深圳市正通仁禾科技有限公司

SHEN ZHEN ZTRH TECHNOLOGY CO., LTD

PRODUCT SPECIFICATION

MODEL: ZTM080BOEL3301

<◇>PRELIMINARY SPECIFICATION

<◆>APPROVAL SPECIFICATION

CUSTOMER
APPROVED BY
DATE:

DESIGNED	CHECKED	APPROVED

深圳市正通仁禾科技有限公司

SHEN ZHEN ZTRH TECHNOLOGY CO., LTD

REVISION STATUS

Version	Revise Date	Page	Content	Modified by
V1.0	2023.02.09	-	First Issued.	XWH

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1. GENERAL DESCRIPTION

1.1 DESCRIPTION

This LCM is a color active matrix thin film transistor (TFT) IPS liquid crystal display (LCD) that uses amorphous silicon TFT as a switching device. It is composed of a TFT LCD panel, Driver IC, FPC and Backlight.This TFT LCD has a 8.0-inch diagonally measured active display area with (1024 horizontal by 768 vertical pixel) resolution.

1.2 FEATURES:
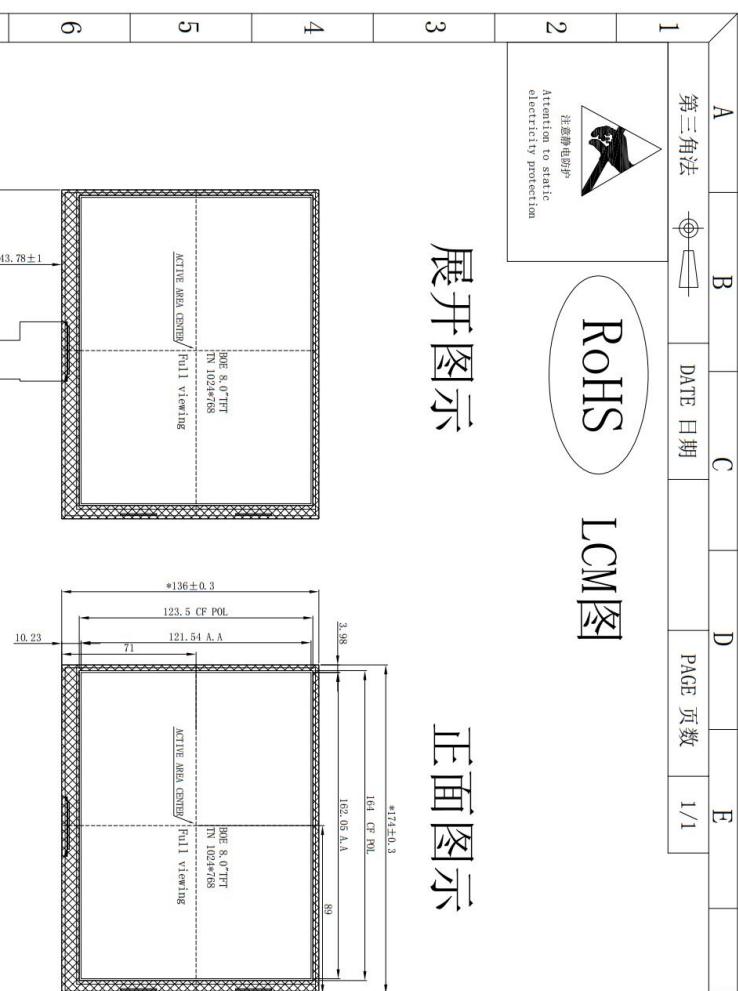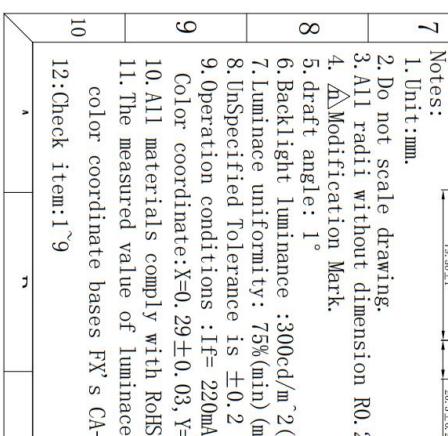
No.	Item	Specification	Unit
1	Panel Size	8.0"	inch
2	Number of Pixels	1024×RGB (3)×768	pixels
3	Active Area	162.048(H)x121.536(V)	mm
4	Pixel Pitch	52.75(H)×RGBx158.25(V)	um
5	Outline Dimension	174(W)×136(H)×2.5(D)	mm
6	Number of Colors	16.7M	-
7	Display Mode	normally white	-
8	Viewing Direction	Typ.75/75/70/75	-
9	Display Format	RGB vertical stripe	-
10	Surface Treatment	Glare	-
11	Interface	LVDS	-
12	Backlight	White LED	-
13	Operation Temperature	-10℃~+50℃	℃
14	Storage Temperature	-20℃~+60℃	℃
15	Weight	-	g
16	Driver IC	-	-

