



**Preliminary Specifications**

**Final Specifications**

<b>Model Name</b>	<b>I121FGB01.0</b>
<b>Note</b>	<b>Touch Module Specification</b>

<b>Customer</b>	<b>Date</b>
<b>Checked &amp; Approved by</b>	<b>Date</b>
<b>Note: This Specification is subject to change without notice.</b>	

<b>Approved by</b>	<b>Date</b>
<b>Prepared by</b>	<b>Date</b>
<b>Audio-Video Business Unit AU Optronics corporation</b>	



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# **1. Handling Precautions**

- 1) Since front surface is easily damaged, pay attention not to scratch it.
- 2) Wipe off water drop immediately. Long contact with water may cause discoloration or spots.
- 3) When the sensor surface is soiled, wipe it with absorbent cotton or other soft cloth.
- 4) Since the sensor is made of glass, it may break or crack if dropped or bumped on hard surface.
- 5) Since conductive materials are used in this sensor, take care of static electricity and insure human earth when handling.
- 6) Please touch with the finger or electric pen during the capacitive touch screen operation.
- 7) The purpose of product protective film is to prevent the damage for product during the cargo transportation. Therefore the dirty and scratch on the outer surface of protective film is acceptable. We also strongly recommend that product protective film can not be used in customer process. We recommend removing this product protective film during cosmetic inspection process.
- 8) Strongly recommend customer to remove the protective film, cleaning and visual inspection before assembly, and then do the following assembly. Don't use the peeled off protective film again, because the peeled off protective film already has been contaminated by operator glove stain or user fingerprint stain.
- 9) Before customer uses our touch panel product for cosmetic inspection , lamination or assembly, strongly recommend customer or user to remove the protective film completely, then use the clean room level specific dry clean cloth (or clean wiper or cotton swab) and cleaning solvent (IPA or Ethanol) to clean the removable surface dirty (not Glue Residue). Of course, user must wear the clean glove and necessary clean dress. The product surface clean handling procedure is also very critical that AUO could provide AUO effective cleaning process experience sharing to customer. After effective surface cleaning, customer can start the cosmetic inspection and suitable dry clean cloth re-cleaning for some dust or water stain. Customer must confirm that there is no any new coming particle, dirty, dust, water stain or user glove fingerprint stain from customer process on the product surface after cleaning. Finally, customer can start to laminate or assemble product.

## 2. General Specification

I121FGB01.0 is a Projected Capacitive Touch Panel with USB interface to support and compatible with single touch on WinXP O/S, and multi-touch on Win8 O/S system.

### 2.1 Features

Item		Specifications
Type		Projected Capacitive Touch Panel
Structure		Glass / Glass
Panel Size		12.1 inch
Total Thickness		2.65mm ± 0.15 mm (Cover_1.8mm, sensor_0.7mm & OCR_0.15mm)
Input Mode		Multi Finger
Temperature Range	Operating	-20°C ~ + 70 °C
	Storage	-30°C ~ + 80 °C

### 2.2 Touch Dimensions

Item		Specifications
Cover Lens	O.D.	315.40 x 263.63 mm
	Thickness	1.8 mm
C/L Visual Area		245.76mm * 184.32 mm
Sensor Glass	O.D.	264.76 x 203.32 mm
	Thickness	0.7 mm
TP Active Area		248.875 mm * 187.397 mm
Total Weight		TBD (max.)

## 2.3 Touch Characteristics

Item	Specifications
Substrate Material	SDL CS Glass
Chemical Strength	$\geq 200$ mpa
Surface Hardness	$\geq 7H$
Interface	USB 1.1 full speed
Touch Resolution	Same with display resolution
Single / Multi-touch Accuracy	Center:1mm Edge 1.5mm
Linearity	Center +/-1mm Edge:+-1.5mm
The smallest distance between 2 points	13mm
Channel (X * Y)	51 * 39
Report Rate (points /sec)	>100Hz
Power Consumption	TBD
Operating System	Support windows 7, Win8 & Android.

