



**SPECIFICATION
FOR
LCD Module**

PV101049T0240Q-CT

MODULE:	PV101049T0240Q-CT
CUSTOMER:	
LCD:	
IC:	

	INITIAL	DATE
PREPARED BY		
CHECKED BY		
APPROVED BY		

CUSTOMER	INITIAL	DATE
APPROVED BY		



REVISION STATUS

Version	Revise Date	Page	Content	Modified by
V1.0	2022.8.4	-		
V1.1	2022.8.8	19~21	更新检测标准	
V1.2	2022.10.18	5	更新总图	



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1. General Description

* DESCRIPTION

PV101049T0240Q-CT is a color active matrix TFT (Thin Film Transistor) LCD (liquid crystal display) that uses amorphous silicon TFT as a switching device. This model is composed of a Transmissive type TFT-LCD Panel, driver circuit, back-light unit. The resolution of a 10.1" TFT-LCD contains 800*1280 pixels, and can display up to 16.7M colors.

* Features

- Low Input Voltage: VDD: 2.3~3.3V
- Display Colors of TFT LCD: 16.7M colors
- CPU Interface: MIPI

General Information Items	Specification	Unit	Note
	Main Panel		
Display area(AA)	135.36(H)*216.58(V) (10.1inch)	mm	-
Driver element	a-Si TFT active matrix	-	-
Display colors	16.7M	colors	-
Number of pixels	800(RGB) *1280	dots	-
Pixel arrangement	RGB vertical stripe	-	-
Pixel pitch	56.4(V) × 169.2(H)	um	-
Viewing angle	ALL	o'clock	-
Drive IC	JD9365DA	-	-
Display mode	TFT/ Normal BLACK	-	-
Operating temperature	-10~+60	°C	-
Storage temperature	-20~+70	°C	-

Mechanical Information

Item		Min.	Typ.	Max.	Unit	Note
Module size	Horizontal(H)	-	243.6	-	mm	±0.1
	Vertical(V)	-	171.6	-	mm	±0.1
	Depth(D)	-	5.4	-	mm	±0.3
Weight		-	TBD	-	g	-



2. Mechanical Specification

标题: 斗

版本: A/1

标题: 斗

版本: A/1

注: 烧录OTP全代码!

一. LCM产品特征 (LCM Features):

显示类型 (Display mode):	FT/Normal, BLACK
驱动芯片 (Driver IC):	JD9365DA
人眼观察角 (Viewing Direction):	All
接口类型 (Interface Types):	MIPI VIDEO MODE
背光类型 (Backlight Types):	32pins, 8串4并80mA (20mA/LED), 电压为21.6V~26.4V
LCM CTP/RGB CTP Brightness:	200 cd/m ² Min., 250 cd/m ² TYP
模拟色坐标 (Color Coordinates):	(x0, y0) = (0.0, 0.0) ± 0.001 (色温8000~8500)
模组均匀度 (LCM Uniformity):	75% MIN
操作温度 (Operating Temperature):	-10°C ~ 60°C
储存温度 (Storage Temperature):	-20°C ~ 70°C
平面翘曲度 (Planarity Deviation):	< 0.2MM
连接器 (PC Connector):	

二. CTP技术要求 (CTP Technical requirements)

1. 结构: G6; Cover Glass+OCA+ITO film+PFC.
Cover Glass: 1.1MM, SCA 0.2mm, Sensor 0.7mm, 总厚度: 2.0±0.15mm (不含双面胶);

2. IC型号: G19271, 通道数: RX20*TX32, 支持10点触摸, 支持手势唤醒功能, 工作电压: 3.3V
中断方式: 下拉脉冲; FPC接口线为IIC标准接口, IO电压: 3.3V;

Sensor工艺: 丝印

3. LENS表面AF处理;

AF效果要求:

摩擦前纯水接触角: ≥ 110度;

摩擦后纯水接触角: ≥ 100度;

动态摩擦系数: < 0.05;

AF可靠性测试标准:

测试材料: 耐摩擦测试机, 美制0000#级钢丝绒, 施加5N 压力,

摩擦距离20mm, 摩擦速度40次/分钟, 在触摸屏中央摩擦2000次后测量水滴角

4. 透光率: ≥ 85%

5. 表面硬度: 6H以上

6. 工作环境: -10°C ~ +60°C, ≤ 90 %RH

7. 储存环境: -20°C ~ +70°C, ≤ 90 %RH

8. 未注尺寸公差按 ± 0.2mm

9. 产品符合RoHS标准.

标题: KINGTECH GROUP CO., LTD.

版本: PV101049T0240Q-CT

日期: 2021.11.30

物料编码: PV101049T0240Q-CT

面数: 1/1

比例: 1:1

设计: (DESIGN)

审核: (AUDITING)

批准: (APPROVED)

标题: 斗

版本: A/1

FPC弯折出货

标题: KINGTECH GROUP CO., LTD.

版本: PV101049T0240Q-CT

日期: 2021.11.30

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面数: 1/1

比例: 1:1

设计: (DESIGN)

审核: (AUDITING)

批准: (APPROVED)



3. PIN DESCRIPTION

3.1 LCM

Pin NO.	Symbol	Function
1	NC	Not Connect
2	VDD-3.3V	Power supply 3.3V
3	VDD-3.3V	Power supply 3.3V
4	GND	Ground
5	RESET-3.3V	Hardware reset pin
6	NC	Not Connect
7	GND	Ground
8	D0N	DSI_D0N are differential data signal line
9	D0P	DSI_D0P are differential data signal line
10	GND	Ground
11	D1N	DSI_D1N are differential data signal line
12	D1P	DSI_D1P are differential data signal line
13	GND	Ground
14	CLKN	DSI_CLKN are differential data signal line
15	CLKP	DSI_CLKP are differential data signal line
16	GND	Ground
17	D2N	DSI_D2N are differential data signal line
18	D2P	DSI_D2P are differential data signal line
19	GND	Ground
20	D3N	DSI_D3N are differential data signal line
21	D3P	DSI_D3P are differential data signal line
22	GND	Ground
23	NC	Not Connect
24	NC	Not Connect
25	GND	Ground
26	NC	Not Connect
27	PWM	PWM control the LED backlight
28	NC	Not Connect
29	NC	Not Connect
30	GND	Ground
31~32	LEDK	Backlight-
33~38	NC	Not Connect
39~40	LEDA	Backlight+



3.2 CTP PIN

1	GND	L	Ground
2	SDA	H/L	Serial data input pin
3	SCL	H/L	Serial clock input
4	REST3.3V	H/L	Hardware reset pin
5	INT3.3V	H/L	Interrupt pin
6	VCC3.3V	H	Power supply 3.3V



