深圳市晶彩智能有限公司
Shenzhen Jingcai Intelligent Co., Ltd

APPROVAL SHEET
承 认 书

Customer 客户名称	
Part NO. 产品型号	JC8048B070N
Product type 产品内容	Mode: Transmissive type .Normally white. TFT LCD Module LCD Module: Graphic 800RGB*480Dot-matrix
Remarks 备注栏	☐Approval for Specification Only ■Approval for Specification and Sample
Signature by Customer: 客户确认签章	

Issued by	Checked by	Approved by

Address: Building 404, Building B, No. 163 Huawang Road, Langkou community, Dalang Street, Longhua District, Shenzhen City, Guangdong Province, China

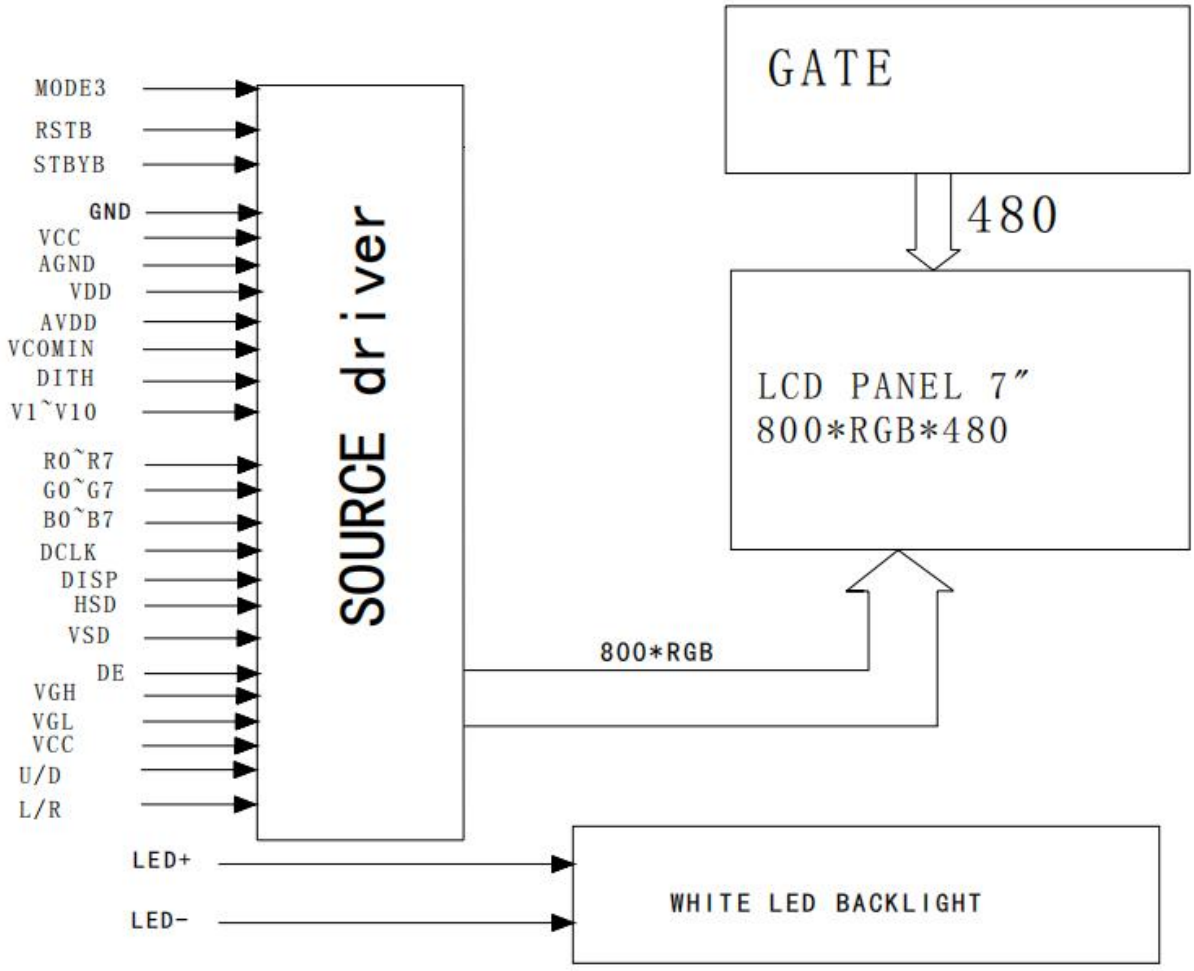
Telephone: 18665846730
Website: www.jczn1688.com/

