



**SPECIFICATION
FOR
LCD Module
XY70101-20 LB**

MODULE:	XY70101-20 LB
CUSTOMER:	

XY	INITIAL	DATE
PREPARED BY		
CHECKED BY		
APPROVED BY		

CUSTOMER	INITIAL	DATE
APPROVED BY		



REVISION STATUS

Version	Revise Date	Page	Content	Modified by
V1.0	2024-03-01	-	First Issued.	



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1. General Description

* DESCRIPTION

XY70101-20 LB is a color active matrix TFT (Thin Film Transistor) LCD (liquid crystal display) that uses amorphous silicon TFT as a switching device. This model is composed of a Transmissive type TFT-LCD Panel, driver circuit, back-light unit. The resolution of a 8.0" TFT-LCD contains 800 x 1280 pixels, and can display up to 16.7M colors.

* Features

-Low Input Voltage: IOVCC: 1.65~3.3V;VCC: 2.5~3.3V

-Display Colors of TFT LCD: 16.7M colors

- Interface: MIPI

-Internal Power Supply Circuit.

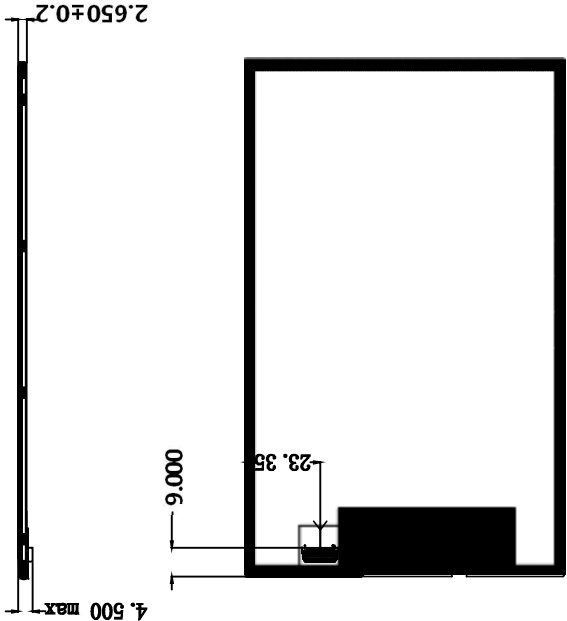
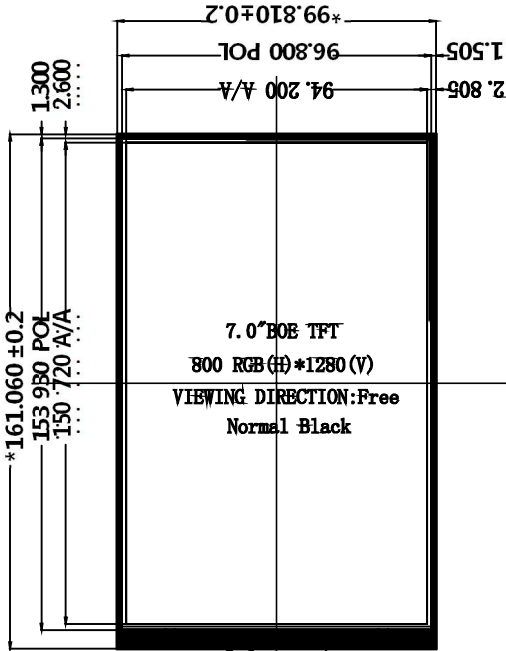
General Information Items	Specification	Unit	Note
	Main Panel		
Display area(AA)	94.2(H) x 150.72(V)	mm	-
Driver element	a-Si TFT active matrix	-	-
Display colors	16.7M	colors	-
Number of pixels	800(RGB) *1280	dots	-
Pixel arrangement	RGB vertical stripe	-	-
Pixel pitch	0.11775(H) ×0.11775(V)	mm	-
Viewing angle	FREE	o'clock	-
Drive IC	ILI9881C-0H	-	-
Display mode	Normally Black	-	-
Operating temperature	-10 ~ +60	°C	-
Storage temperature	-20 ~ +70	°C	-