4. ELECTRICAL CHARACTERISTICS

4.1 ABSOLUTE MAXIMUM RATINGS

Item	Symbol	Values		Unit	Remark
		Min	Max.		
Supply Voltage for Logic circuit	VCI	-0.3	6.6	V	-
Supply Voltage for analog circuit	VDD	-0.3	6.6	V	-

4.2 DC ELECTRICAL CHARACTERISTICS

4.2.1 OPERATING CONDITIONS

Typical Operating Conditions (Ta=25°C)

Item	Symbol	Values			Unit	Remark
		Min	Typ	Max.		
Digital Supply Voltage	IOVCC	1.65	-	3.3	V	
Analog Supply Voltage	VDD	3.0	3.3	3.6	V	
LCM current	VDD	-	-	150	mA	
TFT Gate ON Voltage	VGH	15.5	16	16.5	V	
TFT Gate OFF Voltage	VGL	-1.2	-0.7	-0.2	V	

4.2.2 BACKLIGHT UNIT (GND=0V)

Item	Symbol	Values			Unit	Remark
		Min	Typ	Max.		
Forward supply Voltage	V _f	21.6	24	26.4	V	
Forward supply Current	I _f	-	80	-	mA	
LCM Luminance(with CTP)	L _v	200	250	-	cd/m ²	I _B =80mA
Uniformity	/	75			%	-
LED Life time	/	20000	-	-	H	



4.3 POWER ON/OFF SEQUENCE

11.2. DC characteristics

($T_A = -40 \sim 85 \text{ }^\circ\text{C}$, $V_{CIP} = 2.5 \sim 4.8\text{V}$, $V_{CI} = 2.5 \sim 4.8\text{V}$, $V_{CCD}/I_{OVCC} = 1.65 \sim 3.3\text{V}$)

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
V _{CCD} /I _{OVCC}	V _{IN}	Interface Supply Voltage	1.65	-	3.6	
V _{CIP}	V _{IN}	Logic Supply Voltage	2.5	-	6.0	
V _{CI}	V _{IN}	Analog Supply Voltage	2.5	-	6.0	
V _{CCH}	V _{IN}	High speed interface Supply Voltage	1.65	-	3.6	
Input high voltage	V _{IH}	V _{CCD} /I _{OVCC} = 1.65 ~ 3.3V	0.7	-	V _{CCD} /I _{OVCC}	V
Input low voltage	V _{IL}	V _{CIP} = 2.5 ~ 3.3V V _{CI} = 2.5 ~ 3.3V	0	-	0.3 V _{CCD} /I _{OVCC}	V
V _{PP}	V _{IH}	V _{PP}	8V	8.25V	8.5V	V
	V _{IL}					
Output high voltage (SDO, LEDPWM)	V _{OH1}	I _{OH} = -1.0 mA	0.8	-	V _{CCD} /I _{OVCC}	V
Output low voltage (SDO, LEDPWM)	V _{OL1}	V _{CCD} /I _{OVCC} = 1.65 ~ 2.4V I _{OL} = 1.0 mA	0	-	0.2 V _{CCD} /I _{OVCC}	V
Logic High level input current	I _{IH}	V _{SYNC} , H _{SYNC}	-	-	6	μA
		RESX, DCX_SCL, CSX, RDX, WRX_SCL	-	-	6	μA
	I _{IHD}	DB[23...0], SDI, DCX	-	-	6	μA
		DB[23...0]	-	-	6	μA
Logic Low level input current	I _{IL}	V _{SYNC} , H _{SYNC}	-6	-		μA
		RESX, DCX, CSX, RDX, WRX_SCL	-6	-		μA
	I _{ILD}	DB[23...0], SDI, DCX	-6	-		μA
		DB[23...0]	-6	-		μA
Current consumption standby mode (V _{CIP} /V _{CI} -V _{SSD})	I _{ST(VDD)}	V _{CIP} /V _{CI} = 2.8V, V _{CCD} /I _{OVCC} = 1.8V T _A = 25°C	-	TBD	-	μA
Current consumption standby mode (V _{CCD} /I _{OVCC} -V _{SSD})	I _{ST(V_{CCD}/I_{OVCC})}		-	TBD	-	μA
Current consumption during Deep-standby mode (V _{CIP} /V _{CI} -V _{SSD})	I _{DP-ST(VDD)}	V _{CIP} /V _{CI} = 2.8V, V _{CCD} /I _{OVCC} = 1.8V T _A = 25°C	-	TBD	-	μA
Current consumption during Deep-standby mode (V _{CCD} /I _{OVCC} -V _{SSD})	I _{DP-ST(V_{CCD}/I_{OVCC})}		-	TBD	-	μA

Note: 1. The VOTP pin is open on normal mode and in used while OTP programming condition.
2. The GRAM data is eliminated under the Deep standby mode.

Table 11.2: DC characteristic

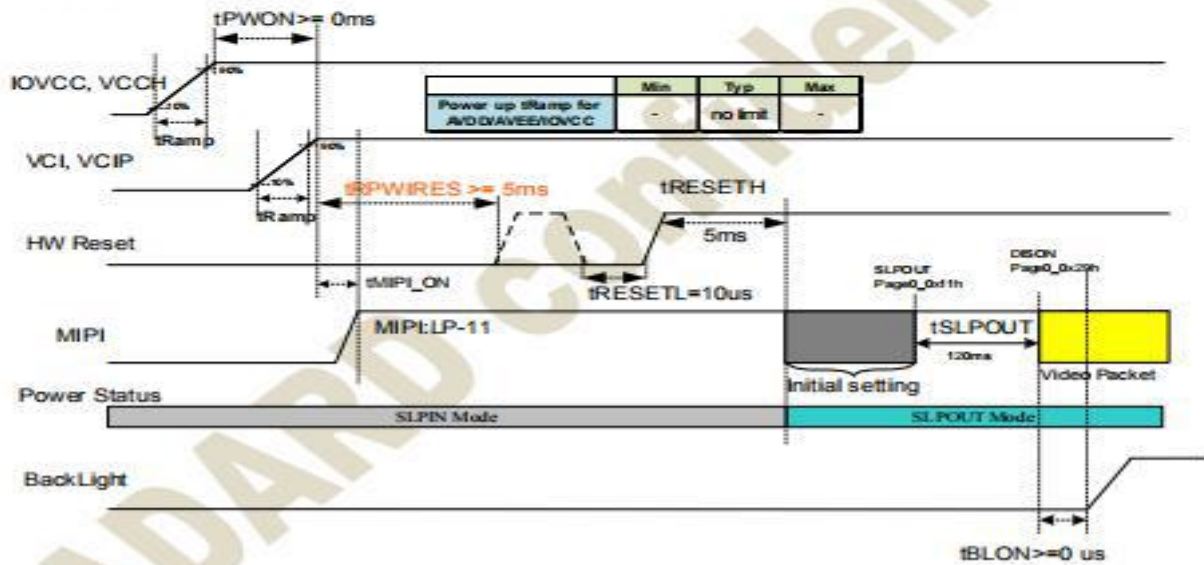


Symbol	Min	Typ	Max	Unit	Remark
tRamp	-	no limit	-	us	
tPWON	0	-	-	ms	
tONI	0	-	-	ms	
tMIPI-ON	0	-	tRPWIRES	ms	
tRPWIRES	5	-	-	ms	
tRESETL	10	-	-	us	
tRESETH	5	-	-	ms	
tSLPOUT	120	-	-	ms	
tBLON	0	-	-	ms	

