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BOE

SPEC. NUMBER
S801-5126

PRODUCT GROUP
TFT- LCD

REV.
0

ISSUE DATE
2022.07.16

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GT080S0M-N12-1QP2 Product Specification Rev.0

SUPPLIER	
FG-Code	GT080S0M-N12-1QP2

ITEM	BUYER SIGNATURE	DATE	ITEM	SUPPLIER SIGNATURE	DATE
_____	_____	_____	Prepared	_____	_____
_____	_____	_____	Reviewed	_____	_____
_____	_____	_____	Approved	_____	_____

R2015-6013-A

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A4(210 X 297)



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1. GENERAL DESCRIPTION

1.1 DESCRIPTION

GT080SOM-N12-1QP2 is a color active matrix thin film transistor (TFT) TN liquid crystal display (LCD) that uses amorphous silicon TFT as a switching device. It is composed of a TFT LCD panel, Driver IC ,FPC and Backlight.

1.2 FEATURES:

No.	Item	Specification	Unit
1	Panel Size	8"	inch
2	Number of Pixels	800×RGB (3) ×600	pixels
3	Active Area	162.05(W) × 121.54(H)	mm
4	Pixel Pitch	0.15825(H)×0.15825(V)	mm
5	Outline Dimension	183(W)×141(H)×5.6(T)	mm
6	Number of Colors	16.7M	-
7	Display Mode	Normally White	-
8	Viewing Direction	6 o'clock	-
9	Pixel Arrangement	RGB vertical stripe	-
10	Luminance(cd/m ²)	350	(TYP.)nit
11	Contrast Ratio	500(TYP.)	
12	Surface Treatment	Anti-glare	-
13	Interface	Digital	
14	Backlight	White LED	-
15	Operation Temperature	-20-70	℃
16	StorageTemperature	-30-80	℃

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3. PIN DESCRIPTION

FH19SC-50S-0.5SH (05)

No.	Symbol	I/O	Function	Remark
1	LED+	P	Power for LED backlight (Anode)	
2	LED+	P	Power for LED backlight (Anode)	
3	LED-	P	Power for LED backlight (Cathode)	
4	LED-	P	Power for LED backlight (Cathode)	
5	GND	P	Power ground	
6	VCOM	P	Common voltage	
7	VCC	P	Digital Power	
8	MODE	I	DE/SYNC mode select. Normally pull high	
9	DE	I	Data Input Enable	
10	VS	I	Vertical sync input. Negative polarity	
11	HS	I	Horizontal sync input. Negative polarity	
12	B7	I	Blue -Data inputs	
13	B6			
14	B5			
15	B4			
16	B3			
17	B2			
18	B1			
19	B0			
20	G7	I	Green-Data inputs	
21	G6			
22	G5			
23	G4			
24	G3			
25	G2			
26	G1			
27	G0			

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28	R7	I	Red-Data inputs	
29	R6			
30	R5			
31	R4			
32	R3			
33	R2			
34	R1			
35	R0			
36	GND	P	Power Ground	
37	DCLK	I	Clock input	
38	GND	P	Power Ground	
39	L/R	I	Left or Right Display Control	
40	U/D	I	Up / Down Display Control	
41	VGH	P	Positive Power for TFT	
42	VGL	P	Negative Power for TFT	
43	AVDD	P	Analog Power	
44	REST	I	Global reset pin. Active low to enter reset state.	
45	NC		Not connect	
46	VCOM	P	Common Voltage	
47	DITHB	I	Dithering setting	
48	GND	P	Power Ground	
49	NC		Not connect	
50	NC		Not connect	

I : input , O : output , P : Power

【Note】

- *1) : When L/R="0" , set right to left scan dirction
 When L/R="1" , set left to right scan dirction
 When U/D="0" , set top to bottom scan dirction
 When U/D="1" , set bottom to top scan dirction

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4. ELECTRICAL CHARACTERISTICS**4.1 ABSOLUTE MAXIMUM RATINGS** $T_a = 25^{\circ}\text{C} \pm 2$

