PRODUCT SPECIFICATION

Customer	
Project	
Part No.	**Z80015-P40-总成 1**
Remarks	□APPOVAL FOR SPECIFICATION ONLY ■APPOVAL FOR SPECIFICATION AND SAMPLE

CUSTOMER			**ZHUNYIKEJI**		
Approved By	Checked By	Prepared By	Approved By	Checked By	Prepared By
				Wen XiaoLi	Yang ZiFeng

Revision Record

Rev. No.	Date	Description
V1.0	2022-06-06	Preliminary Specification Release.

Contents

1. General Specifications 3

2. Interface Definition Description 4

3. Mechanical Drawing 6

4. Electrical Specifications 8

5. Delivery Inspection 12

6. Reliability Test 14

7. Precautions 15

8. Packing and Storage 17

1. General Specifications

No.	Item	Specification	Unit
1	Display Size (Diagonal)	8.0	inch
2	Display Resolution	800(H） × RGB × 1280（V）	pixels
3	Pixel Pitch	44.85(H）× 134.55（V）	um
4	LCM Outline Dimension (Without FPC）	114.60 (W) ×184.10 (H) ×2.61 (T)	mm
5	LCD Outline Dimension	111.24 (W) × 180.52 (H) × 0.8 (T)	mm
6	TLCM Outline Dimension (Without FPC）	121.43 (W) ×220.85 (H) ×4.71 (T)	mm
7	LCD Active Area	107.64（W） ×172.22（H）	mm
8	View Direction (Gray Inversion)	FULL VIEW	-
9	Driver IC	GH8555BL	-
10	Pixel Arrangement	RGB-Stripe	-
11	Display Mode	Normal Black	-
12	Pixel driving Element	a-Si TFT	-
13	LCD Transmittance	Typ.: 5.55% Min:5.0%	-
14	LCD Contrast Ratio	Typ.: 1500 Min:1200	-
15	FPC Version	Z80008-SPM288/SPM168H V2	-
16	Interface	MIPI	-
17	Operating Temperature	-20°C~ 70°C	-
18	Storage Temperature	-30°C~ 80°C	-
19	Backlight Arrangement	LED/4 Series 6 Parallel (24 lights in total)	-
20	Luminance	330	nit
21	Weight	0.205	kg

2. Interface Definition Description

2.1 LCM PIN

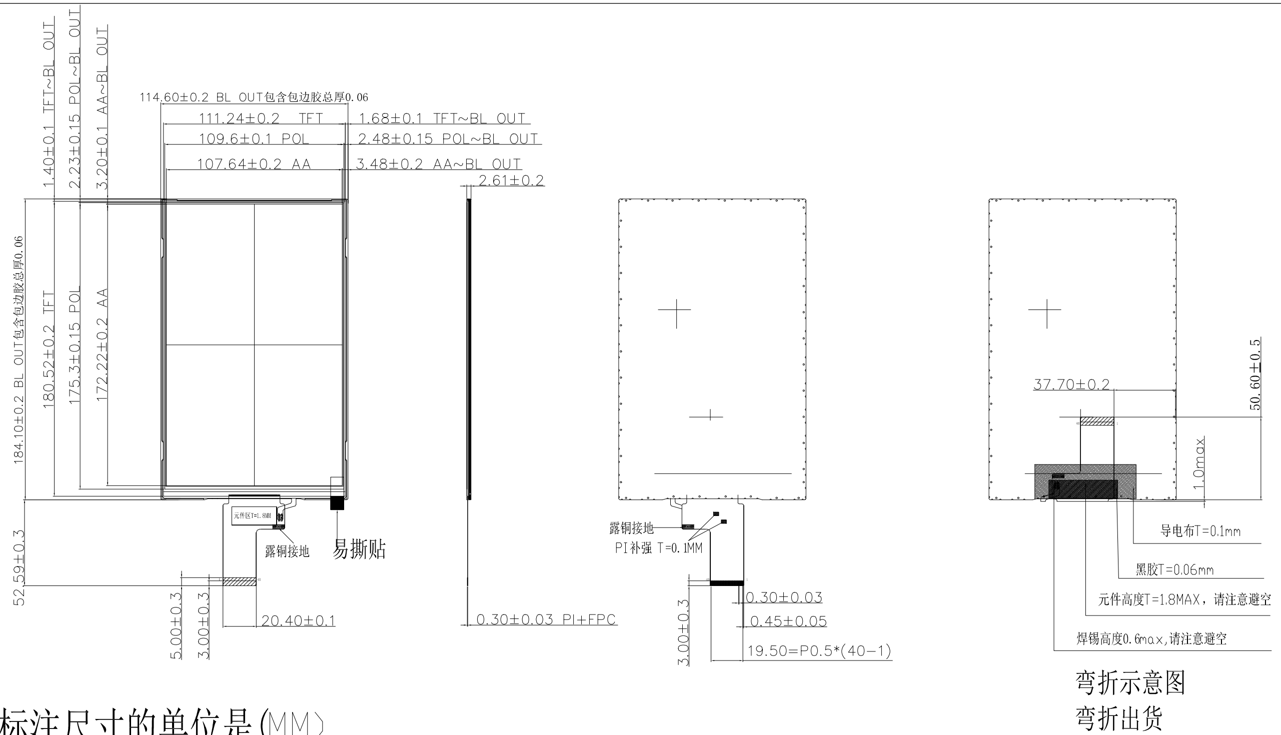
PIN NO.	PIN DEF.	FUNCTION DESC.
1-3	LEDA	POWER SUPPLY- FOR BACKLIGHT ANODE
4-7	NC	No Connection
8-10	LEDK	POWER SUPPLY- FOR BACKLIGHT CATHODE
11	GND	Ground
12	NC	No Connection
13	GND	Ground
14	D2P	Positive MIPI differential data input
15	D2N	Negative MIPI differential data input
16	GND	Ground
17	D1P	Positive MIPI differential data input
18	D1N	Negative MIPI differential data input
19	GND	Ground
20	TCP	Positive MIPI differential CLOCK input
21	TCN	Negative MIPI differential CLOCK input
22	GND	Ground
23	D0P	Positive MIPI differential data input
24	D0N	Negative MIPI differential data input
25	GND	Ground
26	D3P	Positive MIPI differential data input
27	D3N	Negative MIPI differential data input
28	GND	Ground
29	LCD_ID1	LCM ID PIN
30	LCD_RST	LCM RESET PIN
31	LCD_ID2	LCM ID PIN
32	IOVCC	I/O POWER SUPPLY（1.8V）
33-34	LCD_VCC	POWER SUPPLY（2.8/3.3V）
35	GND	Ground
36	NC	No Connection
37	GND	Ground
38	NC	No Connection
39	LCD_ID3	LCM ID PIN
40	NC	No Connection
RESET voltage should be consistent with VDDI voltage, or there probably is black screen fault when power on.		

