

Specification For Approval

- Preliminary specification
- Final specification

Title	12.3 FHD ADS TFT-LCD
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Buyer	
Model	

Supplier	Cheng Du BOE Optoelectronics Technology CO., LTD
Model	COG-VLBJT024-01
Model	AV123Z7M-N14-2WP0

TITLE/SIGNATURE	DATE	ITEM	SIGNATURE	DATE
_____	_____	Approved	_____	_____
_____	_____	Reviewed	_____	_____
_____	_____	Reviewed	_____	_____
_____	_____	Prepared	_____	_____
Please return one copy confirmation with your signature and your comments		BOE CHENG DU Optoelectronics Technology CO., LTD		

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Records Of Revisions

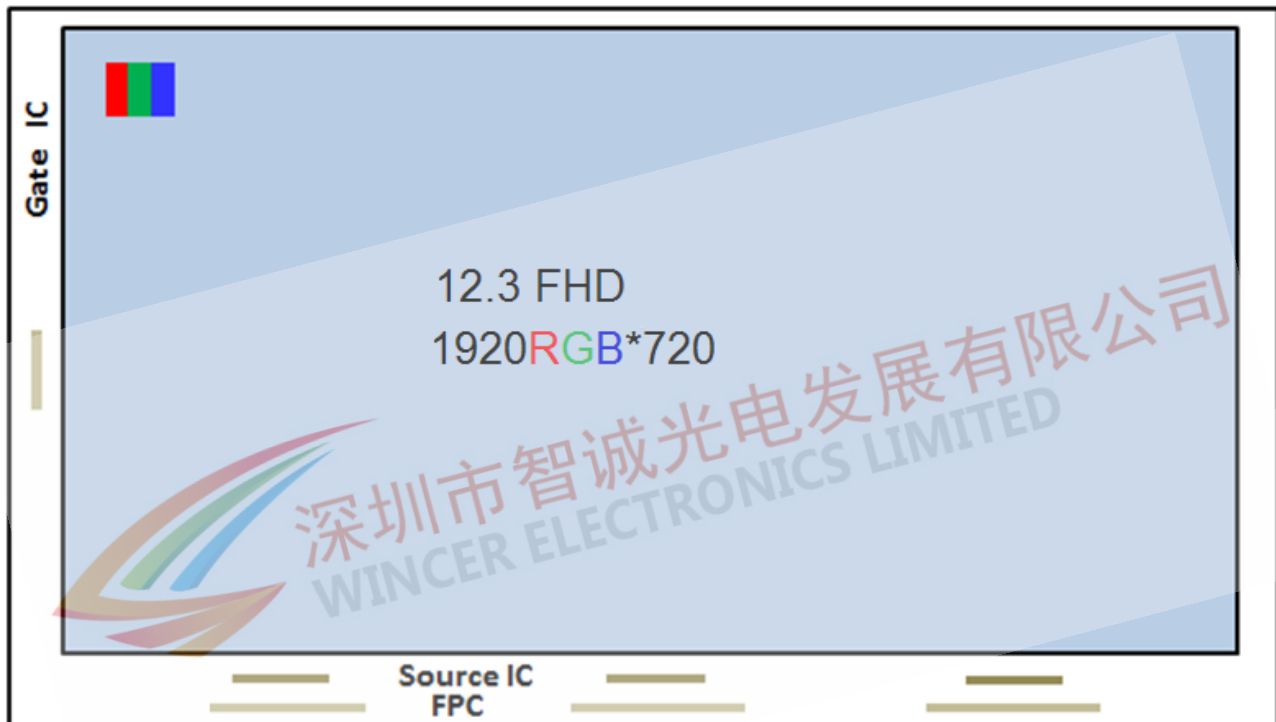
Revision	Date	Page	Description	Released by
Pre.0	2019.02.13		Initial Released	Lizuhua

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1.0 GENERAL DESCRIPTION

1.1 Introduction

AV123Z7M-N14-2WP0 is a color active matrix TFT-LCD Panel using amorphous silicon TFT's (Thin Film Transistors) as an active switching devices. It is a transmissive type display operating in the normal white. This TFT-LCD has a 12.3 inch diagonally measured active area with Z7 resolutions (1920 horizontal by 720 vertical pixel array). Each pixel is divided into Red, Green, Blue dots which are arranged in 2 domain stripe and this panel can display 16.7M colors.



