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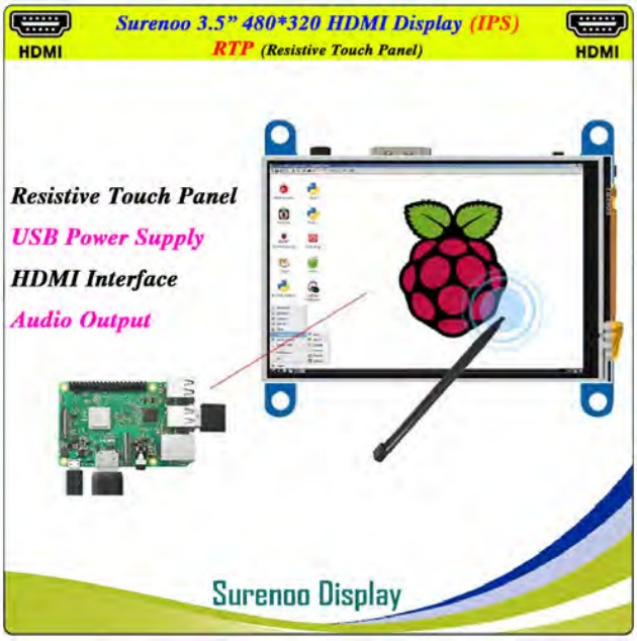
Surenoo SHD035A-480320 HDMI Display Module



Product Features

- **Model No.:** SHD035A-480320
- **Display Type:** 3.5 inch TFT Normally Black IPS
- **Resolution:** 320*RGB*480
- **Color:** 262K
- **View Angle:** ALL VIEW
- **IC Driver IC:** ILI9486
- **Interface Types:** HDMI, USB
- **Connection Mode:** HDMI
- **Backlight:** 6 LEDs
- **Power Consumption:** 450mA @ 5.0V
- **Brightness:** 500cd/m²
- **Touch Panel:** USB Resistive Touch

