Shenzhen Leadtek Electronics Co.,Ltd

PRODUCT SPECIFICATION

TFT-LCD MODULE

Module No: LTK104XGNCT17-V0

☑ Preliminary Specification

□ Approval Specification



%The specification of "TBD" should refer to the measured value of sample . If there is difference between the design specification and measured value, we naturally shall negotiate and agree to solution with customer.



1.Document Revision History

Version	Contents	Date	Note
V0	Initial version	2024-1-19	
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		FU	

2. General Description

NO	Item/	Specification	Unit
1	LCD Size/LCD	TFT"10.4	
2	Panel Type	Transmissive, a-Si	
3	Display Resolution	1024 x RGB x 768	pixel
4	Display Mode	Normally Black	-
5	Number of Colors	16.7 M	
6	Viewing Direction	ALL	-
7	CTP+LCM Module Size	239.20 (W) x179.40(L) x11.82(H)	mm
8	Panel Active Area	210.43 (H) x 157.82 (V)	mm
9	Pixel Pitch	0.2055 x 0.2055	mm
10	LCM Driver	-	
11	Light Source	White LED	
12	LCM Interface	LVDS	bit

Note : Please refer to the mechanical drawing;

3.EXTERNAL DIMENSIONS



4. PIN DESCRIPTION

4.1 Connector

There are 3 connectors on PCBA, location & Pin1 is showed on below figure.



Connectors' type:

- 1. CN1 : Input LVDS CONN, 30pins, P-two , 187098-30091
- 2. CN2: Input BL power CONN,5pins, Cillux,CI4205M2HRD-NH
- 3. CN3: Output BL power CONN, 3pins, Cillux, CI4203M2HRD-NH

4.2 PIN assignment

4.2.1 Connector 1 :

A 30pin connector of P-two 187098-30091 is used for the module electronics interface. And a special plug needed for connecting this connector, the recommended model is P-two 187130-30xx or JAE FI-X30H.

No	Symbol	I/O	Function	Remark
1	NC	I	Reserved as BIST function for INX test	1
2	GND	Р	Ground	
3	Rin3+	I	Positive LVDS differential data input (+)	
4	Rin3-		Negative LVDS differential data input (-)	
5	GND	Р	Ground	
6	CLK+	I	Clock signal (+)	
7	CLK-	I	Clock signal (-)	
8	GND	Р	Ground	
9	Rin2+	I	Positive LVDS differential data input (+)	
10	Rin2-	I	Negative LVDS differential data input (-)	
11	GND	Р	Ground	
12	Rin1+		Positive LVDS differential data input (+)	
13	Rin1-	I	Negative LVDS differential data input (-)	
14	GND	Р	Ground	

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15	Rin0+	I	Positive LVDS differential data input (+)	
16	Rin0-	I	Negative LVDS differential data input (-)	
17	GND	Р	Ground	
18	NC	-	No Connection	
19	GND	Р	Ground	
		I	Selection for 6 bits/8bit LVDS data input	2
20	SEL6/8		Low or NC : 8 bit input mode	
			High : 6 bit input mode	
21	NC	I	Reversed as EE_WP for OTP function	3
22	NC	I	Reversed as EE_SDA for OTP function	3
23	NC	I	Reversed as EE_SCL for OTP function	3
24	Reverse	Ι	Reverse panel function (Display rotation)	4
25	GND	Р	Ground	
26	GND	Р	Ground	
27	GND	Р	Ground	
28	VDD	Р	Power supply: + 3.3V	
29	VDD	Р	Power supply: + 3.3V	
30	VDD	Р	Power supply: + 3.3V	

Note:

1. Pin1 is reversed as BIST function for test, don't connect signal to this pin, keep floating.

2. SEL6/8 is used for selecting 6bit/8bit LVDS data input, L or NC: 8bit; High:6bit.

3. Pin21,22,23 are used as SPI interface for OTP function, don't connect any signal to these pin, and don't short them, keep floating.

4. Reverse pin is used for selecting scanning direction.

4.2.2 Connector 2: Cillux,CI4205M2HRD-NH

5-pin connector is used for input power & control signals for BL converter power IC

No	Symbol	I/O	Function	Remark
1	LED_VCCS	Р	12V input	
2	LED_VCCS	Р	12V input	
3	GND	Р	Ground	
4	LED_PWM	I	PWM	
F			Converter power IC Enable	
Э	LED_EN	I	(Active High)	

4.2.3 Connector 3: Cillux,CI4203M2HRD-NH

3-pin connector is used for output power to BL module.