Item	Symbol	Min.	Max.	Unit	Conditions
Digital Supply Voltage	VDD	-0.5	3.96	V	
TFT Gate on voltage	VGH	-0.3	42	V	
TFT Gate off voltage	VGL	VGH-42	0.3	V	
Analog power supply voltage	AVDD	-0.5	14.85	V	

4.2 TFT LCD MODULE**4.2.1 Operating Conditions**

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Digital Supply Voltage	VDD	3.2	3.3	3.8	V	
TFT Gate on voltage	VGH	21	22	23	V	
TFT Gate off voltage	VGL	-8	-7	-6	V	
TFT Common electrode voltage	VCOM	3.0	3.6	4.5	V	
Analog power supply voltage	AVDD	9.0	9.7	10.6	V	

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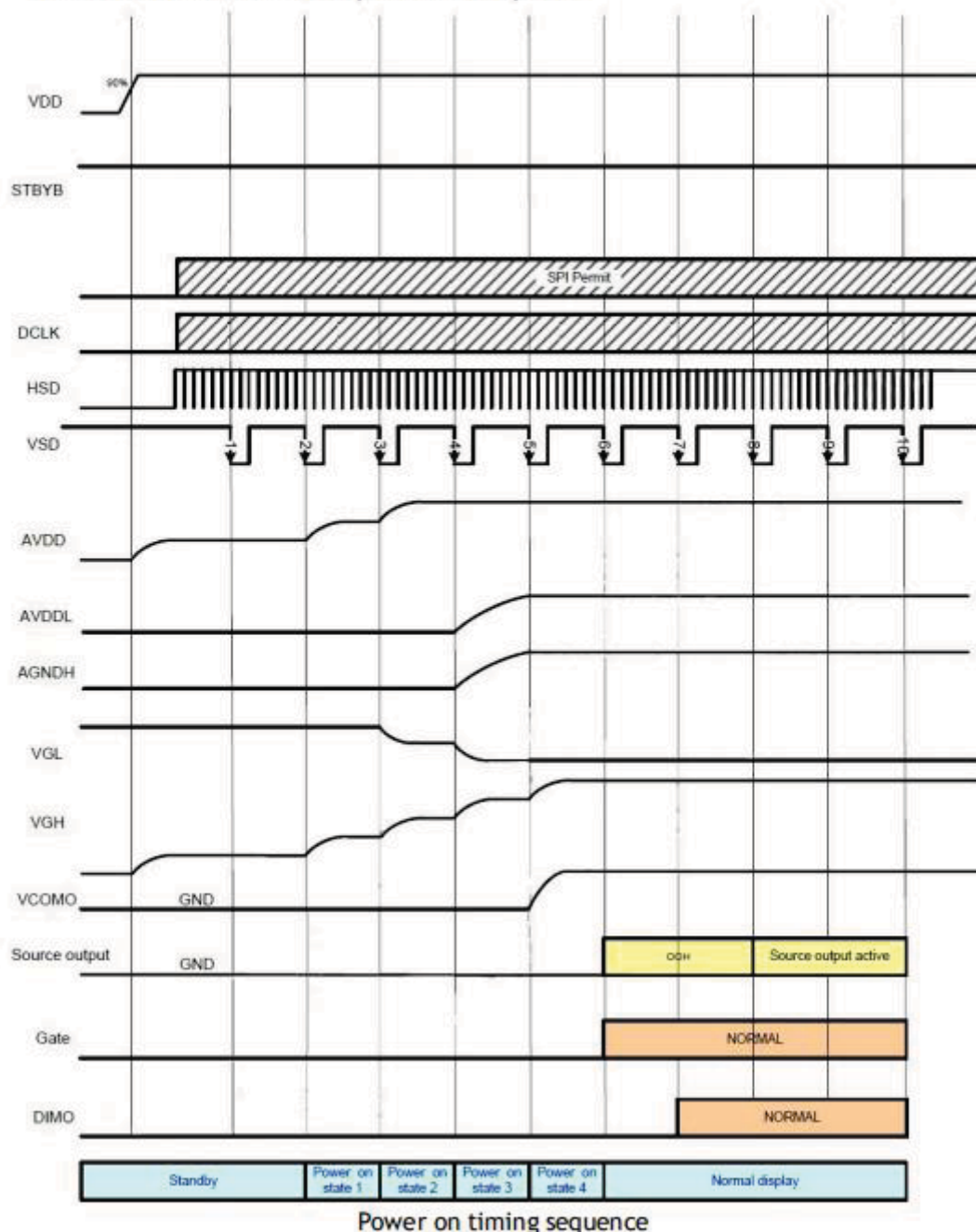
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4.3 POWER ON/OFF SEQUENCE

To prevent the device damage from latch up, the power on/off sequence shown below must be followed.

