Shenzhen Starbillions Electronics Co.,Ltd

产 品 承 认 书

SPECIFICATION FOR APPROVAL

产品型号	XBY101-22002-B	版本	V1.0
产品结构	10.1 寸\GG+LCM\全贴合	产品类型	电容式显示触摸屏
制作人 （Prepared by）	设计部审核 （Checked by）	品管部审核 （Checked by）	总经办批准 （Approved by）
费涌	李潇		

请客户仔细阅读规格书中的各项内容，当对规格书内各项内容表示认可时；请在下面客户确认项中签字（此规格书为一式两份）。

Please read the following carefully the contents of the customer, the customer said after the signing of the cover on the confirmation of the customer to acknowledge the contents.

客户确认

确认人 (Confirmed by)	设计部审核 (Checked by)	品管部审核 (Checked by)	批准 (Approved by)

变更记录表

序号	版本号	修改人	修改内容概要	批准	生效日期
1	V1.0	FY	新建		2022.11.18
2					
3					
4					
5					

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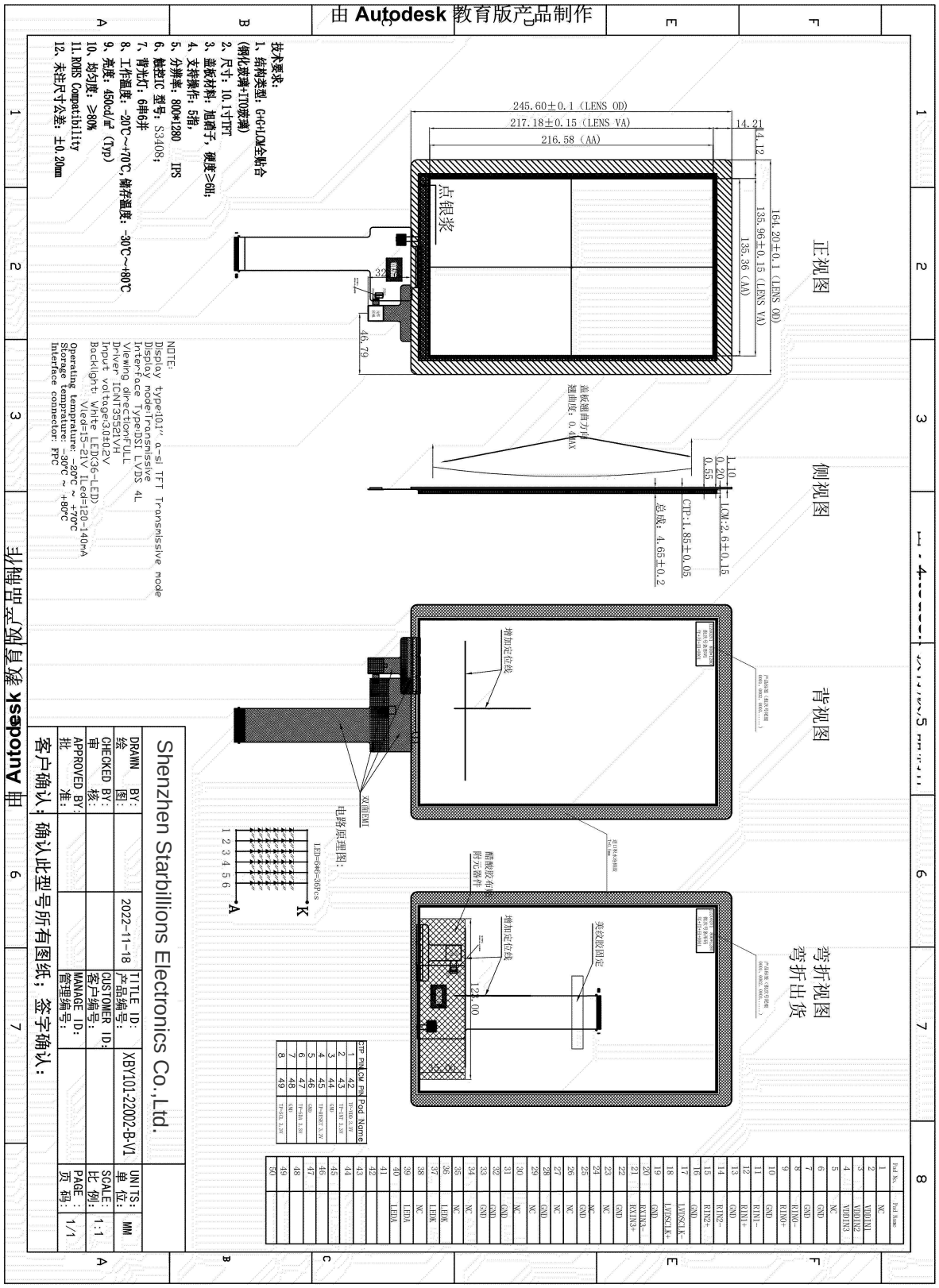
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1 工程图 Engineering Drawing