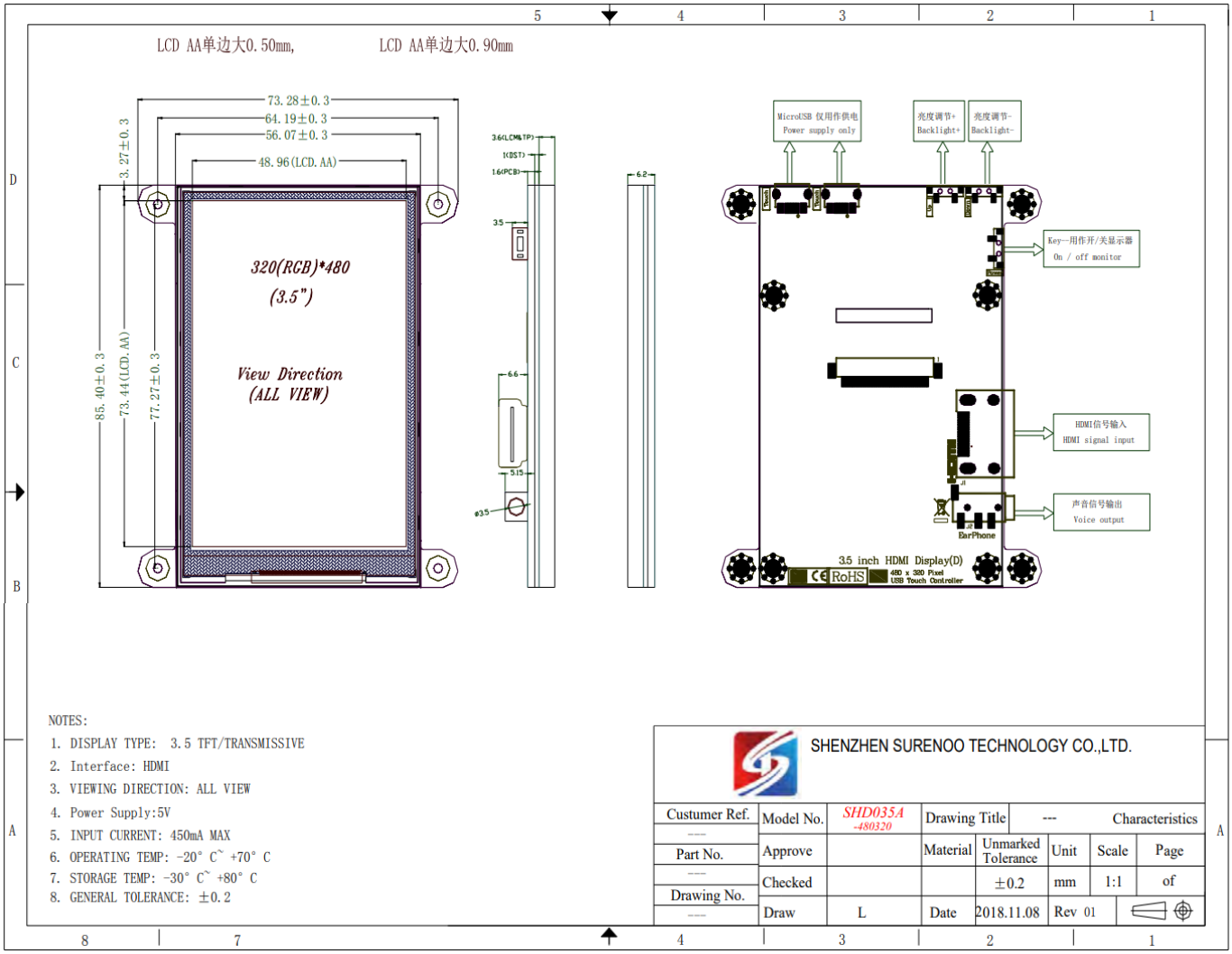
Physical Specifications

Item	Specification	Units
Outline Dimension	60.33*85.4*19.6	mm
Active Area Dimension	49.76*74.65	mm
Resolution Dimension	320*3RGB*480	/

Pixel Pitch Dimension	51*153	um
Structure Type	COG+FPC+BL	/

Note: COG: Chip On Glass (LCD+IC); BL: Backlight; TP: Touch Panel

Product Drawings



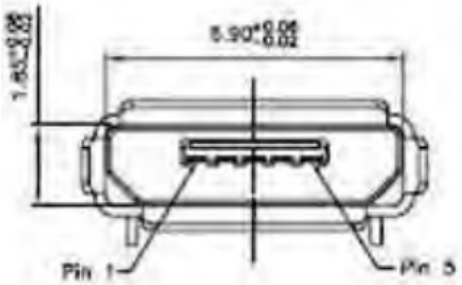
The Interface Definition HDMI

HDMI 信号引脚定义

引脚	信号	引脚	信号	引脚	信号
1	数据2+	2	数据2 屏蔽	3	数据2-
4	数据1+	5	数据1 屏蔽	6	数据1-
7	数据0+	8	数据0 屏蔽	9	数据0-
10	时钟+	11	时钟屏蔽	12	时钟-
13	CEC	14	保留	15	SCL
16	SDA	17	DDC/CEC地	18	+5V电源
19	热插拔检测				

数据通道 屏蔽 即插即用 时钟

RTP(USB)&Power supply



micro usb

引脚	功能	颜色	备注
1	V Bus		电源正5V
2	D-		
3	D+		
4			
5	GND		地

Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit
Supply voltage for logic	Vcc	-0.3	5.0	V

Input voltage for logic	VIN	-0.5	Vcc +0.3	V
Operating temperature	TOP	-20	+70	°C
Storage temperature	TST	-30	+80	°C

Electrical Characteristics

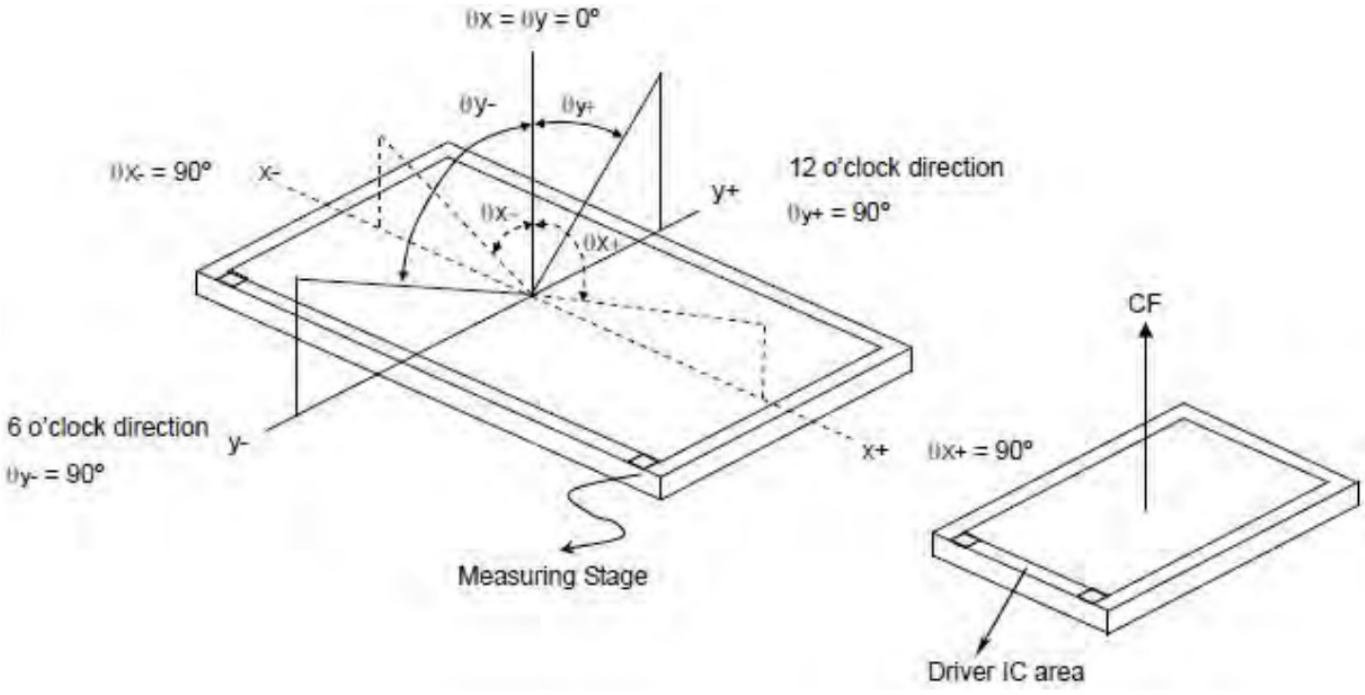
Item	Symbol	Min	Typ	Max	Unit
Supply voltage for logic	Vcc	4.5	5.0	5.5	V
Input voltage	VIL	-0.3	–	0.2 VDD	V
Input leakage current	ILKG	–	–	–	A
LED Forward voltage	Vf	–	–	–	V

