SPECIFICATION

深圳耀宇
SHENZHEN YAOYU

YM080D3-40TB-A7 LCM

SHENZHEN YAOYU TECHNOLOGY CO.,LTD:

Quality Assurance Department:_____

Approved by:_____

Technical Department:_____

CUSTOMER:_____

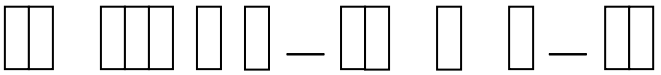
Approved by:_____

Revision History

Version	Contents	Date	Note
A	Original	2012.04.17	

Contents

1. Numbering System



No	Definition	Specifications
(1)	TFT LCM Productor No.	YM YaoYu Technology Co. ,Ltd
(2)	Display monitor opposite angle line size	Unit :mm or mmm (size <10 inch: takes two integers ; size >=10 inch: takes three integers)
(3)	Productor Types	D ---- Digital photo frame / DVD G ----GPS M ----MP P ----Mobil-Phone N ----Net Book 。。。
(4)	Productor Development Series No.	By two figures characters expression from 01 to 99
(5)	Interface PIN Number	By two figures characters expression from 01 to 99
(6)	With Touch Panel Or Not	T----With T/P ； N----Without T/P
(7)	LCD Type	A----AUO ； M----CMO ； C----CPT；P----PVI； L----LG；W----Wintek；H----HSD；T----Topply； Y----Hydis；I----Hitach；S----Sharp。。。
(8)	Productor Development edition No.	By The English litters : A 1~ Z9

2. Scope

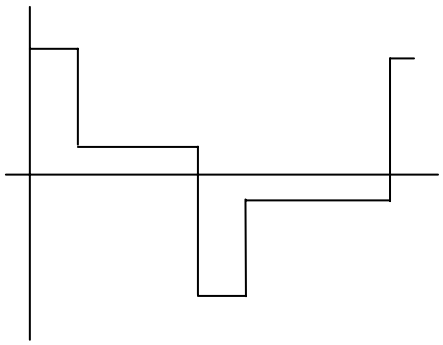
This specification applies to the TFT LCD module which is designed and manufactured by LCM Factory of ShenZhen YaoYu Technology Co., Ltd

3. Normative Reference

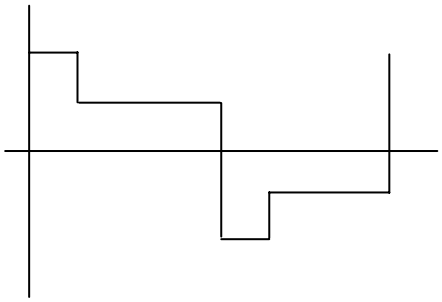
4. Definitions

4.1 Definitions of Vop

The definitions of threshold voltage Vth1, Vth2 the following typical waveforms are applied on liquid crystal by the method of equalized voltage for each duty and bias.



【 selected waveform 】



【 non-selected waveform 】

① Vth1: The voltage which the brightness of segment indicates 50% of saturated value on the conditions of selected waveform

(f_f=80Hz, Φ=10° θ=270° at 25℃)

② Vth2: The voltage which the brightness of segment indicates 50% of saturated value on the conditions of non-selected waveform

(f_f=80Hz, Φ=10° θ=270° at 25℃)

③ Vop: (Vth1(50%)+Vth2(50%))/2 (f_f=80Hz, Φ=10° θ=270° at 25℃)

4.2 Definition of Response Time Tr, Td

①Tr: The time required which the brightness of segment becomes 10% from 100% when waveform is switched to selected one from non-selected one. (f_f=80Hz, Φ=10°θ=270°at 25℃)

②Td: The time required which the brightness of segment becomes 90% from 10% when waveform is switched to selected one from selected one. (f_f=80Hz, Φ=10°θ=270°at 25℃)