Power on: VDD, GND → AVDD, AGND → V1 to V14

Power off: V1 to V14 → AVDD, AGND → VDD, GND



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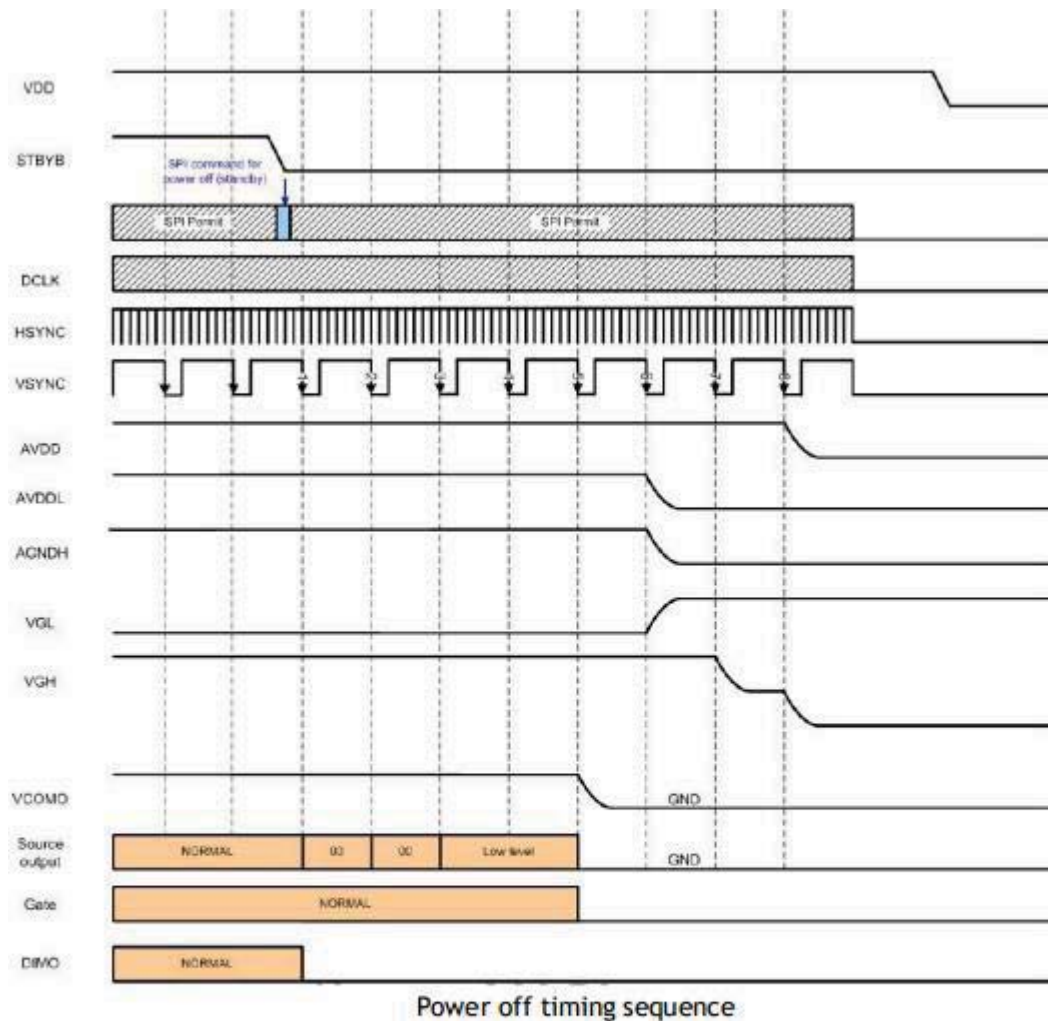
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Power off timing sequence

