PRODUCT SPECIFICATION

MODEL: TFT08006

< ◆ >PRELIMINARY SPECIFICATION

< ◇ >APPROVAL SPECIFICATION

CUSTOMER
APPROVED BY
DATE:

DESIGNED	CHECKED		APPROVED

REVISION RECORD

REV NO	REV DATE	PAGE	CONTENTS	REMARKS
1.0	2020-7-9	18	FirstRelease	

TABLE OF CONTENT

2.0 ABSOLUTE MAXIMUM RATINGS

AGND= GND=0V, Ta = 25℃

The following are maximum values which, if exceeded may cause operation or damage to the unit.

Item	Symbol	Min	Max	Unit	Note
Logic/LCD Drive Voltage	Vin	-0.3	4	V	

Note: If user suse the product out off the environment operation range temperature and humidity it will have visual quality concerns

3.0 ELECTRICAL CHARACTERISTICS

3.1 Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Power Voltage	VDD	3.0	3.3	3.6	V	
	AVDD	5	5.5	6	V	
	AVEE	−5	−5.5	−6		
Power current	IVDD		20		mA	
Power current	IAVDD		15		mA	
Power Current	IAVEE		15		mA	

3.2 BACKLIGHT CHARACTERISTICS

Item	Symbol	Min	Typ	Max	Unit	Condition
Forward voltage	Vf	19.6	21.0	23.8	V	If=60mA
Luminance	Lv	220	270	--	cd/㎡	If=60mA
Connection mode	P	7chips serial *3			--	--

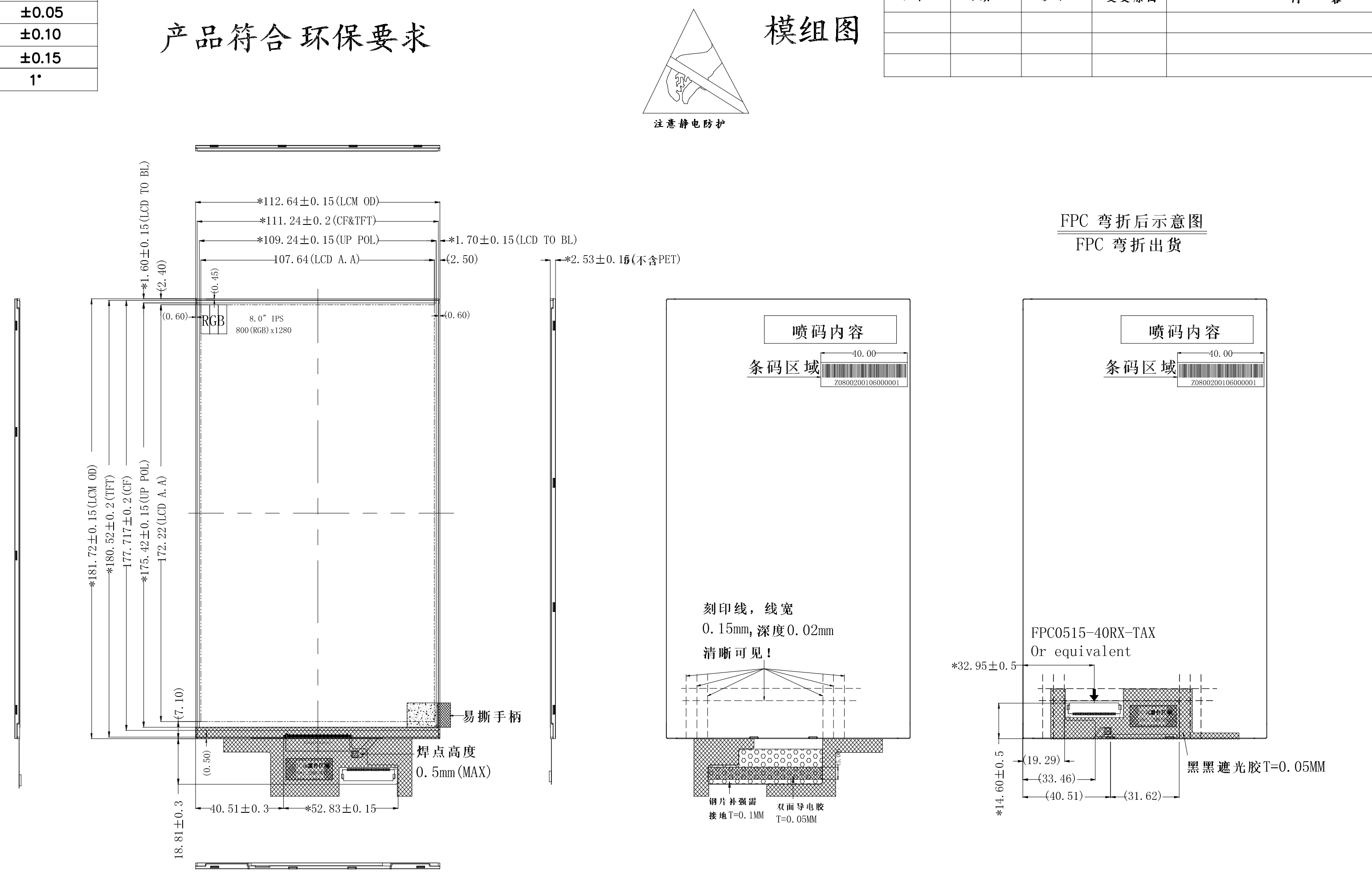
FIELD	TOLERANCES
L<=6.00	±0.05
6.0<L<=18.0	±0.10
L>18.0	±0.15
Angle	1°