2 产品结构 Construction

结构 Construction	所用材料 Materials Used	注释 Comment
盖板 CG	CG	厚度：1.1mm Thickness：1.1mm
热熔胶 SCA	SCA	厚度：0.2 mm Thickness：0.2mm
功能片 SENSOR	CG	厚度：0.55mm Thickness：0.55mm
光学胶 OCA	OCA	厚度：0.2 mm Thickness：0.2mm
液晶显示模组 TFT-LCD	LCM	厚度：2.6 mm Thickness：2.6mm
总 TOTALL		厚度：4.65 mm Thickness：4.65mm

3 机械特性 Mechanical Characteristics

项目 Item	描述 Description	单位 Unit
外形尺寸 Outside Dimension	164.20*245.60±0.1	mm^2
可视区 View Area	135.96*217.18±0.15	mm^2
动作区 Active Area	135.36*216.58	mm^2
触控芯片 Touch ic	S3408	
输入方式 Input Method	手指 Finger	
表面硬度 Hardness Of Surface	表面防刮伤 Hard Surface：≥6H	H
支持操作 Support Operation	五 指 Five Finger	
总成亮度 ZC Luminous Intensity	450（TYP）	cd/cm2
亮度均匀性 Uniformity of luminance	≥80%	

4 使用环境 Processing Environment

项目 Item	描述 Description
工作温度 Operating Temperature	-20℃～70℃
工作湿度 Operating Humidity	20%-90%RH
储存温度 Storage Temperature	-30℃～80℃
储存湿度 Storage Humidity	20%-90%RH

5 CTP 电气特性 Electrical Characteristics

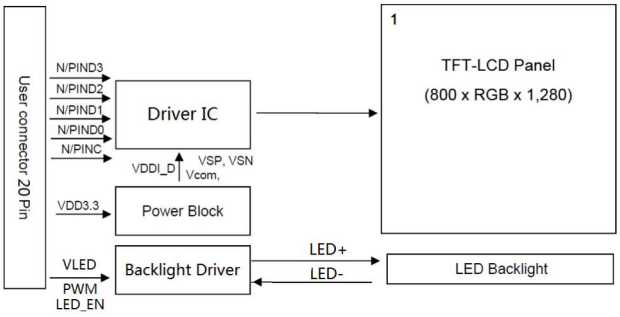
名称	电压	备注
VDD	**3.3V**	供电电压
VDDIO	**3.3V**	信号电压

6 LCM 相关参数 LCM General Specifications

JTFT22003 is a TFT-LCD module. It is composed of a TFT-LCD panel, driver IC, FPC, a back light unit. The 10.1′′ display area contains 800x1280 pixels and can display up to 16.7M colors. This product accords with RoHS

Item	Contents	Unit	Note
LCD Type	TFT	-	
Display color	16.7M		1
Viewing Direction	FREE	O'Clock	
Number of Dots	800×3（RGB）×1280	dots	
Backlight	36-LEDs (white)	pcs	
Data Transfer	LVDS	-	

6.1 Block Diagram



6.2 Electrical Specifications and Instruction Code

6.2.1 Electrical characteristics(Vss=0V ,Ta=25℃)

Parameter		Symbol	Condition	Min	Typ	Max	Unit	Note
Power supply		VCC	Ta=25℃	2.0	3.3	3.6	V	
Input voltage	'H'	V_{IH}	V_{CC}=2.8V	0.8V_{CC}	-	V_{CC}	V	
	'L'	V_{IL}	V_{CC}=2.8V	0	-	0.2V_{CC}	V	

Note:1:When an optimum contrast is obtained in transmissive mode.

Item		Symbol	Condition	Min	Typ	Max	Unit	Note
Supply voltage		-	-	-	18	-	V	1
Supply current		I_f	-	-	120	-	mA	2
Forward current	Normal	I_{pn}	36LEDS	-	120	-	mA	
	Dimming	I_{pd}		-	-	-		

6.2.2 LED backlight specification(VSS=0V ,Ta=25℃)

Note:

1: V_{LED}=V_{LED}(+)-V_{LED}(-).

