



深圳戴维营电子有限公司

Shenzhen David Camp Electronics Co., Ltd.

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DCE156QUM-N10-W600-Product Specification Rev.P0

SUPPLIER	
FG-Code	DCE156QUM-N10-W600

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ITEM	SUPPLIER SIGNATURE	DATE
Prepared	_____	_____
Reviewed	_____	_____
Approved	_____	_____

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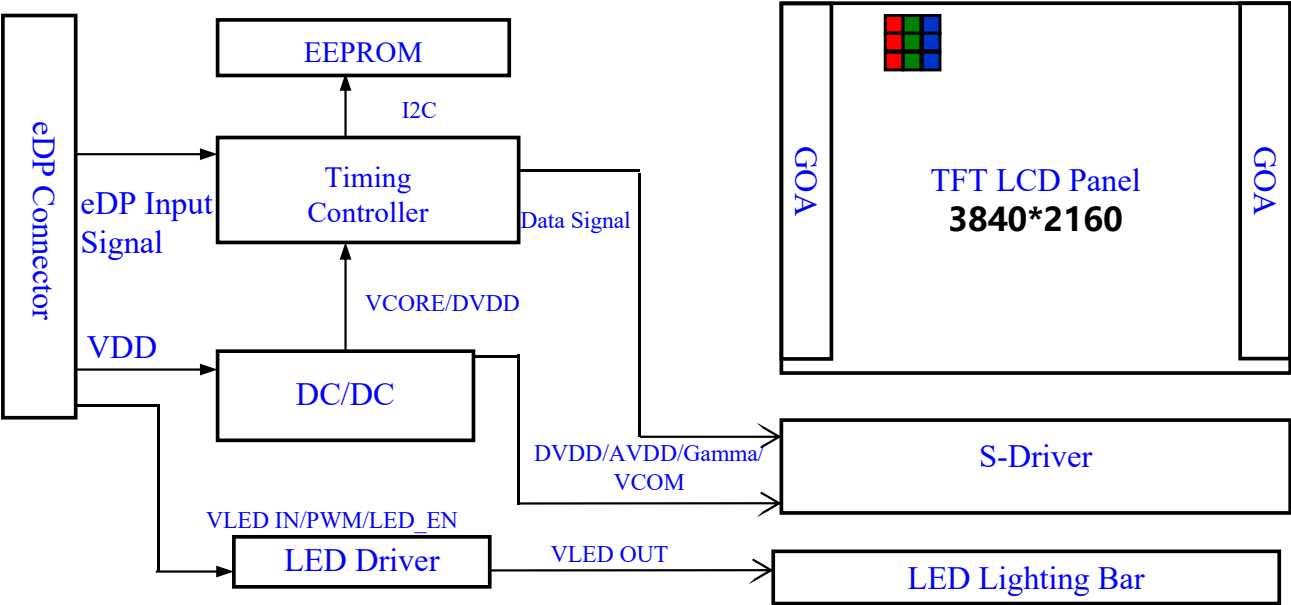
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1.0 GENERAL DESCRIPTION

1.0.1 Introduction

B3 DCE156QUM-N10-W600

is a color active matrix TFT LCD module using amorphous silic on TFT's (Thin Film Transistors) as an active switching devices. This module has a 15.6 inch di agonally measured active area with UHD resolutions (3840 horizontal by 2160 vertical pixel arr ay). Each pixel is divided into RED, GREEN, BLUE dots which are arranged in vertical stripe an d this module can display 16.7 M colors.



1.0.2 Features

- 4 lane eDP interface with 5.4Gbps link rates
- 16.7M(8bit) color depthSingle

1.0.3 Application

- Portable display etc.

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1.0.4 General Specification

< Table 1. General Specifications >

Parameter	Specification	Unit	Remarks
Active area	345.6 (H) × 194.4 (V)	mm	
Number of pixels	3840(H) × 2160(V)	Pixels	
Pixel pitch	0.09(H) × 0.09 (V)	mm	
Pixel arrangement	RGB Vertical stripe		
Display colors	16.7M	Colors	6bit+FRC
Display mode	ADS		
Dimensional outline	352.4 (H) × 206.9(V) × 2.7(D) .	mm	
Typical luminance	600	Cd/m2	
Surface treatment	AG		



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2.0 ABSOLUTE MAXIMUM RATINGS

The followings are maximum values which, if exceed, may cause faulty operation or damage to the unit. The operational and non-operational maximum voltage and current values are listed in Table 2.

< Table 2. Environment Absolute Maximum Ratings> [Ta =25 ± 2 °C]

Parameter	Symbol	Min.	Max.	Unit	Remarks
Power Supply Input Voltage	VCC	0.3	6	V	
Operating Temperature	T _{OP}	0	50	°C	Environment Temperature
Storage Temperature	T _{ST}	-10	60	°C	

Note:

1.When the ambient temperature is T °C, the surface temperature of Panel can not exceed (T+15)°C.

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3.0 ELECTRICAL SPECIFICATIONS

3.0.1 TFT LCD Module

< Table 3. LCD Module Electrical Specifications >

[Ta =25 ± 2 °C]

Parameter	Sym bol	Values			Unit	Notes
		Min	Typ	Max		
Power Supply Input Voltage	V _{DD}	3.0	3.3	3.6	V	Note 1
Power Supply Current	I _{DD}	-	TBD	TBD	mA	
Power Supply inrush Current	I _{nrush}	-	-	3	A	
Positive-going Input Threshold Voltage	V _{IT+}	-		+300	mV	V _{com} =0.55V typ.
Negative-going Input Threshold Voltage	V _{IT-}	-300		-	mV	
Differential input common mode voltage	V _{com}	0.45	0.55	0.65	V	V _{IH} =100mV, V _{IL} =-100mV

Notes : 1. The supply voltage is measured and specified at the interface connector of LCM.
The current draw and power consumption specified is for 3.3V at 25 °C
Max value at Black Pattern



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3.2 Back-light Unit

< Table 4. LED Driving guideline specifications >

Ta=25+/-2°C

Parameter			Min.	Typ.	Ma x.	Un it	Remarks
Power supply voltage for Back light		V _{LED}	-	30	-	V	
Power supply Current for Back light		I _{LED}	-	150	-	mA	
Power supply for Back light		P _{LED}	-	4.5	-	W	Note 1
LED Life-Time		N/A	30000	-	-	Hour	IF = 20mA Note 2
EN Control L evel	Backlight on	V _{ENH}	1.2	-	-	V	EN logic high volt age
	Backlight off	V _{ENL}	-	-	0.6	V	EN logic low volta ge
PWM Contro l Level	PWM High Lev el	V _{PML}	1.2	-	-	V	
	PWM Low Lev el	V _{PML}	-	-	0.6	V	
PWM Control Frequency		F _{PWM}	0.1	-	1600	KHz	
Duty Ratio		-	5	-	100	%	

Notes : 1. Calculator Value for reference $I_{LED} \times V_{LED} = P_{LED}$ SPEC. NUMBER
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4.0 INTERFACE CONNECTION.