2.2 TP PIN

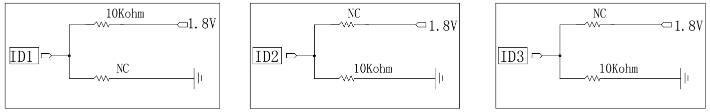
PIN NO.	PIN DEF.	FUNCTION DESC.
1	TP_RST	TP Reset PIN
2	TP_INT	TP Interrupt PIN
3	TP_SDA	TP I2C data (SDA) data input (MOSI)
4	TP_SCL	TP I2C clock (SCL) clock (SCLK)
5	TP_VDD	TP POWER SUPPLY（2.8/3.3V）
6	GND	Ground

3. Mechanical Drawing

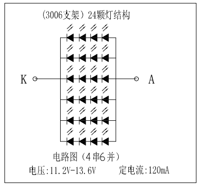
3.1 LCM


114.60±0.2 BL OUT包含包边胶总厚0.06
111.24±0.2 TFT
109.6±0.1 POL
107.64±0.2 AA
1.68±0.1 TFT~BL OUT
2.48±0.15 POL~BL OUT
3.48±0.2 AA~BL OUT
2.61±0.2
1.40±0.1 TFT~BL OUT
2.23±0.15 POL~BL OUT
3.20±0.1 AA~BL OUT
184.10±0.2 BL OUT包含包边胶总厚0.06
180.52±0.2 TFT
175.3±0.15 POL
172.22±0.2 AA
52.59±0.3
元件区T=1.8MM
露铜接地
易撕贴
5.00±0.3
3.00±0.3
20.40±0.1
0.30±0.03 PI+FPC
露铜接地
PI补强 T=0.1MM
3.00±0.3
0.30±0.03
0.45±0.05
19.50=P0.5*(40-1)
37.70±0.2
50.60±0.5
1.0max
导电布T=0.1mm
黑胶T=0.06mm
元件高度T=1.8MAX，请注意避空
焊锡高度0.6max,请注意避空
弯折示意图
弯折出货

图纸中所有标注尺寸的单位是(MM)


ID1
10Kohm
1.8V
NC
ID2
NC
1.8V
10Kohm
ID3
NC
1.8V
10Kohm

Display Type	TFT/NORMALLY BLACK/TRANSMISSIVE
Display Resolution	DOTS: 800 RGB*1280
Viewing Angle	ALL
LCD Controller/Driver	GH8555BL
Logic Voltage	3.3V
LCD Driving Voltage	-------
Operation Temperature	-20℃ ~ 70℃
Storage Temperature	-30℃ ~ 80℃
Backlight Speciality	BLACK LED Backlight(24 dies) IF=120mA, VF=11.2V~13.6V
Remark	TFT LCD+COG IC+LBL+FPC
	LCD TRANSMISSION RATE : 4.61%MIN
	未标注公差±0.2MM


