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## 12.1 inch Projected Capacitive Touch Panel Specification

Customer	
Product Description	12.1 inch Projective Capacitive Touch Panel
Application Lever	Mass-Production Used
Apply Date	2018.05.15
Spec.Version	1.0
Part Number	XG-12.1PCA

### Approved By Customer

(Customer Part)	
(Checked By)	
(Approved By)	

(Proved By)	(Checked By)	(Prepared By)

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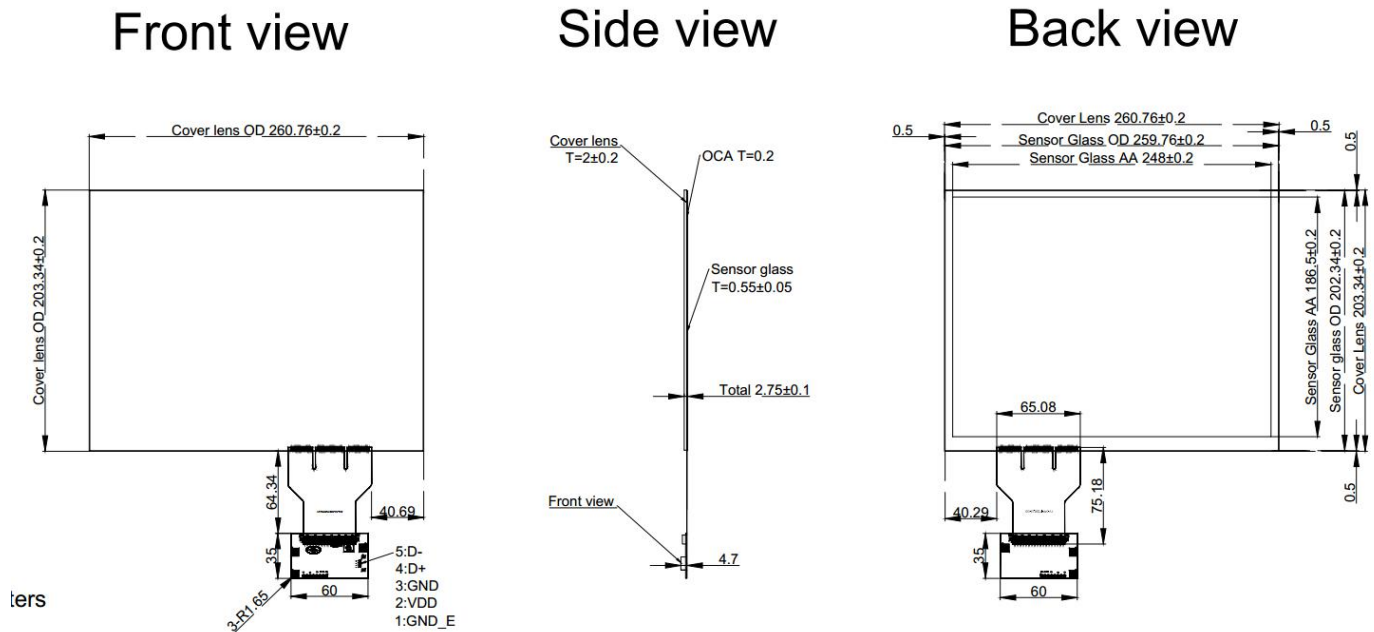
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## 1.Document History

[illegible]

## 2. Product Specification

### 2.1 Touch Panel Module Drawing



### 2.3 Overview

XG-12.1PCA is a Capacitive Touch Panel module with multi touch technology. General specifications are summarized in the following table:

Item	Specification
Screen Diagonal /inch	12.1 (4:3)
Structures	Glass/Glass
Outline Dimension /mm	260.76(W)*203.34(L) ±0.2mm
Active area/mm	248(W)*186.5(L)±0.2mm
Module View Area /mm	248(W)*186.5(L)±0.2mm
Total Thickness /mm	2.75±0.2mm (Cover_2±0.2mm & Sensor_0.55mm&OCA_0.2mm)