Note1. Driver is required in Win7 & WinXP & Linux & Android

## 2.4 Optical Characteristics

Item	Specifications
Transmittance (%)	85% +/- 3%
AG coating	NA

Note: Optical specification is measured:

a. in the dark room, and ambient temperature = 25°C

### 3. Electrical Specification

#### 3.1 Electrical Characteristics

Item		Min.	Typ.	Max.	Unit	Remark
Power Supply		3	3.3	3.6	Voltage	
Power Supply Current	Normal Operation Mode					
	Idle Mode					
	Sleep Mode					

#### 3.2 Touch Driver

Name / Designation	TP controller
Manufacturer	eGalax_eMPIA Technology Inc.
Type / Part Number	EXC- 3188

#### 3.3 Pin Assignment

Pin#	Symbol	Signal Name
1	VCC	Power 5V
2	D-	USB D-
3	D+	USB D+
4	GND	Ground
5	GND	Ground

## 4. Test Criteria

### 4.1 Reliability

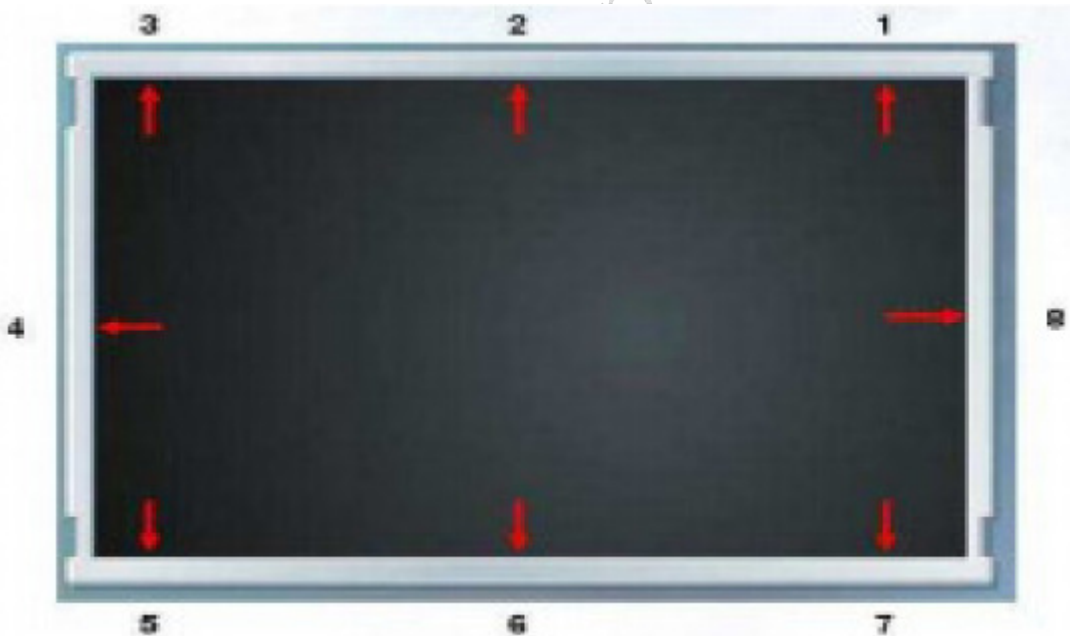
No	Item	Condition	
1	High temp High humidity Storage	60°C, 90% RH , 240hrs.	Note1
2	Low Temperature Storage	-30°C, 240hrs.	
3	High temperature Storage	80°C, 240hrs.	
4	Thermal shock	-30 °C/30 min, 80 °C /30 min, 100cycles	
5	ESD	Contact Discharge: ± 8KV, 150pF(330Ω ) 1sec, 8 points, 25 times/ point Air Discharge: ± 15KV, 150pF(330Ω ) 1sec, 8 points, 25 times/ point	Note 2

Note1.

- No premanent cosmetic damage after test
- No functional failure after test
- No extremelty loss of anti-blocking particals
- Need OM or 2.5D inspection after test

Note2.

According to EN61000-4-2, ESD class B: Some performance degradation allowed. No data lost, Self-recoverable. No hardware failures.



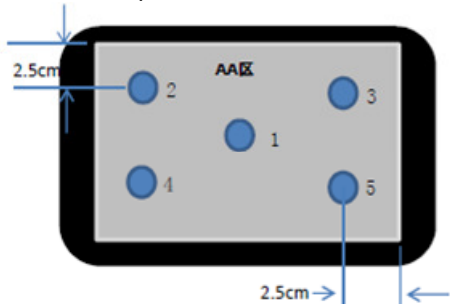


## 4.2 Mechanical

Items		Condition	
Touch panel	Ball Drop Test	500g /40 cm	Note1
	Hardness	7H	Loading: 500g, Position: VA area of test sample
FPC	Direct Pulling Test	500g, 90°, 25mm/min	Note2

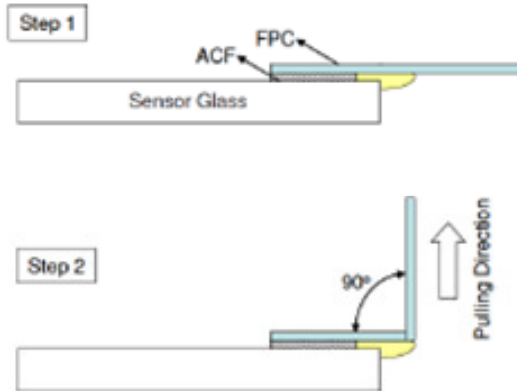
Note1.

