



**SPECIFICATION
FOR
LCD Module
PV035007TD24D-CO**

MODULE:	PV035007TD24D-CO
CUSTOMER:	

KINGTECH	INITIAL	DATE
PREPARED BY	杨荣武	2019-8-12
CHECKED BY	陈志文	2019-8-12
APPROVED BY	罗教平	2019-8-12

CUSTOMER	INITIAL	DATE
APPROVED BY		

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REVISION STATUS

Version	Revise Date	Page	Content	Modified by
V1.0	2019-8-12	-	First Issued.	YANG
V1.1	2019-8-21	5	UPDATA DRAWING	XIAO



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1. General Description

* DESCRIPTION

PV035007TD24D-CO 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 3.47" TFT-LCD contains 320*480 pixels, and can display up to 16.7M colors.

* Features

- Low Input Voltage: IOVCC: 1.65~3.3V;VCC: 2.5~3.3V
- Display Colors of TFT LCD: 16.7M colors
- Interface: MIPI-1 Lanes
- Internal Power Supply Circuit.

General Information Items	Specification	Unit	Note
	Main Panel		
Display area(AA)	48.96(H) *73.44(V)	mm	-
Driver element	a-Si TFT active matrix	-	-
Display colors	16.7M	colors	-
Number of pixels	320(RGB) *480	dots	-
Pixel arrangement	RGB vertical stripe	-	-
Pixel pitch	51 (H) *153 (V)	um	-
Viewing angle	All	o'clock	-
Drive IC	ST7796S	-	-
Display mode	Normally black	-	-
Operating temperature	-20~+70	°C	-
Storage temperature	-30~+80	°C	-

Mechanical Information

Item		Min.	Typ.	Max.	Unit	Note
Module size	Horizontal(H)	-	57.34	-	mm	±0.05
	Vertical(V)	-	96.95	-	mm	±0.05
	Depth(D)	-	3.43	-	mm	±0.2
Weight		-	TBD	-	g	-