BOOSTM[1:0]= 10 (Internal DC/DC power mode : Charge Pump, FP7721)

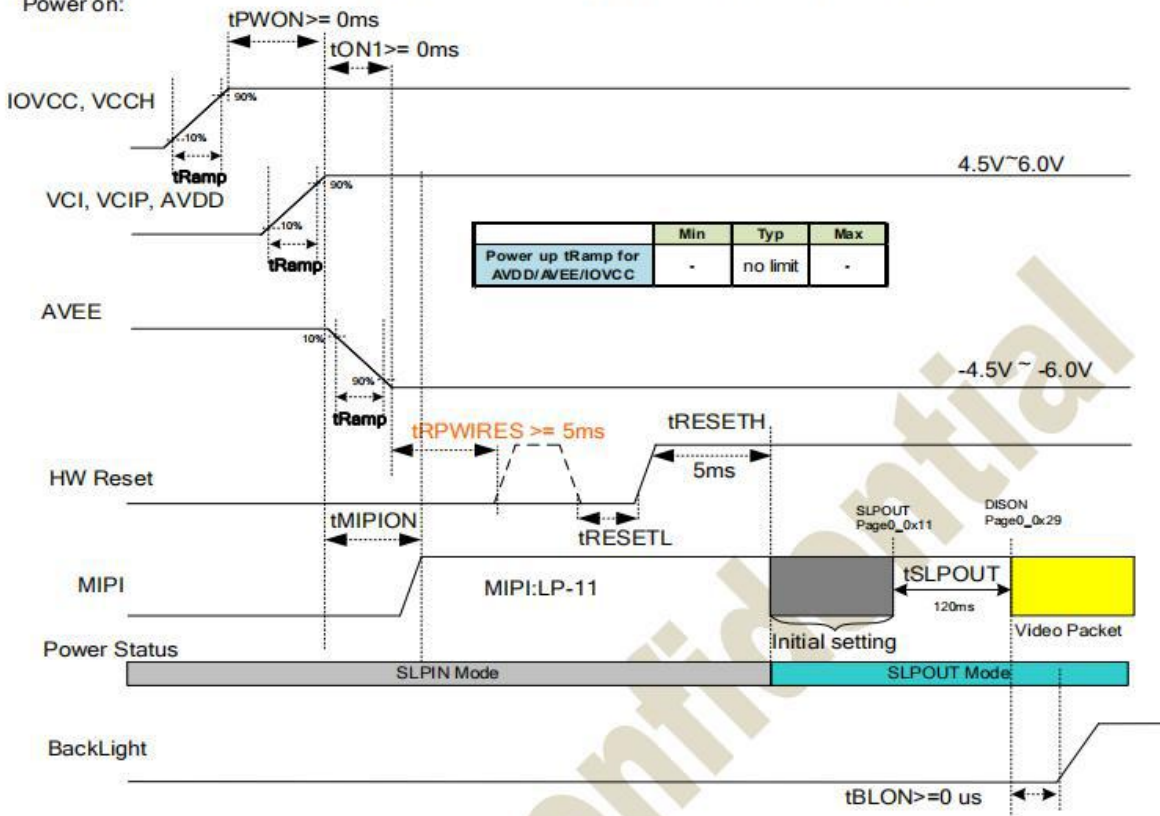
VCCD=IOVCC=VCCH=1.65V ~ 3.6V, VCI=VCIP=2.5V ~ 4.8V.

Power on:

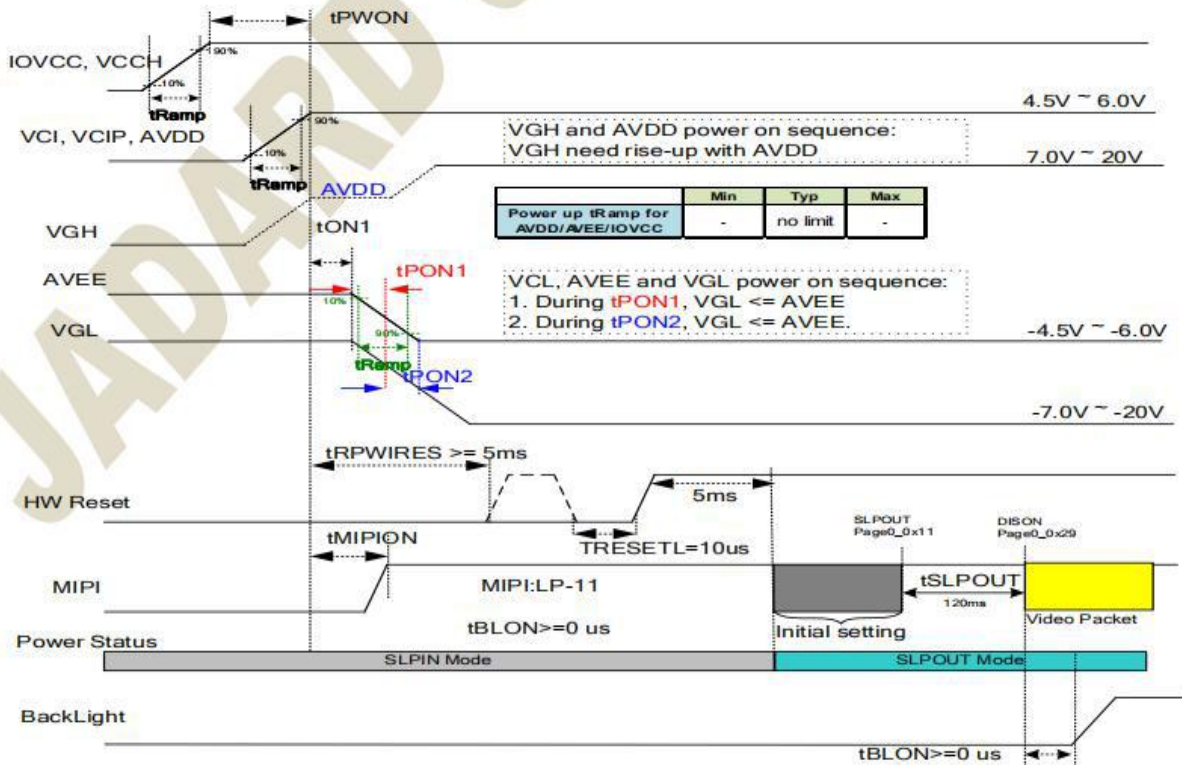




BOOSTM[1:0]=01/11 (External AVDD/AVEE Power)
 VCCD=IOVCC=VCCH=1.65V ~ 3.6V, AVDD=VCI=VCIP=4.5V ~ 6.0V, AVEE=-4.5V ~ -6.0V
 Power on:



BOOSTM[1:0]=00 (External AVDD/AVEE/VGH/VGL)
 IOVCC=VCCH=1.65V ~ 3.6V, VCI=VCIP=AVDD=4.5V ~ 6.0V, AVEE=-4.5V ~ -6.0V, VGH=7V ~ 20V, VGL=-7V ~ -15V
 Power on:





4.4 Reset input timing

11.3.AC characteristics

11.3.1.Reset input timings

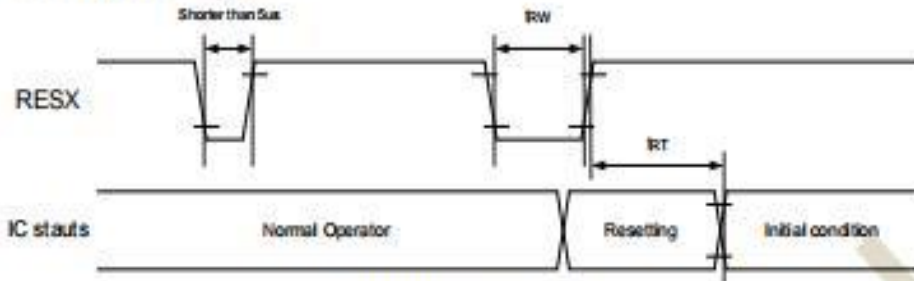


Figure 11.1: Reset input timings

Symbol	Parameter	Related pins	Min.	Max.	Unit
t_{RW}	Reset pulse width ⁽²⁾	RESX	10	-	μ s
t_{RT}	Reset complete time ⁽²⁾	-	-	5 (Note 5)	ms
		-	-	120 (Note 6, 7)	ms

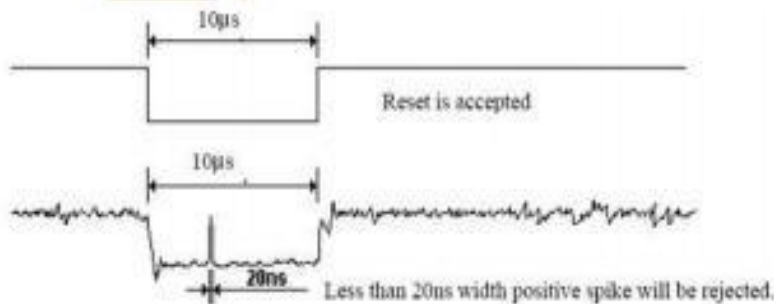
Note: (1) The reset complete time also required time for loading ID bytes from OTP to registers. This loading is done every time when there is HW reset cancel time (IRT) within 5 ms after a rising edge of RESX.

(2) Spike due to an electrostatic discharge on RESX line does not cause irregular system reset according to the table below.

RESX Pulse	Action
Shorter than 5 μ s	Reset Rejected
Longer than 10 μ s	Reset
Between 5 μ s and 10 μ s	Reset Start

(3) During the resetting period, the display will be blanked (The display is entering blanking sequence, which maximum time is 120 ms, when Reset Starts in Sleep Out -mode. The display remains the blank state in Sleep In -mode) and then returns to Default condition for HW reset.

(4) Spike Rejection also applies during a valid reset pulse as shown below:



(5) When Reset is applied during Sleep In Mode.

(6) When Reset is applied during Sleep Out Mode.

(7) It is necessary to wait 5msec after releasing RESX before sending commands. Also Sleep Out command cannot be sent for 120msec.

(8) After Sleep Out Command, it is necessary to wait 120msec then send RESX.

Table 11.3: Reset timings



5.OPTICAL CHARACTERISTICS

(LCD optical characteristics)

Item	Symbol	Conditions	Specifications			Unit	Note		
			Min.	Typ.	Max.				
Transmittance (w/o APCF, w/o DBEF)	T%	Viewing normal angle $\theta_x = \theta_y = 0^\circ$	4.65	5.41	--	%	All left side data are based on Innolux's following condition – 1.LC : AAS 2.Light Source : Innolux Silicate LED 3. Polarizer : CF: SRW062FPN1HC5 TFT: SRW062FPN1HC5 4.Machine :DMS-803/DMS-900 5. By quick VLC dark = 0.3V, VLC white = 4.6V		
Contrast Ratio	CR		800	1000	--	--			
Response Time	T _{on} + T _{off}		-	25	35	ms			
Viewing Angle	Hor.	θ_{x+}	Center CR>10	80	--	deg.			
		θ_{x-}		80	--				
	Ver.	θ_{y+}		80	--				
		θ_{y-}		80	--				
CF only Color Chromaticity (CIE 1931)	Red	Rx	Viewing normal angle $\theta_x = \theta_y = 0^\circ$	0.621	0.641	0.661		-	Under C light Simulation
		Ry		0.313	0.333	0.353		-	
	Green	Gx		0.264	0.284	0.304		-	
		Gy		0.529	0.549	0.569	-		
	Blue	Bx		0.120	0.140	0.160	-		
		By		0.081	0.101	0.121	-		
	White	Wx		0.282	0.302	0.322	-		
		Wy		0.309	0.329	0.349	-		
	Color Gamut				60	--	%		

*Note(1) Definition of Contrast Ratio (CR):

The contrast ratio can be calculated by the following expression.

