宇华国际科技有限公司
YuHua INT,L Technology Co., LIMITED

SPECIFICATION FOR LCD MODULE

Customer : _____

Product Model: G104XE-L04

Sample code: _____

Designed by	Checked by	Approved by

Final Approval by Customer

☐ **LCM Machinery OK** Checked By _____ ☐ **LCM Display OK** Checked By _____	☐ **LCM OK** ☐ **NG，Problem survey:** Approved By _____

※The specification of "TBD" should refer to the measured value of sample . If there is difference between the design specification and measured value, we naturally shall negotiate and agree to solution with customer.

宇华国际科技有限公司
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REVISION HISTORY

Version	Date	Page (New)	Section	Description
1.0	2019/10/15	All	All	Approval spec was first issued
2.0	2020/12/09	Page4		Preliminary spec for reference.

1. GENERAL DESCRIPTION

1.1 OVERVIEW

G104XE‐L04 is a 10.4" TFT Liquid Crystal Display module with LED backlight unit and 30-pin-and-1ch LVDS interface. This product supports 1024 x 768 XGA format and can display true 16.2M colors (6-bits colors with FRC). The converter module for LED backlight is built-in.

1.2 FEATURES

- Excellent brightness (1200 nits)
- Ultra high contrast ratio (1000:1)
- Fast response time (Ton+Toff average 25 ms)
- XGA (1024 x 768 pixels) resolution
- DE (Data Enable) only mode
- LVDS (Low Voltage Differential Signaling) interface
- Ultra wide viewing angle: 176(H)/ 176(V) (CR>10) Super MVA technology
-180 degree rotation display option
-Color reproduction (Nature color)
-Wide operation and storage temperature range

1.3 APPLICATION

- TFT LCD monitor for Industrial applications
- Slim design display for portable applications
- Digitizer Applicable Design

1.4 GENERAL SPECIFICATI0NS

Item	Specification	Unit	Note
Active Area	210.4 (H) x 157.8 (V) (10.4" diagonal)	mm	(1)
Bezel Opening Area	215.4 (H) x 161.8 (V)	mm	
Driver Element	a-si TFT active matrix	-	-
Pixel Number	1024 x R.G.B. x 768	pixel	-
Pixel Pitch (Sub Pixel)	0.2055(H) x 0.2055 (V)	mm	-
Pixel Arrangement	RGB vertical stripe	-	-
Display Colors	16.2 M	color	-
Display Operation Mode	Transmissive mode / Normally black	-	-
Surface Treatment	Anti Glare	-	-
Total power consumption(typ)	5.3	W	typ

Note (1) Please refer to the attached drawings for more information of front and back outline dimensions.

1.5 MECHANICAL SPECIFICATIONS

Item		Min.	Typ.	Max.	Unit	Note
Module Size	Horizontal (H)	-	238.6	-	mm	(1)
	Vertical (V)	-	175.8	-	mm	
	Depth (D)	-	6.5	-	mm	-
Weight		-	300	-	g	-

Note (1) Please refer to the attached drawings for more information of front and back outline dimensions.

2. ABSOLUTE MAXIMUM RATINGS

2.1 ABSOLUTE RATINGS OF ENVIRONMENT

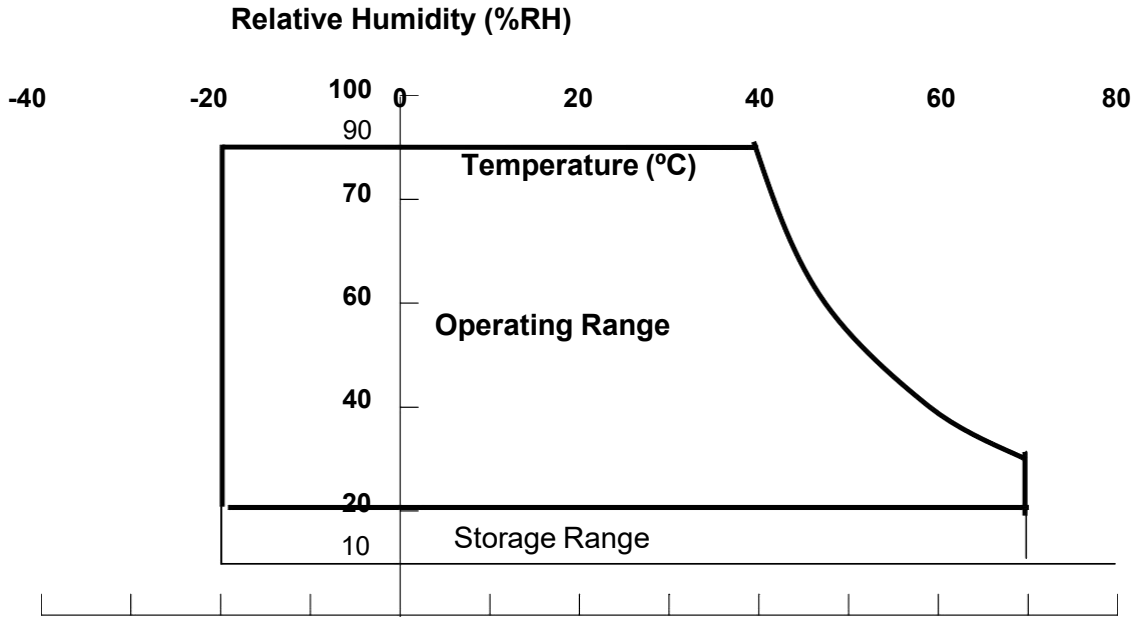
Item	Symbol	Value		Unit	Note
		Min.	Max.		
Operating Ambient Temperature	T_{OP}	-30	+80	ºC	
Storage Temperature	T_{ST}	-30	+80	ºC	

Note (1) Temperature and relative humidity range is shown in the figure below.

(a) 90 %RH Max. (Ta ≦ 40 ºC).

(b) Wet-bulb temperature should be 39 ºC Max. (Ta > 40 ºC).

(c) No condensation



2.2 ELECTRICAL ABSOLUTE RATINGS

2.2.1 TFT LCD MODULE

Item	Symbol	Value		Unit	Note
		Min.	Max.		
Power Supply Voltage	VCC	-0.3	4	V	(1)

2.2.2 Backlight Driving Conditions

Item	Symbol	Values			Unit	Remark
		Min.	Typ.	Max.		
Voltage for LED backlight	V_L	28.0	30	33.8	V	Note 1
Current for LED backlight	I_L	-	300	-	mA	
LED life time	-	15000	30,000	-	Hr	Note 2