4.0.1 Electrical Interface Connection

The electronics interface connector is MSAK24025P40G.

The LED connector is MSK24022P10D

The connector interface pin assignments are listed in Table 6 and 7.

<Table 6. Pin Assignments for the Interface Connector>

Terminal	Symbol	Functions
Pin No.	Symbol	Description
1	NC	No Connection
2	H_GND	Ground
3	LANE3_N	eDP RX Channel 3 Negative
4	LANE3_P	eDP RX Channel 3 Positive
5	H_GND	Ground
6	LANE2_N	eDP RX Channel 2 Negative
7	LANE2_P	eDP RX Channel 2 Positive
8	H_GND	Ground
9	LANE1_N	eDP RX Channel 1 Negative
10	LANE1_P	eDP RX Channel 1 Positive
11	H_GND	Ground
12	LANE0_N	eDP RX Channel 0 Negative
13	LANE0_P	eDP RX Channel 0 Positive
14	H_GND	Ground
15	AUX_CH_P	eDP AUX CH Positive
16	AUX_CH_N	eDP AUX CH Negative
17	H_GND	Ground
18	LCD_VCC	LCD logic and driver power(3.3V)
19	LCD_VCC	LCD logic and driver power(3.3V)
20	LCD_VCC	LCD logic and driver power(3.3V)
21	LCD_VCC	LCD logic and driver power(3.3V)
22	BIST	BIST signal pin
23	LCD_GND	LCD logic and driver ground
24	LCD_GND	LCD logic and driver ground
25	LCD_GND	LCD logic and driver ground
26	LCD_GND	LCD logic and driver ground
27	HPD	HPD signal pin
28	BL_GND	Backlight ground

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4.0 INTERFACE CONNECTION.

4.0.1 Electrical Interface Connection

The electronics interface connector is MSAK24025P40G.

The LED connector is MSK24022P10D

The connector interface pin assignments are listed in Table 6 and 7.

<Table 6. Pin Assignments for the Interface Connector>

Terminal	Symbol	Functions
Pin No.	Symbol	Description
29	BL_GND	Backlight ground
30	BL_GND	Backlight ground
31	BL_GND	Backlight ground
32	BL_ENABLE	Backlight ON/OFF
33	BL_PWM_DIM	System PWM Signal Input
34	NC	No Connection
35	NC	No Connection
36	BL_PWR	Backlight power
37	BL_PWR	Backlight power
38	BL_PWR	Backlight power
39	BL_PWR	Backlight power
40	NC	No Connection

<Table 7. Pin Assignments for the LED Connector>

Terminal	Symbol	Functions
Pin No.	Symbol	Description
1	LED	LED Channel Positive
2	LED	LED Channel Positive
3	LED	LED Channel Positive
4	LED	LED Channel Positive
5	LED	LED Channel Positive
6	LED	LED Channel Positive
7	GND	Backlight ground
8	NC	No Connection
9	Vout	LED Out Negative
10	Vout	LED Out Negative

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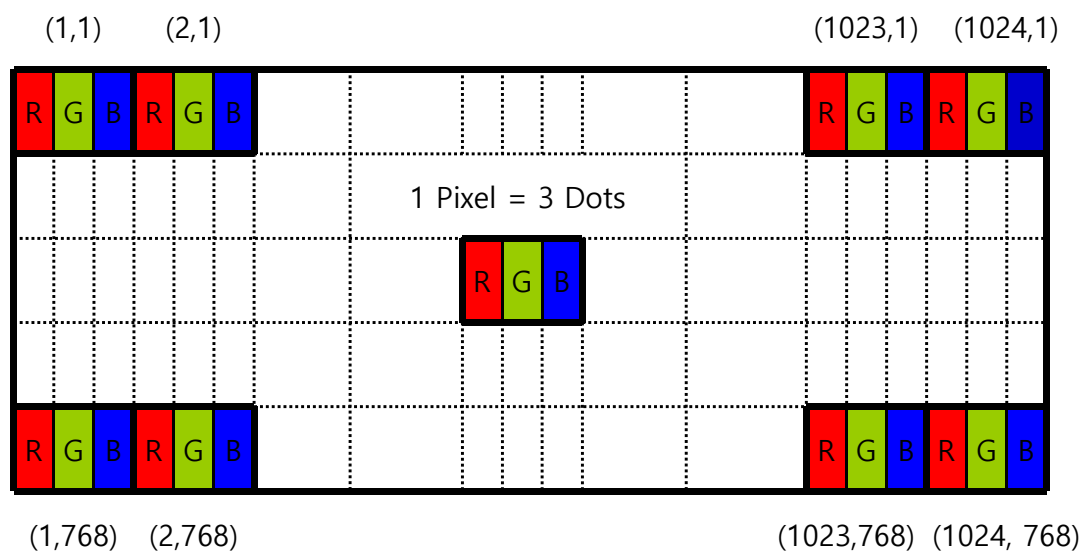
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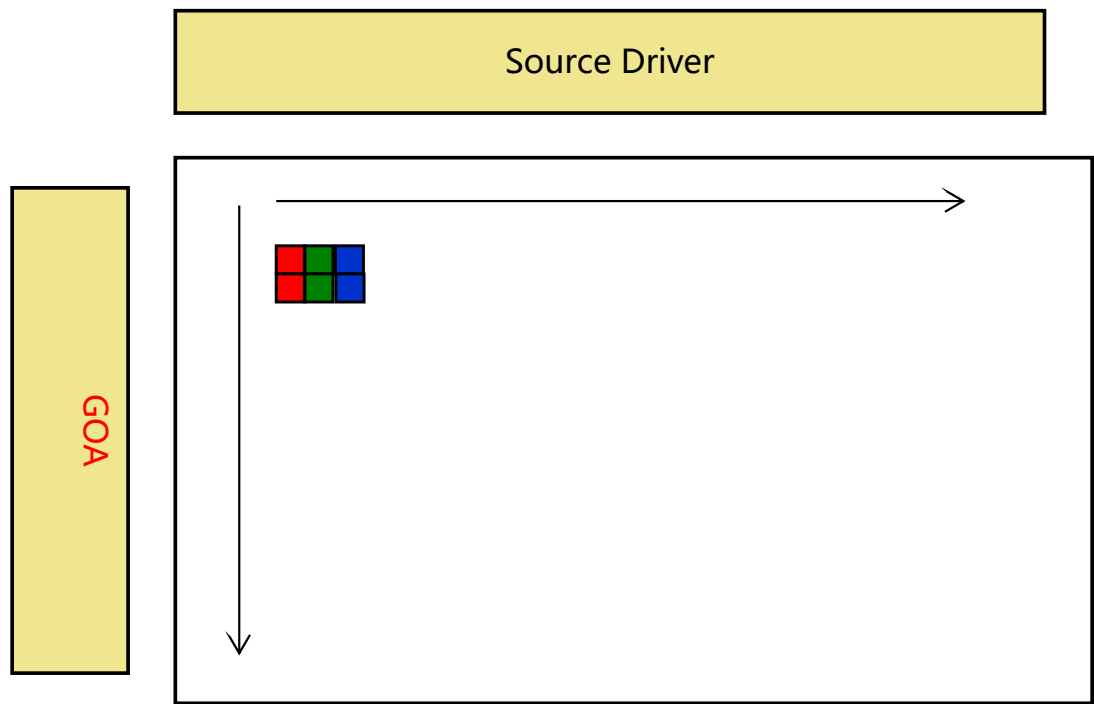
4.1 Data Input Format