2:The current of LED is 20mA.
A LED drive in constant current mode is recommended.

3: LED power consumption is around 2.16 W.

6.3 Optical Characteristics

Note： The parameter is slightly changed by temperature, driving voltage and materiel

Item	Symbol		Condition	Min.	Typ.	Max.	Unit	Note
Viewing Angle	3:00		Cr＞10	80	85	-	Deg	2
	6:00			80	85	-		
	9:00			80	85	-		
	12:00			80	85	-		
Contrast Ratio	Cr		θ=0° Φ=0°	600	800	-	-	1,4
Response Time	T_r+T_f			-	30	40	ms	1,3
Color of CIE Coordinate	W	x	θ=0° Φ=0°	Typ. -0.03	0.305	Typ. +0.03	-	1,5
		y			0.329		-	
	R	x			0.609		-	
		y			0.332		-	
	G	x			0.300		-	
		y			0.566		-	
	B	x			0.142		-	
		y			0.112		-	
NTSC Ratio	S			-	60	-	%	

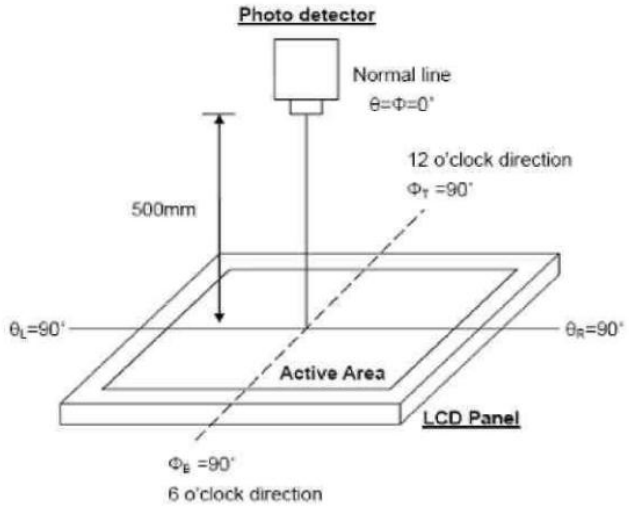
Test Conditions:

1.Measuring surrounding:dark room

2.The ambient temperature is 25±2°C.

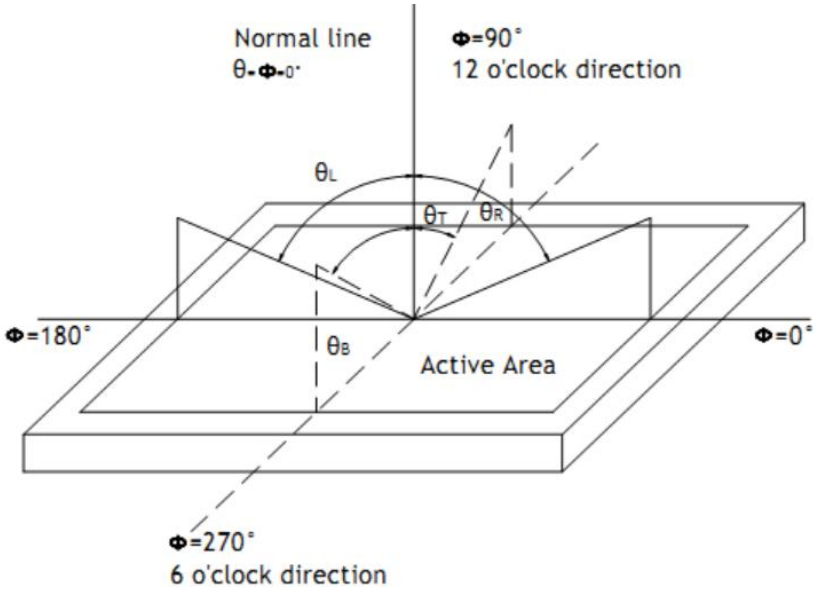
3.The test systems refer to Note1 and Note2.

Note1: Definition of optical measurement system



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%.