3. ELECTRICAL CHARACTERISTICS

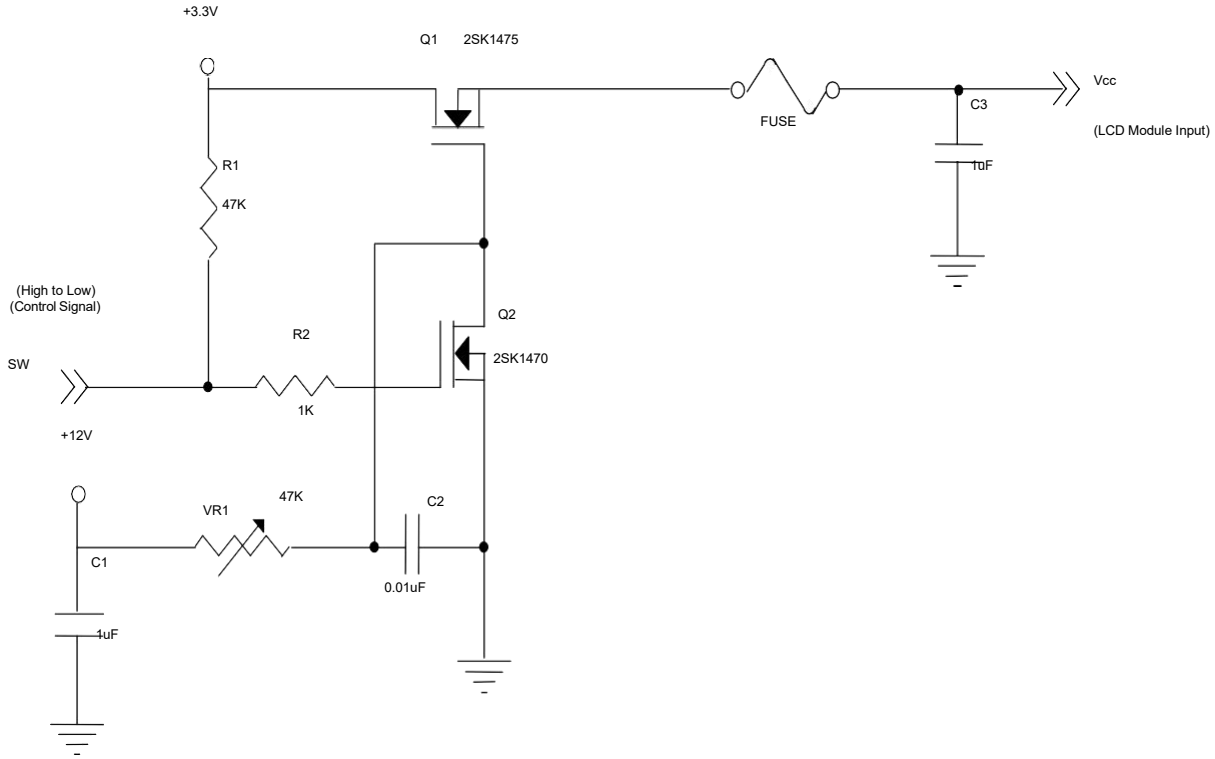
3.1 TFT LCD MODULE

Ta = 25 ± 2 ºC

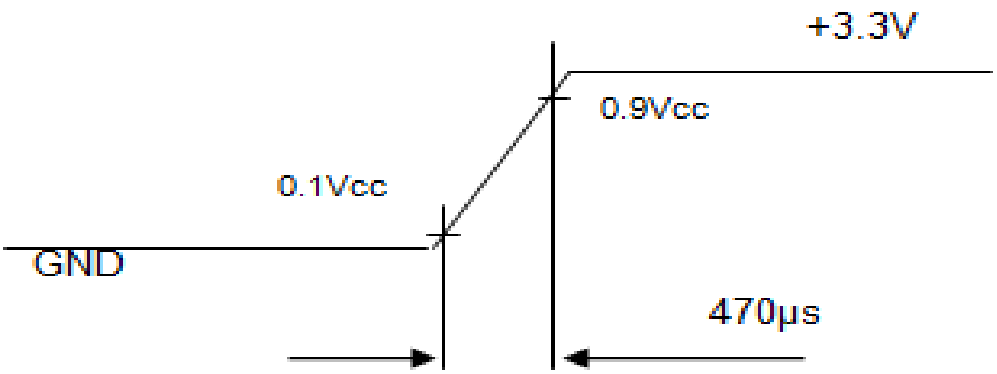
Parameter		Symbol	Value			Unit	Note
			Min.	Typ.	Max.		
Power Supply Voltage		V_{CC}	3.0	3.3	3.6	V	(1)
Rush Current		I_{RUSH}	-	-	4.0	A	(2)
Power Supply Current	White	-	530	570	610	mA	(3)
	Black		380	420	460	mA	
Power Consumption		P_L	---	1.9	---	W	
LVDS differential input voltage		|VID|	100	-	600	mV	-
LVDS common input voltage		VICM	0.7	-	1.6	V	-

Note (1) The assembly should be always operated within above ranges.

Note (2) Measurement Conditions:



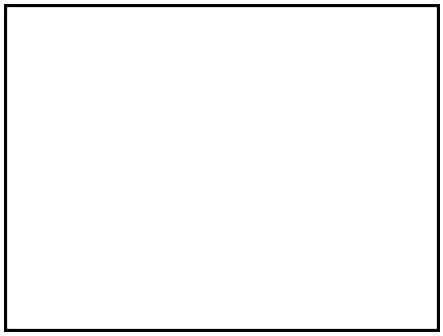
VCC rising time is 470us



Note (3) The specified power supply current is under the conditions at Vcc = 3.3 V, Ta = 25 ± 2 ºC, f_v = 60 Hz, whereas a power dissipation check pattern below is displayed.

470µs

a. White Pattern

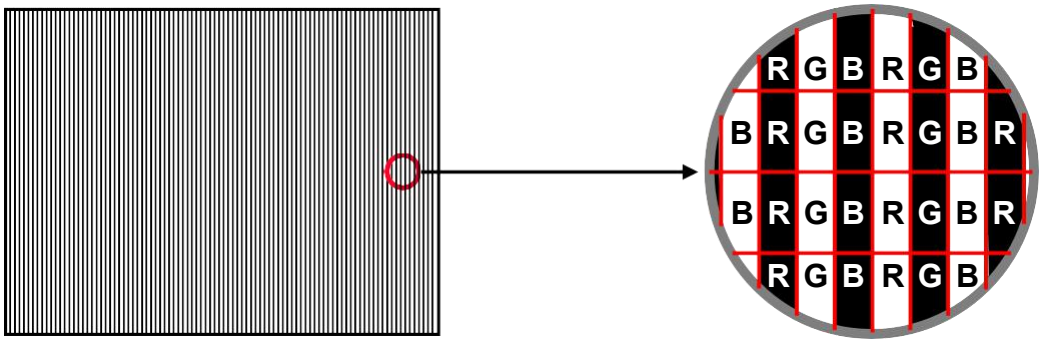


Active Area

b. Black Pattern

Active Area

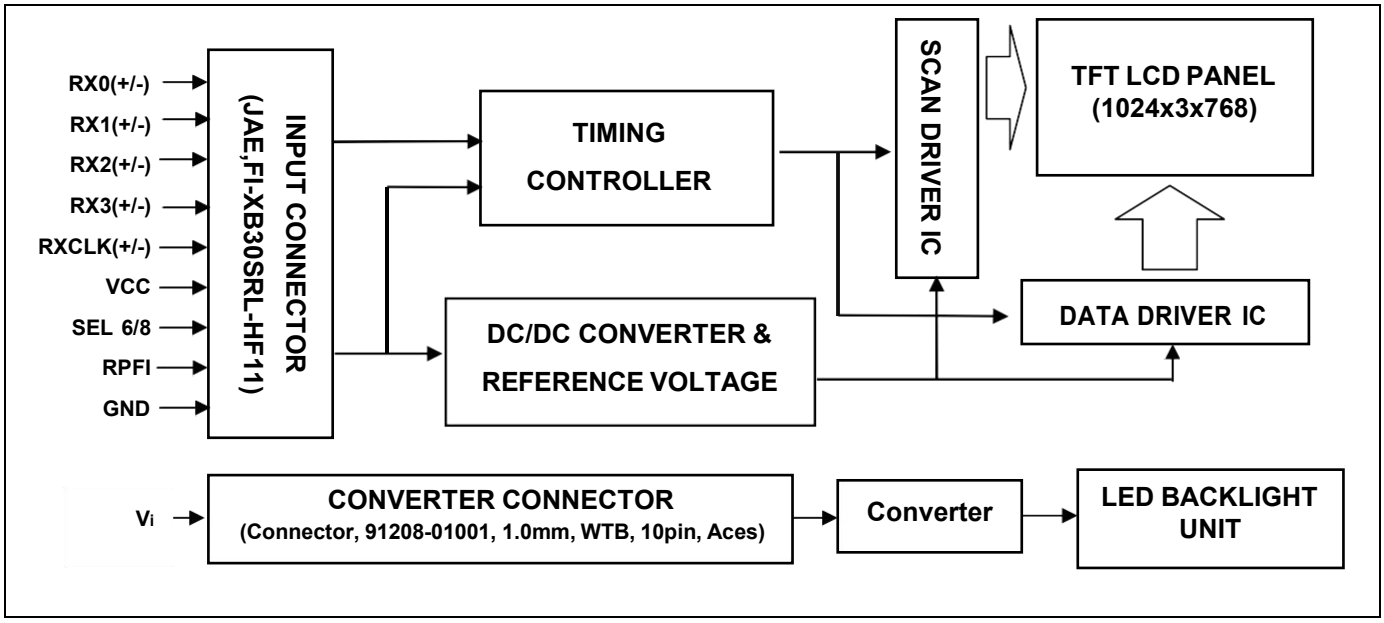
c. Vertical Stripe Pattern



Active Area

4. BLOCK DIAGRAM

4.1 TFT LCD MODULE



5. INTERFACE PIN ASIGNMENT

5.1 TFT LCD MODULE

connector

A 30pin connector of P-two 187098-30091 is used for the module electronics interface. And a special plug needed for connecting this connector, the recommended model is P-two 187130-30xx or JAE FI-X30H.

