



**SPECIFICATION
FOR
LCD MODULE**

Customer : _____
Product Model: YH080BH4001 包胶
Sample code: _____

Designed by	Checked by	Approved by

Final Approval by Customer

<input type="checkbox"/> LCM Machinery OK Checked By _____ <input type="checkbox"/> LCM Display OK Checked By _____	<input type="checkbox"/> LCM OK <input type="checkbox"/> NG , Problem survey: Approved By _____
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※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.



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一. 适用

本规格承认书适用 [8.0英寸液晶显示屏](#) 电子产品，显示人机互动信息。

二. 产品指定

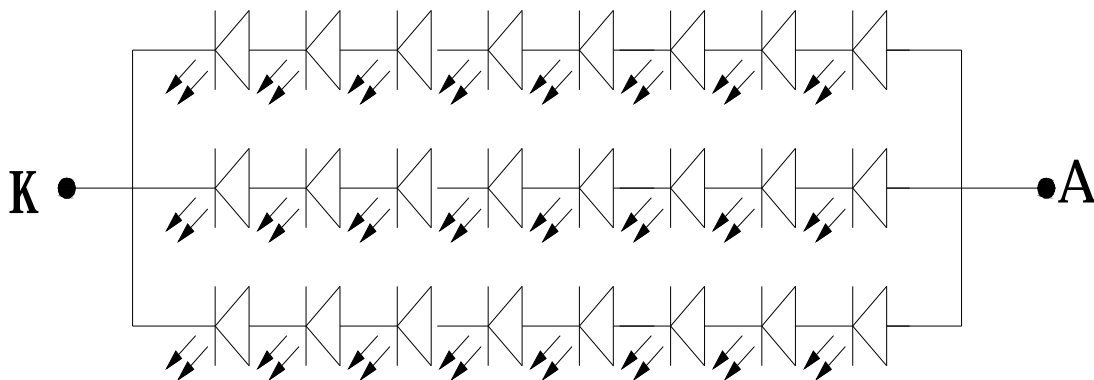
客户产品名称: [8.0Inch TFT LCM](#) 模块

三. 产品组成

模组主要零部件组成

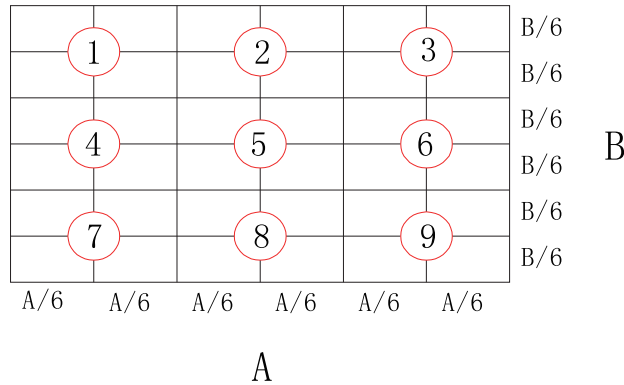
	序号	名称	物料料号	数量	备注
模组	1	TFT液晶显示屏	参考BOM	1PCS	客供
	2	背光源	参考BOM	1PCS	
	3	产品标签	参考BOM	1PCS	
	4	防拆标签	参考BOM	1PCS	
	5				
	6				
	7				

四. 测试电路图 Test Circuit Diagram: TYP: 25.6V/75mA



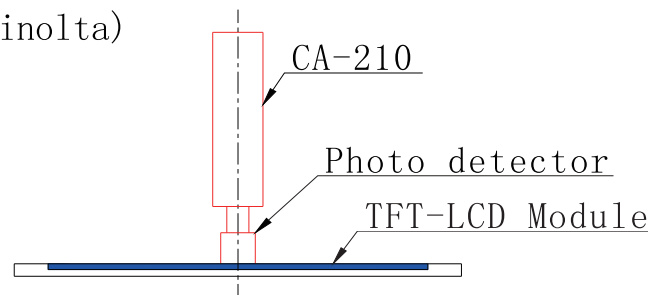


五. 测试点位置图 Test Point Space Diagram:



六. 测试条件如下 Test Condition as follow:

1. 环境温度: $25 \pm 2^{\circ}\text{C}$
2. 环境湿度: $55\% \pm 10\%$ 。
3. 使用限流电源测试: **75mA** (单颗 LED 灯 25mA)
4. 测量仪器:
 - 1) 恒压恒流电源: 茂迪 LPS305C-TC
 - 2) 显示器色彩分析仪: CA-210 (Konica Minolta)
5. 测定距离 $L = 30\text{mm}$
6. 测量方式: (如右图)



七. 极限参数 Absolute Maximum Rating:

项目 Item	符号 Symbol	条件 Conditions	值 Rating	单位 Unit
1 极限直流正向电流 Absolutemaximumforward current	Ifm	---	3x80	mA
2 脉冲驱动时极限正向电流 Peak forward current	Ifp	1 msec 脉冲, 1/10 占空比 1 msec Plus 10% Duty Cycle	3x120	mA
3 极限功耗 Power dissipation	Pd	---	24x260	mW
4 工作温度 Operating Temperature Range	Topr	---	$-20 \sim +80^{\circ}\text{C}$	$^{\circ}\text{C}$
5 贮存温度 Storage Temperature Range	Tstg	---	$-30 \sim +80^{\circ}\text{C}$	$^{\circ}\text{C}$

当工作温度高于 25°C 时, Ifm, Ifp 和 Pd 必须降低; 电流降低率是 $-0.36\text{mA}/^{\circ}\text{C}$ (直流驱动), 或 $-0.86\text{mA}/^{\circ}\text{C}$ (脉冲驱



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YuHua INT,L Technology Co., LIMITED

动), 功耗降低率是-0.75mW/°C产品的工作电流不能大于对应工作温度条件 Ifm 或 Ifp 的 60%.