2. MECHANICAL SPECIFICATION

RoHS LCM图

展开图示

正面图示

反面图示

ACTIVE AREA CENTER Full viewing
BOE 8.0″TFT TN 1024*768

Notes:
1. Unit:mm.
2. Do not scale drawing.
3. All radii without dimension R0.2.
4. △Modification Mark.
5. draft angle: 1°
6. Backlight luminance :300cd/m^2(Min), 350cd/m^2(Typ)
7. Luminace uniformity: 75%(min)(min/max*100%)
8. UnSpecified Tolerance is ±0.2
9. Operation conditions :If= 220mA, Vf=9.3±1.1V
Color coordinate:X=0.29±0.03,Y=0.31±0.03
10. All materials comply with RoHS
11. The measured value of luminace and color coordinate bases FX's CA-310
12. Check item:1~9

第三角法

注意静电防护
Attention to static electricity protection

DATE 日期

PAGE 页数 1/1

版本 日期 修改原因 内容描述

Backlight LED Circuit
3*11=33 LED

A K

ZTM080BOEL3301
220809B0001

FPC

79.56±1
43.78±1
20.5±0.2

*136±0.3
123.5 CF POL
121.54 A.A
10.23
71
3.98

*174±0.3
164 CF POL
162.05 A.A
89

* 2.5±0.2

ZTM080BOEL3301
220809B0001

V(V.A)
V/3 V/3 V/6
L/6
L/3
L(V.A)
L/3
入光方向 九点亮度测量参考图

REV 版本 A
SCALE 比例 1:1
DESCRIPTION 描述
MATERIAL 材质
COLOR 颜色
PART No. 料号 ZTM080BOEL3301
8.0 3301 LCM
DATE 日期 2022-10-21
UNIT 单位 mm
正式图 式 图

APPROVED BY 核准 CHECKED BY 审核 DRAWN BY 绘图
深圳市正通仁禾科技有限公司
Shen zhen Zhen Tong Ren He Technology Co.,Ltd

PIN DESCRIPTION

PIN	Symbol	Function
1	VCOM	Common Voltage
2	VDD	
3	VDD	Power Voltage for digital circuit
4	NC	No connection
5	Reset	
6	STBYB	
7	GND	Ground
8	RXIN0-	
9	RXIN0+	
10	GND	Ground
11	RXIN1-	
12	RXIN1+	
13	GND	Ground
14	RXIN2-	
15	RXIN2+	
16	GND	Ground
17	RXCLKIN-	
18	RXCLKIN+	
19	GND	Ground
20	RXIN3-	
21	RXIN3+	
22	GND	Ground
23	NC	No connection
24	NC	No connection
25	SELB	
26	GND	Ground
27	VDD	
28	L/R	
29	U/D	
30	GND	Ground
31	SCL	
32	SDA	
33	L/R	
34	CABC0(EN)	
35	CABC1(PWM)	
36	LED-	
37	LED+	
38	VGL	
39	LED-	
40	LED+	

Model No:ZTM080BOEL3301

3. PIN DESCRIPTION

FPC Connector is used for the module electronics interface.

No.	Symbol	Function	Remark
1	VCOM	Common Voltage.	
2	VDD	Power Voltage for digital circuit	
3	VDD	Power Voltage for digital circuit	
4	NC	No connection	
5	Reset	reset pin	
6	STBYB	Standby mode,Normally pulled high STBYB='1',normal operation STBYB='0',timing controller	
7	GND	Ground	
8	RNIX0-	-LVDS differential data input	
9	RNIX0+	+LVDS differential data input	
10	GND	Ground	
11	RNIX1-	-LVDS differential data input	
12	RNIX1+	+LVDS differential data input	
13	GND	Ground	
14	RNIX2-	-LVDS differential data input	
15	RNIX2+	+LVDS differential data input	
16	GND	Ground	
17	RXCLKIN-	-LVDS differential clock input	
18	RXCLKIN+	+LVDS differential clock input	
19	GND	Ground	
20	RNIX3-	-LVDS differential data input	
21	RNIX3+	+LVDS differential data input	
22	GND	Ground	
23	NC	No connection	
24	NC	No connection	
25	GND	Ground	
26	NC	No connection	
27	DIMO	Backlight CABC controller signal output	
28	SELB	6 bit/8 bit mode select	
29	AVDD	Power for Analog Circuit	
30	GND	Ground	
31	LED-	LED Cathode	
32	LED-	LED Cathode	
33	L/R	Horizontal inversion	
34	U/D	Vertical inversion	
35	VGL	Gate Off Voltage	
36	CABCEN1	CABC H/W enable	
37	CABCEN0	CABC H/W enable	
38	VGH	Gate On Voltage	
39	LED+	LED Anode	
40	LED+	LED Anode	