CN1 Connector Pin Assignment

Pin No.	Symbol	Description	Note
1	NC	Reserved as BIST function for INX test	1
2	GND	Ground	
3	Rin3+	Positive LVDS differential data input (+)	
4	Rin3-	Positive LVDS differential data input (-)	
5	GND	Ground	
6	CLK+	Clock signal (+)	
7	CLK-	Clock signal (-)	
8	GND	Ground	
9	Rin2+	Positive LVDS differential data input (+)	
10	Rin2-	Positive LVDS differential data input (-)	
11	GND	Ground	
12	Rin1+	Positive LVDS differential data input (+)	
13	Rin1-	Positive LVDS differential data input (-)	
14	GND	Ground	
15	Rin0+	Positive LVDS differential data input (+)	
16	Rin0-	Positive LVDS differential data input (-)	
17	GND	Ground	
18	NC	No Connection	
19	GND	Ground	
20	SEL6/8	Selection for 6 bits/8bit LVDS data input Low or NC : 8 bit input mode High : 6 bit input mode	2
21	NC	Reversed as EE_WP for OTP function	3
22	NC	Reversed as EE_SDA for OTP function	3
23	NC	Reversed as EE_SCL for OTP function	3
24	Reverse	Reverse panel function (Display rotation)	4
25	GND	Ground	
26	GND	Ground	
27	GND	Ground	
28	VDD	Power supply: + 3.3V	
29	VDD	Power supply: + 3.3V	
30	VDD	Power supply: + 3.3V	

1. Pin1 is reversed as BIST function for test, don't connect signal to this pin, keep floating.
2. SEL6/8 is used for selecting 6bit/8bit LVDS data input, L or NC: 8bit; High:6bit.
3. Pin21,22,23 are used as SPI interface for OTP function, don't connect any signal to these pin, and don't short them, keep floating.
4. Reverse pin is used for selecting scanning direction.

5.2 COLOR DATA INPUT ASSIGNMENT

The brightness of each primary color (red, green and blue) is based on the 8-bit gray scale data input for the color. The higher the binary input, the brighter the color. The table below provides the assignment of color versus data input.

Color		Data Signal																							
		Red								Green								Blue							
		R7	R6	R5	R4	R3	R2	R1	R0	G7	G6	G5	G4	G3	G2	G1	G0	B7	B6	B5	B4	B3	B2	B1	B0
Basic Colors	Black	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Green	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
	Blue	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
	Cyan	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Magenta	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
	Yellow	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
	White	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gray Scale Of Red	Red(0) / Dark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red(1)	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red(2)	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	Red(253)	1	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red(254)	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Red(255)	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gray Scale Of Green	Green(0) / Dark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Green(1)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
	Green(2)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	Green(253)	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0
	Green(254)	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0
	Green(255)	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
Gray Scale Of Blue	Blue(0) / Dark	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Blue(1)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	Blue(2)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:	:
	Blue(253)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0	1
	Blue(254)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	0
	Blue(255)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1

Note (1) 0: Low Level Voltage, 1: High Level Voltage

6. INTERFACE TIMING

6.1 INPUT SIGNAL TIMING SPECIFICATIONS

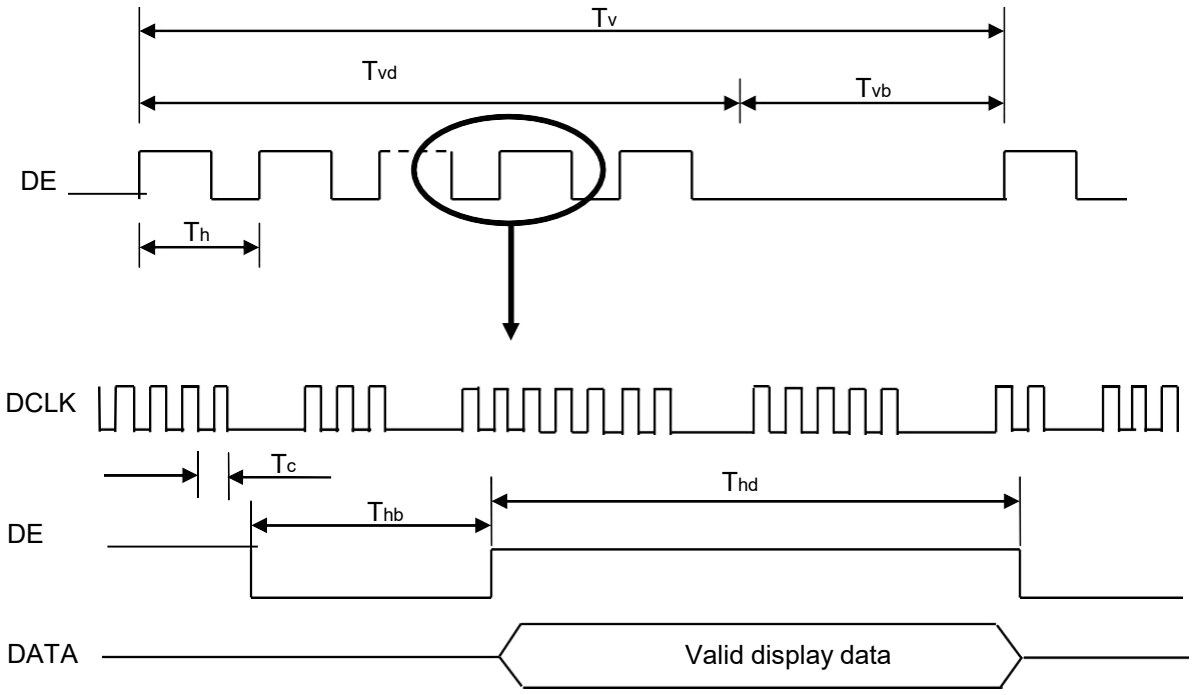
The input signal timing specifications are shown as the following table and timing diagram.

Signal	Item	Symbol	Min.	Typ.	Max.	Unit	Note
DCLK	Frequency	Fc	55	65	75	MHz	
Vertical Active Display Term	Total	Tv	770	806	950	Th	Tv=Tvd+Tvb
	Display	Tvd	768	768	768	Th	-
	Blank	Tvb	2	38	182	Th	-
Horizontal Active Display Term	Total	Th	1104	1344	1800	Tc	Th=Thd+Thb
	Display	Thd	1024	1024	1024	Tc	-
	Blank	Thb	76	320	776	Tc	-

Note (1) Since this assembly is operated in DE only mode, Hsync and Vsync input signals should be set to low logic level. Otherwise, this assembly would operate abnormally.

