Reshine Display (HK) Technology Co., Limited

SPECIFICATION

规　格　书

客户名称 Customer	
产品型号 Part NO.	**RXL070129-A**
产品内容 Product type	Mode: Transmissive type. Normally black. TFT LCD Module LCD Module: Graphic 1024RGB*600Dot-matrix
备注栏 Remarks	☐APPROVAL FOR SEPCIFICATIONS ONLY ■APPROVAL FOR SEPCIFICATIONS AND SAMPLE
客户确认签章 Signature by Customer:	

PREPARED BY	CHECKED BY	APPROVED BY

Address: 1 st Floor,Building H and 4th Floor,Building L,Third Industrial Park,Xinwei,Longhua,Shenzhen.

Contact Email: info@reshine-display.com

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1. General Description

RXL070129-A is a 1024*600 dots matrix TFT LCD module. It has a TFT panel composed of 3072 sources and 600gates. The LCM can be easily accessed by micro-controller.

2. Features

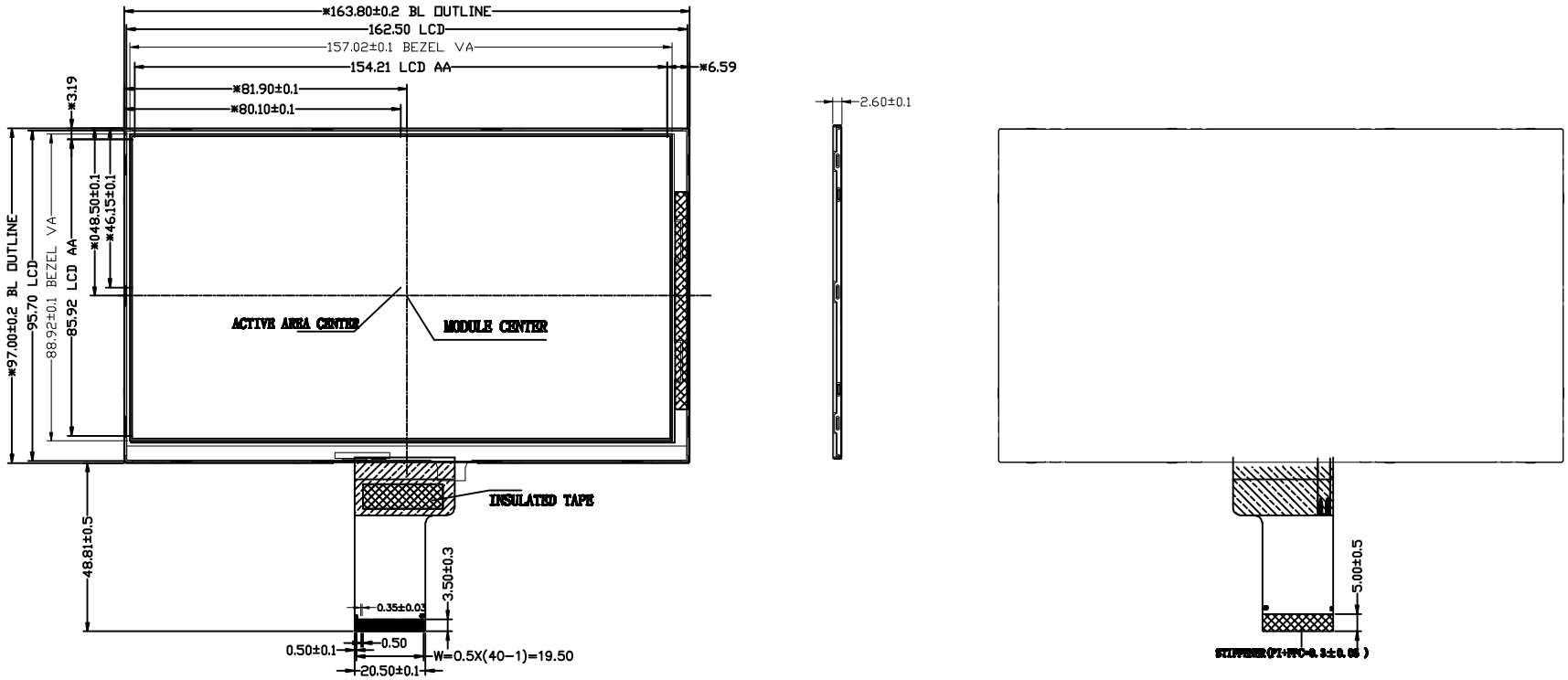
Display Mode	Transmissive
	a-TFT
Display Format	Graphic 1024RGB*600 Dot-matrix
Input Data	LVDS interface
Viewing Direction	All direction
Drive	EK79001+EK73215