1.2 Features

- 1.0t Glass (Total)
- 12.3" (diagonal) HD, 8:3, Landscape, Transmissive, Normally black, ADS type, Amorphous silicon TFT LCD module
- Hard coating front polarizer
- Connection FH28D-50S-0.5SH
- RoHS Compliant

1.3 Application

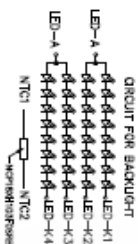
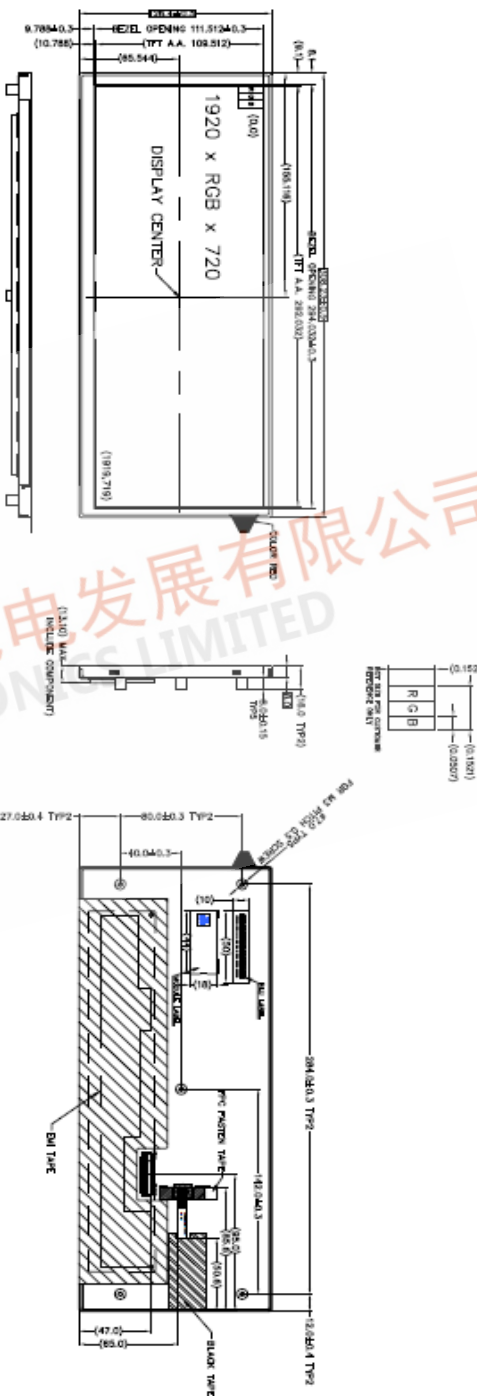
- Automotive

1.4 General Specifications (H: horizontal length, V: vertical length)

Parameter	Specification	Unit	Remark
Active Area	292.032 (H)×109.512 (V)	mm	
Number of Pixels	1920 (H) RGB×720 (V)	pixels	
Pixel Pitch	152.1(H) ×152.1(V)	um	
Pixel Arrangement	RGB Vertical Stripe		
Display Colors	16.7M	colors	
Display Mode	ADS Normal Black		
Dimensional Outline	308.23(H)×126.4 (V) ×8.0(D) (Exclude FPC, cables & component and mounting screws)	mm	
Viewing Direction (Human Eye)	85/85/85/85		
D-IC	EW9290-B00-LT*3(Source) EW9495-B00-LT*1(Gate)		
Weight	435	Gram	

2. Mechanical Specifications

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PARAMETER ASSIGNMENT TABLE

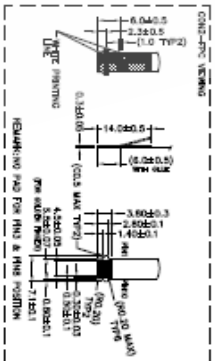
1	2	3	4	5	6	7	8	9	10
LED+A	LED+A	LED+B	LED+C	LED+E	LED+E	LED+E	NC	NC	NTC2