产品符合 环保要求

注意静电防护

模组图

版本	日期	修订人	变更原因	内 容



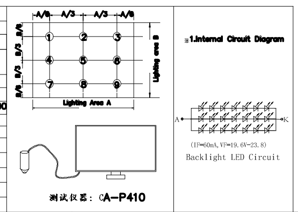
PIN	DESCRIPTION
1	NC
2	VDDIN(1.8V)
3	VDDIN(1.8V)
4	GND
5	RESET(1.8V)
6	NC
7	GND
8	MIPI_0N
9	MIPI_0P
10	GND
11	MIPI_1N
12	MIPI_1P
13	GND
14	MIPI_CKN
15	MIPI_CKP
16	GND
17	MIPI_2N
18	MIPI_2P
19	GND
20	MIPI_3N
21	MIPI_3P
22	GND
23	NC
24	NC
25	GND
26	NC
27	ID(GND)
28	NC
29	NC
30	GND
31	LED-
32	LED-
33	NC
34	NC
35	AVEE
36	NC
37	NC
38	AVDD
39	LED+
40	LED+

ELECTRICAL/OPRICAL CHARACTERISTICS℃AT Ta=25

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT	REMARK
Center Luminous Intensity	Iv	220	270		cd/㎡	IF=60mA(中心点)
coordinates	X	0.260	0.290	0.320		IF=60mA
	Y	0.280	0.310	0.340		
Forward Voltage	VF	19.6	21	23.8	V	IF=60mA
Reverse Current	IR			50	uA	VR=10V,※1
Luminous Tolerance	Iv-m	75	80		%	(min/max)*100

ABSOLUTE MAXIMUM RATINGS AT Ta=25

PARAMETER	SYMBOL	SPECIFICATION	UNITS	REMARK
Power Dissipation	Pd	1428	mW	※21
Peak Forward Current	IFP	60	mA	※1
ReverseVoltage	VR	5	V	※1
Operaring Temperature	TOPR	-0 C° TO+50	C°	
Storage Temperature	T	-10C° TO+60		



*备注：
1. 未按比例出图。
2. n 修改标记。
3. 飞边不大於0.05.
4. 表面光滑平整，不得有任何划痕，污物，锈蚀等不良缺陷。
5. 未标注尺寸以CAD为准，"☆"为重要尺寸，( )为参考尺寸。
表示修改处
6. 尺寸需测前中后3点 如箭号所示。
7. 符合ROHS标准，并附SGS报告。

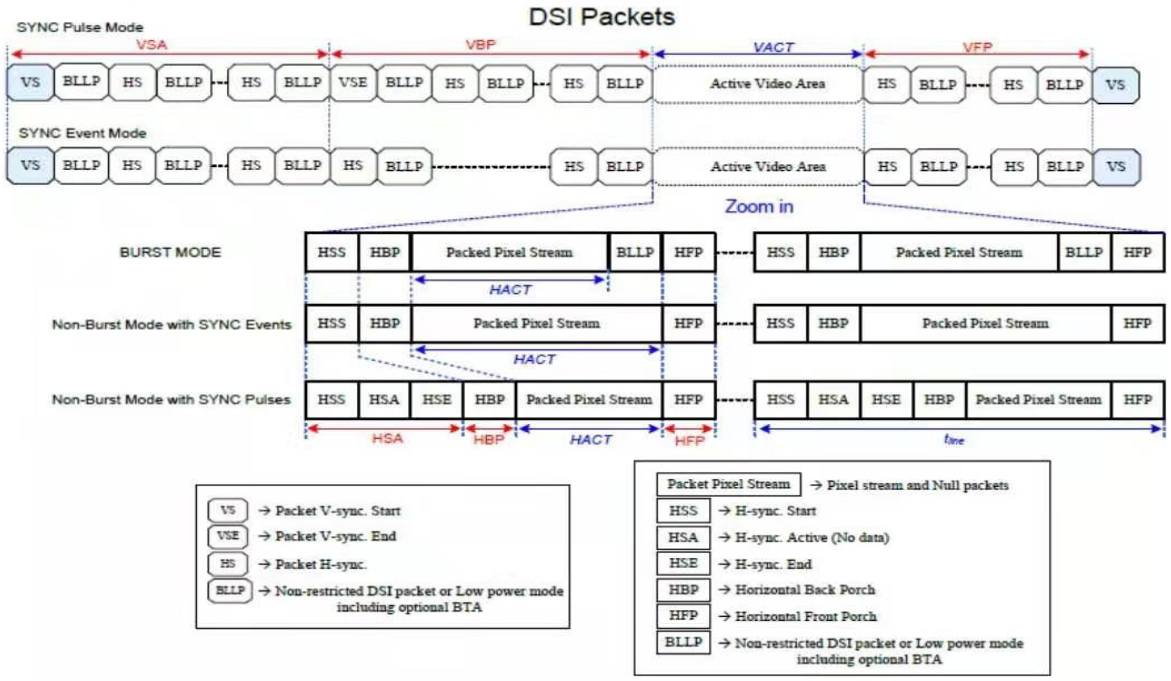
正式图	A0 版来源于试做图 TO 版	REV 版本	PART No. 料号			
		A0	DESCRIPTION 描述	A/模组图		
		SCALE 比例	MATERIAL 材质		APPROVED BY 核准	CHECKED BY 审核	DRAWN BY 绘图
		1:1	COLOR 颜色	UNIT 单位 mm			
			DATE 日期	2020-07-09			