(3006支架）24颗灯结构
K
A
电路图（4串6并）
电压:11.2V-13.6V
定电流:120mA

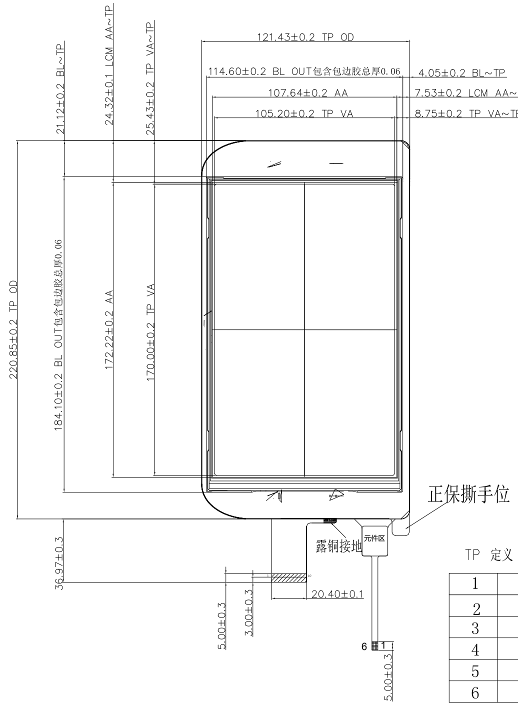
VER	REVISED DESCRIPTION	DATE	NAME
	升级FPC料号，更改偏光材质，更改黑色包边胶尺寸。	2021.6.25	何玲玲
	FPC增加正面露铜，LCD更换液晶，背光更改灯颜色。	2021.5.8	何玲玲
	1ST	2020.8.28	何玲玲

Hunyi 准亿科技 深圳市准亿科技有限公司

UNIT:mm		Drawn By	Checked By	Approved By
DECRIPION	LCM	何玲玲		
PART NO.	Z80008-SPM288/SPM168-G85L-Y3			
DRAWING NO.				

Pad No.	Pad Name
1	LED-A
2	LED-A
3	LED-A
4	NC
5	NC
6	NC
7	NC
8	LED-K
9	LED-K
10	LED-K
11	GND
12	NC
13	GND
14	D2P
15	D2N
16	GND
17	D1P
18	D1N
19	GND
20	TCP
21	TCN
22	GND
23	D0P
24	D0N
25	GND
26	D3P
27	D3N
28	GND
29	LCD_ID1
30	LCD_RST
31	LCD_ID2
32	IOVCC_1.8V
33	LCD_VCC
34	ICD_VCC
35	GND
36	NC
37	GND
38	NC
39	LCD_ID3
40	NC

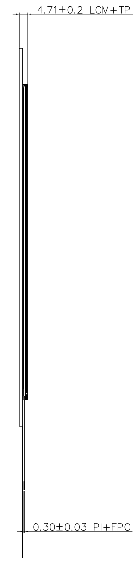
3.2 TLCM

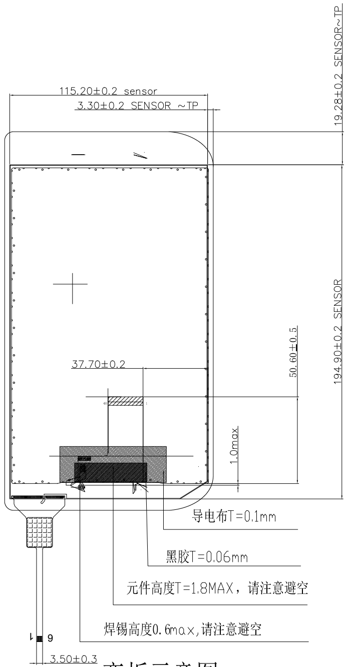

121.43±0.2 TP OD
114.60±0.2 BL OUT包含包边胶总厚0.06
4.05±0.2 BL~TP
107.64±0.2 AA
7.53±0.2 LCM AA~TP
105.20±0.2 TP VA
8.75±0.2 TP VA~TP
21.12±0.2 BL~TP
24.32±0.1 LCM AA~TP
25.43±0.2 TP VA~TP
220.85±0.2 TP OD
184.10±0.2 BL OUT包含包边胶总厚0.06
172.22±0.2 AA
170.00±0.2 TP VA
正保撕手位
露铜接地
元件区
36.97±0.3
20.40±0.1
5.00±0.3
3.00±0.3
6
1
5.00±0.3

TP 定义

1	RST
2	INT
3	SDA
4	SCL
5	VDD
6	GND

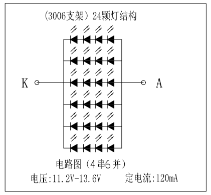
SDA, SCL主板上有上拉电阻


4.71±0.2 LCM+TP
0.30±0.03 PI+FPC


115.20±0.2 sensor
3.30±0.2 SENSOR ~TP
19.28±0.2 SENSOR~TP
194.90±0.2 SENSOR
50.60±0.5
37.70±0.2
1.0max
40
1
导电布T=0.1mm
黑胶T=0.06mm
元件高度T=1.8MAX，请注意避空
焊锡高度0.6max,请注意避空
1
9
3.50±0.3

弯折示意图

弯折出货


(3006支架）24颗灯结构
K
A

电路图（4串6并）

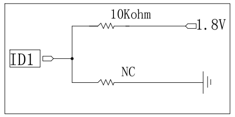
电压:11.2V-13.6V 定电流:120mA

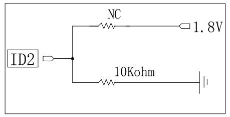
图纸中所有标注尺寸的单位是(MM)