For operation above 25°C, The Ifm Ifp & Pd must be derated, the Current derating is -0.36mA/°C for DC drive and-0.86mA/°C for Pulse drive, the Power dissipation is -0.75mW/°C. The product working current must not more than the 60% of the Ifm or Ifp according to the working temperature.

八. 电光特性 Electric Light Characteristic:

(除非特别说明, 环境温度 Ta=25°C, Unless specified, The Ambient temperature Ta=25°C)

项目 Item	符号 Symbol	最小值 Min.	典型值 Typ	最大值 Max.	单位 Unit	测试条件 Condition
1. 正向电压 Forward Voltage	Vf	23.2	25.6	27.2	V	IF=75mA
2. 色坐标 Chromaticity Coordinate	X	0.28	0.31	0.33	---	IF=75mA
	Y	0.28	0.31	0.33	---	IF=75mA
3. 亮度 Luminance	Lv	450	500	---	cd/m ²	IF=75mA
4. 均匀性 Uniformity	△Lv	75	---	---	%	IF=75mA

备注: 因白色 LED 无波长特性, 供货时无法做到整批颜色一致, 包装时将分色包装.

Note: There is no wavelength feature for white led, and there will be a few difference of that color when producing, we will package them according to the difference.

九. 模组外观检验规格 Backlight Visual Inspection Spec:

1. 点亮外观:

检验项目	条件	规格	备注
亮点、黑点、污点	动作试验	0.3<D: 不可有 0.25<D≤0.3: 1EA OK 0.2≤D≤0.25: 2EA OK; D<0.2: 不计	1. 点距 20mm 2. 盖上 LCD 仍能明显看见判 NG
亮线、刮伤、异物	动作试验	0.03<W: 不可有 ; 3.0<L: 不可有 L≤2.0 0.02<W≤0.03: 2EA OK L ≤3.0 0.01<W≤0.02: 3EA OK W ≤0.01: 不计	---
MURA	动作试验	点灯时发光面上不可有亮线等明暗现象, 如果出现时, 盖上 LCD 不可看见	---
牛顿环	动作试验	盖上 LCD 不可看见	---

2. 非点亮外观: 项目重缺点轻缺点判定基准

2.1 包装箱 2.1.1 不可有破裂



- 2.1.2 若有特殊记号必须检附相关证明档
- 2.2 塑料框
 - 2.2.1 不可有龟裂
 - 2.2.2 灌口残料不得高于胶框表面
 - 2.2.3 不可有缺角破损脏污现象
 - 2.2.4 毛边不可影响 LCD 模块组装作业
 - 2.2.5 不可附着有黏性的异物
- 2.3 产品标签
 - 2.3.1 内容必须正确
 - 2.3.2 字体清晰
 - 2.3.3 贴附位置必须正确
 - 2.3.4 不可短缺或误配
 - 2.3.5 不可重迭贴附
- 2.4 膜片
 - 2.4.1 逆翘不可有，正翘程度不可超过 0.5mm
 - 2.4.2 不可有龟裂, 缺角, 破损现象
 - 2.4.3 不可有变形, 毛边等现象
 - 2.3.4 必须平整, 不可造成 LCD 之 Pooling 现象
- 2.5 线材
 - 2.5.1. 不可有裸线或断线
 - 2.5.2. 长度、线径、颜色必须正确，不可刺伤、压伤或破损
 - 2.5.3. 热缩套管不可破损
 - 2.5.4. 不可有组装不良现象
 - 2.5.5. A.K 不可反接, (A 为正极, K 为负极)

十. 信赖性测试 Reliability Test :

项目	试验方法	判定基准
高温高湿动作试验	温度 $60 \pm 2^{\circ}\text{C}$ 、湿度 80% RH, 96Hr 动作后、常温放置 2Hr	A, B, C, D, E
低温动作试验	温度 $-20 \pm 2^{\circ}\text{C}$ 、常湿, 96Hr 动作后、常温放置 2Hr	A, B, C, D, E
高温高湿保存试验	温度 $80 \pm 2^{\circ}\text{C}$ 、湿度 80% RH, 96Hr 放置后、常温放置 2Hr	A, B, C, D, E
低温保存试验	温度 $-30 \pm 2^{\circ}\text{C}$ 、常湿 96Hr 放置后、常温放置 2Hr	A, B, C, D, E
冷热冲击试验	-20°C (0.5h) \rightarrow 60°C (0.5h) 为 1 次 温度循环、50 次温度循环后常温放置 2Hr	A, B, C, D, E
振动试验 (非动作)	X、Y、Z 每个方向, 频率: $10 \sim 50\text{Hz}$; 2G; 1 小时	A, B, C, D, E

判定标准:

- A: 点亮无问题
- B: 辉度维持 80%以上
- C: 外观无异常变化(损坏、伤痕、锈蚀、严重变形等情形)
- D: 均匀变化在 30%以内
- E: 色度变化在 0.02 以内



十一. 产品寿命 Product Life:

周围温度 $25^{\circ}\text{C} \pm 2^{\circ}\text{C}$ 、(If=25mA/Each LED)之推荐使用条件下, 模组之寿命为:

辉度减半平均寿命 30,000 小时以上

辉度减半保证寿命 20,000 小时以上

注: 辉度减半平均寿命指背光源平均辉度衰减到初期平均辉度 50%所需时间。

十二. 包装、标示、注意事项:

- 1: 产品标签统一贴在下铁框的固定位置, 包括有型号、序列号等, 以便追索新产品的信息。
- 2: 保存注意事项: 注意保存。保存条件不好时, 会降低反射膜(扩散膜)与导光板(反射腔)的粘附力。
- 3: 长时间(3个月以上)保存, 温度必须在 $25^{\circ}\text{C} \pm 5^{\circ}\text{C}$ 以下, 湿度必须在 $50\% \pm 10\%$ 以下。
- 4: 运输过程中严禁超高堆放挤压, 倒放, 整车装卸。
- 5: 背光模组在装配时不要扭曲和用猛力挤压等。
- 6: 避免在有灰尘或油雾环境下装配。
- 7: 必须满足背光模组的使用环境要求, 尽可能避免温度的剧烈变化。
- 8: 必须按正确的接线方式连接电源, 否则将会导致损坏。
- 9: 拿取产品时必须带上手指套, 否则会有手指印和铁框生锈的现象。

十三. 外箱标示 Outer Carton Labeling:

1. 纸箱上的出货标签表示以下项目:
2. 品名、数量、出货年月日。

十四. 欧盟 RoHS 标准 European Union RoHS Standard:

有害物 质名称	铅 (Pb)	镉 (Cd)	汞 (Hg)	六价铬 (Cr ⁶⁺)	多溴联苯 (PBBs)	多溴联苯醚 (PBDEs)	包装材料 (Pb+Cd+Hg+Cr ⁶⁺)
限定标 准 (ppm)	1000	100	1000	1000	1000	1000	100

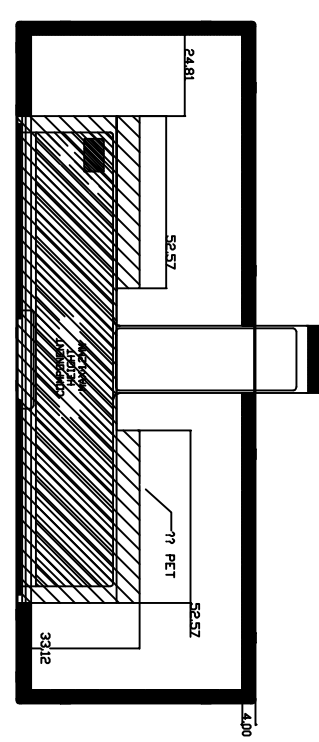
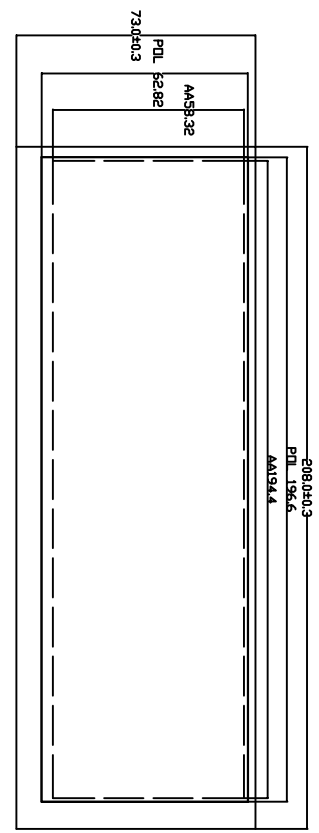
十五. 其它 Others:

本承认书如有疑问, 双方协议解决.



十六. 模组成品图 Finished Module Drawing

详见下附页



SECTION A-A

1. LED CIRCUIT DIAGRAM: 24LEDS

2. Unit:mm
3. Standard of the dimensions as below:



- 4.*Special characteristic, () reference dimension.
5. Rolls must be complied (use Lead-free process)
6. n Modification rev number
7. Unspecified Tolerances is :? 0.2

项目 Item	符号 Symbol	最小值 min.	典型值 typ.	最大值 max.	单位 Unit	测定条件 Condition
亮度 Luminance	Lv				cd/m ²	IF=75 mA (恒定电流测试) FOG? ? ? 51%? ? ? ? ? ? ?
均匀性 Uniformity	AVG					
色度坐标 Colour Coordinate	X Y					
亮度 Luminance	Lv	450	500		cd/m ²	
色度坐标 Colour Coordinate	AVG	75%				
正向电压 Forward Voltage	Vf	23.2	25.6	27.2	V	
反向电流 Reverse Current	Ir			10	μA	

REV (标记)	DATE (日期)	DESCRIPTION (描述)	check by:	Approved by:	数量	名称
A	2015.06.06	修改铁框开窗宽度及POL宽度	确认	承认	1	HOUSING
1					1	HOUSING

Please Confirm This Drawing On/Before
请 签 回 此 图

- | | | |
|----|----------------------|----|
| 14 | BLACK PET | 0 |
| 13 | Up Stainless frame | 1 |
| 12 | Down Stainless frame | 1 |
| 11 | Double side tape | 2 |
| 10 | LED | 24 |
| 9 | FPC/PCB | 1 |
| 8 | Diffused tape | 1 |
| 7 | Down BEF tape | 1 |
| 6 | UP BEF tape | 1 |
| 5 | Double side tape | 1 |
| 4 | Reflector tape | 1 |
| 3 | Double side tape | 0 |
| 2 | L/G | 1 |
| 1 | HOUSING | 1 |



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TITLE : 8inch
Preliminary Product Specification
Rev. P0

