

PRODUCT SPECIFICATION FOR LCD MODULE

(产品规格书)

Reversion (版本) : 1.0

Module No. (模组型号) : RV013Z1P-300-26

Customer Name: (客户名) : _____

Project Name: (客户项目名) : _____

This module uses ROHS material

(本产品使用环保材料)

CUSTOMER APPROVED (客户确认) :

☐ Approved Product Specification only. (确认产品规格)	Approved by (核准) :
☐ Approved Product Specification and Samples. (确认产品规格及样品)	

Please sign back after confirmed. (确认后请签回)

RJOYTEK DISPLAY LTD:

QA Dept. (品质)	Tech. Dept. (工程)	Sale Dept. (业务)
	章雷	

深圳市荣嘉毅科技有限公司 (RJOYTEK DISPLAY LTD)

Tel: (+86) 13510172564

EMAIL: danny@rjyi.net

Web: <http://rjoytek.en.alibaba.com>

Address: 深圳市宝安区航城大道航城智谷中城未来产业园 7 栋 301 室。

REVISION RECORD

REV	CHANGE DESCRIPTION	DATE
1.0	Original Version	2022-04-23

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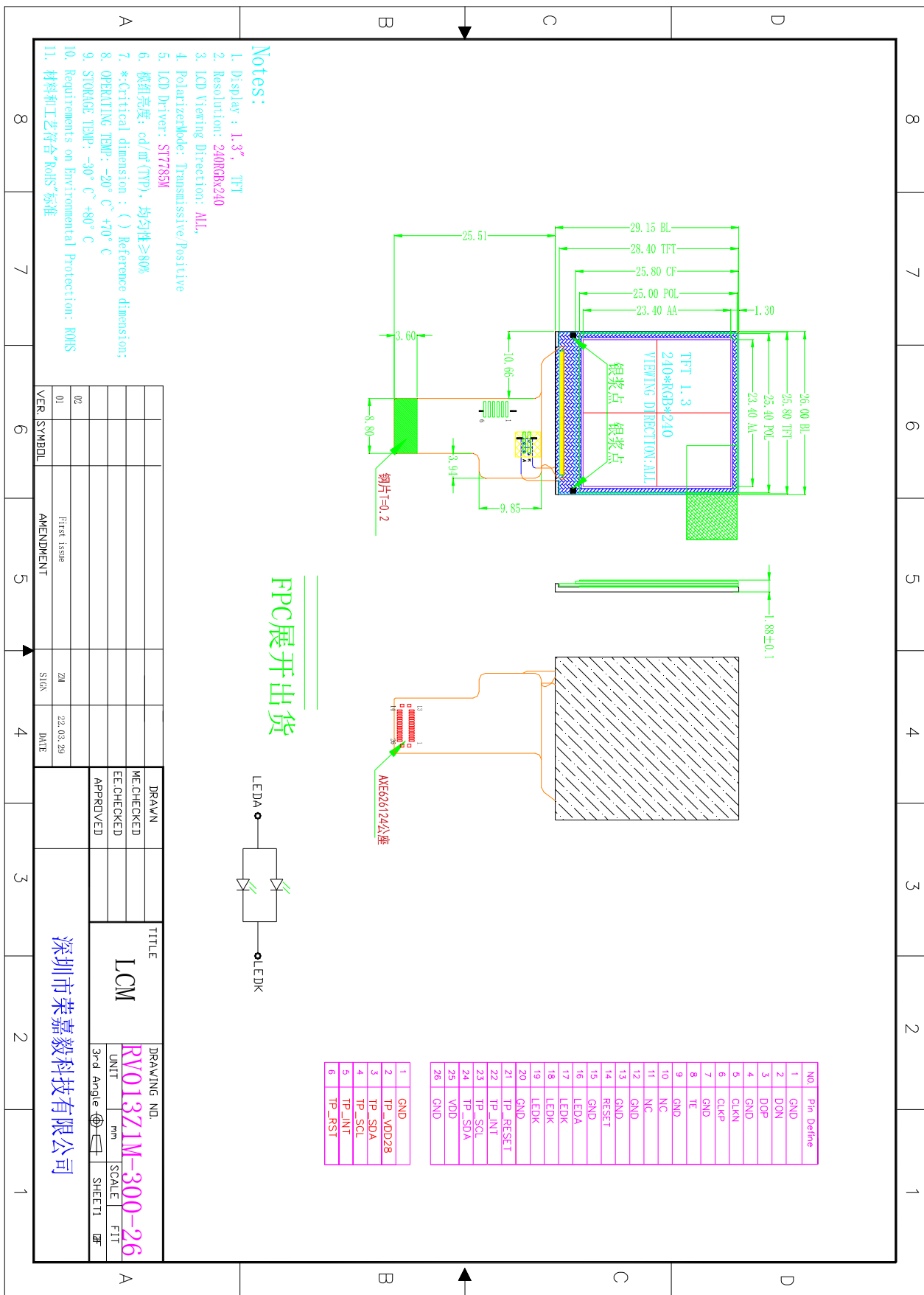
■ PRECAUTIONS IN USE OF LCM