Note: Low level=3FH, when NBW=L (Normally white)
Low level=00H, when NBW=H (Normally black)

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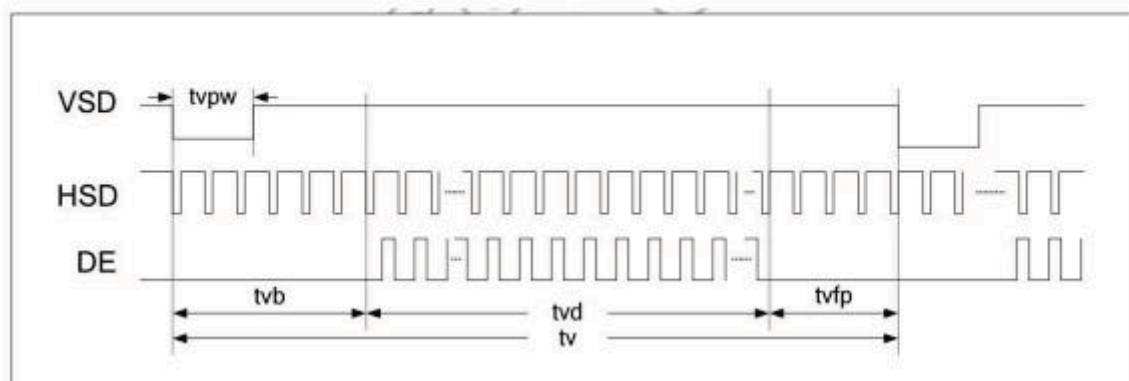
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Vertical timing:

Parameter	Symbol	Spec.			Unit
		Min.	Typ.	Max.	
Vertical Display Area	tvd		600		T _H
VS period time	tv	624	635	700	T _H
VS pulse width	tvpw	1	-	20	T _H
VS Back Porch (Blanking)	tvb		23		T _H
VS Front Porch	tvfp	1	12	77	T _H
DE mode Blanking	tv-tvd	24	35	100	T _H

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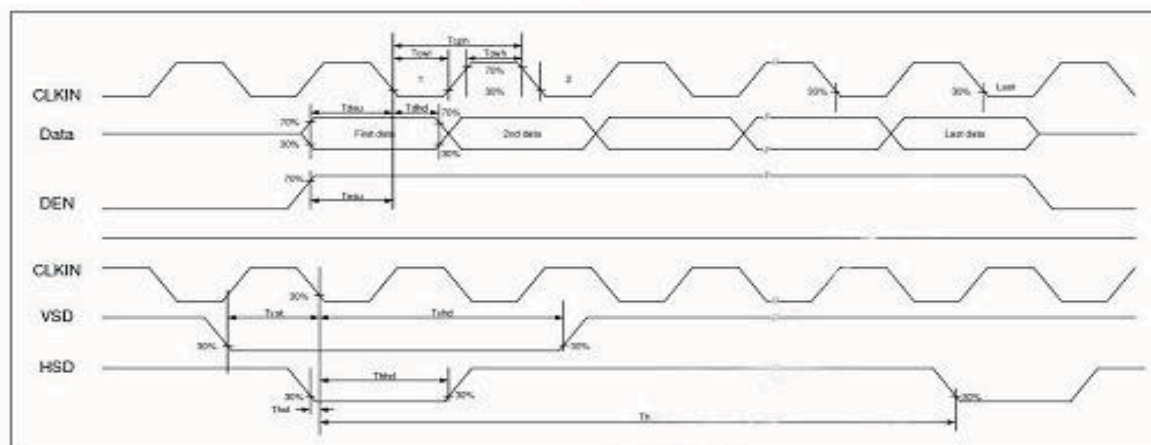
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5.2 TIMING DIAGRAM