2.MECHANICAL SPECIFICATION

表格受控编号: 版本号: A/1 依行期限: 三年

<p>一. LCM产品特征 (LCM Features):</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>显示类型 (Display Mode):</td><td>TFP/Normal BLACK</td></tr> <tr><td>驱动芯片 (Driver IC):</td><td>ST7995</td></tr> <tr><td>接口类型 (Interface Types):</td><td>ALL</td></tr> <tr><td>背光类型 (Backlight Type):</td><td>MPI VIBED MODE</td></tr> <tr><td>模组色坐标 (LCD color coordinate):</td><td>6pts, 6Hz(20mA/20mA/LED), 电压为16.8~20.4 V</td></tr> <tr><td>模组厚度 (Module Thickness):</td><td>300±0.02 Min. 350±0.02 TYP</td></tr> <tr><td>模组厚度公差 (Module Thickness Tolerance):</td><td>(X)±0.29±0.03, Y)±0.30±0.03</td></tr> <tr><td>模组厚度公差 (Module Thickness Tolerance):</td><td>80% MIN</td></tr> <tr><td>操作温度 (Operating Temperature):</td><td>-20C ~ 70C</td></tr> <tr><td>存储温度 (Storage Temperature):</td><td>-30C ~ 90C</td></tr> <tr><td>平面弯曲度 (Plane Warpage):</td><td><0.3MM</td></tr> <tr><td>连接管 (PC Connector):</td><td>带防ESD的110型防ESD</td></tr> </table>	显示类型 (Display Mode):	TFP/Normal BLACK	驱动芯片 (Driver IC):	ST7995	接口类型 (Interface Types):	ALL	背光类型 (Backlight Type):	MPI VIBED MODE	模组色坐标 (LCD color coordinate):	6pts, 6Hz(20mA/20mA/LED), 电压为16.8~20.4 V	模组厚度 (Module Thickness):	300±0.02 Min. 350±0.02 TYP	模组厚度公差 (Module Thickness Tolerance):	(X)±0.29±0.03, Y)±0.30±0.03	模组厚度公差 (Module Thickness Tolerance):	80% MIN	操作温度 (Operating Temperature):	-20C ~ 70C	存储温度 (Storage Temperature):	-30C ~ 90C	平面弯曲度 (Plane Warpage):	<0.3MM	连接管 (PC Connector):	带防ESD的110型防ESD	<p style="text-align: center;">背光源: LED K</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>NO.</td><td>21V定义</td></tr> <tr><td>1</td><td>GND</td></tr> <tr><td>2</td><td>VCC2VB</td></tr> <tr><td>3</td><td>VO1VB</td></tr> <tr><td>4</td><td>LCM_ID</td></tr> <tr><td>5</td><td>LCM_RST</td></tr> <tr><td>6</td><td>LCM_TE</td></tr> <tr><td>7</td><td>NC</td></tr> <tr><td>8</td><td>NC</td></tr> <tr><td>9</td><td>LEDA</td></tr> <tr><td>10</td><td>LEDA</td></tr> <tr><td>11</td><td>LEDA</td></tr> <tr><td>12</td><td>GND</td></tr> <tr><td>13</td><td>TDPO</td></tr> <tr><td>14</td><td>TDNO</td></tr> <tr><td>15</td><td>GND</td></tr> <tr><td>16</td><td>NC</td></tr> <tr><td>17</td><td>NC</td></tr> <tr><td>18</td><td>GND</td></tr> <tr><td>19</td><td>CLKP</td></tr> <tr><td>20</td><td>CLKN</td></tr> <tr><td>21</td><td>GND</td></tr> <tr><td>22</td><td>NC</td></tr> <tr><td>23</td><td>NC</td></tr> <tr><td>24</td><td>GND</td></tr> <tr><td colspan="2">CTP PIN定义</td></tr> <tr><td>1</td><td>GND</td></tr> <tr><td>2</td><td>TP-SCLL SW</td></tr> <tr><td>3</td><td>TP-SMALL SW</td></tr> <tr><td>4</td><td>GND</td></tr> <tr><td>5</td><td>GND</td></tr> <tr><td>6</td><td>VOH-TP-3.3</td></tr> <tr><td>7</td><td>GND</td></tr> <tr><td>8</td><td>TP-BS1</td></tr> <tr><td>9</td><td>BIAT</td></tr> <tr><td>10</td><td>GND</td></tr> </table>	NO.	21V定义	1	GND	2	VCC2VB	3	VO1VB	4	LCM_ID	5	LCM_RST	6	LCM_TE	7	NC	8	NC	9	LEDA	10	LEDA	11	LEDA	12	GND	13	TDPO	14	TDNO	15	GND	16	NC	17	NC	18	GND	19	CLKP	20	CLKN	21	GND	22	NC	23	NC	24	GND	CTP PIN定义		1	GND	2	TP-SCLL SW	3	TP-SMALL SW	4	GND	5	GND	6	VOH-TP-3.3	7	GND	8	TP-BS1	9	BIAT	10	GND
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<p>二. CTP技术要求 (CTP Technical requirements)</p> <ol style="list-style-type: none"> 产品结构: GFP, 成品透光率: ≥85%, 雾度: 3%; CTP触控IC: S3408 VDD:3.3V, I/O电压: 1.8V CS (应力角度) ≥750MPa, 0.7mm 彩膜玻璃, DOL (钢化深度) ≥40um, 表面硬度 ≥7H(0.75kgf); 基材要求: 64铜球, 40um厚度, 中心点三次不碰; 球状要求: 正面和背面防刮处理; X1.07; 尖角要求: 尖端倒角: ≤110度; 玻璃与铜球接触角: ≤100度; 玻璃与铜球接触角: ≤100度; 玻璃与铜球接触角: ≤100度; TP表面要求: 64铜球, 40um厚度, 中心点三次不碰; 玻璃与铜球接触角: ≤110度; 玻璃与铜球接触角: ≤100度; 玻璃与铜球接触角: ≤100度; TP表面要求: 64铜球, 40um厚度, 中心点三次不碰; 玻璃与铜球接触角: ≤110度; 玻璃与铜球接触角: ≤100度; 玻璃与铜球接触角: ≤100度; TP表面要求: 64铜球, 40um厚度, 中心点三次不碰; 玻璃与铜球接触角: ≤110度; 玻璃与铜球接触角: ≤100度; 玻璃与铜球接触角: ≤100度; TP表面要求: 64铜球, 40um厚度, 中心点三次不碰; 玻璃与铜球接触角: ≤110度; 玻璃与铜球接触角: ≤100度; 玻璃与铜球接触角: ≤100度; TP表面要求: 64铜球, 40um厚度, 中心点三次不碰; 玻璃与铜球接触角: ≤110度; 玻璃与铜球接触角: ≤100度; 玻璃与铜球接触角: ≤100度; TP表面要求: 64铜球, 40um厚度, 中心点三次不碰; 玻璃与铜球接触角: ≤110度; 玻璃与铜球接触角: ≤100度; 玻璃与铜球接触角: ≤100度; TP表面要求: 64铜球, 40um厚度, 中心点三次不碰; 玻璃与铜球接触角: ≤110度; 玻璃与铜球接触角: ≤100度; 玻璃与铜球接触角: ≤100度; 	<p>Kingtech Group Co., Ltd.</p> <p>标题: LCM+CTP</p> <p>零件号: PV035007TD24D-C0</p> <p>版本: 1.1</p> <p>日期: 19/08/21</p> <p>作者: Helen</p> <p>审核: Helen</p> <p>批准: Helen</p>																																																																																																	



3.Pin Description

LCM PIN

Pin NO.	Symbol	Level	Remark
1	GND	L	Power Ground
2	VCI(2.8V)	H	A supply voltage
3	IOVCC(1.8V)	H	A supply voltage
4	LCD-ID	H/L	Read ID
5	RESET	H/L	Reset signal.
6	TE	H/L	Output pin for scan line signal
7	NC	/	Not connect
8	NC	/	Not connect
9	LEDK	L	LED backlight-
10	LEDA	H	LED backlight+
11	LEDA	H	LED backlight+
12	GND	L	Power Ground
13	TDPO	H/L	TDPO are differential data signal line
14	TDNO	H/L	TDNO are differential data signal line
15	GND	L	Power Ground
16	NC	/	Not connect
17	NC	/	Not connect
18	GND	L	Power Ground
19	DSI_CLK+	H/L	CLOCK Lane positive-end input pin
20	DSI_CLK-	H/L	CLOCK Lane negative-end input pin
21	GND	L	Power Ground
22	NC	/	Not connect
23	NC	/	Not connect
24	GND	L	Power Ground



CTP PIN

1	GND	L	Power Ground
2	SCL	H/L	Serial clock input
3	SDA	H/L	Serial data input pin
4	GND	L	Power Ground
5	GND	L	Power Ground
6	VDD	H	A supply voltage
7	GND	L	Power Ground
8	RST	H/L	Reset signal.
9	INT	H/L	Interrupt pin
10	GND	L	Power Ground