RV013Z1P-300-26 is a color active matrix TFT-LCD Panel using amorphous silicon TFT's (Thin Film Transistors) as an active switching devices. This model is composed of a TFT-LCD Panel, a driving circuit and a back light system. It is a transmissive type display operating in the normal white. This TFT-LCD has a 1.3 inch diagonally measured active area with QVGA resolutions (240 horizontal by 240 vertical pixel array). Each pixel is divided into Red, Green, Blue dots which are arranged in vertical stripe and this panel can display 16.7M colors.

■ GENERAL SPECIFICATION

Item	Contents	Unit
LCD Type	AM TFT ,TRANSMISSIVE, NEGATIVE	
Display Format	240(R,G,B)*240	Dots
Input Data	MIPI	\
View Angle	ALL O'clock	\
IC Driver	ST7785M	\
Display Colors	16.7 M	\
Module Size	26(W)×29.15(L)×1.88(T)	mm
CPT Size	36(W)×36(L)×3.01(T)	
Active Area	23.4(W) ×23.4(L)	mm
Pixel Size	0.0975x0.0975	mm
Operating Temperature	-20 to +70	℃
Storage Temperature	-30 to +80	℃
LCM Luminance	300	cd/m ²
Weight	TBD	g

LCM MODULE DRAWING



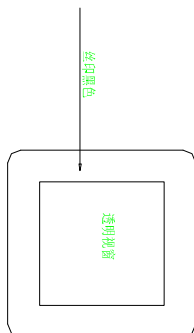
CPT +LCM MODULE DRAWING

CUSTOMER'S MODEL NO.:

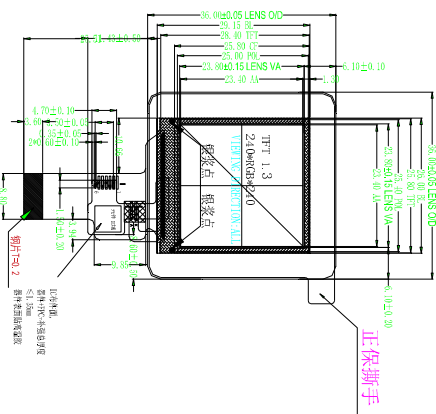
CUSTOMER APPROVED:

DATE:

CG效果图



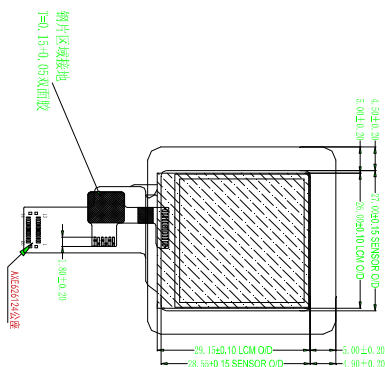
正视图



侧视图



背视图



	No.	Pin	Definition
1	1	GND	
2	2	TP_VDD2B	
3	2	DON	
4	3	DGP	
5	4	GND	
6	5	CLON	
7	6	CLAP	
8	7	GND	
9	8	TE	
10	9	NO	
11	11	NC	
12	12	GND	
13	13	GND	
14	14	RESET	
15	GND		
16	16	LEDA	
17	17	LEDB	
18	18	LEDC	
19	19	LEDD	
20	20	GND	
21	21	GND	
22	22	TP_NTC	
23	23	TP_SOL	
24	24	TP_SOA	
25	VDD		
26	GND		

1、产品结构:G+F;

2、IC:CST816D (单点);