Contents

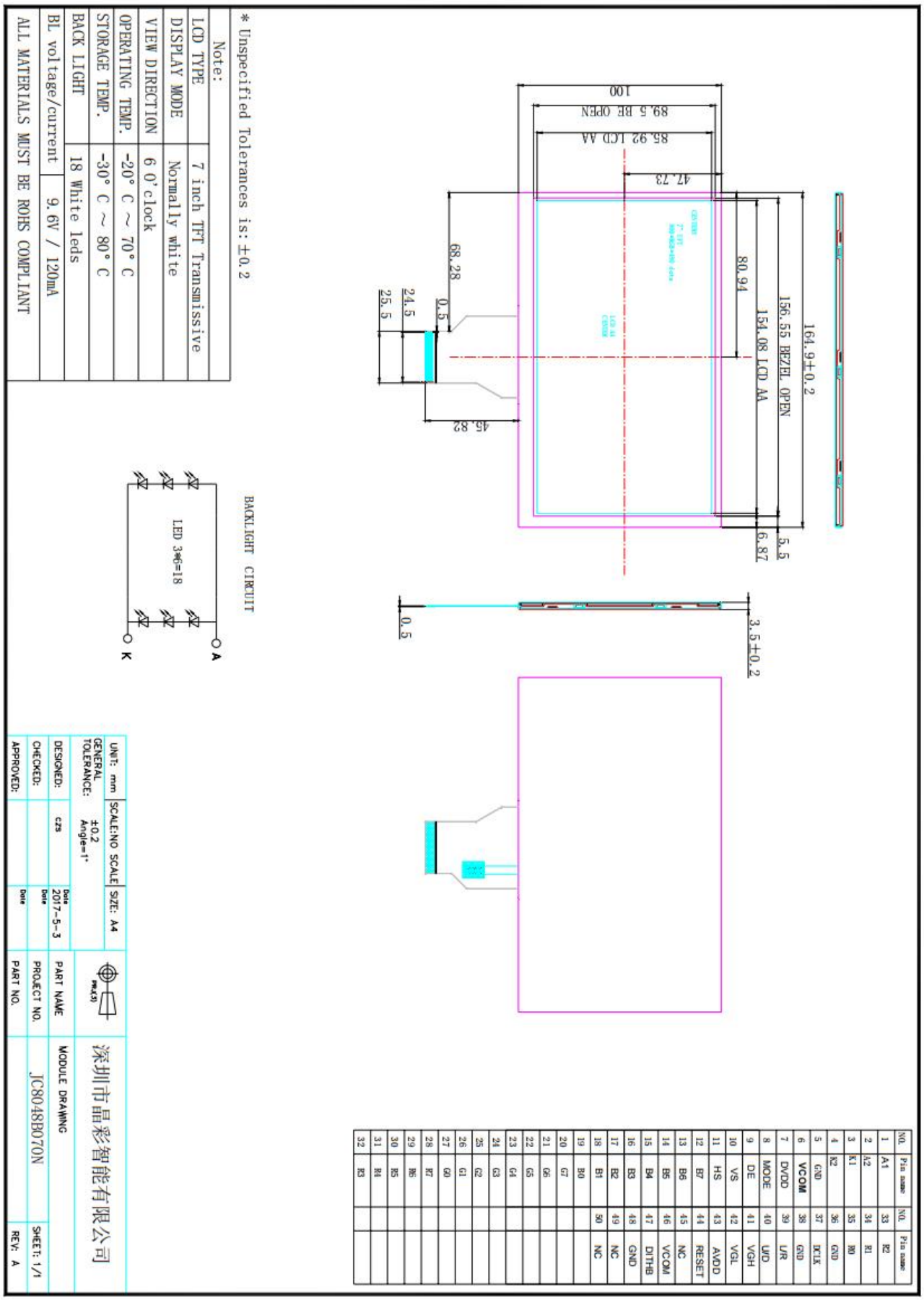
1. PHYSICAL DATA

Item	Contents	Unit
LCD type	TFT TRANSMISSIVE	---
Viewing direction	6	o'clock
Module size (W·H·T)	164.9 × 100 ×3.5	mm^3
Active area(W×H)	154.08×85.92	mm^2
Number of dots(W×H)	800(RGB) × 480	dots
Pixel Pitch(W×H))	0. 1926(H)×0. 179(V)	mm
Colors	16M	---
Backlight Type	18 white leds 9.6V/120mA	---
Interface Type	RGB	---

2. BLOCK DIAGRAM



3. Mechanical Dimension



NO.	Pin name	NO.	Pin name
1	A1	33	R2
2	A2	34	R1
3	K1	35	R0
4	K2	36	GND
5	GND	37	DCLK
6	VCOM	38	GND
7	DVDD	39	L/R
8	MODE	40	U/D
9	DE	41	VGH
10	VS	42	VGL
11	HS	43	AVDD
12	B7	44	RESET
13	B6	45	NC
14	B5	46	VCOM
15	B4	47	DITHB
16	B3	48	GND
17	B2	49	NC
18	B1	50	NC
19	B0		
20	G7		
21	G6		
22	G5		
23	G4		
24	G3		
25	G2		
26	G1		
27	G0		
28	R7		
29	R6		
30	R5		
31	R4		
32	R3		

Note:	
LCD TYPE	7 inch TFT Transmissive
DISPLAY MODE	Normally white
VIEW DIRECTION	6 0'clock
OPERATING TEMP.	-20° C ~ 70° C
STORAGE TEMP.	-30° C ~ 80° C
BACK LIGHT	18 White leds
BL voltage/current	9.6V / 120mA