Figure 5. Pixel Format



Display Position of Input Data (V-H)

Figure 6. Scan direction



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4.2 eDP Interface

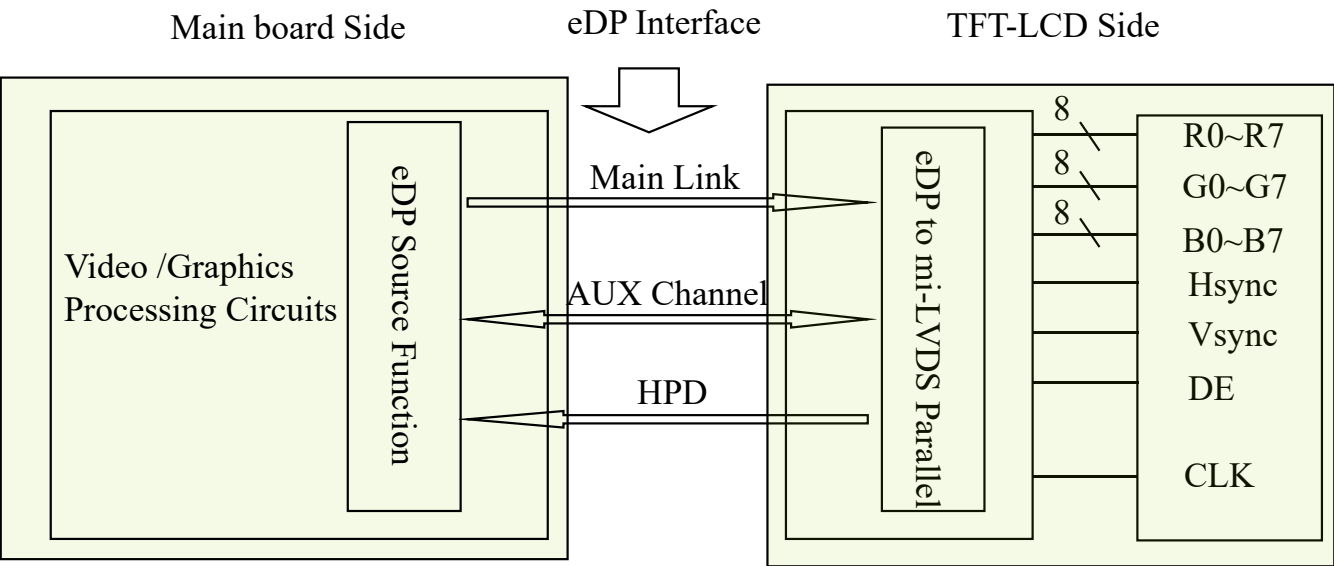


Figure 12. eDP Interface Architecture

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5.0 SIGNAL TIMING SPECIFICATION

5.0.1 The DCE156QUM-N10-W600-is operated by the DE only.

Item			Symbol	min	typ	max	UNIT
LCD	Frame Rate		-	-	60	-	Hz
	Pixels Rate		-	-	533.3	-	MHz
Timing	Horizontal	Horizontal total time	tHP	-	4000	-	t _{CLK}
		Horizontal Active time	tHadr	3840			t _{CLK}
		Horizontal Back Porch	tHBP+tHS	-	112	-	t _{CLK}
		Horizontal Front Porch	tHFP	-	48	-	t _{CLK}
	Vertical	Vertical total time	tvp	-	2222	-	t _H
		Vertical Active time	tVadr	2160			t _H
		Vertical Back Porch	tVBP+tVS	-	59	-	t _H
		Vertical Front Porch	tVFP	-	3	-	t _H

Note: The above is as optimized setting.

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5.2 eDP Rx Interface Timing Parameter

The specification of the eDP Rx interface timing parameter is shown in Table 9.

<Table 9. eDP Main-Link RX TP4 Package Pin Parameters>

Item	Symbol	Min	Typ	Max	Unit	Remark
Spread spectrum clock (Link clock down-spreading)	ssc	0	-	0.5	%	
Differential peak-to-peak input voltage at package pins	VRX-DIFFp-p	100	-	1320	mV	
Rx input DC common mode voltage	VRX_DC_CM	-	GND	-	V	
Differential termination resistance	RRX-DIFF	80	100	120	Ω	
Single-ended termination resistance	RRX-SE	40	-	60	Ω	
Rx short circuit current limit	IRX_SHORT	-	-	20	mA	
Intra-pair skew at Rx package pins (HBR) RX intra-pair skew tolerance at HBR	LRX_SKEW_INTRA_PAIR	-	-	150	ps	
AC Coupling Capacitor	CSOURCE_ML	75		200	nF	Source side

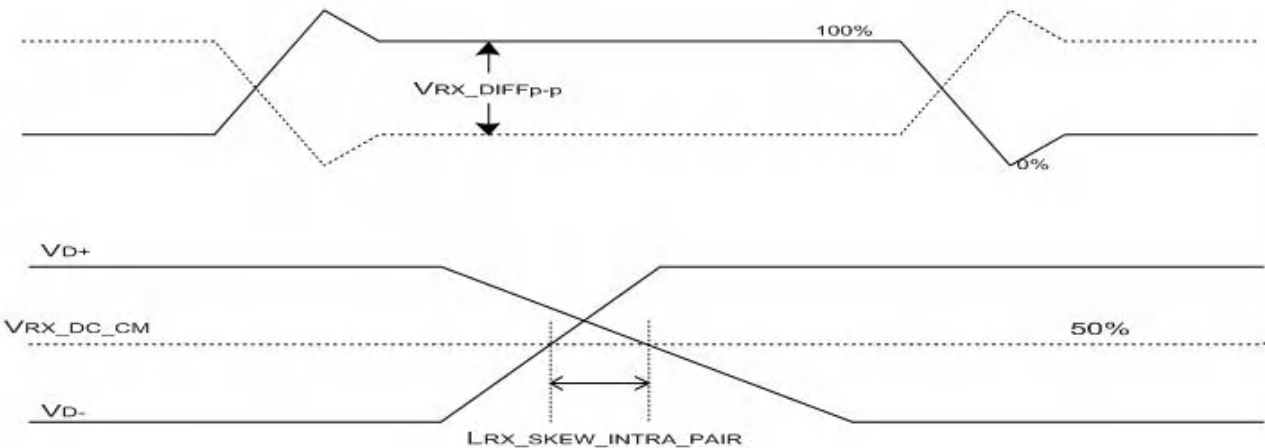


Figure 15. VRX-DIFFp-p & LRX_SKEW_INTRA_PAIR

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<Table 10. HPD Characteristics>

