B2 6.92 inch MDL Product Specification Rev.P1

SUPPLIER	Chengdu BOE Optoelectronics Technology CO., LTD
FG-Code	AV069HDM-N10-28P0 (COG-DESAT011-01)

ITEM	BUYER SIGNATURE	DATE

ITEM	SUPPLIER SIGNATURE	DATE
Prepared		
Reviewed		
Approved		

REV.	ECN NO.	DESCRIPTION OF CHANGES	DATE	PREPARED
P0	-	Initial Release	2020/06/11	Pu ShuiQin Leng ShouYang Zhai Yue Wang ChunHua
P1	-	1. P5: Update the outline dimension 2. P8：Update the PIN 39 3. P21: Update the outline dimension and border. 4. P22: Update the latest MS.	2020/11/12	Leng ShouYang Wang ChunHua

Contents

1.0 GENERAL DESCRIPTION

1.1 Introduction

6.92 inch module is a color active matrix TFT LCD module using amorphous silicon TFT‘s (Thin Film Transistors) as an active switching devices. It is a transmissive type display operating in the normal black. The TFT-LCD has a 6.92 inch diagonally measured active area with resolutions (1280 horizontal by 720 vertical pixel arrays). Each pixel is divided into RED, GREEN, BLUE dots which are arranged in vertical stripe and this panel can display 16.7M colors.

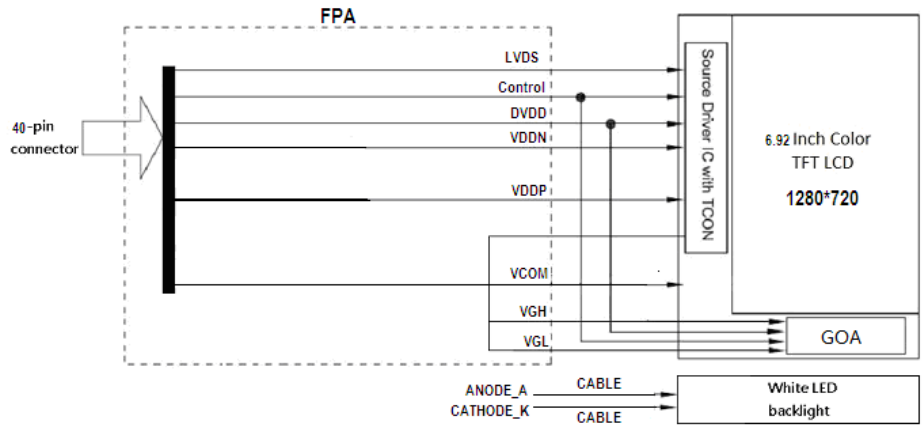


Figure 1-1 Block Diagram

1.2 Features

- Wide viewing angle (U/D/L/R)：Typ85/85/85/85, CR>10：1
- Color Gamut： Min. 65% ,Typ70%
- RoHS/Halogen Free
- LVDS Interface
- Cell thickness 1.0t

1.3 Application

- **Vehicle-mounted Production**

1.4 General Specification

Table 1-1 General Specifications

Parameter	Specification	Unit	Remarks
Active area	156.48 (H) x 80.136 (V)	mm	-
Number of pixels	1280RGB x 720	pixels	-
Pixel pitch	0.12225 (H) x 0.1113 (V)	mm	-
Pixel arrangement	RGB vertical stripes		-
Display colors	16.7M	colors	
Color gamut	70%	%	Typ.
Display mode	Normally Black	-	-
Module outline	167(H, W/O tape) × 93.155(V, With tape) × 6.0(T)	mm	
Viewing Direction (Human Eye)	Typ85/85/85/85，Min80/80/80/80	°	CR>10:1 @25℃
Surface coating	AG		POL

Note:
1.At the U/D/L/R direction, the viewing angle is same;

1.5.The TFT and CF Align Direction;

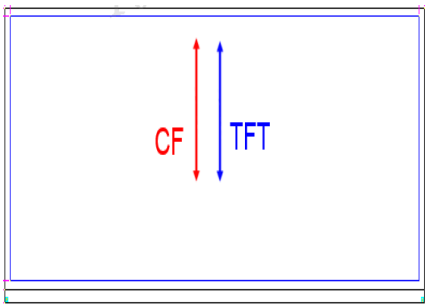


Figure 1-3 The TFT and CF Align Direction

2.0 ABSOLUTE MAXIMUM RATINGS

The followings are maximum values which, if exceed, may cause faulty operation or damage to the unit. The operational and non-operational maximum voltage and current values are listed in Table 2-1

Table 2-1 Environment Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit	Remarks
LCD Logic Voltage	DVDD	3.0	3.6	V	Ta=25+/-2°C
Operating Temperature (Humidity)	T_{OP}	-30	+85	℃	-
	RH	-	90	%	At 60°C
Storage Temperature (Humidity)	T_{ST}	-40	+90	℃	-
	RH	-	90	%	At 60°C

3.0 ELECTRICAL SPECIFICATIONS

3.1 The LCD Module Electrical Interface Connection

Table 3-1 Pin Assignments for the LCD
(Recommended Connector typ:F31L-1A7H1-21040)

Pin No.	Symbol	I/O	Description	Remark
1	GND	P	System Ground	
2	DVDD	P	System power(3.3V)	
3	DVDD	P	System power(3.3V)	
4	NC		Not connect at customer side	
5	VDDN	P	Power input for source driver and pow er circuits(-7V to -5V)	
6	VDDN	P	Power input for source driver and pow er circuits(-7V to -5V)	
7	GND	P	System Ground	
8	VDDP	P	Power input for source driver and p ower circuits(5V to 7V)	
9	VDDP	P	Power input for source driver and p ower circuits(5V to 7V)	
10	GND	P	System Ground	
11	TB_RL	I	Horizontal shift direction selection H : Forward direction indication(Left to Right, default) L : Reverse direction indication(Right to Left)	
12	NC		Not connected	
13	GND	P	System Ground	
14	SDA	I	Serial interface address and data inp ut for SPI interface	
15	SCL	I	Serial interface clock input for SPI i nterface	