* Unspecified Tolerances is: ±0.2

ALL MATERIALS MUST BE ROHS COMPLIANT

Unit: mm	SCALE:NO SCALE	SIZE: A4	深圳市晶彩智能有限公司
GENERAL TOLERANCE: ±0.2 Angle=1°			
DESIGNED: czs	Date 2017-5-3	PART NAME	MODULE DRAWING
CHECKED:	Date	PROJECT NO.	JC80480B070N
APPROVED:	Date	PART NO.	REV: A
			SHEET: 1/1

4. Pin Descriptions

Pin No.	Symbol	Functional
1	LED A	LED Anode
2	LED A	LED Anode
3	LED K	LED Cathode
4	LED K	LED Cathode
5	GND	Digital Ground
6	VCOM	For external VCOM DC input
7	DVDD	Digital Power
8	MODE	DE/SYNC mode select MODE=H: DE mode(normally pull high) MODE=L: HSD/VSD mode
9	DE	Data enable signal
10	VSYNC	Vertical sync input.
11	HSYNC	Horizontal sync input
12~19	B7~B0	Blue data Input
20~27	G7~G0	Green data Input
28~35	R7~R0	Red data Input
36	GND	Digital Ground
37	DCLK	Clock input
38	GND	Digital Ground
39	L/R	Source right or left sequence control SHLR=H: right shift, Left t Right SHLR=L: left right, Right t Left
40	U/D	Gate up or down scan control UPDN=H: up shift, Down t Up UPDN=L: down shift, Up t Down
41	VGH	Positive Power for TFT
42	VGL	Negative Power for TFT
43	AVDD	Analog Power
44	RSTB	Global reset pin.Active low to enter reset state Suggest to connecting with an RC reset circuit for stability. Normally pull high.（RC circuit :R=10KΩ， C=1uF）
45	NC	Not connect
46	VCOM	For external VCOM DC input
47	DITHB	Dithering setting
48	GND	Digital Ground
49	NC	Not connect
50	NC	Not connect

5. ABSOLUTE MAXIMUM RATINGS

5. 1Absolute maximum ratings

Item	Symbol	Values		Unit	Remark
		Min.	Max.		
Power voltage	DV_{DD}	-0.3	5.0	V	
	AV_{DD}	6.5	13.5	V	
	V_{GH}	-0.3	40.0	V	
	V_{GL}	-20.0	0.3	V	
	V_{GH}-V_{GL}	-	40.0	V	
Operation Temperature	T_{OP}	-30	85	℃	
Storage Temperature	T_{ST}	-30	85	℃	
LED Reverse Voltage	V_R	-	1.2	V	Each LED Note 2
LED Forward Current	I_F	-	25	mA	Each LED