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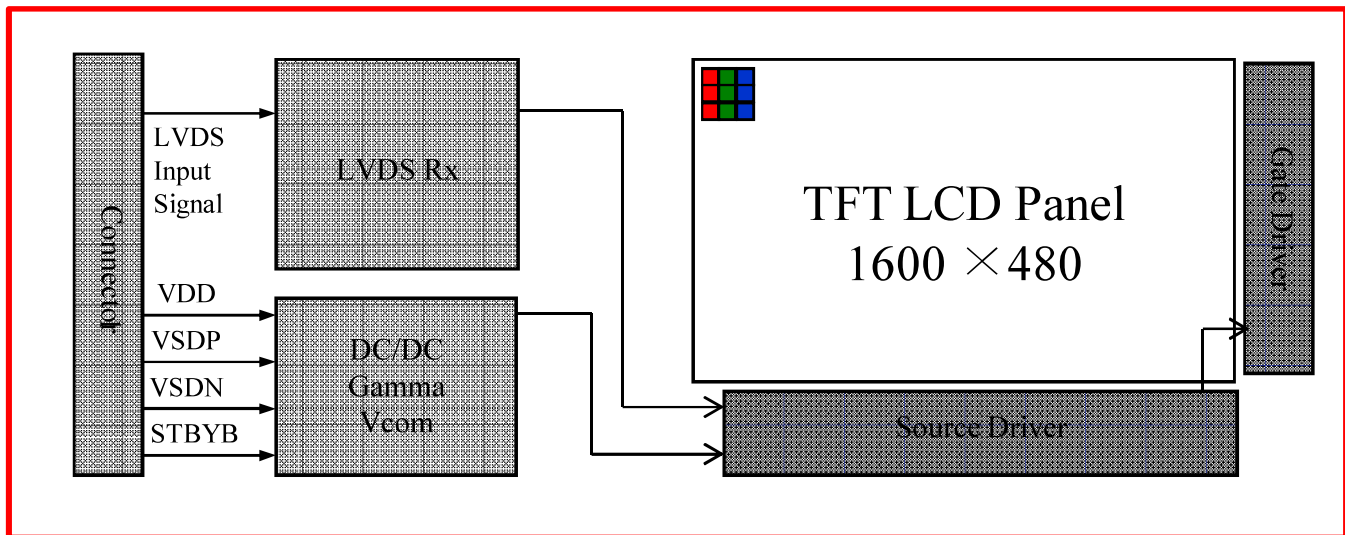
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1.0 GENERAL DESCRIPTION

1.1 Introduction

8 inch Smart Rearview Mirror is a color active matrix TFT LCD module using amorphous silicon TFT's (Thin Film Transistors) as an active switching devices. This module has a 8inch diagonally measured active area with resolutions 1600 horizontal by 480 vertical pixel array. Each pixel is divided into RED, GREEN, BLUE dots which are arranged in vertical stripe and this module can display 16.7M colors.



1.2 Features

- 1 Channel LVDS Interface with 1 pixel / clock
- DE Only mode (for LVDS Interface)
- 8-bit color depth, display 16.7M colors
- Low driving voltage and low power consumption
- RoHS Compliant

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1.3 Application

- Vehicle Device

1.4 General Specification

The followings are general specifications at the model 8inch Smart Rearview Mirror (listed in Table 1.)

< Table 1. General Specifications >

Parameter	Specification	Unit	Remarks
Dimensional outline	204.5(H) * 70(V) * 1.0(D)	mm	With out POL
Active area	194.4(H) * 58.32(V)	mm	
CF Size	200.5(H) * 66(V)	mm	
C/F Polarizer	196.6(H) * 62.82(V)	mm	
TFT Polarizer	198.5(H) * 64(V)	mm	
Number of pixels	1600(H) * 480(V)	pixels	
Pixel pitch	40.5(H) * RGB * 121.5(V)	μ m	
Pixel arrangement	Pixels RGB stripe arrangement		
Display colors	16.7M(8bits)	colors	
Display mode	Normal Black		
Weight	TBD	gram	
Source Driver IC	HX8249		
Gate Driver IC	HX8678		
Power Consumption	TBD	Watt	
Surface Treatment	C/F Polarizer: HC TFT Polarizer: Clear		

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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. LCD Module Electrical Specifications >

Parameter	Symbol	Min.	Max.	Unit	Remarks
Power Supply Voltage	V_{DD}	2.8	3.5	V	Note
Operating Temperature	T_{OP}	-20	+70	°C	
Storage Temperature	T_{ST}	-30	+80	°C	

Notes : Permanent damage to the device may occur if maximum values are exceeded functional operation should be restricted to the condition described under normal operating conditions.

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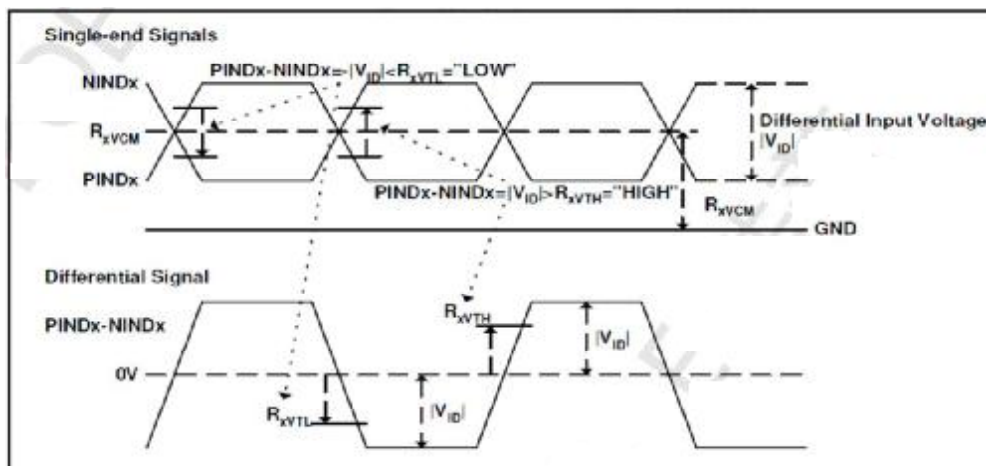
3.0 ELECTRICAL SPECIFICATIONS