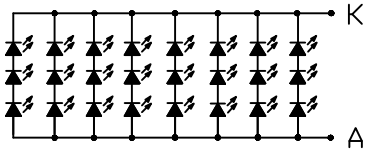
3. Mechanical Specification

Item	Specifications	Unit
LCM Dimensional outline	163.8 (W)*97.0(H)*2.6±0.1 (FPC not include)	mm
Resolution	1024RGB*600	dots
LCD Active area	154.21(W)*85.92(H)	mm
Pixel size	0.1506 (W)*0.1432 (H)	mm

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标注 * 请重点确认!





Backlight LED Circuit

If=160mA, Vf=9.6V(TYP)

Display Type	TFT NORMAL BLACK TRANSMISSIVE
Main driver IC	EK79001ECGA+EK73215
Operation Temperature	−20°C ~ 70°C
Storage Temperature	−30°C ~ 80°C
Connector	
Interface	LVDS
Brightness	400nits
Backlight Forward Voltage	Vf=9.6V(TYP)(IF=160mA)
CUSTOMER PROJECT NO:	

NOTE:
1. GENERAL TOLERANCE: ±0.2.
2. (...) IS REFERENCE DIMENSION.
3. COMPLIABLY RoHS.
4. 客户机壳上的泡棉需进入玻璃单边0.3MM (MIN),防止漏光.
5. 客户需保证触摸屏下表面到玻璃上表面最少0.3MM以上(非贴合)

SYMBOL	AMENDMENT	SIGN	DATE
A	第一次出图	WJ	20180613

DRAWN		TITLE	DRAWING NO. RXL070129-A
CHECKED		MODULE SPEC.	PROJECT NO. RXL070129-A VER. A
APPROVED			UNIT mm SCALE FIT
CUSTOMER'S APPROVAL			3rd Angle SHEET 1 OF 1

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5. Maximum Ratings

Item	Symbol	Min	Max	Unit	Note
Supply voltage	V	-5	5	V	
Operating temperature	T_{op}	-20	70	V	
Storage temperature	T_{STR}	-30	80	℃	

6. Electrical Characteristics

Item		Symbol	Condition	Min.	Typ.	Max.	Unit
Supply voltage	Logic	V_{CC}		3.0	3.3	3.6	V
Input Voltage	H level	T_{IH}		0.7*IOVCC		IOVCC	V
	L level	T_{IL}		Vss		0.2* IOVCC	

7. Backlight Characteristic

Item	Symbol	Min	Typical	Max	Unit
LED module Forward voltage	V_{LED}	-	9.9	10.5	V
LED module current	V_{LED}		120		mA
L/G Surface Luminance ★1	L_S	-	9500		Cd/m^3
LCM Surface brightness uniform ★2	L_D	80			%

★ 1Test condition is:

(a) Center point on active area.

(b)Best Contrast.

★2Uniform measure condition:

(1)Measure 9 point. Measure location show below;

(2)Uniform=(Min. brightness /Max. brightness)*100%

(3)Best Contrast.