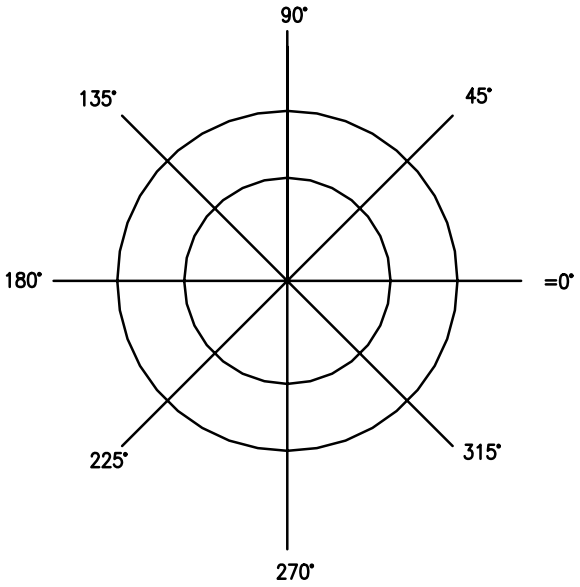
4.3 Definition of Contrast Ratio Cr

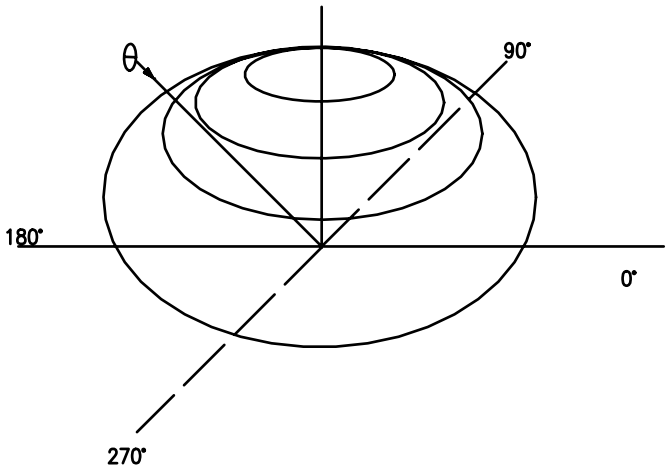
Cr=A/B

① A: Segments brightness in case of non-selected waveform

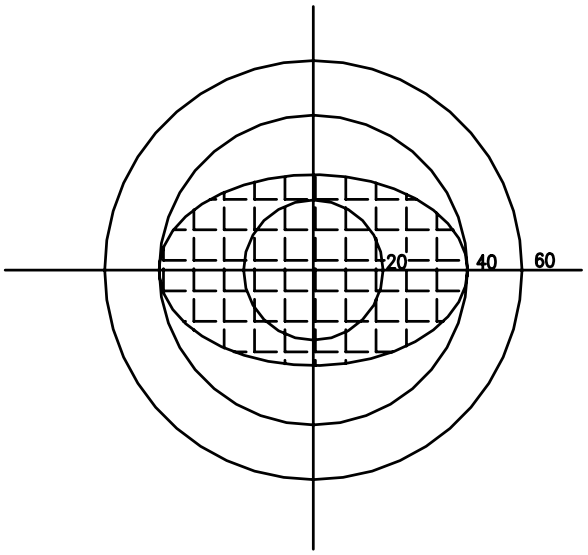
② B: Segments brightness in case of selected waveform

4.4 Definition of Angle and Viewing Range



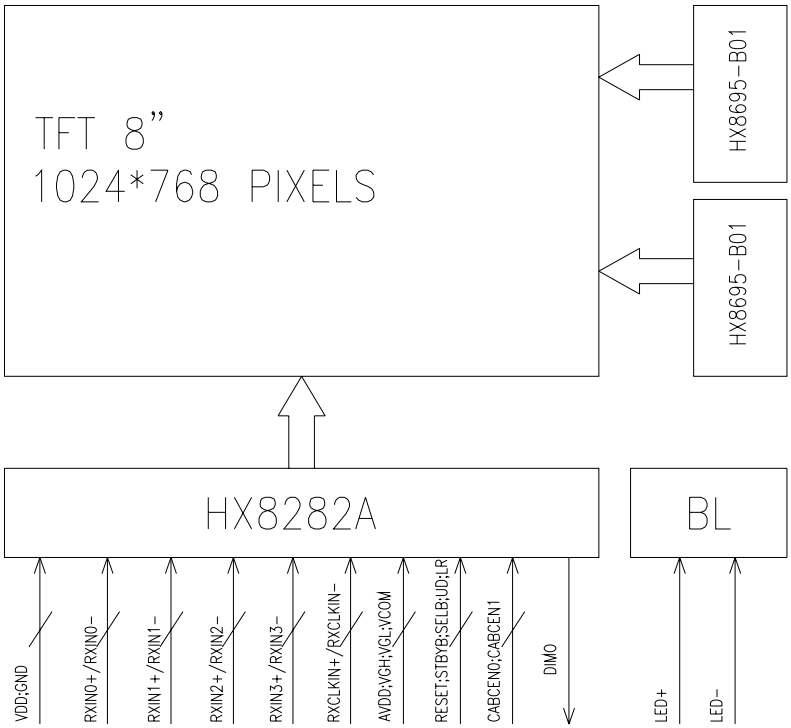


Angular Graph: Constrast Ratio



Such as:
Viewing Angle Range:
80(Cr>2) Horizontal
70(Cr>2) Vertical

5. Block Diagram



6. Technology Specifications

6.1 Features

This single-display module is suitable for use in Net Book products. The LCD adopts one backlight with High brightness 27-lamps white LED.

Construction: 8″ a-Si color TFT-LCD ,White LED backlight

6.2 General Specifications

No.	Item	Specification
1	LCD size	8 inch
2	Resolution	1024 (RGB)X768
3	Display mode	Normally white, Transmissive
4	Pixel pitch	0.1583(W)X0.1583(H) mm
5	Active area	162.048(H) X 121.536(V) mm
6	Module size	183.0(W)X141.0(H)X4.8(D) mm
7	Pixel arrangement	RGB-stripe
8	Interface	Digital (6bit LVDS or 8bit LVDS)
9	Backlight power consumption	1.8W
10	Panel power consumption	TBD
11	Weight	TBD