Mechanical Information

Item		Min.	Typ.	Max.	Unit	Note
Module size	Horizontal(H)	-	100	-	mm	±0.2
	Vertical(V)	-	161.1	-	mm	±0.2
	Depth(D)	-	2.65		mm	±0.2
Weight		-	TBD	-	g	-

2. MECHANICAL SPECIFICATION

RoHS

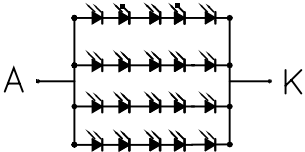


	LCD (JA9)
1	LED+
2	LED+
3	LED+
4	NC
5	LED-
6	LED-
7	LED-
8	LED-
9	GND
10	GND
11	MIPI_TDP2
12	MIPI_TDN2
13	GND
14	MIPI_TDP1
15	MIPI_TDN1
16	GND
17	MIPI_TCP
18	MIPI_TCN
19	GND
20	MIPI_TDP0
21	MIPI_TDN0
22	GND
23	MIPI_TDP3
24	MIPI_TDN3
25	GND
26	VDDIO
27	RESET
28	NC
29	VDDIO
30	VDD
31	VDD

Notes:

- Unit:mm
- Do not scale drawing.
- n Modification rev.number.
- Genral Tolerance:±0.2
- "*" For important dimension;() for reference dimention
- RoHs must be complied.(Use Lead-free process)

ITEM	SYMBOL	MIN	TYP	MAX	UNIT	
Luminous (Without PET)	IV	300	320		cd/m ²	T=25℃ 所有測試 誤差為 5%
Chromaticity Coordinatses Without PET	X	(0.260)		(0.360)		
	Y	(0.280)		(0.380)		
Uniformity		70			%	
Backlight voltage	VF	14.5	15.5	16.5	V	
Backlight current	IF		80		mA	



LED电路图

REV. : △

BOE 7.0" 800*1280 IPS

REV	DATE	DESCRIPTION	REVISER
修改	日期	修改内容	修改者
A	20240301	First Review	Jo Lee
PAGE	1/1	APPROVED	Jo Lee
页次		承认	
		CHECK	Jo Lee
		核对	
		DESIGNED	Jo Lee
		设计者	

TYPE	模组成品图	MATERIAL	
类型		材料	
MODEL NO.	XY70101-20 LB	EDITION	01
模组号		版本号	
PART NO.		DATE	2024.03.01
料号		日期	

1

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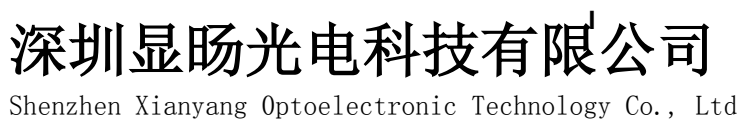
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4. ELECTRICAL CHARACTERISTICS

4.1 ABSOLUTE MAXIMUM RATINGS

Item	Symbol	Values		Unit	Remark
		Min	Max.		
Supply Voltage for Logic circuit	VDDIO	1.7	3.0	V	
Supply Voltage for analog circuit	Vcc	3.0	3.6	V	

4.2 DC ELECTRICAL CHARACTERISTICS

4.2.1 POWER SPECIFICATION

INPUT POWER SPECIFICATIONS ARE AS FOLLOWS:

THE POWER SPECIFICATION ARE MEASURED UNDER 25°C AND FRAME FREQUENCY UNDER 60Hz

Typical Operating Conditions (Ta=25°C)

Item	Parameter	Values			Unit	Remark
		Min	Typ	Max.		
VCI	Vcc	3.0	3.3	3.6	V	
VDD3	Iovcc	1.7	1.8	3.0	V	
TFT Gate ON Voltage	Pixel turn on voltage	10	12	14	V	
TFT Gate OFF Voltage	Pixel turn off voltage	-14	-12	-10	V	
VSP	Negative AVEE voltage	4.8	5	6	V	
VSN	Postive AVDD voltage	-6	-5	-4.8	V	

4.2.2 BACKLIGHT UNIT (GND=0V)

Item	Symbol	Values			Unit	Remark
		Min	Typ	Max.		
Forward supply Voltage	V _f	14.5	15.5	16.5	V	
Forward supply Current	I _f	-	80	-	mA	
LCM Luminance	L _v	300	320	-	cd/m ²	I _b =80mA
Uniformity	/	75	80		%	-