5.0INTERFACEPINCONNECTIONS

No.	Symbol	Function	Remark
1	NC	NotConnect	
2−3	VDDIN	Powersupply fordigital/Analog circuits 1.8V	
4	GND	Powerground	
5	RESET	Global reset pin.1.8V	
6	NC	NotConnect	
7	GND	Powerground	
8	MIPI_0N	MIPI data pair0 negative signal	
9	MIPI_0P	MIPI data pair0 negative signal	
10	GND	Powerground	
11	MIPI_1N	MIPI data pair1 negative signal	
12	MIPI_1P	MIPI data pair1 negative signal	
13	GND	Powerground	
14	MIPI −CLKN	MIPI clock positive signal	
15	MIPI _CLKP	MIPI clock negative signal	
16	GND	Powerground	
17	MIPI_2N	MIPI data pair 2 negative signal	
18	MIPI_2P	MIPI data pair2 negative signal	
19	GND	Powerground	
20	MIPI_3N	MIPI data pair3 negative signal	
21	MIPI_3P	MIPI data pair 3 negative signal	
22	GND	Powerground	
23−24	NC	NotConnect	
25	GND	Powerground	
26	NC	NotConnect	
27	GND	Powerground	
28−29	NC	NotConnect	
30	GND	Powerground	
31−32	LED−	Power for LED backlight (cathode)	
33−34	NC	NotConnect	
35	AVEE	Input voltage fromthe set−up circuit (−5V to−6V).	
36−37	NC	NotConnect	
38	AVDD	Input voltace fromthe set−up circuit (5V to 6V)	
39−40	LED+	PowerforLED backlight (Anode)	

6.0 TIMING CHARACTERISTICS OF INPUT SIGNAL

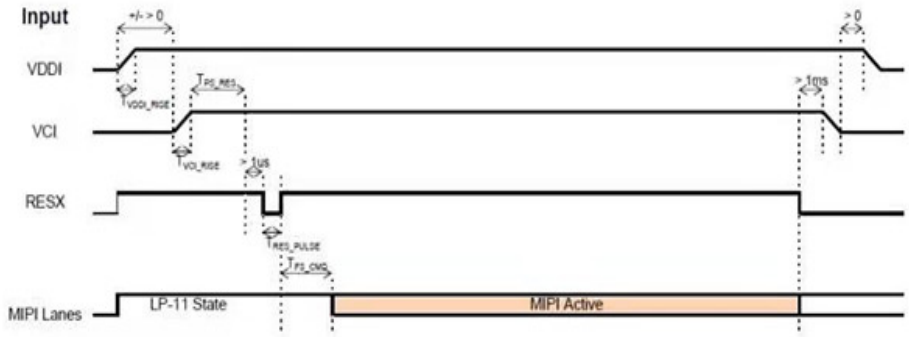
6.1 Timing Characteristics



Parameter	Symbol	Min	Typ	Max	Unit
Horizontal Display	thd	-	800	-	DCLK
HSD Period	th	-	936	-	
HSD Pulse Width	thpw	-16		-	
HSD Back Porch	thbp	-60		-	
HSD Front Porch	thfp	-60		-	
Vertical Display Area	tvd	-	1280	-	DCLK
VSD Period	Tv	-	1304	-	DCLK
VSD Pulse width	tvpw	-	4	-	
VSD Back Porch	tvbp	-	10	-	
VSD Front Porch	tvfp	-	10	-	