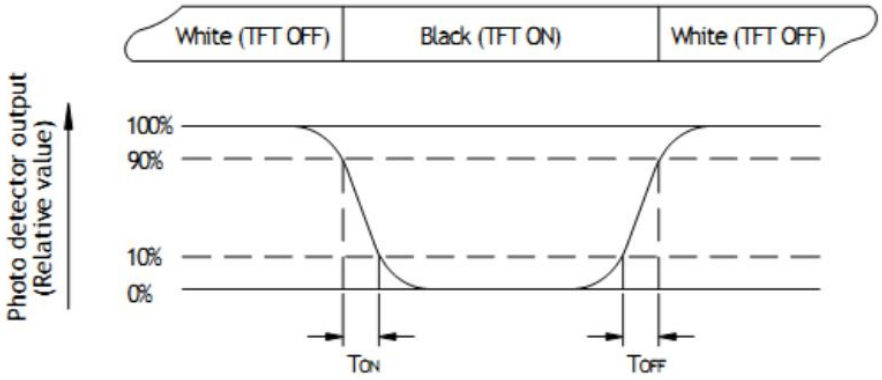


Fig. 6-3 Definition of response time

Note4: Definition of contrast ratio

Contrast ratio(CR)= 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=20mA of which each LED module is 3 LED serial.

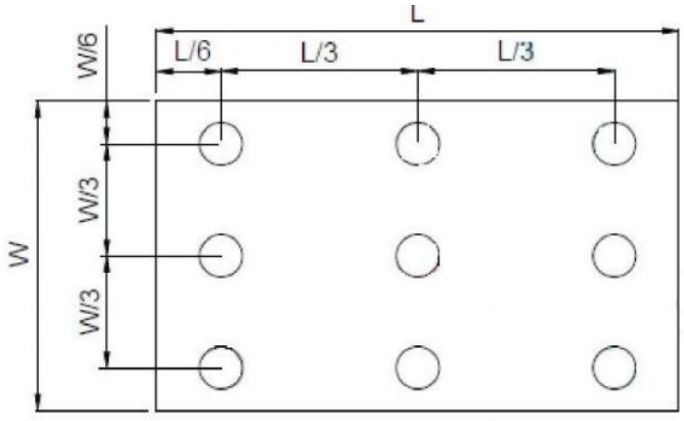
Note7: Definition of Luminance Uniformity

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.

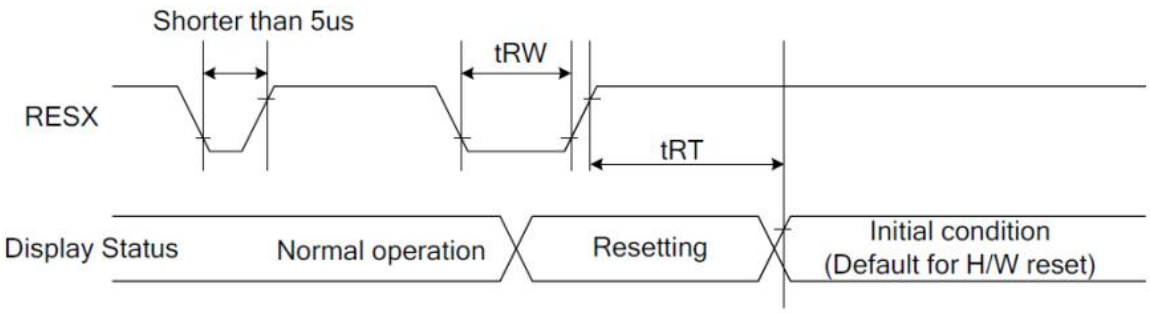
Bmin: The measured minimum luminance of all measurement position.

Note8: Definition of Luminance

Measure the luminance of white state at center point.