5. OPTICAL CHARACTERISTICS

Parameter		Symbol	Condition	Min.	Typ.	Max.	Unit	Remark
Viewing Angle range	Horizontal	Θ_3	CR > 10	75	85	-	Deg.	Note 1
		Θ_9		75	85	-	Deg.	
	Vertical	Θ_{12}		75	85	-	Deg.	
		Θ_6		75	85	-	Deg.	
Contrast ratio		CR	$\Theta = 0^\circ$	800	1000	-	-	Note 2
Transmittance		Tr	-	4.39	5.17	-	%	Note 3 Without APF and Haze
Color Gamut	NTSC	CIE1931	$\Theta = 0^\circ$	45	50	-	%	Note 4 CF@C Light
Response Time		Tr+Tf	Ta= 25° C $\Theta = 0^\circ$	-	25	35	ms	Note 5

*Note (1) Definition of Contrast Ratio (CR):

The contrast ratio can be calculated by the following expression.

$$\text{Contrast Ratio (CR)} = L_{63} / L_0$$

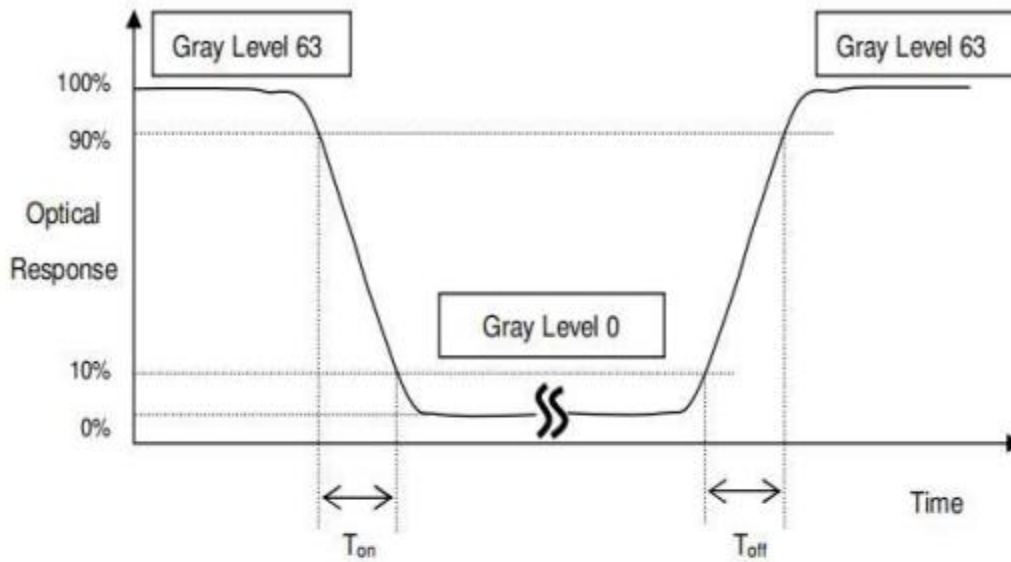
L63: Luminance of gray level 63

L 0: Luminance of gray level 0

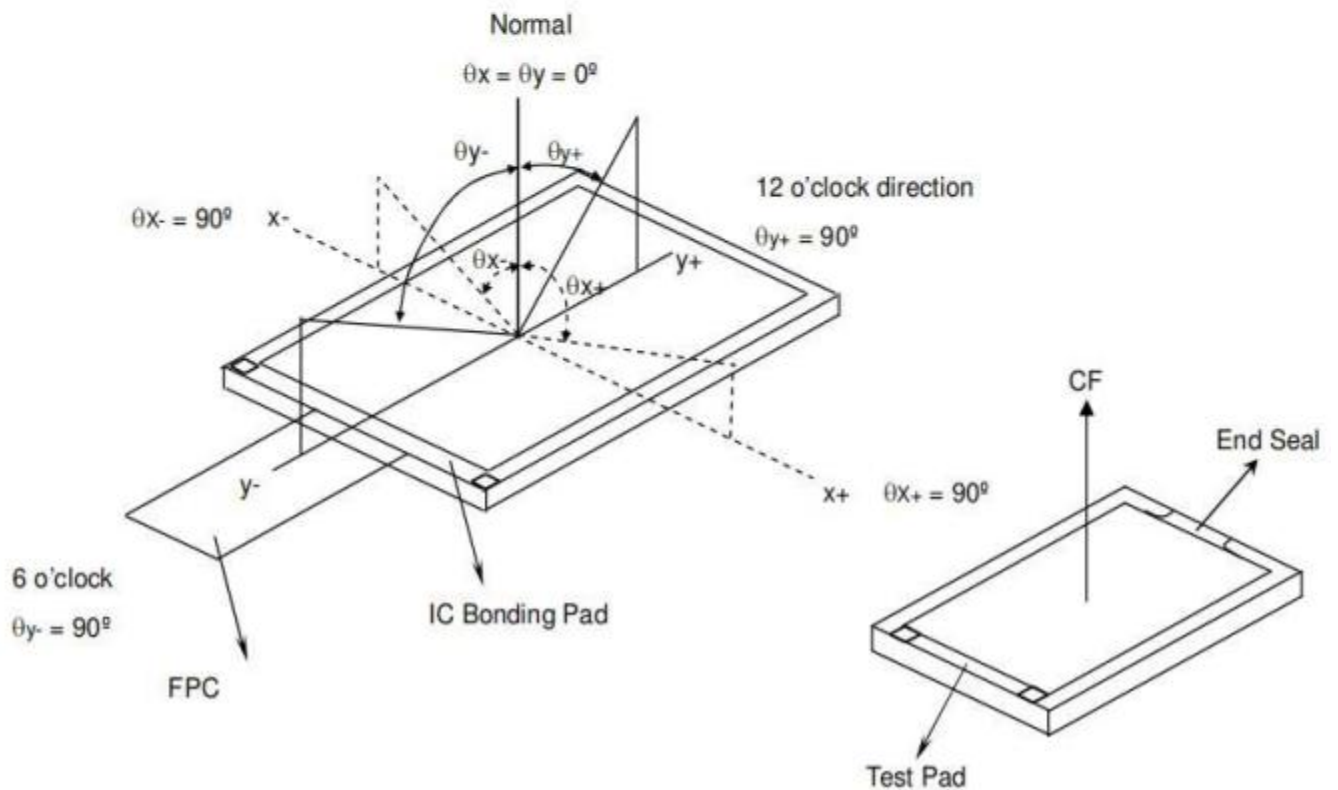
$$CR = CR(5)$$

CR (X) is corresponding to the Contrast Ratio of the point X at Figure in Note (5).

*Note (2) Definition of Response Time (T_{on} , T_{off}):