TRIPLE ASSIGNMENT TABLE

1	2	3	4	5	6	7	8	9	10
GN0	GN0	VDD/CP7	VDD4	VDD4	GN0	EN1	EN2	EN3	EN4
11	12	13	14	15	16	17	18	19	20
GN0	EN3	EN3	GN0	EN0	GN0	EN0	GN0	GN0	GN0
21	22	23	24	25	26	27	28	29	30
EN0	EN0	GN0	EN0	GN0	EN0	GN0	EN0	GN0	GN0
31	32	33	34	35	36	37	38	39	40
GN0	GN0	EN0	GN0	GN0	GN0	GN0	GN0	GN0	GN0
41	42	43	44	45	46	47	48	49	50
GN0	GN0	GN0	GN0	VDD	VDD	VDD	SHLUT	GN0	GN0

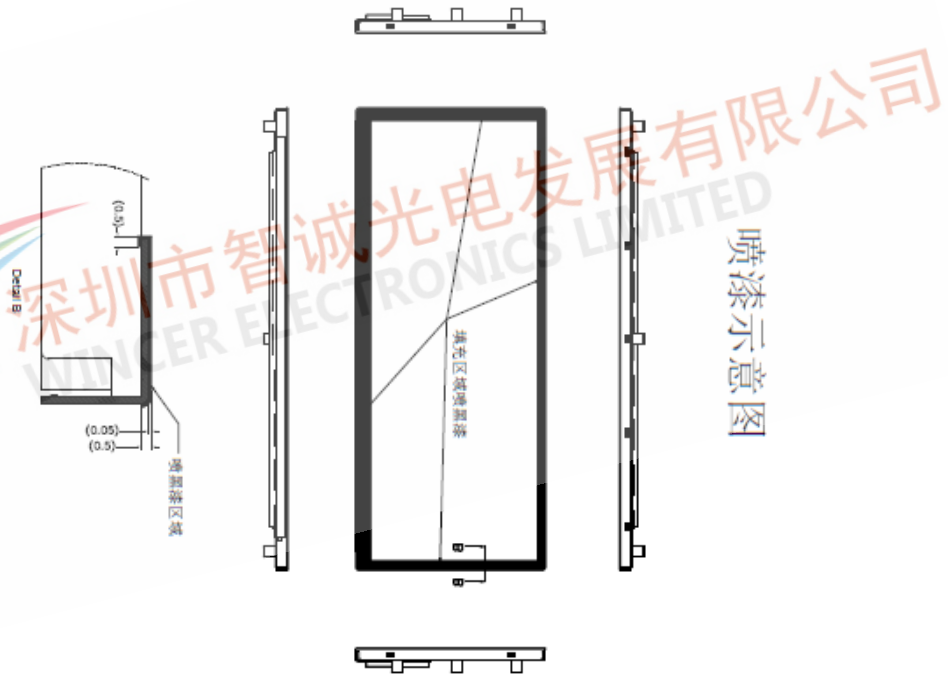
- NOTES:**
1. △: CRITICAL DIMENSION, CPK>=1.33; PPK>=1.67.
 2. □: CRITICAL DIMENSION.
 3. (.) : REFERENCE DIMENSION.
 4. CONFORMITY WITH ROHS AND HALOGEN FREE.

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TOLERANCE TABLE (1)		TOLERANCE TABLE (2)	
ITEM NO.	DESCRIPTION	ITEM NO.	DESCRIPTION
1	SIZE	1	SIZE
2	POSITION	2	POSITION
3	ANGLE	3	ANGLE
4	FORM	4	FORM
5	FINISH	5	FINISH
6	TEXTURE	6	TEXTURE
7	PLATING	7	PLATING
8	COATING	8	COATING
9	MARKING	9	MARKING
10	IDENTIFICATION	10	IDENTIFICATION
11	PACKAGING	11	PACKAGING
12	TESTING	12	TESTING
13	INSPECTION	13	INSPECTION
14	REWORK	14	REWORK
15	REPAIR	15	REPAIR
16	REPLACE	16	REPLACE
17	REUSE	17	REUSE
18	RECYCLE	18	RECYCLE
19	REWORK	19	REWORK
20	REPAIR	20	REPAIR
21	REPLACE	21	REPLACE
22	REUSE	22	REUSE
23	RECYCLE	23	RECYCLE
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27	REUSE	27	REUSE
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34	REWORK	34	REWORK
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37	REUSE	37	REUSE
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39	REWORK	39	REWORK
40	REPAIR	40	REPAIR
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94	REWORK	94	REWORK
95	REPAIR	95	REPAIR
96	REPLACE	96	REPLACE
97	REUSE	97	REUSE
98	RECYCLE	98	RECYCLE
99	REWORK	99	REWORK
100	REPAIR	100	REPAIR