(2) Frame rate is 60Hz

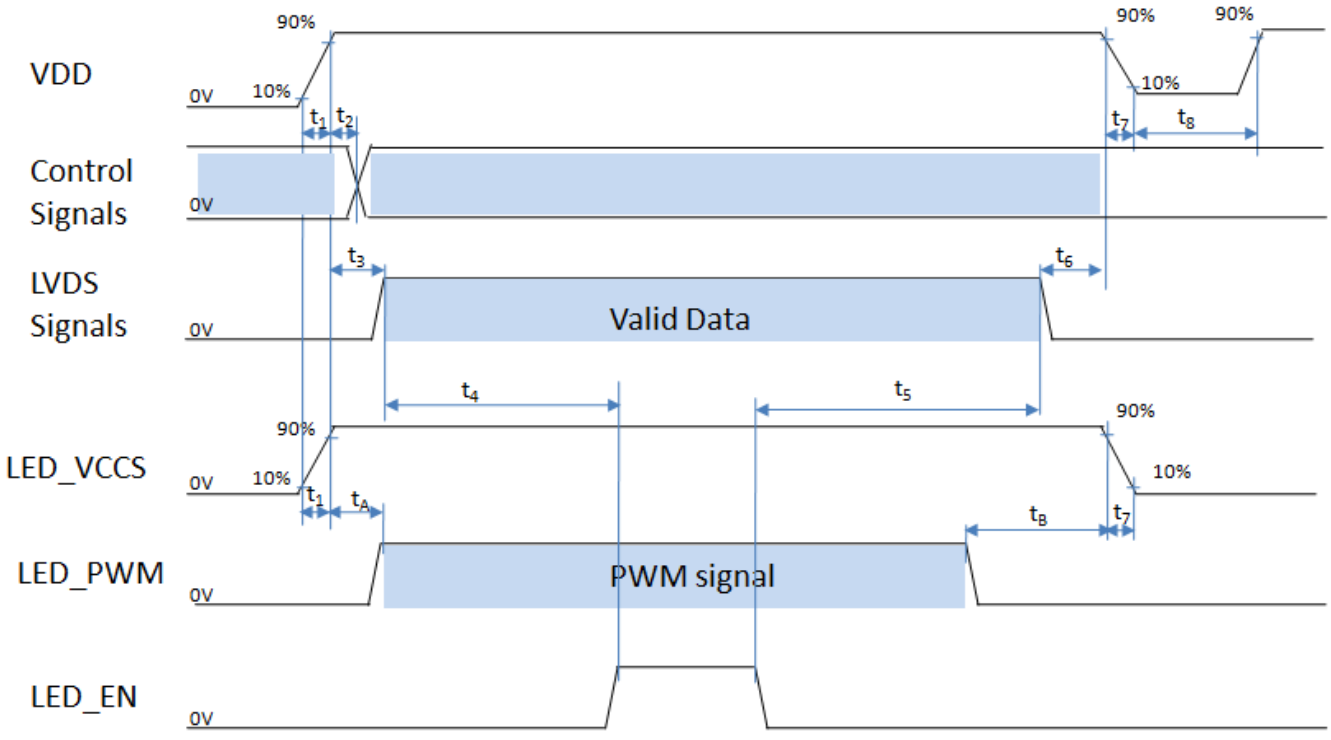
INPUT SIGNAL TIMING DIAGRAM



6.2 Power sequence

The power sequence specifications are shown as the following table and diagram**.**

Symbol	Value		Unit
	Min.	Max.	
t_1	1	20	ms
t_2	1	5	ms
t_3	10	50	ms
t_4	200	500	ms
t_5	200	500	ms
t_6	50	200	ms
t_7	0	20	ms
t_8	500	-	ms
t_A	0	50	ms
t_B	0	50	ms



Note 1: Please don't plug the interface cable of on when system is turned on.

Note 2: Please avoid floating state of the interface signal during signal invalid period.

Note 3: It is recommended that the backlight power must be turned on after the power supply for LCD and the interface signal is valid.

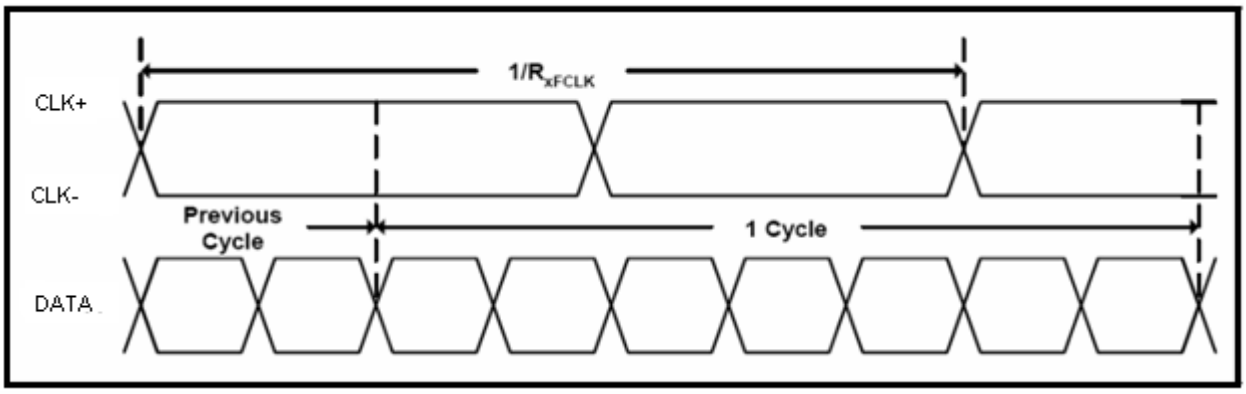
Note 4: Control signals include SEL6/8 & Reverse.

6. 3LVDS SIGNAL TIMING CHARACTERISTICS

6.31AC Electrical characteristics

Parameter	Symbol	Min	Typ	Max	Units	Condition
Clock frequency	RxFCLK	26.2	51.2	71	MHz	
Input data skew margin	TRSKM	500	500	1/(2*RxFCLK)	ps	Typical value for 1024*600 resolution
Clock high time	TLVCH		4/(7xRxFCLK)		ns	|VID|=400mv RxVCM=1.2V RxFCLK=71MHz VDD_LVDS=3.3V
Clock low time	TLVCL		3/(7xRxFCLK)		ns	
VSD setup time	TenPLL	0	TenPLL	150	us	

6.32 Input clock and data timing diagram

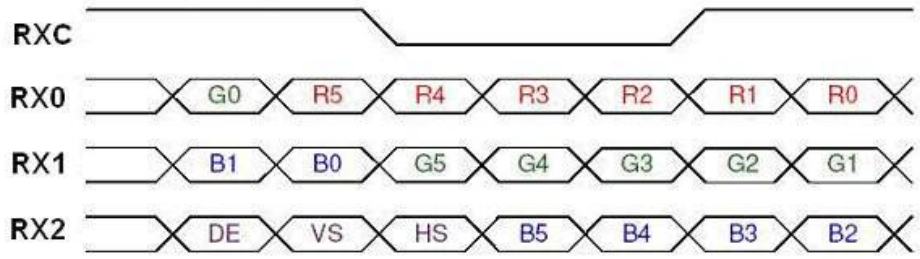


Date clock

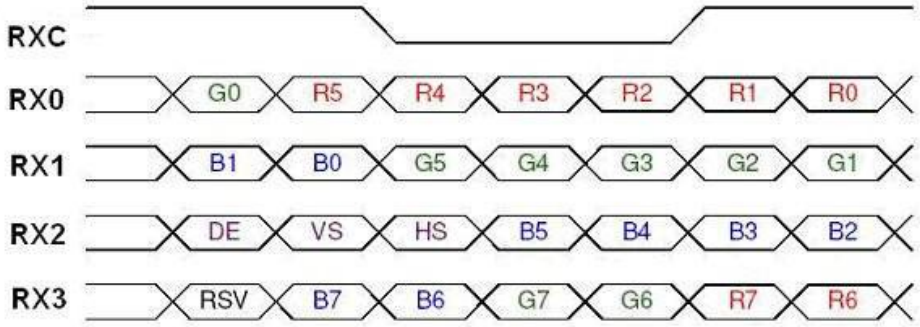
Parameter	Symbol	Spec.			Unit
		Min.	Typ.	Max.	
DCLK frequency	fclk	52	65	71	MHz
Horizontal display area	thd		1024		DCLK
HSD period	th	1114	1344	1400	DCLK
HSD blanking	thb+thfp	90	320	376	DCLK
Vertical display area	tvd		768		T_H
VSD period	tv	778	806	845	T_H
VSD blanking	tvbp+tvfp	10	38	77	T_H