8. Module Function Description

8.1Pin Descriptions

Pin No.	Symbol	Functional	Notes
1	VCOM	The power supply of common voltage in DC com driving	
2-3	VDD	Power supply for digital circuits	
4	NC	No connect	
5	RESET	Reset signal	
6	STBYB	Standby mode, Normally pulled high	
7	GND	Power Ground	
8	RXIN0-	Negative polarity of low voltage differential data signal	
9	RXIN0+	Positive polarity of low voltage differential data signal	
10	GND	Power Ground	
11	RXIN1-	Negative polarity of low voltage differential data signal	
12	RXIN1+	Positive polarity of low voltage differential data signal	
13	GND	Power Ground	
14	RXIN2-	Negative polarity of low voltage differential data signal	
15	RXIN2+	Positive polarity of low voltage differential data signal	
16	GND	Power Ground	
17	RXCLKIN-	Negative polarity of low voltage differential clock signal	
18	RXCLKIN+	Positive polarity of low voltage differential clock signal	
19	GND	Power Ground	
20	RXIN3-	Negative polarity of low voltage differential data signal	
21	RXIN3+	Positive polarity of low voltage differential data signal	
22	GND	Power Ground	
23-24	NC	No connect	
25	GND	Power Ground	
26	NC	No connect	
27	DIMO	Backlight dimmer signal for external controller	
28	SELB(HSD)	Horizontal Sync input signal	
29	AVDD	Power supply for analog circuits	
30	GND	Power Ground	
31-32	LEDK	Backlight cathode	
33	L/R	Source Right or Left sequence control	
34	U/D	Gate Up or Down scan control	
35	VGL	Output voltage from the step-up circuit	
36-37	NC	No connect	
38	VGH	Output voltage from the step-up circuit	
39-40	LEDA	Backlight anode	

8.2Timing characteristics.