6.3 Interface Pin Connection

Pin No.	Symbol	Function	
1	VCOM	Common Voltage	
2	VDD	Power Supply for digital circuit	
3	VDD	Power Supply for digital circuit	
4	NC	No Connection(Reserve)	
5	RESET	Global reset pin	
6	STBYB	Standby mode, Normally pulled high	Note 1
7	GND	Ground	
8	Rin0-	- LVDS differential data input(R0-R5,G0)	
9	Rin0+	+ LVDS differential data input(R0-R5,G0)	
10	GND	Ground	
11	Rin1-	- LVDS differential data input(G1-G5,B0-B1)	
12	Rin1+	+LVDS differential data input(G1-G5,B0-B1)	
13	GND	Ground	
14	Rin2-	- LVDS differential data input(B2-B5,HS,VS,DE)	
15	Rin2+	+LVDS differential data input(B2-B5,HS,VS,DE)	
16	GND	Ground	
17	RclkIN-	-LVDS differential clock input	
18	RclkIN+	+LVDS differential clock input	
19	GND	Ground	
20	Rin3-	- LVDS differential data input(R6,R7;G6,G7;B6,B7)	
21	Rin3+	+LVDS differential data input(R6,R7;G6,G7;B6,B7)	
22	GND	Ground	
23	NC	No Connection(Reserve)	
24	NC	No Connection(Reserve)	
25	GND	Ground	
26	NC	No Connection(Reserve)	
27	DIMO	Backlight dimmer signal for external controller	Note 2
28	SELB	6bit/8bit mode select	Note 3
29	AVDD	Power for Analog Circuit	
30	GND	Ground	
31	LED-	LED Cathode	
32	LED-	LED Cathode	
33	L/R	Horizontal inversion	Note 4
34	U/D	Vertical inversion	Note 4
35	VGL	Gate OFF Voltage	
36	CABCEN1	CABC H/W enable	Note 5
37	CABCEN0	CABC H/W enable	Note 5
38	VGH	Gate ON Voltage	
39	LED+	LED Anode	
40	LED+	LED Anode	

Note1: STBYB = “1”, normal operation
STBYB = “0”, timing controller, source driver will turn off, all output are High-Z

Note2: DIMO=H, Logical control signal to turn on external backlight controller.
DIMO=L, Turn off external backlight controller.
When CABC off, don’t connect DIMO, else connect it to backlight controller

Note3: If LVDS input data is 6 bits ,SELB must be set to High
If LVDS input data is 8 bits ,SELB must be set to Low

Note4: When L/R=”0”, set right to left scan dirction.
When L/R=”1”, set left to right scan dirction.
When U/D=”0”, set top to bottom scan dirction.
When U/D=”1”, set bottom to top scan dirction.

Note5: When CABC_EN=”00”, CABC OFF.
When CABC_EN=”01”, user interface image.
When CABC_EN=”10”, still picture.
When CABC_EN=”11”, moving image.

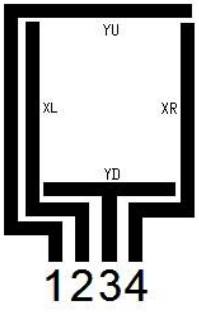
6.4 Absolute Max. Rating

Item	Symbol	Values		Unit
		Min.	Max.	
Power Voltage	V_{DD}	-0.5	5.0	V
	V_{LED}	-0.3	TBD	V
Input Signal Voltage	V_{IN}	-0.5	AVDD+0.5	V
Operation Temperature	T_{OP}	-20	70	℃
Storage Temperature	T_{ST}	-30	80	℃

6.5 Typical Operation Conditions

Item	Symbol	Values			Unit
		Min.	Typ.	Max.	
Power Voltage	V_{CC}	3.0	3.3	3.6	V
	V_{LED}	9.3	9.6	9.9	V
Current Consumption	I_{CC}	-	16	-	mA
	I_{LED}	-	180	-	mA
TFT Gate On Voltage	VGH	-	23.3	-	V
TFT Gate Off Voltage	VGL	-	-7.8	-	V
Analog Voltage	AVDD	-	8.4	-	V
Common Voltage	VCOM	-	3.3	-	V