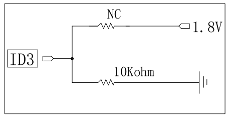
Display Type	TFT/NORMALLY BLACK/TRANSMISSIVE
Display Resolution	DOTS:800 RGB*1280
Viewing Angle	ALL
LCD Controller/Driver	GH8555BL
Logic Voltage	3.3V
LCD Driving Voltage	-------
Operation Temperature	-20℃ ~ 70℃
Storage Temperature	-30℃ ~ 80℃
Backlight Speciality	BLACK LED Backlight(24 dies) IF=120mA, VF=11.2V~13.6V
Remark	TFT LCD+COG IC+LBL+FPC
	LCD TRANSMISSION RATE : 4.61%MIN
	未标注公差±0.2MM

CTP注明:

1. 结构类型: G+G; TP消影
2. 未注公差 :±0.2mm, COVER LENS边缘未注导角c=0.15*0.15。
3. LENS使用0.70mm旭硝子玻璃盖板，表面强化后硬度要达到6H。
4. 驱动IC: GT1151Q;
5. 环保符合RoHS要求。
6. VDD电压: 3.3V, IIC通信电压: 3.3V。
7. 透过率>85%。
8. 工作温度-10～60° C, 存储温度-20～70° C。


ID1
10Kohm
1.8V
NC


ID2
NC
1.8V
10Kohm


ID3
NC
1.8V
10Kohm

Pad No.	Pad Name
1	LED-A
2	LED-A
3	LED-A
4	NC
5	NC
6	NC
7	NC
8	LED-K
9	LED-K
10	LED-K
11	GND
12	NC
13	GND
14	D2P
15	D2N
16	GND
17	D1P
18	D1N
19	GND
20	TCP
21	TCN
22	GND
23	D0P
24	D0N
25	GND
26	D3P
27	D3N
28	GND
29	LCD_ID1
30	LCD_RST
31	LCD_ID2
32	IOVCC_1.8V
33	LCD_VCC
34	ICD_VCC
35	GND
36	NC
37	GND
38	NC
39	LCD_ID3
40	NC

VER	REVISED DESCRIPTION	DATE	NAME
	1ST	2021.86.26	何玲玲

Hunyi 准亿科技 深圳市准亿科技有限公司

UNIT:mm		Drawn By	Checked By	Approved By
DECRIPION	总成	何玲玲		
PART NO.	Z80015-P40-总成1			
DRAWING NO.				

4. Electrical Specifications

4.1. LCD Optical Characteristics

Item		Symbol	Conditions	Specification			Unit	Note
				Min.	Typ.	Max.		
Transmittance (With PL)		T(%)	Viewing normal angle x = y =0	5.0	5.55	-	%	-
Contrast Ratio		CR		1200	1500	-	-	-
Response Time		TR+TF		-	30	35	ms	-
Viewing Angle	Hor.	Θx+	CR≧10 at 25℃	75	80	-	deg.	-
		Θx-		75	80	-		
	Ver.	Θy+		75	80	-		
		Θy-		75	80	-		

4.2. Electrical Specifications

Item	Symbol	Specification			Unit
		Min.	Typ.	Max.	
Power For Analog Circuit	AVDD	4.3	-	6.5	V
TFT Gate On Voltage	VGH	15.5	16	16.5	V
TFT Gate Off Voltage	VGL	-12.5	-12	-11.5	V
TFT Common Electrode Voltage	Vcom	-	-0.76	-	V

4.3. Typical Operating Conditions

Item	Symbol	Min.	Typ.	Max.	Unit
Analog Supply Voltage	LCD_VCC	2.5	3.3	3.6	V
I/O Supply Voltage	IOVCC	1.65	1.8	3.6	V
Input High Voltage	VIH	0.7 × IOVCC	-	IOVCC	V
Input Low Voltage	VIL	0	-	0.3 × IOVCC	V

Output High Voltage	VOH	0.8 × IOVCC	-	IOVCC	V
Output Low Voltage	VOL	0	-	0.2 × IOVCC	V

4.4. Backlight Circuit Specifications

Item		Symbol	Min.	Typ.	Max.	Unit	Test Condition
Current		I_B	-	120	-	mA	-
Voltage		V_f	11.2	12	13.6	V	-
LCM Uniformity		-	80	-	-	%	If=120mA
Life Time		-	30000	-	-	Hr.	
Power Consumption		PBL	-	1440	-	mW	
LCM Chromaticity Coordinate	Red	Rx	0.581	0.596	0.611		Average the brightness EV at 9 points，Optical Instrument BM-7
		Ry	0.356	0.371	0.386		
	Green	Gx	0.311	0.326	0.341		
		Gy	0.582	0.597	0.612		
	Blue	Bx	0.128	0.143	0.158		
		By	0.043	0.058	0.073		
	White	Wx	0.283	0.298	0.313		
		Wy	0302	0.317	0.332		

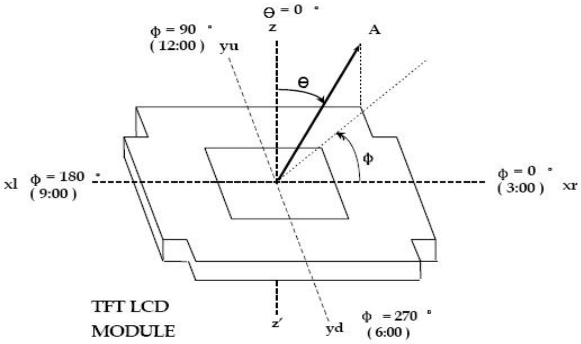
4.5. LCD Power Consumption

Mode	Symbol	Typ.	Max.	Unit
Normal Mode	LCD_VCC+IOVCC	-	-	mA
Test Condition: LCD_VCC=3.3V.				
Interface Drive Type: row flipping or column flipping.				
IPS Type LCD Panel => All Black Pattern.				
TN Type LCD Panel => All White Pattern.				
Temperature: 25°C.				
Mode	**Symbol**	**Typ.**	**Max.**	**Unit**