4. ELECTRICAL CHARACTERISTICS

4.1 ABSOLUTE MAXIMUM RATINGS

Item	Symbol	Values		Unit	Remark
		Min.	Max.		
Digital Supply Voltage	VDD	-0.5	3.96	V	
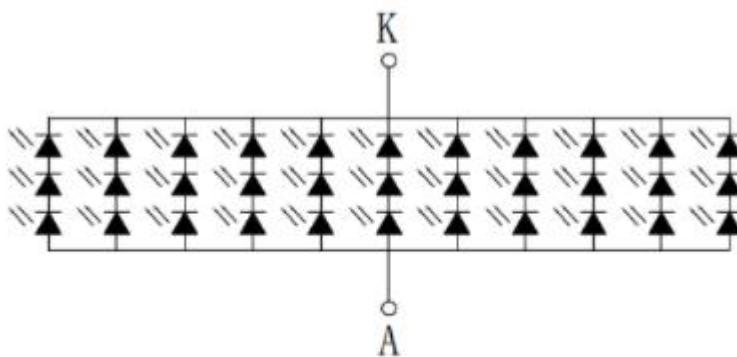
4.2 TFT LCD MODULE

4.2.1 Operating Conditions

Item	Symbol	Values			Unit	Remark
		Min.	Typ.	Max.		
Digital Supply Voltage	VDD	2.8	3.3	3.96	V	
Logic Input Voltage	VIH	0.7VDD	-	VDD	V	
	VIL	GND	-	0.3VDD	V	