5.2.1 Input Clock and Data Timing Diagram



6. OPTICAL CHARACTERISTICS

Ta=25°C±2

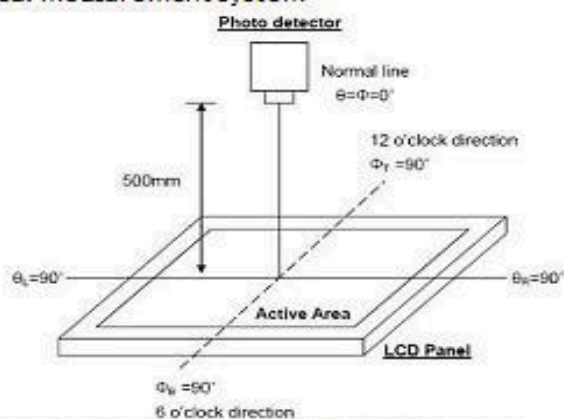
Item	Symbol	Condition	Min.	Typ.	Max.	Unit	Note
Contrast Ratio	CR	$\Theta = 0^\circ$	400	500	-		Note1 Note4
Luminance	YL		250	350	-	cd/m ²	Note1 Note6 Note7
Luminance Uniformity	IV-M		70	75	-	%	
Response Time	Rising	Ta= 25°C $\Theta = 0^\circ$	-	4	8	ms	Note1 Note3
	Falling		-	12	24		
Viewing Angle range	Left	Θ	-	75	-	degree	Note2
	Right	Θ	-	75	-	degree	
	Up	Φ	-	75	-	degree	

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	Down	Φ		-	70	-	degree	
Color Chromaticity (CIE1931)	White	x		0.280	0.310	0.340		Note1 Note5 Note7
		y		0.280	0.310	0.340		
	Red	x		0.586	0.616	0.646		
		y		0.305	0.335	0.365		
	Green	x		0.254	0.284	0.314		
		y		0.508	0.538	0.568		
	Blue	x		0.118	0.148	0.178		
		y		0.111	0.141	0.171		
NTSC				45	50		%	

Note1: Definition of optical measurement system

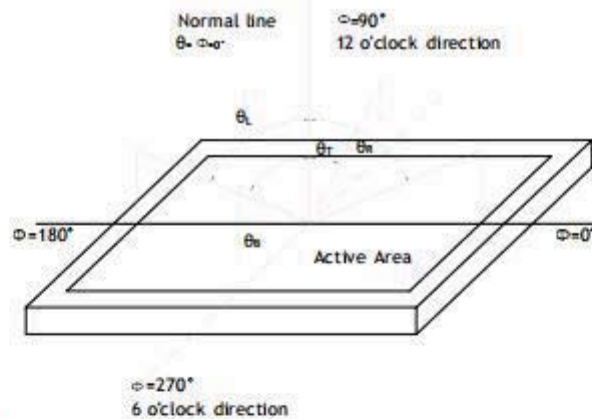


Note2: Definition of viewing angle range and measurement system

Viewing angle is measured at the center point of the LCD by CONOSCOPE (ergo-80).

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Note3: Definition of Response time

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

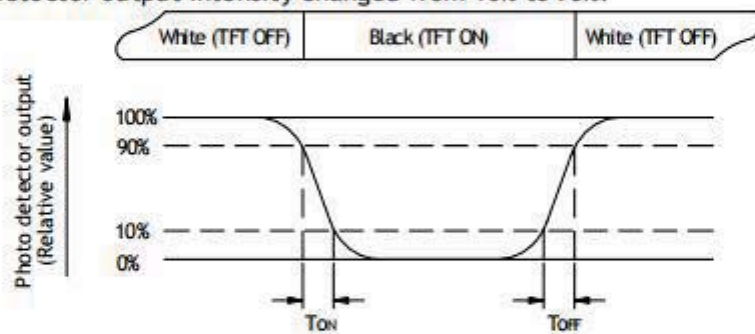


Fig. 6-3 Definition of response time

Note4: Definition of contrast ratio

$$\text{Contrast ratio (CR)} = \frac{\text{Luminance measured when LCD on the Whitestate}}{\text{Luminance measured when LCD on the Blackstate}}$$

"White state ": The state is that the LCD should drive by V_{white} .

"Black state": The state is that the LCD should drive by V_{black} .

V_{white} : To be determined V_{black} : To be determined.