Item	Symbol	Min	Typ	Max	Unit	Remark
HPD voltage	V _{HPD}	2.25	-	3.6	V	
Hot Plug Detection Threshold	-	2.0	-	-	V	Source side Detecting
Hot Unplug Detection Threshold	-	-	-	0.8V	V	
HPD_IRQ Pulse Width	HPD_IRQ	0.5	-	1	ms	
HPD_TimeOut	-	2.0	-	-	ms	

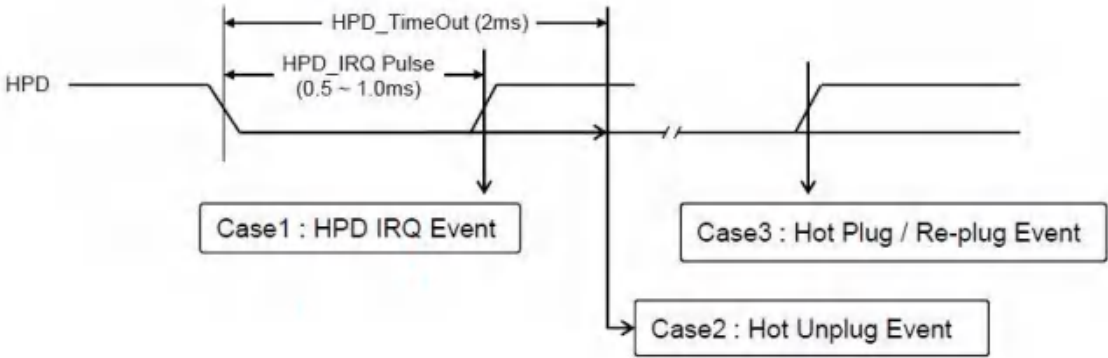


Figure 16. HPD Events

<Table 11. AUX Characteristics>

Item	Symbol	Min	Typ	Max	Unit	Remark
AUX unit interval	UIAUX	0.4	0.5	0.6	Us	
AUX peak-to-peak input differential voltage	VAUX-RX-D IFFp-p	0.5	-	0.8	V	
AUX CH termination DC resistance	RAUX-TER M	80	100	120	Ohm	
AUX DC common mode voltage	VAUX-DC-C M	-	0.15	-	V	
AUX short circuit current limit	IAUX-SHOR T	-	-	20	mA	
AUX AC Coupling Capacitor	CSOURCE-A UX	75	-	200	nf	Source side

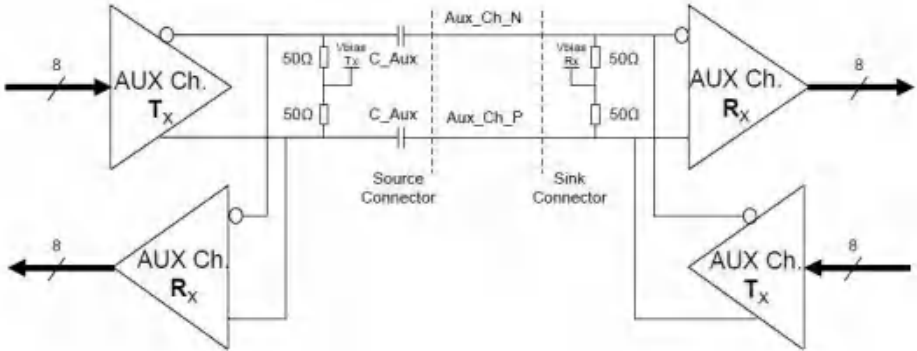
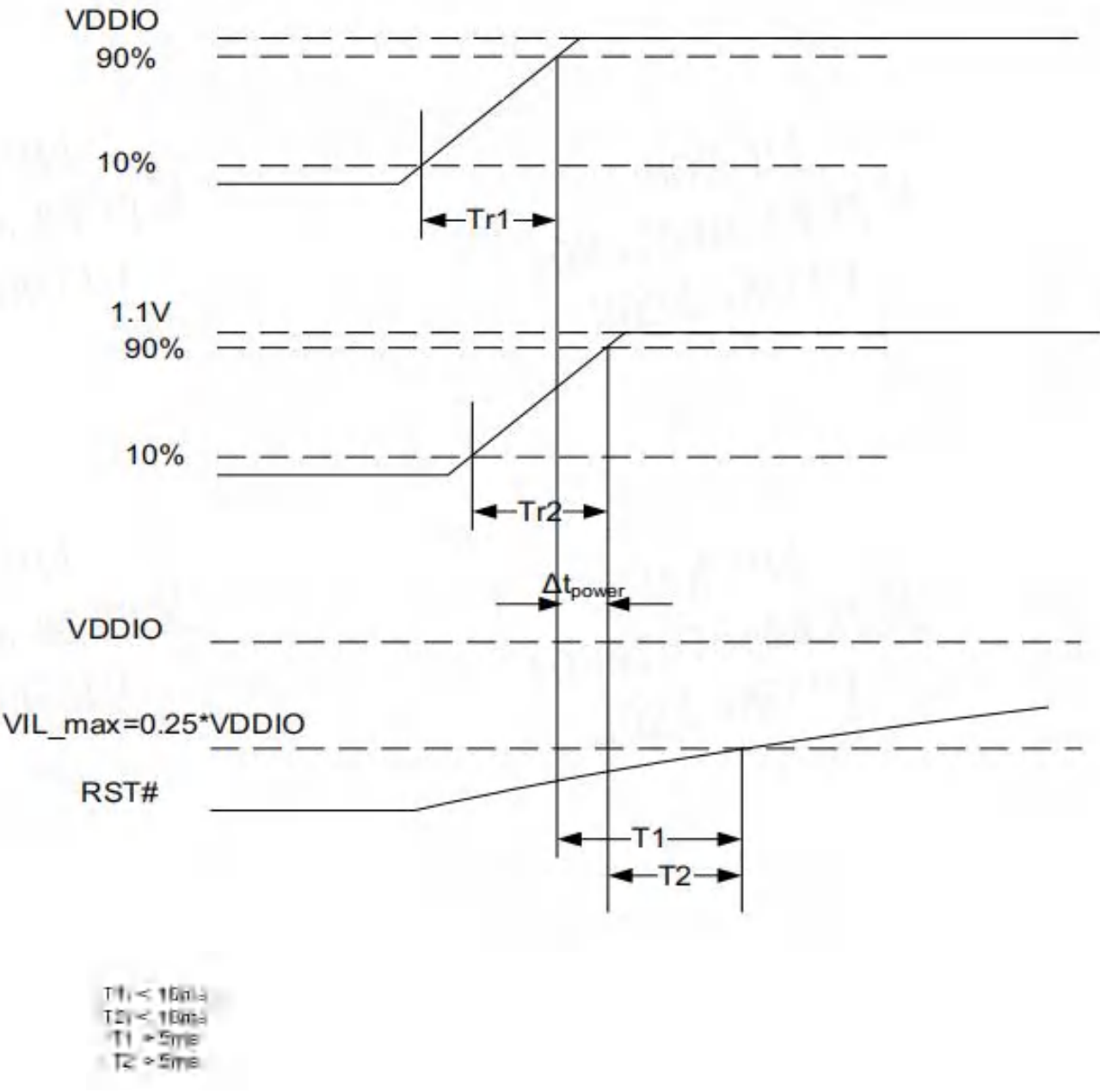