4. ELECTRICAL CHARACTERISTICS

4.1 ABSOLUTE MAXIMUM RATINGS

Item	Symbol	Values		Unit	Remark
		Min	Max.		
Supply Voltage for Logic circuit	VDDIO	1.65	3.3	V	
Supply Voltage for analog circuit	V _{CC}	2.5	3.3	V	

4.2 DC ELECTRICAL CHARACTERISTICS

4.2.1 OPERATING CONDITIONS

Typical Operating Conditions (Ta=25°C)

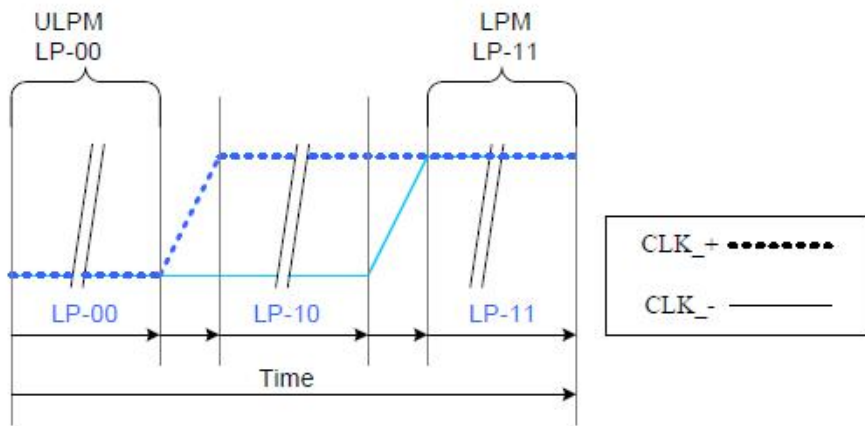
Item	Symbol	Values			Unit	Remark
		Min	Typ	Max.		
Power Supply	V _{CC}	2.5	2.8	3.3	V	
Power Supply	VDDIO	1.65	1.8	3.3	V	
Normal mode Current consumption	I _{CC}	-	50	-	mA	V _{CC} =2.8V
TFT Gate ON Voltage	V _{GH}	14.5	15	15.5	V	
TFT Gate OFF Voltage	V _{GL}	-10.5	-10	-9.5	V	

4.2.2 BACKLIGHT UNIT (GND=0V)

Item	Symbol	Values			Unit	Remark
		Min	Typ	Max.		
Forward supply Voltage	V _f	16.8	-	20.4	V	
Forward supply Current	I _f	-	20	-	mA	
LCM+CTP Luminance	L _v	300	350	-	cd/m ²	I _B =20mA
Uniformity	/	80			%	-

