P&O™ 深圳市浦洋通讯设备有限公司

SPECIFICATION

LCD MODULE

P023T009-V2

REVISION RECORD

DESIGN	CHECK	REVIEW
VERSION	DATE	CONTENTS
A	2017-02-24	First Release

CUSTOMER

Customer company:	Date:
Customer signature:	Date:

FAX：0755-27585596 TEL：13600197172

CONTENTS

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GENERAL INFORMATION

Item	Contents	Unit
Driver element	a-Si 2.31 TFT active matrix	--
Viewing direction	6 O'CLOCK	O' Clock
LCM OUTLINE DIMEMSIONS	51(W) x45.8(H) x 2.3(T)	mm
Active area (W×H)	46.75(H) × 35.06(V)MM	mm
Number of Dots	320RGB(H)×240(V)	Pixel
Driver IC	ILI9342C	--
Colors	262K	--
Weight	TBD	g
Backlight Type	4 White LEDs in Parallel	--
Interface Type	MCU8/16 BIT	--
Input voltage	2.8V ~ 3.3V	V

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Min	Max	Unit
Supply voltage for analog	VDD	-0.3	3.3	V
Input voltage	VIN	-0.3	VDD+0.3	V
Operating temperature	TOP	-20	70	℃
Storage temperature	TST	-30	80	℃
Humidity	RH		90%(Max60℃)	RH

ELECTRICAL CHARACTERISTICS

DC CHARACTERISTICS

Parameter	Symbol	Min	Typ	Max	Unit
Supply voltage for analog	VDD	2.3	2.8	3.3	V
Input Current	Idd	—	-	-	mA
Supply voltage for I/O circuit	IOVCC	1.65	1.8	3.3	V
Input voltage ' H' level	VIH	0.7 IOVCC	—	—	V
Input voltage ' L' level	VIL	—	—	0.3 IOVCC	V
Output voltage ' H' level	VOH	0.8 IOVCC	—	—	V
Output voltage ' L' level	VOL	—	—	0.2 IOVCC	V

TIMING OF POWER SUPPLY

PLEASE REFER TO THE DRIVER IC SPECIFICATION.

BACKLIGHT CHARACTERISTICS

Item	Symbol	Min	Typ	Max	Unit	Condition
Forward voltage	Vf	2.9	3.2	3.3	V	If=80 mA
Luminance	LV	3000	--	--	cd/m²	
Number of LED	-	4			Piece	-
Connection mode	p	Parallel			-	-

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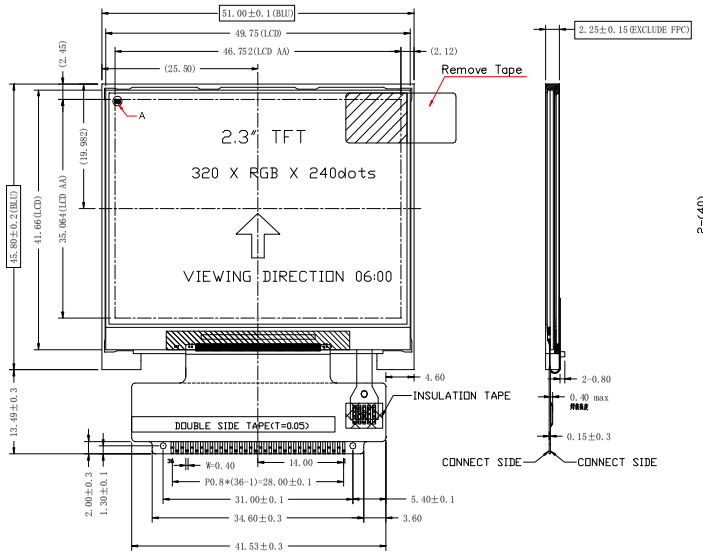
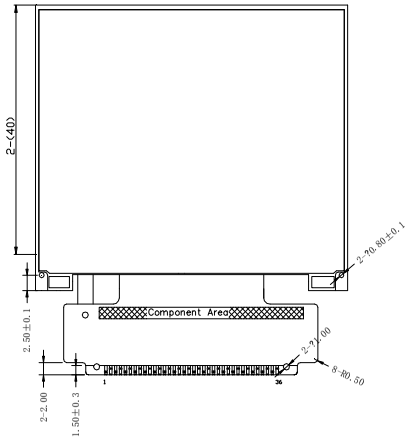
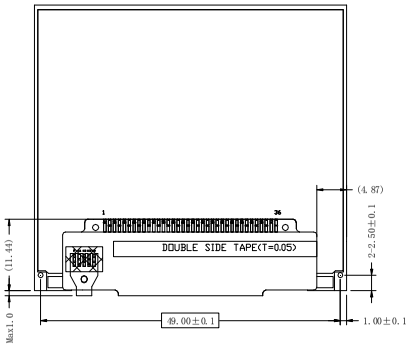
产品编码	