Figure 17. AUX differential pair

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6.0 POWER SEQUENCE

To prevent a latch-up or DC operation of the LCD module, the power on/off sequence shall be as shown in below



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7.0 OPTICAL SPECIFICATION

7.0.1 Overview

The test of view angle range shall be measured in a dark room (ambient luminance ≤ 1 lux and temperature = $25\pm2^{\circ}\text{C}$) with the equipment of Luminance meter system (Goniometer system and TOPCON CS2000/CA310) and test unit shall be located at an approximate distance 50cm from the LCD surface at a viewing angle of θ and Φ equal to 0° . We refer to $\theta\varnothing=0$ ($=\theta_3$) as the 3 o'clock direction (the “right”), $\theta\varnothing=90$ ($=\theta_{12}$) as the 12 o'clock direction (“upward”), $\theta\varnothing=180$ ($=\theta_9$) as the 9 o'clock direction (“left”) and $\theta\varnothing=270$ ($=\theta_6$) as the 6 o'clock direction (“bottom”). While scanning θ and/or $\varnothing$, the center of the measuring spot on the Display surface shall stay fixed. The luminance, color and uniformity (etc) should be tested by CS2000/CA310. The backlight should be operating for 10 minutes prior to measurement. VDD shall be $3.3 \pm 0.3\text{V}$ at 25°C . Optimum viewing angle direction is 6 'clock

<Table 5. Optical Specifications>

Parameter		Symbol	Condition	Min.	Typ.	Max.	Unit	Remark
Viewing Angle range	Horizontal	Θ_3	CR > 10		85	-	Deg.	Note 1
		Θ_9			85	-	Deg.	
	Vertical	Θ_{12}			85	-	Deg.	
		Θ_6			85	-	Deg.	
Contrast ratio		CR	$\Theta = 0^{\circ}$	800	1000	-		Note 2
Color Gamut	NTSC	CIE1931	$\Theta = 0^{\circ}$	92	98	-	%	Note 5
White Luminance uniformity	9 Points or 5 Points	ΔY_9 or ΔY_5	$\Theta = 0^{\circ}$	70	72	-	%	Note 4
Color temperature		CT		-	7000	-	K	
Reproduction of color	White	W_x	$\Theta = 0^{\circ}$	Typ-0.03	0.304	Typ +0.03		@C光 Note 5
		W_y			0.316			
Response Time		Tr+Td	Ta= 25° C $\Theta = 0^{\circ}$	-	35	40	ms	Note 6
Trans.		Center	$\Theta = 0^{\circ}$	4.3%	5.1%			@双棱镜 BLU

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Notes : 1. Viewing angle is the angle at which the contrast ratio is greater than 10. The viewing angles are determined for the horizontal or 3, 9 o'clock direction and the vertical or 6, 12 o'clock direction with respect to the optical axis which is normal to the LCD surface (see FIGURE 1).

$$CR = \frac{\text{Luminance when displaying a white raster}}{\text{Luminance when displaying a black raster}}$$

2. Contrast measurements shall be made at viewing angle of $\Theta = 0$ and at the center of the LCD surface. Luminance shall be measured with all pixels in the view field set first to white, then to the dark (black) state . (see FIGURE 1) Luminance Contrast Ratio (CR) is defined mathematically.

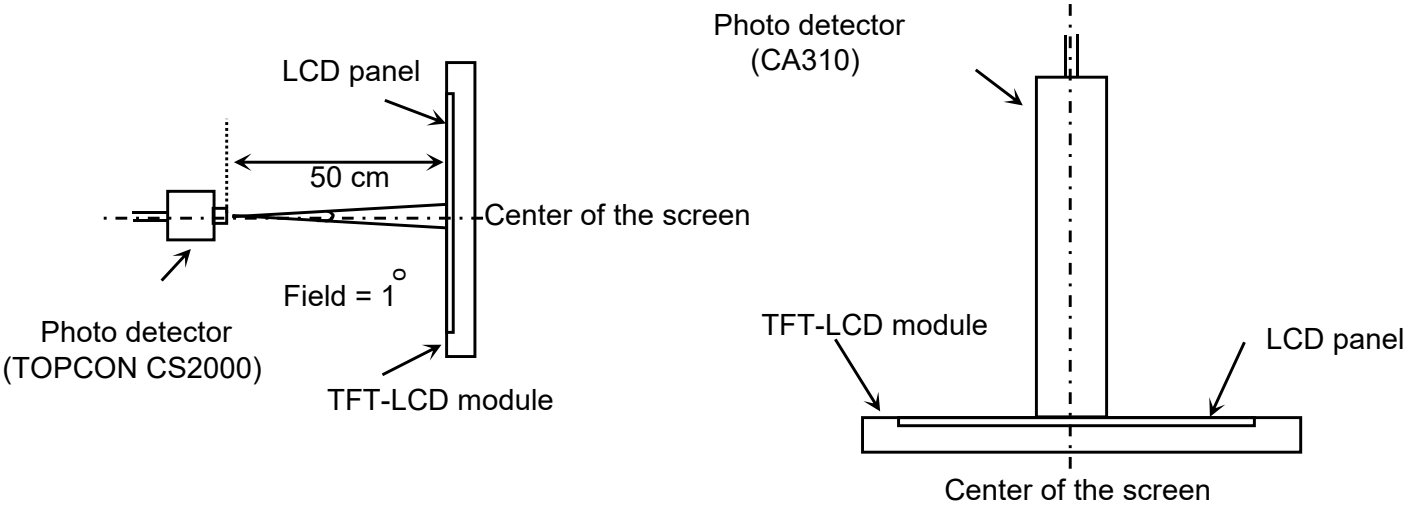
3. The color chromaticity coordinates specified in Table 5. shall be calculated from the spectral data measured with all pixels first in red, green, blue and white. Measurements shall be made at the center of the panel.

4. The electro-optical response time measurements shall be made as FIGURE 3 by switching the “data” input signal ON and OFF. The times needed for the luminance to change from 10% to 90% is Tr, and 90% to 10% is Td.