No	Symbol	I/O	Function	Remark
1	LED+	Р	Red wire	BL output po <mark>we</mark> r
2	LED1-	Р	White wire	BL feedback channel1
3	LED2-	Р	White wire	BL fe <mark>edback</mark> c <mark>hanne</mark> l2

5. ABSOLUTE MAXIMUM RATING

ltem	Symbol	Min.	Max.	Unit	Remark
Dower Supply Veltage	VDD	-0.3	3.6	V	
Power Suppry Voltage	LED_VCCS	-0.3	33	V	
Storage Temperature	Tstg	-30	+80	°C	
Operating Temperature	Topr	-30	+80	°C	

Note:

- (1) All of the voltages listed above are with respective to GND= 0V
- (2) Device is subject to be damaged permanently if stresses beyond those absolute maximum ratings listed above.

6. DC CHARCTERISTICS

6.1 Parameter

ltow	Symptoc		Values	11:0:4	Demerk	
nem	Symbol	Min.	Тур.	Max.	Unit	Remark
Device weather and	VDD	3.0	3.3	3.6	V	
Power voltage	LED_VCCS	11	-	12	V	
Input logic high voltage	V _{IH}	0.7VDD	-	VDD	V	1
Input logic low voltage	V _{IL}	0	-	0.3VDD	V	
	I _{VDD}		385	424	mA	VDD =3.3V@frame 60 Hz, White pattern
Current for Power	I _{LED_VCCS}	-	0.52	-	A	100% PWM Duty @ VLED+ =33V, ILED=80mA*2
	BL On	3.0	-	5	V	
LED_EN Control Level	BL Off	0	-	0.3	V	
LED_PWM Control Level	PWM High Level	3.0		5	v	0 4
	PWM Low Level	0	-	0.3	v	
LED_PWM Control Frequency	f _{PWM}	1K	-	20K	Hz	2

Note 1: Including signal: SEL6/8 & Reverse

Note 2: LED_PWM duty >10%.

6.2 Back-light Unit: power output

PARAMETER	Sym.	Min.	Тур.	Max.	Unit	Test Condition	Note
LED Current	IF	_	160	_	mA	_	_
LED Voltage	VF	_	33	_	V	_	_
CTP+LCM Brightness	Lv	_	850	-	Nits	@CA310	
Life Time		_	30000	_	Hr.	l≦160mA	_
Color	White					<u>.</u>	

Note 1: output power LED+ OVP is 33V.

Note 2: Set BL feedback 2 channels, each channel feedback current is 160mA

6.3 Power sequence

The power sequence specifications are shown as the following table and diagram.

Symbol	Va	Unit	
Symbol	Min.		
t ₁	1	20	ms
t ₂	1	5	ms
t ₃	10	50	ms
t4	200	500	ms
t ₅	200	500	ms
t ₆	50	200	ms
t ₇	0	20	ms
t ₈	500	-	ms
t _A	0	50	ms
t _B	0	50	ms



- Note 1: Please don't plug the interface cable of on when system is turned on.
- Note 2: Please avoid floating state of the interface signal during signal invalid period.
- Note 3: It is recommended that the backlight power must be turned on after the power supply for LCD and the interface signal is valid.
- Note 4: Control signals include SEL6/8 & Reverse.

7. LVDS SIGNAL TIMING CHARACTERISTICS

7.1AC Electrical characteristics

Parameter	Symbol	Min	Тур	Мах	Unit s	Condition
Clock frequency	RxFCLK	26.2	51.2	71	MHz	
Input data skew margin	TRSKM	500	500	1/(2*RxFCLK)	ps	
Clock high time	TLVCH		4/(7xRxFCLK)		ns	VID =400mv RxVCM=1.2V RxFCLK=71MHz VDD_LVDS=3.3V
Clock low time	TLVCL		3/(7xRxFCLK)		ns	
VSD setup time	TenPLL	0	TenPLL	150	us	

7.2 Input clock and data timing diagram





7.3 DC electrical characteristics

Devementer	Symbol	Values			Unit	Domork
Parameter	Symbol	Min.	Тур.	Max.	Unit	Remark
LVDS Differential input high Thre <mark>s</mark> hold voltage	R _{xVTH}	-	-	+100	mV	P1.2\/
LVDS Differential input low Threshold voltage	R _{xVTL}	-100	-	-	mV	TXVCM-1.2V
Input Voltage range (Singled-end)	R _{xVIN}	0	-	VDD-1.2+ V _{ID} /2	V	
LVDS Differential input common mode voltage	R _{xVCM}	V _{ID} /2	-	VDD-1.2	V	
LVDS Differential voltage	V _{ID}	0.2	-	0.6	V	