6.41The Input Data Format

SEL 6/8 = "High" for 6 bits LVDS Input



SEL 6/8 = "Low" or "NC" for 8 bits LVDS Input

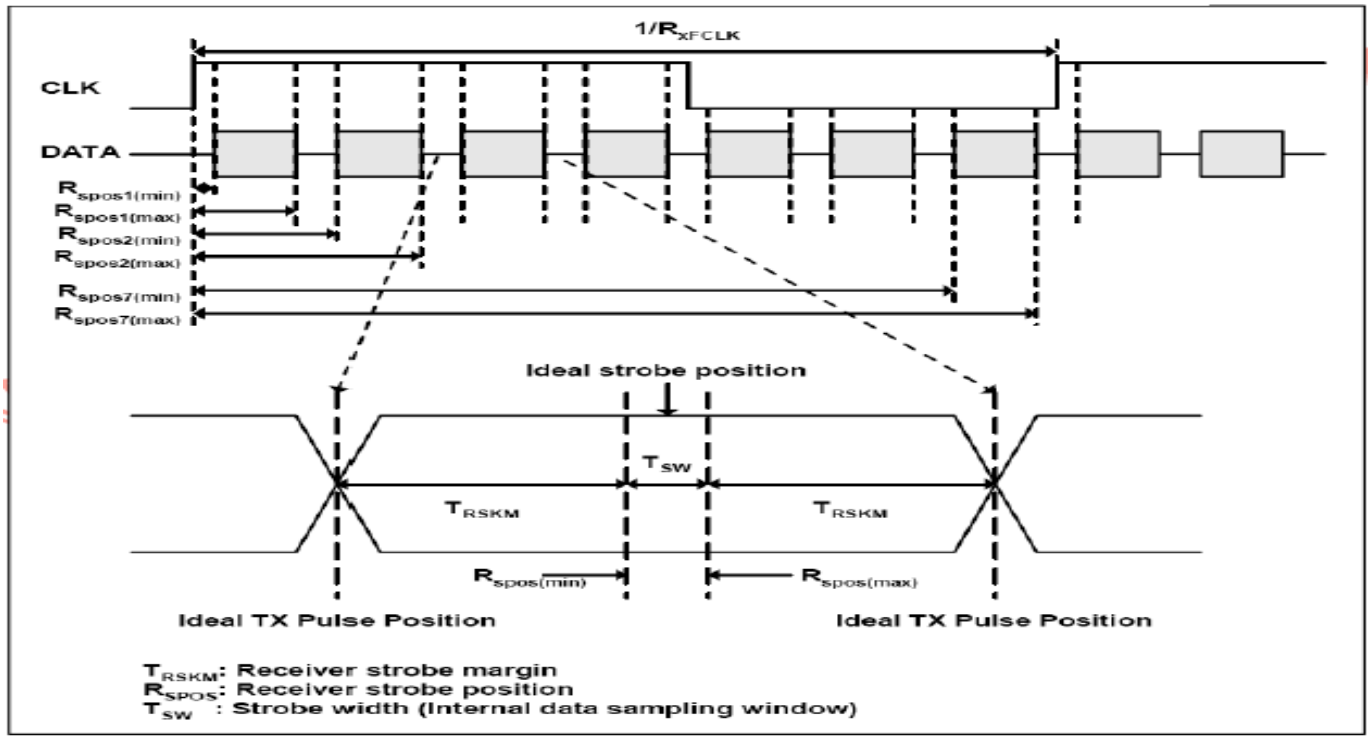


Note (1) R/G/B data 7: MSB, R/G/B data 0: LSB

Note (2) Please follow PSWG

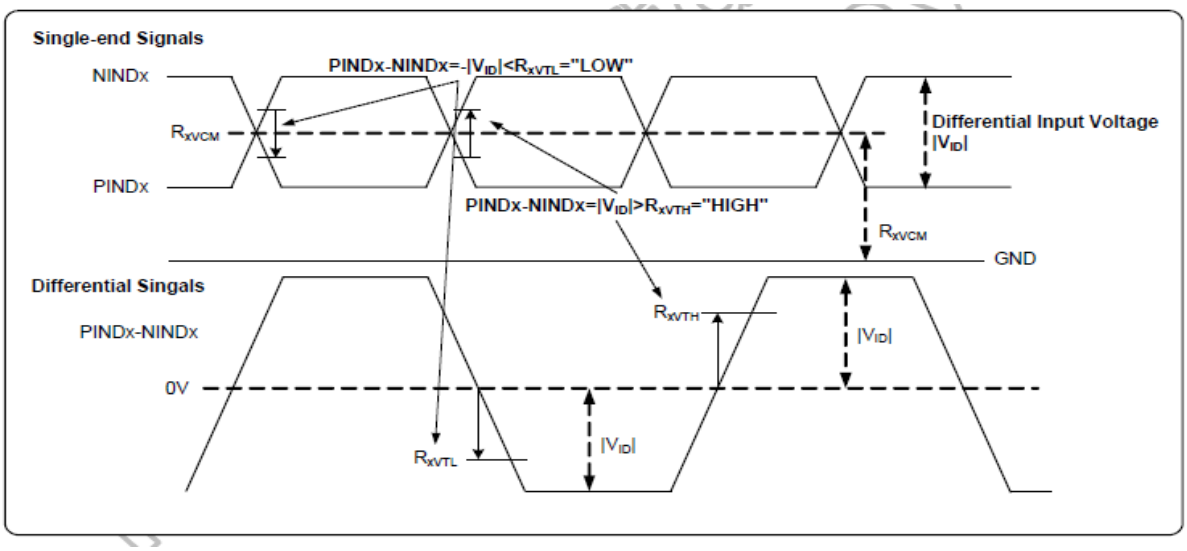
Signal Name	Description	Remark
R7 R6 R5 R4 R3 R2 R1 R0	Red Data 7 (MSB) Red Data 6 Red Data 5 Red Data 4 Red Data 3 Red Data 2 Red Data 1 Red Data 0 (LSB)	Red-pixel Data Each red pixel's brightness data consists of these 8 bits pixel data.
G7 G6 G5 G4 G3 G2 G1 G0	Green Data 7 (MSB) GreenData 6 GreenData 5 GreenData 4 GreenData 3 GreenData 2 GreenData 1 GreenData 0 (LSB)	Green-pixel Data Each green pixel's brightness data consists of these 8 bits pixel data.
B7 B6 B5 B4 B3 B2 B1 B0	Blue Data 7 (MSB) Blue Data 6 Blue Data 5 Blue Data 4 Blue Data 3 Blue Data 2 Blue Data 1 Blue Data 0 (LSB)	Blue-pixel Data Each blue pixel's brightness data consists of these 8 bits pixel data.
RXCLKIN+ RXCLKIN-	LVDS Clock Input	
DE	Display Enable	
VS	Vertical Sync	
HS	Horizontal Sync	

Note (3) Output signals from any system shall be low or Hi-Z state when VCC is off



6.42 DC electrical characteristics 2

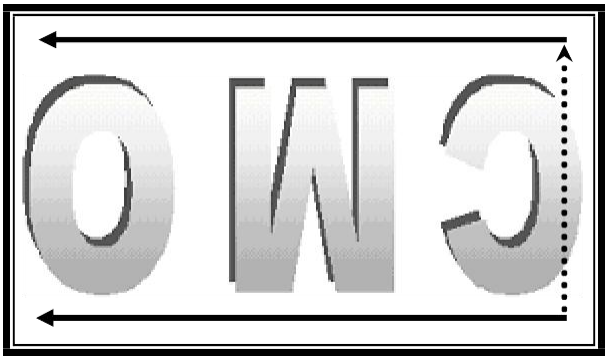
Parameter	Symbol	Values			Unit	Remark
		Min.	Typ.	Max.		
LVDS Differential input high Threshold voltage	R_{xVTH}	-	-	+100	mV	R_{XVCM}=1.2V
LVDS Differential input low Threshold voltage	R_{xVTL}	-100	-	-	mV	
Input Voltage range (Singled-end)	R_{xVIN}	0	-	VDD-1.2+ $\|V_{ID}\|/2$	V	
LVDS Differential input common mode voltage	R_{xVCM}	$\|V_{ID}\|/2$	-	VDD-1.2	V	
LVDS Differential voltage	$\|V_{ID}\|$	0.2	-	0.6	V	



6.6 Scanning Direction

The following figures show the image see from the front view. The arrow indicates the direction of scan.

RPFI = Low/floating; normal display (default)



RPFI = high: display with 180degree rotation

7. OPTICAL CHARACTERISTICS

7.1 TEST CONDITIONS

Item	Symbol	Value	Unit
Ambient Temperature	Ta	25±2	°C
Ambient Humidity	Ha	50±10	%RH
Supply Voltage	V_{CC}	5	V
Input Signal	According to typical value in "3. ELECTRICAL CHARACTERISTICS"		
Converter Current	I_L	20±1mA	mA

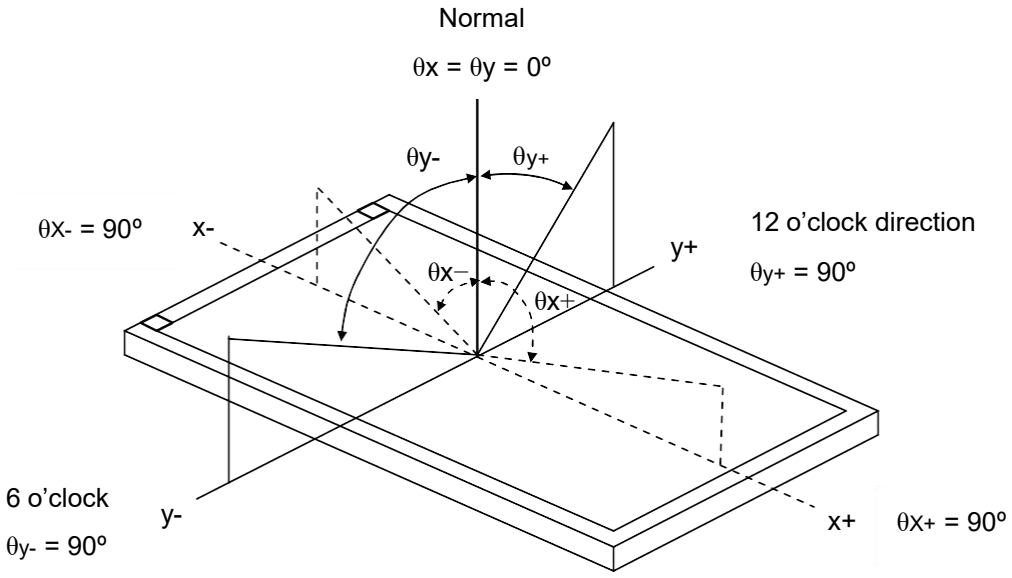
7.2 OPTICAL SPECIFICATIONS

The relative measurement methods of optical characteristics are shown in 7.2. The following items should be measured under the test conditions described in 7.1 and stable environment shown in Note (6).