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喷漆示意图

VI PART NUMBER: 010204		VI PART NUMBER	
CD-VLBJT024-01		CD-VLBJT024-01	
TITLE: COG-VLBJT024-01(AV123Z7M-N14-2WP0) Product Specification DATE: 2019.02.13 DRAWN BY: [Blank] CHECKED BY: [Blank] APPROVED BY: [Blank]			
BOE			

REV	DATE	DESCRIPTION	BY	CHK
01	2019.02.13	INITIAL RELEASE	[Blank]	[Blank]

3. Interface Signals

3.1 TFT-LCD Panel and Backlight Driving

Recommended connector model: HRS: FH28D-50S-0.5SH

Table 2: Connector Pin Assignments

Pin No.	Symbol	I/O	Description	Remarks
1	GND	P	Ground	
2	GND	P	Ground	
3	GND	P	Ground	
4	VDD_OTP	I	OTP PIN	User set it to 3.3V
5	VDDA	P	Power for DC/DC	3.3V typ.
6	VDDA	P	Power for DC/DC	3.3V typ.
7	GND	P	Ground	
8	SDA	I/O	SPI Data pin	User set it to "0"
9	SCL	I	SPI Clock pin	User set it to "0"
10	CS	I	SPI chip select pin	User set it to "1"
11	GND	P	Ground	
12	STB	I	Standby Pin	L: Standby H: Normal
13	RESET	I	Reset Pin	L: reset H: Normal
14	GND	P	Ground	
15	ED3P	I	Even Data channel 3 +	
16	ED3N	I	Even Data channel 3 -	
17	GND	P	Ground	
18	ECLKP	I	Even Clock channel +	
19	ECLKN	I	Even Clock channel -	
20	GND	P	Ground	
21	ED2P	I	Even Data channel 2 +	
22	ED2N	I	Even Data channel 2 -	
23	GND	P	Ground	
24	ED1P	I	Even Data channel 1 +	
25	ED1N	I	Even Data channel 1 -	
26	GND	P	Ground	
27	ED0P	I	Even Data channel 0 +	
28	ED0N	I	Even Data channel 0 -	
29	GND	P	Ground	
30	OD3P	I	Odd Data channel 3 +	
31	OD3N	I	Odd Data channel 3 -	
32	GND	P	Ground	
33	OCLKP	I	Odd Clock channel +	
34	OCLKN	I	Odd Clock channel -	
35	GND	P	Ground	

36	OD2P	I	Odd Data channel 2 +	
37	OD2N	I	Odd Data channel 2 -	
38	GND	P	Ground	
39	OD1P	I	Odd Data channel 1 +	
40	OD1N	I	Odd Data channel 1 -	
41	GND	P	Ground	
42	OD0P	I	Odd Data channel 0 +	
43	OD0N	I	Odd Data channel 0 -	
44	GND	P	Ground	
45	VDD	P	Power pin for Logic	3.3V typ.
46	VDD	P	Power pin for Logic	3.3V typ.
47	GND	P	Ground	
48	FAIL_DET	O	Fail detect output pin	
49	GND	P	Ground	
50	GND	P	Ground	

Remarks: For I/O, “I” is Input, “O” is Output. “P” is for Power, and “C” is for passive

3.2 The LED Electrical Interface Connection

The Recommended connector is FH28-10S-0.5SH

Table 3: Pin Assignments for the LED Connector

Pin No.	Symbol	I/O	Description	Remarks
1	LED-A	P	Anode	
2	LED-A	P	Anode	
3	NC	-	Dummy Pin	
4	LED-K1	P	Cathode 1	
5	LED-K2	P	Cathode 2	
6	LED-K3	P	Cathode 3	
7	LED-K4	P	Cathode 4	
8	NC	-	Dummy Pin	
9	NTC1	C	NTC thermistor terminal	
10	NTC2	C	NTC thermistor terminal	

Remarks: For I/O, “I” is Input, “O” is Output. “P” is for Power, and “C” is for passive