16	CSB	I	Serial interface chip enable signal for SPI int erface	
17	RESET	I	H : normal operation；L : reset state There is an internal RC circuit in product for stability	
18	STBYB	I	Standby mode setting pin, active low	
19	GND	P	System Ground	
20	D3P	I	LVDS Differential Data Pair	
21	D3N	I	LVDS Differential Data Pair	
22	GND	P	System Ground	
23	CP	I	LVDS Differential CLK Pair	
24	CN	I	LVDS Differential CLK Pair	
25	GND	P	System Ground	
26	D2P	I	LVDS Differential Data Pair	
27	D2N	I	LVDS Differential Data Pair	
28	GND	P	System Ground	
29	D1P	I	LVDS Differential Data Pair	
30	D1N	I	LVDS Differential Data Pair	
31	GND	P	System Ground	
32	D0P	I	LVDS Differential Data Pair	
33	D0N	I	LVDS Differential Data Pair	
34	GND	P	System Ground	
35	NC		Not connected	
36	GND	P	System Ground	
37	NC		Not connected	
38	GND	P	System Ground	
39	NC		Not connected, Vcom is regulated MDL	
40	GND	P	System Ground	

3.2 The backlight Pin map:

Recommended Connector typ: SHR-02V-BK-B(HF)

Pin	Symbol	Description	Remark
1	A	Anode	
2	K	Cathode	

Remark:
1. For "I/O", "I" is input; "O" is output; "P" is power ; "C" is passive
2. Pin "DC" means BOE will use it but customer don't need ,so please Customer don't connect it anything.

3.3 Electrical Specifications

Table 3-3 Electrical Specifications Ta=25+/-2°C

Parameter	Symbol	Min.	Typ.	Max.	Unit
Power supply voltage	DV_{DD}	3.0	3.3	3.6	V
Power supply current	I_{DD}	-	35	60	mA
Source driver voltage -	VDDN	-6.2	-6.0	-5.8	V
Source driver current -	IDDN	-53	-35	-	mA
Source driver voltage +	VDDP	5.8	6.0	6.2	V
Source driver current +	IDDP	-	35	53	mA
TFT common electrode voltage	Vcom(Note1)	-1.7	-1.2	-0.7	V
TFT common electrode current	Ivcom	-0.2	-0.1	-	mA
Input low voltage	VIL	GND-0.3	-	$0.3*DV_{DD}$	V
Input high voltage	VIH	$0.7*DV_{DD}$	-	$DV_{DD+}0.3$	V
Total Supply current of LED Backlight	I_{LED}Tota		240		mA
Supply voltage of LED backlight	Supply voltage of LED backlight	16.8	18	19.8	V

Notes :
1: Current Max is based “Gray 255”;
2: VGH-VGL < 32V ;
3. BLU LED : 18ea, 3p6s,The maximum current value is 240mA, each string of maximum current is 80mA;
4. each string LED should be drove by constant current separately

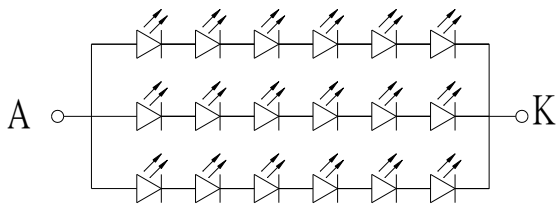


Figure 3-2 LED Diagram

3.4 LVDS Signal Timing

Table 3-4 LVDS Signal Timing

Parameter	Symbol	Value			Unit
		Min	Typ	Max	
DCLK frequency	Fdclk	59.6	60.4	76.9	MHz
Horizontal valid area	thd		1280		DCLK
1 horizontal line	th	1320	1334	1556	DCLK
Vertical valid area	tvd		720		H
1 vertical field	tv	752	754	824	H
Frame rate	FR	-	60	-	Hz

