



SPECIFICATION FOR LCD Module XY10105B-32 C437

MODULE:	XY10105B-32 C437
CUSTOMER:	

XY	INITIAL	DATE
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CUSTOMER	INITIAL	DATE
APPROVED BY		



REVISION STATUS

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1. General Description

* DESCRIPTION

XY10105-32 C437 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 10.1" 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

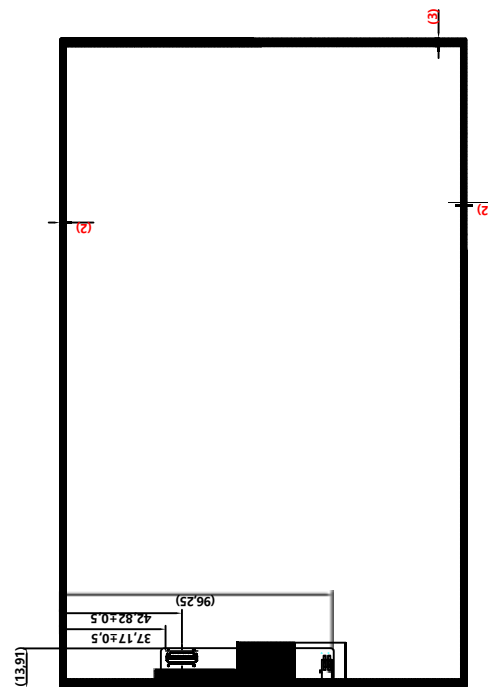
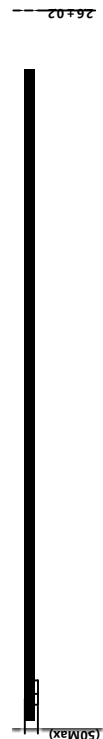
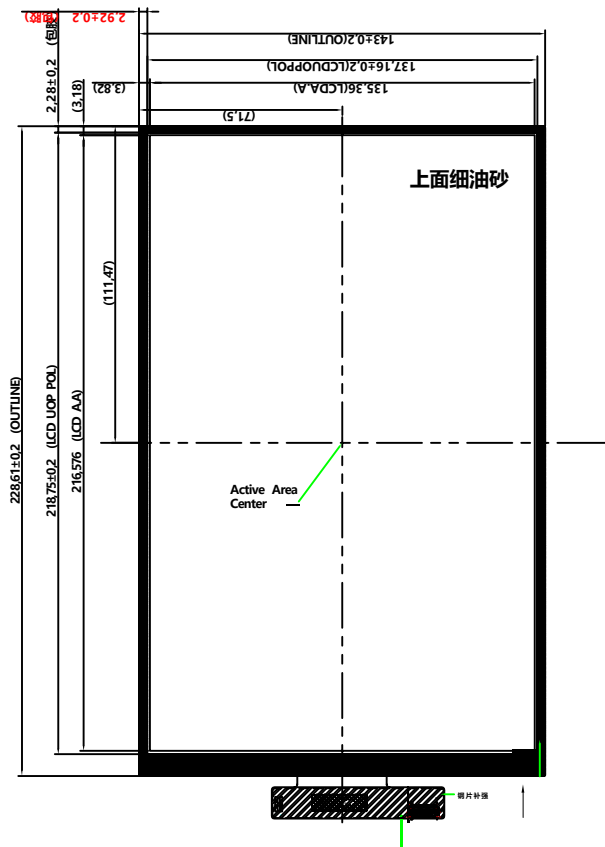
-Internal Power Supply Circuit.

General Information Items	Specification	Unit	Note
	Main Panel		
Display area(AA)	135.36(H) x 216.576(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	0.1692(H) ×0.11692(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)	-	143	-	mm	±0.2
	Vertical(V)	-	228.61	-	mm	±0.2
	Depth(D)	-	2.6	-	mm	±0.2
Weight		-	TBD	-	g	-

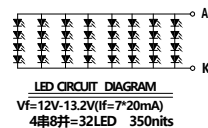
2. MECHANICAL SPECIFICATION



	Pin description
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/NC
27	RESET
28	NC
29	VDDIO
30	VDD
31	VDD

- 1). Viewing angle: FULL VIEW
- 2). Display mode: TFT/Transmissive/Normal Black
- 3). Operating temp.: - 20°C~+60°C
Storage temp.: -20°C~ +70°C
- 4). Backlight: 32 chip White LED , In Series, If= 160mA,
- 5). Dimensions with mark "*" are important, with mark "("" are referenced
- 6). According to the RoHS