4. Absolute Maximum Ratings

The product or its functions may subject to permanent damage if it's stressed beyond those absolute maximum ratings listed below. Exposure to absolute maximum rating conditions for extended periods may affect display module reliability

Table 4: Absolute Maximum Rating & Environmental Condition

Item tem	Symbol	Min.	Max.	Unit
Supply voltage for logic	VDD	-0.3	+4.0	V
Supply voltage for DC/DC	VDDA	-0.3	+5.0	V
Digital I/O input signal	V _{IO}	-0.3	VDD + 0.3	V
Single LED forward current (at 25°C)	I _F	-	150	mA
Relative Humidity (at 60°C)	RH	-	90	%
Operating temperature range (Note 2,3)	T _{OPR}	-40	85	°C
Storage Temperature range	T _{STG}	-40	95	°C

Note 1: If the absolute maximum rating of even is one of the above parameters is exceeded even momentarily, the quality of the product may be degraded. Absolute maximum ratings, therefore, specify the values exceeding which the product may be physically damaged. Be sure to use the product within the range of the absolute maximum ratings.

Note 2: No optical performance guarantee under -30° C

Note 3: Panel surface temperature should not exceed 85°C

Note 4: No condensation allowed under any condition.

Note 5: GND = 0V.

[Caution]

Do not display fixed pattern for prolonged hours because it may develop image sticking on the display.

5. Electrical Specifications

5.1 Block Diagram

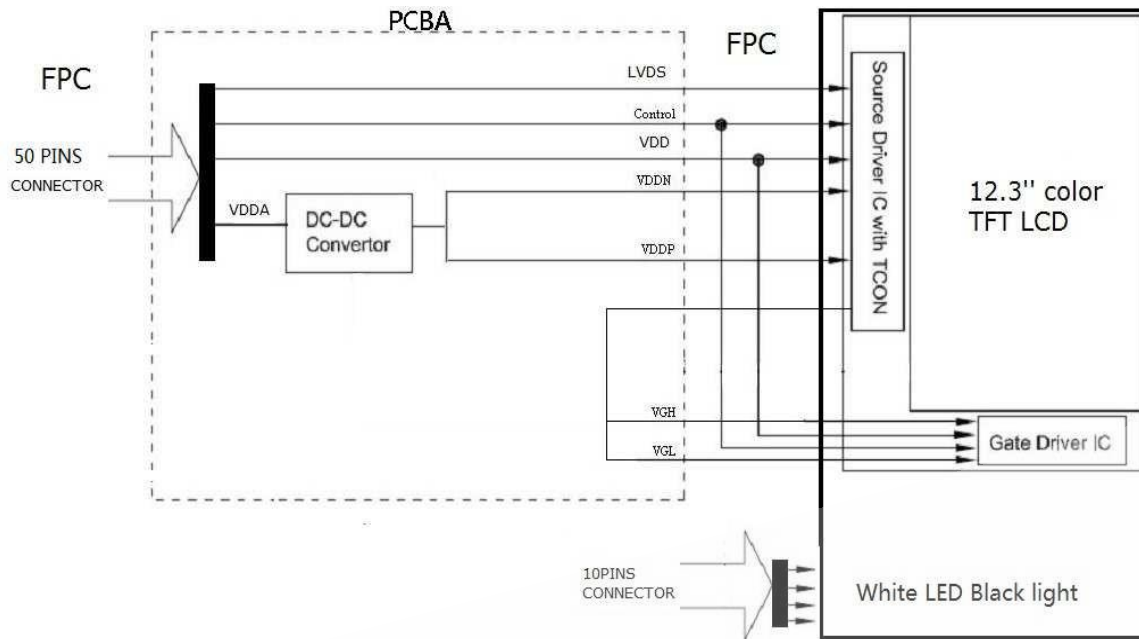


Figure 2: Block diagram

5.2 TFT LCD Module DC Characteristics

Table 5: DC characteristic

Paramet	Symbol	Min	Typ	Max	Unit
Power supply voltage for logic	VDD(Note 1)	3.0	3.3	3.6	V
Power supply current for logic	IDD	-	50	75	mA
Power supply voltage for DC/DC	VDDA (Note 1)	3.0	3.3	3.6	V
Power supply current for DC/DC	IDDA(Note 2)	-	320	480	mA
Driver input high signal voltage (Note 3)	VIH	0.7*VDD	-	VDD	V
Driver input low signal voltage (Note 3)	VIL	GND	-	0.3* VDD	V

Note 1: The supply voltage is measured and specified at the interface connector of LCM.