- **Horizontal**

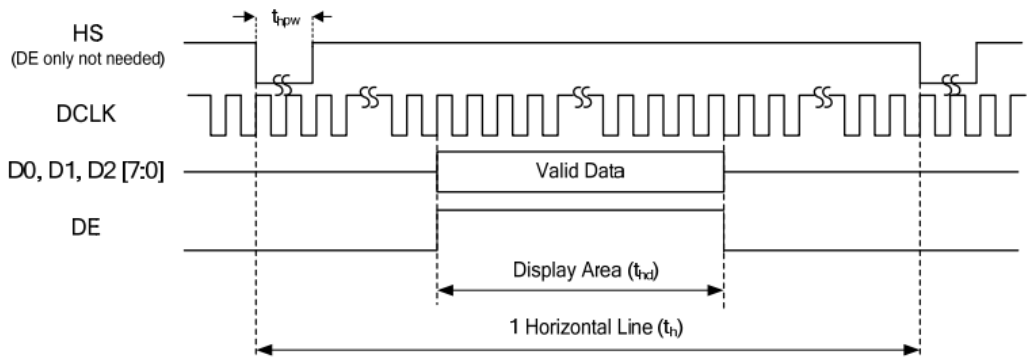


Figure 3-3:Horizontal input timing at DE only mode

- **Vertical**

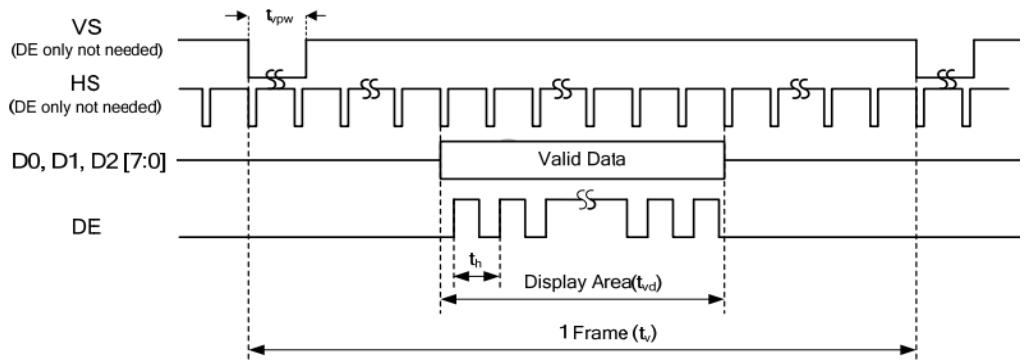


Figure 3-4: Vertical input timing at DE only mode

3.5 Signal Format

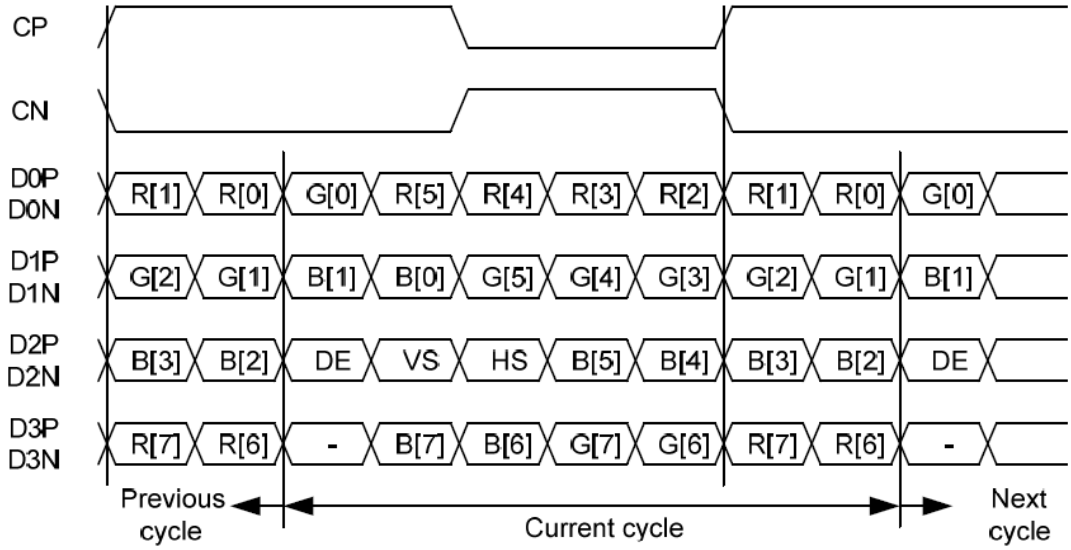


Figure 3-5: LVDS Input signal VESA format

3.6 LVDS Characteristics

3.6.1 *LVDS mode AC electrical characteristics*

Parameter	Symbol	Value			Unit
		Min	Typ	Max	
Clock frequency	F_{LVCYC}	57.1	-	85	MHz
Clock period	T_{LVCYC}	11.76	-	-	ns
1 data bit time	UI	-	1/7		T_{LVCYC}
Clock high time	T_{LVHW}	-	4	-	UI
Clock low time	T_{LVLW}	-	3	-	UI
Position 1	T_{POS1}	-0.2	0	0.2	UI
Position 0	T_{POS0}	0.8	1	1.2	UI
Position 6	T_{POS6}	1.8	2	2.2	UI
Position 5	T_{POS5}	2.8	3	3.2	UI
Position 4	T_{POS4}	3.8	4	4.2	UI
Position 3	T_{POS3}	4.8	5	5.2	UI
Position 2	T_{POS2}	5.8	6	6.2	UI
Input eye width	T_{EYEW}	0.6	-	-	UI
Input eye border	T_{EX}	-	-	0.2	UI
LVDS wake up time	T_{ENLVDS}	-	-	150	us

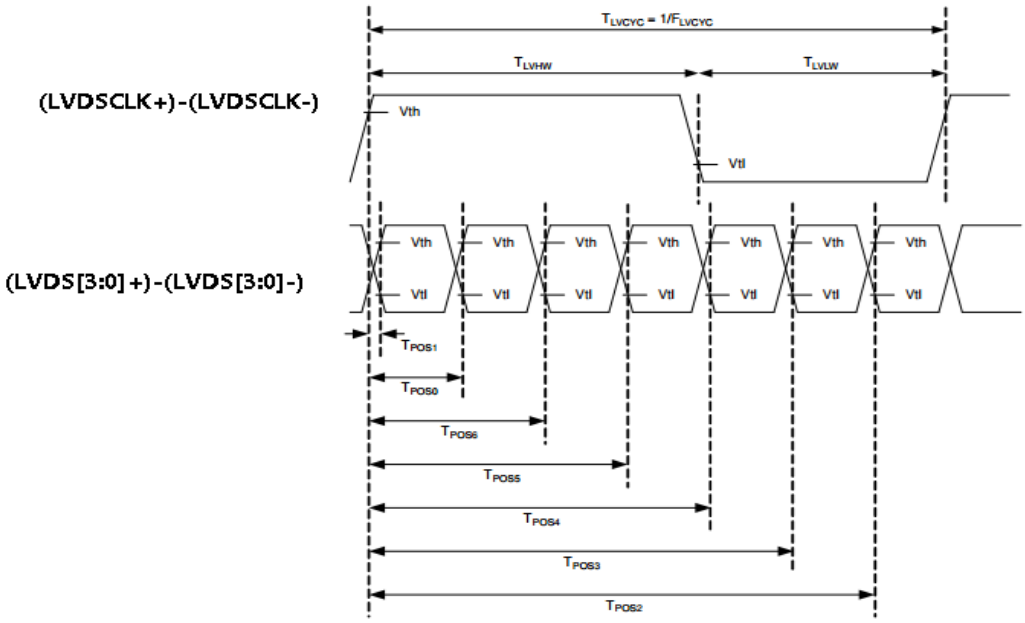
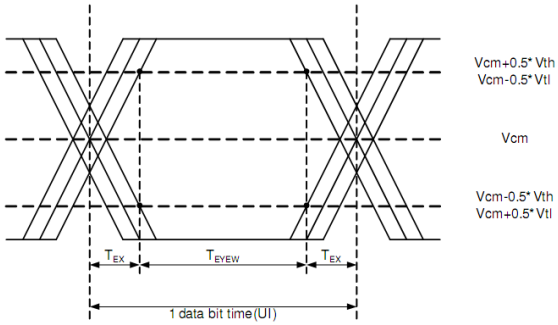