4.达因值: ≥ 32 dyn/cm (CG油墨面、Film非ITO面)

5.强化条件:强化深度 $\geq 8\mu\text{m}$, 强化应力 $\geq 450\text{mpa}$;

6. 钢球冲击能量: 64g 钢球, 25cm(0.2J) 高度 V.A. 中心点 3 次, 无破损。

1. 油墨附着力及翘曲度及油墨厚度: <0.2mm; BLACK LINK 套为黑巴印油;

9. 工作温度: $-20^{\circ}\text{C} \sim +60^{\circ}\text{C}$, 存储温度: $-30^{\circ}\text{C} \sim +80^{\circ}\text{C}$;

10.未注倒边: $C=0.15 \times 0.15$;

11.符合ROHS标准;

12.保护膜不残胶，不掉尘，易贴附无气泡，防静电值介于10-11；

13.未注公差 $\pm 0.20\text{mm}$

Notes

1. Display: 1.3", TFT

2. Resolution: 240KUBX240

4. PolarizerMode: Transmissive/Positive

5. LCD Driver: ST7785M

6. 楔組亮度: cd/m^2 (LYP), 均勻性 $\geq 80\%$

8. OPERATING TEMP: -20°C~+70°C

9. STORAGE TEMP: -30°C~+80°C

10. Requirements on Environmental Protection: ROHS

1.1. 材料和工艺符合"RoHS"标准

TOP
COVER GLASS (0.70mm)
OC4 (175um)
ITO FILM (175nm)
OC4 (175um)
LCM (1.85mm)

REVISION RECORD		DATE	
1		TITLE: RW01321P-300-26	D/N:
2		FILE NAME: RW01321P-300-26	P/N:
3		FILE NO:	Ver.: A
4		DRAWN BY: 李祥明	DATE: 2022.03.30
5		CHECKED BY:	DATE:
6		APPROVED BY:	DATE:
			SHEET: 1/1

■ INTERFACE PIN ASSIGNMENT

Pin No.	Symbol	Function description	When not in use
1	GND	Ground	
2	D0N	Display MIPI 0-	
3	D0P	Display MIPI 0+	
4	GND	Ground	
5	CLKN	Display MIPI -	
6	CLKP	Display MIPI +	
7	GND	Ground	
8	TE	TE	
9	GND	Ground	
10-11	NC	NC	
12-13	GND	Ground	
14	RESET	Reset signal(low active)	
15	GND	Ground	
16	LED-A	B/L positive pin	
17	LED-K	B/L negative pin	
18	LED-K	B/L negative pin	
19	LED-K	B/L negative pin	
20	GND	Ground	
21	TP_RESET	TP_RESET	
22	TP_INT	TP_INT	
23	TP_SCL	TP_SCL	
24	TP_SDA	TP_SDA	
25	VDD	VDD	
26	GND	GND	

Pin No.	Symbol	Function description
1	GND	Ground
2	TP_VDD28	TP_VDD28
3	TP_SDA	TP_SDA
4	TP_SCL	TP_SCL
5	TP_INT	TP_INT
6	TP_RST	TP_RST