Customer's Approval	
Customer	
Date	

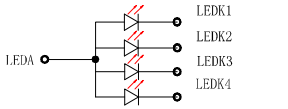




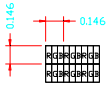


客户弯折参考图

Pin	Pin Name
1	LEDA
2	LEDK1
3	LEDK2
4	LEDK3
5	LEDK4
6	GND
7	RESET
8	DB15
9	DB14
10	DB13
11	DB12
12	DB11
13	DB10
14	DB9
15	DB8
16	DB7
17	DB6
18	DB5
19	DB4
20	DB3
21	DB2
22	DB1
23	DB0
24	W16_8X
25	RD
26	WR
27	RS
28	CS
29	IOVCC
30	VCC
31	NC
32	GND
33	NC
34	NC
35	NC
36	NC



(CIRCUIT DIAGRAM)
IF=15*4=60mA（定电流驱动）
参考电压2.9-3.4V



Detail A
Scale: 20:1

8/16 BIT

NOTES:

1.DISPLAY TYPE: TFT
2.VIEING DIRECTION: 12:00
3 LCD DRIVE IC: ILI9342C
4.POLARIZER MODE: TRANSMISSIVE/POSITIVE
6.VDD2 2.8V(TYPE) VDD 2.8V(TYPE)
7.OPERATING TEMP: -20°C -- 70°C
8.STORAGE TEMP: -30°C -- 80°C
9.UNMARKED TOLERANCE: ±0.20
10.REQUIREMENTS ON ENVIRONMENTAL PROTECTION: RoHS

NO.	NAME	QTY	Part No.	VENDER && NOTE
5	吸塑	1	TFT023-1/JYG-BX-920A(10PCS)	
4	偏光片	2	普通视角 (规格：37.45*49,15*0.17mm)	上磨下光
3	FPC	1	023T009-V2 FPC	
2	主屏	1	TM023KYH03 T=0.5mm	TM & ILI9342C
1	背光	1	P023T009-V2	

REVISED RECORD		
A	XRM023T007 基础改背胶	20131110
B		
C		
D		
E		

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UNIT	SCALE	PAGE	DRAWN BY	YUN
mm	1:1	1/1	CHECKED BY	
PRODUCT NO:	P023T009-V2		APPROVED BY	
			ORG DATE	

APPLICATION CIRCUIT

Please consult our technical department for detail information.

INITIAL CODE

Please consult our technical department for detail information.

ELECTRO-OPTICAL CHARACTERISTICS

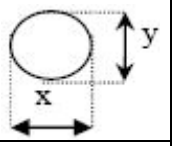
Item		Symbol	Condition	Min	Typ	Max	Unit	Remark	Note
Response time		Tr+Tf	θ =0° ∅=0° Ta=25℃	-	20	30	ms	FIG 1.	4
Contrast ratio		Cr		-	400	500	-	FIG 2.	1
Luminance uniformity		δ WHITE		-	-	-	%	FIG 2.	3
Surface Luminance		Lv		300	-	-	cd/㎡	FIG 2.	2
Viewing angle range		CR>10	∅ 3	60	70	-	deg	FIG 3.	6
			∅ 9	60	70	-	deg	FIG 3.	
			∅ 12	60	70	-	deg	FIG 3.	
			∅ 6	50	65	-	deg	FIG 3.	
CIE(x,y) chromaticity	Red	x	θ =0° ∅=0° Ta=25℃	0.586	0.636	0.686		FIG 2.	5
		y		0.273	0.323	0.373			
	Green	x		0.252	0.277	0.297			
		y		0.529	0.549	0.569			
	Blue	x		0.122	0.142	0.162			
		y		0.102	0.122	0.142			
	White	x		0.283	0.303	0.323			
		y		0.305	0.325	0.345			