4.3 BACKLIGHT UNIT

Item	Symbol	Values			Unit	Remark
		Min.	Typ.	Max.		
LED Current	Iled	-	220	-	mA	Total LED
Forward voltage	VF	-	9.3	9.6	V	IF=220mA
Reverse current	IR	-	-	50	µA	VR=5V,1LED
Power dissipation	Pd	2112			mW	Total LED
Peak forward current	IFP	100			mA	1LED
Reverse Voltage	VR	5			V	1LED
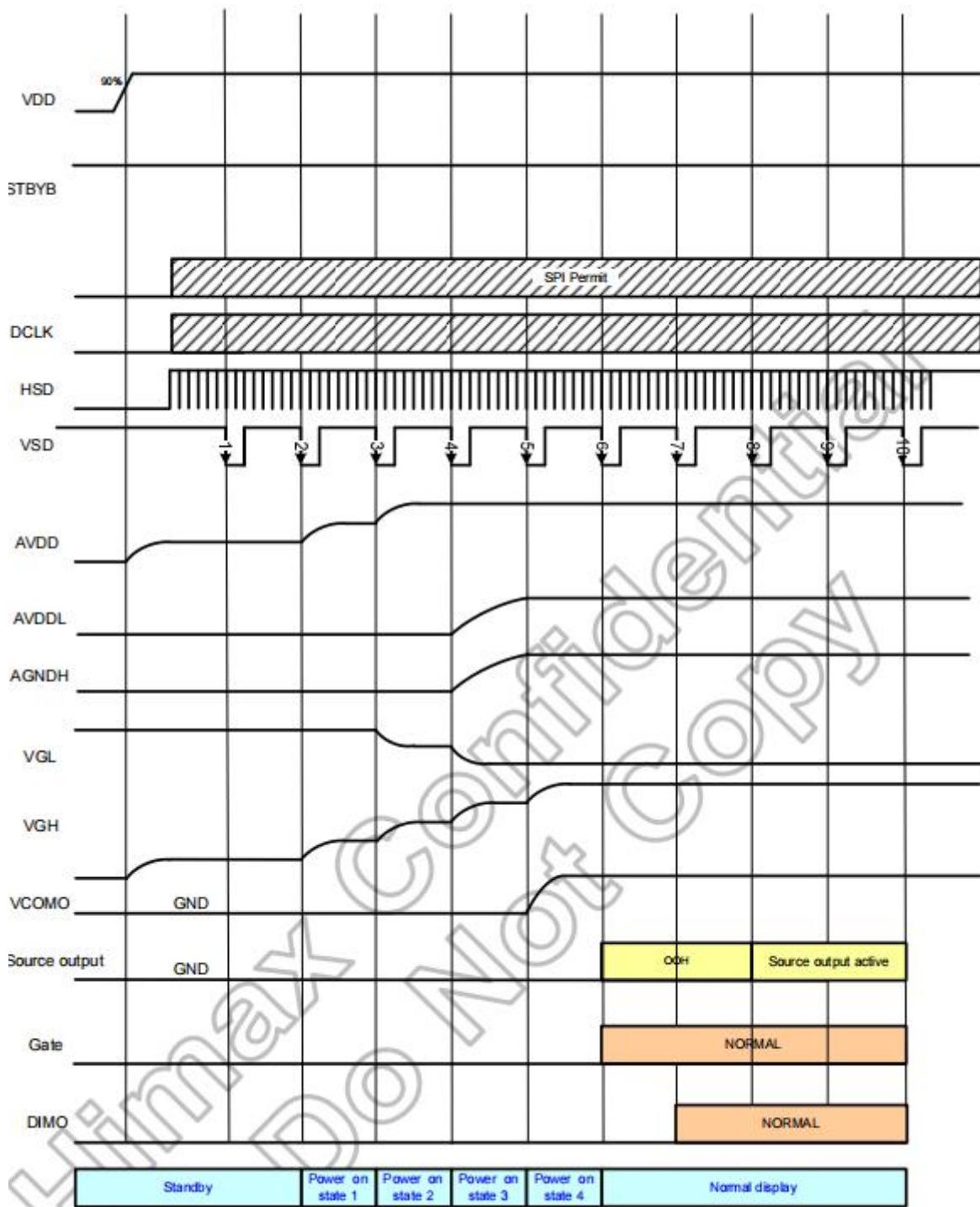
Backlight LED Circuit
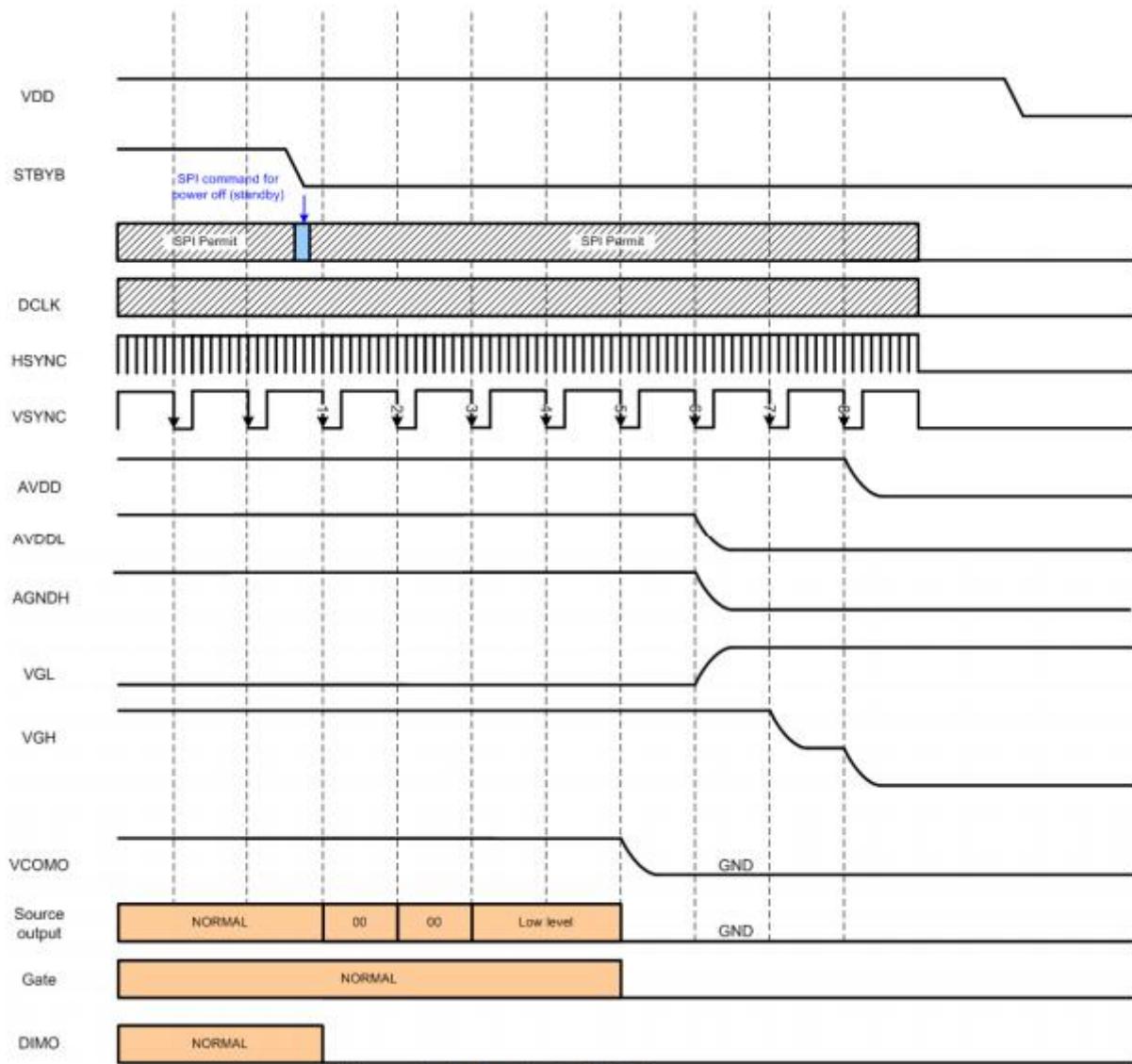
3*11=33 LED