■ BACKLIGHT CHARACTERISTICS

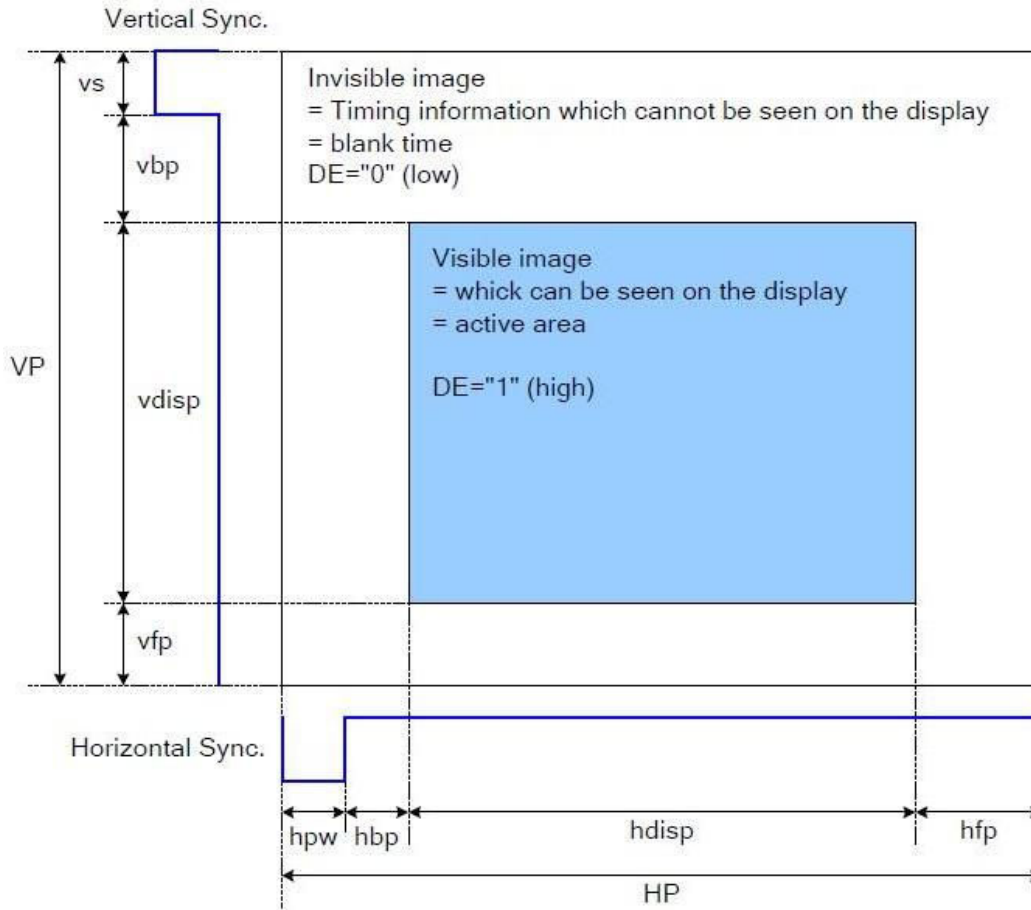
Item	Symbol	Min.	Typ.	Max.	Unit	Condition
Forward voltage	V _f	--	3.3	--	V	
Forward Current	I _F	--	40	--	mA	
Number of LED	-	1X2			Piece	-
Connection mode	S/P	1Serial/2Parallel			-	-

■ DC ELECTRICAL CHARACTERISTICS

Item	Symbol	Min.	Typ.	Max.	Unit
Power supply for logic	IOVCC	1.65	1.8/2.8	3.3	V
Input power supply	VCC/VCI	2.5	2.8	3.3	V
Input current	I _{IN}	-	TBD	TBD	mA
Input high voltage	V _{IH}	0.7IOVCC	-	IOVCC	V
Input low voltage	V _{IL}	0	-	0.3IOVCC	V
Output high voltage	V _{OH}	0.8IOVCC	-	IOVCC	V
Output low voltage	V _{OL}	0	-	0.2IOVCC	V

INTERFACE TIMING

System Bus Read/Write Characteristics.