7.4 data timing

Parameter	Symbol		Spec.		Unit
Falaneter	Symbol	Min.	Тур.	Typ. Max.	
DCLK frequency	fclk	52	65	71	MHz
Horizontal display area	thd		1024		DCLK
HSD period	th	1114	1344	1400	DCLK
HSD blanking	thb+thfp	90	320	376	DCLK
Vertical display area	tvd		768		н
VSD period	tv	778	806	845	Τ _Η
VSD blanking	tvbp+tvfp	10	38 🛆	X/N	T _H

7.5 LVDS data input format





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8. OPTICAL CHARACTERISTICS

8.1 Optical specification

The relative measurement methods of optical characteristics are shown

Item		Symbol	Condition	Min.	Тур.	Max.	Unit	Note
	Pod	Rx			0.645			
Calar	Reu	Ry	bol Condition $ \begin{array}{c} \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ $		0.334			
Color	Croop	Gx			0.284			<u>Climbt</u>
	Green	Gy		Тур –	0.564	Typ +		C Light
(CIE 1931)	Blue	Bx	0-00 0-00	0.02	0.137	0.02	-	Source
with C-light	Dide	Ву	θ _x =0°, θ _Y =0° R=G=B=255 Gray scale		0.121			(3)
with O-light	\\/bito	Wx			0.319			(7),(0)
	vvriite	Wy			0.369			
Color gamut		C.G		55	61.2	-	%	
Contor Trop	smittanco	т%		5 16	5.64		0/_	INX BLU
Center Har	ISITIILIANCE	1 70		5.10 5.04	-	70	(1),(4),(6)	
Contrast	Ratio	CR		800	1000	-	-	(2)
Res <mark>pon</mark>	se Time	Tr +Tf	θ _x =0°, θ _Y =0°	-	25	35	ms	(3)
Viewing Angle	Horizontal	x +		80		-		
	TIONZONIA	x -	CP > 10	80	-	-	Dog	(1) (5)
	Vortical	y +		80	-	-	Deg.	(1),(3)
	vertical	у -		80	-	-		

Note (1) Definition of Viewing Angle (<u>x, y</u>):



Note (2) 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 (6).

Note (3) Definition of Response Time :

The response time is defined as the LCD optical switching time interval between "White" state and "Black" state. Rise time (Tr) is the time between photo detector output intensity changed from 10% to 90%. And fall time (Tf) is the time between photo detector output intensity changed from 90% to 10%.

RT = RT(5)

RT (X) is corresponding to the Response Time of the point X at Figure in Note (6).



Note (4) Definition of Luminance of White (Lc):

Measure the luminance of gray level 255 at center point

L (x) is corresponding to the luminance of the point X at Figure in Note (6).

Note (5) Measurement Setup:

The LCD module should be stabilized at given temperature for 40 minutes to avoid abrupt

temperature change during measuring. In order to stabilize the luminance, the measurement should be executed after lighting Backlight for 40 minutes in a windless room.



Note (6) Definition of White Variation (_W):

Measure the luminance of gray level 255 at 9 points



Note (7) The listed optical specifications refer to the initial value of manufacture, but the condition of the specifications after long-term operation will not be warranted.

Note (8) Definition of color gamut (C.G%):

C.G%= R G B / R₀ G₀ B₀,*100%

Ro, Go, Bo: color coordinates of red, green, and blue defined by NTSC, respectively.

R, G, B : color coordinates of module on 255 gray levels of red, green, and blue, respectively.

Ro Go Bo : area of triangle defined by Ro, Go, Bo

R G B: area of triangle defined by R, G, B



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9. QUALITY ASSURANCE

No.	Test Items	Test Condition	Note
1	High Temperature Storage	80°C , 240hrs	Note 1, 2
2	Low Temperature Storage	-30 ℃, 240hrs	Note 1, 2
3	High Temperature Operation	80°C , 240hrs	Note 1, 2
4	Low Temperature Operation	-30 ℃, 240hrs	Note 1, 2
5	High Temperature and High Humidity Storage	$60^\circ\!\!\mathbb{C}$, 90%RH, 240hrs	Note 1, 2
6	Thermal Shock	-30℃/0.5h ~ +80℃/0.5h for a total 100 cycles	Note 1, 2
7	Electro Static Discharge	C=150pF,R=330Ω, 5point/panel Air:±4Kv, 5times	Note 2
8	Package Drop Test	Drop in 1 corner,3 edges,6 surfaces, 1 time/direction Height follow ISTA(1A) $0kg \le W < 10kg : 76cm$, $10kg \le W < 19kg : 61cm$, $19kg \le W < 28kg : 46cm$, $28kg \le W < 45kg : 31cm$, $45kg \le W \le 68kg : 20cm$	Note 2

Note 1: The test samples have recovery time for 2 hours at room temperature before the function check. In the standard conditions, there is no display function NG issue occurred.