Sleep Mode	LCD_VCC+IOVCC	-	-	μA
Test Condition: LCD_VCC=3.3V.				
DC/DC converter is enabled. Internal oscillator is started and panel scanning is started.				
Except for the IC internal crystal oscillator and panel scanning, other functions are suspended.				
Temperature: 25°C.				

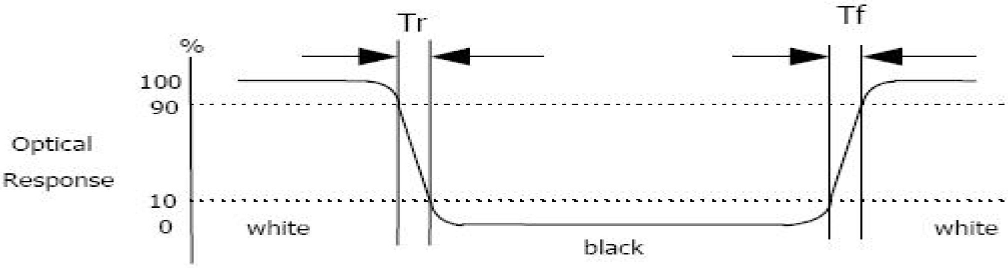
4.6. Measuring System

4.6.1. LCM Viewing Angle



Viewing angle is the angle at which the contrast ratio is greater than 10. The angles are determined for the horizontal or x axis and the vertical or y axis with respect to the z axis which is normal to the LCD surface.

4.6.2. Response Time



Response time is the time required for the display to transition from white to black (Rising time, Tr) and from black to white (Falling time, Tf) for additional information.

4.6.3. Contrast Ratio (CR)

Contrast Ratio (CR) is defined mathematically as:

$$\text{Contrast Ratio} = \frac{\text{Surface Luminance with all white pixels}}{\text{Surface Luminance with all black pixels}}$$

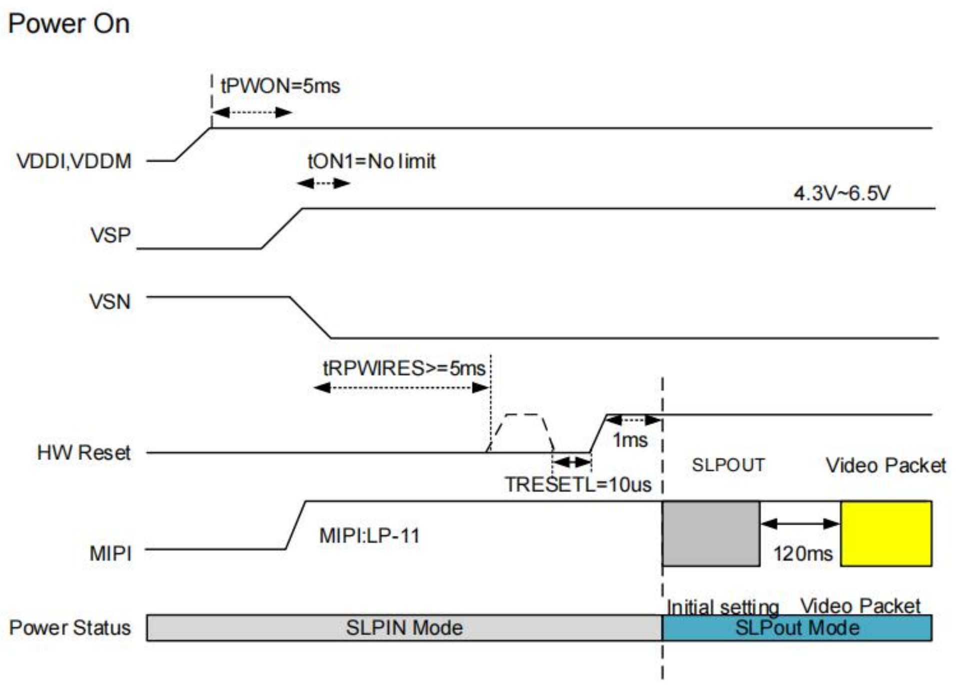
Surface luminance is the center point across the LCD surface 500mm from the surface with all pixels displaying white.