Refer to datasheet

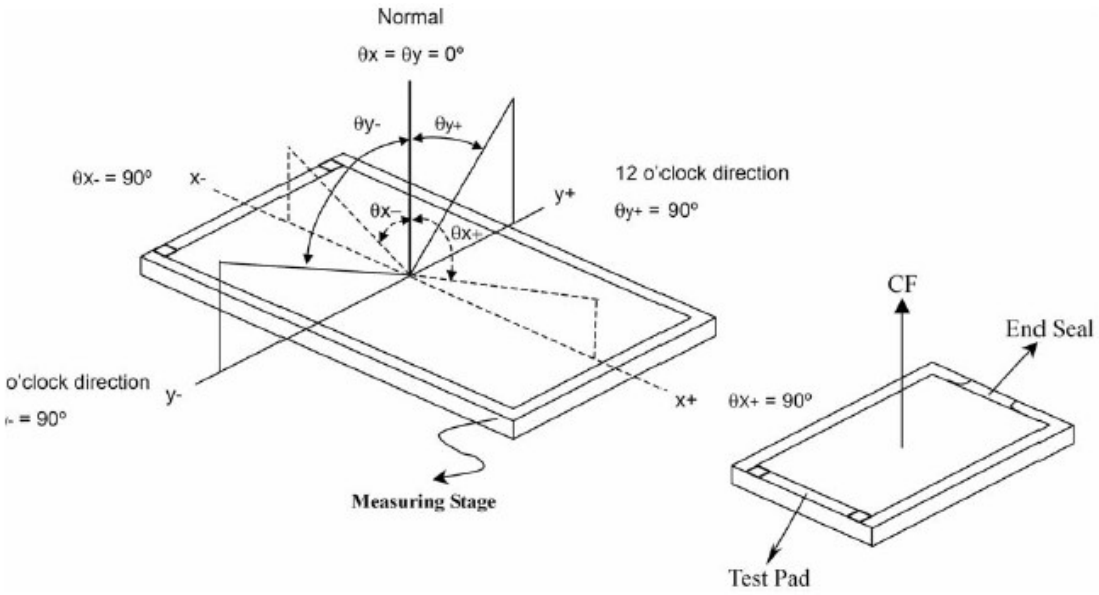
9.Electro-optical Characteristics

ITEM		SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT	REMARK
Transmittance		T		3.8	4.1		%	
Contrast Ratio		CR	*1)	600	800	--	--	Note 3
Response Time		Tr+ Tf	*3)	-	25	40	ms	Note 4
NTSC				45%	50%	--		
Viewing Angle	Left	ϕ	CR≧10	80	85			
	Right	ϕ		80	85			Note 5
	Upper	θ		80	85			
	Lower	θ		80	85			
Color Filter Chromacicity with C light	White	x	$\theta=\phi=0°$	0.27	0.290	0.31		Note 6
		y		0.311	0.331	0.351		
	Red	x	$\theta=\phi=0°$	0.612	0.632	0.652		
		y		0.291	0.311	0.331		
	Green	x	$\theta=\phi=0°$	0.277	0.297	0.317		
		y		0.516	0.536	0.556		
	Blue	x	$\theta=\phi=0°$	0.12	0.140	0.16		
		y		0.134	0.154	0.174		

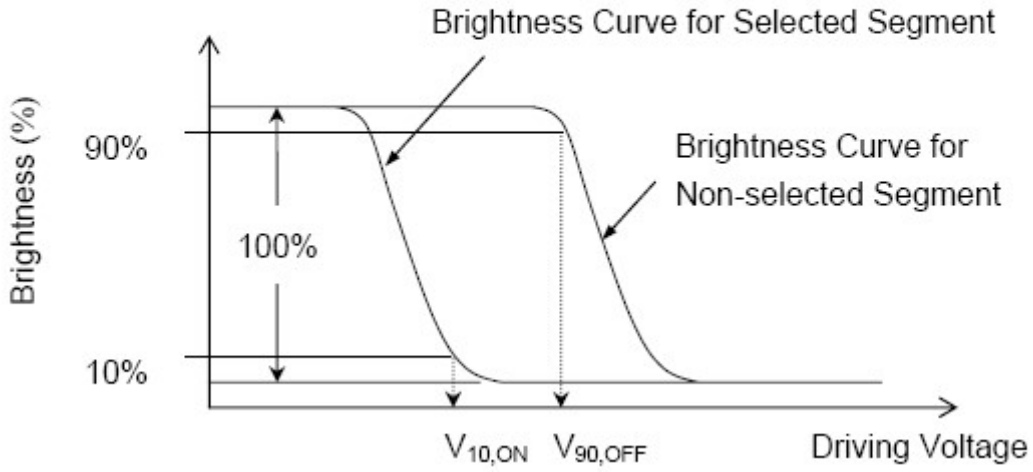
Note 1.Ambient condition：25℃±2℃，60±10%RH，under 10 Lunx in the darkroom。