$$\text{Contrast Ratio (CR)} = L_{255} / L_0$$

L255 : Luminance of gray level 255

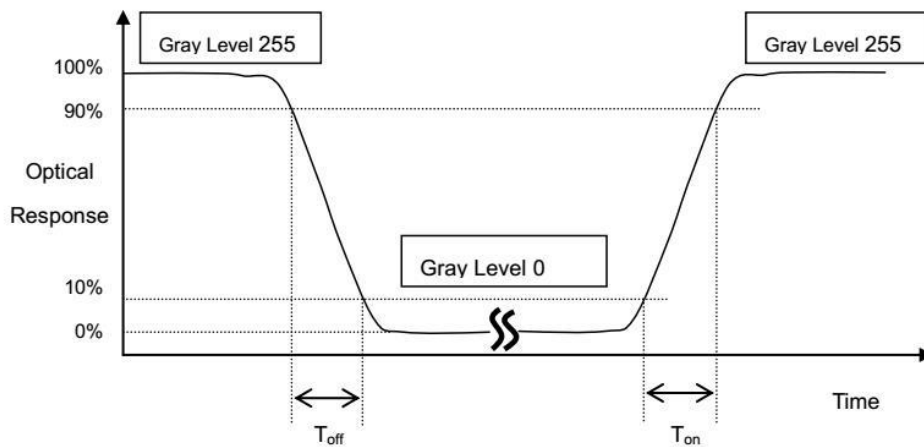
L 0: Luminance of gray level 0

$$\text{CR} = \text{CR} (5)$$

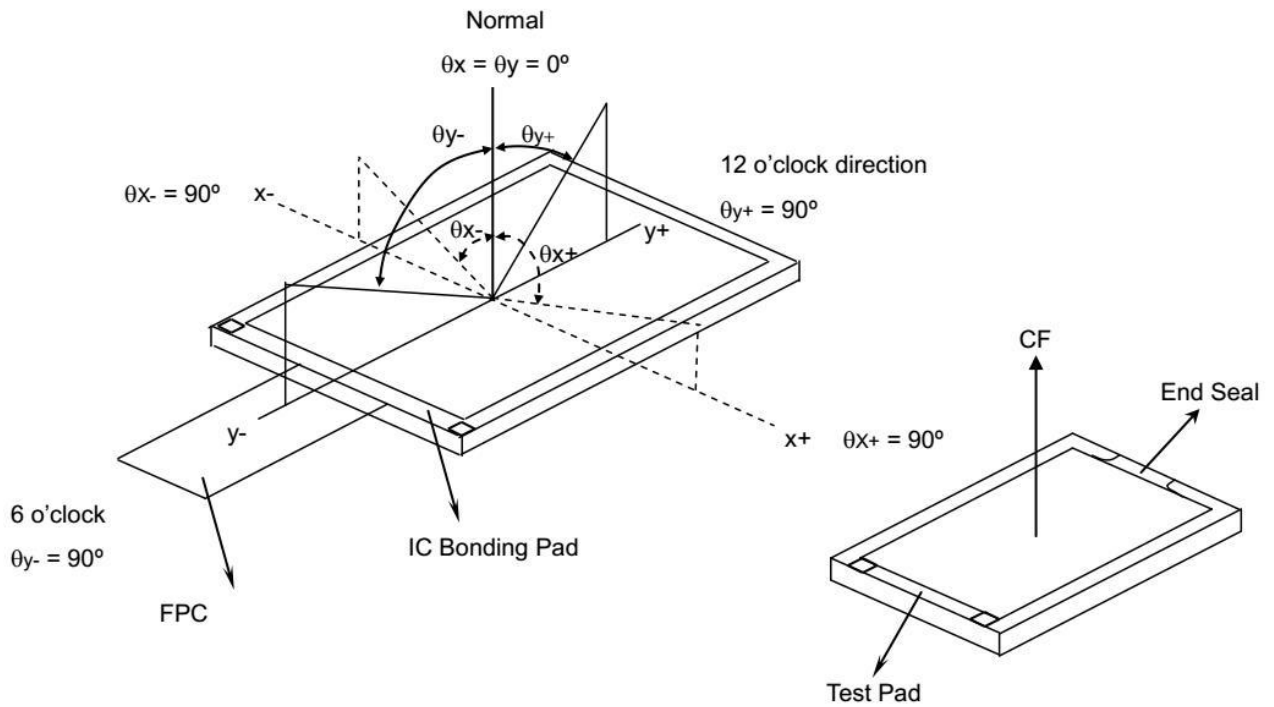
CR (X) is corresponding to the Contrast Ratio of the point X at Figure in Note (5).



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



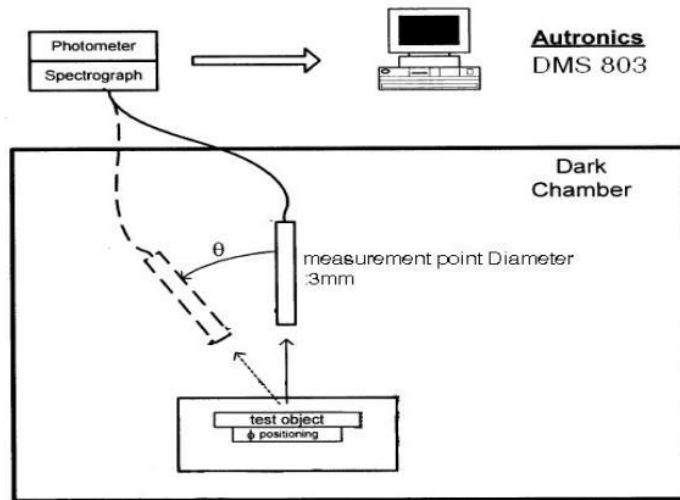
*Note(3) Definition of Viewing Angle



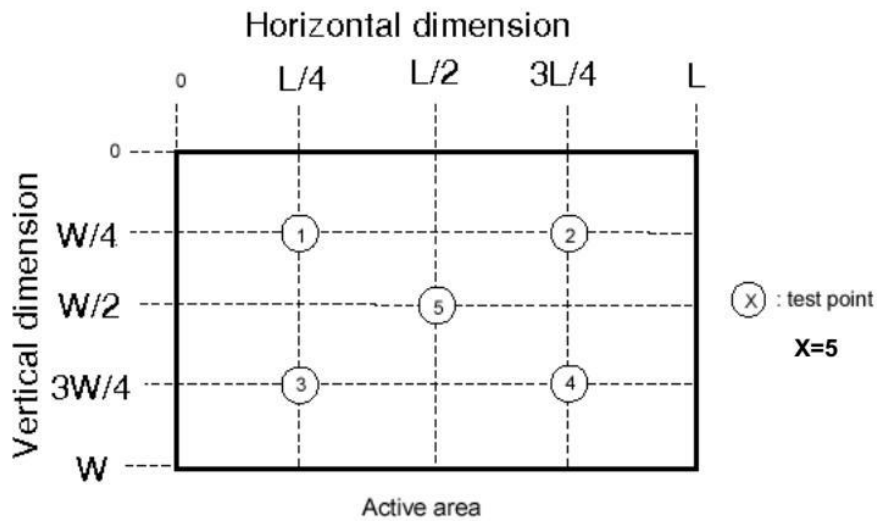


***Note (4) Measurement Set-Up:**

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.