Note 2: After the reliability test, the product only guarantees operation, but don't guarantee all of the cosmetic specification.

10. PRECAUTIONS

10.1 ESD (Electrical Static Discharge) strategy

- [1] ESD will cause serious damage of the panel, ESD strategy is very important in handling. Following items are the recommended ESD strategy
- [2] In handling LCD panel, please wear gloves with non-charged material. Using the conduction ring connects wrist to the earth and the conducting shoes to the earth necessary is.
- [3] The machine and working table for the panel should have ESD protection strategy.
- [4] In handling the panel, ionized airflow decreases the charge in the environment is necessary.
- [5] In the process of assemble module, shield case should connect to the ground.

10.2 Environment

- [1] Working environment of the panel should be in the clean room.
- [2] Because touch panel has protective film on the surface, please remove the protection film slowly with ionized air to prevent the electrostatic discharge.

10.3 Assembly and handling precautions

- [1] Do not apply improper or unbalanced force such as bending or twisting to open cells during assembly.
- [2] It is recommended to assemble or to install an open cell into a customer's product in clean working areas. The dust and oil may cause electrical short to an open cell or worsen polarizers on an open cell.
- [3] Do not apply pressure or impulse to an open cell to prevent the damage.
- [4] Always follow the correct power-on sequence when an open cell is assembled and turned on. This can prevent the damage and latch-up of the CMOS LSI chips.
- [5] Do not design sharp-pointed structure / parting line / tooling gate on the plastic part of a COF (Chip on film), because the burr will scrape the COF.
- [6] If COF would be bended in assemble process, do not place IC on the bending corner.
- [7] The gap between COF IC and any structure of BLU must be bigger than 2 mm. This can prevent the damage of COF IC.
- [8] The bezel opening must have no burr and be smooth to prevent the surface of an open cell scraped.
- [9] The bezel of a module or a TV set can not contact with force on the surface of an open cell. It might cause light leakage or scrape.
- [10]In the case of no FFC or FPC attached with open cells, customers can refer the FFC / FPC drawing and buy them by self.

- [11] It is important to keep enough clearance between customers' front bezel/backlight and an open cell. Without enough clearance, the unexpected force during module assembly procedure may damage an open cell.
- [12]Do not plug in or unplug an I/F (interface) connector while an assembled open cell is in operation.
- [13]Use a soft dry cloth without chemicals for cleaning, because the surface of the polarizer is very soft and easily scratched.
- [14]Moisture can easily penetrate into an open cell and may cause the damage during operation.
- [15]When storing open cells as spares for a long time, the following precaution is necessary.
 - [15.1] Do not leave open cells in high temperature and high humidity for a long time. It is highly recommended to store open cells in the temperature range from 0 to

35°C at normal humidity without condensation.

- [15.2] Open cells shall be stored in dark place. Do not store open cells in direct sunlight or fluorescent light environment.
- [16] When ambient temperature is lower than 10°C, the display quality might be reduced.
- [17] Unpacking (Cartons/Tray plates) in order to prevent open cells broken:
 - [17.1] Moving tray plates by one operator may cause tray plates bent which may induce open cells broken. Two operators carry one carton with their two hands. Do not throw cartons/tray plates, avoid any impact on cartons/tray plates, and put down & pile cartons/tray plates gently.
 - [17.2] A tray plate handled with unbalanced force may cause an open cell damaged. Trays should be completely put on a flat platform.
 - [17.3] To prevent open cells broken, tray plates should be moved one by one from a plastic bag.
 - [17.4] Please follow the packing design instruction, such as the maximum number of tray stacking to prevent the deformation of tray plates which may cause open cells broken.
 - [17.5] To prevent an open cell broken or a COF damaged on a tray, please follow the instructions below:
 - [17.5.1] Do not peel a polarizer protection film of an open cell off on a tray
 - [17.5.2] Do not install FFC or LVDS cables of an open cell on a tray

[17.5.3] Do not press the surface of an open cell on a tray.

[17.5.4] Do not pull X-board when an open cell placed on a tray.

[18] Unpacking (Hard Box) in order to prevent open cells broken:

[18.1] Moving hard boxes by one operator may cause hard boxes fell down and open cells broken by abnormal methods. Two operators carry one hard box with

their two hands. Do handle hard boxes carefully, such as avoiding impact, putting down, and piling up gently.