Note 2.Measure device：BM-5A (TOPCON)，viewing cone=1°，I_L=20mA。

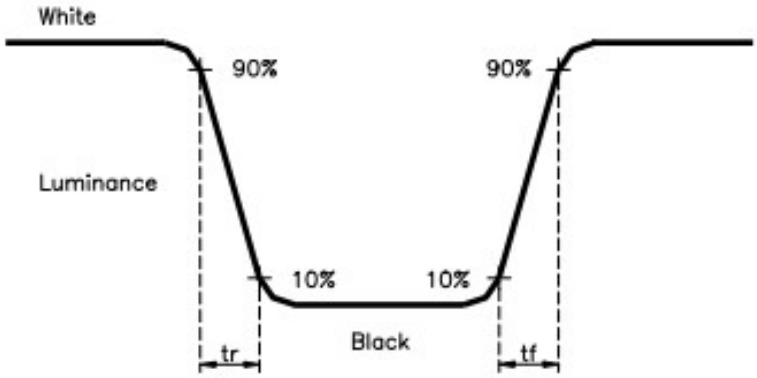
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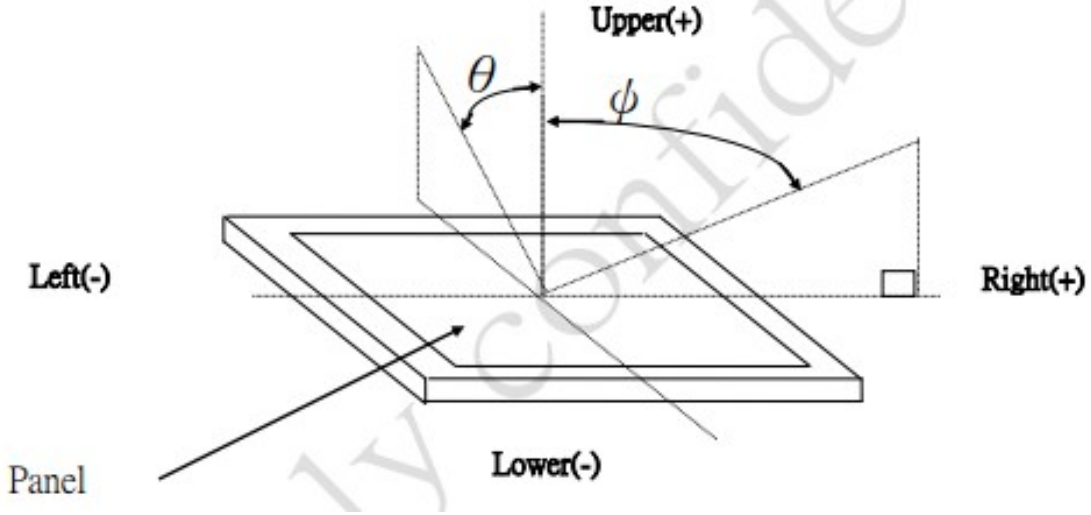
$$Vop = (V_{10,\,ON} + V_{90,\,OFF})/2$$



.Note2.Definition of Optical Response Time:

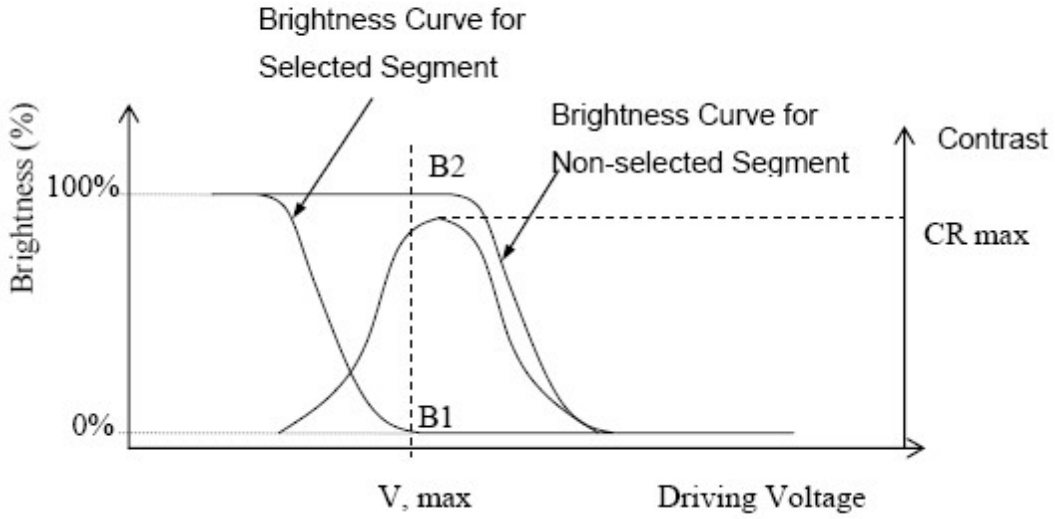


.Note3.Definition of Viewing Angle θ and Φ :



Note4.Definition of Contrast ratio (CR):

$$CR = \frac{\text{Brightness of Non-selected Segment (B2)}}{\text{Brightness of Selected Segment (B1)}}$$



10. Reliability

10.1Mtbf

The LCD module shall be designed to meet a minimum MTBF value of 50000 hours with normal

