PRODUCT SPECIFICATION
TFT-LCD MODULE

Model No：ZC-700010BH

7寸800x1280 MIPI屏幕/1050010048

1. Document Revision History

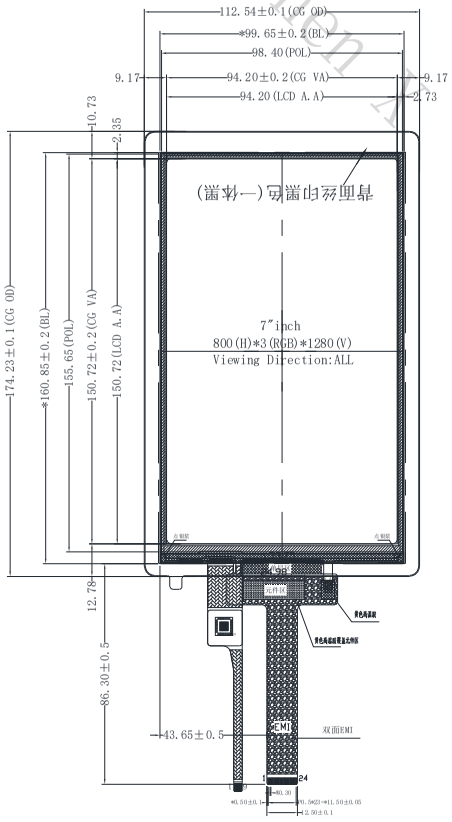
REV NO	REV DATE	PAGE	CONTENTS	ISSUER
A0	2023-03-16	20	First Release	Liqin
A1	2023-03-31	18	Modify the IIS standard	Liqin

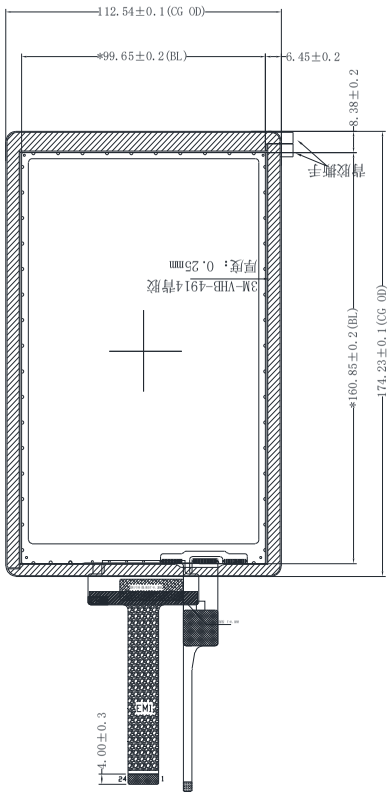
2. General Description

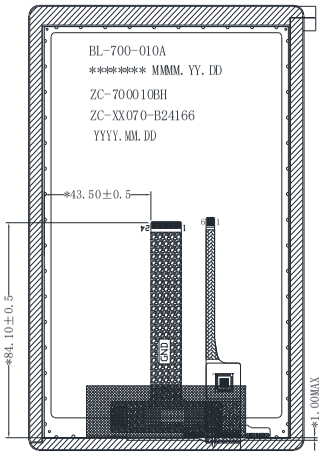
No	Item	Specification	Remark
1	Screen Size	7.0inch	
2	Display Mode	Normally Black	
3	Resolution	800(RGB) x1280	
4	Active Area	94.20 (H) x150.72 (V)	mm
5	Outline Dimension	112.54*174.23*4.7	mm
6	Viewing Direction	ALL	O'CLOCK
7	Driver IC	9881C	
8	Interface	MIPI	
9	Back Light	300	Cd/m2

3. Outline Dimension

版本	修改内容	日期
A0	首版发行	2022-06-25
A1	增加客户喷码要求	2023-02-18







弯折示意图

弯折出货

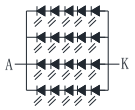
1	GND
2	D0N
3	D0P
4	GND
5	D1N
6	D1P
7	GND
8	CLKN
9	CLKP
10	GND
11	D2N
12	D2P
13	GND
14	D3N
15	D3P
16	RESET
17	IOVCC(1.8V)
18	IOVCC(1.8V)
19	VCI(3V3)
20	VCI(3V3)
21	LEDK
22	LEDK
23	LEDA
24	LEDA