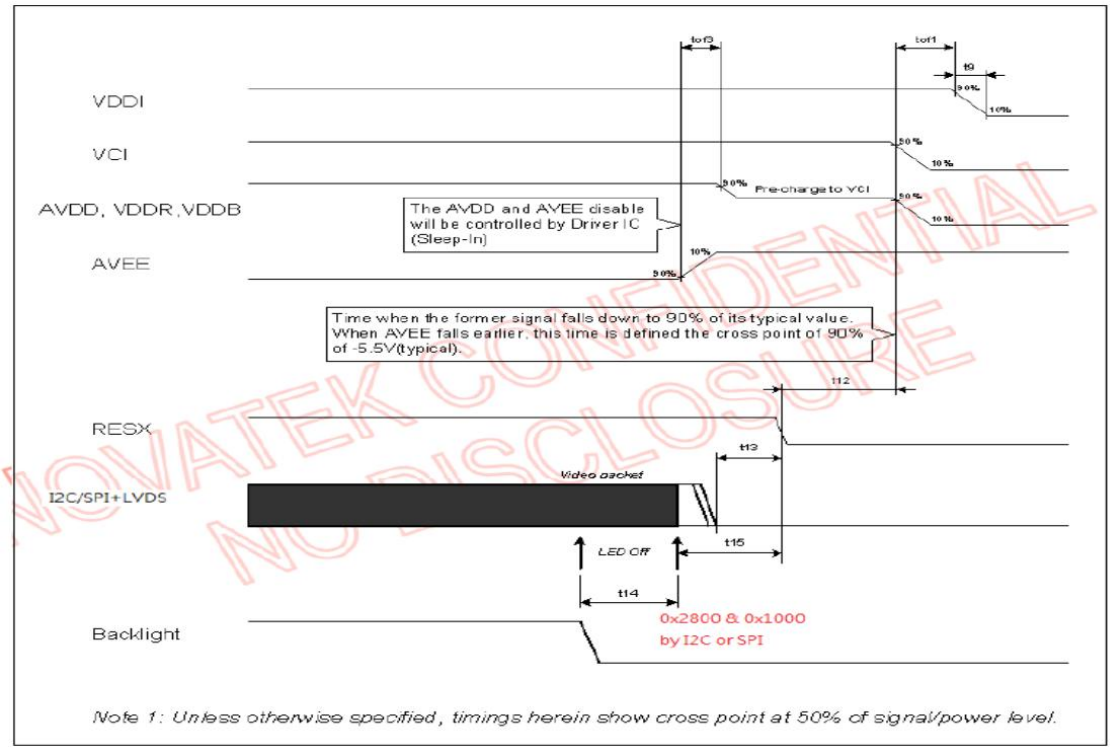
6.4 Timing Characteristics

6.4.1 Reset Timing



Reset Timing Characteristics(VCC=1.8~3.3V.IOVCC=1.65~3.3V)

6.4.2 Power on/off sequence



VDDI=1.65~3.6V, VCI=2.5~3.6V (to NT50198), AVDD=VDDR=VDDB=4.5~6.0V, AVEE=-4.5~-6.0V

6.4.3 DSI Timing

(VSS=VSSI=DVSS=0V, VDDI=1.65V to 3.6V, VCI=2.5V to 3.6V,Ta = -30 to 70°C)

Signal	Symbol	Parameter	MIN	TYP	MAX	Unit	Description
DSI-CLK+/-	Rx_{FCLK}	Clock frequency	30	-	85	MHz	Note 2
DSI-Dn+/-	T_{RSKM}	Input data skew margin	500	-	-	ps	Note 3
DSI-CLK+/-	T_{LVCH}	Clock high time	-	4/(7x Rx_{FCLK})	-	ns	
DSI-CLK+/-	T_{LVCL}	Clock low time	-	3/(7x Rx_{FCLK})	-	ns	
DSI-CLK+/-	T_{enPLL}	PLL wake-up time	150	-	0.3xUI	ps	

Note 1) Dn = D0, D1, D2 and D3.
Note 2) Refer to the input timing table for each display resolution.
Note 3) $|V_{ID}|$=200mV, Rx_{VCM}=1.2V, Rx_{FCLK}=81MHz.

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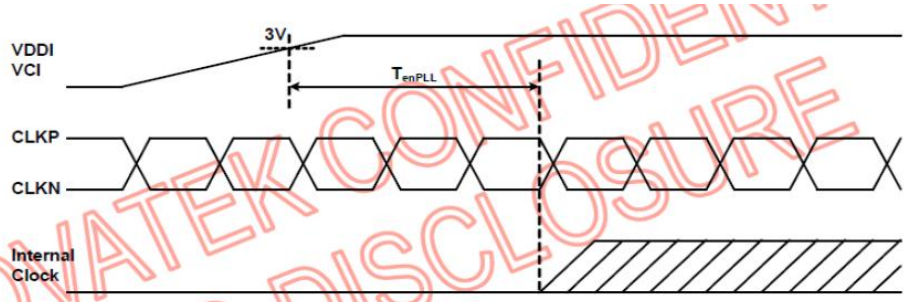
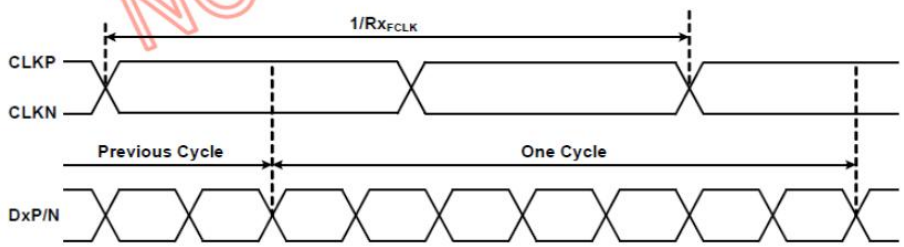