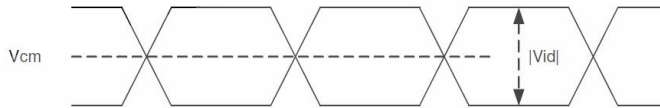
Note 2: Tested at all white pattern, Frame rate =60Hz. Tested value is RMS value.

Note 3: For SDA, SCL, CS, STB, RST signal.

Table 6: LVDS DC Characteristics

Parameter	Symbol	Min	Typ	Max	Unit
Differential input high Threshold voltage	RTH	+0.1	0.2	+0.3	V
Differential input low threshold voltage	RTL	-0.3	-0.2	-0.1	V
Differential input common Mode voltage	RCM	1	1.2	1.7- VID /2	V
LVDS input voltage	VINLV	0.7	-	1.7	V
Differential input voltage	VID	0.1	-	0.6	V
Differential input leakage Current	RVXliz	-10	-	+10	uA

Single-ended:
 LVCLKP(R),
 LVCLKN(R),
 LVD[3:0]P(R),
 LVD[3:0]N(R)



Differential:
 LVCLKP(R)-LVCLKN(R),
 LVD[3:0]P(R)-
 LVD[3:0]N(R)

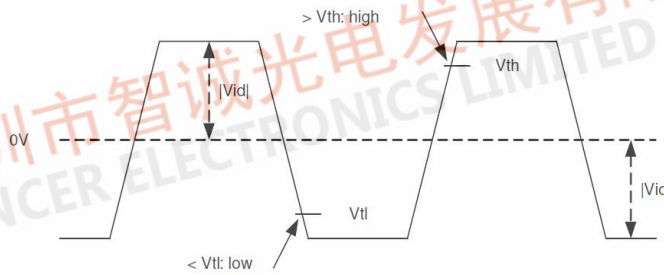


Figure 3: LVDS DC character

5.3 Recommended Driving Condition for LED Backlight

Table 7: DC characteristics of LED backlight

Parameter	Symbol	Min	Typ	Max	Unit	Remark
LED Forward Voltage	V _{FLED}	-	24	-	V	-
LED Forward Current	I _{FLED}	-	80	-	mA	-
LED Forward Current Total	I _{FLED} (total)	-	320	-	mA	-
LED Power Consumption	P _{LED}	-	7.68	-	W	Note 1
LED Life time	-	30000	-	-	Hrs	Note 2

Note 1: Calculator Value for reference $V_{FLED} \times I_{FLED} = P_{LED}$.

Note 2: The LED Life-time was defined as the estimated time to 50% degradation of initial luminous.

Note 3: $V_{F_{LED}}$ and $I_{F_{LED}}$ refers to the condition between the Anode (A) & the Cathode (K) as FIG below.