Figure3- 6: LVDS wake up time

Single-ended:
D3P, D3N,
D2P, D2N,
D1P, D1N,
D0P, D0N



Differential:
D3P-D3N,
D2P-D2N,
D1P-D1N,
D0P-D0N

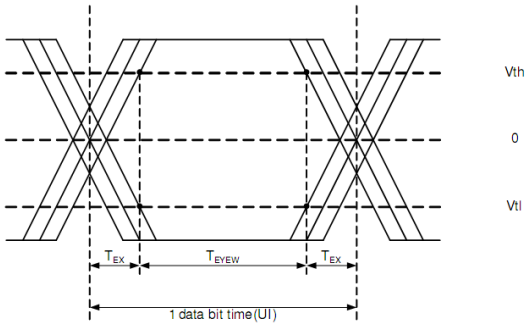


Figure 3-7: LVDS input eye diagram

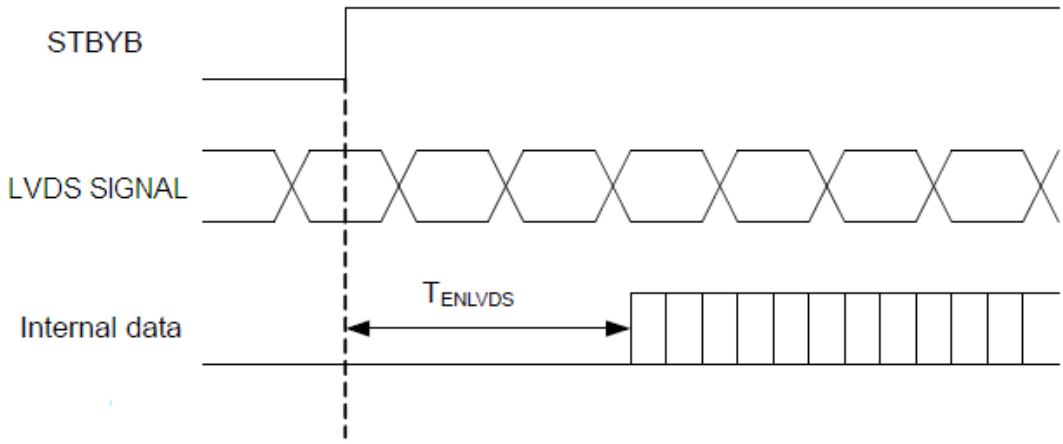


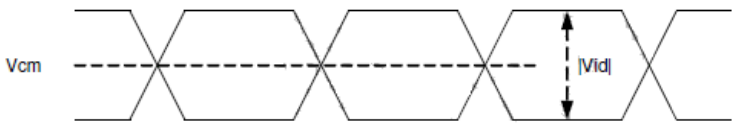
Figure 3-8: LVDS wake up time

3.6.2 LVDS mode DC electrical characteristics

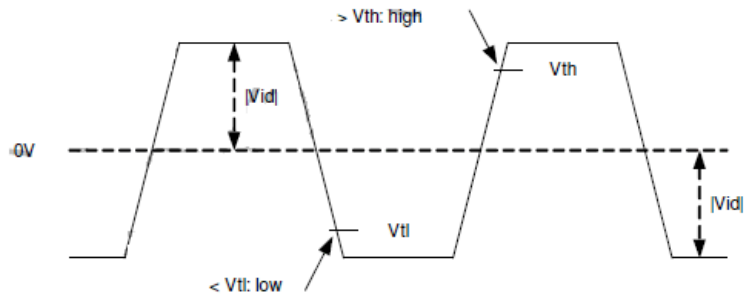
Table 3-5 LVDS DC Characteristics

Parameter	Symbol	Condition	Spec			Unit
			Min.	Typ.	Max.	
Differential input high Threshold voltage	V_{th}	V_{cm}=1.2V	-	-	+0.1	V
Differential input low t hreshold voltage	Vtl	-	-0.1	-	-	V
Differential input com mon mode voltage	Vcm	-	1	1.2	1.7-|Vid|/2	V
LVDS input voltage	VINLV	-	0.7	-	1.7	V
Differential input volta ge	|Vid|	-	0.1	-	0.6	V
Differential input leaka ge current	Ilvleak	-	-10	-	+10	μA

Single-ended:
CP, CN,
D3P, D3N,
D2P, D2N,
D1P, D1N
D0P, D0N

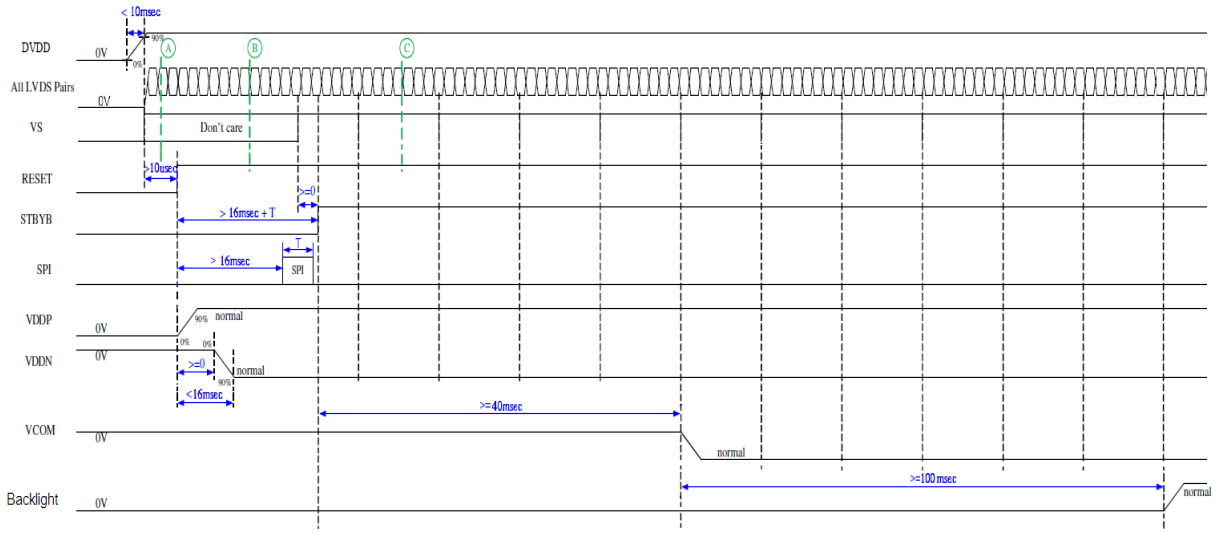


Differential:
CP-CN,
D3P-D3N,
D2P-D2N,
D1P-D1N,
D0P-D0N



3.7 Power sequence

3.7.1 Power on sequence



Note:
(1) The valid LVDSsignals (clock pair and all data pairs in toggling state) must be consistent with panel resolution and input timing specification.
(2) The application system can apply LVDS signals from point A(DVDD is ready and not reset completed), B(reset completed and in standby mode), or C(reset completed and non-standby mode)
(3) Abnormal power on/off sequence, maybe lead to abnormal display or TFT module damage.
(4) If LVDS signals were out of spec, maybe lead to abnormal display or TFT module damage.