6.2 Power on sequence for differential power mode

Case A:



Symbol	Characteristics	Min.	Typ.	Max.	Units
T_{VDDI_RISE}	VDDI Rise time	10	-	-	us
T_{VCI_RISE}	Case A: VCI Rise time	130	-	-	us
	Case B: VCI Rise time	40			
T_{PS_RES}	VDDI/VCI on to Reset high	5	-	-	ms
T_{RES_PULSE}	Reset low pulse time	10	-	-	us
T_{FS_CMD}	Reset to first command	10	-	-	ms

Figure 105: Power on/off sequence with Power Mode 3

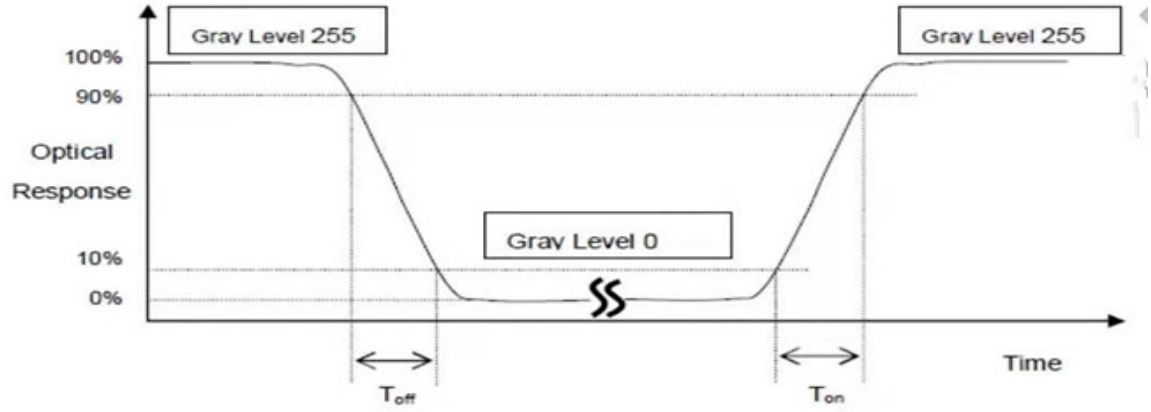
7.0ELECTRO-OPTICALCHARACTERISTICS

Ta=25℃

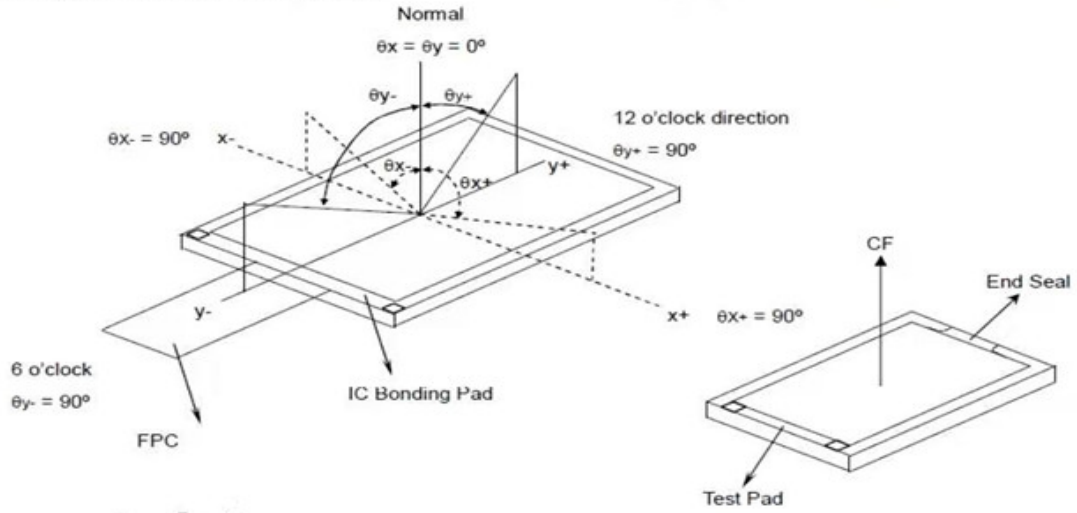
ITEM		SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT	NOTE
Luminance		L	θ=0°	220	270	--	cd/㎡	Note1
Luminance Uniformity		YU	9points	75	80	-	%	Note5
Contrast Ratio		CR	Point-5	--	700	--	-	Note3
ResponseTime		Rr+Tf	Point-5	--	35	50	ms	Note4
Viewing Angle K=Contrast Ratio>10	Horizontal	ΘL	CR > 10θ =0°	--	85	--		Note2
		ΘR		--	85	--		
	Vertical	ΘU		--	85	--		
		ΘD		--	85	--		
ColorFilter Chromaticity	White	X	θ= 0°	0.260	0.290	0.320		Note1
		Y		0.280	0.310	0.340		
	Red	X	θ= 0°	0.570	0.600	0.630		
		Y		0.320	0.350	0.380		
	Green	X	θ= 0°	0.290	0.320	0.350		
		Y		0.540	0.570	0.600		
	Blue	X	θ= 0°	0.120	0.150	0.180		
		Y		0.020	0.050	0.080		
Colorgamut(NTSC ratio)				-	55	-	%	
ColorTemperature				6970	8200	9430		