Fig. 7.3.7 Relationship between Power, LVDS Clock and Internal Clock



6.4.4 Timings for DSI Video mode

(1) LVDS DE mode

Parameter	Symbol	Min.	Typ.	Max.	Unit
DCLK Frequency	FDCLK	72.0	76.1	79.8	MHz
Horizontal Display Area	HDA		800		DCLK
Horizontal Blanking	HBP+HFP	110	160	200	DCLK
One Line Time	HBP+HAD+HFP	910	960	1000	DCLK
Vertical Display Area	VDA		1280		H
Vertical Blanking	VBP+VFP	38	41	50	H
One Frame Time	VBP+VAD+VFP	1318	1321	1330	H

(2) LVDS HV mode

Parameter	Symbol	Min.	Typ.	Max.	Unit
DCLK Frequency	FDCLK	72.0	76.1	79.8	MHz
Horizontal Display Area	HDA		800		DCLK
Horizontal Back Porch	HBP		80 (Note)		DCLK
Horizontal Pulse Width	HPW	1	-	70	DCLK
Horizontal Front Porch	HFP	30	80	120	DCLK
One Line Time	HBP+HAD+HFP	910	960	1000	DCLK
Vertical Display Area	VDA		1280		H
Vertical Back Porch	VBP		23 (Note)		H
Vertical Pulse Width	VPW	1	-	20	H
Vertical Front Porch	VFP	15	18	27	H
One Frame Time	VBP+VAD+VFP	1318	1321	1330	H

Note: HBP include HPW, and VBP include VPW

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7 引脚定义 PIN Assignment

Pin No.	Symbol	Function
1	NC	NC
2	VDD1	Power suppl for LCD 3.3V
3	VDD2	Power suppl for LCD 3.3V
4	VDD3	Power suppl for LCD 3.3V
5	NC	Not connect
6	GND	Power Ground
7	GND	Power Ground
8	RXIN0-	Negative LVDS differential data inputs
9	RXIN0+	Positive LVDS differential data inputs
10	GND	Power Ground
11	RXIN01-	Negative LVDS differential data inputs
12	RXIN1+	Positive LVDS differential data inputs
13	GND	Power Ground
14	RXIN02-	Negative LVDS differential data inputs
15	RXIN2+	Positive LVDS differential data inputs
16	GND	Power Ground
17	RXCLK-	Negative LVDS differential clock inputs
18	RXCLK+	Positive LVDS differential clock inputs
19	GND	Power Ground
20	RXIN03-	Negative LVDS differential data inputs
21	RXIN3+	Positive LVDS differential data inputs
22	GND	Power Ground
23,24	NC	Not connect
25	GND	Power Ground
26,27	NC	Not connect
28	GND	Power Ground
29,30	NC	Not connect
31~33	GND	Power Ground
34,35	NC	Not connect
36,37	LEDK	LED backlight(Cathode).
38	NC	Not connect
39~40	LEDA	LED backlight(Anode).
41	GND	Power Ground
42	TP-VDD 3.3V	
43	TP-INT 3.3V	
44	GND	Power Ground
45	TP-RESET3.3V	
46	GND	Power Ground

Pin No.	Symbol	Function
47	TP-SDA 3.3V	
48	GND	Power Ground
49	TP-SCL3.3V	
50	GND	Power Ground

8 机械测试 Mechanical Test

8.1 钢球跌落测试 Ball Drop Test

(1) 作业环境：温度：22±3℃、湿度：60±10％RH、Level：等级 1000

Operating Environment:Temperature:22±3℃、Humidity:60±10％RH、Level : Class1000

(2) 测试方法：用质量 110g 钢球从 30cm 高度跌落产品中心，产品不会破裂为合格。

Test Method: With a quality of 110g ball falling from 30cm height to Product Center, the product will not break as qualified.

	玻璃厚度	落球高度	判定合格
落球冲击 （110g 钢球）	0.55	20cm	中心点连续落球 2 次无损伤 落球高度为钢球球心至产品表面距离
	0.70	30cm	
	1.10	**40cm**	