3.1 Electrical Specifications

< Table 3. LCD Module Electrical Specifications >

[Ta = 25 ± 2 °C]

Parameter	Symbol	Values			Unit	Notes	
		Min	Typ	Max			
Power Supply Input Voltage	VDD	3.0	3.3	3.6	Vdc		
Power Supply Ripple Voltage	VRP	-	-	50	mV		
Power Consumption	PDD	TBD	TBD	TBD	Watt	1,2	
LVDS Interface	Differential Input High Threshold Voltage	VLVTH	100		300	mV	
	Differential Input Low Threshold Voltage	VLVTL	-300		-100	mV	
	Common Input Voltage	VLVC	1	1.2	1.7- Vid /2	V	
	Differential input voltage	Vid	0.2	-	0.6		
CMOS Interface	Input High Threshold Voltage	VIH	2.6	-	3.3	V	
	Input Low Threshold Voltage	VIL	0	-	0.8	V	



- Notes :
- The supply voltage is measured and specified at the interface connector of LCM.
The current draw and power consumption specified is for VDD=3.3V, Frame rate $f_v=60$ Hz and Clock frequency = 52.59 MHz. Test Pattern of power supply current is Black.
 - The duration of rush current is about 2ms and rising time of Power Input is 1ms(min)

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3.2 Panel Electrical Specifications

< Table 4.Panel Electrical specifications >

Parameter	Symbol	Value			Unit	Remarks
		MIN	Typ	MAX		
Digital Voltage	VDD	3.0	3.3	3.6	V	
Power for Driver IC & GMA	VSDP	5.4	5.5	5.6	V	
Power for Driver IC & GMA	VSDN	-5.4	-5.5	5.6	V	

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4.0 INTERFACE CONNECTION

4.1 Input Signal & Power

- LVDS Signal interface : 40Pin. The recommended model is FH12A-40S-0.5SH manufactured by Hirose

< Table 5. LCM Module Input Connector Pin Configuration >

Pin No.	Symbol	I/O	Description	Remark
1	STBYB	I	Enable IC	Note 2
2	reset	I	Reset IC	
3	VDD	P	Digital power_3.3V	+3.3V@50mA MAX
4	VDD	P		
5	SELB	I	6bit/8bit mode select	Note 4
6	GND	P	Ground	
7	GND	P	Ground	
8	RXIN0-	I	Negative LVDS differential data input	PAD on bottom & pin 1 on right (top view) ,LVDS pair will not cross each other.
9	RXIN0+	I	Positive LVDS differential data input	
10	GND	P	Ground	
11	RXIN1-	I	Negative LVDS differential data input	
12	RXIN1+	I	Positive LVDS differential data input	
13	GND	P	Ground	
14	RXCLKIN-	I	Negative LVDS differential data input	
15	RXCLKIN+	I	Positive LVDS differential data input	
16	GND	P	Ground	
17	RXIN2-	I	Negative LVDS differential clock input	
18	RXIN2+	I	Positive LVDS differential clock input	
19	GND	P	Ground	
20	RXIN3-	I	Negative LVDS differential data input	
21	RXIN3+	I	Positive LVDS differential data input	
22	GND	P	Ground	
23	VSDN	P	Power for Driver IC	-5.5V@80mA MAX
24	VSDN	P		
25	VSDN	P		
26	VSDP	P	Power for Driver IC	+5.5V@80mA MAX
27	VSDP	P		
28	VSDP	P		
29	GND	P	Ground	GND
30	RL	I	Horizontal shift direction	Note 5

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Pin No.	Symbol	I/O	Description	Remark
31	TB	I	Vertical shift direction	Note 5
32	ATREN	I	Only for OTP program	NC
33	CSB	-	SPI	NC
34	SCL	-	SPI	NC
35	SDA	-	SPI	NC
36	VDD_OTP	P	7.5V for OTP program	NC
37	LED-	P	LED cathode	
38	LED-	P	LED cathode	
39	LED+	P	LED Anode	
40	LED+	P	LED Anode	

Note.1

I/O definition : I---Input ; O---Output ; P---Power/Ground

Note.2

STBYB="H (3.3V)": normal operation ;

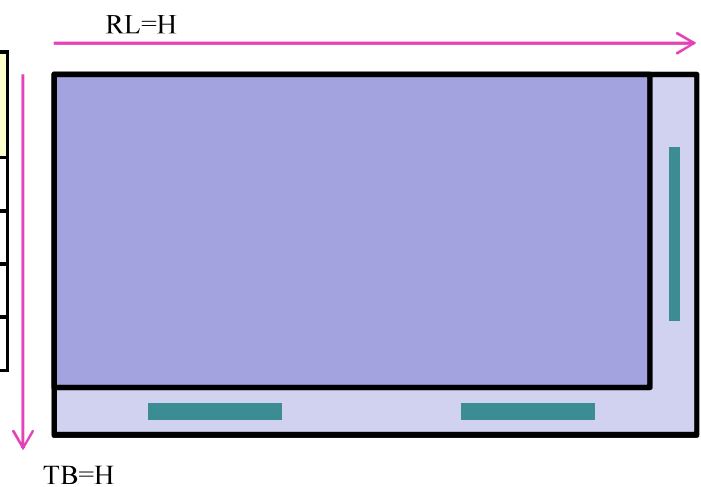
STBYB="L (GND)": timing controller, source driver will turn off, all output are High-Z

Note.4

If LVDS input data is 8 bits, SELB must be set to Hight;