*Note(1) Definition of Contrast Ratio (CR):
The contrast ratio can be calculated by the following expression.
Contrast Ratio (CR) = L255 / L0
L255 : Luminance of gray level 255
L 0: Luminance of gray level 0
CR = CR (5)
CR (X) is corresponding to the Contrast Ratio of the point X at Figure in Note (5).

Note (2) Definition of Response Time (T_{on}, T_{off}):

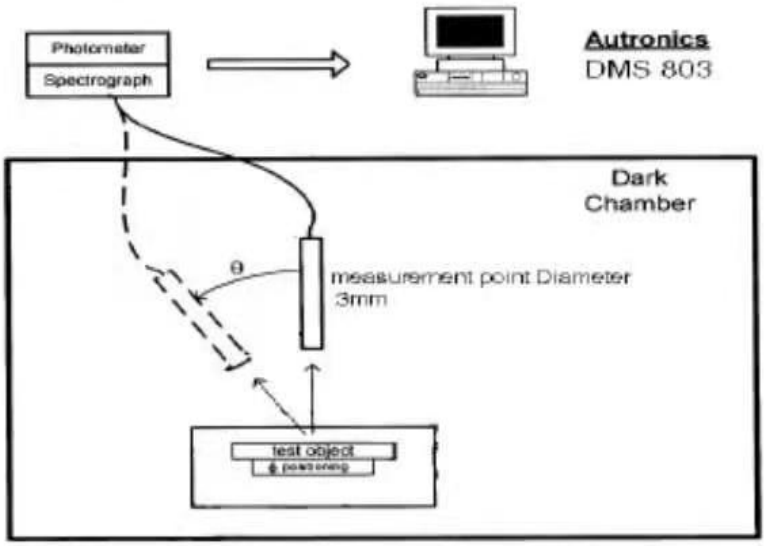


Note(3) Definition of Viewing Angle

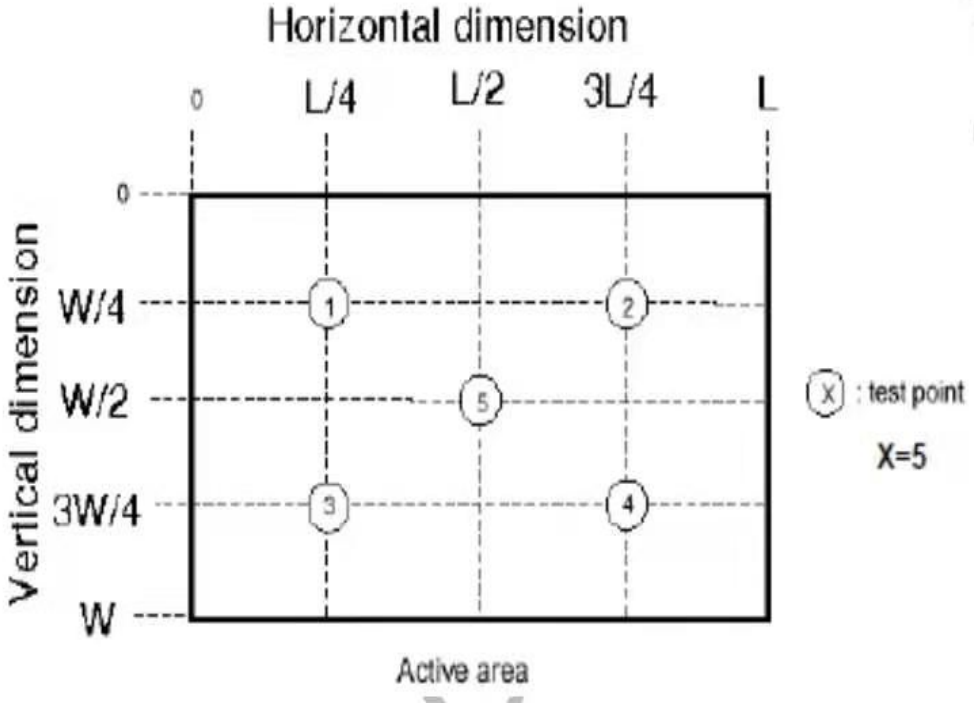


*Note (4) Measurement Set-Up:
The LCD module should be stabilized at a given temperature for 20 minutes to avoid abrupt temperature change
during measuring. In order to stabilize the luminance, the measurement should be executed after lighting Backlight for

20 minutes in a windless room.