IIC:1.8V

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

ELECTRICAL/OPRICAL CHARACTERISTICS AT Ta=25℃					
PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Center Luminous Intensity	Iv	280	300		cd/m²
LCM coordinaies	X	0.280	0.310	0.340	
	Y	0.290	0.320	0.350	
Luminous Tolerance	Iv-m	80	85		%
Operaring Temperature	TOPR	-10℃ TO +60℃			℃
Storage Temperature	TSTG	-20℃ TO +70℃			℃

背光电路图



IF=80MA,VF=15±1.5V

注意静电防护
Attention to static electricity protection

备注：带“☆”为重要尺寸，重点测量，（）内尺寸，为参考尺寸，不做测量，表示修改处△

4. Interface Specification

Pin No	Symbol	Description	Note
1	GND	Ground.	
2	D0N	Negative polarity of low voltage differential data 0 signal	
3	D0P	Positive polarity of low voltage differential data 0 signal	
4	GND	Ground.	
5	D1N	Negative polarity of low voltage differential data 1 sign	
6	D1P	Positive polarity of low voltage differential data 1 signal	
7	CLKN	Negative polarity of low voltage differential clock signal	
8	CLKP	Positive polarity of low voltage differential clock signal	
9	GND	Ground.	
10	D2N	Negative polarity of low voltage differential data 2 signal	
11	D2P	Positive polarity of low voltage differential data 2 signal	
12	GND	Ground.	
13	D3N	Negative polarity of low voltage differential data 3 signal	
14	D3P	Positive polarity of low voltage differential data 3 signal	
15	RESET	Reset Signal input pin.	
17-18	IOVCC(1.8V)	Power Supply For I/O.	
19-20	CVI(3V3)	Power Supply For LCD	
21-22	LEDK	Power Supply For LED Backlight Cathode Input.	
23-24	LEDA	Power Supply For LED Backlight Anode Input.	

5. Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit	Note
Power supply voltage (VCC)	VCC	2.65	3.3	V	1
Power supply voltage (IOVCC)	IOVCC	1.65	3.3	V	1

Electrical Maximum Ratings – for IC Only

Note:

VCC, IOVCC,GND must be maintained.

The modules may be destroyed if they are used beyond t e absolute maximum ratings.

6. Electrical Specifications

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Supply voltage (analog)	VCC-GND		2.6	2.8	3.3	V
Supply voltage (logic)	IOVCC-GND		1.65		3.3	V
Supply current (Logic & LCD)	ICC	VCC=2.8V	-	-		mA
Supply voltagwhite LED backlight	VLED	Forward current =60mA Number of LED = 3	2.7	3	3.3	V