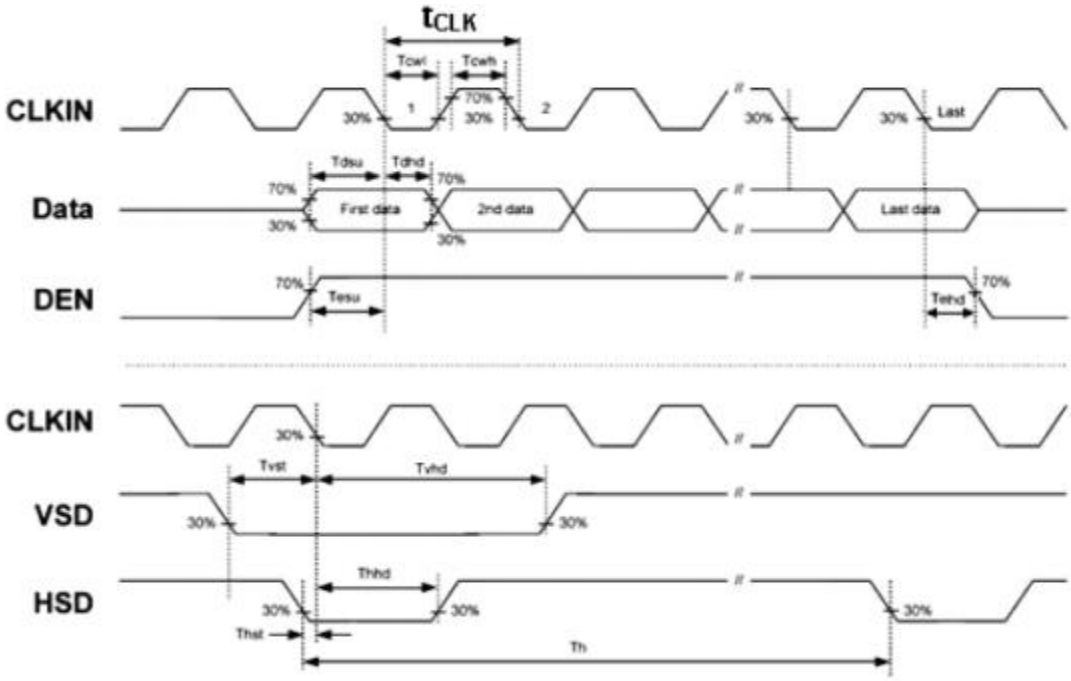
5.2 Typical operation conditions

Item	Symbol	Values			Unit	Remark
		Min.	Typ.	Max.		
Power voltage	DV_{DD}	3.0	3.3	3.6	V	Note 2
	AV_{DD}	10.2	10.4	10.6	V	
	V_{GH}	15.3	16.0	16.7	V	
	V_{GL}	-7.7	-7.0	-6.3	V	
Input signal voltage	V_{COM}	3.6	3.8	4.0	V	
Input logic high voltage	V_{IH}	0.7 DV_{DD}	-	DV_{DD}	V	Note 3
Input logic low voltage	V_{IL}	0	-	0.3 DV_{DD}	V	