LED电路图



Unspecified Tolerance:±0.2mm

深圳显昶光电科技有限公司

Shenzhen Xianyang Optoelectronic Technology Co., Ltd



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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	14	15	16	V	
TFT Gate OFF Voltage	Pixel turn off voltage	-14	-13	-12	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	Vf	12	12.6	13.2	V	
Forward supply Current	If	-	160	-	mA	
LCM Luminance	Lv	350	380	-	cd/m2	Ib=170mA
Uniformity	/	75	80		%	-

5. OPTICAL CHARACTERISTICS

The optical characteristics are measured under stable conditions at 25°C (Room Temperature) :

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit	Note
Viewing Angle	θ_R	Horizontal (Right) CR = 10 (Left)	80	85	-	degree	1, 4
	θ_L		80	85	-		
	ϕ_H	Vertical (Upper) CR = 10 (Lower)	80	85	-		
	ϕ_L		80	85	-		
Transmittance	%		4.63%	5.45%	NA		C-light
Response Time	T_{RT}	Rising + Falling	-	30	35	msec	1, 3
Color / Chromaticity Coordinates	Red	Rx		0.630		-	C-light
		Ry		0.335			
	Green	Gx		0.288			
		Gy		0.584			
	Blue	Bx		0.132			
		By		0.175			
	White	Wx		0.316			
		Wy		0.369			
NTSC	%		-	56.5	-		

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

The contrast ratio can be calculated by the following expression.