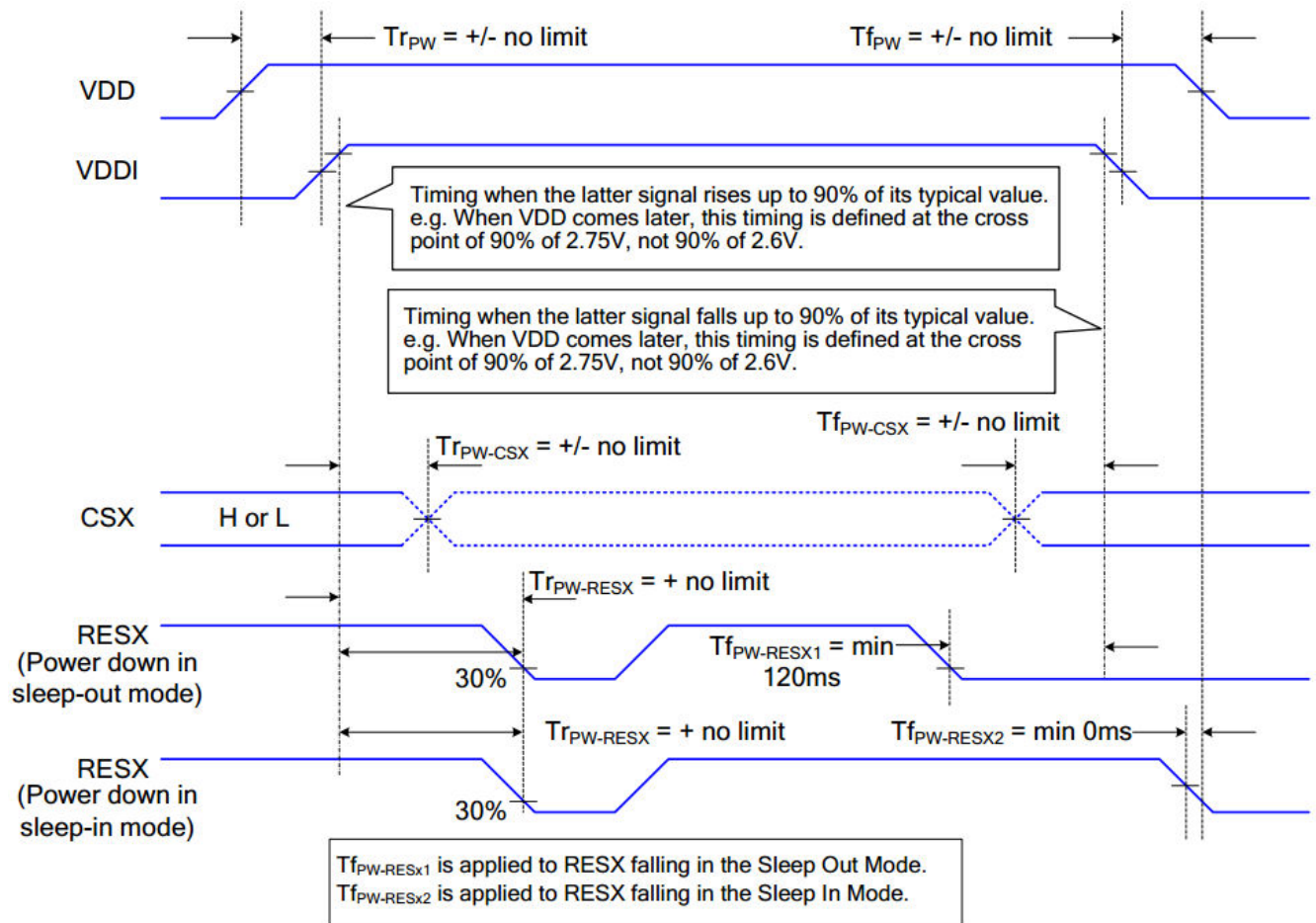
Please refer to the following table for the setting limitation of RGB interface signals.

Parameter	Symbol	Min.	Typ.	Max.	Unit
Horizontal Sync. Width	hps	1	-	255	Clock
Horizontal Sync. Back Porch	hbp	1	--	255	Clock
Horizontal Sync. Front Porch	hfp	1	--	-	Clock
Vertical Sync. Width	vs	1	--	254	Line
Vertical Sync. Back Porch	vbp	1	--	254	Line
Vertical Sync. Front Porch	vfp	2	--	--	Line

Note:

1. Typical value are related to the setting frame rate is 60Hz.

Power on/off sequence



Optical Specification

Item		Symbol	Condition	Min	Typ	Max	Unit	Note
Transmittance (w/o polarizer)		T%	e=0° Ta=25°C	-	4.0	-	%	1
Contrast ratio		Cr			1000	-	-	3
Response time		Ton+Toff		-	30	40	ms	4
Surface Luminance		LV		-	300	-	cd/m ²	2
Viewing angle range		Left θ_L	Center CR>10	75	80	-	deg	5
		Right θ_R		75	80	-	deg	
		Top θ_T		75	80	-	deg	
		Bottom θ_B		75	80	-	deg	
CIE(x,y) chromaticity	Red	X	Viewing normal angle 0x=0y=0° Ta=25°C	-	-	-	-	6
		y		-	-	-	-	
	Green	X		-	-	-	-	
		y		-	-	-	-	
	Blue	X		-	-	-	-	
		y		-	-	-	-	
	White	X		-	-	-	-	
		y		-	-	-	-	

Note 1: Definition of optical measurement system. The optical characteristics should be measured in a 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 grounded when measuring the center area of the panel.