4.Standards of inspection items

4.1Major Defect

Item No	Items to be inspected	Inspection Standard	Classification of defects
4.1.1	All functional defects	1.No display 2.Display abnormally 3.Missing vertical, horizontal segment 4.Short circuit 5. Back-light no lighting, flickering and abnormal lighting.	Major
4.1.2	Missing	Missing component	
4.1.3	Outline dimension	Overall outline dimension beyond the drawing is not allowed.	
4.1.4	linearity	No more than 1.5%	

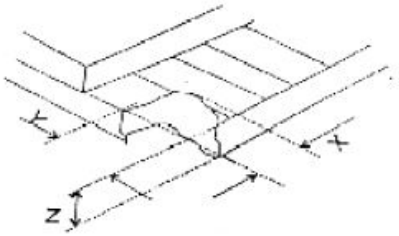
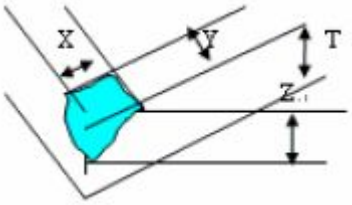
4.2 Cosmetic Defect

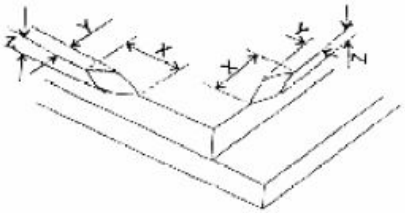
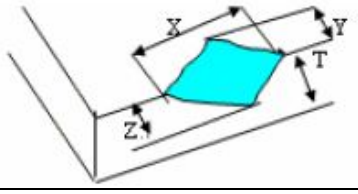
Item No	Items to be inspected	Inspection Standard				Classification of defects
4.21	**Clear Spots** Black and white Spot defect Pinhole, Foreign Particle, polarizer Dirt	For dark/white spot, size Φ is defined as $\Phi=\frac{(x+y)}{2}$ 				Minor
		1				
		Zone / Size(mm)	Acceptable Qty			
			A	B	C	
		Φ≤0.15	Ignore		Ignore	
		0.15＜Φ≤0.20	2			
		0.20＜Φ≤0.30	1			
		Φ＞0.30	0			
	Clear Spots TP Dirt	2				Minor
		Zone / Size(mm)	Acceptable Qty			
			A	B	C	
		Φ≤0.15	Ignore		Ignore	
		0.15＜Φ≤0.20	2			
		0.20＜Φ≤0.30	1			
		Φ＞0.30	0			
	Dim Spots Circle shaped and dim edged defects	3				Minor
		Zone / Size(mm)	Acceptable Qty			
			A	B	C	
		Φ≤0.2	Ignore		Ignore	
		0.20＜Φ≤0.40	2			
		0.40＜Φ≤0.60	1			
		Φ＞0.60	0			