6.6 Touch Panel Circuit



逻辑表

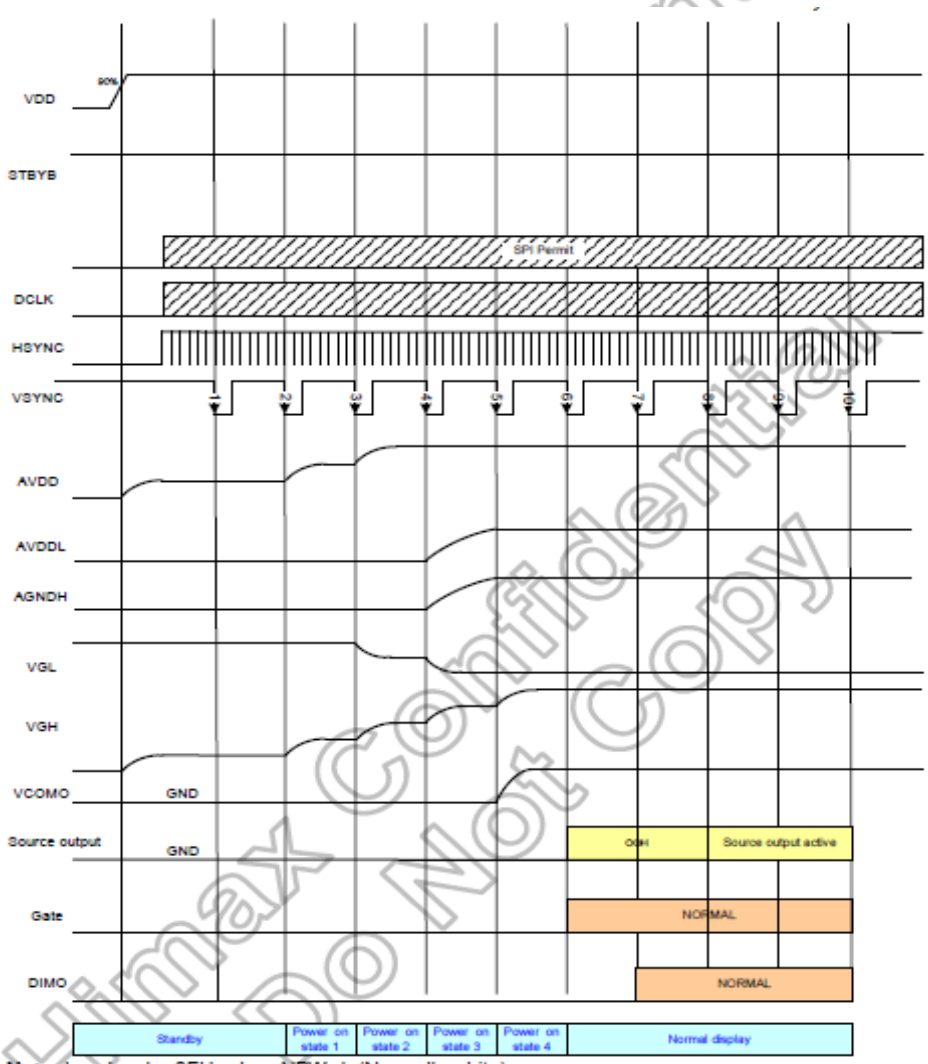
PIN	WIRING
1	YU
2	XL
3	YD
4	XR

6.7 Power Sequence

To prevent the device damage from latch up, the power on/off sequence shown below must be followed.

Power ON: VDD, GND → AVDD, AGND → V1 to V14
Power OFF: V1 to V14 → AVDD, AGND→ VDD, GND

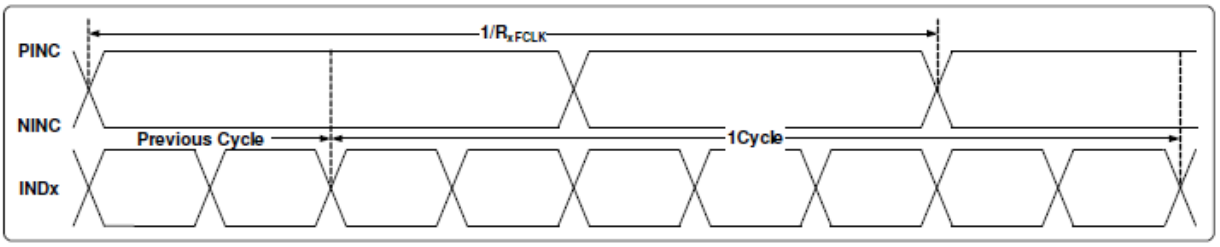
HX8282-A has a power on/off sequence control function. In order to prevent IC from power on reset fail, the rising time (T_{POR}) of the digital power supply VDD should be maintained within the given specifications. Please refer to "AC Characteristics" for more detail on timing.