- [18.2] To prevent hard boxes sliding from carts and falling down, hard boxes should be placed on a surface with resistance.
- [18.3] To prevent an open cell broken or a COF damaged in a hard box, please follow the instructions below:

[18.3.1] Do not peel a polarizer protection film of an open cell off in a hard box.

- [18.3.2] Do not install FFC or LVDS cables of an open cell in a hard box.
- [18.3.3] Do not press the surface of an open cell in a hard box.
- [18.3.4] Do not pull X-board when an open cell placed in a hard box.
- [19] Handling In order to prevent open cells, COFs , and components damaged:
 - [19.1] The forced displacement between open cells and X-board may cause a COF damaged. Use a fixture tool for handling an open cell to avoid X-board vibrating and interfering with other components on a PCBA & a COF.
 - [19.2] To prevent open cells and COFs damaged by taking out from hard boxes, using vacuum jigs to take out open cells horizontally is recommended.
 - [19.3] Improper installation procedure may cause COFs of an open cell over bent which causes damages. As installing an open cell on a backlight or a test jig, place the bottom side of the open cell first on the backlight or the test jig and make sure no interference before fitting the open cell into the backlight/the test jig.
 - [19.4] Handle open cells one by one.
- [20]Avoid any metal or conductive material to contact PCB components, because it could cause electrical damage or defect.

10.4 Lamination precautions

[1] Air-Bonding the touch panel or cover is recommended instead of OCA/OCR full lamination.

10.5 Safety precautions

- [1] If the liquid crystal material leaks from the open cell, it should be kept away from the eyes or mouth. In case of contact with hands, skin or clothes, it has to be washed away thoroughly with soap.
- [2] After the end of life, open cells are not harmful in case of normal operation and storage.

10.6 Others

- [1] Turn off the power supply before connecting and disconnecting signal input cable.
- [2] Because the connection area of FPC and panel is not so strong, do not handle panel only by FPC or bend FPC.

- [3] Water drop on the surface or condensation as panel power on will corrode panel electrode.
- [4] As the packing bag open, watch out the environment of the panel storage. High temperature and high humidity environment is prohibited.
- [5] In the case the TFT LCD module is broken, please watch out whether liquid crystal leaks out or not. If your hand touches liquid crystal, wash your hands cleanly with water and soap as soon as possible.

11. PACKING DRAWING

TBD



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Quality Inspection Standards 品质允收标准

Model No. / 产品型号:	Applies More than 10.0 Inches Touch Display Screen
Updated Date /生效日期:	2022-05-20
Version / 版 本:	<u>A0</u>
Customer confirmation .	

Record of Revision /修订履历

Version /版本	Revision Record /修订内容	Reviser /修订人	Revision Date /修订日期
V0	首发 / Starting	Green	2022.05.20

1

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1.Scope of application /适用范围.

This document shall be applied to more than 10.0 inches touch display screen.

本文件适用于5.5~10.0 寸触摸显示屏.

2.Inspection conditions and environment /检验条件与环境.

- 2.1 Inspection Conditions /检验条件:
- (1) Inspection Distance /检测距离: 35cm ±5cm.
- (2) Check time /检验时间:

Displays performance test /功能测试: 3~5S /Image, Cosmetic Inspection /外观检验:12~15S.

(3) Check the viewing angle /检验视角:

Light-on Inspection Angle /点灯检验角度: ±45°.

Cosmetic Inspection Angle /外观检验角度: ±45°.



(Perpendicular to LCD panel surface /垂直于LCD表面)

2.2 Inspection environment /检验环境:

Amb	ient Temperature 温度	25°C±5°C
An	nbient Humidity 湿度	55±5%RH
Ambient	Cosmetic Inspection 外观检验	800-1000 Lux
Illumination 亮度	Functional Inspection 点灯检验	200~300Lux

2.3 Sampling Conditions /抽样条件:

(1) Quantity to be inspected /批量: Quantity of shipment lot per model /单次运送单一型号数量.

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(2) Sampling method /抽样方法:

		GB/T 2828.1- 2003
		Normal Inspection , Single Sampling 正常检验、单次抽样
		General inspection level: I 一般检验水平:二级
	Major Defect /主要缺陷	0.65
AQL	Minor Defect /次要缺陷	1.0

(3) The classification of Major(MA) and Minor(MI) defects is shown as "3.1 Classification of defects".

主缺(MA)及次缺(MI)定义于"3.1缺陷分类".

