深圳市勋瑞光电科技有限公司

Xunrui photoelectric technology （shenzhen）CO,.LTD.

CERT. No. QAC0946535 (ISO9001)

CERT. No. HKG002005 (ISO14001)

Product Specification

Customer: _____

Model Name: H080IWX40I3508

Date: _____

Version: _____

■ **Preliminary Specification**

☐ **Final Specification**

For Customer's Acceptance

Approved by	Comment

Approved by	Reviewed by	Prepared by

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1. Record of Revision

Rev	Issued Date	Description	Editor
1.0	2018/07/20	First Release	Rich Liang

2. General Specifications

Feature		Spec
Characteristics	Size	8.0 inch
	Resolution	1024(horizontal)*768(Vertical)
	Glass Maker	Innolux
	Interface	LVDS
	Connect type	Connector
	Color Depth	16.7M
	Technology type	a-Si
	Pixel pitch (mm)	0.1583*0.1583
	Pixel Configuration	R.G.B. Stripe
	Display Mode	Normally Black
	Driver IC	TBD
	Viewing Direction	All
	Gray Scale Inversion Direction	FREE
Mechanical	LCM (W x H x D) (mm)	174*136*2.5
	Active Area(mm)	162.05*121.54
	With /Without TSP	Without
	Weight (g)	-
	LED Numbers	30LEDs

Note 1: Viewing direction is following the data which measured by optics equipment.
Note 2: Requirements on Environmental Protection: RoHS
Note 3: LCM weight tolerance: +/- 5%

3. Input/output Terminals

No	Symbol	Description
1	VCOM	Common voltage
2	VDD	3.3V Power
3	VDD	3.3V Power
4	NC	Not connect
5	RESET	Global reset pin Active low enter reset state Suggest to connecting with an RC reset Normally pull high(R=100K,C=1UF)
6	STBYB	Standby mode, normally pull high STBYB=”1”,timing control ,source driver will turn off, all output are high-Z
7	GND	System Ground
8	RXIN0-	Negative LVDS differential data input
9	RXIN0+	Positive LVDS differential data input
10	GND	System Ground
11	RXIN1-	Negative LVDS differential data input
12	RXIN1+	Positive LVDS differential data input
13	GND	System Ground
14	RXIN2-	Negative LVDS differential data input
15	RXIN12+	Positive LVDS differential data input
16	GND	System Ground
17	RXCLK-	Negative LVDS differential clock input
18	RXCLK+	Positive LVDS differential clock input
19	GND	System Ground
20	RXIN3-	Negative LVDS differential data input
21	RXIN3+	Positive LVDS differential data input
22	GND	System Ground
23	NC	Not connect
24	NC	Not connect
25	GND	System Ground
26	NC	Not connect
27	NC(DIMO)	DIMO
28	SELB	6bit/8bit mode select H:6bit /L:8bit Note1
29	AVDD	Power for Analog Circuit

30	GND	System Ground
31	LED-	Not connect
32	LED-	Not connect
33	L/R	Horizontal inversion Note3
34	U/D	Vertical inversion Note3
35	VGL	Positive power for TFT
36	CABCEN1	Not connect Note2
37	CABCEN0	Not connect Note2
38	VGH	Positive power for TFT
39	LED+	Not connect
40	LED+	Not connect

I: input, O: output, P: Power
Note1: If LVDS input data is 6 bits, selb must be set to High;
If LVDS input data is 8 bits, selb must be set to Low.
Note2: When CABC_EN=”00”, CABC OFF.
When CABC_EN=”01”, user interface image.
When CABC_EN=”10”, still picture.
When CABC_EN=”11”, moving image.
When CABC off, don’t connect DIMO, else connect it to backlight.
Note3: When L/R=”0”, set right to left scan direction.
When L/R=”1”, set left to right scan direction.
When U/D=”0”, set top to bottom scan direction.
When U/D=”1”, set bottom to top scan direction.

4. Absolute Maximum Ratings

Item	Symbol	MIN	MAX	Unit	Remark
Power voltage	V_{CC}	-0.3	5.0	V	-
Operating Temperature	T_{OPR}	-20	70	℃	-
Storage Temperature	T_{STG}	-30	80	℃	-

Note 1: Be sure to apply VCC and VGL to the LCD first, and then apply VGH.

Note 2: VCC setting should match the signals output voltage (refer to Note 3) of customer's system board.

Note 3: Typical Vcom is only a reference value; it must be optimized according to each LCM, please use VR and base on below application circuit.

Note 4: Reset, stbyb, selb, L/R, U/D, cabcen0, cabcen 1.

5. Electrical Characteristics

5.1 Driving TFT LCD Panel

Typical Operation Conditions

Item	Symbol	MIN	TYP	MAX	Unit	Remark
Power voltage	V_{CC}	3.0	3.3	3.6	V	-
	AV_{DD}	9.8	10	10.2	V	-
	V_{GH}	18.6	18.9	19.2	V	-
	V_{GL}	8.1	7.8	7.5	V	-
Input signal voltage	V_{COM}	2.6	3.6	4.6	V	-
Input logic high voltage	V_{IH}	0.7Vcc	-	Vcc	V	-
Input logic low voltage	V_{IL}	-	-	0.3Vcc	V	

Note 1: Be sure to apply VCC and VGL to the LCD first, and then apply VGH.