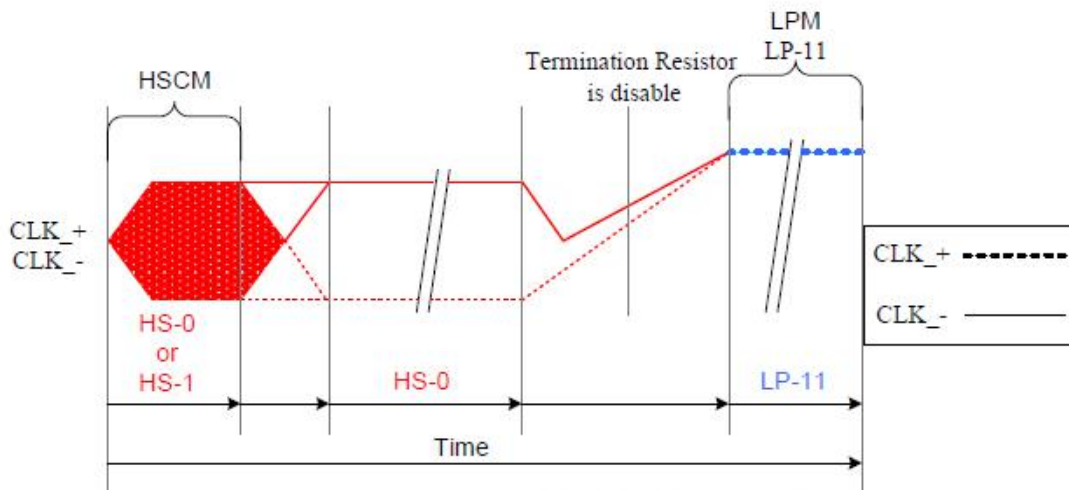


4.3 MIPI Interface Characteristics



From ULPM to LPM

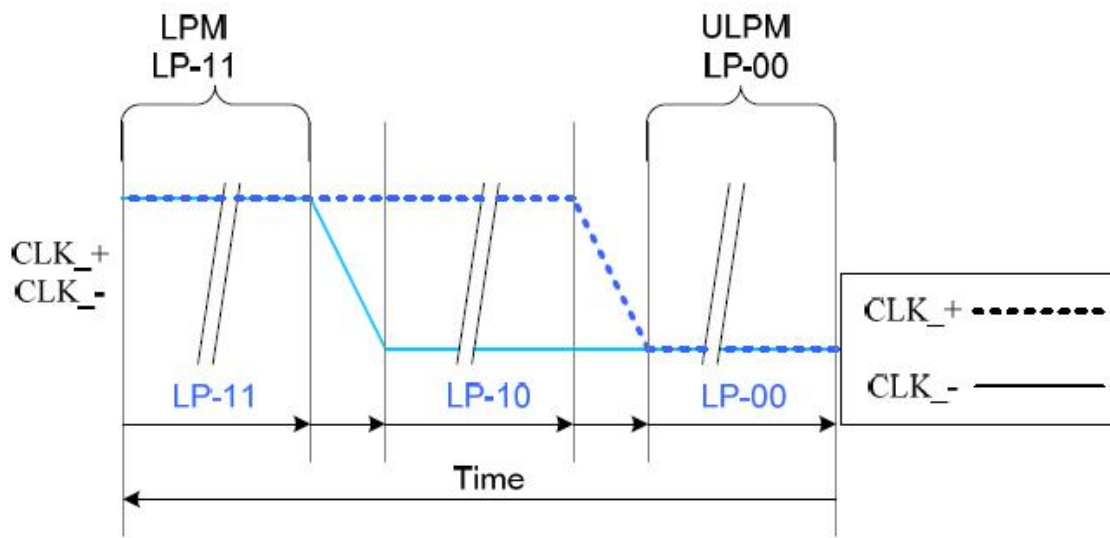
- ◆ After DSI-CLK+/- lanes are leaving High Speed Clock Mode (HSCM, HS-0 or HS-1 State Code) =>HS-0=>LP-11 (LPM). This sequence is illustrated below.



From High Speed Clock Mode (HSCM) to LPM

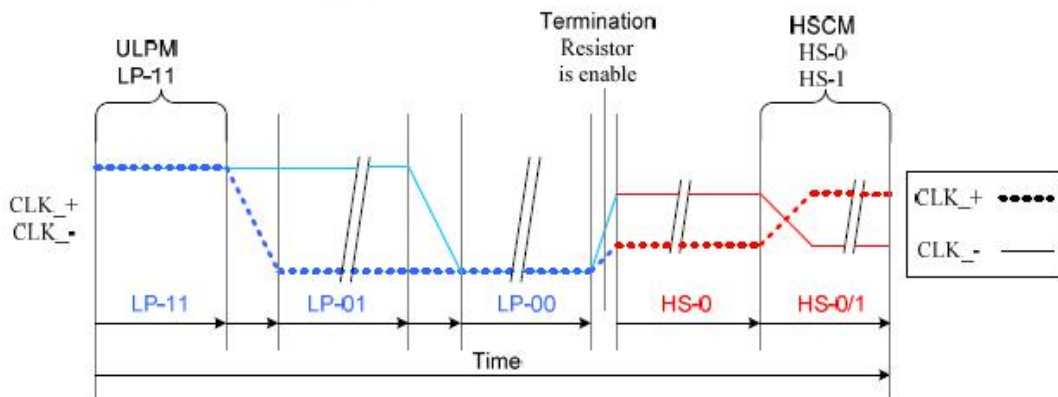


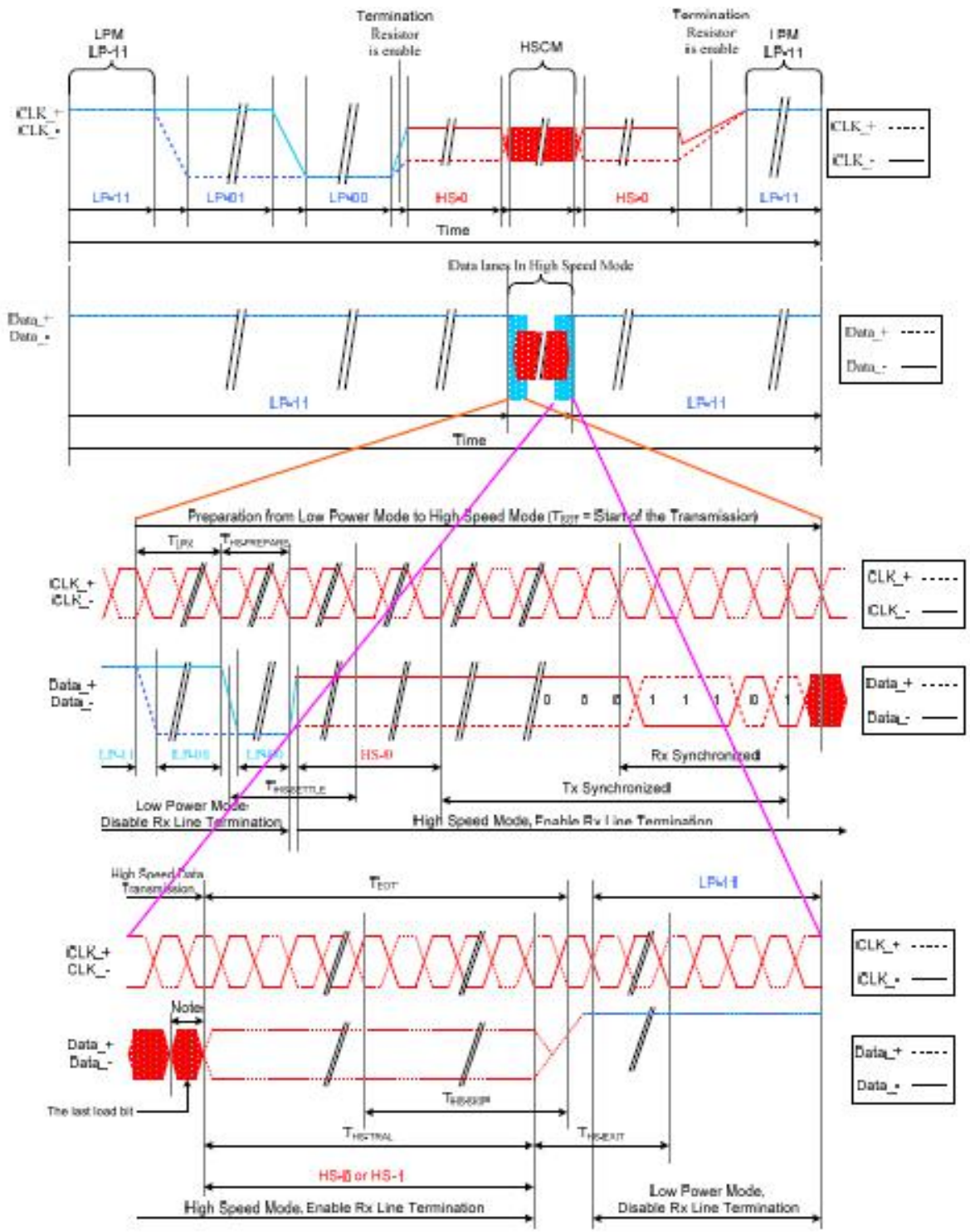
2. Ultra Low Power Mode (ULPM)