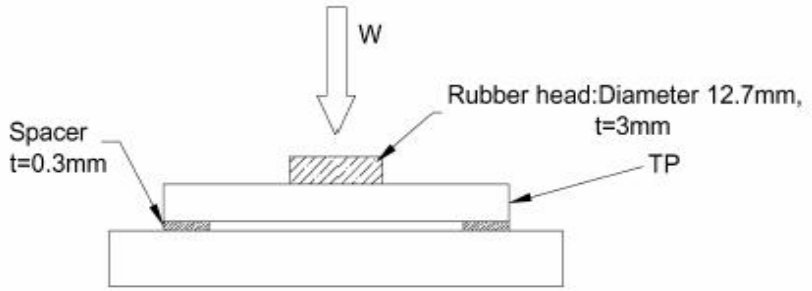
8.2 静压测试 Static Press Test

(1) 作业环境：温度：22±3℃、湿度：60±10％RH、Level：等级 1000

Operating Environment:Temperature:22±3℃、Humidity:60±10％RH、Level:Class1000

(2) 测试方法：在产品表面放置一个直径为 12.7mm 橡胶头，产品功能无问题，无破损。

Test Method: Product placed on the surface with a diameter of 12.7mm rubber head, Function is ok, no damage.



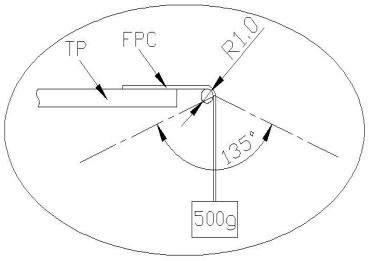
8.3 FPC 压合测试 FPC Bending Test

(1) 作业环境：温度：22±3℃、湿度：60±10％RH、Level：等级 1000

Operating Environment:Temperature:22±3℃、Humidity:60±10％RH、Level:Class1000

(2) 测试方法：产品测试后满足电气性能。

Test Method: Meet electrical spec after testing.



1.测试角度 Bending Degree:135°;

2.测试半径 Bending Radius: R1.0 mm;

3.测试次数 Bending Times: 50 Times;

4.测试重量 Load: 500g.

8.4 FPC 插拔测试 FPC Insert/Pull Out Test:

(1) 作业环境：温度：22±3℃、湿度：60±10％RH、 Level：等级 1000

Operating Environment:Temperature:22±3℃、Humidity:60±10％RH、Level:Class1000

(2) 测试方法：Test Method:

A.测试前确认电性特性符合规格；

Before Test: Electrical Characteristic Test is OK.

B.测试步骤：开卡锁连接器→插入 FPC→锁住 FPC→开卡锁连接器→插入 FPC→锁住 FPC，重复 10 次；

Test Circle: Connector Unlock →FPC Insert →Connector Lock →Connector Unlock →FPC Pull Out →Connector Lock, cycle 10 Times;

C.测试后再次确认电性特性符合规格.

After Test: Electrical Characteristic Test is OK;

9 触摸寿命测试 Life Test

(1)作业环境：温度：22±3℃、湿度：60±10％RH、 Level：等级 1000

Operating Environment:Temperature:22±3℃、Humidity:60±10％RH、Level:Class1000

项目 Item	规格 Specification	条件 Condition
打点寿命 Input Life	100 万次 1,000,000 Times	功能 OK，外观轻微划伤 OK。 The function is ok。
手写寿命 Notes Life	100 万次 1000,000 Times	功能 OK，外观轻微划伤 OK。 The function is ok。

10 环境测试 Environment Test

(1)高温测试 High temperature：+80℃，48 hr.

(2)低温测试 Low temperature：-30℃，48 hr.

(3)高温高湿测试 High temp./high humidity test：60℃&90%RH 48 hr.

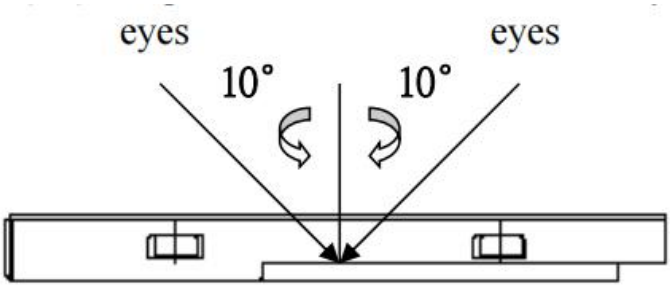
(4)高低温测试 High Low temperature test：-20℃ 30min/+70℃ 30min, 60%RH 24hr，this is a Cycle, continued 24hr test. (Including heating and cooling of 30 minutes)

将产品从测试机内取出，在室温放置 24 小时后才能进行测试，功能无异常。

Remove the product from the testing machine, at room temperature for 24 hours before testing, function is OK..

11 检验标准 Inspection Standard

1 检验条件Inspection conditions：



1.1 检查距离：距离产品250-350mm

Inspection distance: Inspect **250-350 mm away** from the sample.