Note.5

Scan Control Input		Scanning direction
RL	TB	
VDD	VDD	Up to Down, Left to Right
GND	VDD	Up to Down, Right to Left
VDD	GND	Down to Up, Left to Right
GND	GND	Down to Up, Right to Left



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5.0 SIGNAL TIMING SPECIFICATIONS

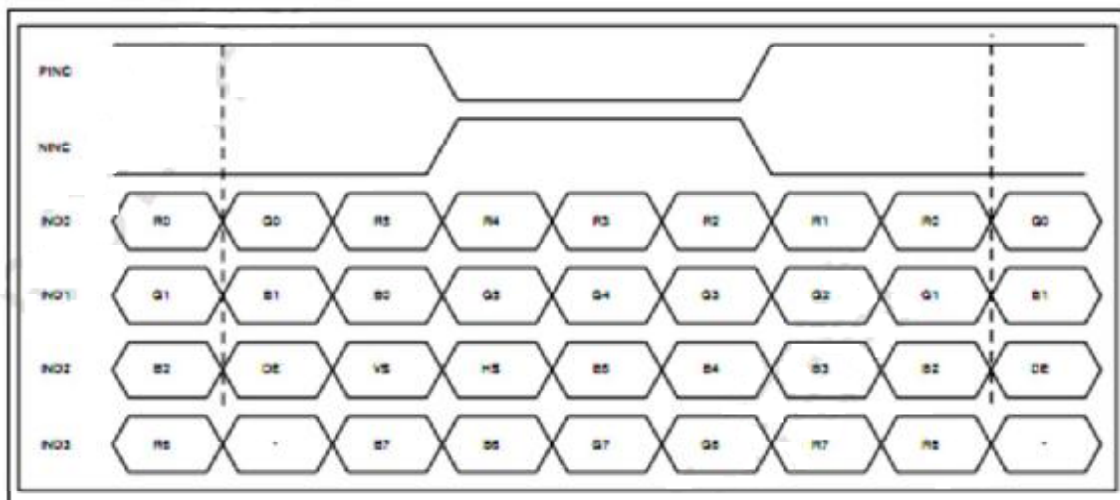
5.1 Timing Parameters (Sync mode)

< Table 6. Timing Table >

Parameter	Symbol	Value			Unit	Note
		Min.	Recommend	Max.		
DCLK Frequency	F_{DCLK}	48.69	52.59	60.83	MHz	
Horizontal valid data	t_{hd}	1600			DCLK	
Hsync Pulse Width	t_{hpw}	1	2	140	DCLK	
Hsync back porch	t_{hbp}	5	16	141	DCLK	
Hsync front porch	t_{hfp}	19	44	155	DCLK	
1 Horizontal Line	t_h	1656	1660	1760	DCLK	
Vertical valid data	t_{vd}	480			H	
Vsync Pulse Width	t_{vpw}	1	2	90	H	
Vsync back porch	t_{vbp}	5	5	91	H	
Vsync front porch	t_{vfp}	5	43	91	H	
1 Vertical field	t_v	490	528	576	H	

Notes: This product is Sync mode.

8-bit LVDS input (HSD='L')

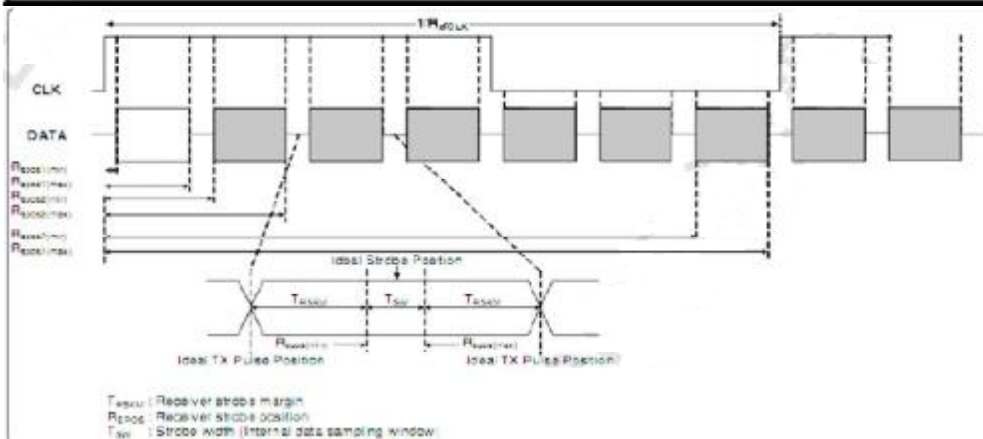
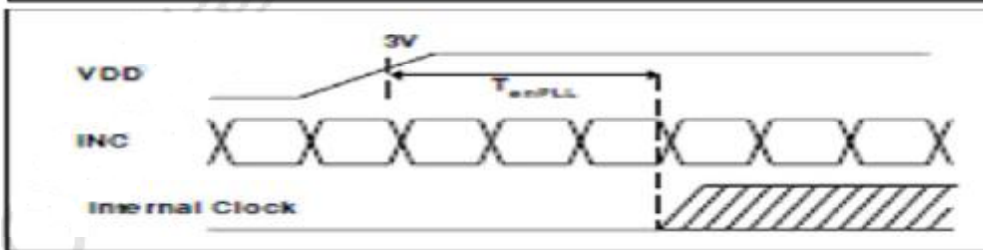
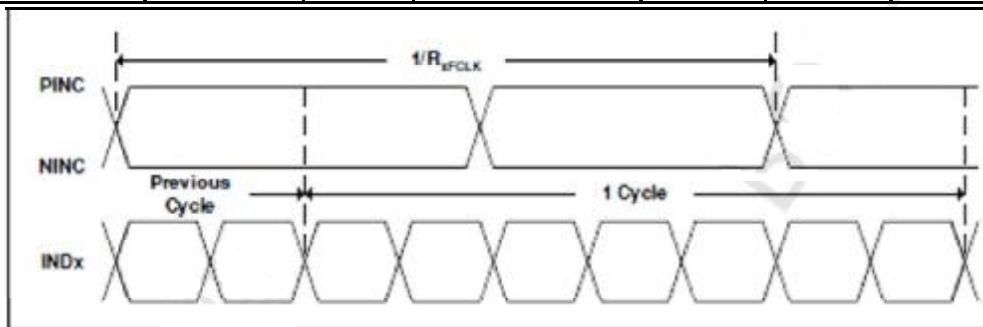