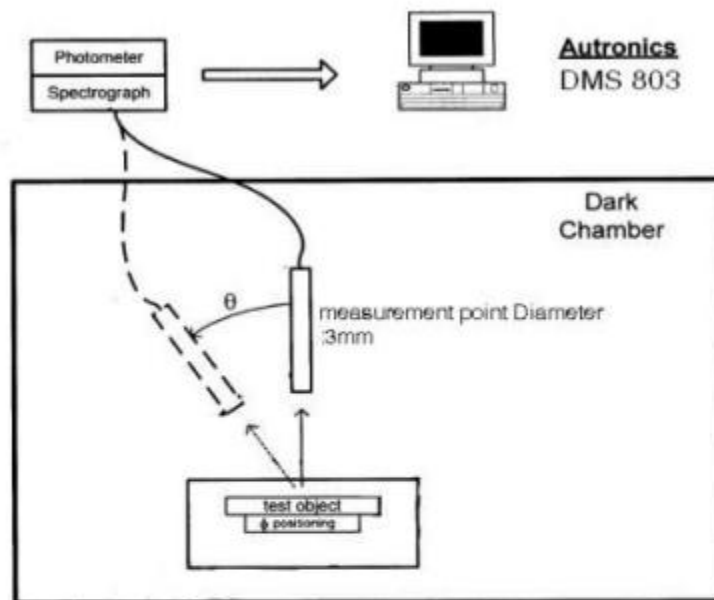


*Note (3) Definition of Viewing Angle

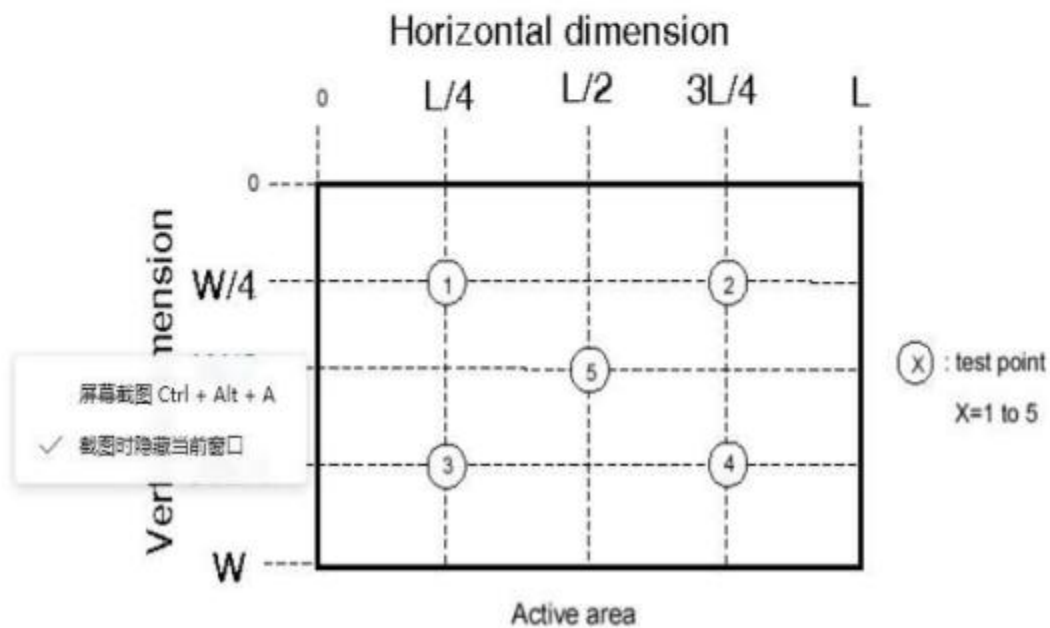


***Note (4) Measurement Set-Up:**

The LCD module should be stabilized at a given temperature for 20 minutes to avoid abrupt temperature change during measuring. In order to stabilize the luminance, the measurement should be executed after lighting Backlight for 20 minutes in a windless room.



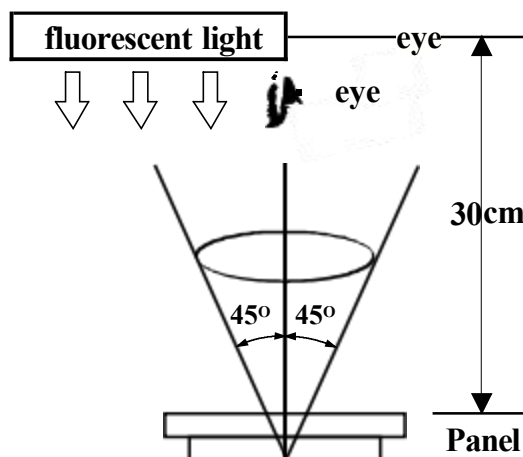
***Note (5)**



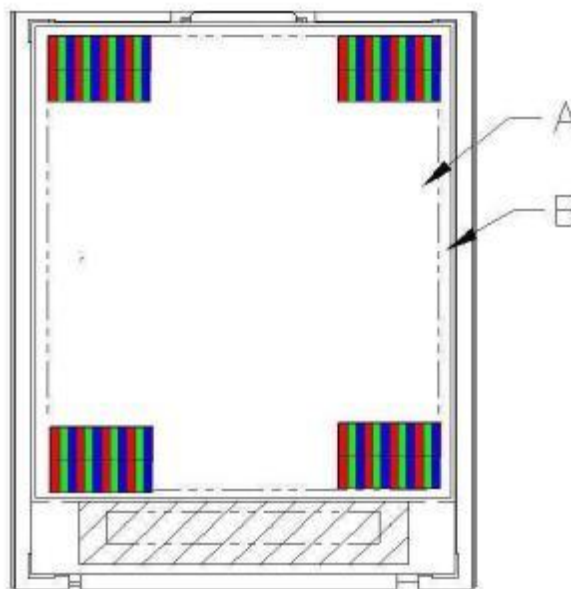
6. QUALITY SPECIFICATIONS

6.1 INSPECTION CONDITION

- (1) Inspect under 300~500Lux fluorescent light, leaving 30~35cm between panels and eyes, and between panels and lights.
- (2) Inspection condition is $23\pm 5^{\circ}\text{C}$, $50\pm 20\%\text{RH}$ maximum.