4.7. Power On / Power Off

4.7.1. Power On

PM<1:0>=11 (External VSP/VSN Power)

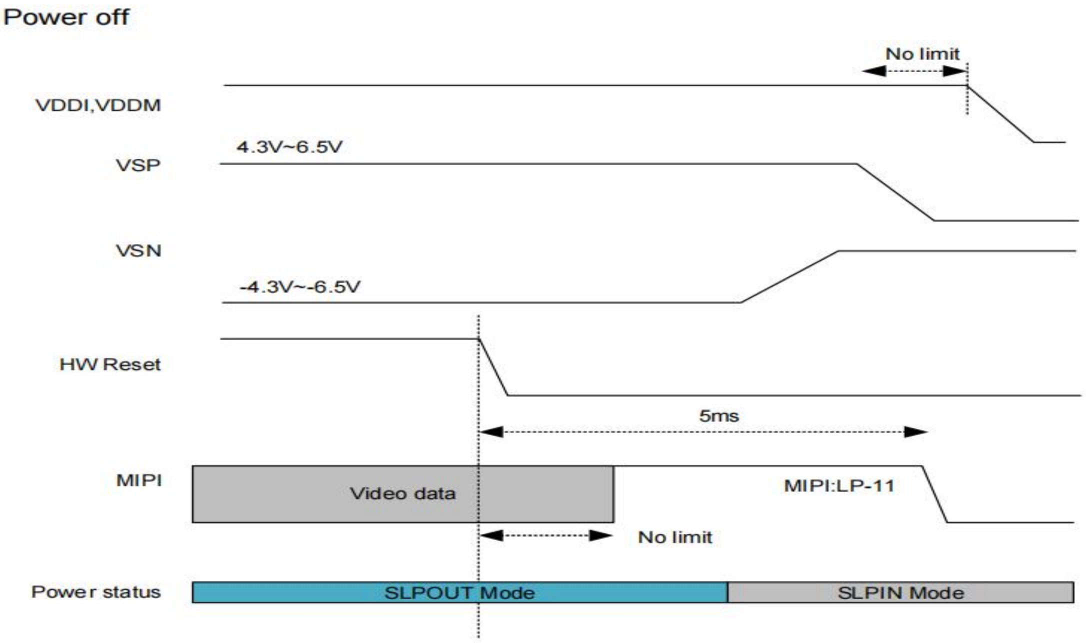
VDDI=1.65V ~ 3.6V, VDDM=1.65V ~ 3.6V, VSP= 2.5V ~ 6.5V, VSN=-4.3V ~-6.5V


Power On
tPWON=5ms
VDDI,VDDM
tON1=No limit
4.3V~6.5V
VSP
VSN
tRPWIRES>=5ms
HW Reset
1ms
TRESETL=10us
SLPOUT
Video Packet
MIPI
MIPI:LP-11
120ms
Initial setting
Video Packet
Power Status
SLPIN Mode
SLPout Mode

Note: tON1: The space time between VSP/VSP Power On and VSN Power On.

Figure 4.2: Power On sequence

4.7.2. Power Off


Power off
No limit
VDDI,VDDM
4.3V~6.5V
VSP
VSN
-4.3V~-6.5V
HW Reset
5ms
MIPI
Video data
MIPI:LP-11
No limit
Power status
SLPOUT Mode
SLPIN Mode

Note: tON1: The space time between VSP Power On and VSN Power On.

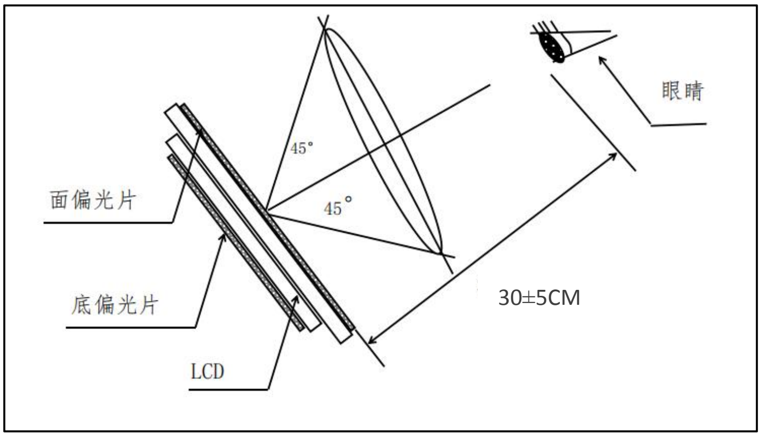
Figure 4.3: Power-Off sequence

5. Delivery Inspection

5.1. Quality Inspection Environmental Conditions

5.1.1. Viewing distance: the normal viewing distance between the screen and the inspector is 30±5cm；Inspection Angle: 90°±45° (90° indicates that the inspector's perspective is perpendicular to the product to be inspected).

5.1.2. Visual inspection illumination: 1000±200LUX;Electrical inspection illumination: 200±100LUX;Ambient temperature 25±5℃, ambient humidity 55±15%RH.