Optical Characteristics

ITEM	SYMBOL	CONDITIONS	(SPECIFICATIONS)			UNIT	NOTE
			MIN	TYP	MAX		
Brightness	B		—	500	—	2 Cd.cm	
Contrast Ratio	CR		700	800	—	—	
Respons Time	Tr		—	30	60	Msec	
	Tf		—	30	60		
	XR			0.655			

CIE Color coordinate	Red	YR	Viewing normal angle	-0.02	0.332	+0.02		
	Green	XG			0.314			
		YG			0.574			
	Blue	XB			0.137			
		YB			0.135			
	White	XW			0.305			
		YW			0.341			
Viewing Angle	Hor.	*q X +*	Center C R>=10	—	80	—	Deg.	
		q X –		—	80	—		
	Ver.	*qY +*		—	80	—		
		qY –		—	80	—		
Uniformity	Un			—	81	—	%	

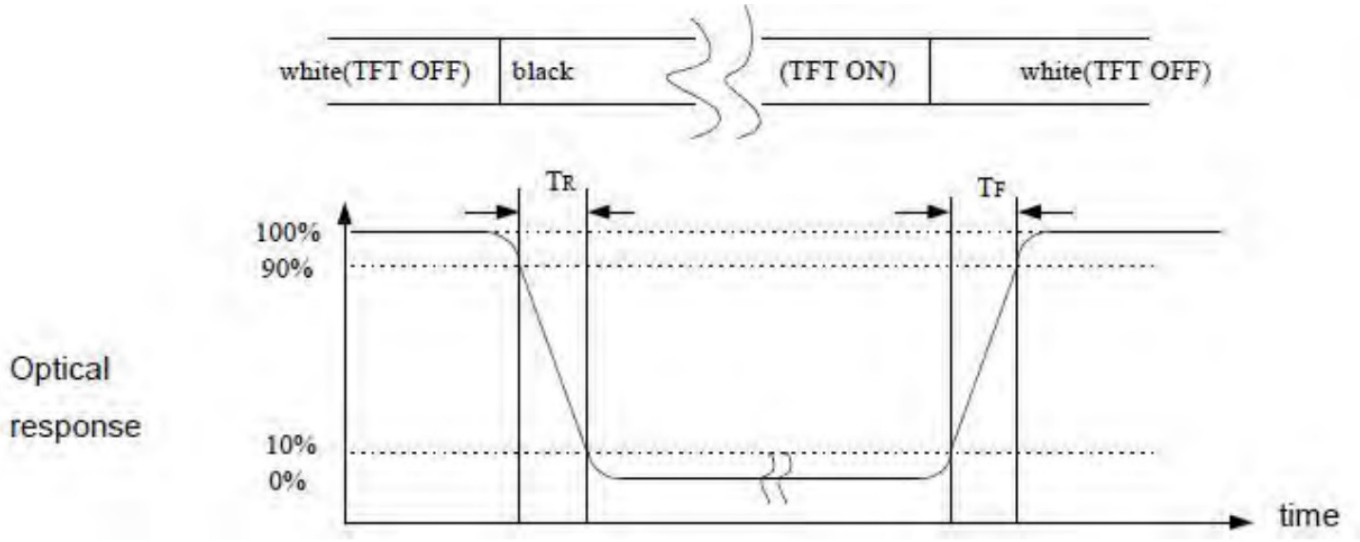
Note 1: Definition of Viewing Angle:



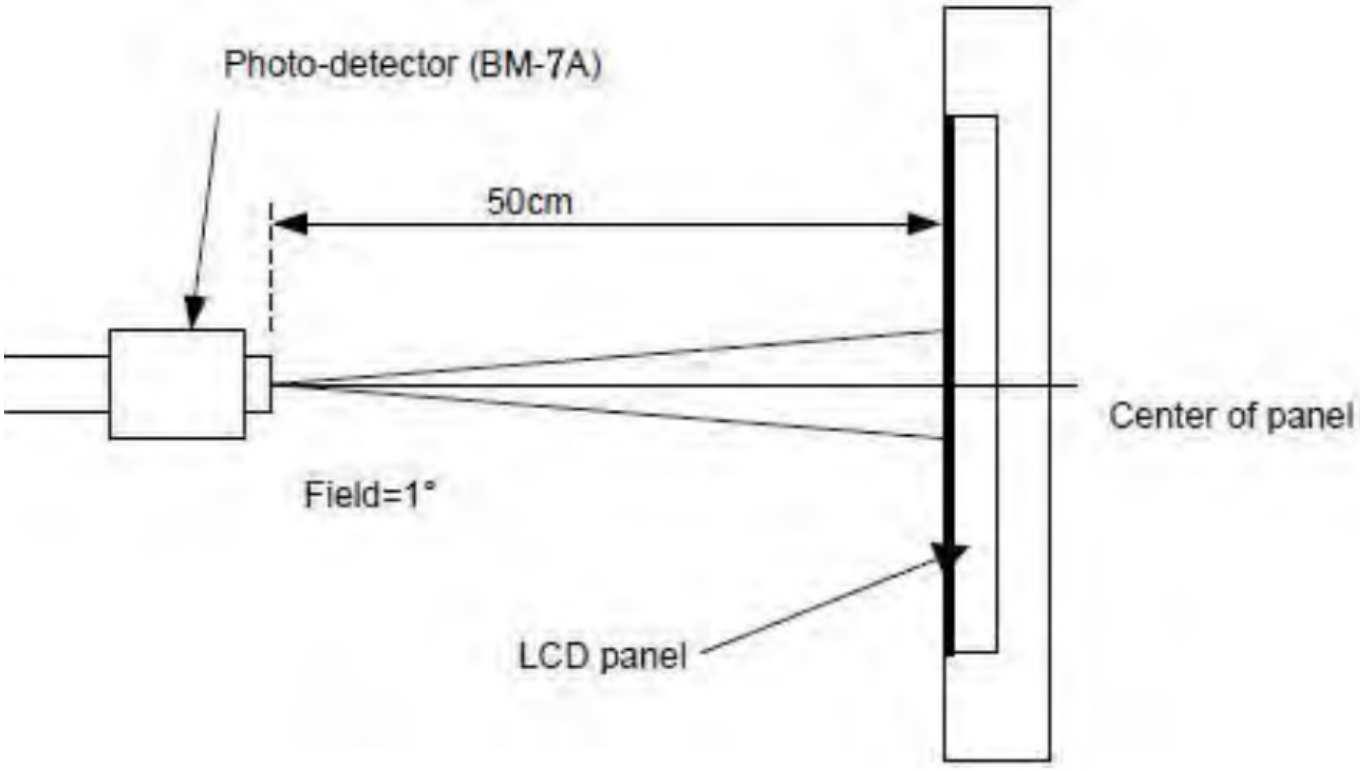
Note 2: Definition of contrast ratio CR:

$$CR = \frac{\text{Brightness of non-selected dots (white)}}{\text{Brightness of selected dots (black)}}$$