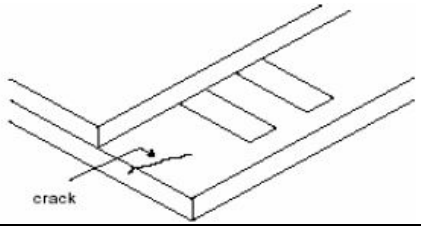
2 Cosmetic Defect

<table>
<tr><th>Item No</th><th>Items to be inspected</th><th colspan="5">Inspection Standard</th><th>Classification of defects</th></tr>
<tr><td rowspan="6">4.2.2</td><td rowspan="6">Line defect
Black line, White line, Foreign material on polarizer</td><td colspan="2">Size(mm)</td><td colspan="3">Acceptable Qty</td><td rowspan="6">Minor</td></tr>
<tr><td rowspan="2">L(Length)</td><td rowspan="2">W(Width)</td><td colspan="3">Zone</td></tr>
<tr><td>A</td><td>B</td><td>C</td></tr>
<tr><td>Ignore</td><td>W≤0.01</td><td colspan="3">Ignore</td><td rowspan="4">Ignore</td></tr>
<tr><td>L≤3.0</td><td>0.01＜W≤0.03</td><td colspan="3">2</td></tr>
<tr><td>L≤3.0</td><td>0.03＜W≤0.05</td><td colspan="3">1</td></tr>
<tr><td></td><td>W＞0.05</td><td colspan="3">0</td></tr>
<tr><td rowspan="6">4.2.3</td><td rowspan="6">Dim line defect
Polarizer scratch
TP film scratch</td><td colspan="5">The line can be seen after mobile phone in the operating condition:</td><td rowspan="6">Minor</td></tr>
<tr><td colspan="2">Size(mm)</td><td colspan="3">Acceptable Qty</td></tr>
<tr><td rowspan="2">L(Length)</td><td rowspan="2">W(Width)</td><td colspan="3">Zone</td></tr>
<tr><td>A</td><td>B</td><td>C</td></tr>
<tr><td>Ignore</td><td>W≤0.03</td><td colspan="3">Ignore</td><td rowspan="3">Ignore</td></tr>
<tr><td>L≤5.0</td><td>0.03＜W≤0.05</td><td colspan="3">3</td></tr>
<tr><td></td><td>W＞0.05</td><td colspan="3">0</td></tr>
<tr><td rowspan="6">4.2.4</td><td rowspan="6">Polarize Air bubble</td><td colspan="5">If the scratch can be seen after mobile phone cover assembling or in the operating condition, judge by the line defect of 4.2.2.
If the scratch can be seen only in non-operating condition or some special angle, judge by the following.</td><td rowspan="6">Minor</td></tr>
<tr><td colspan="2">Size(mm)</td><td colspan="3">Acceptable Qty</td></tr>
<tr><td rowspan="2">L(Length)</td><td rowspan="2">W(Width)</td><td colspan="3">Zone</td></tr>
<tr><td>A</td><td>B</td><td>C</td></tr>
<tr><td>Ignore</td><td>W≤0.03</td><td colspan="3">Ignore</td><td rowspan="3">Ignore</td></tr>
<tr><td>5.0＜L≤10.0</td><td>0.03＜W≤0.05</td><td colspan="3">2</td></tr>
<tr><td>L≤5.0</td><td>0.05＜W≤0.08</td><td colspan="3">1</td></tr>
<tr><td></td><td>W＞0.08</td><td colspan="3">0</td></tr>
<tr><td rowspan="5">4.2.4</td><td rowspan="5">Polarize Air bubble</td><td colspan="5">Air bubbles between glass & polarizer</td><td rowspan="5">Minor</td></tr>
<tr><td colspan="2" rowspan="2">Zone
Size(mm)</td><td colspan="3">Acceptable Qty</td></tr>
<tr><td>A</td><td>B</td><td>C</td></tr>
<tr><td colspan="2">Φ≤0.25</td><td colspan="3">Ignore</td><td rowspan="3">Ignore</td></tr>
<tr><td colspan="2">0.25＜Φ≤0.5</td><td colspan="3">2</td></tr>
<tr><td colspan="2">Φ＞0.50</td><td colspan="3">0</td></tr>
</table>

Item No	Items to be inspected	Inspection Standard	Classification of defects

<table>
<tr>
<td>4.35</td>
<td>Glass defect</td>
<td>
(i) Chips on corner
A:LCD Glass defect

<table>
<tr><td>X(mm)</td><td>Y(mm)</td><td>Z(mm)</td></tr>
<tr><td>≤2.0</td><td>≤S</td><td>Disregard</td></tr>
</table>
Notes: S=contact pad length
Chips on the corner of terminal shall not be allowed to extend into the ITO pad or expose perimeter seal.
B:TP Glass defect


<table>
<tr><td>X(mm)</td><td>Y(mm)</td><td>Z(mm)</td></tr>
<tr><td>≤3.0</td><td>≤3.0</td><td>Disregard</td></tr>
</table>
(ii)Usual surface cracks
A:LCD Glass defect

<table>
<tr><td>X(mm)</td><td>Y(mm)</td><td>Z(mm)</td></tr>
<tr><td>≤3.0</td><td><Inner border line of the seal</td><td>Disregard</td></tr>
</table>
B:TP Glass defect


<table>
<tr><td>X(mm)</td><td>Y(mm)</td><td>Z(mm)</td></tr>
<tr><td>≤6.0</td><td><2.0</td><td>Disregard</td></tr>
</table>
(iii) Crack
Cracks tend to break are not allowed.


</td>
<td>Minor</td>
</tr>
</table>