Figure 3-6 Power on sequence

3.7.2 Power on sequence

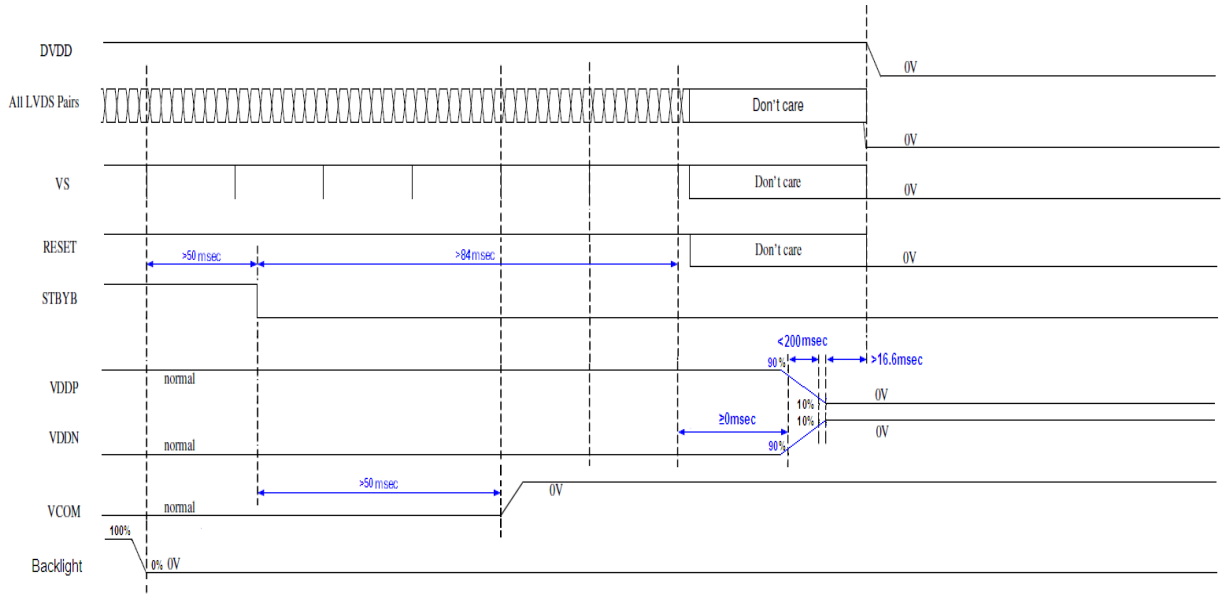


Figure 3-7 Power off sequence

4.0 OPTICAL SPECIFICATIONS

4.1 Overview

The test of Optical specifications shall be measured in a dark room (ambient luminance ≤ 1lux and temperature = 25±2℃) with the equipment of Luminance meter system (Goniometer system and TOPCON BM-5) and test unit shall be located at an approximate distance 50cm from the LCD surface at a viewing angle of θ and Φ equal to 0°. The center of the measuring spot on the Display surface shall stay fixed.

The backlight should be operating for 30 minutes prior to measurement.

Table 4-1 Optical Specifications

Parameter		Symbol	Condition	Min.	Typ.	Max.	Unit	Remark
Viewing Angle range	Horizontal	Θ_3	CR > 10	80	85	-	Deg.	Note 1
		Θ_9		80	85	-	Deg.	
	Vertical	Θ_{12}		80	85	-	Deg.	
		Θ_6		80	85	-	Deg.	
Contrast ratio		CR	Θ = 0° (Center) Normal Viewing Angle	900	1100	-	-	Note 2
White luminance uniformity		ΔY		75			%	Note 4
NTSC		%		65	70	-	-	-
White Chromaticity		x_w		Typ-0.03	0.297	Typ+0.03	-	Simulation results. Actual value will be updated after samples be tested. Note 5
		y_w			0.322		-	
Reproduction of color	Red	x_R			0.645		-	
		y_R			0.342		-	
	Green	x_G			0.312		-	
		y_G			0.625		-	
	Blue	x_B			0.147		-	
		y_B			0.077		-	
Response Time (Rising / Falling)		T_{RT}	25℃	-	-	30	ms	Note 6
			-20℃	-	-	200		

Parameter	Condition	Min.	Typ.	Max.	Remark
Luminance	Θ = 0° (Center) Normal Viewing Angle	800	950		cd/m2
Flicker	Ta=25°C	-	-	18%	1+2 dot inversion

Note :

1. Viewing angle is the angle at which the contrast ratio is greater than 10. The viewing are determined for the horizontal or 3, 9 o'clock direction and the vertical or 6, 12 o'clock direction with respect to the optical axis which is normal to the LCD surface.
2. Contrast measurements shall be made at viewing angle of θ= 0° and at the center of the LCD surface. Luminance shall be measured with all pixels in the view field set first to white, then to the dark (black) state. (See FIGURE 1 shown in Appendix) Luminance Contrast Ratio (CR) is defined mathematically.

$$CR = \frac{\text{Luminance when displaying a white raster}}{\text{Luminance when displaying a black raster}}$$

3. Center trans of white is defined as the LCD surface. Luminance shall be measured with all pixels in the view field set first to white. This measurement shall be taken at the locations for a total of the measurements per display.
4. The White luminance uniformity on LCD surface is then expressed as :
   ΔY = (Minimum Luminance of 9points / Maximum Luminance of 9points) * 100
5. The module color chromaticity coordinates specified in Table 4. shall be calculated from the spectral data measured with all pixels first in red, green, blue and white.
6. The electro-optical response time measurements shall be made as FIGURE 3 shown in Appendix by switching the "data" input signal ON and OFF. The times needed for the transmittance to change from 10% to 90% is Tr, and 90% to 10% is Tf.