***Note (5)**





6. QUALITY SPECIFICATIONS

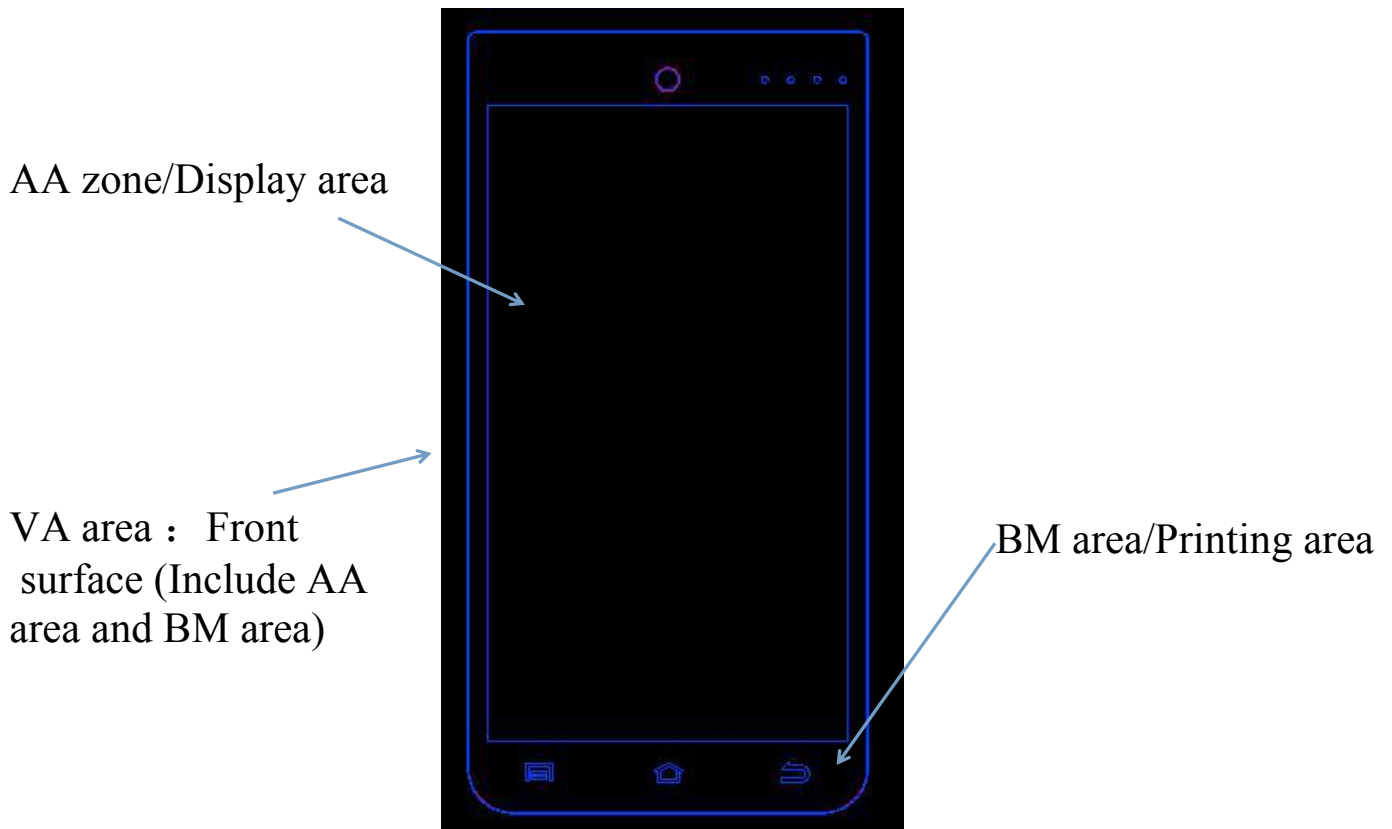
1. Inspection condition

1.1:Cosmetic inspection: viewing distance is about 30cm with bare eyes, and under an environment of 20~40W light intensity (800~1200LUX) , all directions for inspecting the sample should be within 45° against perpendicular line.

6.1.2:Function inspection: viewing distance is about 30cm with bare eyes, and under an environment of 300LUX light intensity, all directions for inspecting the sample should be within 45° against perpendicular line.

2. Definition of Inspection Item.

2.1 Definition of Inspection zone in I-touch module.



AA zone: Character/Display area

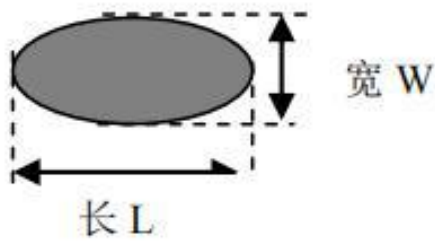
BM zone: Printing area

VA zone: Viewing area (AA area + BM area = viewing area)

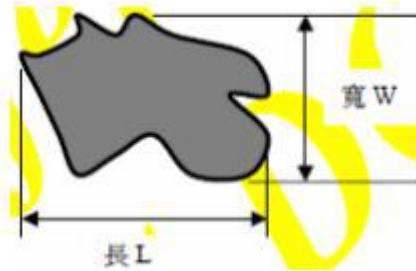


3. Defect definition

3.1 Circular defect

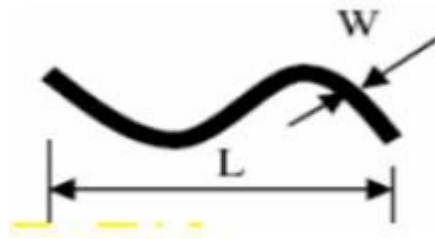


Diameter $\Phi = 1/2(L+W)$

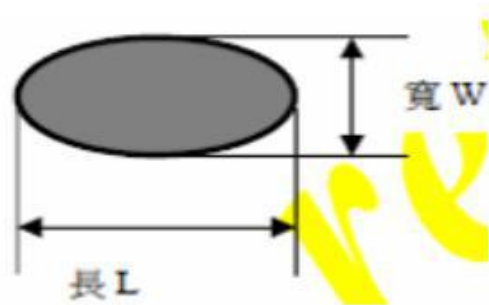
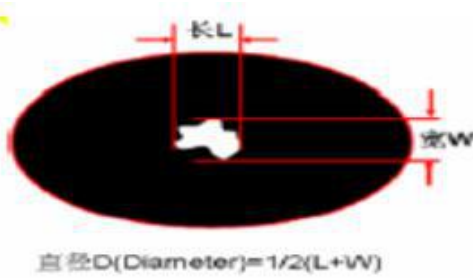