From LPM to ULPM

3. High Speed Clock Mode (HSCM)





High Speed Clock Burst

Note:
 If the last load bit is HS-0, the transmitter changes from HS-0 to HS-1
 If the last load bit is HS-1, the transmitter changes from HS-1 to HS-0



5. OPTICAL CHARACTERISTICS

(LCD MONOMER PARAMETERS)

Item	Symbol	Conditions	Specifications (typ)	Unit	Note
Transmittance	T%	Viewing normal angle $q_x = q_y = 0^\circ$	4.3	%	All left side data are based on INX's following condition – 1.CG : NTSC 69% 2.AR : 67.5% 3.Light Source : INX LED BLU 4.Machine : DMS 803 5. Vwhite > 5.0 V, Vdark < 0.3V 6. Polarizer : NPF-TEGQ1465DUHC
Contrast Ratio	CR		700	--	
Response Time	Ton+ Toff		30	ms	
Viewing Angle	Hor.	q_{x+}	80	deg.	
		q_{x-}	80		
	Ver.	q_{y+}	80		
		q_{y-}	80		
CF only Chromaticity	Red	X_R	0.660	--	Under C light Simulation
		Y_R	0.325	--	
	Green	X_G	0.277	--	
		Y_G	0.568	--	
	Blue	X_B	0.145	--	
		Y_B	0.072	--	
	White	X_W	0.309	--	
		Y_W	0.332	--	

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

The contrast ratio can be calculated by the following expression.