6. Timing Characteristics of input single

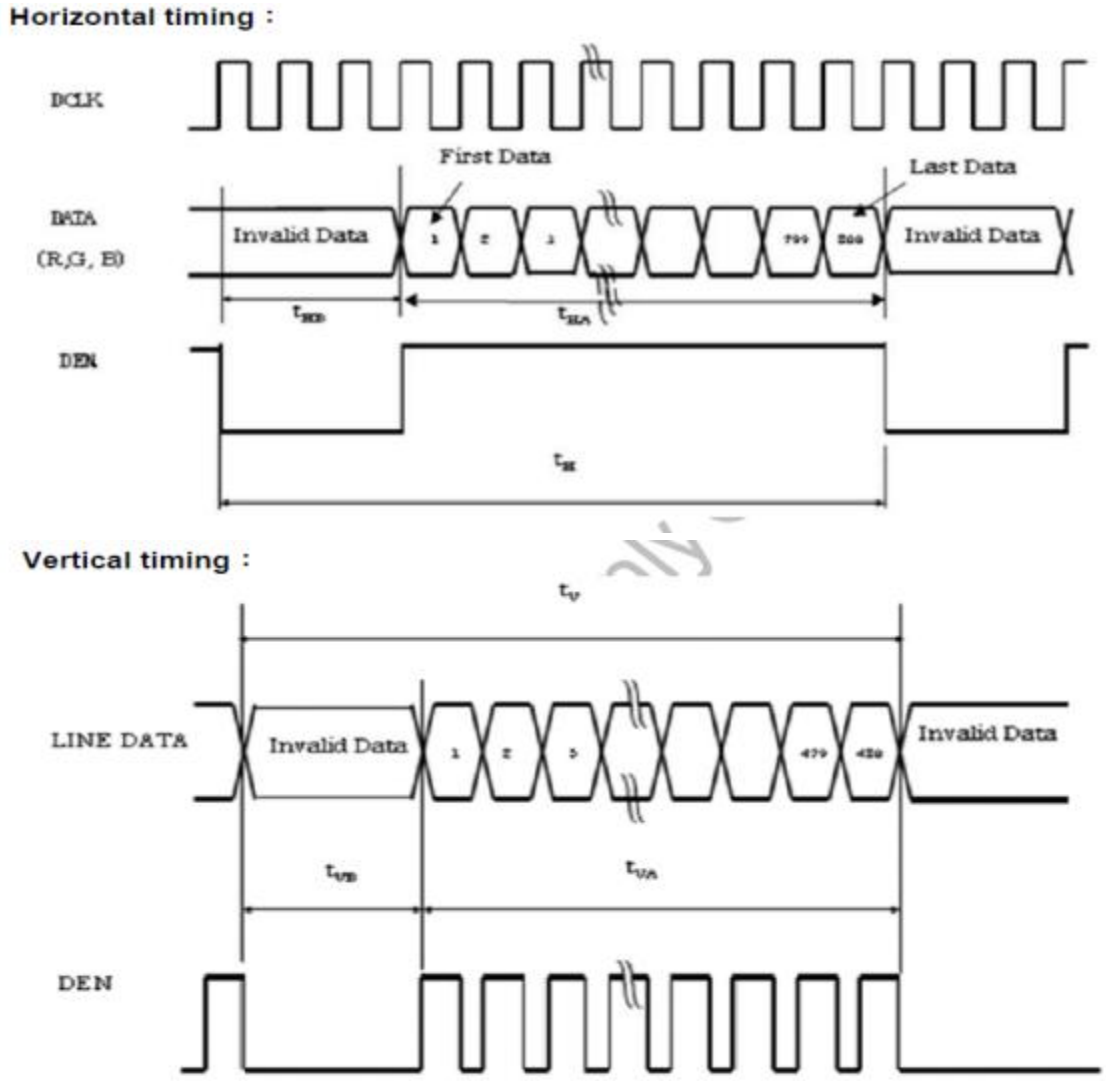
Input timing table

ITEM		SYMBOL	MIN.	TYP.	MAX.	UNIT	Note
DCLK	Dot Clock	$1/t_{CLK}$	29	33	38	MHz	
	DCLK pulse duty	Tcwh	40	50	60	%	
DE	Setup Time	Tesu	8	-	-	ns	
	Hold time	Tehd	8	-	-	ns	
	Horizontal Period	t_H	1026	1056	1086	t_{CLK}	
	Horizontal Valid	t_{HA}		800		t_{CLK}	
	Horizontal Blank	t_{HB}	226	256	286	t_{CLK}	
	Vertical Period	t_V	515	525	535	t_H	
	Vertical Valid	t_{VA}		480		t_H	
	Vertical Blank	t_{VB}	35	45	55	t_H	
SYNC	HSYNC Setup Time	Thst	8	-	-	ns	
	HSYNC Hold Time	Thhd	8	-	-	ns	
	VSYNC Setup Time	Tvst	8	-	-	ns	
	VSYNC Hold Time	Tvhd	8	-	-	ns	
	Horizontal Period	th	1026	1056	1086	t_{CLK}	
	Horizontal Pulse Width	thpw	-	30	-	t_{CLK}	thb + thpw=46DCLK is fixed
	Horizontal Back Porch	thb	-	16	-	t_{CLK}	
	Horizontal Front Porch	thfp	180	210	240	t_{CLK}	
	Horizontal Valid	thd		800		t_{CLK}	
	Vertical Period	tv	515	525	535	th	
	Vertical Pulse Width	tvpw	-	13	-	th	tvpw + tvb = 23th is fixed
	Vertical Back Porch	tvb	-	10	-	th	
	Vertical Front Porch	tvfp	12	22	32	th	
	Vertical Valid	tvd		480		th	
DATA	Setup Time	Tdsu	8	-	-	ns	
	Hold Time	Tdhd	8	-	-	ns	



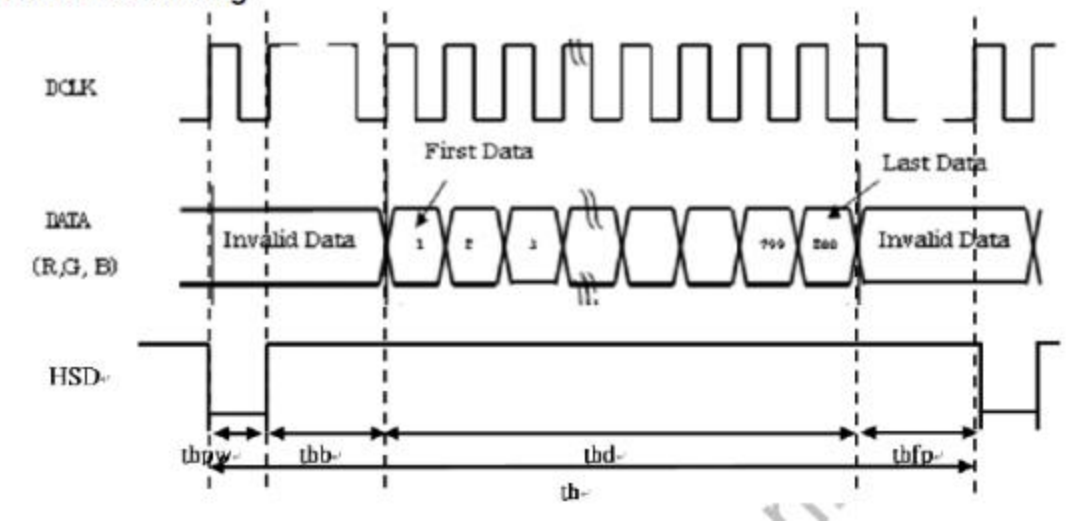
7. Timing sequence(timing chart)

7.1 DE mode

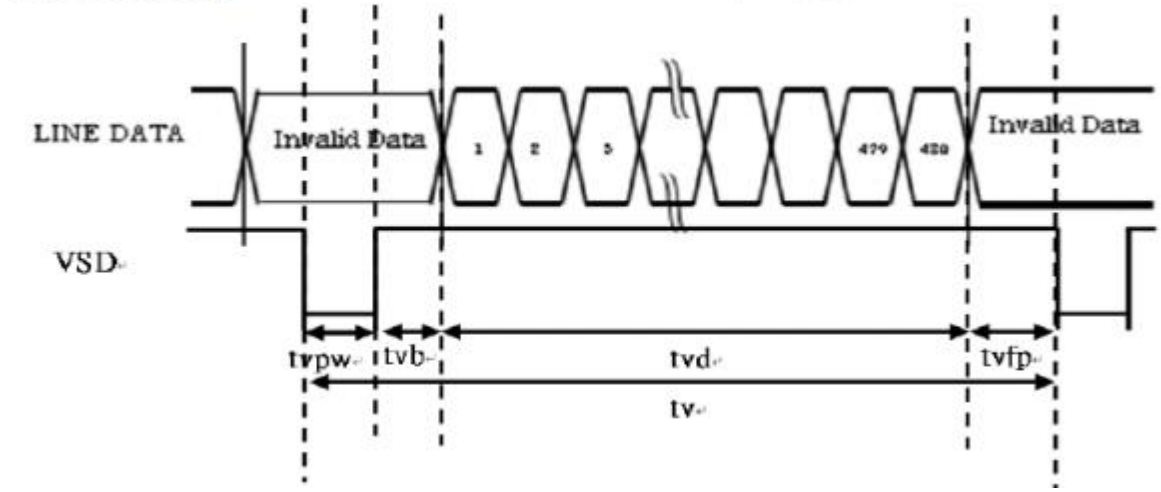


7.2 SYNC mode

Horizontal timing :