## 3. Characteristics of Touch Panel

### 3.1 Product's Characteristics

Item	Specification
Operation Conditions	-30°C~+85°C at Min 20% to Max 90%RH
Storage Conditions	-40°C~+125°C at Min 20% to Max 90%RH
Electrostatic Discharge (non operation)	Contact: ±4kv,3 times/1 point,1 time/1 sec, Total 3 point Air: ±8kv,3 times/1 point,1 time/1 sec, Total 3 point

### 3.2 Optical Property

Item	Specification
Reflectivity	85%
Glossiness	70~90
Haze	3%~5%
Granularity	0.14%↓

Note: Light source C-light (Measure point: Center of panel)

### 3.3 Electrical Characteristics

(TA=40 to +70°CRegin=5.0V unless otherwise specified)

Interface to Host/Master	USB,4 wire,2.0 Full speed
Supply Voltage	USB 5VDC
Oscillator Frequency	12MHz
Support Points	Multi-finger
Min. Report Rate	100points/sec(Target,Need formal test report)

### 3.4 Pin Assignments

USB	Name	Type	Description
1	GND_E	GND	Earth
2	VDD	USB 5V DC	Supply Voltage
3	GND	GND	Ground
4	DP	Signal	USB D+ Signal
5	DM	Signal	USB D-Signal

## 4. Reliability Specification

### 4.1 Environment Test

	Item	Standard	Testing Method
1	High Temperature & High Humidity Storage Test	1. Without Open/Short 2. Resistance $\pm 10\%$ 3. Allowed to be normalized for 4hr	60°C 90% R.H. 240 HR
2	High Temperature Test		85°C 240 HR
3	Low Temperature test		-30°C 240 H R
4	Thermal Shock Test		-30°C ~85°C (30min/cycle) 50 cycles

Note: Sample Amounts 5pcs with each item

## 5. Physical Dimension and Mechanical Characteristics

### 5.1 Appearance Inspection

Item	Condition	Frequency of testing
Surface Hardness	Using 6H pencil on equipment rack to draw 5 lines that on surface of panel (1N/45 degree), no damage.	Check the first piece
Warpage	$\leq \text{Length} \times 0.1\%$ , Marble Desk, Scale measurement, Length warpage height $\leq 0.52\text{mm}$ , Width warpage height $\leq 0.32\text{mm}$	
FPC Reliability	Direction of peeling off: 90, Strength $\geq 500\text{gf/cm}$ , no damage Speed of Pulling out: 50mm/min, Strength $\geq 500\text{gf/cm}$ , no damage	

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1. Purpose : The inspection standard below is to ensure the product quality
  2. Applicable Product : Only applicable to the inspection of Capacitive touch panel

### 3. Inspection Example

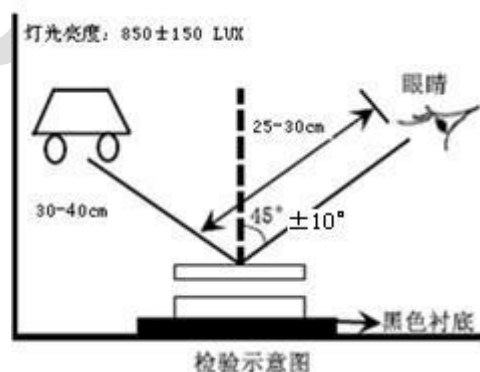
- 3.1 This standard
- 3.2 Customer's requirement
- 3.3 Drawing
- 3.4 Sample approval document
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### 4. Inspection Enviroment

- 4.1 Illumination : 700~1000 LUX
- 4.2 Temperature :  $22 \pm 2^{\circ}\text{C}$
- 4.3 Humidity :  $50 \pm 10\% \text{ RH}$
- 4.4 Cleaniless: 1000-10000 Grade

### 6. Inspection Method & Condition :

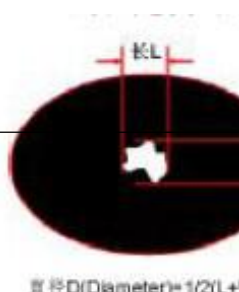
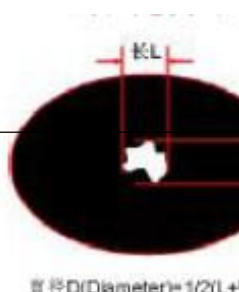
- 5.1 Inspection to be carried out under required condition.
- 5.2 Inspector must has vision at least of 1.0, The distance should be 25cm ~ 30cm with black paper on the background ,Inspection time is 5-10 seconds/piece
- 5.3 Dust-free gloves must be putted on when inspecting
- 5.4 Inspection Angle: Reflex