7. Timing Characteristics

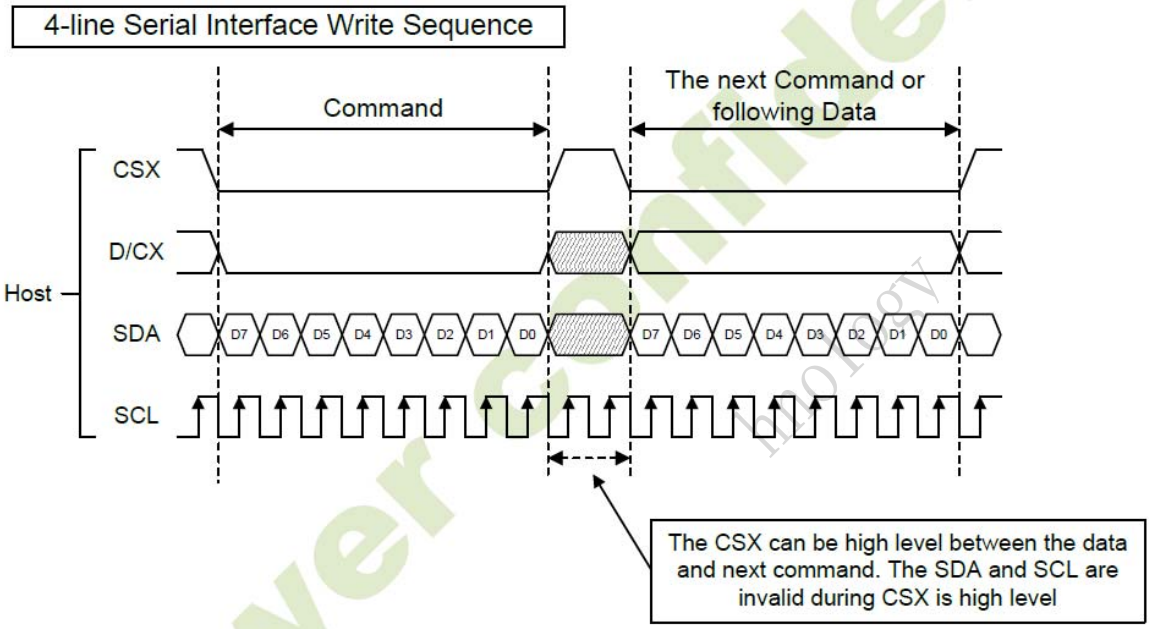
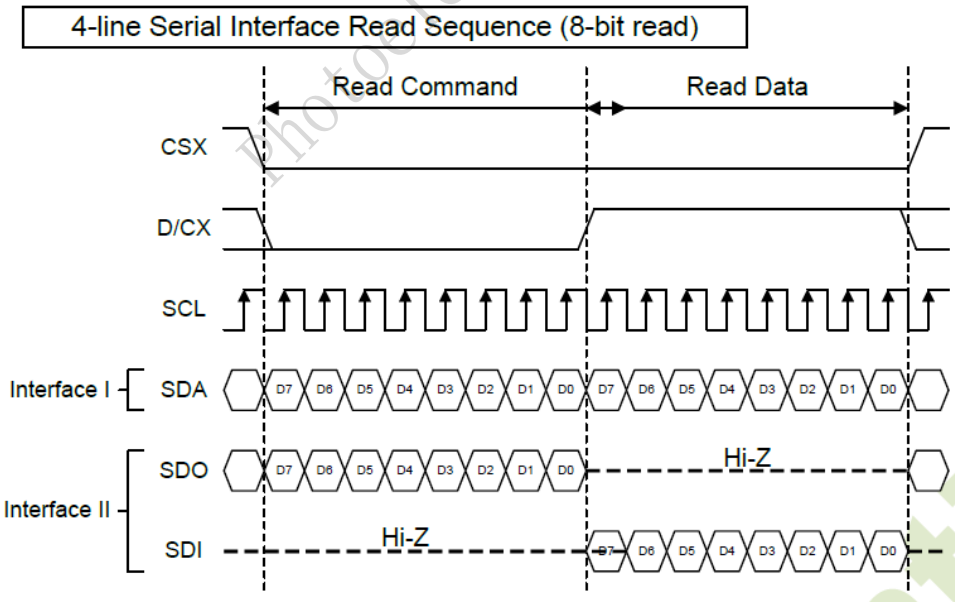