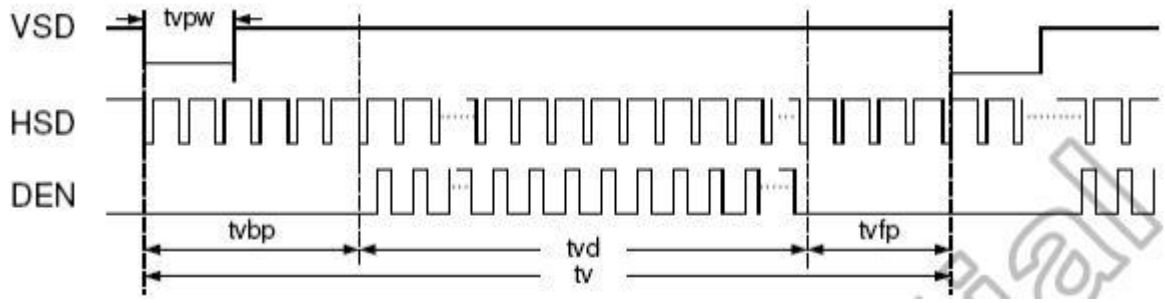


Vertical timing :

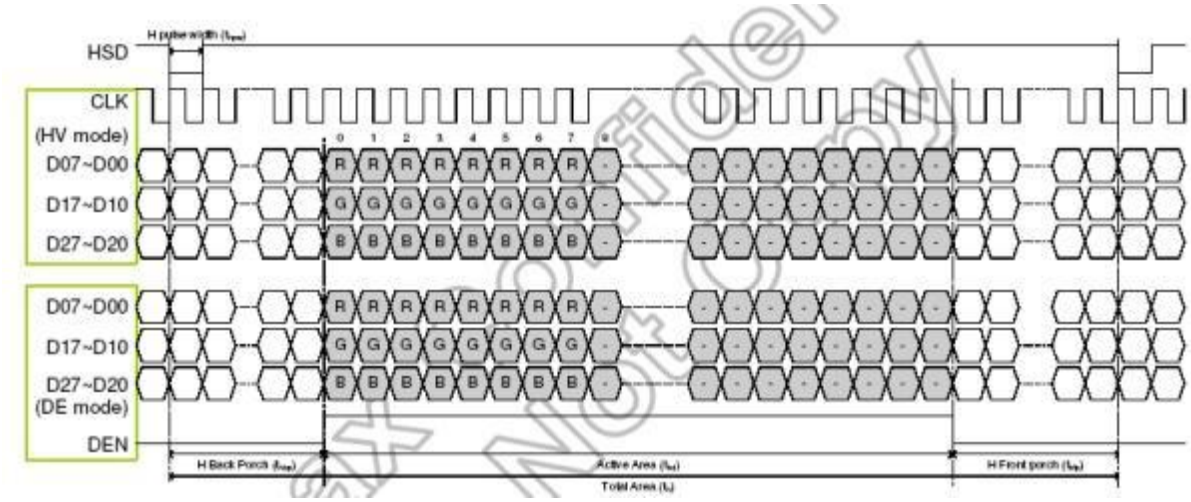


8. Data input format for RGB

Vertical input Timing



Horizontal input Timing



9. Backlight Characteristic

Item	Symbol	Min	Typical	Max	Unit
LED module Forward voltage	V_{LED}	--	9.6	--	V
LED module current	I_{LED}	--	120	--	mA
L/G Surface Luminance ★1	L_S	--	TBD	--	mcd
LCM Surface brightness uniform ★2	L_D	80	--	--	%

★ 1 Test condition is:

(a) Center point on active area.

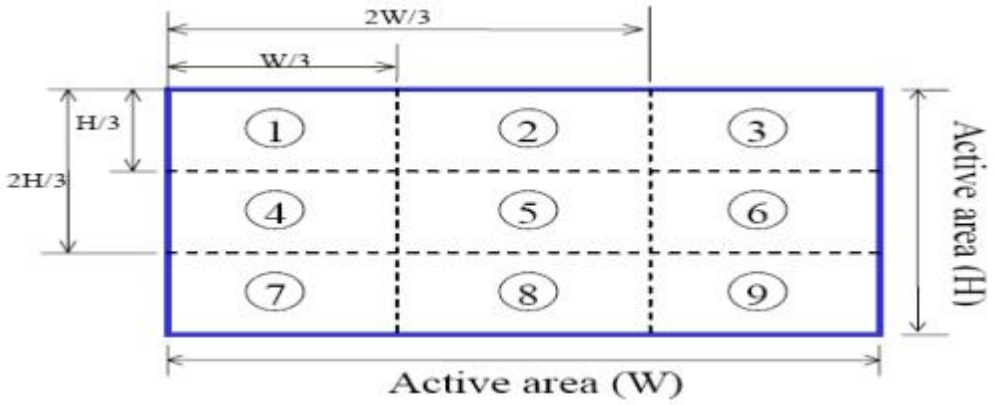
(b)Best Contrast.