10.2Test condition

NO.	ITEM	CONDITION	CRITERION
1	High Temperature Non-Operating Test	80℃*240Hrs	。No Defect Of Operational Function In Room Temperature Are Allowable 。IDD of LCM in Pre-and Post-Test Should Follow Specification
2	Low Temperature Non-Operating Test	-30℃*240Hrs	
3	High Temperature/Humidity Non Operating Test	60℃*90%RH*240Hrs	
4	High Temperature Operating Test	70℃*240Hrs	
5	Low Temperature Operating Test	-20℃*240Hrs	
6	Thermal Shock Test	-20 ℃ (30Min) ↔70 ℃ (30Min) *10CYCLES	

Notes:

1. Judgments should be made after exposure in room temperature for two hours.
2. The distill water is used for the high temperature/humidity test.

3. The sample above is individually for every reliability tests condition.

11.Inspection standards

1.AQL(Acceptable Quality Level

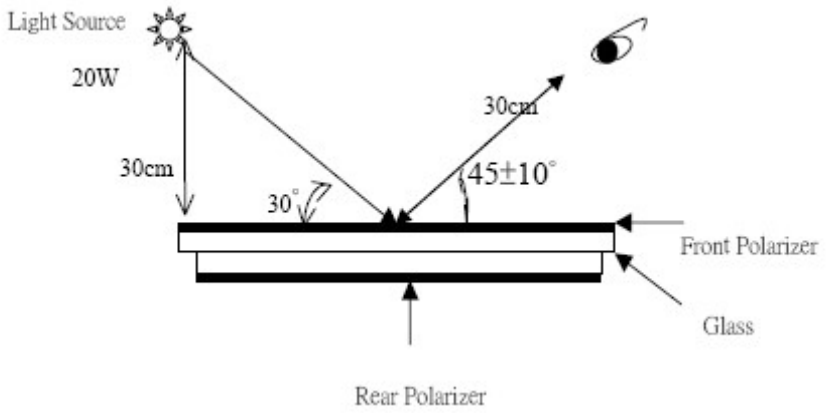
AQL of major and minor defect.

	MAJOR DEFECT	MINOR DEFECT
AQL	0.65	1.5

2. Basic conditions for inspection

The LCM face to us, in normal environment, the lux is 1000±200.(Darkroom's lux: 100±50),About an angle of incidence 30,a distance of 30 cm with an angle of 45 degree to check the products without uncovering the film!

(As shown below)

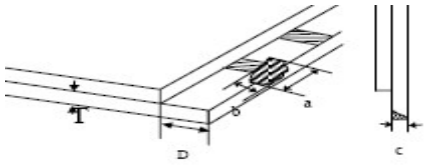
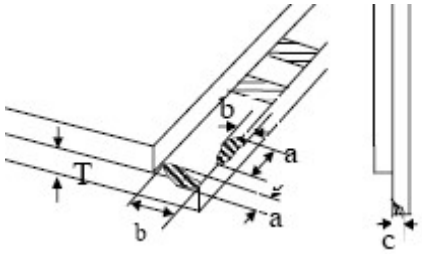
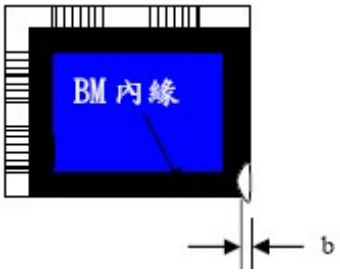


3.Inspection item and criteria

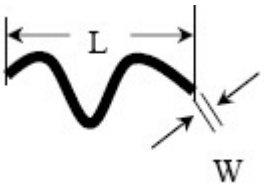
3.1 Visual inspection criterion in immobility

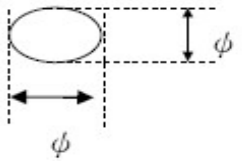
3.1.1Glass defect

NO	Defect item	Criteria	Remark
1	Dimension Unconformity (Major defect)	By Engineering Drawing	
2	Cracks (Major defect)	1. Linear cracks panel 【Reject】 2. Nonlinear crack contrast by limited sample	
3	Glass extrude the conductive area (minor defect)	a: disregards and no influence assemblage. 1) b≤1/3Pin width(non bonding area) 【Accept】 2)bonding area≤0. 5㎜	A: Length, b: Width