Photometer
Spectrograph
Autronics
DMS 803
Dark
Chamber
θ
measurement point Diameter
3mm
test object

Note (5)


Horizontal dimension
0
L/4
L/2
3L/4
L
Vertical dimension
0
W/4
W/2
3W/4
W
1
2
5
3
4
X : test point
X=5
Active area

8.0RELIABILITY

8.1MTBF

The LCD module shall be designed to meet a minimum MTBF value of 50000 hours with normal. (25℃ in the room without sunlight)

8.2TESTS

NO.	Test Item	Test condition	Criterion
1	High Temperature Storage	70℃±2℃ 96H Restore 2H at 25℃ Power off	
2	Low Temperature Storage	−20℃±2℃ 96H Restore 2H at 25℃ Power off	
3	High Temperature Operation	60℃±2℃ 96H Restore 2H at 25℃ Power on	
4	Low Temperature Operation	−10℃±2℃ 96H Restore 2H at 25℃ Power on	
5	High Temperature & Humidity Operation	50℃±2℃ 90%RH 96H Power on	
6	Temperature Cycle	−10℃←→60℃ 30min 30min after 10 cycle, Restore 2H at 25℃ Power off	After testing, cosmetic and electrical defects should not happen.
7	Vibration Test	10Hz~45Hz, 100m/s2, 120min	
8	Shock Test	Half-sine wave, 300m/s2, 11ms	
9	Drop Test (package state)	800mm, concrete floor, 1 corner, 3 edges, 6 sides each time	1. After testing, cosmetic and electrical defects should not happen. 2. the product should remain at initial place 3. Product uncovered or package broken is not permitted.
10	Electro Static Discharge Test (non-operation)	150pF, 330Ω, Contact: ±4KV, Air: ±8KV Measure point: LCD glass and metal bezel	IEC61000-4-2001 GB/T17626.2-2006
		200pF, 0Ω, ±200V contact test Measure point: IF connector pins	

9.0 INSPECTION STANDARDS

9.1 Purpose

This incoming inspection standard shall be applied to TFT-LCD supplied by LEYA to its customer.

9.2 Scope

This inspection standard contains Cosmetic Specifications and Electrical Specifications.

9.3 Classification of defects

9.3.1 Major defect.

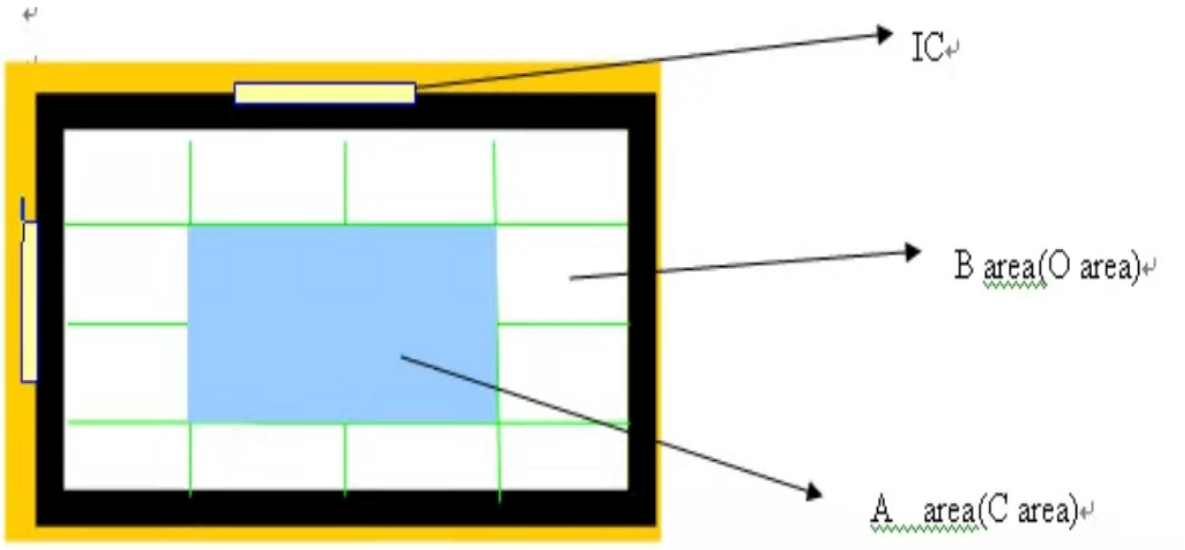
The major defect is a defect that is likely to result in product failure or reduction in Product's intended usage.

9.3.2 Minor defect.

The minor defect is a defect that has little bearing on the effective use or Operation of the product.