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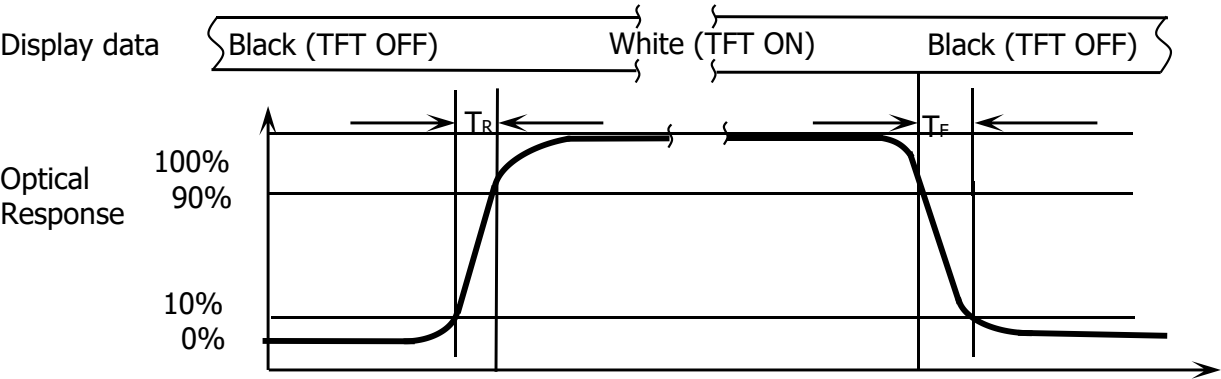
7.0.2 Optical measurements

Figure 1. Measurement Set Up



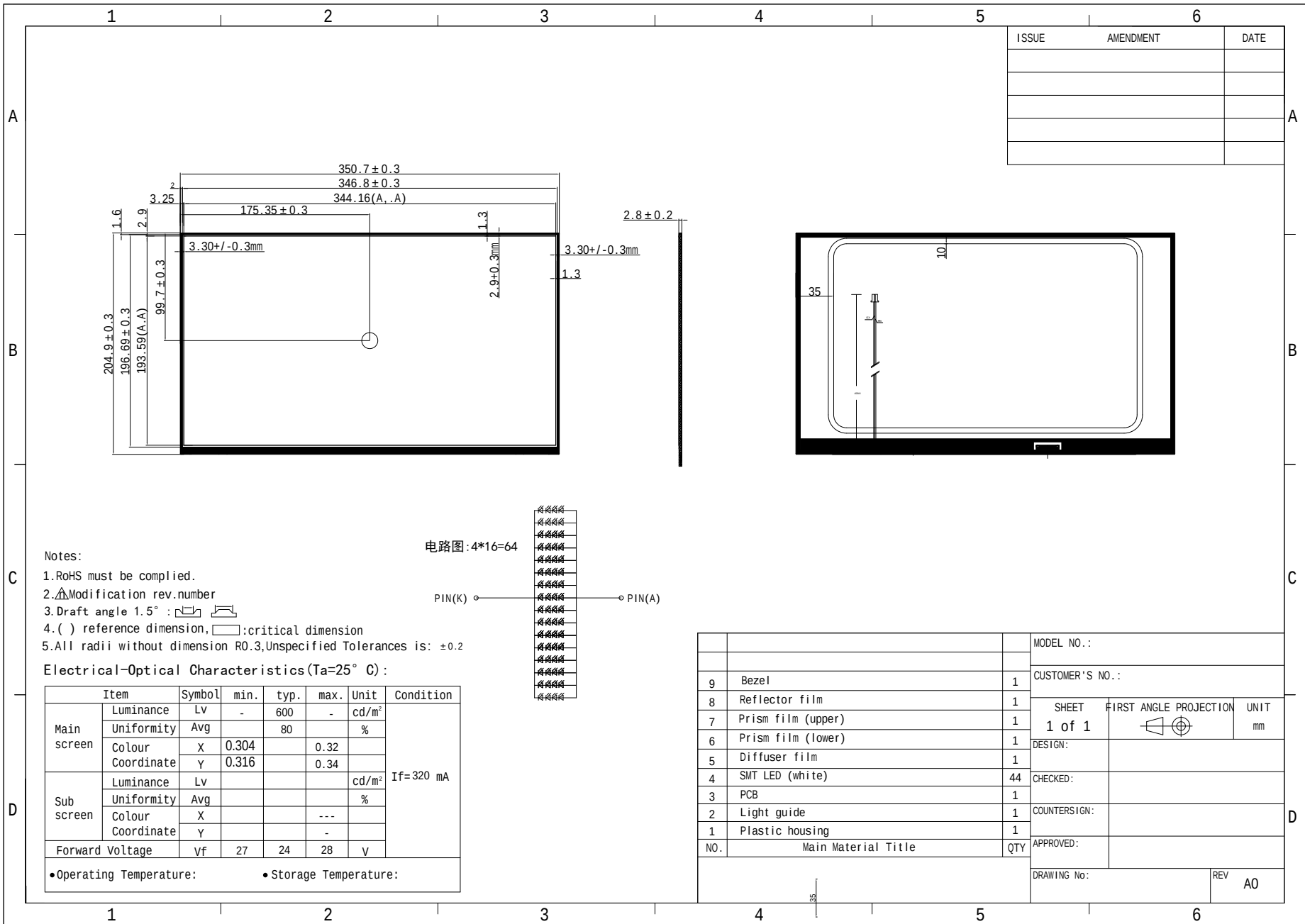
View angel range, uniformity, etc. measurement setup Flicker, measurement setup

Figure 2. Response Time Testing



The electro-optical response time measurements shall be made as shown in FIG URE 3 by switching the “data” input signal ON and OFF. The times needed for th e luminance to change from 10% to 90% is T_r and 90% to 10% is T_d .

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9.0 RELIABILITY TEST

The Reliability test items and its conditions are shown in below.

<Table 9. Reliability test>

No	Test Items	Conditions	Remark
1	High temperature storage test	Ta = 6 0℃, 9 6 hrs	根据客户规格更新
2	Low temperature storage test	Ta = -10 ℃, 9 6 hrs	
3	High temperature operation test	Ta = 5 0℃, 9 6 hrs	
4	Low temperature operation test	Ta = 0 ℃, 9 6 hrs	
5	High temperature & high humidity operation test	Ta = 50 ℃, 6 0%RH, 9 6 hrs	
6	Thermal shock	Ta = -10 ℃ ↔ 60℃ (0.5 hr), 100 cycle	Non-operation
7	ESD test	Air: 150 pF, 330Ω, 10KV Contact : 150 pF, 330Ω, ±6 KV	模组测试
8	Vibration Test	Random: 0.015G^2/Hz, 5~200Hz + Z/60min	FOB测试

Note : After the reliability test, the product only guarantee function normally without any fatal defect (non-display, line defect, abnormal display etc). All the cosmetic specification is judged before the reliability test.

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• 10.0 Precautions

Please pay attention to the followings when you use this TFT LCD Panel.