Figure. 7.7 4-line serial interface write protocol



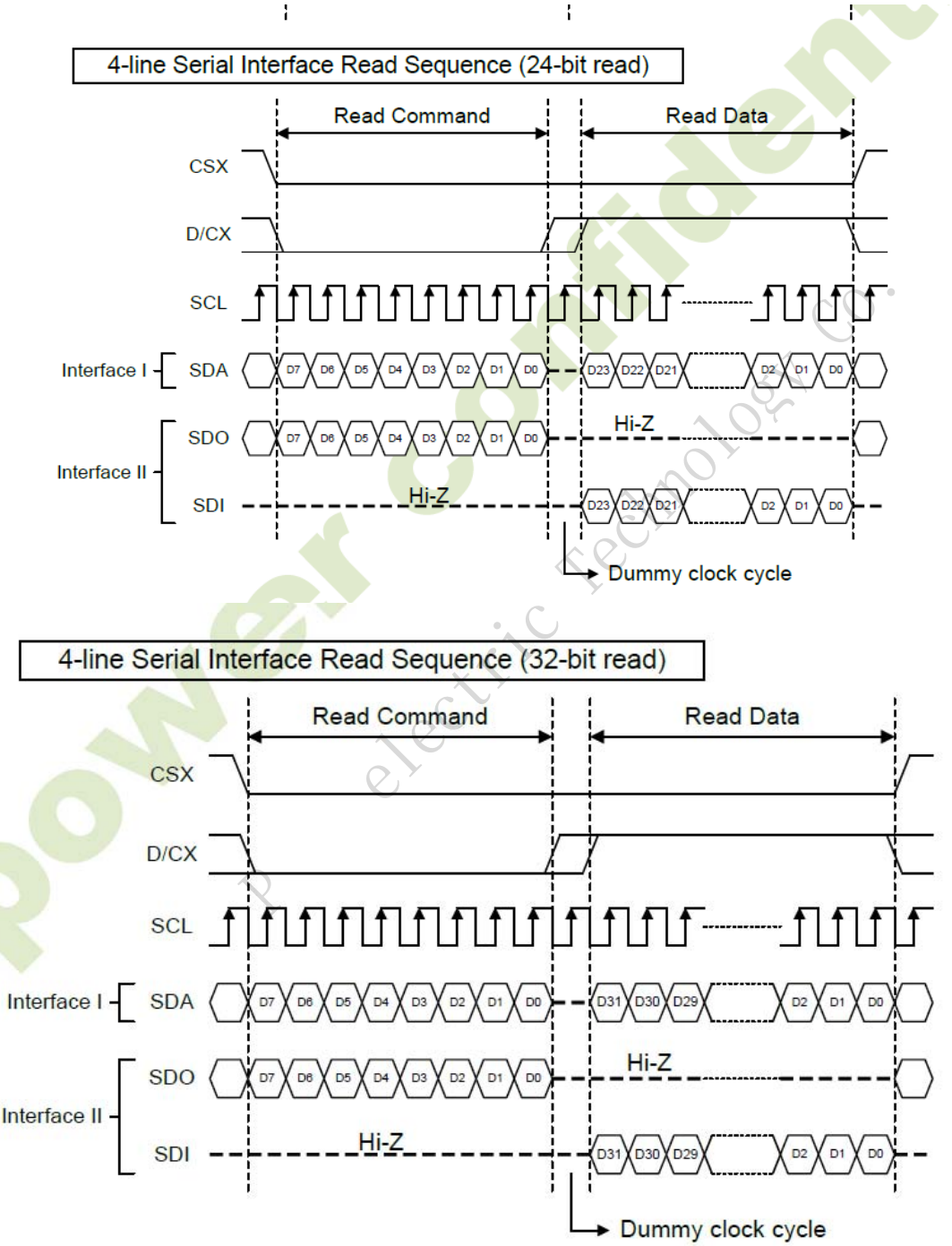
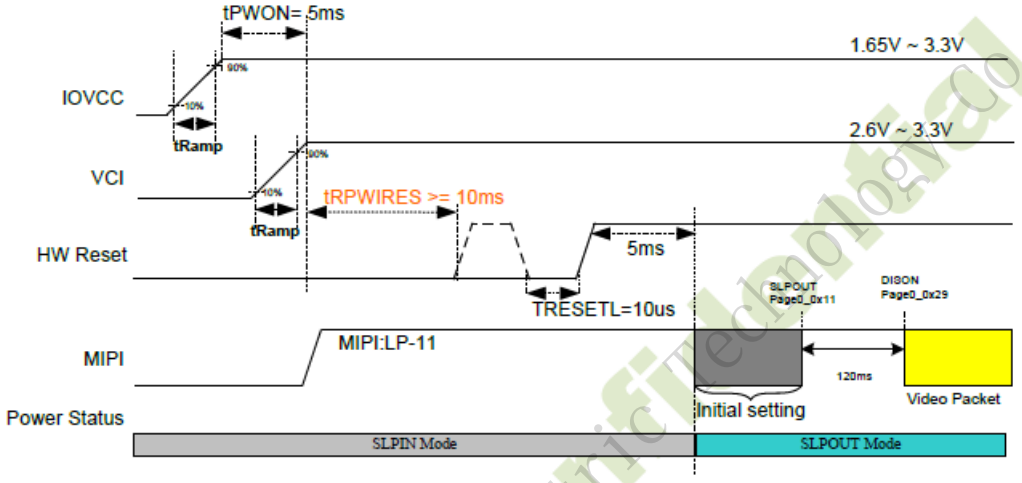


Figure. 7.9 4-line serial interface read protocol

8. Power Supply Configuration

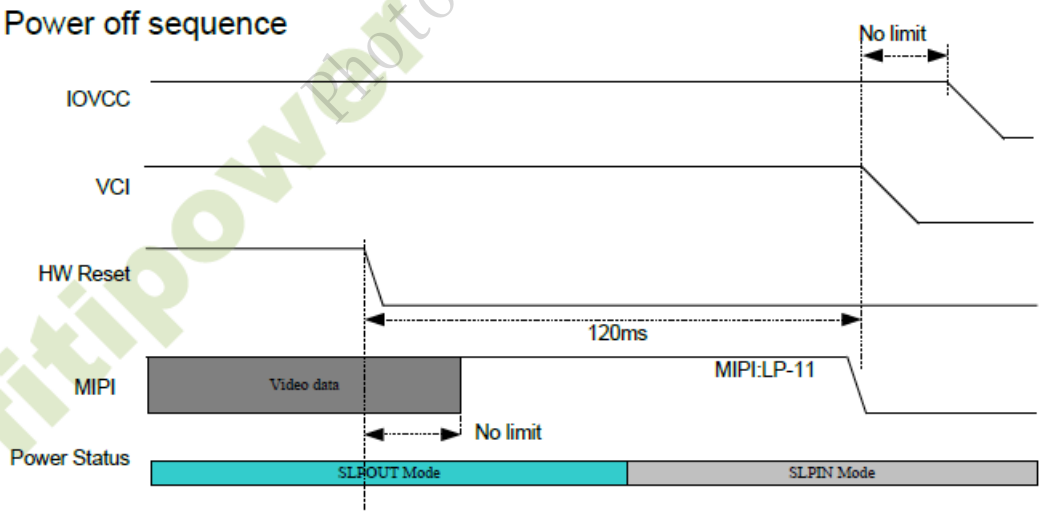
Internal DC/DC power mode IOVCC=VCCH=1.65V ~ 3.3V, VCI=VCIP=2.6V ~ 3.3V.

