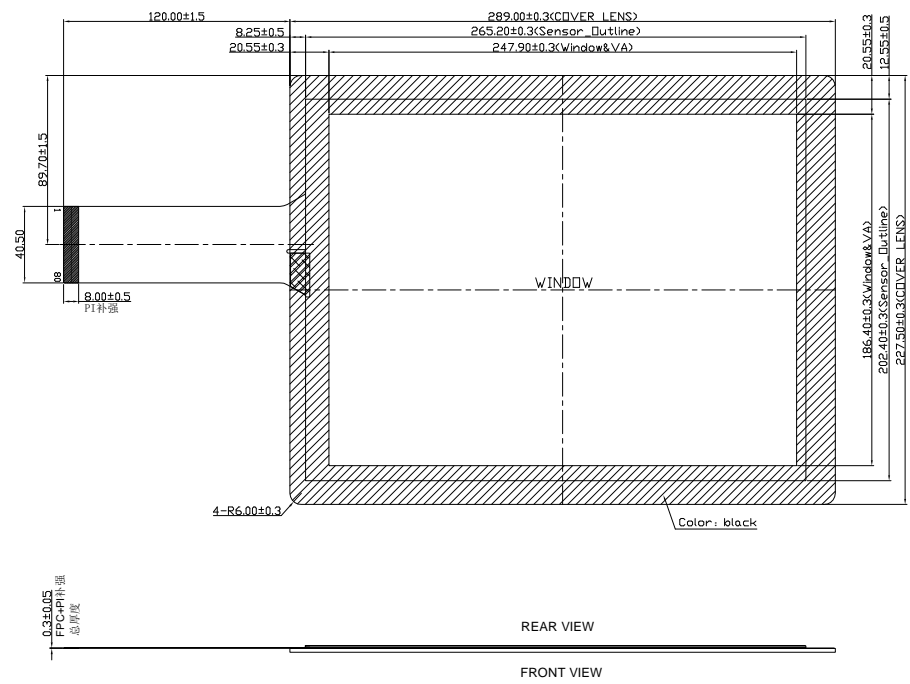
8.1 工程图 Engineering drawing

8		7		6		5		4		3		2		1	
MARK	HISTORY					NAME	DATE	MARK	HISTORY					NAME	DATE
△								△							
△								△							
△								△							
△								△							
△								△							

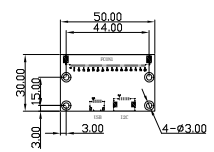
FRONT VIEW

SIDE VIEW

REAR VIEW



- Notes:
- Operating Temperature: $-20^{\circ}\text{C} \sim +70^{\circ}\text{C}$;
Storage Temperature: $-30^{\circ}\text{C} \sim +80^{\circ}\text{C}$.
 - Hardness $\geq 7\text{H}$.
 - Transparency $\geq 83\%$.
 - Unspecified Tolerance: ± 0.3 .
 - ROHS Compliance.



PIN ASSIGNMENT	
USB(CON4)	
Pin	Name
1	VDD
2	D-
3	D+
4	GND
5	GND

HCT1212A-AGA				Customer Part No.	SHEET	UNIT	SCALE	ver.1
				12.1 inch	A4	mm	1:1	
DESIGN	murphy	DATE	2017.11.08	深圳市恒诚泰达电子有限公司				
CHECK		DATE						

规 格 书

PRODUCT SPECIFICATION FOR INFORMATION

客户名称

Customer Name: _____

产品型号

Customer Type: TPC80W46

机种编号

Model NO.: TPC1212SD

日期

Date: 2017-8-23

设计 Design by	核准 Check by	客户确认 Customer approval
朱洁婷	何鸿飞	
2017-8-23	2017-8-23	

1. 支持操作系统 Supports OS:

Windows(Embedded/CE/XP/2000/Vista/7/8/10)

Linux

Android

MAC

QNX

2. 规格 Specifications

电路板尺寸 Circuit Board Dimension	50mm × 30mm
板层数 Number of Layers	4 Layers
板厚 Thickness	1.6mm
通道数 Channels of Panel	(Max) RX: 44 TX: 28
输入电压 Input Voltage	3.5V~5.5V, Typical 5V
使用温度 Operating Temperature	-20°C - 70°C
储藏温度 Storage Temperature	-30°C - 80°C
相对湿度 Relative Humidity	95% at 60 °C, RH Non-condensing
通过接口 Interface	USB:1.1 Full Speed / I2C
最大分辨率 Max Resolution	4096*4096
精度 Precision	≤2.5mm
两点分辨距离 Two points separate distance	≥15mm(pitch of finger center)
触摸点数 Touch point	1~10 points
功耗 Power consumption(mA)	Active Mode:About 50mA
报点率 Report rate(points/sec)	≥ 120Hz
反应时间 Response time	<15ms

3. 引脚定义 PIN ASSIGNMENT:

FCON1				JP1 USB		JP2 IIC	
Pin	Name	Pin	Name	Pin	Name	Pin	Name
1	Shielding(TX0)	33	GND	1	5V	1	RST
2~29	TX1-TX28	34	Shielding(RX0)	2	D-	2	INT
30	NC	35~78	RX1-RX44	3	D+	3	SCL
31	Shielding(TX29)	79	NC	4	GND	4	SDA
32	GND	80	Shielding(RX45)	5	GND	5	3.3V
						6	GND



4. 图纸 Drawing:

	8	7	6	5	4	3	2	1
标识	更改内容	更改内容	更改内容	签名	日期	标识	更改内容	更改内容
△		修改定义		CYJ	2017.08.21	△		
△		修改定位孔为φ3.5		ZJT	2017.08.23	△		
△						△		
△						△		
△						△		

FRONT VIEW

REAR VIEW

工艺要求:

- 1、使用4层板工艺生产
- 2、板厚1.6mm
- 3、喷锡工艺, 使用建滔KB料
- 4、电路板要经过测试后才出货
- 5、元件开孔尺寸按PCB文件制作
- 6、未注公差±0.5
- 7、符合“ROHS”与“REACH”标准

PIN ASSIGNMENT							
△ FCON1				JP1 USB		JP2 IIC	
Pin	Name	Pin	Name	Pin	Name	Pin	Name
1	Shielding(TX0)	33	GND	1	5V	1	RST
2-29	TX1-TX28	34	Shielding(RX0)	2	D-	2	INT
30	NC	35-78	RX1-RX44	3	D+	3	SCL
31	Shielding(TX29)	79	NC	4	GND	4	SDA
32	GND	80	Shielding(RX45)	5	GND	5	3.3V
						6	GND

控制板工程图

纸张	A4	比例	VER. 1
共1张	第1张	mm	1:1

设计	ZJT	日期	2017.08.23
审核	HIF	日期	2017.08.23