3.Terms And Definitions /术语和定义

- 3.1 Classification of defects / 缺陷分类:
- (1) Major defects /主要缺陷:

A major defect is a defect that is likely to result in failure, or to reduce materially the usability of the product for its intended purpose.

可导致产品功能失效或减少产品可用性的缺陷.

(2) Minor defects /次要缺陷:

It will not cause the product to fail and reduce the defects in the effective use and operation of the product.

不会导致产品功能失效和减少产品的有效使用与操作的缺陷.

3.2 Point defects /点状缺陷:

The size of the point defect is defined by the diameter D, and the average diameter of the defect is

D=1/2 (W+L).

点状缺陷的大小是由直径 D 定义的,缺陷的平均直径 D=1/2(W+L).

3.3 Linear defects /线状缺陷:

When defect size $L \ge 2W$, the defect count as liner type defect. Size of linear defect is defined by length (L) and the maximum width (W).

3

当缺陷尺寸 L≥2W 时,被视为线状缺陷,线状缺陷是由长度 (L) 和最大宽度 (W) 定义的.



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3.4 LCD sub-pixel dot /LCD子像素点

(1) Definition /定义: The point defect area is greater than 50% of the LCD sub-pixel area, and is visible through ND5% filter masking .

子像素点缺陷面积大于 50% LCD子像素面积, 且透过 ND5%遮盖是可见的.

(2) The drawing of 1/2 area sub-pixel definition / 1/2 面积的子像素定义绘图:

The 1/2 area sub-pixel can be defined as below one or more of specific shapes

1/2 面积的子像素可以定义为如下一个或多个特定形状图:



3.5 Small bright dot /细碎亮点:

Point defects smaller than "LCD sub-pixels" /小于"LCD子像素点"的点缺陷.

(Ratio of Zone I to Zone O/I区与O区比例: 1: 2: 1)



3.6 ND filter inspection method /ND卡的检验方法:

Hold the ND filter about 5cm above the display area, with your eyes 30-40cm away from the panel, and observe for $2\sim3$ seconds.

在显示区域上方大约 5cm 处握住 ND 卡,眼睛距离面板 30-40cm,观察2~3 秒.



3.7 Any FPC surface problems that do not leak copper on the surface and do not cause functional failure are acceptable. 任何 FPC 表面问题,表面未露铜和不造成功能失效是可以接受.

3.8 Extraneous substances that can be wiped out, like Finger point, Particles are not considered as a defect. 可以被擦拭干净的表面物质不视为缺陷 (如手指印, 尘粒).



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3.9 Defects that can be covered by the material and are not visible in appearance are not considered defects.

能被物料覆盖,外观不可见的缺陷不视为缺陷.

3.10 Panel damage /面板损伤:

Glass damage outside the AA display area that does not affect the effective wiring is acceptable.

AA 显示区域以外的玻璃损伤,不影响有效线路是可以接受的.

3.11 Issues not specified or defined in this acceptance standard shall be handled through friendly negotiation between the two parties.

本允收标准中未规定或定义的问题,双方友好协商处理.

4. Inspection standards /检验标准

4.1 Structural Dimensions /结构尺寸规格

Serial Number	Measurement items /测	量项目	Specification /规格	Remark /各注
序号	名称 /Name	Unit /单位	Tolerance /公差	
1	Outside dimension:Length 尺寸:长	mm /毫米	0.15mm~0.30mm	Please refer to the product specification for detailed
2	Outside dimension: Width 尺寸:宽	mm /毫米	0.15mm~0.30mm	dimensions and tolerances 详细的尺寸规格和公差请
3	Outside dimension: Thickness 尺寸: 高	mm /毫米	0.30mm~0.50mm	参考产品规格书

4.2 Appearance Inspection Specification /外观检验规格

(D: diameter, W: width, L: length, N: quantity, DS: spacing)

Inspection area 检验区域	Inspection items Inspection specifications 检验项目 检验规格		Defect category 缺陷类别	
	Wire(on Array) 线路	Can't be damaged 不能损伤	MA	
Glass 玻璃	Chipping/corner breaking 崩边/破角	Can't affect the effective lines and functions 不能影响有效线路和功能	MA	
	Edge 边缘	There must be no extensional cracks 不可有延伸性裂纹	MA	
Silicone	Silicone coating 硅胶涂布	The height must not exceed the LCD CF surface 高度不能超过LCD CF面		MI
硅胶	Glue overflow 溢胶	Can't cover FPC, POL, etc 不能覆盖到FPC、POL等		MI