Note 2: VCC setting should match the signals output voltage (refer to Note 3) of customer's system board.

Note 3: Typical Vcom is only a reference value; it must be optimized according to each LCM, please use VR and base on below application circuit.

Note 4: Reset, stbyb, selb, L/R, U/D, cabcen0, cabcen 1.

5.2 Power ON.OFF sequence

5.2.1. Power on:

5.2.2. Power off:

5.3 Timing Characteristics

5.3.1 AC electrical characteristics

Parameter	Symbol	Values			Unit	Remark
		Min.	Typ.	Max.		
Clock frequency	R_{xFCLK}	20	-	71	MHz	
Input data skew margin	T_{RSKM}	500	-	-	ps	
Clock high time	T_{LVCH}	-	4/(7* R_{xFCLK})	-	ns	
Clock low time	T_{LVCL}	-	3/(7* R_{xFCLK})	-	ns	

5.3.2. Input Clock and Data Timing Diagram

5.3.2 DC Electrical Characteristics

Parameter	Symbol	Values			Unit	Remark
		Min.	Typ.	Max.		
Differential input high Threshold voltage	R_{xVTH}	-	-	+0.1	V	
Differential input low Threshold voltage	R_{xVTL}	-0.1	-	-	V	
Input voltage range (singled-end)	R_{xVIN}	0	-	2.4	V	
Differential input common mode voltage	R_{xVCM}	$\|V_{ID}\|/2$	-	$2.4-\|V_{ID}\|/2$	V	
Differential voltage	$\|V_{ID}\|$	0.2	-	0.6	V	
Differential input leakage current	RV_{xliz}	-10	-	+10	uA	

5.3.3 Timing Diagram

Item	Symbol	Values			Unit	Remark
		Min.	Typ.	Max.		
Clock Frequency	fclk	52	65	71	MHz	Frame rate =TBD
Horizontal display area	thd		1024			
HS period time	th	1114	1344	1400	DCLK	
HS Blanking	thb+thfp	90	320	376	DCLK	
Vertical display area	tvd		768			
VS period time	tv	778	806	845	H	
VS Blanking	tvb+tvfp	10	38	77	H	

3.3.5. Data Input Format

6bit LVDS input

8bit LVDS input

Note: Support DE timing mode only, SYNC mode not supported.

5.4 Driving Backlight

Item	Symbol	MIN	TYP	MAX	Unit	Remark
Forward Current	I_F	-	200	-	mA	-
Forward Voltage	V_F	-	12		V	
Backlight Power consumption	W_{BL}	-			W	
BL Life time	-	25000	-	-	Hrs	-

Note 1: Each LED: IF =15mA, VF =6V.

Note 2: Optical performance should be evaluated at Ta=25℃ only.

Note 3: If LED is driven by high current, high ambient temperature & humidity condition. The life time of LED will be reduced. Operating life means brightness goes down to 50% initial brightness.

Typical operating life time is estimated data.

6. Optical Characteristics

Items		Symbol	Condition	Min	Typ	Max	Unit	Remark
Viewing angles		θ_T	Center CR≥10	-	85	-	Degree	Note2
		θ_B		-	85	-		
		θ_L		-	85	-		
		θ_R		-	85	-		
Contrast Ratio		CR	Θ =0	-	800		-	Note1, Note3
Response Time		T_{ON}	25°C	-	25	50	ms	Note1, Note4
		T_{OFF}						
Chromaticity	White	X_W	-	0.26	0.31	0.36	-	Note1,Note5
		Y_W		0.28	0.33	0.38	-	
Uniformity		U	-	80	-	-	%	Note1, Note6
Luminance		L			300	350	nits	Note1, Note7

Test Conditions:

1. IF= 60mA (one channel), the ambient temperature is 25°C.
2. The test systems refer to Note 1 and Note 2.

Note 1: Definition of optical measurement system.

The optical characteristics should be measured in dark room. After 5 minutes operation, the optical properties are measured at the center point of the LCD screen. All input terminals LCD panel must be ground when measuring the center area of the panel.

Item	Photo detector	Field
Contrast Ratio	SR-3A	1°
Luminance		
Chromaticity		
Lum Uniformity		
Response Time	BM-7A	2°

Note 2: Definition of viewing angle range and measurement system.
Viewing angle is measured at the center point of the LCD by iconoscope (ergo-80).

Fig. 1 Definition of viewing angle

Note 3: Definition of contrast ratio

$$\text{Contrast ratio (CR)} = \frac{\text{Luminance measured when LCD is on the "White" state}}{\text{Luminance measured when LCD is on the "Black" state}}$$

Note 4: 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 from10percent to 90%.