$$\text{Contrast Ratio (CR)} = L63 / L0$$

L63: Luminance of gray level 63

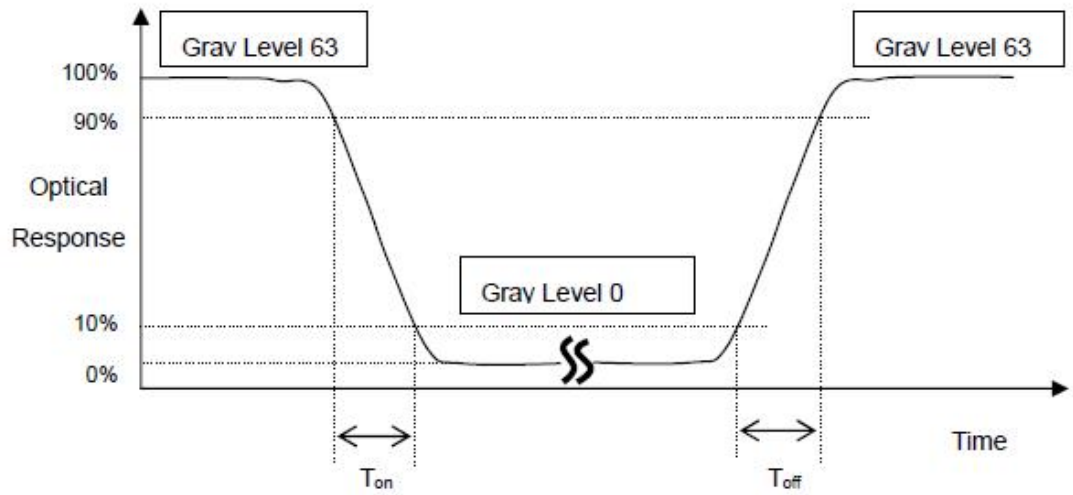
L 0: Luminance of gray level 0

$$CR = CR (5)$$

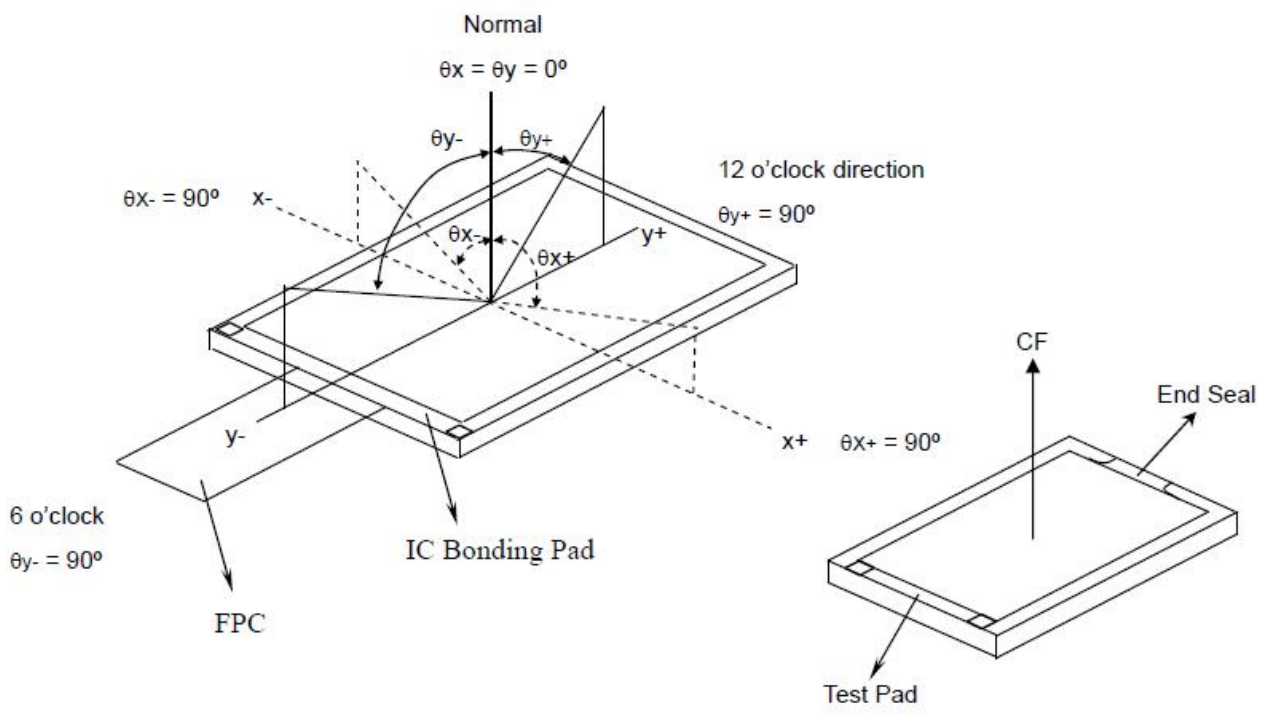
CR (X) is corresponding to the Contrast Ratio of the point X at Figure in Note (5).



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



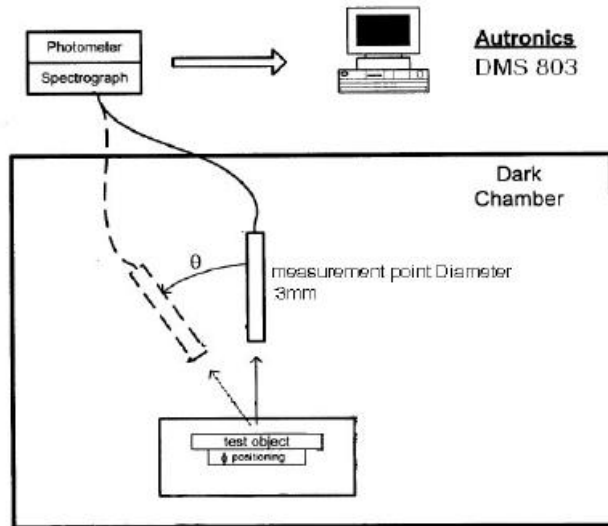
*Note(3) Definition of Viewing Angle



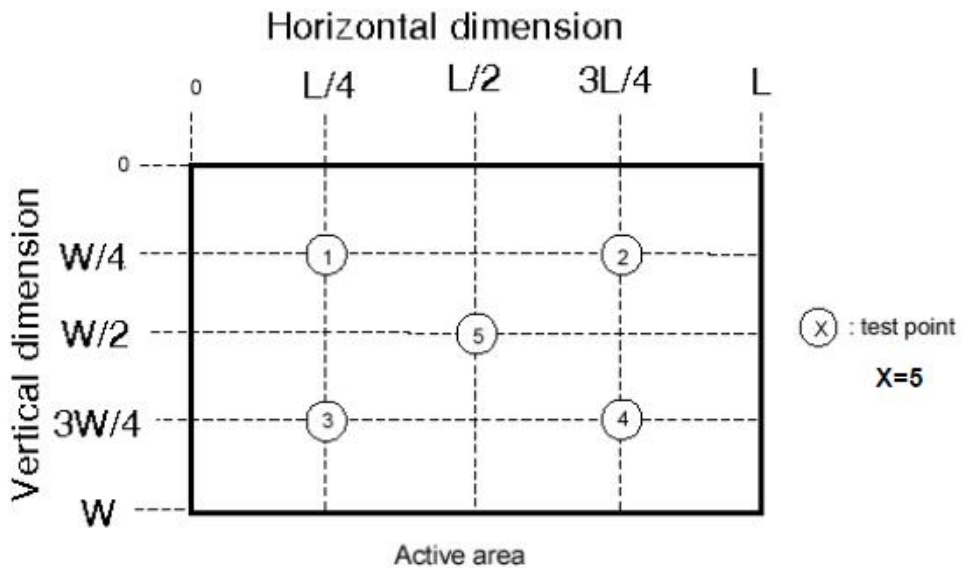


***Note (4) Measurement Set-Up:**

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.