★2 Uniform measure condition:

(1)Measure 9 point. Measure location show below;

(2)Uniform=(Min. brightness /Max. brightness)*100%

(3)Best Contrast.



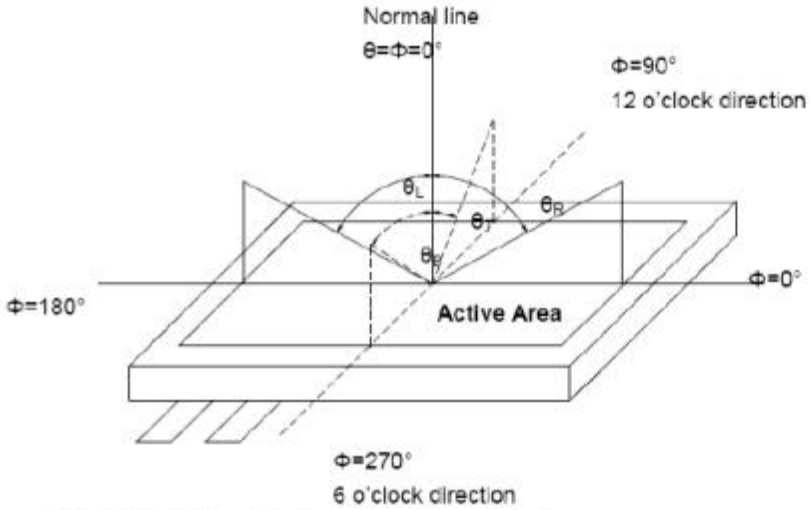
10.Electro-optical Characteristics

Item	Symbol	Condition	Values			Unit	Remark
			Min.	Typ.	Max.		
Viewing angle (CR≥ 10)	θL	Φ=180°(9 o'clock)	60	70	-	degree	Note 1
	θR	Φ=0°(3 o'clock)	60	70	-		
	θT	Φ=90°(12 o'clock)	40	50	-		
	θB	Φ=270°(6 o'clock)	60	70	-		
Response time	TON	Normal θ=Φ=0°	-	10	20	msec	Note 3
	TOFF			15	30	msec	Note 3
Contrast ratio	CR		400	500	-	-	Note 4
Color chromaticity (CF only, Base on C Light)	WX		0.278	0.308	0.338	-	Note 5
	WY		0.297	0.327	0.357	-	
Transmittance	Tr	-	-	5.11	-	%	

Test Conditions:

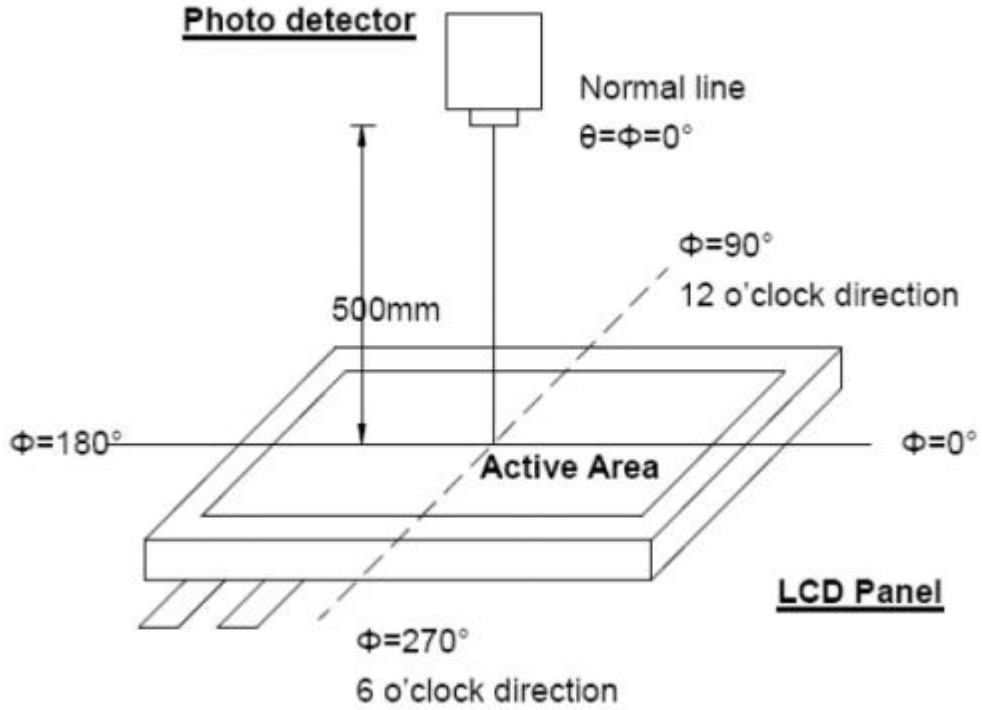
1. DVDD=3.3V, the ambient temperature is 25℃.
2. The test systems refer to Note 2.