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

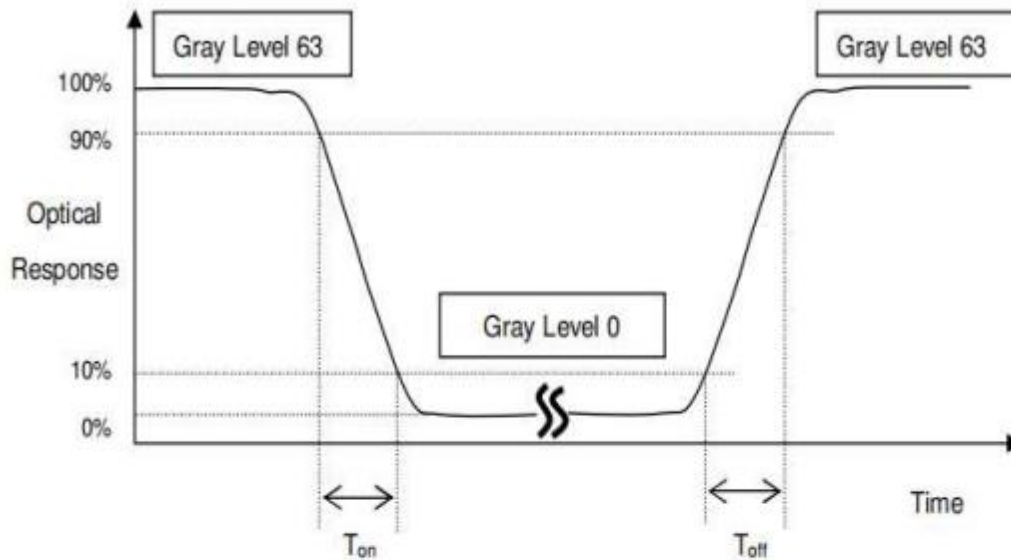
L63: Luminance of gray level 63

L0: Luminance of gray level 0

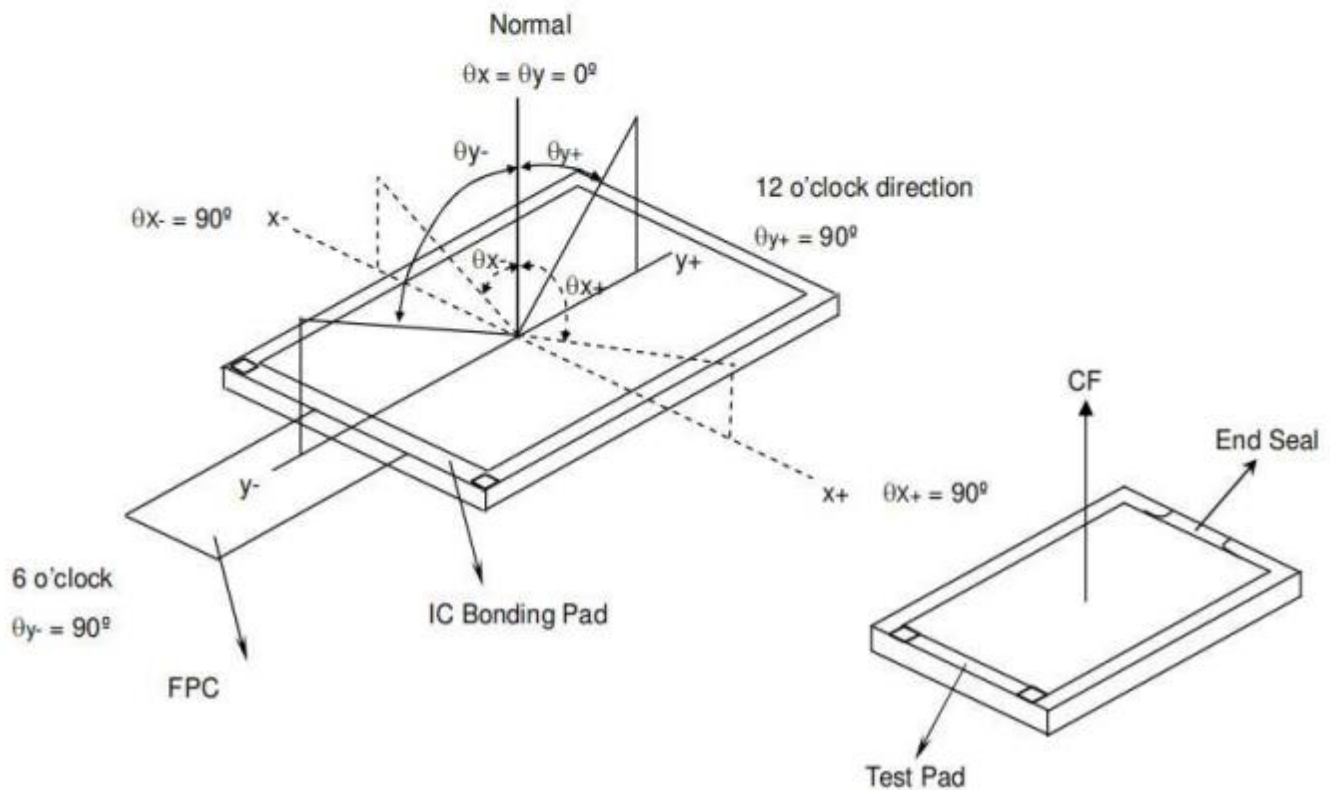
$$CR = CR(5)$$

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}):