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Inspection area 检验区域	Inspection items 检验项目	Inspection specifications 检验规格	Defect c 缺陷;	ategory 类别
	Appearance 外观	Scratches or injuries are not allowed to cause copper exposure 划伤或损伤不允许表面出现露铜		MI
РСВА	Component 元器件	Can't be damaged and lack 不能损伤和缺少	MA	
FPC	金手指氧化	Not allowed 不允许		MI
Connector	Connection status 连接状况	The connection must be accurate and stable 必须准确稳定连接	MA	
连接器	Break 破裂	Not allowed 不允许	MA	
	Soldering,: false soldering/tinning/tin beads 假焊/连锡/锡珠	Not allowed 不允许	MA	
	Scratches 划伤	 W≤0.10mm; L≤5mm, Ignore (忽略) 0.10mm<w≤0.15mm; ds<<="" li="" l≤5mm;="" n≤5;=""> ≥10mm 0.15mm<w; 5mm<l,="" allowable<br="" not="">(不允许)</w;> </w≤0.15mm;>		MI
	Dent 凹凸印	 D≤0.25mm, Ignore (忽略) 0.25mm<d≤0.50mm; ds≥10mm<="" li="" n≤5;=""> 0.50mm<d, (不允许)<="" allowable="" li="" not=""> </d,></d≤0.50mm;>		MI
	Bubbles 气泡	 D≤0.25mm, Ignore (忽略) 0.25mm<d≤0.50mm; ds≥10mm<="" li="" n≤5;=""> 0.50mm<d, (不允许)<="" allowable="" li="" not=""> </d,></d≤0.50mm;>	P	MI
	Point defects 点状不良	 D≤0.25mm, Ignore (忽略) 0.25mm<d≤0.50mm; ds≥10mm<="" li="" n≤5;=""> 0.50mm<d, (不允许)<="" allowable="" li="" not=""> </d,></d≤0.50mm;>		MI
POL 偏光片	Edge bubbles 边缘气泡	 Within 1/2BM of the display area, it is not allowed 显示区往外 1/2BM 区域内,不允许 The display area is 1/2 outside the BM area, and it is not controlled 显示区往外1/2BM区域以外,不管控 		MI
	Dirty/watermarked 脏污/水印	No dirt/water lines/finger marks are allowed, and must be wiped clean 不允许有脏污/水印/手指印,须擦拭干净方可		MI
	Warping 起翘	Not allowed 不允许		MI
	Attaching offset 贴偏	It is necessary to completely cover the display area outward, within the 1/2BM area, or without leaking POL edges after TP is attached 需完整覆盖显示区往外、1/2BM区以内或贴合 TP后不会出现漏偏光片边缘		MI
	Mixture 混料	Mixing different types of POL or not using POL as required by the BOM, not allowed 不允许混贴不同型号的POL或未按BOM要求使用 POL	MA	

Inspection area	Inspection items	Inspection specifications	Defect c	ategory
检验区域	检验项目	检验规格	缺陷	类别
	Point defects 点状不良	 D≤0.25mm, Ignore (忽略) 0.25mm<d≤0.50mm; ds≥10mm<="" li="" n≤5;=""> 0.50mm<d, (不允许)<="" allowable="" li="" not=""> </d,></d≤0.50mm;>		MI
	Scratches 划伤	 W≤0.10mm; L≤5mm, Ignore (忽略) 0.10mm<w≤0.15mm; ds<br="" l≤5mm;="" n≤5;="">≥10mm</w≤0.15mm;> 0.15mm<w; 5mm<l,="" allowable<br="" not="">(不允许)</w;> There is a feeling scratch, Not allowable 有感划伤, 不允许 		MI
TP&CG	Edges and corners cracked 崩角/崩边	 Product front / 产品正面: Edge and corner chipping is not allowed 崩角、崩边不允许 Product back /产品背面: X≤ 0.5, Y≤0.5, Z≤1/2T; N≤5; DS≥10mm 		MI
	Silk screen 丝印	The silk screen is clear, complete and correct 丝印清晰、完整、内容正确		MI
	Dirty 脏污	Non-wipeable dirt, not allowed 不可擦拭的脏污,不允许		MI
	Broken 破损	Not allowable 不允许	MA	
	Ink color aberration 油墨色差	ΔE>1, Not allowable (不允许)		MI
	Cover pinholes 针孔	 D≤0.20mm, N≤5, DS≥10mm, allowable D>0.20mm, intensive pinholes (密集型针孔), Not allowable (不允许) 	P	MI
	IR holes IR孔	Dirt, deviation, color difference, etc. are not allowed 不允许脏污、偏位、色差等		MI
	Backlight separation 背光分离	Not allowable 不允许		MI
	Deformation of rubber iron and rubber frame 胶铁、胶框变形	Use the plug gauge 0.3mm on the flat surface and can snap in and judge NG 在平面上使用塞规0.3mm卡翘曲位置,能卡进判 定NG		MI
	The iron frame is oxidized and not tightened 铁框氧化、卡不紧	Not allowable 不允许		MI
BL 背光	Backlight sticky solder beads, glue, etc 背面粘锡珠、残胶等	Not allowable 不允许		MI
	Lnkjet coding , Barcode , QR code 喷码/条码/二维码	The lnkjet coding is clear and complete, the barcode and QR code can be scanned normally, and the content and format match 喷码清晰完整、条码和二维码可正常扫描,内 容和格式相符		MI
	Accessories (protective film, double-sided tape, insulating adhesive, etc.) 辅料(保护膜、双面 胶、绝缘胶等)	Defects such as missing pastes, sticking deviations, defects, and fractures are not allowed 不允许有漏贴、贴偏、残缺、断裂等缺陷		MI
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DISPLAY SMART LIFE