Note5: Definition of color chromaticity (CIE1931)

Color coordinates measured at center point of LCD.

Note6: All input terminals LCD panel must be ground while measuring the center area of the panel. The LED driving condition is $I_L = 161\text{mA}$

Note7: Definition of Luminance Uniformity

Active area is divided into 9 measuring areas. Every measuring point is placed at the center of each measuring area.

Luminance Uniformity (U) = $L_{\text{min}} / L_{\text{max}}$

L----Active area length, W---- Active area width

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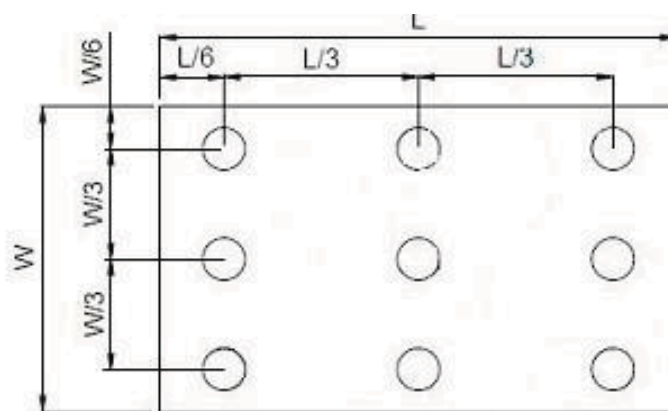
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Bmax: The measured maximum luminance of all measurement position.
Bmin: The measured minimum luminance of all measurement position.

7.QUALITY ASSURANCE SYSTEM**7.1 TEMPERATURE AND HUMIDITY**

Test Item	Test Condition	Remark
HighTemperatureStorage	Ta=80℃;240hrs	IEC60068-2-1 : 2007 GB2423.2-2008
Low Temperature Storage	Ta=-30℃;240hrs	IEC60068-2-1 : 2007 GB2423.1-2008
High Temperature Operation	Ta=70℃;240hrs	IEC60068-2-1 : 2007 GB2423.2-2008
Low Temperature Operation	Ta=-20℃;240hrs	IEC60068-2-1 : 2007 GB2423.1-2008
High Temperature High Humidity Operation	Ta=40℃ , 90%RH , 240Hrs(nøcondensation)	IEC60068-2-78 : 2001 GB/T2423.3-2006
Thermal Shock	-30℃(0.5h)-80 ℃(0.5h) / 100cycles	Start with cold temperature , End with high temperature , IEC60068-2-14:1984,GB2423.22-2002
Image Sticking	25℃ ; 2hrs	Note1

Note1:Condition of image sticking test:25℃±2℃
Operation with test pattern sustained for 2hrs,then change to gray pattern
immediately,after 5 mins,the mura must be disappeared completely



(a) Test Pattern (chess board Pattern)



(b) Gray Pattern

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7.2 VIBRATION&SHOCK

Test item	Conditions	Remark
Packing Shock (non-operation)	980m/s ² , 6ms, ±x,y,z 3times for direction	IEC60068-2-27 : 1987 GB/T2423.5-1995
Packing Vibration (non-operation)	Frequency range:10 HZ~50HZ Stroke:1.0mm,sweep:10 HZ ~50HZ x,y,z 2 hours for each direction	IEC60068-2-32 : 1990 GB/T2423.8-1995

7.3ESD

Test item	Conditions	Remark	
Electro Static Discharge Test (non-operation)	150pF , 330Ω , Contact:±4KV,Air:±8KV	1	IEC61000-4-2 : 2001
	200pF , 0Ω , ±200V contact test	2	GB/T17626.2-2006

Note: Measure point :

1. LCD glass and metal bezel
2. IF connector pins

8. PRECAUTION RELATING PRODUCT HANDLING

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±5°C and the humidity is below 50±20%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.
- (9) When the module is assembled, it should be attached to the system firmly, Be careful not to twist and bend the module.
- (10) Wipe off water droplets or oil immediately. If you leave the droplets for a long time, staining and discoloration may occur.
- (11) If the liquid crystal material leaks from the panel, it should be kept away from the eyes or mouth. In case of contact with hands, legs or clothes, it must be washed away thoroughly with