4.2 OPTICAL TEST APPENDIX

Figure 4-1 The Definition of Vth & Vsat

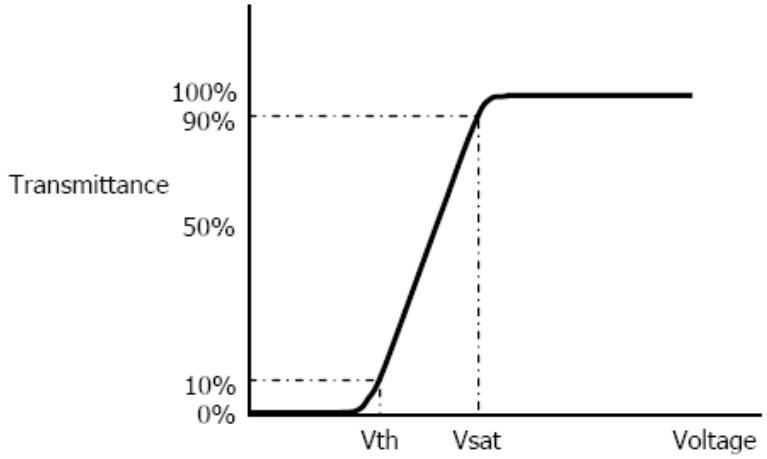


Figure 4-2 Measurement Set Up

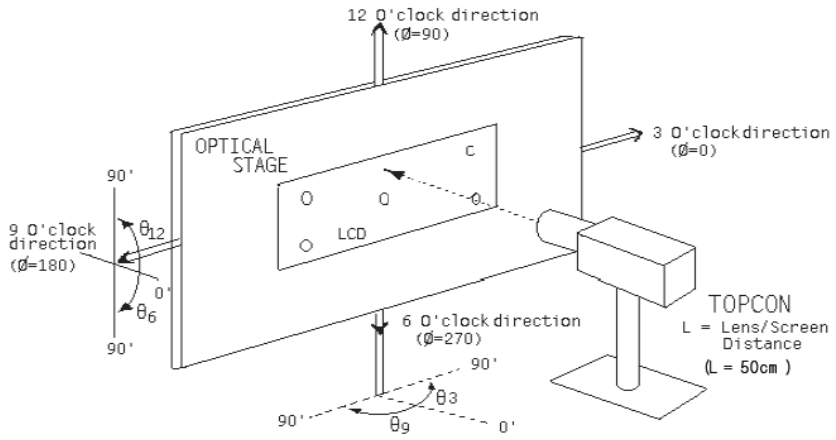


Figure 4-3 Response Time Testing

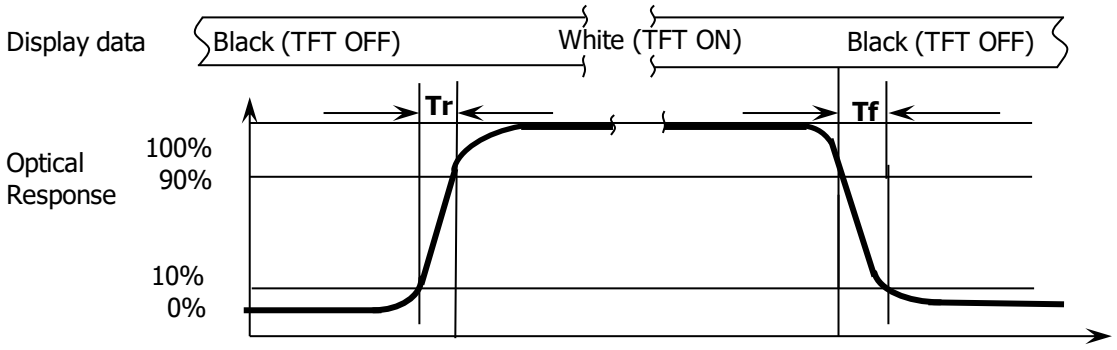
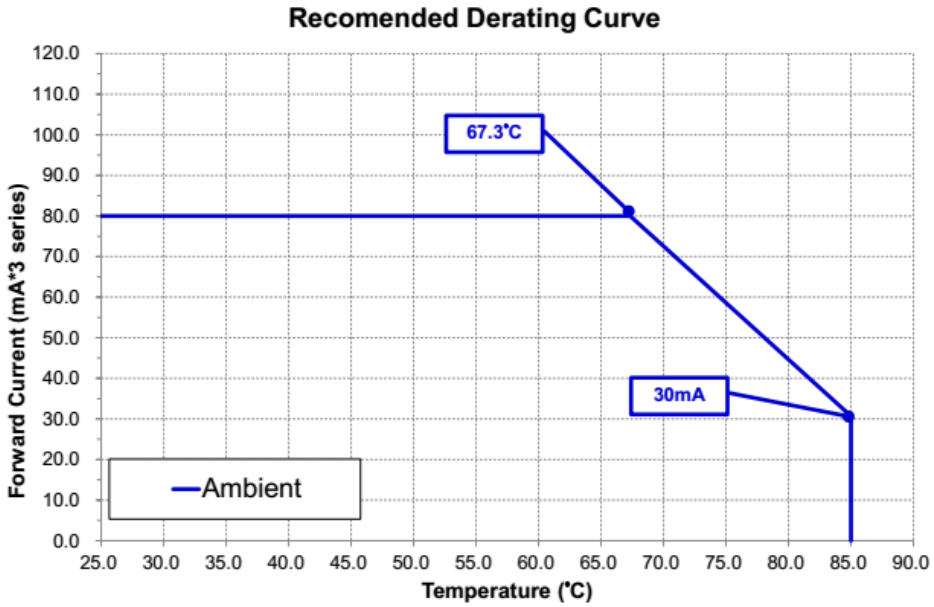


Figure 4-4 Derating Curve



Note：this is simulation result，the luminance will decrease to about 35%~40% when operation at 85℃