Diameter $\Phi = 1/2(L+W)$

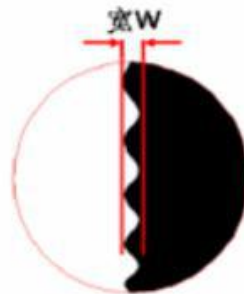
3.2 Linear defect



3.3 Pin hole





3.4 Zigzag





4. Inspection standards

4.1 Major 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. 6) Touch panel abnormal.	Major
4.1.2	Missing	Missing component	
4.1.3	Outline dimension	Overall outline dimension beyond the drawing is not allowed.	
4.1.4	LCD Mura	LCD Mura according to ND 5% keep out to determine, if keep out distance at 30cm be seen by eyes is NG, otherwise will be ok if invisible.	
4.1.5	Sub Pixel classification	<ul style="list-style-type: none"> ● Sub Pixel: Number of sub pixel doesn't exceed two dot. <div style="text-align: center;">  <p>Sub Pixel (Dot)</p> </div> <ul style="list-style-type: none"> a> Dark dot ----two Allowed b> Bright dot ---- two Allowed ● Pixel : Three dots link together doesn't exceed twos <div style="text-align: center;">  <p>Pixel</p> </div> 	N ≦ 2



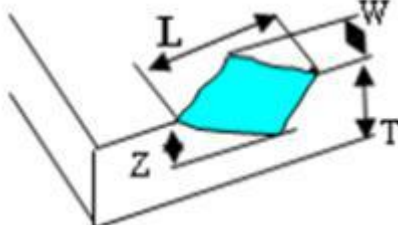
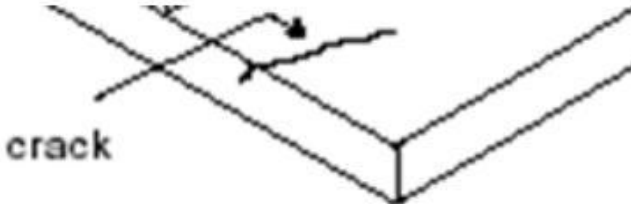
4.2 Cosmetic defect

Item No	Items to be inspected	Inspection Standard		Classification of defects
4.2.1	Dot defect	Zone Size(mm)	VA area	Minor
			Acceptable Qty	
		$\Phi \leq 0.15$	Ignore	
		$0.15 < \Phi \leq 0.2$	0	
		$0.25 < \Phi \leq 0.30$	0	
		$0.20 < \Phi$	0	
4.2.2	Dim Spots: Circle shaped and dim edged defects	Zone Size(mm)	VA area	Minor
			Acceptable Qty	
		$\Phi \leq 0.15$	Ignore	
		$0.15 < \Phi \leq 0.20$	0	
		$0.20 < \Phi \leq 0.30$	0	
		$0.30 < \Phi$	0	
Item No	Items to be inspected	Inspection Standard		Classification of defects
4.2.3	Dent Spot Fish eye	Zone Size(mm)	VA area	Minor
			Acceptable Qty	
		$\Phi \leq 0.150$	Ignore	
		$0.150 < \Phi \leq 0.20$	Ignore	
		$0.20 < \Phi \leq 0.30$	3 间距 ≥ 10 mm	
$0.30 < \Phi$	0			





4.2.4	Line defect	Zone		VA area	Minor	
		Size(mm)		Acceptable Qty		
		L (Length)	W (Width)			
		Ignore	$W \leq 0.03$	Ignore		
		$L \leq 4.0$	$0.03 < W \leq 0.05$	2 间距 $\geq 10\text{mm}$		
		$L \leq 4.0$	$0.05 < W \leq 0.07$	1		
/	$0.07 < W$	Define as spot defect				
4.2.5	Scratch	<p>If the scratch can be seen after mobile phone cover assembling or in the operating condition, judged as the line defect of 4.2.4.</p> <p>If the scratch can be seen only in non-operating condition or some special angle, judged as the following table.</p>				Minor
		Size (mm)		VA area		
		L (Length)	Acceptable Qty	Acceptable Qty		
		Ignore	$W \leq 0.03$	Ignore		
		$5.0 < L \leq 10.0$	$0.03 < W \leq 0.05$	2		
		$L \leq 5.0$	$0.05 < W \leq 0.08$	1		
		/	$W > 0.08$	0		




Item No	Items to be inspected	Inspection Standard	Classification of defect										
4.2.6	Bubble	<table border="1"> <thead> <tr> <th data-bbox="491 309 852 383">Zone</th> <th data-bbox="852 309 1216 383">VA area</th> </tr> <tr> <th data-bbox="491 383 852 439">Size(mm)</th> <th data-bbox="852 383 1216 439">Acceptable Qty</th> </tr> </thead> <tbody> <tr> <td data-bbox="491 439 852 495">$\Phi \leq 0.15$</td> <td data-bbox="852 439 1216 495">Ignore</td> </tr> <tr> <td data-bbox="491 495 852 551">$0.15 < \Phi \leq 0.25$</td> <td data-bbox="852 495 1216 551">0</td> </tr> <tr> <td data-bbox="491 551 852 607">$0.25 < \Phi$</td> <td data-bbox="852 551 1216 607">0</td> </tr> </tbody> </table>	Zone	VA area	Size(mm)	Acceptable Qty	$\Phi \leq 0.15$	Ignore	$0.15 < \Phi \leq 0.25$	0	$0.25 < \Phi$	0	
Zone	VA area												
Size(mm)	Acceptable Qty												
$\Phi \leq 0.15$	Ignore												
$0.15 < \Phi \leq 0.25$	0												
$0.25 < \Phi$	0												
4.2.7	Glass defect	<p data-bbox="491 685 906 719">4.2.7a Chip on corner or surface</p>  <table border="1" data-bbox="491 1043 1209 1200"> <thead> <tr> <th data-bbox="491 1043 730 1115">L(length)</th> <th data-bbox="730 1043 970 1115">W(width)</th> <th data-bbox="970 1043 1209 1115">Z(thickness)</th> </tr> </thead> <tbody> <tr> <td data-bbox="491 1115 730 1200">$L \leq 0.30$</td> <td data-bbox="730 1115 970 1200">$W \leq 0.20$</td> <td data-bbox="970 1115 1209 1200">T/2</td> </tr> </tbody> </table> <p data-bbox="491 1279 1134 1357">Notes: T=Lens thickness, $\Phi \leq 0.10$ ignore Acceptable Qty: Single edge $N \leq 2$, Total $N \leq 4$</p> <p data-bbox="491 1458 1007 1525">4.2.7b Cracks Cracks tend to break are not allowed.</p> 	L(length)	W(width)	Z(thickness)	$L \leq 0.30$	$W \leq 0.20$	T/2	Minor				
L(length)	W(width)	Z(thickness)											
$L \leq 0.30$	$W \leq 0.20$	T/2											