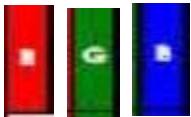
6.2 DEFINITION OF AREA

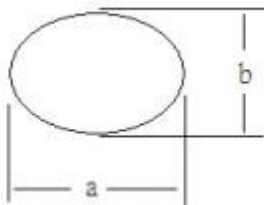


A Area : Viewing area.

B Area : Out of viewing.(outside viewing area)

6.3 INSPECTION SPECIFICATION

NO	Item	Acceptable specification	Judgment Criterion
1	Electrical Testing	1-1 sub pixel classification Sub Pixel: Number of sub pixel doesn't exceed one dot.  Sub Pixel (Dot) a> Dark dot ----one Allowed b> Bright dot ---- one Allowed	$N \leq 1$
		Pixel : Three dots link together doesn't exceed ones  Pixel	$N \leq 0$
		1-2 Leakage to light Leakage to light be not allowed.	$N=0$
		1-3 Picture to shake Picture had shake, twinkle and noise etc. instable of defect that be not allowed.	$N=0$
		1-4 Function - No display or No function. - Source Line, Gate Line. - Contrast Ratio - Current consumption exceeds product specifications. - Display malfunction.	$N=0$
2	Mechanical Dimension	2-1 Mechanical Dimension exceeds product specifications. 2-2 Out of frame and boss of plastic changed shape that be not allowed.	$N=0$

NO	Item	Acceptable specification	Judgment Criterion																		
3	Cosmetic Inspection	3-1 Blemish: Line shapes of defect																			
		<table><tr><th>Length</th><th>Width</th><th>Acceptable number</th><th>Mini. space</th></tr><tr><td>---</td><td>$W \leq 0.03$</td><td>Ignore</td><td rowspan="3">5 m m</td></tr><tr><td>$L \leq 2.5$</td><td>$0.03 < W \leq 0.05$</td><td>3</td></tr><tr><td>$L \leq 2.5$</td><td>$0.05 < W \leq 0.1$</td><td>2</td></tr><tr><td>--</td><td>$W > 0.1$</td><td>Not allowed</td><td>---</td></tr></table>	Length	Width	Acceptable number	Mini. space	---	$W \leq 0.03$	Ignore	5 m m	$L \leq 2.5$	$0.03 < W \leq 0.05$	3	$L \leq 2.5$	$0.05 < W \leq 0.1$	2	--	$W > 0.1$	Not allowed	---	
		Length	Width	Acceptable number	Mini. space																
		---	$W \leq 0.03$	Ignore	5 m m																
		$L \leq 2.5$	$0.03 < W \leq 0.05$	3																	
		$L \leq 2.5$	$0.05 < W \leq 0.1$	2																	
		--	$W > 0.1$	Not allowed	---																
		L: length(mm) W: width(mm)																			
																					