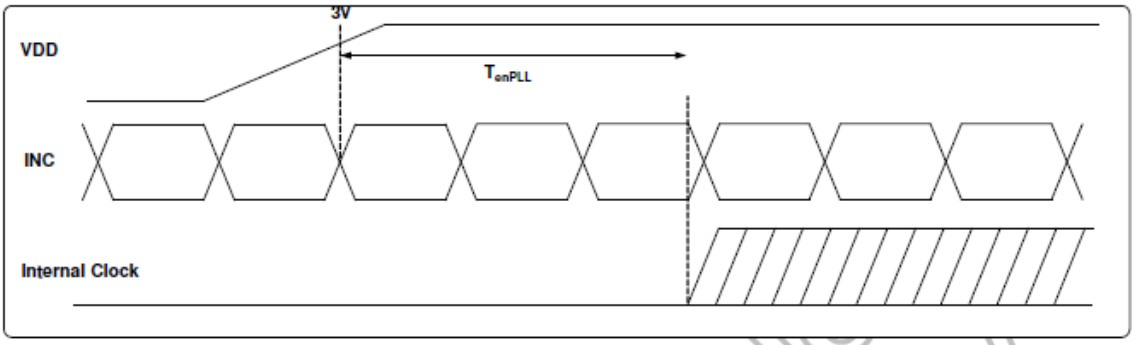


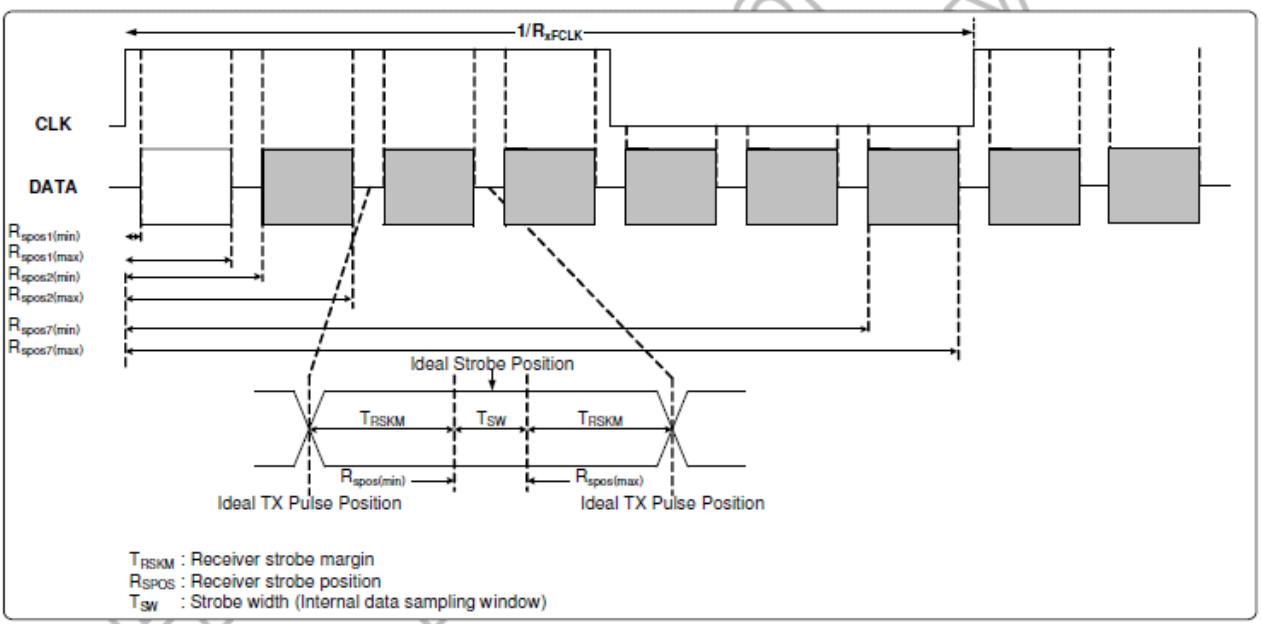
Note: Low level = 3FH, when NBW=L (Normally white)
Low level = 00H, when NBW=H (Normally black)

6.8 Timing Conditions

Parameter	Symbol	Spec.			Unit	Condition
		Min.	Typ.	Max.		
Clock frequency	R_{XFCLK}	20	-	71	MHz	-
Input data skew margin	T_{RSKM}	500	-	-	pS	$\lvert V_{ID} \rvert$=400mV R_{XVCM}=1.2V R_{XFCLK}=71MHz
Clock high time	T_{LVCH}	-	4/(7* R_{XFCLK})	-	ns	-
Clock low time	T_{LVCL}	-	3/(7* R_{XFCLK})	-	ns	-
PLL wake-up time	T_{emPLL}	-	-	150	µs	-







6.9 Optical specifications

Item	Symbol	Condition	Values			Unit	Remark
			Min.	Typ.	Max.		
Viewing angle (CR≥ 10)	θ_L	Φ=180°(9 o'clock)	-	75	-	degree	Note 1
	θ_R	Φ=0°(3 o'clock)	-	70	-		
	θ_T	Φ=90°(12 o'clock)	-	75	-		
	θ_B	Φ=270°(6 o'clock)	-	75	-		
Response time Rise+Fall	T_{RT}	Normal θ=Φ=0°	-	30	-	msec	Note 3
Contrast ratio	CR		-	TBD	-	-	Note 4
Color chromaticity	W_X		TBD	TBD	TBD	-	Note 2 Note 5 Note 6
	W_Y		TBD	TBD	TBD	-	
Luminance	L		-	TBD	-	-	Note 6
Luminance uniformity	Y_U		TBD	TBD	-	%	Note 6,7

Note 1: Definition of viewing angle range

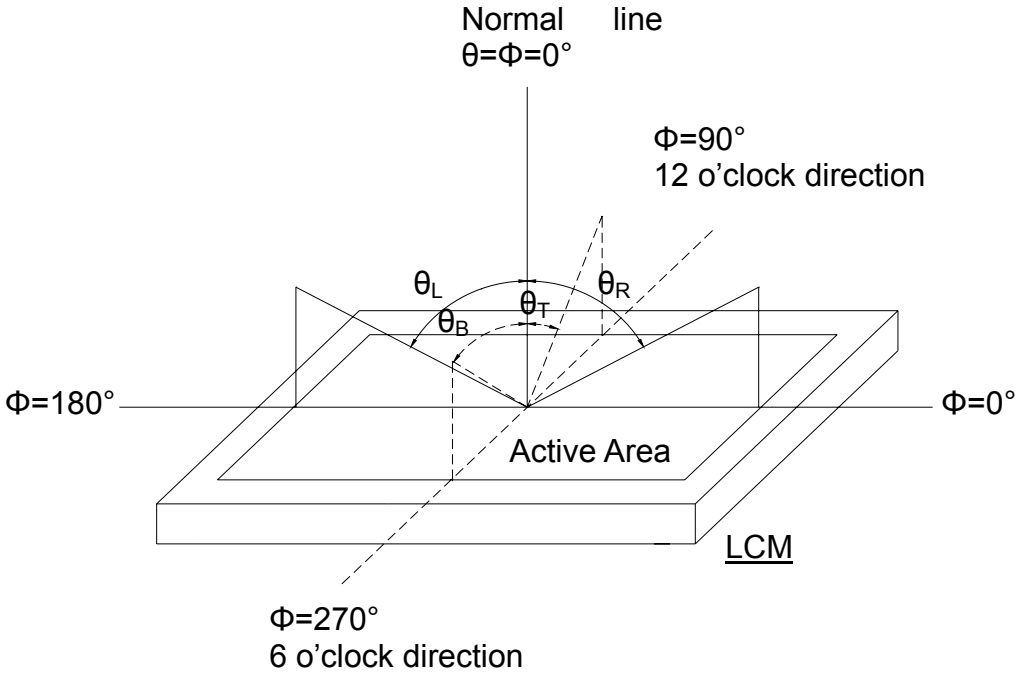


Fig. 4-1 Definition of viewing angle

Note 2: Definition of optical measurement system.