Item No	Items to be inspected	Inspection Standard	Classification of defect
4.2.8	Parts alignment	1) Not allow IC and FPC/heat-seal lead width is more than 50% beyond lead pattern. 2) Not allow chip or solder component is off center more than 50% of the pad outline.	Minor
4.2.9 view area/ printing area of front surface and view area of rear surface	LOGO Pattern	 <p>Dot: according to Dot spec. Thickness odds:</p> $\frac{ \text{Spec pattern width} - \text{Print pattern width} \times 100\%}{\text{Spec pattern width}} \leq 30\%$ <p>Drawing slant:</p> Print pattern length $\leq 10\text{mm}$, slant angle $\leq 3^\circ$; $10\text{mm} < \text{Print pattern length} \leq 20\text{mm}$, slant angle $\leq 1.5^\circ$  <p>Pattern serration: $H \leq 0.05 \text{ mm}$</p> <p>Pattern leak print/ error/overprint: not allowed</p> <p>Pattern break line: width $\leq 0.10 \text{ mm}$</p> <p>Logo pattern color windage / color thin: Follow the limit samples.</p>	Minor



Item No	Items to be inspected	Inspection Standard	Classification of defects
4.2.10 view area/print ing area of front surface and view area of rear surface	IR hole(A)/ Light sensor hole(B)/ LED hole(C)	 <ol style="list-style-type: none"> 1. A.B.C hole must be according the transmittancy 2. Light leakage on A.B.C hole or follow the limited sample. 3. A.B.C hole (LED) hole only judge by black background, no need to check in the lamb condition. 	Minor
	Surface dirty	<ol style="list-style-type: none"> 1. Dirty can not be cleaned follow the dot spec. 2. Accept while the dirty can be cleaned. 3. The quality guarantee period of protective film is 3months, during the period, the spot or contamination is not allowed.3. 保护膜的质量保证期为三个月，在保证期内因保护膜问题引起的脏污判定为不良。 	
	Printing area Light leakage	Follow the dot defect spec, MAX, Severity - see light leakage limit sample	
	Ink overflow	Visual inspection 30cm not allowed	
	Color discordant	Obvious color difference in the BM area is not allowed	
	Icon scratch of printing logo area	Icon printing logo area is not allow penetrability scratch	



7.RELIABILITY

Test Item	Test Condition	Inspection after test
High Temperature Operation	60°C for 96 hours	Inspection after 2~4hours storage at room temperature, the sample shall be free from defects: 试验结束后, 已测试的 LCD 样品必须在室内正常温湿度环境下放置 2~4 个小时以上才能进行功能和外观检查, 样品不允许有以下缺陷: 1. 无功能不良, 例: 缺划, 显异, 严重爆灯等 2. 外观无偏光片气泡, OCA 气泡等不良: 2. The test samples should be applied to only one test item. 每个被测试的模块只能用于其中的一个测试项目。
Low Temperature Operation	-10°C for 96 hours	
High Temperature Storage	70°C for 96 hours	
Low Temperature Storage	-20°C for 96 hours	
High Temperature Operation Humidity Operation	60°C, 90%RH for 72 hours	
Thermal Shock	-10°C (30min) ~+25°C (5min)~ +60°C (30min) for 10 cycles	
Vibration Test (No Operation)	Frequency: 10~55Hz Amplitude:1.0mm Sweep Time: 11min Test Period: 6 Cycles for each direction of X, Y, Z	
Static electricity test	Touch ±4KV, air touch ±8KV	



8. HANDLING PRECAUTION

8.1 SAFETY

- (1) Do not 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.

8.2 STORAGE CONDITIONS

- (1) Store the panel or module in a dark place where the temperature is $23\pm 5^{\circ}\text{C}$ and the humidity is below $50\pm 20\% \text{RH}$.
- (2) Store in anti-static electricity container.
- (3) Store in clean environment, free from dust, active gas, and solvent.
- (4) Do not place the module near organics solvents or corrosive gases.
- (5) Do not crush, shake, or jolt the module.

8.3 HANDLING PRECAUTIONS

- (1) Avoid static electricity which can damage the CMOS LSI.
- (2) The polarizing plate of the display is very fragile. So, please handle it very carefully.
- (3) Do not give external shock.
- (4) Do not apply excessive force on the surface.
- (5) Do not wipe the polarizing plate with a dry cloth, as it may easily scratch the surface of plate.
- (6) Do not use ketonic solvent & Aromatic solvent, use with a soft cloth soaked with a cleaning naphtha solvent.
- (7) Do not operate it above the absolute maximum rating.
- (8) Do not remove the panel or frame from the module.

8.4 WARRANTY

- 1) Under normal use and storage conditions, it is within 12 months from the date of delivery. 在正常使用和储存条件下，自交货之日起12个月内。
 - 2) According to Kingtech TFT LCD quality standard, Kingtech will rework or exchange for functional defect goods since within one year. 依据Kingtech TFT LCD质量标准，Kingtech将在一年内保修或置换功能缺陷产品。
 - 3) strictly prohibit the display in the whole machine for a long time point a fixed screen (display by the LCD residual shadow determination criteria); suggest that the entire machine more than 2 minutes without the use of LCM automatically into hibernation, more than 30 minutes without the use of the system to force LCM into hibernation. 严禁显示屏在整机长期点一个固定画面（显示屏依LCD残影判定标准）；建议整机超过2分钟不使用LCM自动进入休眠，超过30分钟不使用系统强制LCM进入休眠状态。
 - 4) Display is strictly prohibited to work continuously for more than 8 hours on the whole
-



machine. 严禁显示屏在整机连续工作8小时以上。

- 5) Please take the module under static protection. 请在有静电防护情况下，拿取模组。
- 6) LCM in special scenarios (such as high concentration of chemicals, strong magnetic field, extreme cold, and other use scenarios) use in advance to contact us to confirm. LCM在特殊场景（比如高浓度化学品，强磁场，极寒等使用场景）使用时提前联系我们确认。

9. PACKAGE DRAWING

TBD