### 7. Defect Definition

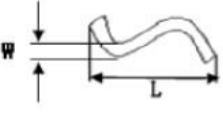
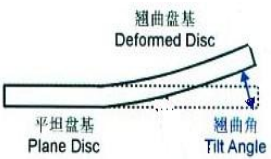
- 6.1 Dot, Wire Defect (Convex-concave point, Air Bubble, Stain, Scratch, Fur), If the length of the dot defect is 2.5 time of width, Then it's regarded as scratch or the linear defect ,Dot Dimension calculation:  $(X+Y)/2$

## 7. Touch panel quality inspection standard

Inspection items and quantity	Check content	criterion for judging	graphic
1 Size (5PCS)	According to the specifications inspect key size	Some sizes's drawing and tolerance	According the specifications inspect 
2 chipping /collapses the angle ( sample inspect 1 time normally Sampling plan	side/the back/diamond angle	1. length (X) $\leq 0.3\text{mm}$ , width (Y) $\leq 0.25\text{mm}$ depth (Z) $\leq 0.3\text{mm}$ ; OK; 2. One side allow one; 3. Frontagechipping/collapses the angle not allow 4. Edge crack : not allow;	
3 Non print area point defect ( sample inspect 1 time normally Sampling plan )	white dot 、blackspot 、eyewinker	1. $\Phi \leq 0.2$ , Ignore (Can not intensive) 2. 1 $0.20 \leq D \leq 0.4 \text{ mm}$ , $N \leq 3$ , gap greater than 20mm; 2 $0.4 \leq D \leq 0.5 \text{ mm}$ , $N \leq 2$ ; gap greater than 20mm 4. $D > 0.5\text{mm}$ ; NG;	

Inspection items and quantity	Check content	criterion for judging	graphic
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4	Non print area line defect ( sample inspect 1 time normally Sampling plan )	scuffing 、 soft flocks 、 knitting wool	<p>1. <math>W \leq 0.05\text{mm}</math>, OK; (Can not intensive)</p> <p>2. <math>0.05\text{mm} \leq W \leq 0.10\text{mm}</math> , <math>L \leq 15\text{mm}</math> (knitting wool <math>L \leq 15\text{mm}</math>) <math>N \leq 4</math>;</p> <p>3. <math>0.10\text{mm} \leq W \leq 0.20\text{mm}</math> , <math>L \leq 15\text{mm}</math> (knitting wool <math>L \leq 15\text{mm}</math>) <math>N \leq 2</math>;</p> <p>4. <math>W &gt; 0.20\text{mm}</math> and <math>L &gt; 15\text{mm}</math> ( knitting wool <math>L &gt; 15\text{mm}</math>) not allow;</p> <p>Remarks: Scratch without depth</p>	
5	silk-screen ( sample inspect 1 time normally Sampling plan )	pinhole 、 picot edge 、 point defect 、 Supplementary ink	<p>1. Pinhole 、 punctiform defect:</p> <p>a. <math>D \leq 0.20\text{mm}</math>,</p> <p>b. <math>D \leq 0.30\text{mm}</math> , <math>N \leq 2</math> , distance <math>&gt; 20\text{mm}</math></p> <p>2. Print out ( picot edge ) <math>S \leq 0.03\text{mm}</math>;</p> <p>3. Water in the printing/White fog /smudge ( won't scrub off ) and fingerprint in the printing/oil stain /fold : not allow;</p> <p>4. Ink overflow: Does not affect the appearance of the assembly can be accepted;</p>	
6	Warpage ( sample inspect 1 time normally Sampling plan )	The glass place on test platform and outstretch, use a feeler test the maximum gap along the edges	Warpage $\leq 0.4\text{mm}$ ;	

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### Testing environment 、 condition and method、 divide visual area:

1. Temperature : 20-25°C;
2. Humidity: 60-70%;
3. Light intensity: 800-1200 (Surrounded by black background ) ;
4. Inspect angle : Horizontal orientation is 30-90°, keep 30+/-5cm with object to inspect ;
5. Inspect time : 12-15S;