1.2 检查角度：垂直方向10°（所有的不良项目在此方向和角度需要被检查出来）。

Inspection angle: 4 Around 10° of vertical line (all defects in viewing area should be inspected from this direction).

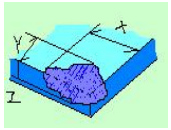
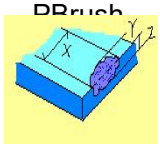
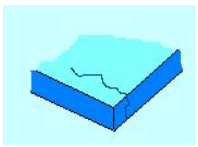
1.3 环境温度为：20-30度

Temperature: 25±5 ºC

1.4 光源高度：D65 800-1200 Lux

Light source: D65 1000 Lux +/- 20%

2 检验项目Inspection Items：

项目 Items		图片 Picture	类型 Type	标准 Standard	判定 Judgment	备注 Remarks
玻璃破损 The Glass is damaged	拐角破损 It's damaged to turn Cape	Embed PBrush 	Ma	X≤1.5mm	合格 Accept	在不影响功能的前提下 Without affecting the function of the premise
				Y≤1.5mm	合格 Accept	
				Z≦1/2T	合格 Accept	
	除转角以外任何范围的破损 In addition to turning Cape any breakage of scope corner	Embed PBrush Embed PBrush 	Mi	X≤2.0mm	合格 Accept	在不影响功能的前提下 Without affecting the function of the premise
			Ma	Y≤2.0mm	合格 Accept	
				Z≦1/2T	合格 Accept	
玻璃破裂 Broken Glass			Cr	产品任何部位存在破裂 Product any part exists broken	不合格 Failure	

点状物 (包括白点\黑点等) Spot ((includes white and black spots)		Ma	D≤0.15	合格 Accept	
			0.15＜D≤0.3,N≤5,DS≥3cm	允许 Allow	
			0.35＜D≤0.4,N≤3,DS≥3cm	允许 Allow	
		Cr	D＞0.4mm	不合格 Failure	
刮伤\线性物 Scratch\Linear Material		Ma	W≤0.06mm	合格 Accept	
			0.06＜W≤0.1，L≤5.00 时，N≤2,DS≥3cm	允许 Allow	
		Cr	5＜L 或 0.1＜W 时	不合格 Failure	

12 包装及运输 Package and Transport

1 包装 Package

不可有脏东西附着，使用泡沫盒材质包装。

Can not have dirt attached, use foam box packing material.

2 输送 Transport

避免产品直接暴露在阳光直射或高温高湿的环境下运输。

Avoid direct exposure to sunlight or high temperatures and humidity environment transport.

13 注意事项 Attention

项目 Project	注意事项 Notes
储藏 Store	(1)按照本规格书中保存温度范围要求储藏产品。 In accordance with the specifications required storage temperature range of book preservation products. (2)储藏时请保证产品包装完好。 Please ensure the product packaging when stored in good condition. (3)避免阳光直射产品。 Avoid direct sunlight product. (4)尽量避免产品接触水、有机溶剂、酸性物质和硫酸化合物等。 To avoid product contact with water, organic solvents, acid and sulfuric acid compounds.
拆包装 Unpacking	(1)请勿通过抓住FPC来取放产品。 Do not grasp the FPC to take place through the product. (2)按照包装箱上的"上/下"标记方向打开产品包装。 According to the box on the "Over / under" Mark the direction of opening the product packaging.
操作 Operating	(1)输入时应使用手指或专用笔。 Input should use your fingers or pens. (2)不可用力拉扯 FPC，以免造成产品内部电气连接不良；不可扭曲和弯折 FPC输出端，以免造成FPC与控制器的连接不良。 Can not pull hard FPC, to avoid bad electrical connection inside the product; not twisted and bent FPC output, so as to avoid adverse FPC connection to the controller. (3)不可弯折和分解本品。 Can not bend and break the product. (4)不要在产品的动作区域滴上水滴，以免引起误操作。 Do not drop the product of the action on the drop zone, in order to avoid misuse.
上机 Installed	(1)请勿在触摸屏上施加过大压力而造成产品损伤。 Does not touch too much pressure is applied to the product cause injury. (2)整机设计时，请避免损伤FPC及呈锐角状弯折FPC。 Machine design; avoid injury and acute angle-shaped bend FPC FPC. (3)请勿在FPC与屏连接部施加过大压力，导致屏体内部电气连接不稳定。 Do not connect the FPC and the department of screen put too much pressure, leading to screen the internal electrical connection is unstable. (4)组装时避免工具损伤产品。 Assembly of the product to avoid tool damage. (5)装机中尽量避免静电产生。 Try to avoid static electricity installed.