Item		Symbol	Condition	Min.	Typ.	Max.	Unit	Note
Contrast Ratio		CR	θ_x=0°, θ_Y =0° Viewing angle at normal direction	700	1000		-	(2)
Response Time		T_R		-	14	19	ms	(3)
		T_F		-	11	16	ms	
Center Luminance of White		L_C		900	1000	-	cd/m^2	(4)
White Variation		δW		-	-	1.4	-	(7)
Cross Talk		CT		-	-	4	%	(5)
Chromaticity	Red	Rx		Typ. -0.05	0.610	Typ. +0.05	-	(6)
		Ry			0.365		-	
	Green	Gx			0.341		-	
		Gy			0.564		-	
	Blue	Bx			0.147		-	
		By			0.087		-	
	White	Wx			0.313		-	
		Wy			0.329		-	
Viewing Angle	Horizontal	θ_x+	CR≥10	80	88	-	Deg.	(1)
		θ_x-		80	88	-		
	Vertical	θ_Y+		80	88	-		
		θ_Y-		80	88	-		

Note (1) Definition of Viewing Angle (θx, θy):

Viewing angles are measured by BM5A



Note (2) Definition of Contrast Ratio (CR):

The contrast ratio can be calculated by the following expression.

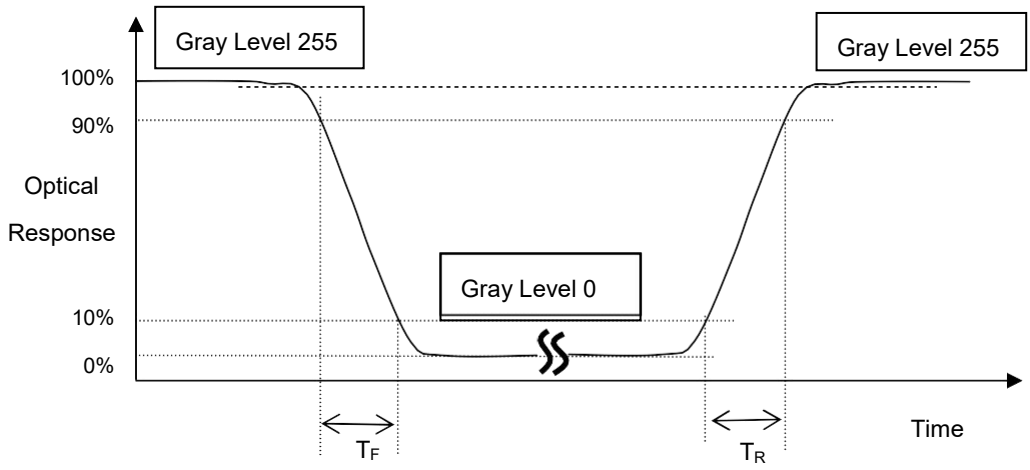
Contrast Ratio (CR) = L255 / L0

L255: Luminance of gray level 255

L 0: Luminance of gray level 0

CR = CR (5), where CR (X) is corresponding to the Contrast Ratio of the point X at the figure in Note (7).

Note (3) Definition of Response Time (T_R, T_F):



.

Note (4) Definition of Luminance of White (L_C):

Measure the luminance of gray level 255 at center point and 5 points

L_C = L (5), where L (X) is corresponding to the luminance of the point X at the figure in Note (7).

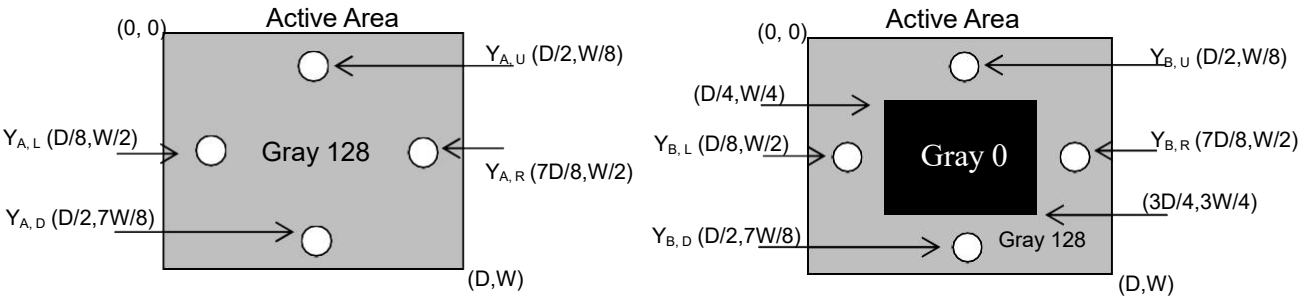
Note (5) Definition of Cross Talk (CT):

$CT = | Y_B – Y_A | / Y_A \times 100$ (%)

Where:

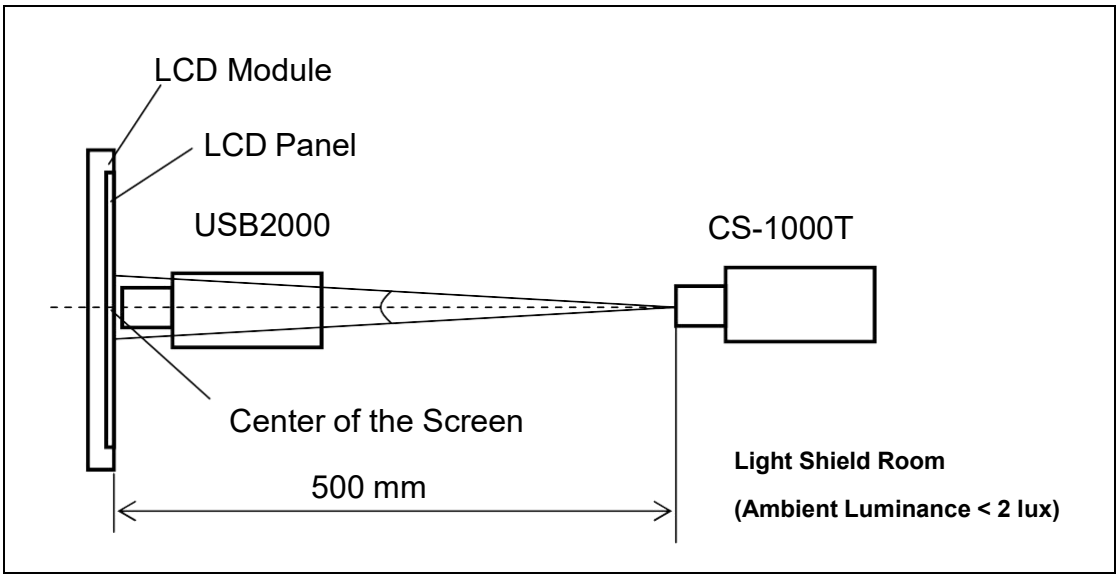
Y_A = Luminance of measured location without gray level 0 pattern (cd/m^2)

Y_B = Luminance of measured location with gray level 0 pattern (cd/m^2)



Note (6) Measurement Setup:

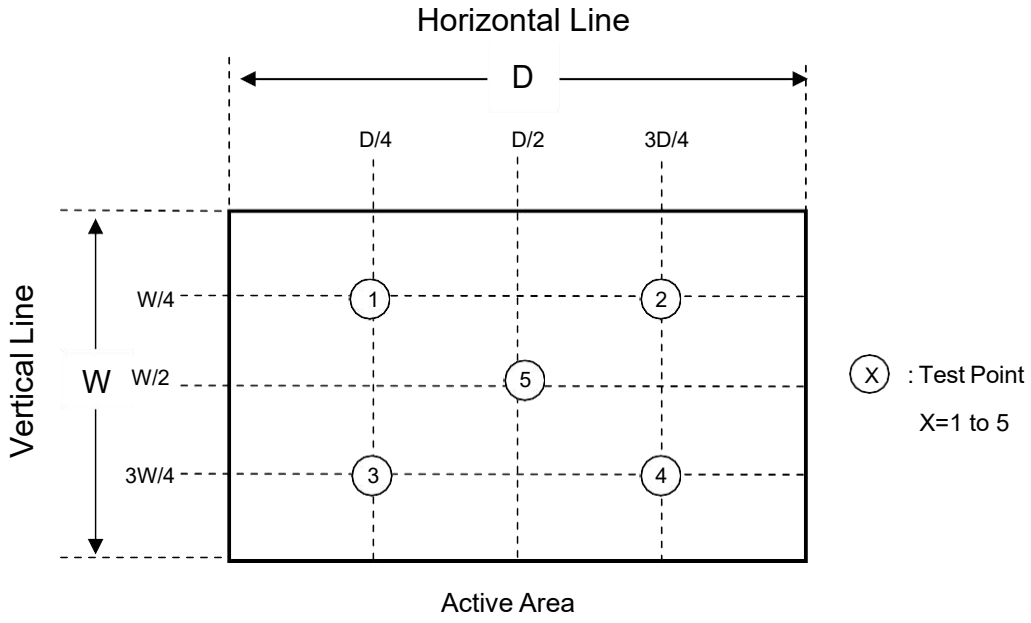
The LCD assembly should be stabilized at given temperature for 30 minutes to avoid abrupt temperature change during measuring. In order to stabilize the luminance, the measurement should be executed after lighting Backlight for 30 minutes in a windless room.



Note (7) Definition of White Variation (δW):

Measure the luminance of gray level 255 at 5 points

δW = Maximum [L (1), L (2), L (3), L (4), L (5)] / Minimum [L (1), L (2), L (3), L (4), L (5)]



8. Reliability Test Criteria

Test Item	Test Condition	Note
High Temperature Storage Test	80ºC, 240 hours	(1) (2)
Low Temperature Storage Test	-30ºC, 240 hours	
Thermal Shock Storage Test	-30ºC, 0.5hour←→70℃, 0.5hour; 100cycles, 1hour/cycle	
High Temperature Operation Test	80ºC, 240 hours	
Low Temperature Operation Test	-30ºC, 240 hours	
High Temperature & High Humidity Operation Test	70ºC, 90%RH, 240hours	
Shock (Non-Operating)	200G, 2ms, half sine wave, 1 time for ± X, ± Y, ± Z.	(3)
Vibration (Non-Operating)	1.5G, 10 ~ 300 Hz, 10min/cycle, 3 cycles each X, Y, Z	(3)

Note (1) There should be no condensation on the surface of panel during test.

Note (2) Temperature of panel display surface area should be 80 ºC Max.

Note (3) At testing Vibration and Shock, the fixture in holding the module has to be hard and rigid enough so that the module would not be twisted or bent by the fixture.

9. PACKAGING

9.1 PACKING SPECIFICATIONS

(1) 18pcs LCD modules / 1 Box

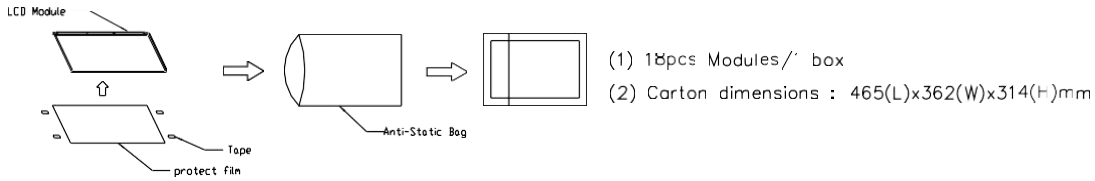
(2) Box dimensions: 465 (L) X 362 (W) X 314 (H) mm

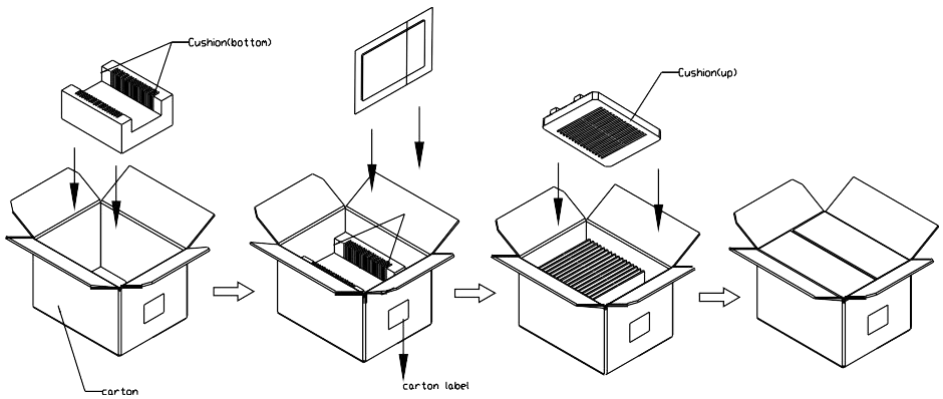
(3) Weight: approximately 8.3Kg (18 modules per box)

9.2 PACKING METHOD

(1) Carton Packing should have no failure in the following reliability test items.

Test Item	Test Conditions	Note
Vibration	ISTA STANDARD Random, Frequency Range: 2 – 200 Hz Top & Bottom: 30 minutes (+Z), 10 min (-Z), Right & Left: 10 minutes (X) Back & Forth 10 minutes (Y)	Non Operation
Dropping Test	1 Angle, 3 Edge, 6 Face, 61 cm	Non Operation

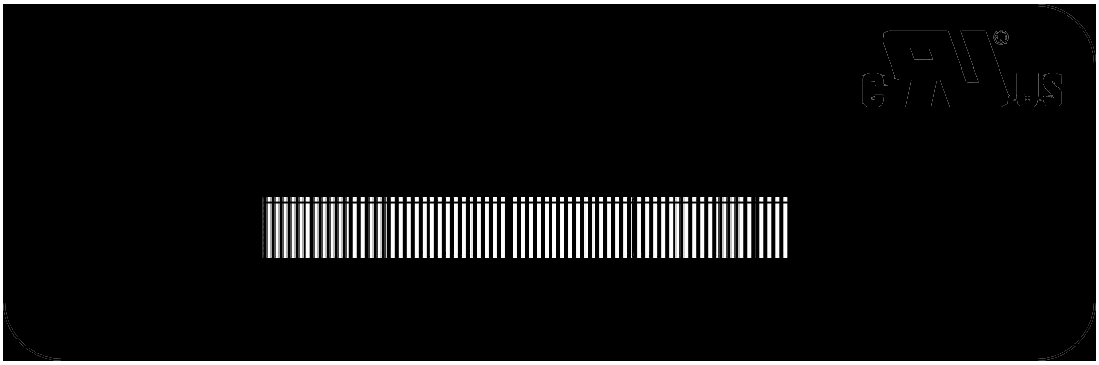




10. DEFINITION OF LABELS

10.1 CMO MODULE LABEL

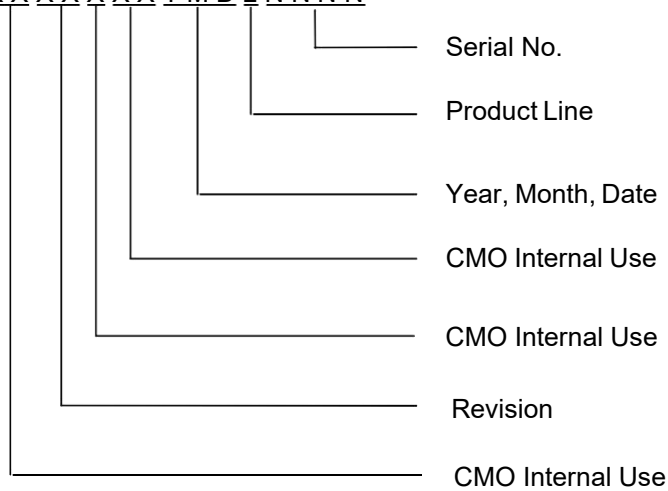
The barcode nameplate is pasted on each module as illustration, and its definitions are as following explanation.