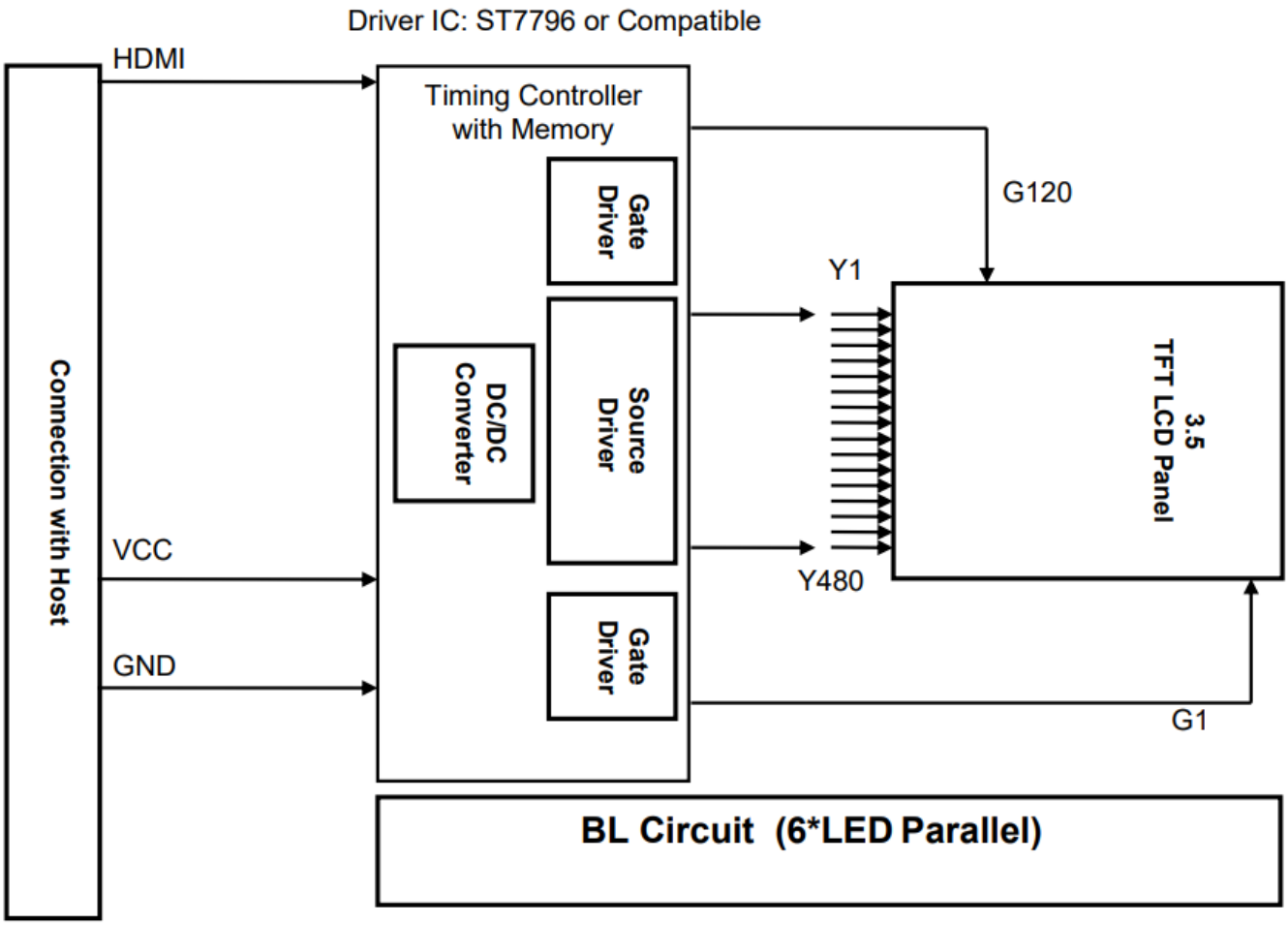
Note 3:Definition of response time (TR, TF)



Note 4: Definition of optical measurement setup



Block Diagram



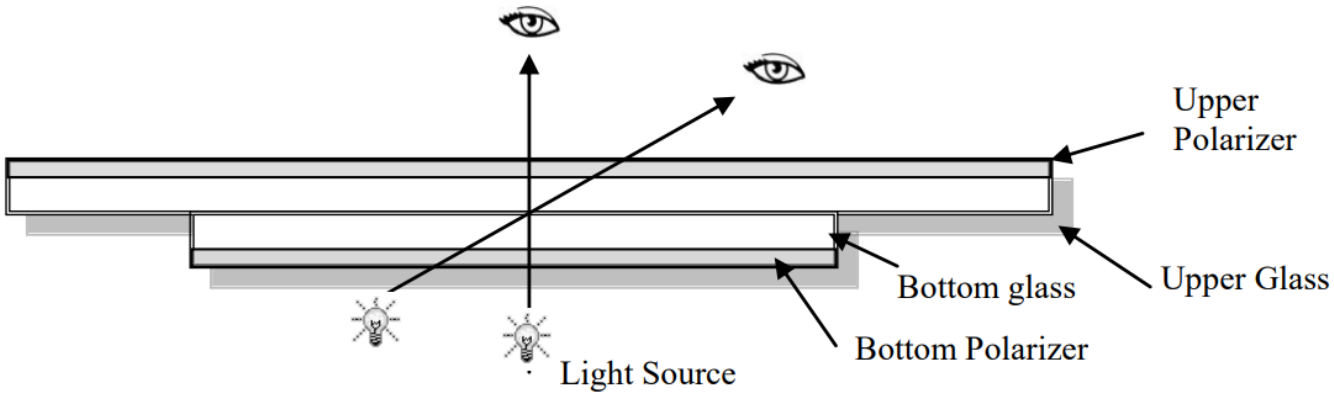
LCM Quality Criteria

Visual & Function Inspection Standard

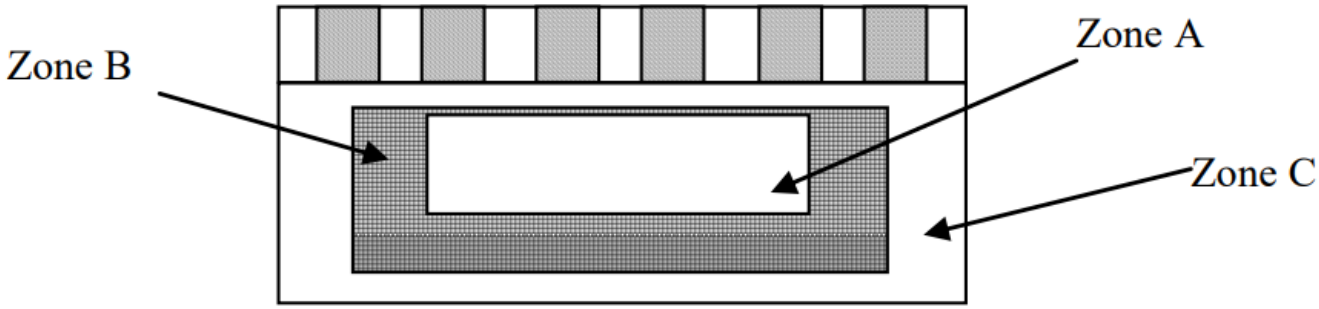
Inspection conditions

Inspection performed under the following conditions is recommended.