5.0 MECHANICAL CHARACTERISTICS

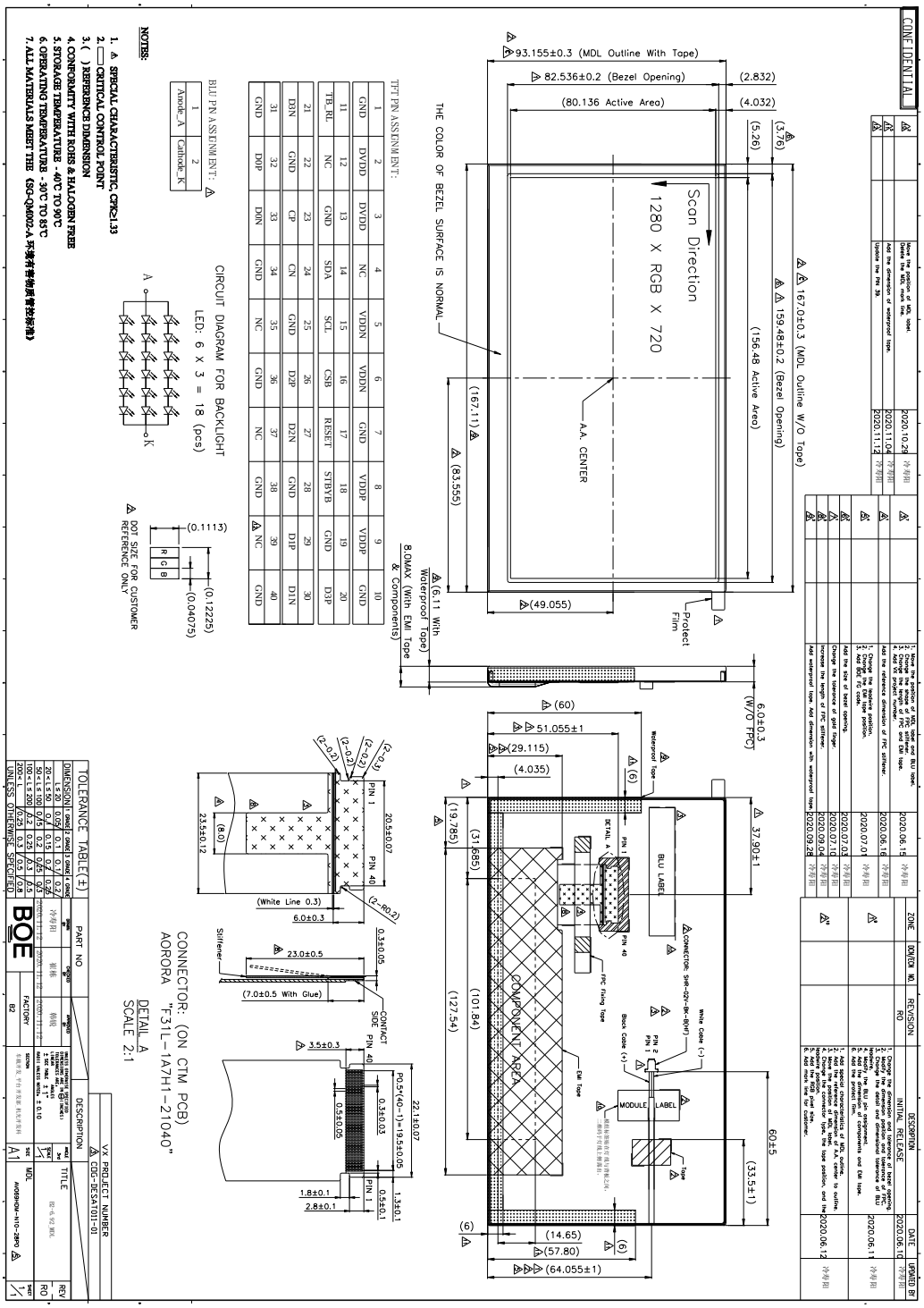
5.1 Dimensional Requirements

Figure in next page shows mechanical outlines for the panel.

Table 5-1 Dimensional Parameters

Parameter	Specification	Unit
Active Area	156.48 (H) x 80.136 (V)	mm
Number of pixels	1280RGB x 720	Pixels
Pixel pitch	0.12225 (H) x 0.1113 (V)	mm
Pixel arrangement	RGB vertical stripes	-
Display colors	16.7M	colors
Display mode	Normally Black	-
Module thickness	Typ. 6.0(W/O Components)	mm
Module outline	167(H, W/O tape) × 93.155(V, With tape)	mm
AA-MDL outline L/R/U/D	5.26(W/O tape)/5.26(W/O tape)/4.032/8.987(With tape)	mm

5.2 Outline (MS)



6.0 RELIABILITY

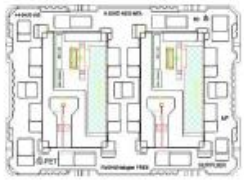
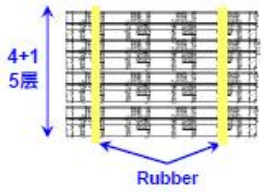
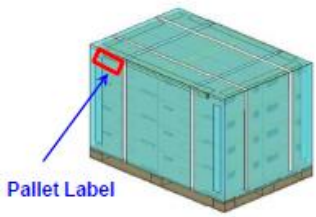
Table 6-1 Reliability test

No	Test Items	Conditions	Remark
1	High temperature storage test	Ta = 90 ℃, 240 hrs	The test result shall be evaluated after the sample has been left at room temperature and humidity for 2 hours. These defects can't be accepted: 1.Air bubble 2.Seal leak 3.Non-display 4.Missing segments 5.Glass crack
2	Low temperature storage test	Ta = -40 ℃, 240 hrs	
3	High temperature operation test	Ta = 85℃, 240 hrs	
4	Low temperature operation test	Ta = -30 ℃, 240 hrs	
5	High temperature & high humidity operation test	Ta = 60 ℃, 90%RH, 240 hrs	
6	Thermal shock Non-operation	Ta = -30 ℃ ↔ 85 ℃ (0.5 hr/0.5hr), 200 cycle	
7	UV exposure resistance	1KW, Xenon, 100h, power off. 42℃,<30%RH.	
8	Image Sticking	Burn in 6x8 chess board,1h @60ºC, perpendicular view @L127 ,the mura must disappear after 5 min.	
9	Mechanical Shock	3 directions: X,Y,Z axes Repeats:6 Peak acc.:100 G Pulse duration: 6 ms (half sine wave) Non-Operating	Note 2
10	Mechanical Vibration	3 directions: X,Y,Z axes Sweep time: 10 (1Oct/ min) Frequency: 10->150->10 Hz 10-58 Hz: constant amplitude 0.75mm peak. 58-150Hz: constant acceleration 10g peak Sinusoidal, Non-Operating	Note 2

Note 1: After the reliability test, the product only guarantee function normally without any fatal defect (non-display, line defect, abormal display etc). All the cosmetic specification is judged before the reliablity test.

Note 2: For module internal structure robustness test purpose only. Customer application cluster design should take care of overall mounting robustness with display module.

7.0 Packing

Put 2 MDL upon Tray. 2 MDL/ Tray	Put 4 full Tray with MDL , Put 1 dummy Tray on the top , then rubber band。 (Tray Rotate 180°) 8 MDL/5 Tray ;	Put 5 Tray with 1 Shielding Bag into 1 Inner Box ; Vacuum pressure : -8KPa~-6KPa 8 MDL/ Inner Box ; 1 Bag/Inner Box ;
 Step 1	 Step 2	 Step 3
Put 6 Inner Box into 1 Outer Box , sealing box with type “H” ; 6 Inner Box/Outer Box ; 48 MDL/Outer Box ;	Put 1 Dual Cover on pallet , Put 16 Outer Box on Dual Cover ,2x2x4 ; 1 Dual Cover/Pallet ; 16 Outer Box/Pallet ;	Put 8 Paper Corner , 3 layers stretch film wind 5 surface , belt pack with total 4 line , paste Label ; 768 MDL/Pallet ;
 Step 4	 Step 5	 Step 6

8.0 PRODUCT SERIAL NUMBER

模组标签信息说明如下:

FG Code： AV069HDM-N10-28P0

01. BOE FG Code：AV069HDM-N10-28P0

02. S/N：年年年年月月日日+序列号，13位码，
8位数的YYYYMMDD+5位数的流水号

03. 二维码

Label Size: 24×12mm

料号：44-9231061

9.0 PRECAUTIONS

9.1 Handing

(1) Use fingerstalls with soft gloves in order to keep display clean during the incoming inspection and assembly process.
(2) You must mount a module using specified mounting holes (Details refer to the drawings).
(3) Please make sure to avoid external forces applied to the Source PCB or FPC and D-IC during the process of handling or assembling. If not, It causes panel damage or malfunction.
(4) Note that polarizers are very fragile and could be easily damaged. Do not touch, push or rub the exposed polarizers with glass, tweezers or anything harder than HB pencil lead. And please do not rub with dust clothes with chemical treatment.
(5) Do not pull or fold the source D-IC which connect the source PCB or FPC and the panel. Do not pull or fold the LED wire.
(6) After removing the protective film, when the surface becomes dusty, please wipe gently with absorbent cotton or other soft materials like chamois soaks with alcohol or purified water. Do not strong polar solvent because they cause chemical damage to the polarizer
(7) Wipe off saliva or water drops as soon as possible. Their long time contact with . polarizer causes deformations and color fading.
(8) Protection film for polarizer on the module shall be slowly peeled off just before use so that the electrostatic charge can be minimized.
(9) Since the LCD is made of glass, do not apply strong mechanical impact or static load onto it. Handling with care since shock, vibration, and careless handling may seriously affect the product. If it falls from a high place or receives a strong shock, the glass may be broken.
(10) Do not disassemble the module.
(11) To determine the optimum mounting angle, refer to the viewing angle range in the specification for each model.
(12) If the customer's set presses the main parts of the LCD, the LCD may show the abnormal display. But this phenomenon does not mean the malfunction of the LCD and should be pressed by the way of mutual agreement.
(13)Do not drop water or any chemicals onto the LCD’s surface.
(14)The ITO pad area needs special careful caution because it could be easily corroded. Do not contact the ITO pad area with HCFC, Soldering flux, Chlorine, Sulfur, saliva or fingerprint. To prevent the ITO corrosion, customers are recommended that the ITO area would be covered by UV or silicon.

9.2 Operating Precautions

(1) Be careful for condensation at sudden temperature change. Condensation makes damage to polarizer or electrical contacted parts. And after fading condensation, smear or spot will occur.
(2) Module has high frequency circuits. Sufficient suppression to the electromagnetic interference shall be done by system manufacturers. Grounding and shielding methods may be important to minimized the interference.
(3) The electrochemical reaction caused by DC voltage will lead to LCD degradation, so DC drive should be avoided.
(4) The LCD modules use C-MOS LSI drivers, so customers are recommended that any unused input terminal would be connected to Vdd or Vss, do not input any signals before power is turn on, and ground you body, work/assembly area, assembly equipments to protect against static electricity.
(5) Do not exceed the absolute maximum rating value. (supply voltage variation, input voltage variation, variation in part contents and environmental temperature, and so on) Otherwise the Module may be damaged.
(6) Design the length of cable to connect between the connector for back-light and the converter as short as possible and the shorter cable shall be connected directly. The longer cable between that of back-light and that of converter may cause the luminance of LED to lower and need a higher startup voltage(Vs).
(7) Connectors are precise devices for connecting PCB and transmitting electrical signals. Operators should insert and unplug MDL in parallel when assembling MDL.
(8) Do not connect or disconnect the cable to/ from the module at the "Power On" condition.
(9) When the module is operating, do not lose CLK, HS,VS signals. If any one these signals is lost, the LCD panel would be damaged.
(10) Obey the supply voltage sequence. If wrong sequence is applied, the module would be damaged.
(11) Do not re-adjust variable resistor or switch etc.

9.3 Electrostatic Discharge Control

(1) Since a module is composed of electronic circuits, it is not strong to electrostatic discharge. Make certain that treatment persons are connected to ground through wrist band etc. And don't touch interface pin directly. Keep products as far away from static electricity as possible.
(2) Avoid the use work clothing made of synthetic fibers. We recommend cotton clothing or other conductivity-treated fibers.

9.4 Precautions for Strong Light Exposure

Strong light exposure causes degradation of polarizer and color filter. It is not allowed to store or run directly in strong light or in high temperature and humidity for a long time.

9.5 Storage Precautions

(1) When storing the LCD modules, avoid exposure to direct sunlight or to the light of fluorescent lamps.
(2) The LCD modules should be stored under the storage temperature range. the recommend condition is: Temperature : 0℃~ 40℃, Relatively humidity: ≤80%, and no more than 1 year.
(3) The LCD modules should be stored in the room without acid, alkali and harmful gas.

9.6 Handling Precautions for Protection Film

(1) Remove the protective film slowly, keeping the removing direction approximate 30-degree not vertical from panel surface, If possible, under ESD control device like ion blower, and the humidity of working room should be kept over 50%RH to reduce the risk of static charge.
(2) In handling the LCD, wear non-charged material gloves. And the conducting wrist to the earth and the conducting shoes to the earth are necessary.

9.7 Operation Condition Guide

(1) Lifetime in this spec. is guaranteed only when Commercial Display is used according to operating usages.
(2) Module used in unnormal orientation mode，need to confirm with the manufacturer.
(3) Do not exceed the absolute maximum rating value. (supply voltage variation, input voltage variation, variation in part contents and environmental temperature, and so on) Otherwise the Module may be damaged.

(4) Dew drop atmosphere should be avoided.
(5) The storage room should be equipped with a good ventilation facility, which has a temperature controlling system.
(6) When expose to drastic fluctuation of temperature (hot to cold or cold to hot ） ,the LCD may be affected; Specifically, drastic temperature fluctuation from cold to hot ,produces dew on the LCD's surface which may affect the operation of the polarizer and the LCD.
(7) Response time will be extremely delayed at lower temperature than the operating temperature range and on the other hand at higher temperature LCD may turn black at temperature above its operational range. However those phenomena do not mean malfunction or out of order with the LCD. The LCD will revert to normal operation once the temperature returns to the recommended temperature range for normal operation.

9.8 Others

(1)When returning the module for repair or etc., Please pack the module not to be broken. We recommend to use the original shipping packages.
(2) 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 soap.
(3) For the crash damaged or unnecessary LCD, it is recommended to wash off liquid crystalby either of solvents such as acetone and ethanol an should be burned up later.
(4) If you should swallow the liquid crystal, first, wash your mouth thoroughly with water, then drink a lot of water and induce vomiting, and then, consult a physician.
(5) If the liquid crystal should get in your eyes, flush your eyes with running water for at least fifteen minutes.
(6) Client needs to add heat dissipation design , such as fan, water cooling , etc.
(7) Client needs to add heat dissipation design , such as fan, water cooling , etc.
(8) After assembling into modules, guarantee that the temperature rise of panel surface does not exceed 20 C at room temperature.
(9) Customers need to drive current down according to derating curve.