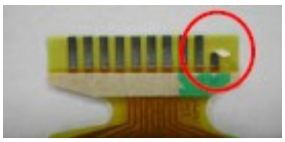
		【Accept】	
4	Pin-side ,conductive area damaged (minor defect)	(a c: disregards) b≤1/3of effective length for bonding electrode 【Accept】	a: length, b: Width, c: Thickness 
5	Pin-side,non-conductive area damaged (minor defect)	1)Damage area don't touch the ITO (Inclueling contraposition mark, except scribing mark) 【Accept】 2)C<T b≦BM1/3of width 【Accept】 3)c=T b not touch the seal glue 【Accept】 4)a disregards	a: Length, b: Width c: Thickness 
6	Non-pin-side damage (minor defect)	c<T 1)b exceeds 1/3Bm 【Reject】 c=T b not touch the seal glue 【Reject】	c: Thickness b: width of  damage

3.1.2LCD appearance defect(View area)

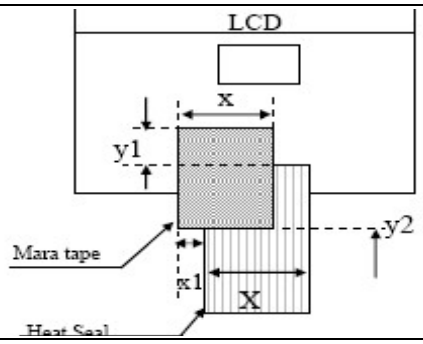
NO	Defect item	Criteria		Remark
1	Fiber、glass cratch、polarizer scratch/folded (minor defect)	Specification	Allowable	note1:L: Length, W: Width note2: disregard if out of AA 
		W≦0.03mm	disregard	
		0.03mm<W≦0.05mm; L≦3.0mm	2	
		0.05mm<W≦0.1mm; L≦3.0mm	1	
		W>0.1mm;L>3.0mm	0	
2	Polarizer bubble、concave and convex (minor defect)	φ≦0.2mm	disregard	note1: φ=(L+W)/2, L:Length, W :Width note2:disregard if out of AA
		0.2mm<φ≦0.3mm	2	
		0.3mm<φ≦0.5mm	1	
		0.5mm<φ	0	
3	Black dots、dirty dots、	φ≦0.15mm	disregard	note2:disregard if out of AA

	impurities、eye winker (minor defect)	0.15mm< ϕ ≦0. 25mm	2	
		0.25mm< ϕ ≦0. 3mm	1	
		0.3mm< ϕ	0	
4	Polarizer prick (minor defect)	ϕ ≦0.1mm	disregard	note1: ϕ=(L+W)/2, L=Length, W=Width note2:the distance between two dots>5mm
		0.1mm< ϕ ≦0. 25mm	3	
		ϕ >0. 25mm	0	

3.1.3FPC

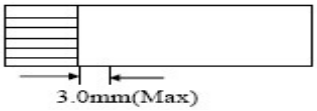
NO	Defect item	Criteria		Remark
1	Copper screen peel (minor defect)	Copper screen peel 【Reject】		
2	No release tape or peel	No release tape or peel 【Reject】		
3	Dirty dot and impurity of FPC for customer using side (minor defect)	Specification	Allowable	Note1: Cannot have stride ITO impurities
		ϕ ≦0.25mm	2	
		ϕ >0. 25	0	

3.1.4Black tape &Mara tape

NO	Defect item	Criteria	Remark
1	FPC or H/S black tape (minor defect)	1. shift spec: 1) glue to the polarize 【Reject】 2) IC bare 【Reject】 2. left-and-right spec: 1)exceed of FPC edge or H-S edge【Reject】 2) IC bare 【Reject】	
2	No black tape (major defect)	No black tape 【Reject】	