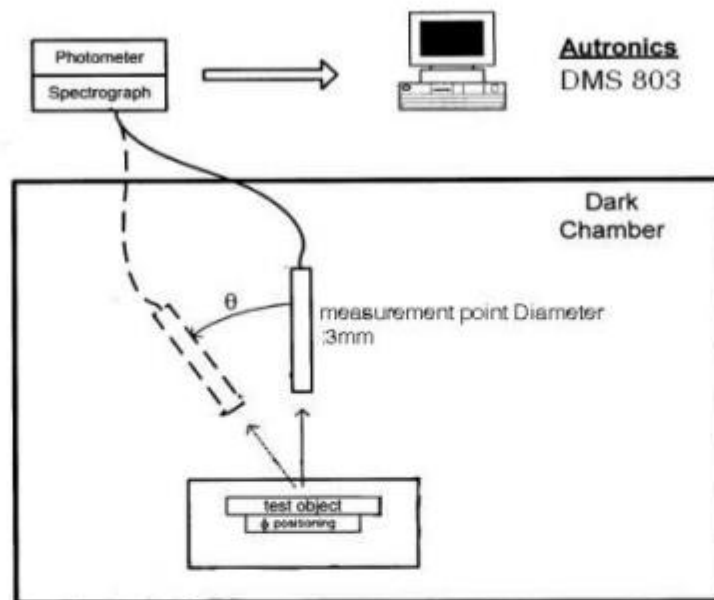


*Note (3) Definition of Viewing Angle

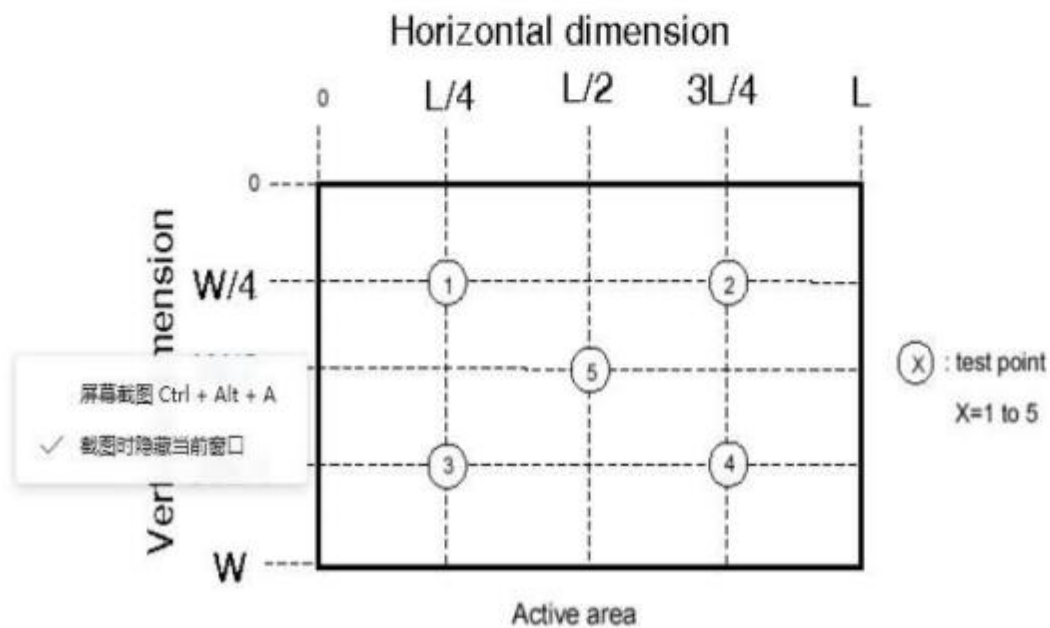


*Note (4) Measurement Set-Up:

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.



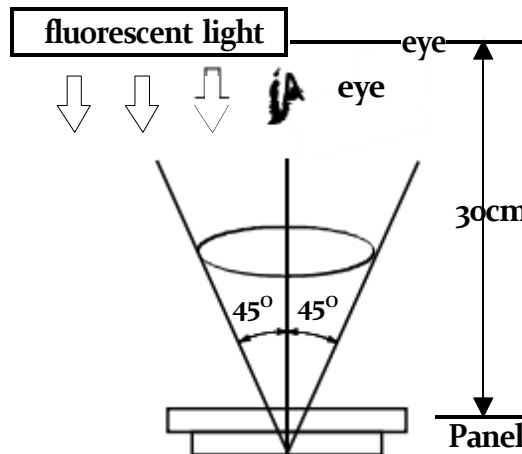
*Note (5)



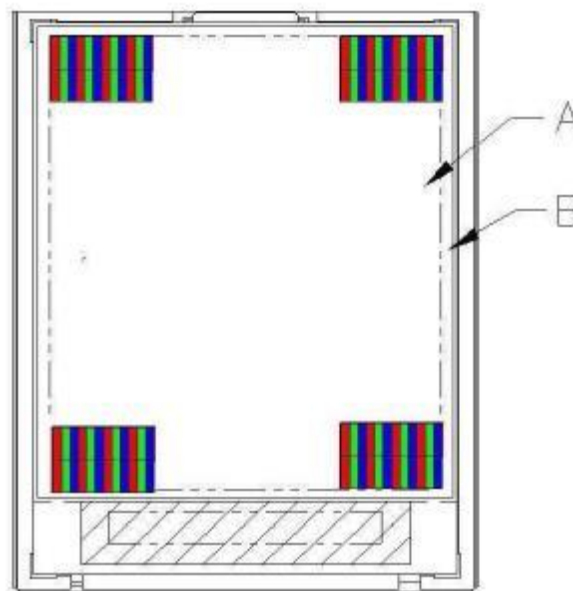
6. QUALITY SPECIFICATIONS

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 $23\pm5^{\circ}\text{C}$, $50\pm20\%\text{RH}$ maximum.



6.2 DEFINITION OF AREA



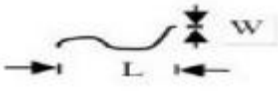
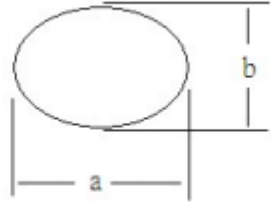
A Area : Viewing area.

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. 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		
		Length	Width	Acceptable number
		---	$W \leq 0.03$	Ignore
		$L \leq 2.5$	$0.03 < W \leq 0.05$	3
		$L \leq 2.5$	$0.05 < W \leq 0.1$	2
		--	$W > 0.1$	Not allowed
		Mini. space		
		5 m m		

		L: length(mm) W: width(mm) 		
		3-2 Blemish: dot shapes of defect.		
		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		
		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 ketonic 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.