***Note (5)**





6. QUALITY SPECIFICATIONS

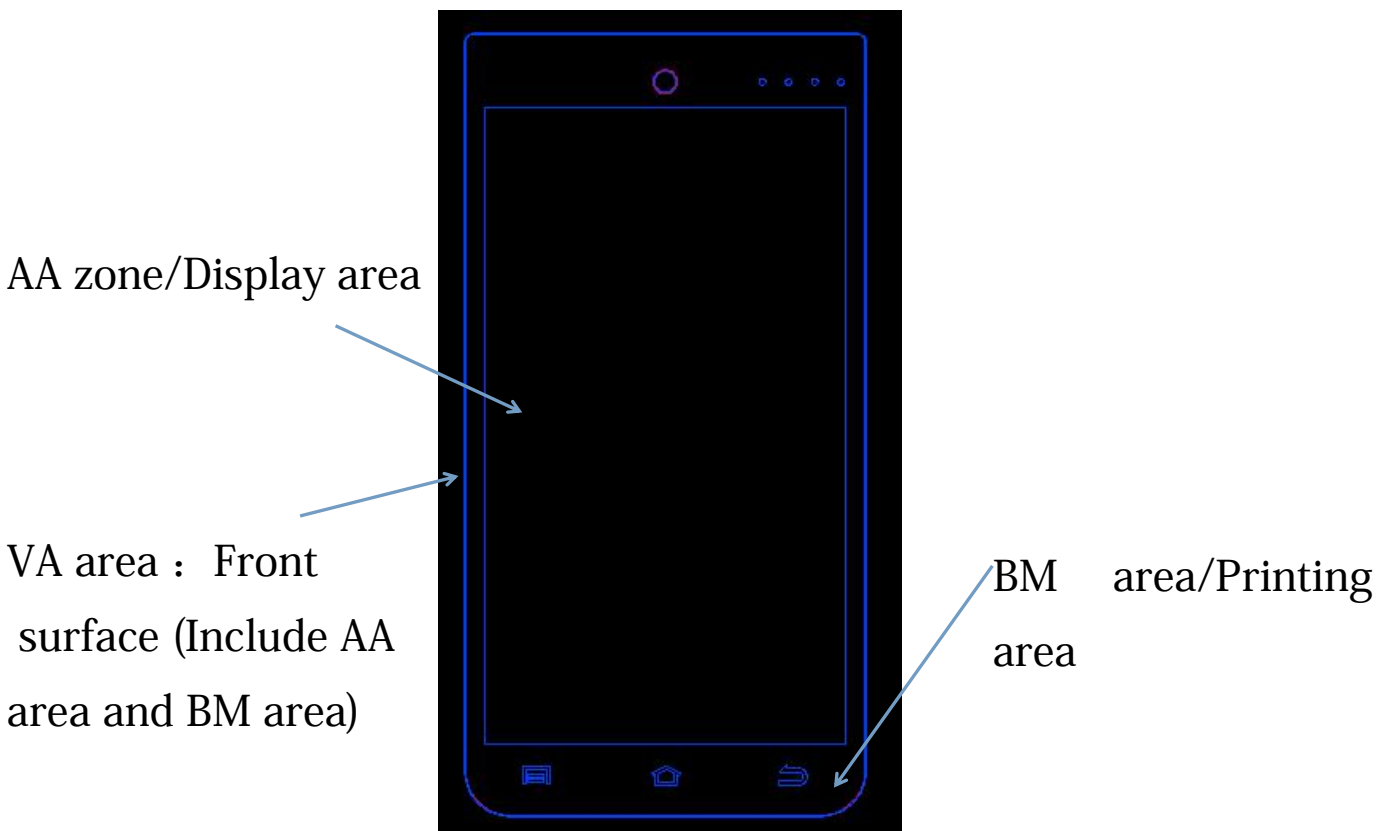
1. Inspection condition

1.1:Cosmetic inspection: viewing distance is about 30cm with bare eyes, and under an environment of 20~40W light intensity (600~1200LUX) , 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.





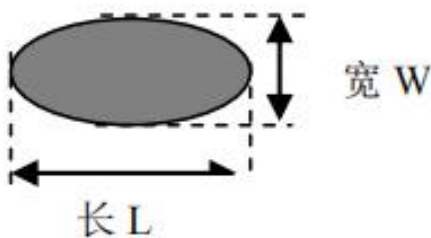
AA zone: Character/Display area

BM zone: Printing area

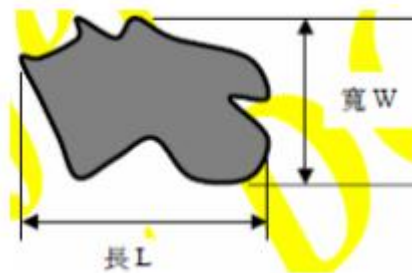
VA zone: Viewing area (AA area + BM area = viewing area)

3. Defect definition

3.1 Circular defect

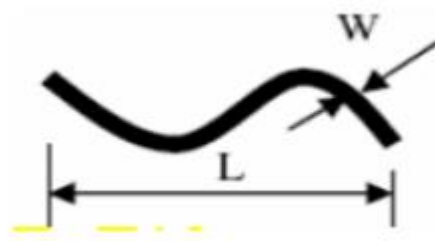


Diameter $\Phi = 1/2(L+W)$

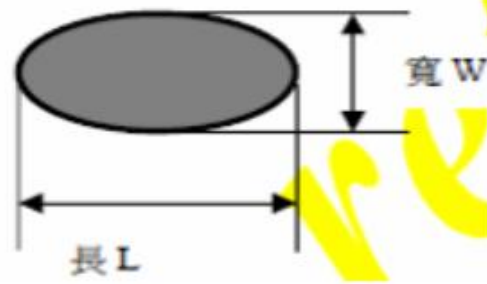
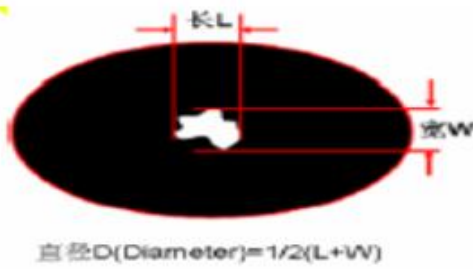