9.4 Definition

9.4.1 Display area definition



9.5 Inspectionconditio inasfollows

9.5.1 Viewing distance is approximately 35-40cm

9.5.2 Viewing angleisnormal to the LCD panelas45°

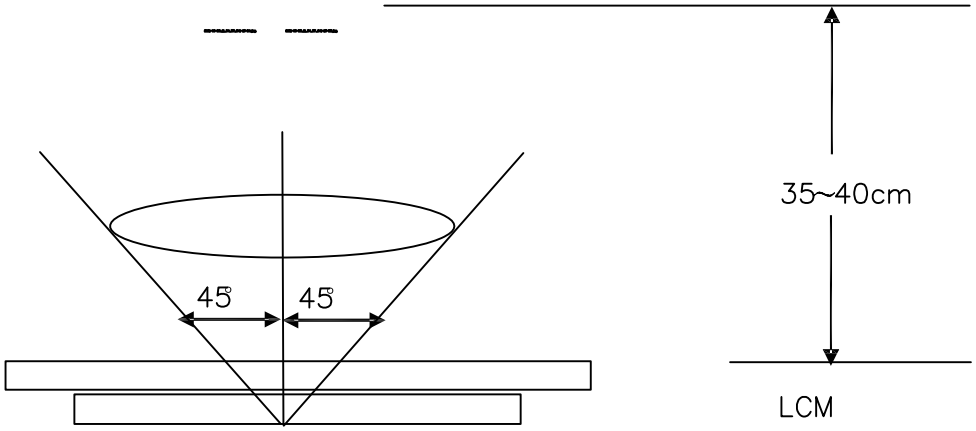
9.5.3 Ambient temperature is approximately 25±5℃

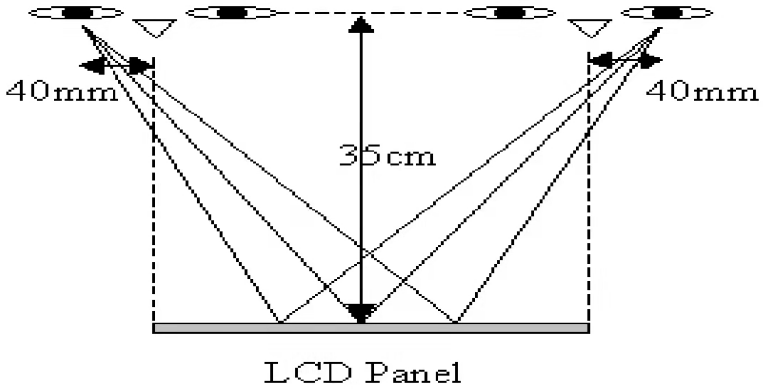
9.5.4 Ambienthumidity is 60±5%RH

9.5.5 Ambient luminance is from300−500Lux.

9.5.6 Inputsignaltiming should be typical value(3s−5s).

9.5.7 Mura&Light leakage inspection at ND−Filter6%.





9.6 Samplingmethod

9.6.1AccordingtotheMIL-STD-105Egeneral inspection level,11 Sampling plan.

9.6.2AQLMA0.65 MI 1.0

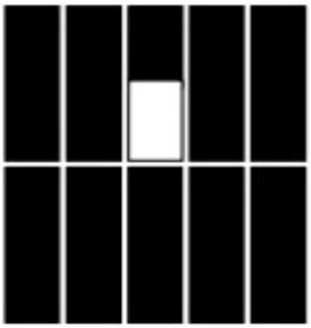
9.7 InspectionCriteria

DEFECT TYPE			LIMIT			Defect	Note
VISUAL DEFECT	SCRATCH		W≤0.05mm and L≤5mm		Ignore	Maj	NOTE1
			0.05mm<W≤0.2mm L≤10mm		N≤4		
			10mm<L, 0.1mm<W		N=0		
	INTERNAL	SPOT	Φ≤0.2mm		Ignore		
			0.2mm<Φ≤0.5mm		N≤4		
			Φ>0.5mm		N=0		
		FIBER	0.1mm≤W≤0.2mm L≤2.5mm		N≤4		
			0.2mm<W, 2.5mm<L		N=0		
		POLARIZER BUBBLE	Φ≤0.25mm		Ignore		
			0.25mm<Φ≤0.5mm		N≤4		
			Φ>0.5mm		N=0		
		DENT	Φ<0.25mm		Ignore		
			0.25mm≤Φ≤0.5mm		N≤4		
			Φ>0.5mm		N=0		
ELECTRICAL DEFECT	BRIGHT DOT		CArea	O Area	Total	Maj	NOTE2 NOTE3
			N≤4 (contai6areaandO area)		N≤4		
	DARK DOT		N≤5 (contai6areaandO area)		N≤5		
	TWO ADJACENT DOT		N≤1N	≤2N	≤3		
	THREE OR MORE ADJACENT DOT		NOT ALLOWLED				
	LINE DEFECT		NOT ALLOWLED				