The optical characteristics should be measured in dark room. After 30 minutes operation, the optical properties are measured at the center point of the LCD screen. (Viewing angle is measured by ELDIM-EZ contrast/Height :1.2mm ,Response time is measured by Photo detector TOPCON BM-7, other items are measured by BM-5A/Field of view: 1° /Height: 500mm.)

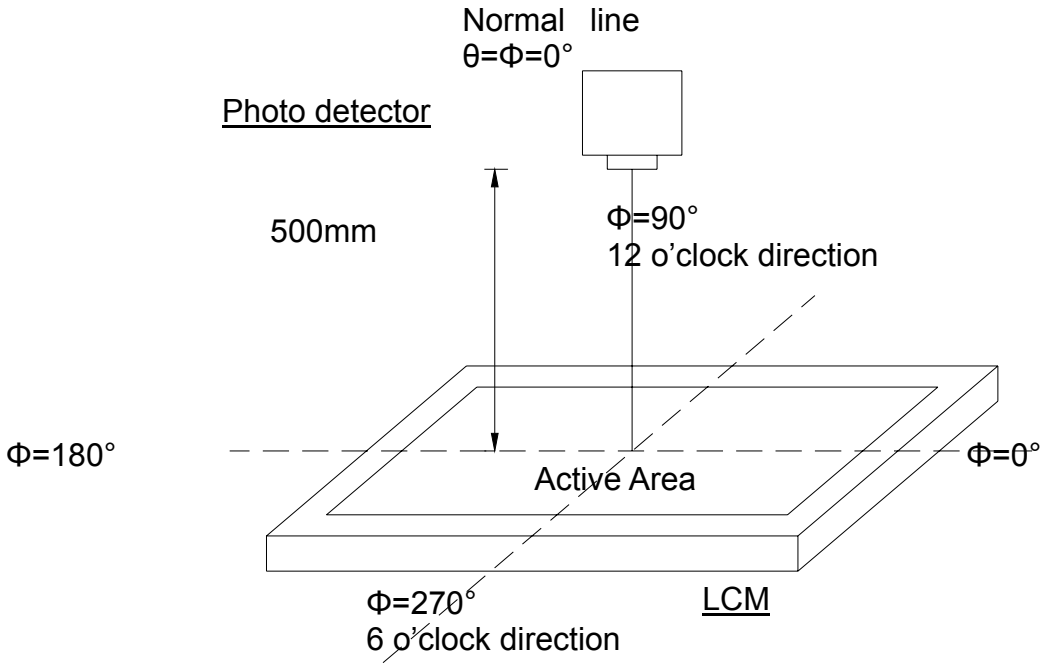


Fig. 4-2 Optical measurement system setup

Note 3: Definition of Response time

The response time is defined as the LCD optical switching time interval between "White" state and "Black" state. Rise time (T_{ON}) is the time between photo detector output intensity changed from 90% to 10%. And fall time (T_{OFF}) is the time between photo detector output intensity changed from 10% to 90%.

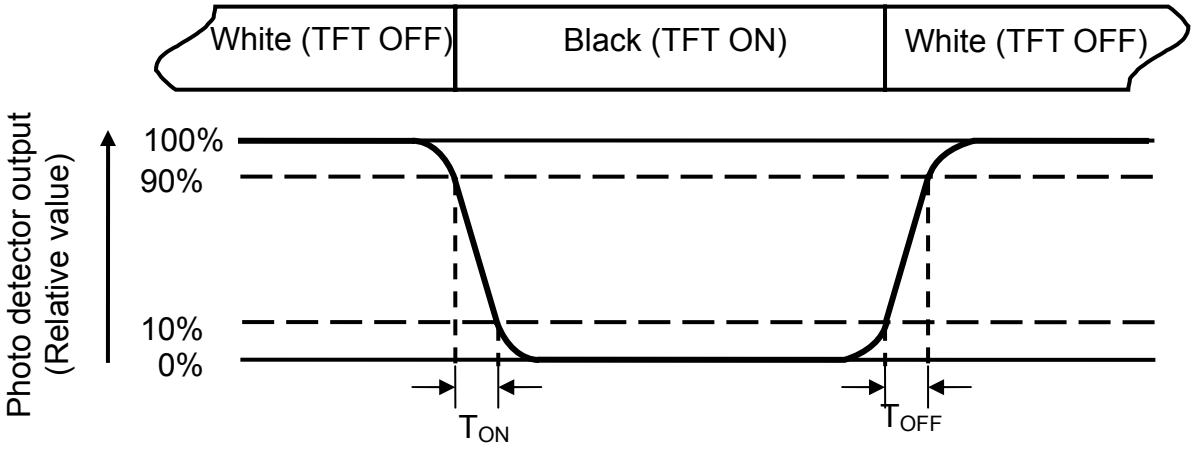


Fig. 4-3 Definition of response time

Note 4: Definition of contrast ratio

$$\text{Contrast ratio (CR)} = \frac{\text{Luminance measured when LCD on the "White" state}}{\text{Luminance measured when LCD on the "Black" state}}$$

Note 5: Definition of color chromaticity (CIE1931)

Color coordinates measured at center point of LCD.