4.3 Electrical test specifications /电性检查规格

(D: diameter, W: width, L: length, N: quantity, DS: spacing)

Inspection items	Inspection specifications	Defect c	ategory
检验坝目	检验规格	缺陷	奕别
Glass bright spots/dark spots	1. D \leq 0.25mm, Ignore (涩略)		ЪØ
玻璃亮点/暗点	2. $0.25 \text{mm} < D \le 0.50 \text{mm}; N \le 5; DS \ge 10 \text{mm}$		MI
	3. 0.50mm <d, (个允许)<="" allowable="" not="" td=""><td></td><td></td></d,>		
Mura	Use ND5% filter masking, visual invisibility is OK, 200~300Lux		MI
	使用ND5%遮盖,目视个可见即为OK,200~300Lux		
Small bright dot	Use ND5% filter masking, visual invisibility is OK		MI
	使用ND5%遮盖,目视个可见即为OK		
Light looks on	1. Use ND5% filter masking, visual invisibility is OK 使用ND50/读差。日如不可见即为OV		
Light leakage 泥业	使用NDS%遮面, 日视小可见即为UK		MI
	2. If necessary, sign on on the sample 必要时		
Backlight black/white dots	1. $D \leq 0.25$ mm $\leq D \leq 0.50$ mm $\leq N \leq 5$ ≥ 10 mm		МІ
背光黑点/白点	2. $0.2511111 < D < 0.5011111; N < 5; D > 1011111$		IVII
	3. $0.50 \text{ mm} < D$, Not allowable (\wedge)LH)		
Linear foreign bodies	1. W \leq 0.10mm; L \leq 5mm, Ignore (忽略)		
线状异物(异物毛丝等)	2. 0.10 mm < W < 0.15 mm ; L < 5 mm ; N < 5 ; DS > 10 mm		MI
	3. 0.15mm <w; (不允许)<="" 5mm<l,="" allowable="" not="" td=""><td></td><td></td></w;>		
Black/White Print	Use ND5% filter masking, visual invisibility is OK		МІ
黑印/白印	使用ND5%遮盖,目视不可见即为OK		111
The display is uneven	Use ND5% filter masking, visual invisibility is OK		M
显示不均匀	使用ND5%遮盖,目视不可见即为OK		IVII
The brightness is uneven	Brightness uniformity < 85.0%, Not allowable		МІ
亮度不均匀	亮度均匀性<85.0%,不允许		IVII
Displacement of the	Not allowable		
membrane	不允许		MI
膜材移位			
Interference	Not allowable		
pattern/Newtonian pattern	不允许		MI
十莎纹/牛顿纹			
Display abnormal 日二日労	Not allowable 天会次	MA	
·亚小开币 Na diamlary	小儿仔 Not allowable		
No display 王旦三	Not allowable 不会次	MA	
Ling/Missing Drowing	小儿仔 Not allowable		
出版/Missing Drawing 线条/缺画	Not anowable 不分许	MA	
·····································	Not allowable		
以 因 屈	不允许	MA	
I CD grid	Not allowable		
LCD网格	不允许	MA	
Afterimage	Not allowable		
	不允许	MA	
Wrong viewing angle	Not allowable		
视角错误	不允许	MA	
No touch	Not allowable		
无触摸	不允许	MA	
Touch the jump point	Not allowable	2.5.4	
触摸跳点	不允许	MA	
Not sensitive	Not allowable	1.6.4	
触摸不灵敏	不允许	MA	
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