Diameter $\Phi = 1/2(L+W)$

3.2 Linear defect

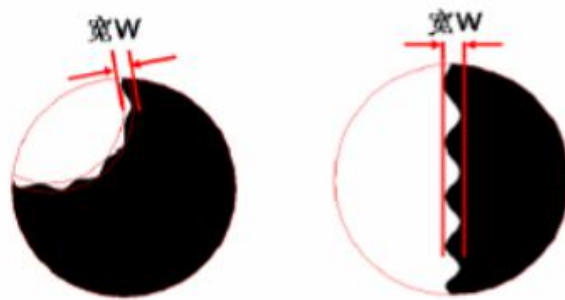


3.3 Pin hole



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	Major



		abnormal lighting. 6) Touch panel abnormal.	
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.	

4.2 Cosmetic defect

Item No	Items to be inspected	Inspection Standard		Classification of defects
		Zone	VA area	
4.2.1	Dot defect	Size(mm)	Acceptable Qty	Minor
		$\Phi \leq 0.1$	Ignore	
		$0.10 < \Phi \leq 0.25$	2	
		$0.25 < \Phi \leq 0.30$	1	
		$0.30 < \Phi$	0	



4.2.2	Dim Spots: Circle shaped and dim edged defects	Zone		VA area	Minor
		Size(mm)		Acceptable Qty	
		$\Phi \leq 0.20$		Ignore	
		$0.20 < \Phi \leq 0.40$		2	
		$0.40 < \Phi \leq 0.60$		1	
		$0.60 < \Phi$		0	
Item No	Items to be inspected	Inspection Standard			Classification of defects
4.2.3	Dent Spot Fish eye	Zone		VA area	Minor
		Size(mm)		Acceptable Qty	
		$\Phi \leq 0.10$		Ignore	
		$0.10 < \Phi \leq 0.20$		2	
		$0.20 < \Phi \leq 0.30$		1	
$0.30 < \Phi$		0			



4.2.4	Line defect	Zone		VA area	Minor	
		Size(mm)				
		L (Length)	W (Width)	Acceptable Qty		
		Ignore	$W \leq 0.03$	Ignore		
		$L \leq 5.0$	$0.03 < W \leq 0.05$	2		
		$L \leq 3.0$	$0.05 < W \leq 0.07$	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
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4.2.6	Bubble	<table border="1"> <tr> <th>Zone</th> <th>VA area</th> </tr> <tr> <th>Size(mm)</th> <th>Acceptable Qty</th> </tr> <tr> <td>$\Phi \leq 0.15$</td> <td>Ignore</td> </tr> <tr> <td>$0.15 < \Phi \leq 0.25$</td> <td>2</td> </tr> <tr> <td>$0.25 < \Phi$</td> <td>0</td> </tr> </table>	Zone	VA area	Size(mm)	Acceptable Qty	$\Phi \leq 0.15$	Ignore	$0.15 < \Phi \leq 0.25$	2	$0.25 < \Phi$	0	
		Zone	VA area										
		Size(mm)	Acceptable Qty										
		$\Phi \leq 0.15$	Ignore										
$0.15 < \Phi \leq 0.25$	2												
$0.25 < \Phi$	0												

4.2.7	Glass defect	4.2.7a Chip on corner or surface	Minor						
		<table border="1"> <tr> <th>L(length)</th> <th>W(width)</th> <th>Z(thickness)</th> </tr> <tr> <td>$L \leq 0.30$</td> <td>$W \leq 0.20$</td> <td>T/2</td> </tr> </table>		L(length)	W(width)	Z(thickness)	$L \leq 0.30$	$W \leq 0.20$	T/2
		L(length)		W(width)	Z(thickness)				
$L \leq 0.30$	$W \leq 0.20$	T/2							
Notes: T=Lens thickness, $\Phi \leq 0.10$ ignore Acceptable Qty: Single edge $N \leq 2$, Total $N \leq 4$									
		4.2.7b Cracks							
		Cracks tend to break are not allowed.							




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



<p>4.2.9 view area/ printing area of front surface and view area of rear surface</p>	<p>LOGO Pattern</p>	 <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> <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>  <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>	<p>Minor</p>
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Item No	Items to be inspected	Inspection Standard	Classification of defects
4.2.10 view area/printing 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"> A.B.C hole must be according the transmittancy Light leakage on A.B.C hole or follow the limited sample. 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"> Dirty can not be cleaned follow the dot spec. Accept while the dirty can be cleaned. The quality guarantee period of protective film is 3months, during the period, the spot or contamination is not allowed. 	
	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
High Temperature Operation	70°C for 96 hours
Low Temperature Operation	-20°C for 96 hours
High Temperature Storage	80°C for 96 hours
Low Temperature Storage	-30°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) The period is within twelve months since the date of shipping out under normal using and storage conditions.
- 2) According to Kingtech TFT LCD quality standard, Kingtech will rework or exchange for functional defect goods since within one year.