		3-2 Blemish: dot shapes of defect.																			
<table><tr><th>Dimension</th><th>Acceptable number</th><th>Mini. Space</th></tr><tr><td>$\Phi \leq 0.10$</td><td>Ignore</td><td>---</td></tr><tr><td>$0.10 < \Phi \leq 0.25$</td><td>2</td><td rowspan="2">10 m m</td></tr><tr><td>$0.25 < \Phi \leq 0.3$</td><td>1</td></tr><tr><td>$\Phi > 0.3$</td><td>0</td><td>---</td></tr></table>	Dimension	Acceptable number	Mini. Space	$\Phi \leq 0.10$	Ignore	---	$0.10 < \Phi \leq 0.25$	2	10 m m	$0.25 < \Phi \leq 0.3$	1	$\Phi > 0.3$	0	---							
Dimension	Acceptable number	Mini. Space																			
$\Phi \leq 0.10$	Ignore	---																			
$0.10 < \Phi \leq 0.25$	2	10 m m																			
$0.25 < \Phi \leq 0.3$	1																				
$\Phi > 0.3$	0	---																			
3-3 Polarizer Bubble																					
<table><tr><th>Dimension</th><th>Acceptable number</th><th>Mini. Space</th></tr><tr><td>$\Phi \leq 0.20$</td><td>Ignore</td><td>---</td></tr><tr><td>$0.20 < \Phi \leq 0.30$</td><td>2</td><td>15 m m</td></tr><tr><td>$\Phi > 0.30$</td><td>0</td><td>---</td></tr></table>	Dimension	Acceptable number	Mini. Space	$\Phi \leq 0.20$	Ignore	---	$0.20 < \Phi \leq 0.30$	2	15 m m	$\Phi > 0.30$	0	---									
Dimension	Acceptable number	Mini. Space																			
$\Phi \leq 0.20$	Ignore	---																			
$0.20 < \Phi \leq 0.30$	2	15 m m																			
$\Phi > 0.30$	0	---																			
Foreign Substances																					
																					
$\Phi = (a+b)/2$																					



NO	Item	Acceptable specification				Judgment Criterion
3	Cosmetic Inspection	3-4 Scratch - Sensate scratch not allowed. - Impassive scratch as below. Unit:mm				
		Length	Width	Acceptable number	Mini. space	
		-----	$W \leq 0.03$	Ignore	5 m m	
		$L \leq 2.5$	$0.03 < W \leq 0.05$	3		
		$L \leq 2.5$	$0.05 < W \leq 0.1$	2		
		----	$0.1 < W$	Not allowed	---	
		$L > 2.5$	----	Not allowed		
4	Package	4-1 Mixed product types 4-2 Shipping q'ty should be the same as “shipping notice form” q'ty. 4-3 Outer box can't broken.				N=0



7. RELIABILITY

Test Item	Test Condition
High Temperature Operation	60℃ for 24 hours
Low Temperature Operation	-10℃ for 24 hours
High Temperature Storage	70℃ for 24 hours
Low Temperature Storage	-20℃ for 24 hours
High Temperature Operation Humidity Operation	50℃, 90%RH for 48 hours
Thermal Shock	-10°storage one hour, rise to 60° within 15s, high temperature one hour, drop to 30° within 15s, circulate 10 repeatedly
Vibration Test (No Operation)	Frequency: 10~55Hz Amplitude:1.0mm Sweep Time: 11min Test Period: 6 Cycles for each direction of X, Y, Z
Static electricity test	Touch 6KV, air touch 8KV



8. HANDLING PRECAUTION

8.1 SAFETY

- (1) Do not swallow any liquid crystal, even if there is no proof that liquid crystal is poisonous.
- (2) If the LCD panel breaks, be careful not to get liquid crystal to touch your skin.
- (3) If skin is exposed to liquid crystal, wash the area thoroughly with alcohol or soap.

8.2 STORAGE CONDITIONS

- (1) Store the panel or module in a dark place where the temperature is $23\pm5^{\circ}\text{C}$ and the humidity is below $50\pm20\%\text{RH}$.
- (2) Store in anti-static electricity container.
- (3) Store in clean environment, free from dust, active gas, and solvent.
- (4) Do not place the module near organics solvents or corrosive gases.
- (5) Do not crush, shake, or jolt the module.

8.3 HANDLING PRECAUTIONS

- (1) Avoid static electricity which can damage the CMOS LSI.
- (2) The polarizing plate of the display is very fragile. So, please handle it very carefully.
- (3) Do not give external shock.
- (4) Do not apply excessive force on the surface.
- (5) Do not wipe the polarizing plate with a dry cloth, as it may easily scratch the surface of plate.
- (6) Do not use ketone solvent & Aromatic solvent, use with a soft cloth soaked with a cleaning naphtha solvent.
- (7) Do not operate it above the absolute maximum rating.
- (8) Do not remove the panel or frame from the module.

8.4 WARRANTY

The period is within twelve months since the date of shipping out under normal using and storage conditions.