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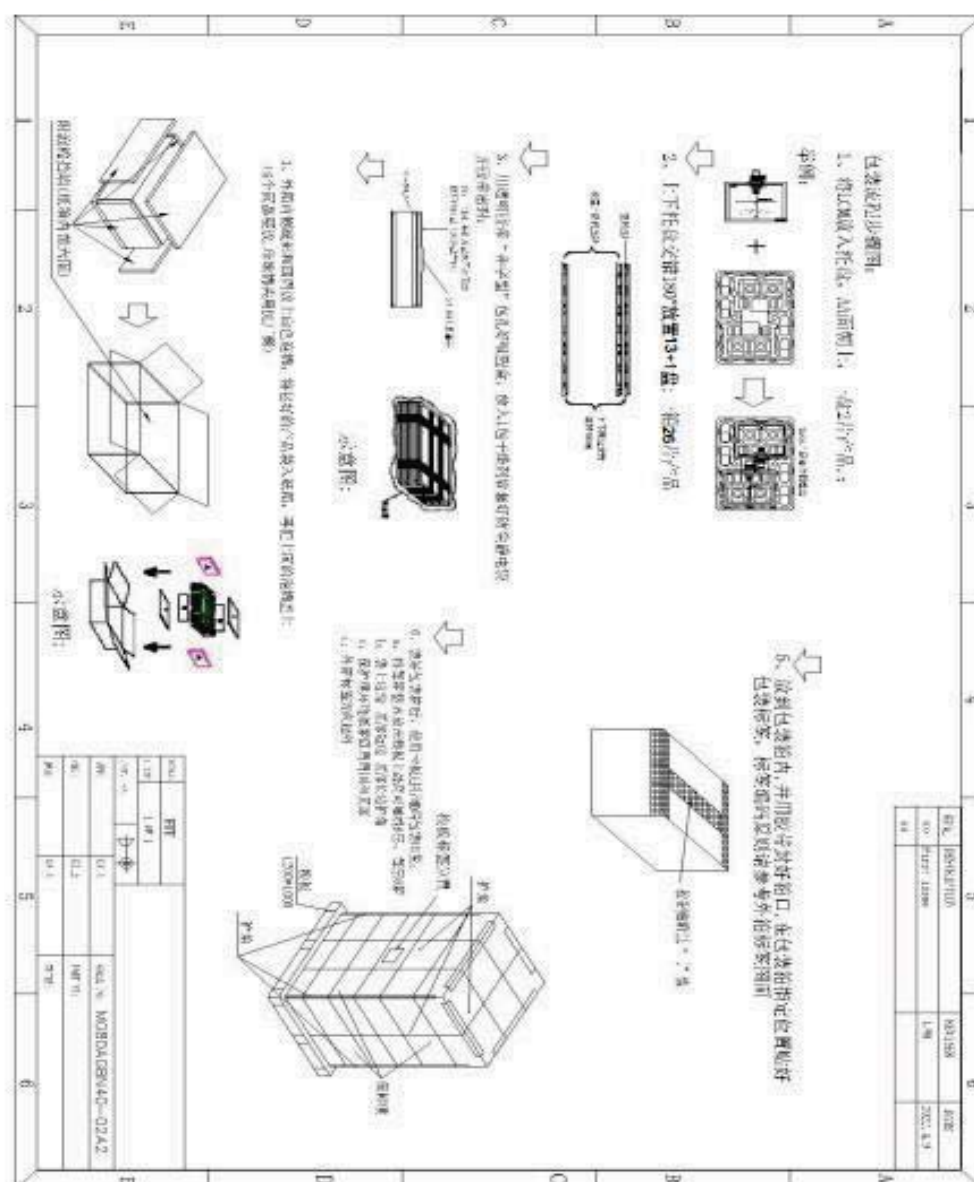
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8.4 WARRANTY

- (1) The period is within twelve months since the date of shipping out under normal using and storage conditions.
- (2) Do not repaired or modified the LCM . It may cause function to lose efficacy , XianChuang does not warrant the LCM.
- (3) All process and material comply ROHS.

9. PACKAGE DRAWING



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