4.4 POWER ON/OFF SEQUENCE

Power ON

Power OFF

5. INPUT SIGNAL TIMING

5.1 TTL mode AC electrical characteristics

Parameter	Symbol	Spec.			Unit	Condition
		Min.	Typ.	Max.		
VDD Power On Slew rate	T_{POR}	-	-	20	ms	From 0V to 90% VDD
GRB pulse width	T_{GRB}	50	-	-	µs	DCLK=65MHz
DCLK cycle time	T_{cph}	14	-	-	ns	-
DCLK pulse duty	T_{cwh}	40	50	60	%	-
VSD setup time	T_{vst}	5	-	-	ns	-
VSD hold time	T_{vhd}	5	-	-	ns	-
HSD setup time	T_{hst}	5	-	-	ns	-
HSD hold time	T_{hhd}	5	-	-	ns	-
Data set-up time	T_{dsu}	5	-	-	ns	D0[7:0], D1[7:0], D2[7:0] to DCLK
Data hold time	T_{dhd}	5	-	-	ns	D0[7:0], D1[7:0], D2[7:0] to DCLK
DE setup time	T_{esu}	5	-	-	ns	-
DE hold time	T_{ehd}	5	-	-	ns	-
Output stable time	T_{sst}	-	-	6	µs	10% to 90% target voltage. CL=90pF, R=10K ohm (Cascade)
				3		Dual gate