■ RELIABILITY

Item	Conditions	Criteria
High temperature operation	70℃ for 48 hours	● No defect in cosmetic and Operational functions. ● Total current consumption Below double of initial value.
Low temperature operation	-20℃ for 48 hours	
High humidity storage	60℃.90% RH for 48 hours	
High Temperature storage	80℃ for 48 hours	
Low temperature storage	-30℃ for 48 hours	
Temperature cycling	-20℃ (30min) ↓ ↑ 25℃ (5min) ↓ ↑ 70℃ (30min)	

Inspection requirements

Acceptance Quality Limit (AQL) GB/T 2828.1-2012 Level II

Serious defect: C=0 Major defect: 0.4 Minor defect: 1.0

The following defects are the major defects of the product:

- 1: Functional and appearance defects affect normal use
- 2: Performance parameters exceed specification standards
- 3: Missing components, accessories and main identification
- 4: More irrelevant signs and other items that may affect the performance of the product

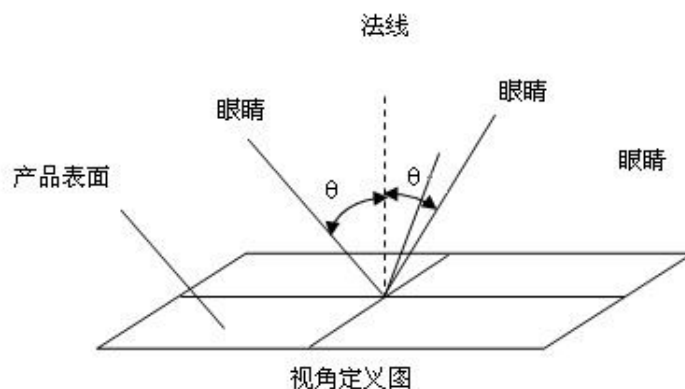
Minor defect: Outside of the major defect is minor defect

Inspection Conditions:

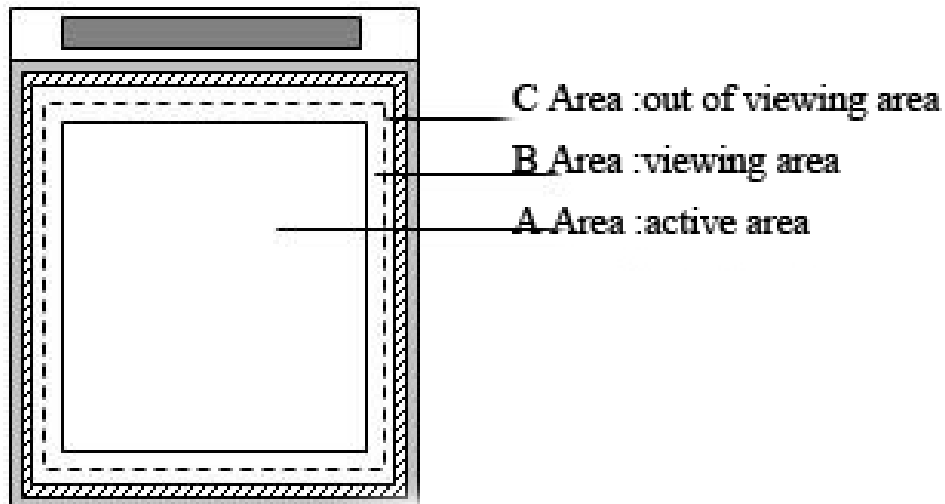
6.21 The lighting of appearance inspection and function inspection shall meet the requirements specified in the light intensity test (Function: 200 ± 20 lux, Appearance: 1000 ± 200 lux)

6.22 Finished products and semi-finished products shall be tested by the customer mainboard or the test fixture that can meet the customer's requirements. Standard backlight shall be used for the single-screen test.

6.23 Inspection method: eye distance: 30 ± 5 cm; Take the product normal line as the center to check the upper and lower 45° range.