• 10.1 Mounting Precautions

- (1) Use fingerstalls with soft gloves in order to keep display clean during the incoming inspection and assembly process.
- (2) You must mount a module using specified mounting holes (Details refer to the drawings).
- (3) Please make sure to avoid external forces applied to the Source PCB or FPC and D-IC during the process of handling or assembling. If not, It causes panel damage or malfunction.
- (4) Note that polarizers are very fragile and could be easily damaged. Do not touch, push or rub the exposed polarizers with glass, tweezers or anything harder than HB pencil lead. And please do not rub with dust clothes with chemical treatment.
- (5) Do not pull or fold the source D-IC which connect the source PCB or FPC and the panel.
- Do not pull or fold the LED wire.
- (6) After removing the protective film, when the surface becomes dusty, please wipe gently with absorbent cotton or other soft materials like chamois soaks with alcohol or purified water.
- Do not strong polar solvent because they cause chemical damage to the polarizer.
- (7) Wipe off saliva or water drops as soon as possible. Their long time contact with polarizer causes deformations and color fading.
- (8) Protection film for polarizer on the module shall be slowly peeled off just before use so that the electrostatic charge can be minimized.
- (9) Since the LCD is made of glass, do not apply strong mechanical impact or static load onto it. Handling with care since shock, vibration, and careless handling may seriously affect the product. If it falls from a high place or receives a strong shock, the glass may be broken.
- (10) Do not disassemble the module.
- (11) To determine the optimum mounting angle, refer to the viewing angle range in the specification for each model.
- (12) If the customer's set presses the main parts of the LCD, the LCD may show the abnormal display. But this phenomenon does not mean the malfunction of the LCD and should be pressed by the way of mutual agreement.
- (13) Do not drop water or any chemicals onto the LCD's surface.

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10.2 Operating Precautions

- (1) Be careful for condensation at sudden temperature change. Condensation makes damage to polarizer or electrical contacted parts. And after fading condensation, smear or spot will occur.
- (2) Module has high frequency circuits. Sufficient suppression to the electromagnetic interference shall be done by system manufacturers. Grounding and shielding methods may be important to minimized the interference.
- (3) The electrochemical reaction caused by DC voltage will lead to LCD degradation, so DC drive should be avoided.
- (4) The LCD modules use C-MOS LSI drivers, so customers are recommended that any unused input terminal would be connected to Vdd or Vss, do not input any signals before power is turn on, and ground you body, work/assembly area, assembly equipments to protect against static electricity.
- (5) Do not exceed the absolute maximum rating value. (supply voltage variation, input voltage variation, variation in part contents and environmental temperature, and so on) Otherwise the Module may be damaged.
- (6) Design the length of cable to connect between the connector for back-light and the converter as short as possible and the shorter cable shall be connected directly.
The longer cable between that of back-light and that of converter may cause the luminance of LED to lower and need a higher startup voltage(Vs).
- (7) Connectors are precise devices for connecting PCB and transmitting electrical signals. Operators should insert and unplug MDL in parallel when assembling MDL.
- (8) Do not connect or disconnect the cable to/ from the module at the "Power On" condition.
- (9) When the module is operating, do not lose CLK, ENAB signals. If any one these signals is lost, the LCD panel would be damaged.
- (10) Obey the supply voltage sequence. If wrong sequence is applied, the module would be damaged.
- (11) Do not re-adjust variable resistor or switch etc.

10.3 Electrostatic Discharge Control

- (1) Since a module is composed of electronic circuits, it is not strong to electrostatic discharge. Make certain that treatment persons are connected to ground through wrist band etc. And don't touch interface pin directly. Keep products as far away from static electricity as possible.
- (2) Avoid the use work clothing made of synthetic fibers. We recommend cotton clothing or other conductivity-treated fibers.

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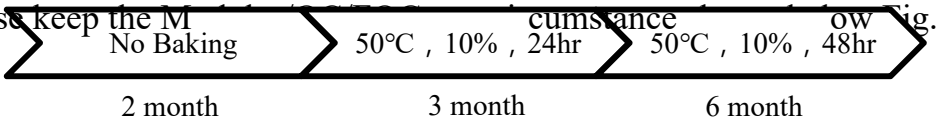
10.4 Precautions for Strong Light Exposure

It is not allowed to store or run directly in strong light or in high temperature and humidity for a long time; Strong light exposure causes degradation of polarizer and color filter.

10.5 Storage Precautions

When storing modules as spares for a long time, the following precautions are necessary.

- (1) The polarizer surface should not come in contact with any other object.
It is recommended that they be stored in the container in which they were shipped.
Temperature : 5 ~ 40 °C
- (2) Humidity : 35 ~ 75 %RH
- (3) Period : 6 months
- (4) Control of ventilation and temperature is necessary.
- (5) Please make sure to protect the product from strong light exposure, water or moisture.
Be careful for condensation.
- (6) Store in a polyethylene bag with sealed so as not to enter fresh air outside in it.
- (7)Do not store the LCD near organic solvents or corrosive gasses.
- (8) Please keep the LCD in the following circumstances.



10.6 Precautions for Protection Film (适用通用产品, 含Q/Single Production)

- (1) Remove the protective film slowly, keeping the removing direction approximate 30-degree not vertical from panel surface, If possible, under ESD control device like ion blower, and the humidity of working room should be kept over 50%RH to reduce the risk of static charge.
- (2) In handling the LCD, wear non-charged material gloves. And the conducting wrist to the earth and the conducting shoes to the earth are necessary.

10.7 Appropriate Condition for Display

- (1) Normal operating condition
 - Temperature: 0 ~ 40°C
 - Operating Ambient Humidity : 10 ~ 90 %
 - Display pattern: dynamic pattern (Real display)
- Long-term lighting products recommended regular shutdown
- (2) Special operating condition

If the product will be used in extreme conditions such as high temperature, humidity, display patterns or 7*24hrs operation time etc., It is strongly recommended to contact BOE for Application engineering advice. Otherwise, its reliability and function may not be guaranteed.

- (3)Black image or moving image is strongly recommended as a screen save.

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• (4) Lifetime in this spec. is guaranteed only when commercial display is used according to operating usages. • (5) Please contract BOE in advance when you want to switch between portrait and landscape screen (横竖屏兼容设计可删除此项) • (6) Please contact BOE in advance for outdoor operation. • (7) Please contact BOE in advance when you display the same pattern for a long time. • (8) If the Module keeps displaying the same pattern for a long period of time, the image may be "sticked" to the screen. To avoid image sticking, it is recommended to use a screen saver. • (9) Do not exceed the absolute maximum rating value. (supply voltage variation, input voltage variation, variation in part contents and environmental temperature, and so on) Otherwise the Module may be damaged. • (10) Dew drop atmosphere should be avoided. • (11) The storage room should be equipped with a good ventilation facility and avoid to expose to corrosive gas , which has a temperature controlling system. • (12) When expose to drastic fluctuation of temperature (hot to cold or cold to hot) ,the LCD may be affected; Specifically, drastic temperature fluctuation from cold to hot ,produces dew on the LCD's surface which may affect the operation of the polarizer and the LCD. • (13) Response time will be extremely delayed at lower temperature than the operating temperature range and on the other hand at higher temperature LCD may turn black at temperature above its operational range. However those phenomena do not mean malfunction or out of order with the LCD. The LCD will revert to normal operation once the temperature returns to the recommended temperature range for normal operation 10.8 Others A. LC Leak • If the liquid crystal material leaks from the panel, it is recommended to wash the LC with acetone or ethanol and then burn it. • In case of contact with hands, skin or clothes, it has to be washed away thoroughly with soap. • If LC in mouth, mouth need to be washed, drink plenty of water to induce vomiting and follow medical advice. • If LC touch eyes, eyes need to be washed with running water at least 15 minutes. B. Rework • When returning the module for repair or etc., Please pack the module not to be broken. We recommend to use the original shipping packages.			
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12.0 EDID Table