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5.2 LVDS Rx Interface Timing Parameter

The specification of the LVDS Rx interface timing parameter is shown in Table 7.

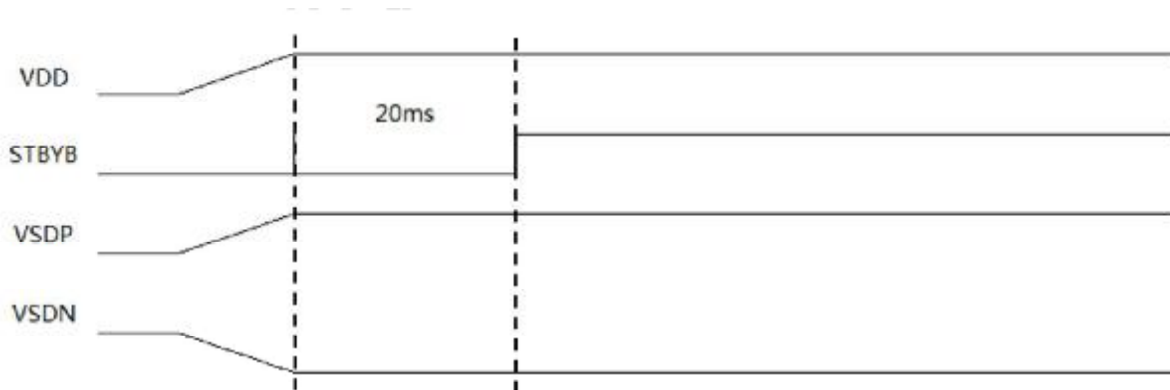
Parameters	Symbols	Min	Typ	Max	Unit	Condition
Clock frequency	RxFCLK	51.02	52.59	54.17	MHz	
Input data skew margin	TRSKM	500	-	-	ps	VID =400mV RxVCM=1.2V RxFCLK=52.59MHz
Clock high time	TLVCH	-	$4/(7 \cdot RxFCLK)$		ns	
Clock low time	TLVCL		$3/(7 \cdot RxFCLK)$		ns	
PLL wake-up time	TenPLL			150	us	



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5.4 Power Sequence

Power on Sequence

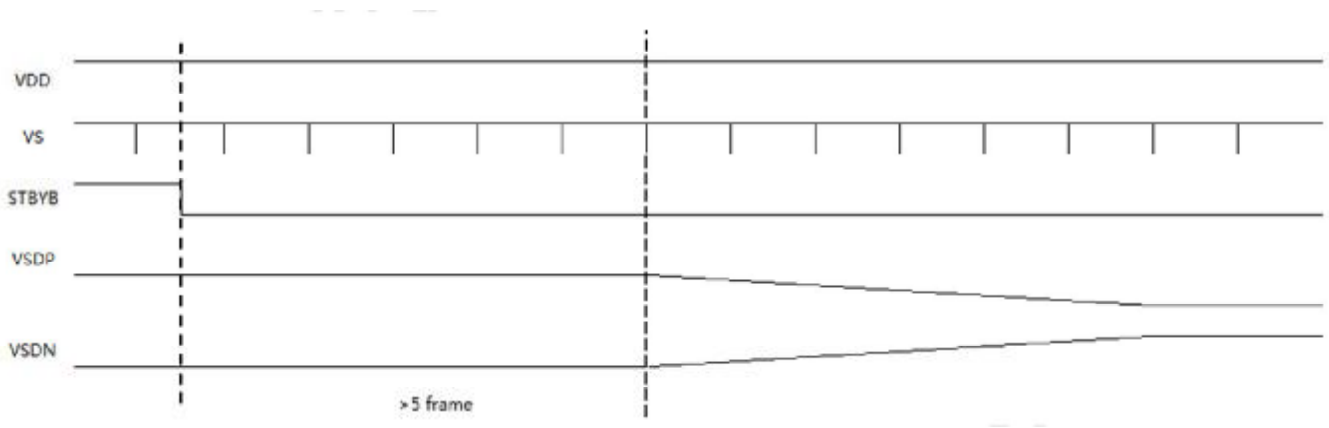


Notes:

1. When the power supply VDD is 0V, keep the level of input signals on the low or keep high impedance.
2. Do not keep the interface signal high impedance when power is on. Back Light must be turn on after power for logic and interface signal are valid.

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Power off Sequence



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6.0 OPTICAL SPECIFICATIONS

The test of Optical specifications shall be measured in a dark room (ambient luminance ≤ 1 lux and temperature = $25 \pm 2^\circ\text{C}$) with the equipment of Luminance meter system (Goniometer system and TOPCON BM-5) 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 $\theta_{\Phi=0}$ ($=\theta_3$) as the 3 o'clock direction (the "right"), $\theta_{\Phi=90}$ ($=\theta_{12}$) as the 12 o'clock direction ("upward"), $\theta_{\Phi=180}$ ($=\theta_9$) as the 9 o'clock direction ("left") and $\theta_{\Phi=270}$ ($=\theta_6$) as the 6 o'clock direction ("bottom"). While scanning θ and/or Φ , the center of the measuring spot on the Display surface shall stay fixed. The measurement shall be executed after 30 minutes warm-up period. VDD shall be 12.0V +/-10% at 25°C . Gray scale reversal occur in 6 o'clock direction. Optimum viewing angle direction is 12 o'clock,.