Note 6: All input terminals LCD panel must be ground while measuring the center area of the panel. The LED driving condition is V_{LED}=5.0V.

Note 7: Definition of Luminance Uniformity

Active area is divided into 9 measuring areas (Refer to Fig. 4-4).Every measuring point is placed at the center of each measuring area.

$$Luminance\ \ Uniformity\ (Yu) = \frac{B_{min}}{B_{max}}$$

L-------Active area length W----- Active area width

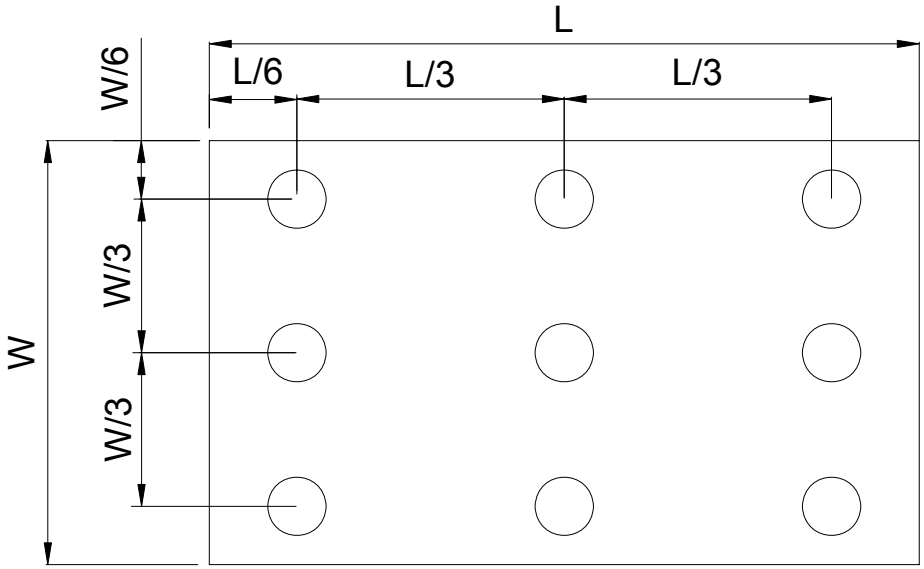


Fig. 4-4 Definition of measuring points

B_{max}: The measured maximum luminance of all measurement position.
B_{min}: The measured minimum luminance of all measurement position.

7. Reliability Test Conditions And Methods

Item	Test Conditions	Remark
High Temperature Storage	Ta = 80℃ 240 hrs	
Low Temperature Storage	Ta =-30℃ 240hrs	
High Temperature Operation	Ts = 70℃ 240hrs	
Low Temperature Operation	Ta = -20℃ 240hrs	
Operate at High Temperature and Humidity	+60℃, 90%RH max. 240 hrs	Operation
Thermal Shock	-20℃~ +70℃ 100 cycles 2Hrs/cycle	Non-operation
Electrostatic Discharge	Contact=±4KV, class B Air=±8KV, class B	
Vibration Test	Frequency range:8~33.3Hz Stroke:1.3mm Sweep:2.9G 33.3~400Hz 2 hours for each direction of X. Y. Z. (6 hours for total)	Non-operation JIS C7021,A-10 ConditionA: 15minutes
Mechanical Shock	100G 6ms,±X, ±Y, ±Z 3 times for each direction	Non-operation JIS C7021,A-7 ConditionC
Vibration(With Carton)	Random Vibration : 0.015G*G/Hz from 5-200HZ, -6dB/Octave from 200-500HZ	IEC68-34
Drop(With Carton)	Height:60 cm 1 corner, 3 edges, 6 surfaces	
Electro Static Discharge	± 2KV, Human Body Mode, 100pF/1500Ω	

8. Handling Precautions

8.1 Mounting method

The LCD panel of Daxian LCD module consists of two thin glass plates with polarizes which easily be damaged. And since the module in so constructed as to be fixed by utilizing fitting holes in the printed circuit board.

Extreme care should be needed when handling the LCD modules.

8.2 Caution of LCD handling and cleaning

When cleaning the display surface, Use soft cloth with solvent [recommended below] and wipe lightly

- Isopropyl alcohol
- Ethyl alcohol

Do not wipe the display surface with dry or hard materials that will damage the polarizer surface.

Do not use the following solvent:

- Water
- Aromatics

Do not wipe ITO pad area with the dry or hard materials that will damage the ITO patterns

Do not use the following solvent on the pad or prevent it from being contaminated:

- Soldering flux

- Chlorine (Cl) , Salfur (S)

If goods were sent without being sili8con coated on the pad, ITO patterns could be damaged due to the corrosion as time goes on.

If ITO corrosion happen by miss-handling or using some materials such as Chlorine (CI), Salfur (S) from customer, Responsibility is on customer.