Power on sequence



	Min	Typ	Max
Power up tRamp for VCI/IOVCC	0.2mS		20mS

Power off sequence



9. Optical Specification

Item 项目	Symbol 符号	Condition 条件	Min 最小值	Typ 典型值	Max 最大值	Unit 单位	Note 备注
Response time 响应时间	Tr+Tf	Θ=0° Ø=0° Ta=25°C	-	35	40	ms	1
Contrast ratio 对比度	Cr		800	1000	-	-	2
Color gamut 饱和度	S(%)		40	50	-	%	-
Luminance uniformity 均匀度	δWHITE		80	-	-	%	3
Viewing angle range 视角范围	Θx+	CR≧10 Ta=25°C	-	80	-	deg	4
	Θx-		-	80	-	deg	
	Θy+		-	80	-	deg	
	Θy-		-	80	-	deg	
TLCM Luminance TLCM 亮度	Lv	Θ=0° Ø=0° Ta=25°C	280	300	-	Cd/m^2	5

Note1.Response time is the time required for the display to transition from White to black(Rise Time,Tr)and from black to white(Decay Time,Tf).For additional information see
FIG1...
Note2.contrast Ratio(CR) is defined mathematically by the following formula ,For more information see FIG2.
Contrast Ratio(CR)=Average Surface Luminance with all white pixels/ Average Surface Luminance with all black pixels
Note3.The uniformity in surface luminance(WHITE) is determined by measuring luminance
at eath test position,and then dividing the maximum luminance of all white pixels by minimum luminance of all white pixels,For more information seeFIG2.
WHITE=Minimum Surface Luminance with all white pixels(P1,P2,.....)/Maximum Surface
Luminance with all white pixels(P1,P2,.....)
Note4.Viewing angle is the angel at which contrast ratio is greater than a specific value.For TET module,the specific value of contrast ratio is 10.For monochrome and color stn module,the specific value of contrast ratio is2.The angles are determined for the horizontal orx axis and the vertical or y axis with respect to the z axis which is normal to the LCD

surface.For more information see FIG3

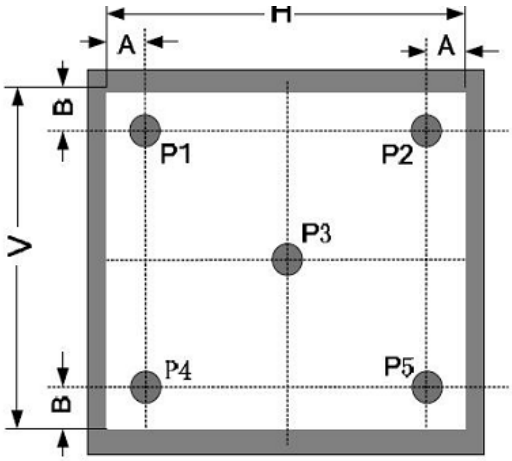
Note5. Surface luminance is the LCD surface luminance with all white pixels,For more information see FIG2.

LV=Average Surface Luminance with all white pixels(P1,P2,.....)

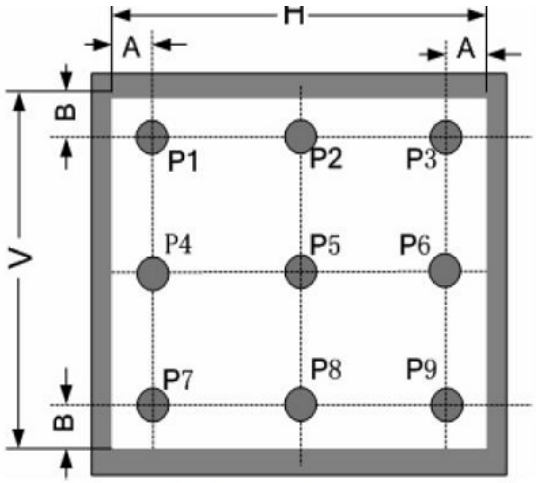
FIG1. The definition of Response time

响应时间定义

FIG2. Measuring method for Contrast ratio,surface luminance,Luminance uniformity,CIE(X,Y)chromaticity.