Address (HEX)	Function	Hex	Dec	crc	Input values.	Notes
00	Header	00	0		0	EDID Header
01		FF	255		255	
02		FF	255		255	
03		FF	255		255	
04		FF	255		255	
05		FF	255		255	
06		FF	255		255	
07		00	0		0	
08	ID Manufacturer Name	09	9		BOE	ID = BOE
09		E5	229			
0A	ID Product Code	C5	197		2501	ID = 2501
0B		09	9			
0C	32-bit serial No.	00	0		0	
0D		00	0		0	
0E		00	0		0	
0F		00	0		0	
10	Week of manufacture	01	1		1	
11	Year of Manufacture	22	34		2024	Manufactured in 2024
12	EDID Structure Ver.	01	1		1	EDID Ver 1.0
13	EDID revision #	04	4		4	EDID Rev. 0.4
14	Video input definition	A5	165		-	Refer to right table
15	Max H image size	23	35		35	35 cm (Approx)
16	Max V image size	13	19		19	19.44 cm (Approx)
17	Display Gamma	78	120		2.2	Gamma curve = 2.2
18	Feature support	03	3		-	Refer to right table
19	Red/Green low bits	CF	207		-	Red / Green Low Bits
1A	Blue/White low bits	50	80		-	Blue / White Low Bits
1B	Red x high bits	A3	163	655	0.640	Red (x) = 10100011 (0.64)
1C	Red y high bits	54	84	336	0.329	Red (y) = 01010100 (0.329)
1D	Green x high bits	35	53	215	0.210	Green (x) = 00110101 (0.21)
1E	Green y high bits	B5	181	727	0.710	Green (y) = 10110101 (0.71)
1F	Blue x high bits	26	38	153	0.150	Blue (x) = 00100110 (0.15)
20	BLue y high bits	0F	15	61	0.060	Blue (y) = 00001111 (0.06)
21	White x high bits	50	80	320	0.313	White (x) = 01010000 (0.313)
22	White y high bits	54	84	336	0.329	White (y) = 01010100 (0.329)
23	Established timing 1	00	0		-	Refer to right table
24	Established timing 2	00	0		-	
25	Established timing 3	00	0		-	
26	Standard timing #1	01	1			Not Used
27		01	1			
28	Standard timing #2	01	1			Not Used
29		01	1			
2A	Standard timing #3	01	1			Not Used
2B		01	1			



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2C	Standard timing #4	01	1			Not Used
2D		01	1			
2E	Standard timing #5	01	1			Not Used
2F		01	1			
30	Standard timing #6	01	1			Not Used
31		01	1			
32	Standard timing #7	01	1			Not Used
33		01	1			
34	Standard timing #8	01	1			Not Used
35		01	1			
36	Detailed timing/monitor descriptor #1	4D	77		533.3	533.25MHz Main clock
37		D0	208			
38		00	0		3840	Hor Active = 3840
39		A0	160		160	Hor Blanking = 160
3A		F0	240		-	4 bits of Hor. Active + 4 bits of Hor. Blanking
3B		70	112		2160	Ver Active = 2160
3C		3E	62		62	Ver Blanking = 62
3D		80	128		-	4 bits of Ver. Active + 4 bits of Ver. Blanking
3E		30	48		48	Hor Sync Offset = 48
3F		20	32		32	H Sync Pulse Width = 32
40		35	53		3	V sync Offset = 3 line
41		00	0		5	V Sync Pulse width : 5 line
42		59	89		346	Horizontal Image Size = 345.6 mm (Low 8 bits)
43		C2	194		194	Vertical Image Size = 194.4 mm (Low 8 bits)
44		10	16		-	4 bits of Hor Image Size + 4 bits of Ver Image Size
45		00	0		0	Hor Border (pixels)
46		00	0		0	Vertical Border (Lines)
47		1A	26		-	Refer to right table
48	Detailed timing/monitor descriptor #2	00	0		0.0	0MHz Main clock
49		00	0			
4A		00	0		0	Hor Active = 0
4B		00	0		0	Hor Blanking = 0
4C		00	0		-	4 bits of Hor. Active + 4 bits of Hor. Blanking
4D		00	0		0	Ver Active = 0
4E		00	0		0	Ver Blanking = 0
4F		00	0		-	4 bits of Ver. Active + 4 bits of Ver. Blanking
50		00	0		0	Hor Sync Offset = 0
51		00	0		0	H Sync Pulse Width = 0
52		00	0		0	V sync Offset = 0 line
53		00	0		0	V Sync Pulse width : 0 line
54		00	0		0	Horizontal Image Size = 0 mm (Low 8 bits)
55		00	0		0	Vertical Image Size = 0 mm (Low 8 bits)
56		00	0		-	4 bits of Hor Image Size + 4 bits of Ver Image Size
57		00	0		0	Hor Border (pixels)
58		00	0		0	Vertical Border (Lines)
59		1A	26		-	Refer to right table

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5A	Detailed timing/monitor descriptor #3	00	0			Indicates descriptor #3 is a display Descriptor
5B		00	0			
5C		00	0			Reserved
5D		FE	254			Tag : ASCII String
5E		00	0			Reserved
5F		42	66		B	Manufacture name : BOEB3
60		4F	79		O	
61		45	69		E	
62		20	32			
63		42	66		B	
64		33	51		3	
65		0A	10			
66		20	32			
67		20	32			
68		20	32			
69		20	32			
6A		20	32			
6B		20	32			
6C	Detailed timing/monitor descriptor #4	00	0			Indicates descriptor #4 is a display Descriptor
6D		00	0			
6E		00	0			Reserved
6F		FE	254			Tag : ASCII String
70		00	0			Reserved
71		5A	90		Z	Model name : ZV156QUB-N10
72		56	86		V	
73		31	49		1	
74		35	53		5	
75		36	54		6	
76		51	81		Q	
77		55	85		U	
78		42	66		B	
79		2D	45		-	
7A		4E	78		N	
7B		31	49		1	
7C		30	48		0	
7D		0A	10			
7E	Extension flag	00	0		0	0 : 1個EDID ; N : N+1個EDID
7F	Checksum	D9	217	217	-	

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