Note 5: Definition of color chromaticity (CIE1931)

Color coordinates measured at center point of LCD.

Note 6: Definition of Luminance Uniformity

Active area is divided into 9 measuring areas (Refer Fig. 2). Every measuring point is placed at the center of each measuring area.

Luminance Uniformity (U) = Lmin/ Lmax X100%

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

Fig. 2 Definition of uniformity

Lmax: The measured maximum luminance of all measurement position.

Lmin: The measured minimum luminance of all measurement position.

Note 7: Definition of Luminance:

Measure the luminance of white state at center point.

7. Environmental / Reliability Tests

No	Test Item	Condition	Remarks
1	High Temperature Operation	Ta= +70℃, 240hrs	Note 1 IEC60068-2-2, GB2423. 2-89
2	Low Temperature Operation	Ta= -20℃, 240hrs	Note 2 IEC60068-2-1 GB2423.1-89
3	High Temperature Storage	Ta= +80℃, 240hrs	IEC60068-2-2 GB2423. 2-89
4	Low Temperature Storage	Ta= -30℃, 240hrs	IEC60068-2-1 GB/T2423.1-89
5	High Temperature & Humidity Storage	Ta= +40℃, 90% RH max, 160 hours	IEC60068-2-3 GB/T2423.3-2006
6	Thermal Shock (Non-operation)	-30℃ 30 min ~ +80℃ 30 min Change time: 5min, 30 Cycle	Start with cold temperature, end with high temperature IEC60068-2-14, GB2423.22-87
7	Electro Static Discharge (Operations)	C=150pF, R=330 Ω, 5 points/panel Air:±8KV, 5 times; Contact: ±4KV, 5 times; (Environment: 15℃ ~ 35℃, 30% ~ 60%, 86Kpa ~ 106Kpa)	IEC61000-4-2 GB/T17626.2-1998
8	Vibration (Non-operation)	Frequency range: 10~55Hz, Stroke: 1.mm Sweep: 10Hz~55Hz~10Hz 2 hours for each direction of X .Y. Z. (package condition)	IEC60068-2-6 GB/T2423.5-1995
9	Shock (Non-operation)	60G 6ms, ± X, ±Y , ± Z 3 times for each direction	IEC60068-2-27 GB/T2423.5-1995
10	Package Drop Test	Height: 80 cm, 1 corner, 3 edges, 6 surfaces	IEC60068-2-32 GB/T2423.8-1995

Note: 1. TS is the temperature of panel's surface.
Note: 2. Ta is the ambient temperature of sample.

8. Mechanical Drawing

9. Packing

Packing Method

1. Put module into tray cavity:
2. Tray stacking
3. Put 1 cardboard under the tray stack and 1 cardboard above:
4. Fix the cardboard to the tray stack with adhesive tape:
5. Put the tray stack into carton.
6. Carton sealing with adhesive tape.

10. Precautions For Use of LCD modules

10.1 Handling Precautions

10.1.1 The display panel is made of glass. Do not subject it to a mechanical shock by dropping it from a high place, etc.

10.1.2 If the display panel is damaged and the liquid crystal substance inside it leaks out, be sure not to get any in your mouth, if the substance comes into contact with your skin or clothes, promptly wash it off using soap and water.

10.1.3 Do not apply excessive force to the display surface or the adjoining areas since this may cause the color tone to vary.

10.1.4 The polarizer covering the display surface of the LCD module is soft and easily scratched. Handle this polarizer carefully.

10.1.5 If the display surface is contaminated, breathe on the surface and gently wipe it with a soft dry cloth. If still not completely clear, moisten cloth with one of the following solvents:

- Isopropyl alcohol - Ethyl alcohol

Solvents other than those mentioned above may damage the polarizer. Especially, do not use the following:

- Water - Ketone
- Aromatic solvents

10.1.6 Do not attempt to disassemble the LCD Module.

10.1.7 If the logic circuit power is off, do not apply the input signals.

10.1.8 To prevent destruction of the elements by static electricity, be careful to maintain an optimum work environment.

10.1.8.1 Be sure to ground the body when handling the LCD Modules.

10.1.8.2 Tools required for assembly, such as soldering irons, must be properly ground.

10.1.8.3 To reduce the amount of static electricity generated, do not conduct assembly and other work under dry conditions.

10.1.8.4 The LCD Module is coated with a film to protect the display surface. Be care when peeling off this protective film since static electricity may be generated.

10.2 Storage Precautions

10.2.1 When storing the LCD modules, avoid exposure to direct sunlight or to the light of fluorescent lamps.

10.2.2 The LCD modules should be stored under the storage temperature range if the LCD modules will be stored for a long time, the recommend condition is: Temperature : 0℃ ～ 40℃ Relatively humidity: ≤80%

10.2.3 The LCD modules should be stored in the room without acid, alkali and harmful gas.

10.3 Transportation Precautions

The LCD modules should be no falling and violent shocking during transportation, and also should avoid excessive press, water, damp and sunshine.