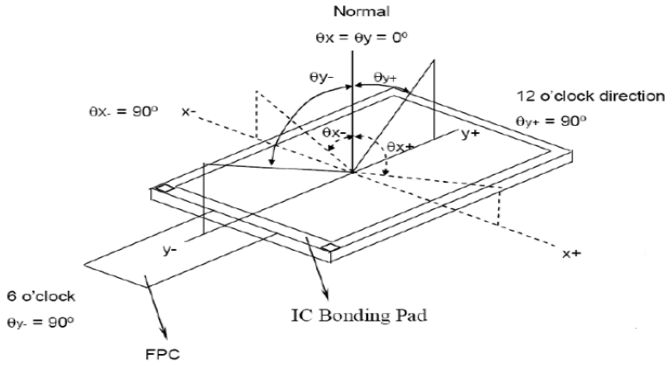


5 Points diagram



9 Points diagram

FIG3 The definition of viewing angle 视角定义



10. Reliability Test Items

Item	Test Condition	Criterion
High Temperature Storage	70 ℃, 96H	Note1,Note2
Low Temperature Storage	-20 ℃, 96H	
High Temp. & High Humidity Storage	50 ℃, 90％ RH, 96H	
Thermal Shock (Static)	-20℃, 30 min /70℃, 30 min, 20 cycles	
High Temperature Operation	60 ℃, 96H	
Low temperature Operation	-10 ℃, 96H	

Note1: Evaluation should be tested after storage at room temperature for two hours.

Note2:

Pass: Normal display image no line defect.

Fail: No display image, or line defects.

Partial tr ormation of the module parts should be ignored.

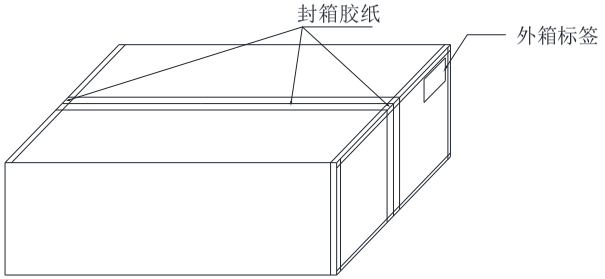
11. PackingDrawing

版本	修改内容	日期
A0	首版发行	2023-03-07

包装图

将1PCS TLCM装
进1PCS气泡袋内

每5PCS用一根橡皮筋固定放入纸箱内，每5PCS中间用一片泡棉隔开



共计55PCS/箱

使用封口胶封口
并贴附唛头

注意静电防护
Attention to static electricity protection

12. Inspection Specifications

外观检查:

10.1.1 产品放≥600LUX 的日光灯环境下，眼睛距被检验物体 30±10cm;

10.1.2 检验视角为 LCD 平面法线方向±45°以内，在其他角度看见不算缺陷,客户特别要求除外。（见图二）

10.1.3 每片产品外观检验时间 5—10 秒；

10.2 电性检查

10.2.1 暗房亮度标准≤100LUX，眼睛距被检验物体 30±10cm;

10.2.2 按被检产品对应的《电性检查作业指导书》要求设定电测参数进行电性检验；

10.2.3 按《产品图纸》中的视角方向进行检验，为 LCD 平面法线方向±45°以内，客户特别要求除外。在其他角度看见不算缺陷（见图二）；

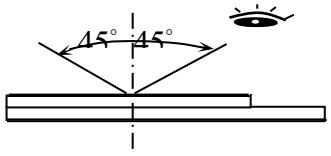
10.3 抽样计划及允收水准:

10.3.1 采用正常检验一次抽样，GB/T2828.1-2012 一般检查水平Ⅱ，实验取样按 S-2 抽样计划数安排；

10.3.1.1 致命缺陷（CR） AQL 0

10.3.1.2 重缺陷（MA）: AQL 0.4

10.3.1.3 轻缺陷（MI）: AQL 0.65



10.3.2 加严检验:同一机种客户连续 3 次投诉或批退、客户上线不良超过 8000PPM、OQC 一月

内同一机型连续三次批退；OQC 则按照 GB/T2828.1-2012 一般检查水平Ⅱ，正常

抽样计划表，AQL CR=0 MA=0.25 MI=0.4。

10.3.3 放宽检验:三个月内同一机型连续交货 10 批以上客户端无重大投诉或则退货，OQC 则按照

GB/T2828.1-2012 一般检查水平Ⅱ，放宽抽样计划表，AQL CR=0 A=0.65 MI=1.0

进行抽样。

10.4 计量单位

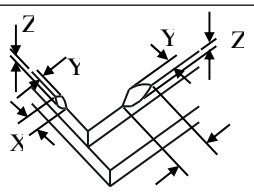
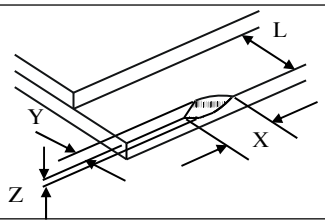
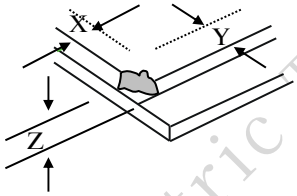
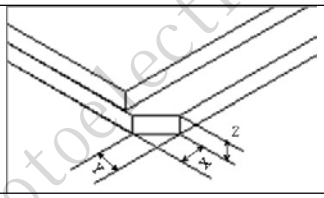
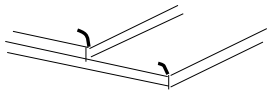
以下标准如无特别注明，单位均以 mm 计.

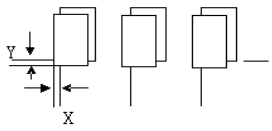
10.5 检验标准:

10.5.1 功能检验标准

不良类型		检验方法及接收标准		判定	缺陷程度
点状	点状不良（电性点不良、外观点不良）	菲林卡	Φ≤0.1	不计，密集点不允许	MI
			0.1＜Φ≤0.15，间距 10MM	2	
			0.15＜Φ≤0.20	1	
			Φ ＞0.20	0	
线状	显示功能线状不纳入	菲林卡	w＜0.02	不计	MA
			L≤2,0.02≤w≤0.03	2	
			L≤4,0.03≤w≤0.05	1	
			w>0.05	以点状规格判定	
显示状态	无显	目视	/	NG	MA
	黑屏		/	NG	
	乱码		/	NG	
	缺线		/	NG	
	暗缺线		/	NG	
	多缺线		/	NG	
	少画面		/	NG	
	屏闪		/	NG	
	显示浓/淡		/	NG，B、C 类依限度样板	
	发白		/	NG，B、C 类依限度样板	
	倒屏		/	NG	
	花屏		/	NG	
	显异		/	NG	
	漏液		/	NG	
	酒精印		/	NG	
	膜鼓		/	NG	
	灯亮不稳定/灯不亮		/	NG	
	显示暗		/	NG	
	背光色差		/	放入 B 规	
	单 LED 色差	目视	/	放入 B 规	
	反黑/白		/	NG	
	TP 无触摸/不灵敏		/	NG	MA

显示状态	TP 触摸跳点		/	NG	
	T 触摸键失灵/不灵敏		/	NG	
	显示不均		/	NG,B 类依限度样板/ND8	
	少边框		边框不完整	依限度样板	
	边缘漏光		边缘漏黄光 OK,漏白光以客户组装实机效果为准	NG	
	灯眼		距离产品 30CM,±45° 视角以内，看不到 OK,反之 NG	限度样板	
	亮边		轻微接受	B 类依限度样板	
	视角反		/	NG	MA
	膜鼓		/	NG	
	背光框胶变形		1. 进入显示区; 2. 边缘透光;	NG	
外观	粘附力不够	用手撕易撕贴撕不起保护膜		NG	MI
	易撕贴位置不正确	目视	1. 不符合图纸要求 NG; 2. （有上铁框类产品）易撕贴有胶部分贴在上铁框边缘≤1MM，超出 NG	/	
	易撕贴歪斜		易撕贴与玻璃边缘角度偏离垂直方向大于 10 度	NG	
	保护膜表面脏污		笔迹、胶状物质、手指印	NG	
			油污、脏印	≤1/6	
			油污、脏印	≤1/4	
	保护膜翘	目视	1. 未进行显示区 OK, 2. 进入显示区引起偏光片表面脏污 NG;	/	MI
	保护膜气泡	目视	显示区Φ≤0.5mm	允许 2 个	
	偏光片凹凸点压痕	目视	1. 凹凸点依点状标准; 2. 压痕依线状标准; 3. 特殊情况依限度样放行;	/	
	偏光片表面脏污	目视/菲林卡	不允许	NG	
	偏光片边缘汽泡		边框区	Φ≤黑边框宽度 1/2	
			可视区	参照点、线缺陷标准	
	偏光片贴偏位		1.超出玻璃外缘边框使片翘起 2.往内偏移＞1/2;	NG	
			1.上铁框盖住偏光片	NG	