- Temperature : 25±5°C
- Humidity : 65%±10%RH
- Viewing Angle : Normal viewing Angle.
- Illumination: Single fluorescent lamp (300 to 700Lux)
- Viewing distance: 30-50 cm



Definition



Zone A : Effective Viewing Area(Character or Digit can be seen)

Zone B : Viewing Area except Zone A

Zone C : Outside (Zone A+Zone B) which can not be seen after assembly by customer .)

Note:

As a general rule ,visual defects in Zone C can be ignored when it doesn't effect product function or appearance after assembly by customer.

Sampling Plan

GB T 2828-2003 Ⅱ

According to GB/T 2828-2003 ; , normal inspection, Class Ⅱ

AQL

Major defect	Minor defect

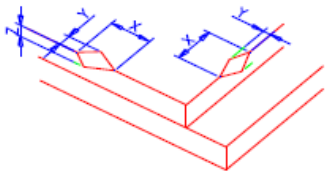
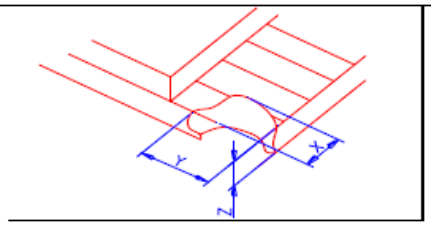
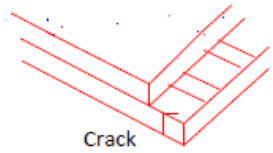
0.65	1.5

LCD: Liquid Crystal Display , TP: Touch Panel , LCM: Liquid Crystal Module

No	Items to be inspected	Criteria	Classification of defects
1	Functional defects	1. No display 2. Display abnormally 3. Missing vertical horizontal segment 4. Short circuit 5. Back-light no lighting,lickering and abnormal lighting 6. Cross-Talk 7. Noise 8. Color contrast	Major
2	Missing	Missing component	
3	Outline dimension	Overall outline dimension beyond the drawing is not allowed	
4	Color tone	Color unevenness, refer to limited sample	
5	Soldering appearance	Good soldering , Peeling off is not allowed.	

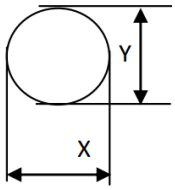
6	LCD/Polarizer	Black/White spot/line, scratch, crack, et c.	Minor

Criteria (Visual)

Number	Items	Criteria(mm)
1.0 LCD Crack/Broken NOTE: X: Length Y: Width Z: Height L: Length of ITO, T: Height of LCD	(1) The edge of LCD broken	 X: ≤1.5mm; Y: <Inner border line of the seal; Z: ≤T
	(2) LCD corner broken	 X: ≤1.5mm; Y: ≤1.0mm; Z: ≤T
	(3) LCD crack	 Crack Not allowed

Number	Items	Criteria (mm)

Spot defect



Y

X Φ=(X+Y)/2

① light dot LCD/TP/Polarizer black/white spot , light dot, pinhole, dent, stain

Zone Size (mm)	Acceptable Qty		
	A	B	C
Φ≤0.10	Ignore		
0.10<Φ≤0.15	2		
0.15<Φ≤0.2	1		
0.2<Φ	0		Ignore

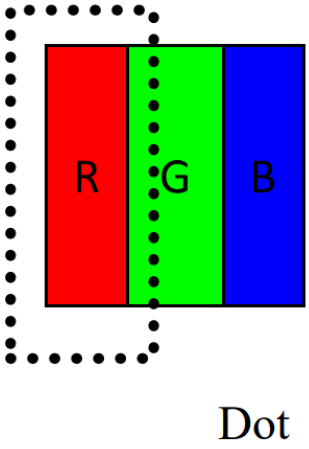
②Dim spot LCD/TP/Polarizer dim dot, light leakage dark spot

Zone Size (mm)	Acceptable Qty		
	A	B	C
Φ≤0.1	Ignore		
0.1<Φ≤0.2	2		
0.2<Φ≤0.3	1		
Φ 0.3	0		Ignore