5.2 LVDS mode AC electrical characteristics

Parameter	Symbol	Spec.			Unit	Condition
		Min.	Typ.	Max.		
Clock frequency	R_{XFCLK}	20	-	71	MHz	-
Input data skew margin	T_{RSKM}	500	-	-	pS	$\mid V_{ID} \mid$=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	-
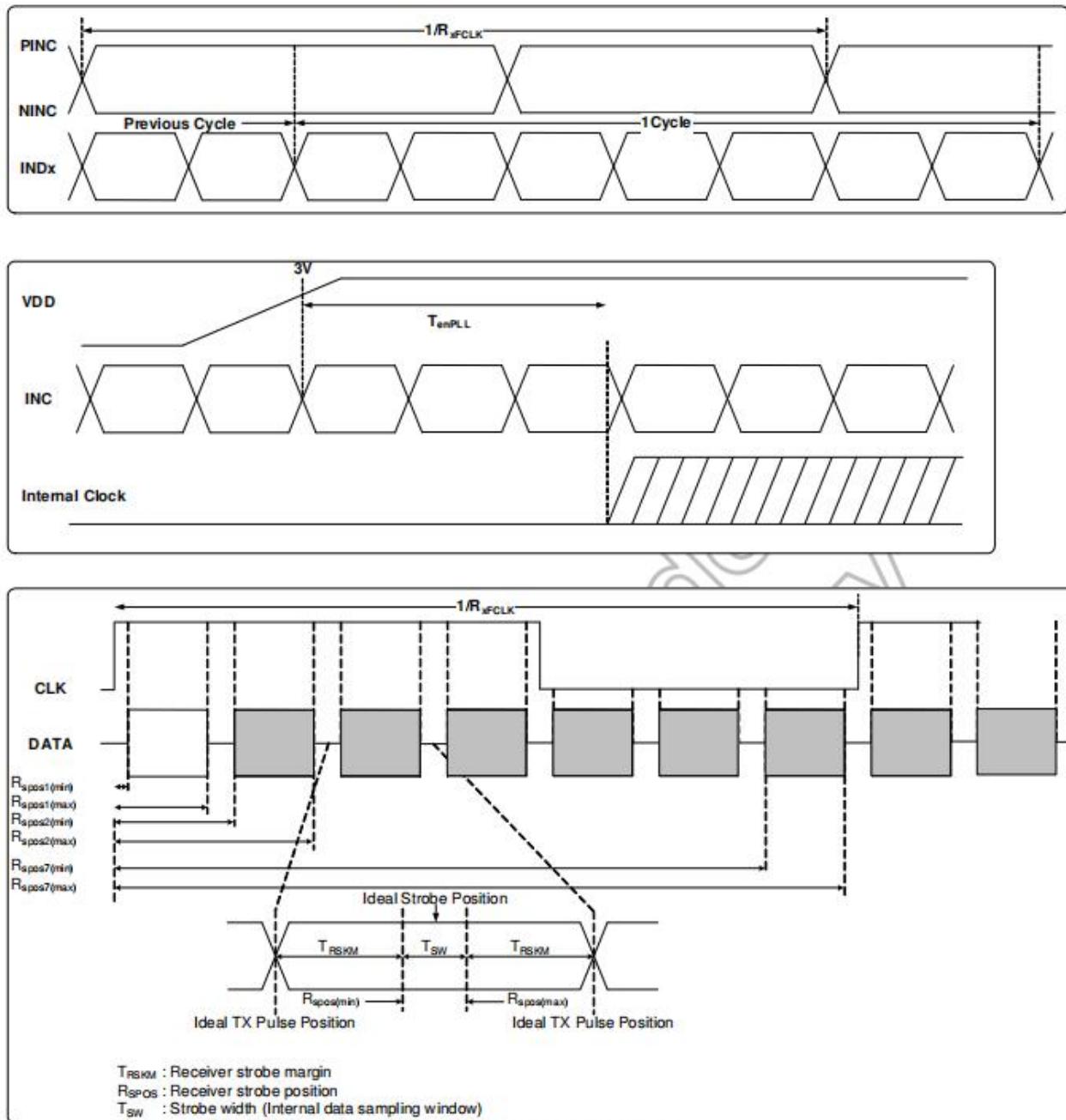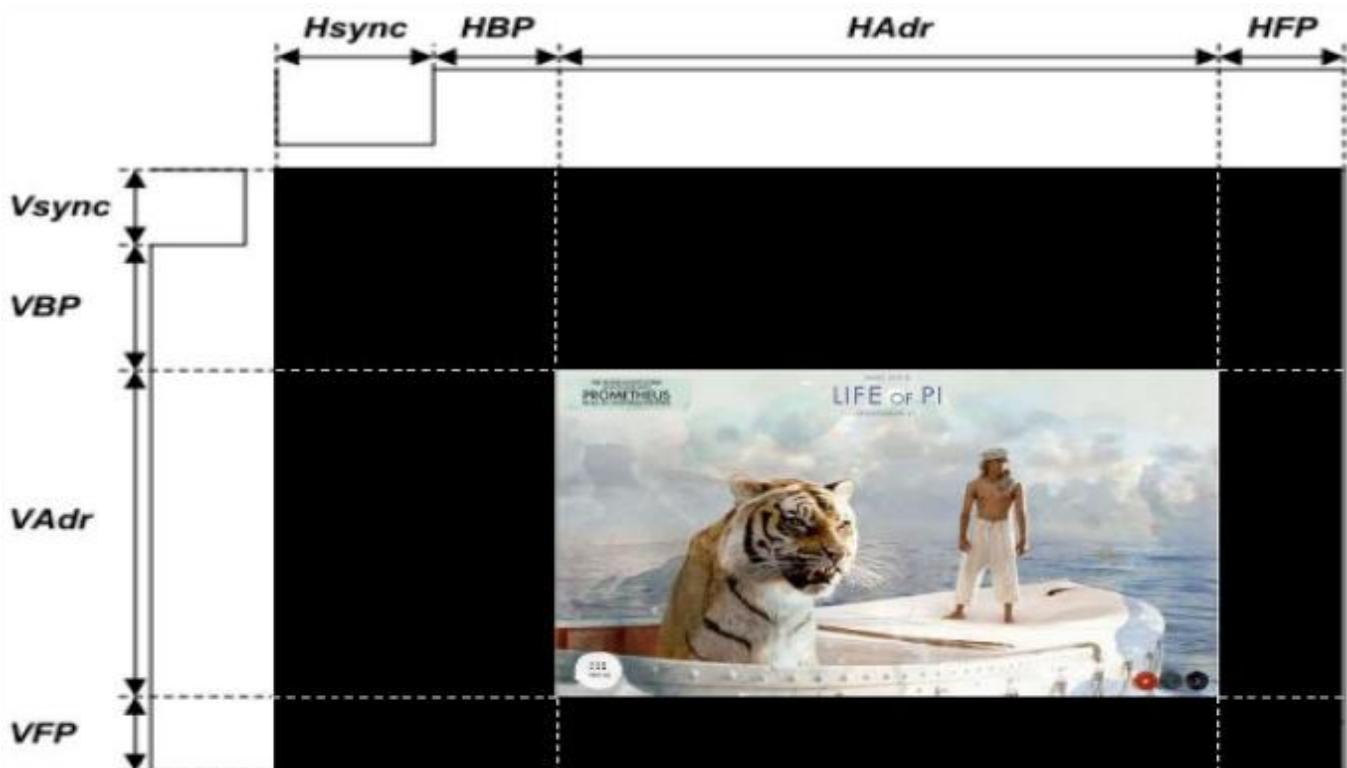
Figure 10.1: LVDS figure