	偏光片贴错		不符合图纸与样品要求，如（细砂片贴成光片）	NG	
	LCD 崩边			X 不计 Y≤黑边框宽度 Z≤T	
				X*Y ≤4mm² ; Z ≤T 不允许伤及 ITO 引线	
	LCD 崩角			X≤黑边框宽度 Y≤黑边框宽度 Z≤T	
				X*Y ≤4mm² ; Z ≤T	
外观	LCD 裂痕	目视/菲林卡/卡尺		NG	
	胶框缺口		长度：≤2MM 宽度：≤0.5MM 边缘无披锋、不影整体尺寸	OK	MI
	硅胶未盖住 ITO 引	目视	不允许	NG	MA
	银浆拉丝成线			NG	
	漏打银浆		不允许（两点任一个点漏打均不允许）	NG	
	银浆未搭上玻璃 CF 面		不允许（两点任一个点未搭上玻璃 CF 面均不允许）	NG	MI
	银浆上偏光片		≤0.2MM（在保护膜表面不影响片表面	OK	

外观	银浆偏移 LCD 设定点	目视	不允许（两点任一个点出现均不允许）	NG	MA
	硅胶偏高		高度超过偏光片表面及上片	NG	MI
	硅胶汽泡、针孔		Φ≤0.3	不计	MI
			0.3＜Φ≤0.5	3	
			Φ ＞0.5	NG	
	FPC 裂缝		1.FPC 裂缝伤及线路 NG; 2.FPC 裂缝未伤及到线路及无放大现象 OK	/	
	FPC 折痕		死折未伤及线路；	NG	
	FPC 刺伤/划伤		未伤及基材线路影响电性	OK	
	金手指折痕		折死/折断	NG	
	金手指断裂		/	NG	
	金手指氧化		氧化手指≤4 根，不影响上锡焊接；	OK	
	金手指表面脏污		油污、胶类脏污	NG	
	金手指上锡		插接式不允许; 焊接式允许有≤2 根；	/	
	加强板（连接器）		偏斜错位	NG	
			上锡	NG	
			损坏	NG	
			规格不符	NG	
外观	FPC 补强板颜色不符		不符合样品	NG	
	焊接偏位	卡尺		X≤1/2 金手指宽度 Y≤0.5	
	锡珠、锡渣	目视	可移动性	NG	
			≤0.2MM（必须能被黄胶纸覆盖）	≤2 个	
			连接焊盘金手指	NG	
			超出黄胶纸覆盖范围	NG	
	锡尖		任何焊点或产品其它部位有锡尖存在	NG	
	锡高	卡尺	焊锡厚度	≤0.4mm；若工程文件有特殊要求则以特殊要求管控	
	焊接洁净度	目视	焊盘周围 3MM 范围内有明显助焊剂残留,触摸有粘性	NG	

			焊盘、金手指间助焊剂明显发黑	NG	
			焊盘周围 1MM 范围内少量透明助焊剂残留	不计	
	元器件漏件、多件、错件、立件、虚焊		不允许	NG	
外观	元器件贴偏移位	目视	元件上下偏位≤元件长度的 1/3 元件左右偏位≤元件宽度的 1/3	/	MA
	背光混料	核对图纸与样品	与图纸/样品不符	NG	
	背光与 FOG 分离	目视	用手撕易撕贴出现背光与 LCD 分离	NG	
	胶框断裂		不允许	NG	
	背光 FPC 引线破裂		不允许	NG	
	胶框定位柱变形、破裂	目视	不允许	NG	MA
	铁框脱落		不允许	NG	
	铁框松动		松动不明显可接受	依限度样	
	铁框变形		超出规格尺寸	NG	
	生锈氧化		不允许	NG	
	铁框划伤		L 不计， W≤0.05	不计	
			L≤10，0.05＜W≤0.25	4	
			L≤3，0.25＜W≤0.35	2	
			L 不计，W＞0.35	0	
			喷码内容不符合图纸要求	NG	
			喷码内容歪斜、个别字体模糊不清	OK	
	TP 崩角/边		/	NG	MA
外观	TP 划伤	目视	依线状标准执行	/	MI
	TP 点不良/贴合点不良		依点状标准执行	/	
	TP 表面脏污		不明显的脏污可擦拭（需斜着灯光看）	OK	