<table>
<tr><td>2.0</td><td>LCD

Line defect (LCD /Polarizer black/ white line, scratch, stain)</td><td><table>
<tr><td>Width(mm)</td><td>Length(mm)</td><td>Acceptable Qty</td></tr>
<tr><td>Φ≤0.03</td><td>Ignore</td><td>Ignore</td></tr>
<tr><td>0.03<W≤0.05</td><td>L≤2.0</td><td>1</td></tr>
<tr><td>0.05<W</td><td colspan="2">0</td></tr>
</table></td></tr>
<tr><td>3.0</td><td>Polarizer scratch</td><td><table>
<tr><td>Width(mm)</td><td>Length(mm)</td><td>Acceptable Qty</td></tr>
<tr><td>W≤0.03</td><td>Ignore</td><td>Ignore</td></tr>
<tr><td>0.03<W≤0.05</td><td>L≤2</td><td>2</td></tr>
<tr><td>0.05< W≤0.10</td><td>L≤1</td><td>1</td></tr>
<tr><td colspan="2">W>0.10mm or L>2mm</td><td>0</td></tr>
</table></td></tr>
</table>

	Polarizer Bubble	
4.0	SMT	IPC-A-610C class 2 standard. Component missing or function defect are Major defect, the others are Minor defect.

5.0	TFT	Note: the red (R), green, blue (G), (B) 3 points constitute a pixel	

Criteria (functional items

Items	**Criteria**
No display	Not allowed
Display abnormally	Not allowed
Missing vertical horizontal	Not allowed
Segment	Not allowed
Short circuit	Not allowed
Back-light no lighting,	Not allowed
Flickering and abnormal lighting	Not allowed
Cross-Talk	Not allowed
Noise	Not allowed
Color contrast	Not allowed

The LCD surface dirt	If you cannot use smudgy surface air clea n and clear, coco is not acceptable
Components off	Not allowed
FPC&PCB FPC&PCB undesirable	Not allowed
Iron frame deformation	Not allowed

Reliability Test

ITEM	**Condition**	**Sample size**	**Criterion**
High Temp. Stor age	+80℃±2℃, 120 hrs	5pcs	Inspection after 2~4h ours storage at room t emperature, the samp le shall be free from d efects: 1. Air bubble in the LC D;
Low Temp. Stor age	-30℃±2℃, 120 hrs	5pcs	
High Temp. Operation	+70℃±2℃,72 hrs	5pcs	
Low Temp. Ope ration	-20℃±2℃, 72 hrs	5pcs	
Humidity operati on	40℃,90%RH ,72 hrs	5pcs	

Humidity storage	70℃,90%RH ,72 hrs	5pcs	2. Sealleak; 3. Non-display; 4. Missing segments; 5. The surface shall be free from damage. 6. Contrast must be no more than 10% by the linearity tester. 7. Power must be no more than 10% by the linearity tester.
Temp humidity cycles	25℃ → Calefaction/3hrs → 60℃/9hrs → Descend temp/3 hrs → 25℃/9hrs 90% RH Total:10 cycles	5pcs	
Thermal shock	-30℃/30min → 80℃/30mins Total:10 cycles	5pcs	
Vibration	Amplitude between 10 and 150Hz:3G(2)/2hrs for each direction(X,Y,Z) 100m/s	1Carton-box	After testing, there are no any defective appearances or electrical properties.
Drop test	1.5m,10times	1Carton-box	

ESD	1.Contact discharge method±6KV,150pF/330Ω 10times	5pcs	1. After testing, there are no any defective appearances or electrical properties. 2. It can be acceptable when all defective ESD disappears in the RESET.
	2.Air discharge method±8KV,150pF/330Ω 10times	5pcs	

Safety instructions

1. If the LCD panel breaks, be careful not to get any liquid crystal substance in your mouth.
2. If the liquid crystal substance touches your skin or clothes, please wash it off immediately by using soap and water.

Handling Precaution

0.2mm

1. Customers do structural design, please ensure the cabinet window size smaller than the touch screen VA unilateral 0.3mm. Foam window size larger than 0.2mm unilateral touchscreen V.A
2. Avoid static electricity damaging the LSI.
3. Do not remove the panel or frame from the module .
4. The polarizing plate of the display is very fragile . So, please handle it very carefully.
5. Do not wipe the polarizing plate with a dry cloth, as it may easily scratch the surface of the plate.
6. The color tone of display and background of LCM has the possibility to be changed in the storage temperature range
    - Pay attention to the working environment, as the element may be destroyed by

static electricity.

- Be sure to ground human body and electric appliance during work.
- Avoid working in a dry environment to minimize the generations of static electricity.

7. Static electricity may be generated when the protective film is fast peeled off.
8. **LCM**
9. When soldering the terminal of LCM, make certain the AC power source of soldering iron does not leak.
10. Humid environment may cause a bad ITO glass corrosion, in use, make sure the humidity is below 50%.
11. If the display surface becomes contaminated ,breathe on the surface and gently wipe it with a soft-dry- clean cloth .If it is heavily contaminated ,moisten cloth with the following solvent(ex:Ethyl alcohol).Solvents other than those above-mentioned may damage the polarizer(Especially ,do not use them .ex: Warter / Ketone)

Operation instruction

It is recommended to drive the LCD within the specified voltage limits, try to adjust the operating voltage for the optimal contrast, the color and contrast of LCD panel will varies at different temperature.