Parameter	Symbol	Spec.			Unit	Condition
		Min.	Typ.	Max.		
Modulation Frequency	SSC_{MF}	23	-	93	KHz	-
Modulation Rate	SSC_{MR}	-	-	±3	%	LVDS clock =71MHz center spread

5.3 Timings for DSI Video mode

Parameter	Symbol	Spec.			Unit
		Min.	Typ.	Max.	
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		Line
VSD Blanking	tv	778	806	845	Line
VS Pulse Width	tvbp+tvfp	10	38	77	Line
DCLK Frequency	fclk	52	65	71	MHz
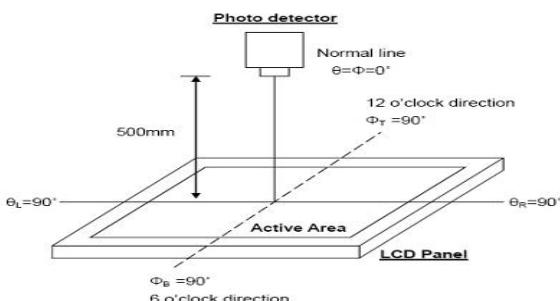
6.OPTICAL CHARACTERISTICS

Ta=25±2℃
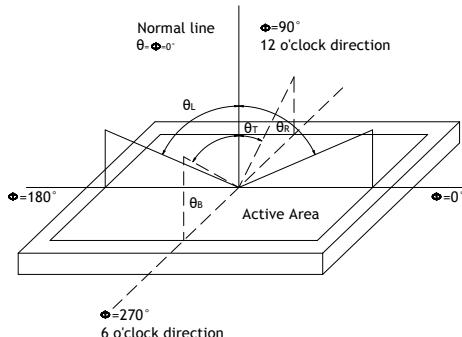
Item		Symbol	Min.	Typ.	Max.	Unit	Note
Contrast Ratio		CR	-	500	-		Note1 Note3
Luminance(center)		L	300	350	-	cd/m2	Note1 Note5 Note7
Luminous tolerance		LU	75			%	Note7
Response Time		Rising + Falling	-	20	30	ms	Note1 Note4
Viewing Angle K=Contrast Ratio>10	Horizontal	θx^+	65	75	-	degree	Note2
		θx^-	65	75	-		
	Vertical	θy^+	75	70	-		
		θy^-	65	75	-		
Color Chromaticity (CIE1931)	Red	x	Typ-0.03	0.616	Typ+0.03		Note1 Note5 Note7
		y		0.335			
	Green	x		0.284			
		y		0.538			
	Blue	x		0.148			
		y		0.141			
	White	x		0.293			
		y		0.323			
Color gamut (NTSC ratio)			45	50	-	%	

Note1: Definition of optical measurement system (BM-7)

Note2: Definition of viewing angle range and measurement system
Viewing angle is measured at the center point of the LCD by CONOSCOPE (ergo-80).

Note3: 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%.
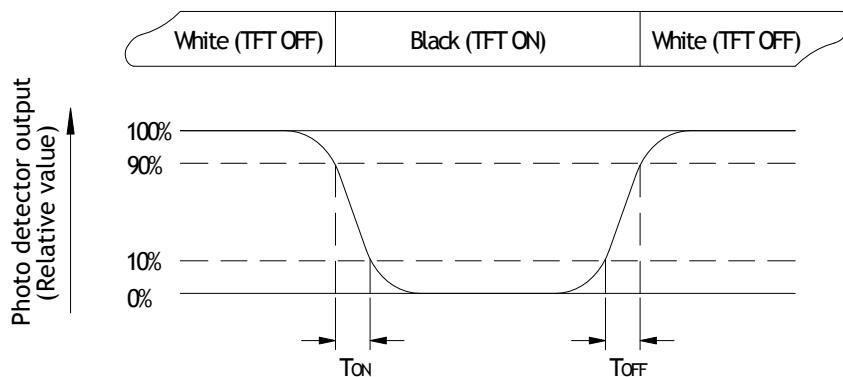

Fig. 6-3 Definition of response time

Note4: Definition of contrast ratio

$$Contrast\ ratio(CR)=\frac{Luminance\ measured\ when\ LCD\ on\ the\ Whitestate}{Luminance\ measured\ when\ LCD\ on\ the\ Blackstate}$$

"White state ": The state is that the LCD should drive by Vwhite.

"Black state": The state is that the LCD should drive by Vblack.

Vwhite: To be determined Vblack: To be determined.