Definition of the Area



View area definition diagram

When testing, please wear a rope static ring and anti-static finger sleeve (or gloves)

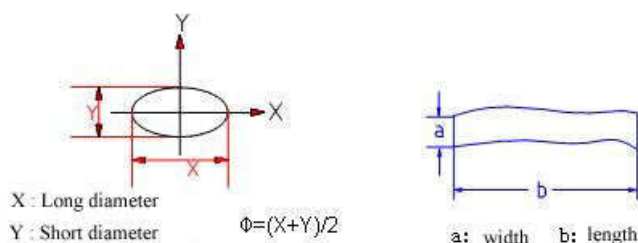
Need to determine the specification of defects (such as dots and lines) with a film card, magnifying eyepiece for coverage inspection (products with special requirements of customers shall be implemented according to customer requirements), Or use test equipment to test the exact value; Other defects are determined according to the limit sample.

LCD/LCM judgement standard

(the unit of the following design size standard is mm without special specification)

Point/line definition

Dot size (①): when the long diameter of more than 2.5 times short diameter, dot defect into a line defect judgement)



Appearance acceptance standard and defect judgement

The judgement standard for judging the defect dot and line of full fit module (display and touch screen)

Spot defect (white spot, foreign body, impurity, color point, bump point, etc.)					
DOT		Inspection Criteria		Defect distinguish	remake
G<0.1mm		Not counted		Major	10mm* 10mm range allow 5
0.1<C) <0.2mm		2			The distance between the two defects is greater than 10
0.2<C) <0.3mm		1			
0.3mm<®		0			
Additional: pitting/poor gathering points apply to limited samples or by ND5%					
Pixel dot (bright color dott, dark dot)					
Bright > color dot		dot	N<2	Major	Total NW3
Dark dot		dot	N< 2 _z DS > 10mm		
		2s	N< 1		
		3s	N< 0		
Additional: Partial Bright Dot are judged by ND5%.					
Linear defects (scratch and other physical damage;White thread, fiber, dander, etc.)					
Details		Inspection	Defect	remake	
length (L)	width (W)	Criteria	distinguish		
L<1.5mm	W<0.03mm	Not counted		Not allowed gathered	
L<3.0mm	0.03<W<0.08mm	2		The distance between the two defects is greater than 10mm	
L>3.0mm	W>0.08mm	0			

CG defect appearance and judgement criteria

Spot defects for Ink Zone or visible area (white spot, foreign body, impurity, bump point, etc.)					
DOT		Inspection Criteria		Defect distinguish	remake
		Not counted		minor	
0.1<C) <0.2mm		2			The distance between the two defects is greater than 10mm
0.2mm<Ⓜ		0			
Linear defects fbr Ink Zone or visible area (scratch and other physical damage;White thread, fiber, dander, etc.)					
Details		Inspection Criteria	Defect distinguish	remake	
length (L)	width (W)				
Ignore	W<0.03mm	Ignore	minor	Not allowed gathered	
L<3.0mm	0.03<W<0.05mm	2		The distance between the two defects is greater than 10mm	
L>3.0mm	W>0.05mm	0			
Ink defects for Ink Zone					
Inspection item		Judge criterion		Defect distinguish	
Ink area light transmissionjeakage		According to the spot defect.		minor	
Ink sawtooth in VA area		The sawtooth size: W W 0.20mm no count		minor	
Ink color difference		No difference from the front sight or upper and lower limit		minor	
Silk screen graphic		Misprints, mixed printing reprints, and defects are not		minor	
ink burr in VA area		LW0.05mm, WW 0.05mm.Number^ 10		minor	
Comer broken		the surface: not allowed; the back: tW1/2, 0.1 v ① W 0.2mm, NW3.		minor	

Functional defect criteria

Num.	Inspection content	Inspection Criteria	Inspection tools/equipment	Defect distinguish
1	No display	Not allowed	Visual, test jig, power supply	major
2	Display abnormal	Not allowed	Visual, test jig, power supply	major
3	missing segment	Not allowed	Visual, test jig, power supply	major
4	Different chroma or brightness	Not allowed, reference limit template for special cases	Visual, test jig, power supply	major
5	The display image is different from the sample	Not allowed	Visual, test jig, power supply	major
6	Backlight LED don't work	Not allowed	Visual, test jig, power supply	major
7	Backlight flashing	Not allowed	Visual, test jig, power supply	major
8	Leakage liquid crystal	Not allowed	Visual	major

Note: 1. Other parts not involved shall be subject to the customer's requirements or limits.

2. The allowable proportion of defective materials in each batch shall not exceed 5%.

After the product is launched on the client, the appearance problems are all the responsibility of the client, and the functional problems are the responsibility of RJOYTEK DISPLAY LTD