8.3 Caution against static charge

The LCD module use C-MOS LSI drivers, so we recommended that you:

Connect any unused input terminal to Vdd or Vss, do not input any signals before power is turned on, and ground your body, work/assembly areas, assembly equipment to protect against static electricity.

8.4 packing

- Module employ LCD elements and must be treated as such.
- Avoid intense shock and falls from a height.
- To prevent modules from degradation, do not operate or store them exposed direct to sunshine or high temperature/humidity

8.5 Caution for operation

- It is an indispensable condition to drive LCD's within the specified voltage limit since the higher voltage then the limit cause the shorter LCD life.
- An electrochemical reaction due to direct current causes LCD's undesirable deterioration, so that the use of direct current drive should be avoided.
- Response time will be extremely delayed at lower temperature then the operating temperature range and on the other hand at higher temperature LCD's how dark color in them. However those phenomena do not mean malfunction or out of order with LCD's, which will come back in the specified operation temperature.
- If the display area is pushed hard during operation, some font will be abnormally displayed but it resumes normal condition after turning off once.
- A slight dew depositing on terminals is a cause for electro-chemical reaction resulting in terminal open circuit.

  Usage under the maximum operating temperature, 50%Rh or less is required.

8.6 storage

In the case of storing for a long period of time for instance, for years for the purpose or replacement use, the following ways are recommended.

- Storage in a polyethylene bag with the opening sealed so as not to enter fresh air outside in it . And with no desiccant.
- Placing in a dark place where neither exposure to direct sunlight nor light's keeping the storage temperature range.
- Storing with no touch on polarizer surface by the anything else.

  [It is recommended to store them as they have been contained in the inner container at the time of delivery from us

8.7 Safety

- It is recommendable to crash damaged or unnecessary LCD's into pieces and wash off liquid crystal by either of solvents such as acetone and ethanol, which should be burned up later.

- When any liquid leaked out of a damaged glass cell comes in contact with your hands, please wash it off well with soap and water

9. Precaution for use

9.1

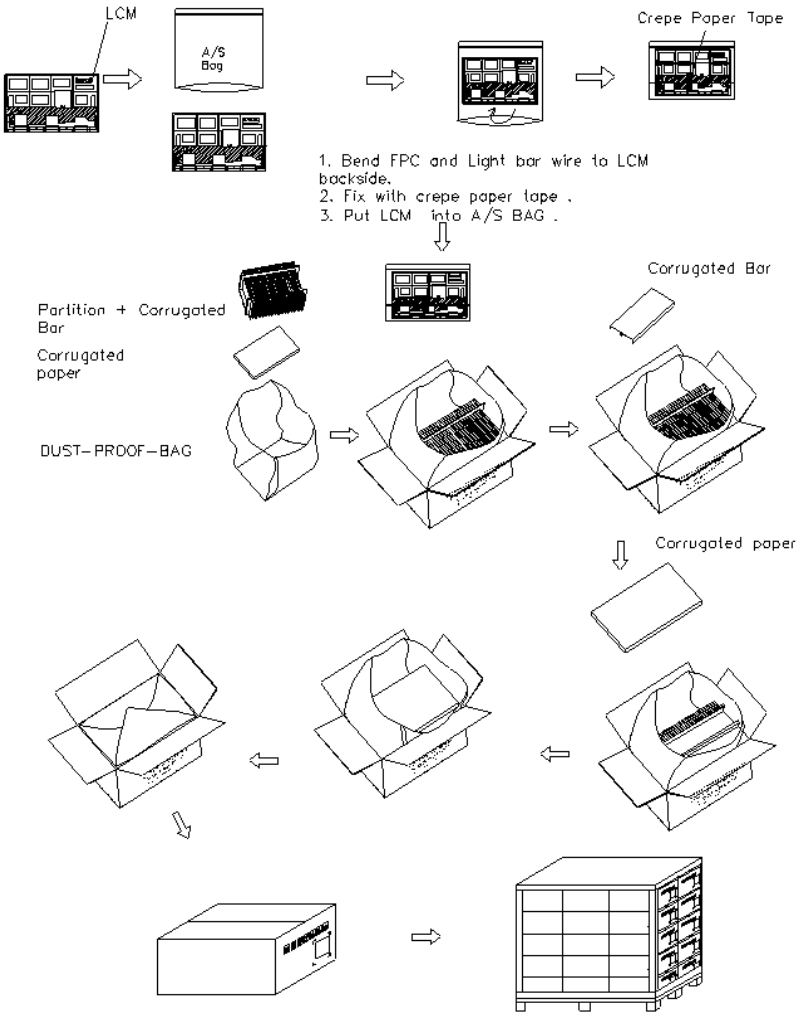
A limit sample should be provided by the both parties on an occasion when the both parties agreed its necessity. Judgment by a limit sample shall take effect after the limit sample has been established and confirmed by the both parties.

9.2

On the following occasions, the handing of problem should be decided through discussion and agreement between responsible of the both parties.

- When a question is arisen in this specification
- When a new problem is arisen which is not specified in this specifications
- When an inspection specifications change or operating condition change in customer is reported to Daxian , and some problem is arisen in this specification due to the change
- When a new problem is arisen at the customer's operating set for sample evaluation in the customer site.

10. Package Drawing



11. Outline Dimension