Note 1: Definition of viewing angle range



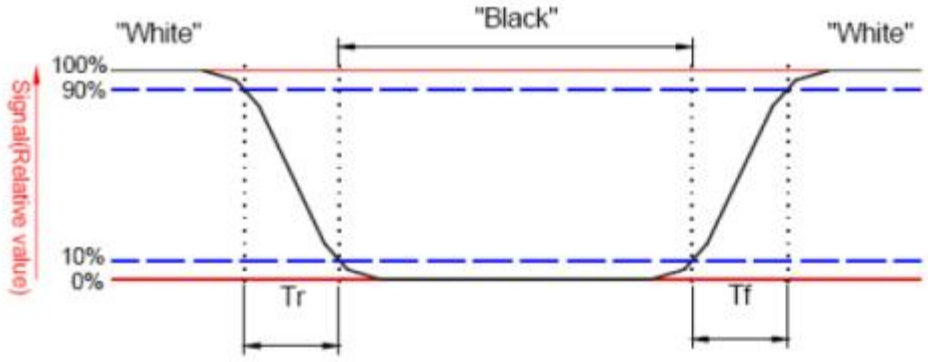
Note 2: Definition of optical measurement system.

The optical characteristics should be measured in dark room. The optical properties are measured at the center point of the LCD screen.(Response time is measured by Photo detector TRD_100, other items are measured by BM-5A/Field of view :1°/Height 500mm.)



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 (TON) is the time between photo detector output intensity changed from 90% to 10%. And fall time (TOFF) is the time between photo detector output intensity changed from 10% to 90%.



Note 4: Definition of contrast ratio:

Contrast ratio is calculated by the following formula.

$$\text{Contrast ratio (CR)} = \frac{\text{Brightness on the "white" state}}{\text{Brightness on the "black" state}}$$

Note 5: Definition of color chromaticity (CIE 1931)

Note 6: All input terminals LCD panel must be ground while measuring the center area of the panel.

11. Reliability

11.1 Test condition

Test	Test Condition	Judgment	Remark
High Temperature Storage Test	80ºC, 240 hours	Note 1	Note2 Note3 Note4
Low Temperature Storage Test	-30ºC, 240 hours	Note 1	
Thermal Shock Storage Test	-30ºC, 0.5hour<->80ºC, 0.5hour; 100cycles, 1hour/cycle	Note 1	
High Temperature Operation Test	70ºC, 240 hours	Note 1	
Low Temperature Operation Test	-20ºC, 240 hours	Note 1	
High Temperature &High Humidity Operation Test	60ºC, 90%RH, 240hours	Note 1	

Note1: Criteria: Normal display image with no obvious non-uniformity and no line defect.

Note2: All tests above are practiced at module type.

Note3: All the cosmetic specification is judged before the reliability stress. Only a single item of these tests shall be executed on a single panel , not more than one test item shall be executed on a single panel.

Note4: Evaluation should be tested after storage at room temperature for two hours.

11.2 Shock and vibration

ITEMS	CONDITIONS
Shock (Non-Operation)	● Shock level： 980m/s²(equal to 100G). ● Waveform： 1/2 Sine wave,6msec ● ±X，±Y，±Z，each axis 1 times
Vibration (Non-Operation)	● Frequency range：8~33.3Hz ● Stoke：1.3 mm ● Vibration： sinusoidal wave, perpendicular axis (both x, z axis:2Hrs, y axis 4Hrs). ● Sweep： 2.9G, 33.3 Hz -400 Hz ● Cycle： 15 min

11.3 Electrostatic Discharge

TEST ITEM	CONDITIONS	NOTE
ESD	150pF，330Ω，±8kV&±15kV Air& Contact test	1
	200pF，0Ω，±200V Contact test	2

Note: Measure Point :

1. LCD glass and metal bezel
2. IF connector pins

12.Precautions for using LCD modules.

12.1 Safety

(1)Do mot 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.

12.2 Storage Conditions

(4)Store the panel or module in a dark place where the temperature is 23±5℃and the humidity is below 45±20%RH.

(5)Store in anti-static electricity container.

(6)Store in clean environment, free from dust, active gas, and solvent.

(7)Do not place the module near organics solvents or corrosive gases.

(8))Do not crush, shake, or jolt the module.

12.3Handling Precautions

(9)Avoid static electricity, which can damage the CMOS LSI.

(10)The polarizing plate of the display is very fragile, please handle if very carefully.

(11)Do not give external shock.

(12)DO mot apply excessive force on the surface.

(13)Bo not wipe the polarizing plate with a dry cloth, as it may easily scratch the surface of plate.

(14)Do not use ketonics solvent & Aromatic solvent, use with a soft cloth soaked with a cleaning naphtha solvent.

(15)Do not operate it above the absolute maximum rating.

(16)Do not remove the panel or frame from the module.

12.4 Warranty

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