The ball drop test illustration is showed as follow:



Note2.

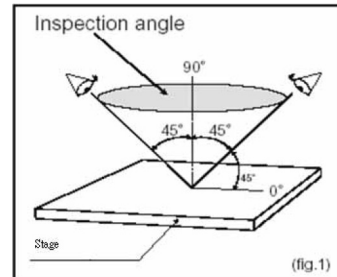
The FPC test illustration is showed as follow:



## 5. Cosmetic Specification

Defect Item and definition	
Defects count method 、 number and distance between defects	
<b>A. Linear defects scale by the length / width</b>	
Size	Pass Criteria
$L \leq 5\text{mm}$ or $W \leq 0.1\text{mm}$	Ignore
$5\text{mm} < L \leq 10\text{mm}$ or $0.1\text{mm} < W \leq 0.2\text{mm}$	$N \leq 5$
$L > 10\text{mm}$ or $W > 0.2\text{mm}$	Not Allowed
* Linear defects include Scratch / Line shape defect ( Stain, Dirt, Dent, Foreign material)	
<b>B. Dot defects is counted in Active Area only, and scaled by diameter “D” as below.</b>	
Size	Acceptable Q'TY
$D \leq 0.4\text{mm}$	Ignore
$0.4\text{mm} < D \leq 0.8\text{mm}$	$N \leq 5$
$D > 0.8\text{mm}$	Not Allowed
<b>C. BM pin hole</b>	
Size	Acceptable Q'TY
$D \leq 0.1\text{mm}$	Ignore
$0.1\text{mm} < D \leq 0.2\text{mm}$	$N \leq 2$ (distance $\geq 10\text{mm}$ )
$D > 0.2\text{mm}$	Not Allowed
Inspection Enviroment	

- A. The luminance in appearance detecting should be 1200LUX, and the luminance in electronical detecting should be between 800LUX.
- B. The detecting distance should be 30cm +/-5cm.
- C. No other objects and raised appearance on the surface.
- D. Be inspected under general daylight lamp.
- E. Inspection view-angle:



**Glass crack**

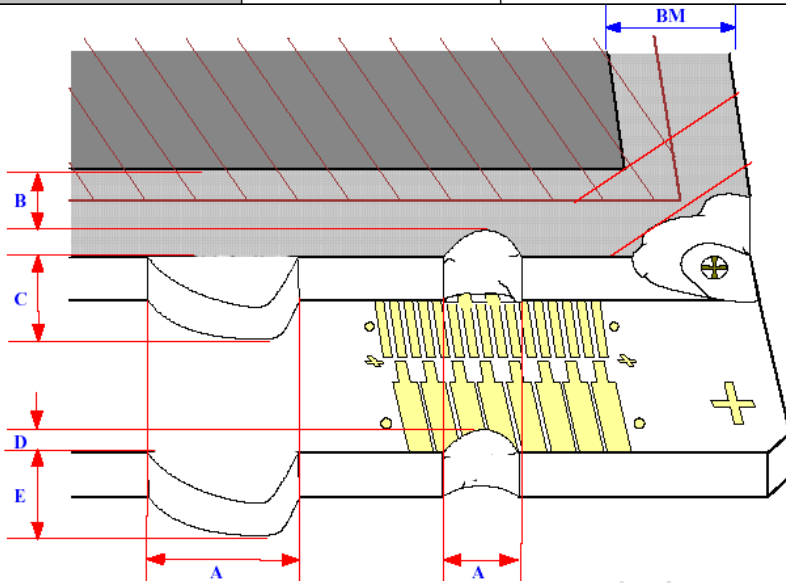
**Glass crack**



-No glass cracks of any kind allowed (including creeping cracks)

**Glass Chipping**

	Judge item	Inspection specification
Glass	Wire (on array)	No damaged $\leq 1/3$ lead length of efficient circuit
	Edge	No extended crack
		Thickness of broken area: ignored (Fig.3)
		Width of broken area: ignored (A of Fig.4)
		Length of broken area: $\leq 2.0$ mm (D of Fig.4)
		Length from BM to broken edge: $\geq 2$ mm (B of Fig.4)
		Protrusion (Burr) of glass: $\leq 0.3$ mm (C, E parts of Fig.4)







TBD

## 7.2 Shipping label drawing

TBD

For reference purposes only (Promate)