5.2. Quality Inspection Standard

No.	Defect	Standard		Defect Grade	Result
1	Spot Defect (including bright spot / color spot / bubble / dark spot, etc.)	＜7 inches	Φ ≤ 0.10mm	Ignore	OK
			0.10mm < Φ ≤ 0.20mm DS ≥ 10mm	Minor Defect	OK
			Φ > 0.20mm	Serious Defect	NG
		≧ 7 inches	Φ ≤ 0.15mm	Ignore	OK
			0.15mm < Φ ≤ 0.25mm DS ≥ 10mm	Minor Defect	OK
			Φ > 0.25mm	Serious Defect	NG
		Φ: defect diameter. DS: spacing.			
2	Linear Defect (scratches,	＜7 inches	W≤0.02mm, L: unlimited	Ignore	OK

	filaments, etc.)		0.02mm < W ≤ 0.03mm L ≤ 5mm		Minor Defect	OK
			W > 0.03mm		Serious Defect	NG
		≧ 7 inches	W ≤ 0.03mm L: unlimited		Ignore	OK
			0.03mm < W ≤ 0.05mm L ≤ 5mm		Minor Defect	OK
			W > 0.05mm		Serious Defect	NG
		W: defect width. L: defect length. DS: spacing.				
3	Polarizer Bubble	Display Area	Judge by Spot Defect			
		Black Edge Area	The distance from the edge of the display area is greater than 0.5mm.		Minor defect	OK
			The distance from the edge of the display area is less than 0.5mm.		Judge by Spot Defect	
4	Polarizer Bump (Mark)	Display Area / Black Edge Area	Invisible when the touch screen or cover plate is assembled.		Minor Defect	OK
5	Color and Luminance	Item	Method	Instrument	Median	Tolerance Range
		Color	x, y Color Coordinate	Optical Instrument BM-7	According to the actual test on the sample confirmed by the customer.	± 0.04
		Luminance	Average the brightness EV at 9 points	Optical Instrument BM-7	According to the actual test on the sample confirmed by the customer.	± 20%
6	Other Standards	Subject to the negotiation by both parties.				

7	Warranty Period	One year after sale.
8	Guarantee	ROHS、REACH
9	Websites	Official: https://en.zhunyikeji.com/ Globle Resources: https://zhunyi.manufacturer.globalsources.com/ Alibaba: https://zhunyikeji.en.alibaba.com/ 1688: https://shop9641057ru80o3.1688.com/

6. Reliability Test

Item	Condition	Result Determination
High-Temperature Storage	80°C 120H	After the test, leave the LCD samples indoors at normal temperature and humidity for 2H for function and appearance inspection. The sample should meet the requirements on electrical performance, but be free from the following defects: 1. Air bubble in the module, 2. No display, 3. Glass crack.
Low-Temperature Storage	-30°C 120H	
High-Temperature Operation	70°C 120H	
Low-Temperature Operation	-20°C 120H	
High-Temperature and High-Humidity	60°C 90%RH 120H	
Thermal Cycling Test	-20°C/0.5H ~ +70°C/0.5H 100 cycles in total	
Vibration Test	Frequency: 10Hz ~ 55Hz ~ 10Hz Amplitude: 0.75mm Cycle once a minute,30cycles in total (Packing Condition)	
ESD Test	±4kV Human Body Mode 150pF/330Ω ±8kV Air Mode 150pF/330Ω	

Note:

1) **Each module under test can only be used for one of the test items.**
2) **The quantity of samples for each test item is 2.**
3) **Fault Judgment Criterion: Basic Specifications, Electrical Specifications, Mechanical Specifications, Optical Specifications.**

7. Precautions

7.1. The display screen consists of glass and polarizer. Since the glass is fragile, the user must pay special attention to the edge area, and protect it from falling, vibration, or mechanical impact.

7.2. If the display screen is damaged and the liquid crystal material leaks, be sure not to get any in the mouth. If the liquid crystal material contacts the skin or clothes, flush off with soap and water.

7.3. Do not apply excessive force to the display screen or the joint part, or the color will change. Do not touch the display screen with bare hands, which will stain the display area and degraded insulation between terminals (some of the appearance is determined by the polarizer).

7.4. The polarizer covering the display panel of the LCD module is soft and easy to be scratched, be sure to handle carefully. Do not touch, impact, press, or rub the exposed polarizers with anything harder than an HB pencil lead (e.g.: glass, tweezers, etc.). Do not place or attach anything onto the display area to avoid leaving marks. The condensed material on the surface or terminals due to cold will damage or stain the polarizer. After the test in low temperature environment, the product must be warmed up in a container before put into the room temperature environment.

7.5. If the display panel is stained, blow warm air onto the surface and gently wipe it with a soft and dry cloth. If it is seriously contaminated, wipe it with a wet cloth dipped in one of the following solvents:

- glycerol
- ethyl Alcohol

Do not scrub, and avoid damaging the display panel.

7.6. Solvents other than those mentioned above may damage the polarizer. In particular, never use any of the following solvents:

- water
- ketone
- arene

Wipe off saliva or water drop immediately, the contact with water over a long period of time may cause deformation or color fading. Avoid contact with oil or grease.

7.7. Special note: minimize electrode corrosion. Because electrode corrosion can be accelerated by water droplets, condensation of humidity, or electrification in a high humidity environment.

7.8. Assemble the LCD Module by the mounting holes. Make sure the LCD module make sure there is no bending, distortion, or deformation. Do not forcibly pull or bend the transmission wire or the backlight wire.

7.9. Do not disassemble the LCD module.

7.10. NC terminal should be disconnected. Do not connect any device.

7.11. If the logic circuit power supply is off, do not send the input signal.

7.12. Since the LCD module is integrated with CMOS, pay special attention to the modules. To prevent electrostatic damage, be careful to maintain an suitable work environment.