Note5: Definition of color chromaticity (CIE1931)

Color coordinates measured at center point of LCD.
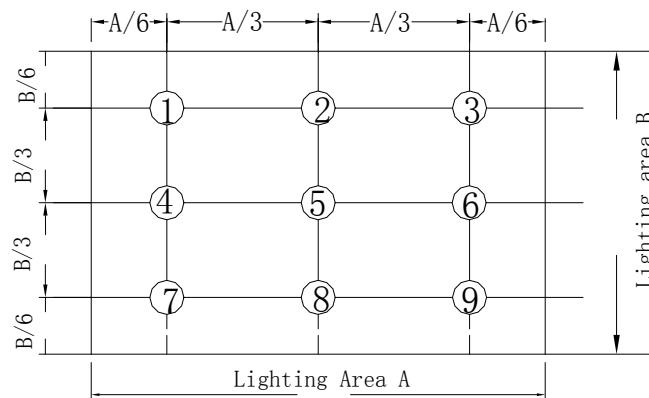
Note6: All input terminals LCD panel must be ground while measuring the center area of the panel. The LED driving condition is IL=220mA

Note7: Definition of Luminance Uniformity

Active area is divided into 9 measuring areas.Every measuring point is placed at the center of each measuring area.

Luminance Uniformity (U) = Lmin/ Lmax

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

Bmax: The measured maximum luminance of all measurement position.

Bmin: The measured minimum luminance of all measurement position.
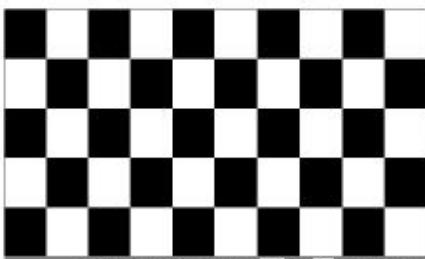
# 7. RELIABILITY TEST ITEMS

7.1 TEMPERATURE AND HUMIDITY
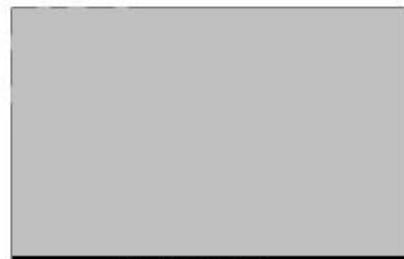
Test Item	Test Condition	Remark
High Temperature Storage	Ta=60℃; 96hrs	IEC60068-2-1：2007 GB2423.2-2008
Low Temperature Storage	Ta=-20℃;96hrs	IEC60068-2-1：2007 GB2423.1-2008
High Temperature Operation	Ta=50℃; 96Hrs	IEC60068-2-1：2007 GB2423.2-2008
Low Temperature Operation	Ta=-10℃; 96hrs	IEC60068-2-1：2007 GB2423.1-2008
High Temperature High Humidity Operation	Ta=40℃，90%RH，96Hrs(no condensation)	IEC60068-2-78：2001 GB/T2423.3-2006
Thermal Shock(Non-operation)	-20℃(0.5h) ~ 60℃(0.5h) / 27cycles	Start with cold temperature，End with high temperature，IEC60068-2-14:1984,GB2423.22-2002
Image Sticking	25℃；1hrs	Note1

Note1:Condition of image sticking test :25℃±2℃
Operation with test pattern sustained for 1 hrs,then change to gray pattern immediately.after 5 mins,the mura must be disappeared completely

(a) Test Pattern (chess board Pattern)　　(b) Gray Pattern

7.2 VIBRATION&SHOCK

Test item	Conditions	Remark
Packing Shock (non-operation)	980m/s2,6ms, ±x,y,z 3times for direction	IEC60068-2-27：1987 GB/T2423.5-1995
Packing Vibration (non-operation)	Frequency range:10 HZ~50HZ Stroke:1.0mm,sweep:10 HZ ~50HZ x,y,z 2 hours for each direction	IEC60068-2-32：1990 GB/T2423.8-1995

7.3 ESD

Test item	Conditions		Remark
Electro Static Discharge Test (non-operation)	150pF，330Ω，Contact:±2KV,Air:±4KV	1	Class C
	200pF，0Ω，±200V contact test	2	

Note: Measure point :

1. LCD glass and metal bezel

2. IF connector pins

3. ESD class B:some performance degradation allowed. Self-recoverable.
   No data lost,no hardware failures.

8. GENERAL 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±5° C and The

   humidity is below 50±20%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 ketonics 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.
9. When the module is assembled, it should be attached to the system firmly, Be careful not to twist and bend the module.
10. Wipe off water droplets or oil immediately. If you leave the droplets for a long time, staining and discoloration may occur.
11. 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, legs or clothes, it must be washed away thoroughly with soap.

8.4 WARRANTY

1. The period is within twelve months since the date of shipping out under normal using and storage conditions.
2. Do not repaired or modified the LCM. It may cause function to lose efficacy, Starry does not warrant the LCM.
3. All process and material comply ROHS.