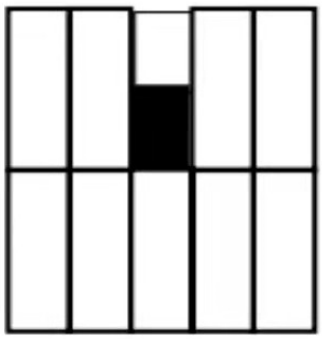
Note1: Minimum distance between dot defects and spot is 5mm;

Note2: The definition of Bright dot and Dark dot

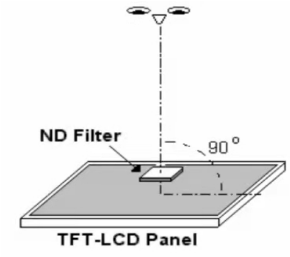
-bright area is more than 50% of one dot

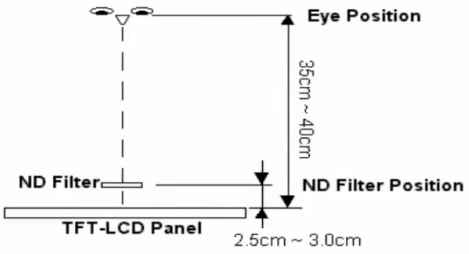


-dark area is more than 50% of one dot



-The bright dot shall be visible under ND-Filter 5% as following:





NOTE3:

-A bit rate(bright dot model)≤10%;

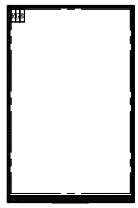
-Class Chipping but not affect the function of quality OK;

-Polarizing film appearance does not affect the function OK;

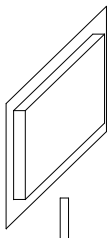
10.0 PACKING DRAWING

产品符合　　环保要求

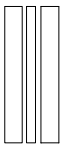
包装图:



将1PCS 模组产品由
PE袋包



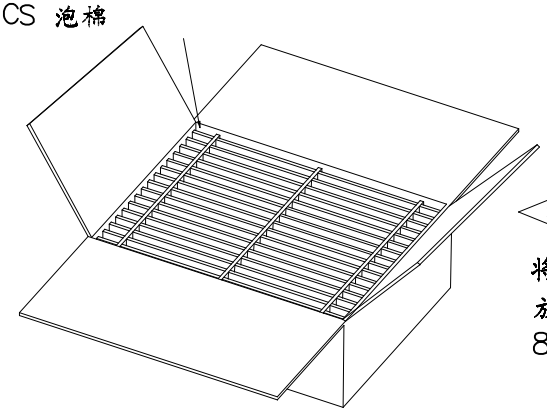
备注:2PCS产品模组的LCD
面对面，中间靠一张泡棉隔开



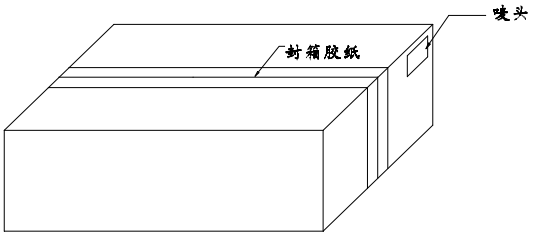
用泡棉隔开

将2PCS产品
放入小隔里，共计
80pcs

在纸箱里的卡板上下
1PCS 泡棉



使用封口胶封口
并贴附唛头



REVSION 版本	A0	☑ 正式规格 ☐ 临时规格	REVISER 修订人	MODEL NO 产品料号	APPROVED BY 核准	CHECKED BY 审核	DRAWN BY 绘图
DATE 日期	2020-7-9		莫雅馨	中深:			
PAGE 页码	6/6			客户:			

11.0 HANDLING PRECAUTION

(1) Don't disassemblce and reassemble the module by self.
(禁止自行拆解)
(2) Acid, alkali, alcohol or touched directly by hand will damage the display.
(酸性、碱性、酒精或手的直接接触将会损伤显示面)
(3) Static electricity will damage the module Please configure grounding device.
(静电会损伤模组，请装配接地设备)
(4) The strong vibration, shock, twist or bend will cause material damage, even module broken.
(强烈的撞击、震动、扭转或弯曲将会造成原材损伤，甚至面板破裂)
(5) It is easy to cause image sticking while displaying the same pattern for very long time.
(长期显示同一画面会造成影像残留)
(6) The response time, brightnes and performance will vary from different temperature.
(响应时间、亮度与均匀性会因温度而有所改变)
(7) Starting from the date of shipment in the photoelectric products for a period of 12 months.
(从中深光电出货之日开始产品保质期为12 个月)