- Make sure the module has the same potential as the human body before take the LCD module out of the packing box for assembly. The reliable grounding is necessary during module processing.
- The required tool, such as the electric soldering iron, must be reliably grounded. Make sure the it is connected to AC power supply, and no electric leakage. When fixing the module with electric screwdriver, it must be grounded, to reduce the electromagnetic wave generated by the electric commutator spark as much as possible.
- Do not assemble or operate under dry condition to reduce the static electricity. To reduce static electricity, the workplace must not be too dry. The recommended relative humidity is 50 - 60%. Keep your work clothes and work table grounded as much as possible
- The LCD module is coated with a film to protect the display surface. Be careful when peeling off the film to reduce the generated static electricity.

7.13. Since the LCD module has high precision assembly and regulation, try to avoid excessive impact on the module or making any changes:

- Do not change the shape of the tab on the metal frame.
- Do not drill any extra hole, modify the shape, or change the position of component on the printed circuit board.
- Do not change or damage the pattern on the printed circuit board.
- Never modify the zebra strip (conductive rubber) or heat seal connector.
- Do not make any change with the electric soldering iron except for the joint.
- Do not throw, bend or twist.

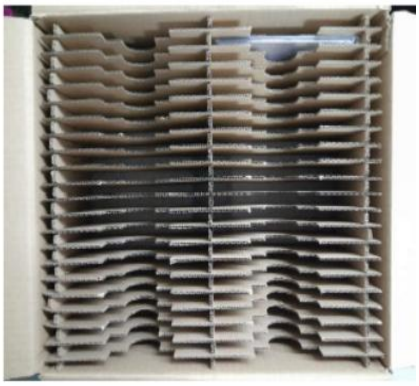
8. Packing and Storage

8.1. Packing Method

Step 1

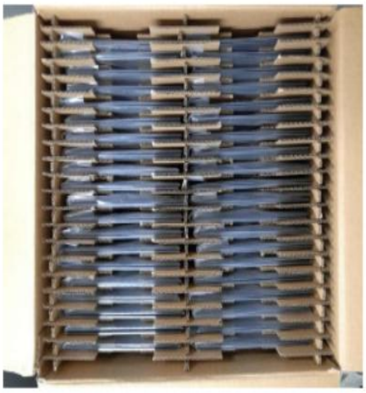
Take 1pcs of the product, put it into a anti-static bag.

Step 2



Take 2 bags of product to place into the carton, make sure they are surface to surface. Put a piece of EPE pad between the carton and the separator to protect the products.

Step 3



Put the products into cartons one by one, each carton contains 60 pieces of products.

Step 4

The cartons should be taped and shipped with labels.

8.2. Storage Method

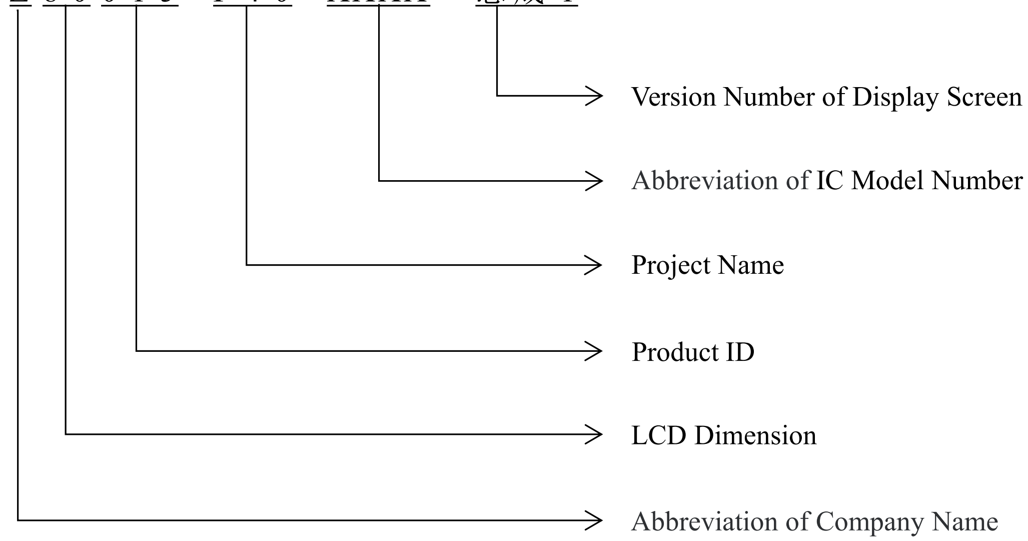
Store in an ambient temperature of 23±5°C, and in a relative humidity of 60±15%. The storage period should not exceed 12 months. Do not expose to the sun for a long period of time.

8.2.1. Store in clean environment, free from dust, active gas, or solvent.

8.2.2. Store in anti-static environment.

8.3. Nomenclature

PART NO: Z 80 015 - P40 - XXXX - 总成 1


Version Number of Display Screen
Abbreviation of IC Model Number
Project Name
Product ID
LCD Dimension
Abbreviation of Company Name

8.4. Label

Shenzhen Zhunyi Technology Co., Ltd.

Product: Display Screen LEVEL:3

Spec.:

P/N:

Lot:

D/C

Qty.:

Supplier Code:

PO

R/K

Version: A XXXXXXX, YYYY-0000000000000000, KKKK, WWWW, AAAAA.