(a) Model Name: G104XE-L04

(b) Revision: Rev. XX, for example: A0, A1… B1, B2… or C1, C2…etc.

(c) Serial ID: X X X X X X Y M D L N N N N



Serial ID includes the information as below:

(a) Manufactured Date: Year: 0~9, for 2000~2009

Month: 1~9, A~C, for Jan. ~ Dec.

Day: 1~9, A~Y, for 1st to 31st, exclude I ,O, and U.

(b) Revision Code: Cover all the change

(c) Serial No.: Manufacturing sequence of product

(d) Product Line: 1 -> Line1, 2 -> Line 2, …etc.

11. PRECAUTIONS

11.1 ASSEMBLY AND HANDLING PRECAUTIONS

(1) Do not apply rough force such as bending or twisting to the module during assembly.

(2) It is recommended to assemble or to install a module into the user's system in clean working areas. The dust and oil may cause electrical short or worsen the polarizer.

(3) Do not apply pressure or impulse to the module to prevent the damage of LCD panel and Backlight.

(4) Always follow the correct power-on sequence when the LCD module is turned on. This can prevent the damage and latch-up of the CMOS LSI chips.

(5) Do not plug in or pull out the I/F connector while the module is in operation.

(6) Do not disassemble the module.

(7) Use a soft dry cloth without chemicals for cleaning, because the surface of polarizer is very soft and easily scratched.

(8) Moisture can easily penetrate into LCD module and may cause the damage during operation.

(9) High temperature or humidity may deteriorate the performance of LCD module. Please store LCD modules in the specified storage conditions.

(10) When ambient temperature is lower than 10ºC, the display quality might be reduced. For example, the response time will become slow, and the starting voltage of backlight will be higher than that of room temperature.

(11) Do not keep same pattern in a long period of time. It may cause image sticking on LCD.

11.2 SAFETY PRECAUTIONS

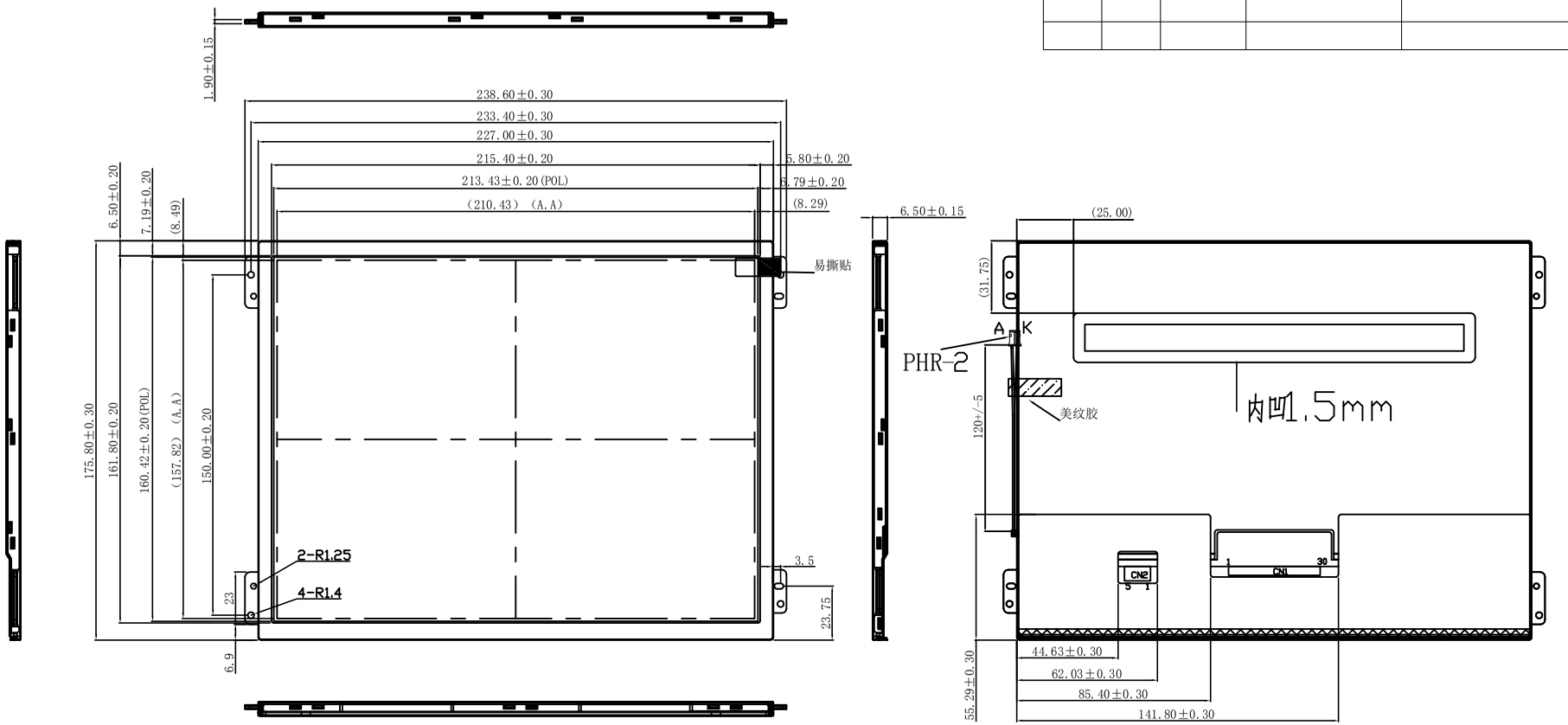
(1) The startup voltage of a Backlight is approximately 1000 Volts. It may cause an electrical shock while assembling with the inverter. Do not disassemble the module or insert anything into the Backlight unit.

(2) If the liquid crystal material leaks from the panel, it should be kept away from the eyes or mouth. In case of contact with hands, skin or clothes, it has to be washed away thoroughly with soap.

(3) After the module's end of life, it is not harmful in case of normal operation and storage.

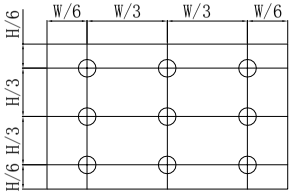
第三角法	DATE 日期	2020-8-19	PAGE 页数	1/1

MARK	REV.	DATE	REASON FOR CHANGE	CENTENT
—	A0	2020-8-19	————	新增规格

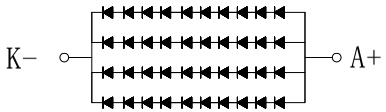


测试9点,测试距离:50±5cm,测试角度:1° Ø5
均匀性=最小/最大亮度*100%,测试仪器BM-7A

亮度测试以TTS BM-7A为准



测试点



10*4=40LED 62.5*4=250mA

Notes:

1. Unit:mm.
2. Do not scale drawing.
3. ⚠ Modification rev.number.
4. Without tolorance is ±0.20
5. *** Critical dimension :**
   ( )Reference dimension;
6. 重要尺寸CPK>1.33
7. Circuit Diagram
8. 所有的材料都要符合RoHS标准
9. 平整度控制到0.4MAX

Item(项目)		Symbol(符号)	min.(最小值)	typ.(中间值)	max.(最大值)	Unit(单位)	Condition(条件)
Main screen 主屏 (BL)	Luminance(亮度)	Lv				cd/m²	(BM-7测试值)
	Uniformity(均匀性)	Avg				%	
	Colour Coordinate (色坐标)	X					(照计度测试值)
		Y					
Main screen 主屏 (LCM)	Luminance(亮度) (盖TAB)	Lv	900	1200		cd/m²	If= 250 mA (定电流测试)
	Uniformity(均匀性) (盖TAB)	Avg	80			%	
	Colour Coordinate (色坐标)(盖TAB)	X	0.260		0.320		样品亮度根据实际做出来样品亮度定
		Y	0.280		0.360		
Forward Voltage(正向电压)		Vf		30.0		V	
•Operating Temperature(工作温度): -20~+70° C •Storage Temperature(储存温度): -30~+80° C							

宇华国际科技有限公司

CUSTOMER Approver 客户承认		CUSTOMER'S NAME 客户名称		DESIGN 设计	
CODE 型号	G104XE-L04		EDITION 版本 A0	CHECK 审核	
Supplier'S CODE 供应商型号	YH1004650H40EA-C03A		EDITION 版本 A0	REVIEW 确认	