Response time is greatly delayed at low operating temperature range. However, this does not mean the LCD will be out of the order, It will recover when it returns to the specified temperature range.

If the display area is pushed hard during operation, the display will become abnormal.

Do not operate the LCD at the environments over the specified conditions, this may cause damage on the LCD and shorten the lifetime.

Storage instructions

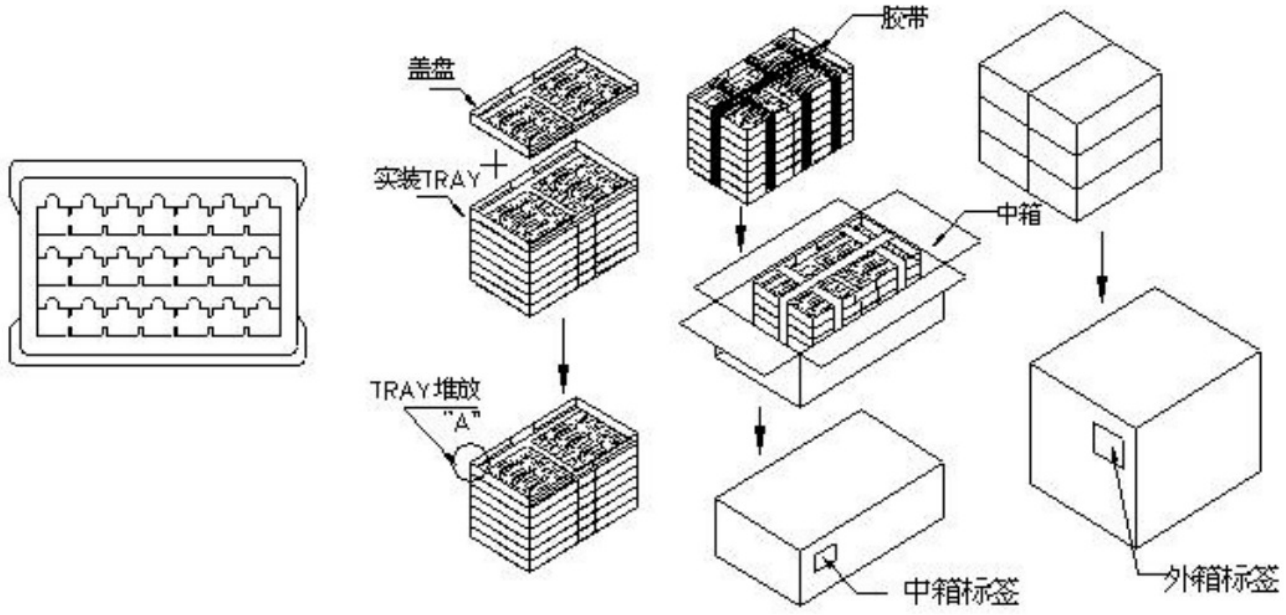
1. Store LCDs in a sealed polyethylene bag.
2. LCDs in a dark place, Do not expose to sunlight or fluorescent light. Keep the temperature between 0℃and 35℃.
3. Avoid the polarizer touch any other object, (It is recommended to store them in the container in which they were shipped.)

Limited Warranty

1. will replace or repair any of its LCD modules, which are found to be defective, when inspected in accordance with LCM acceptance standards (copies available upon request) for a period of 12 months from ink- print date on product .
2. Any defects must be returned to within 60 days since ship-out. Confirmation of such date shall be based on freight documents. The warranty liability of was am limited to repair and/or replacement on defects above (7.1,7.2)
3. No warranty can be granted if the precautions stated above have been disregarded. The typical samples are as below:
    - LCD glass crack/break
    - PCB outlet is damaged or modified.
    - PCB conductors damaged.
    - Circuit modified with by grinding, engraving or painting varnish.
    - FPC crack
4. Modules must be returned with sufficient description of the failures of defects. Any connectors or cable installed by the customer must be removed completely without damaging the PCB outlet, conductors and terminals. Modules must be packed with the container in which they were shipped.

Packing method

Package picture:



- 18928436558 QQ:495436209
- Please consult our technical department for detail information.

Surenoo-SHD035A-480320-HDMI-Display-Module-03

- www.surenoo.com

Frequently Asked Questions

Is this display module compatible with all HDMI devices?

Yes, as long as the device has an HDMI output, this module can be connected to it.

How do I adjust the brightness of the display?

The brightness can usually be adjusted through the settings on your connected device or through the display module's menu if available.

Documents / Resources

	Surenoo SHD035A-480320 HDMI Display Module [pdf] User Manual SHD035A-480320 HDMI Display Module, SHD035A-480320, HDMI Display Module, Display Module, Module

References

- User Manual

Surenoo

Display Module, HDMI Display Module, Module, SHD035A-480320, SHD035A-480320 HDMI Display Module, Surenoo

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