[VDD = 3.3V, Frame rate = 60Hz, Ta = $25 \pm 2^\circ\text{C}$]

Parameter		Symbol	Condition	Min	Typ	Max	Unit	Remark
Viewing Angle	Horizontal	θ_3	CR > 10	-	85	-	Deg.	Note 1
		θ_9		-	85	-	Deg.	
	Vertical	θ_{12}		-	85	-	Deg.	
		θ_6		-	85	-	Deg.	
Color Gamut		-	-	45	50	-	%	NTSC
Contrast ratio		CR		700	900	-	-	Note 2
Transmittance		Trans.		4.6%	5.1%	5.6%	-	Note 3
Reproduction of color	White	W_x	$\theta = 0^\circ$ (Center C-source) Normal Viewing Angle	TYP. - 0.03	0.304	TYP. + 0.03		Note 5
		W_y			0.336			
	Red	R_x			0.613			
		R_y			0.338			
	Green	G_x			0.280			
		G_y			0.547			
	Blue	B_x			0.140			
		B_y			0.155			
Response Time		T_g		-	25	35	Ms	Note 6
Gamma Scale					2.2			

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Note :

1. Viewing angle is the angle at which the contrast ratio is greater than 10. The viewing 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.
2. Contrast measurements shall be made at viewing angle of $\theta = 0^\circ$ 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 shown in Appendix) Luminance Contrast Ratio (CR) is defined mathematically.

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

3. Center Luminance of white is defined as the LCD surface. Luminance shall be measured with all pixels in the view field set first to white. This measurement shall be taken at the locations shown in FIGURE 2 for a total of the measurements per display.
4. The White luminance uniformity on LCD surface is then expressed as : $\Delta Y = \text{Minimum Luminance of 9 points} / \text{Maximum Luminance of 9 points}$. (see FIGURE 2 and FIGURE 3).
5. The color chromaticity coordinates specified in Table 4. 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.
6. The electro-optical response time measurements shall be made as FIGURE 3 shown in Appendix by switching the "data" input signal ON and OFF. The times needed for the luminance to change from 10% to 90% is T_d , and 90% to 10% is T_r . The

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7.0 MECHANICAL CHARACTERISTICS

7.1 Dimensional Requirements

FIGURE 4 (located in Appendix) shows mechanical outlines for the model 8inch
Other parameters are shown in Table 12.

<Table 12. Dimensional Parameters>

Parameter	Specification	Unit
Dimensional outline	204.5(H) × 70(V) × 1.0(typ.)	mm
Weight	TBD	gram
Active area	194.4(H) × 58.32(V)	Mm
Pixel pitch	40.5(H) × RGB × 121.5(V)	μm
Number of pixels	1600(H) × 480(V) (1 pixel = R + G + B dots)	pixels

7.2 AG and Polarizer Hardness.

The surface of the LCD has an AG coating to minimize reflection and a coating to reduce scratching.

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8.0 RELIABILITY TEST

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

<Table 13. Reliability Test Parameters >

No	Test Items	Conditions
1	High temperature storage test	Ta = 80°C, 240 hrs
2	Low temperature storage test	Ta = -30°C, 240 hrs
3	High temperature & high humidity operation test	Ta = 60 °C, 90%RH, 240hrs
4	High temperature operation test	Ta = 80 °C, 240hrs
5	Low temperature operation test	Ta = -20°C, 240hrs
6	Thermal shock	Ta = -30°C ↔ 80 °C (0.5 hr), 100 cycle
7	Image Sticking	6*8 check pattern , 25 °C ± 2 °C ; Aging Time:2hrs; Recovery Time:5min @127/256 Gray Level

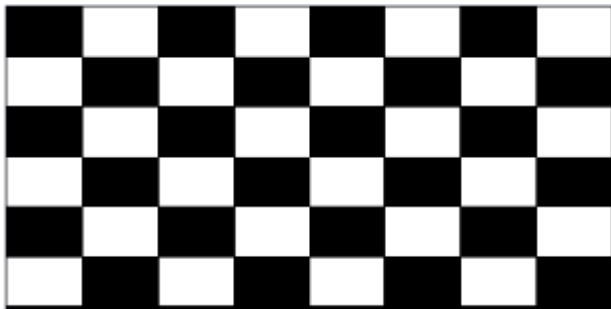
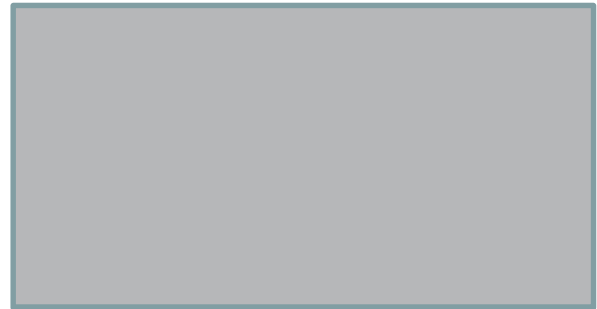


Image Sticking –pattern



Lv127 Gray pattern

Condition of Image Sticking test : 25 °C ± 2 °C

Operation with test pattern sustained for 2 hrs, then change to gray pattern immediately.

After 5 mins, the mura must be disappeared completely .