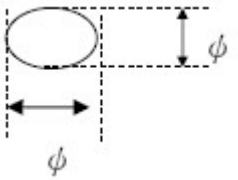
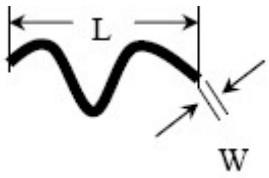
3	Tape position mistake (minor defect)	Not by engineering drawing	
4	Mara tape defect (minor defect)	Peel before pulling the protecting film 【Reject】	

3.1.5Silicon and Taffy glue

NO	Defect item	Criteria	Remark
1	Quantity of silicon (major defect)	Uncover the ITO and circuit area 【Reject】	note: compared by engineering
2	Taffy glue (major defect)	1.Uncover the reveal copper area 【Reject】 2.Cover layer 0.3mm(Min)~3.0mm(Max) 【Reject】	note: if customer has special requirement, refer to the technical document 
3	Depth of glue covering (major defect)	Depth of glue covering overtop front Polarizer 【Reject】	Except of the special requirement

3.2Electrical criteria

NO	Defect item	Criteria	Remark
1	No display (major defect)	No display 【Reject】	
2	Missing line (major defect)	Missing line 【Reject】	
3	Seg-com light and dark (major defect)	Seg-com light and dark 【Reject】	ND filter 2% test
4	No display in immobility (major defect)	No display in immobility 【Reject】	
5	Flicker of Pattern	Flicker of Pattern	

	(major defect)	【Reject】		
6	Mura (major defect)	ND filter 2%test		
7	Over current (major defect)	Over current 【Reject】		
8	Voltage out of specification (major defect)	Voltage out of specification 【Reject】		
9	Pattern blur, error code (major defect)	Pattern blur, error code 【Reject】		
10	Dark light, Flicker (major defect)	Dark light, Flicker 【Reject】		
11	Black/white dots 、 Dirty dots、eye winker (major defect)	Specification	Allowable	Note1:disregard if out of AA 
		ϕ ≦0.15mm	disregard	
		0.15mm< ϕ ≦0. 25mm	2	
		0.25mm< ϕ ≦0. 3mm	1	
		0.3mm< ϕ	0	
12	Fiber、glass crutch、Polarizer scratch/folded (major defect)	W≦0.03mm	disregard	Note1:L: Length, W: Width Note2: disregard if out of AA 
		0.03mm<W≦0. 0. 05mm L≤3. 0mm	2	
		0.05mm<W≦0. 1mm L≤3. 0mm	1	
		W>0.1mm;L>3.0mm	0	

12.Precautions for using LCD modules.

12.1 Safety

(1)Do mot swallow any liquid crystal ,even if there is no proof that liquid crystal is poisonous.
(2)If the LCD panel breaks, be careful not to get liquid crystal to touch your skin.
(3)If skin is exposed to liquid crystal, wash the area thoroughly with alcohol or soap.

12.2Srorang Conditions

(4)Store the panel or module in a dark place where the temperature is 23±5℃and the humidity is below 45±20%RH.
(5)Store in anti-static electricity container.

(6)Store in clean environment, free from dust, active gas, and solvent.
(7)Do not place the module near organics solvents or corrosive gases.
(8))Do not crush, shake, or jolt the module.

12.3Handling Precautions

(9)Avoid static electricity, which can damage the CMOS LSI.
(10)The polarizing plate of the display is very fragile, please handle if very carefully.
(11)Do not give external shock.
(12)DO mot apply excessive force on the surface.
(13)Bo not wipe the polarizing plate with a dry cloth, as it may easily scratch the surface of plate.
(14)Do not use ketonics solvent & Aromatic solvent, use with a soft cloth soaked with a cleaning naphtha solvent.
(15)Do not operate it above the absolute maximum rating.
(16)Do not remove the panel or frame from the module.

12.4Warranty

The period is within twelve months since the date of shipping out under normal using and storage conditions.

13.Revision history

Version	Revise record	Date
V0.1	Original version	2018.06.13