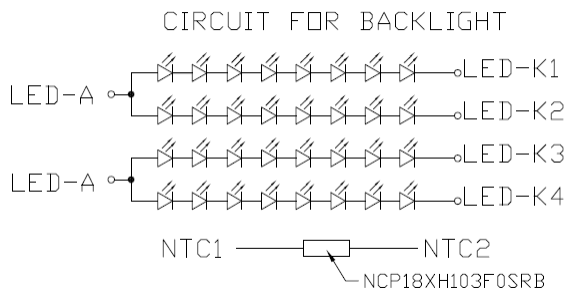


Figure 4: LED circuit diagram

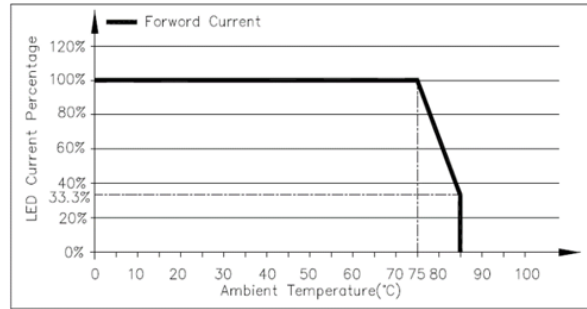


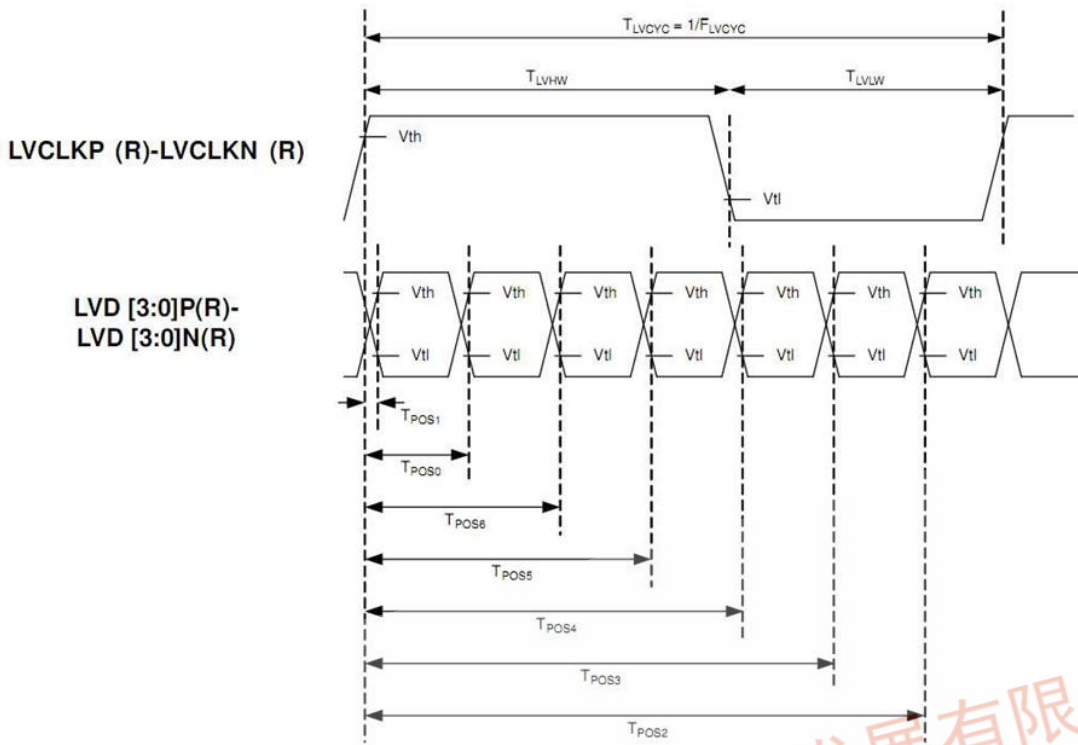
Figure 5: LED driving duty derating curve

5.4 Signal Specification

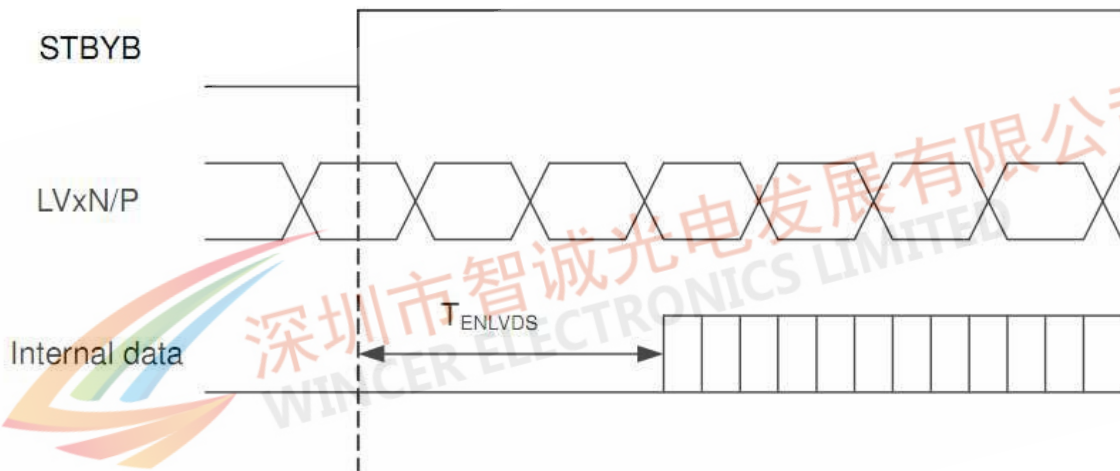
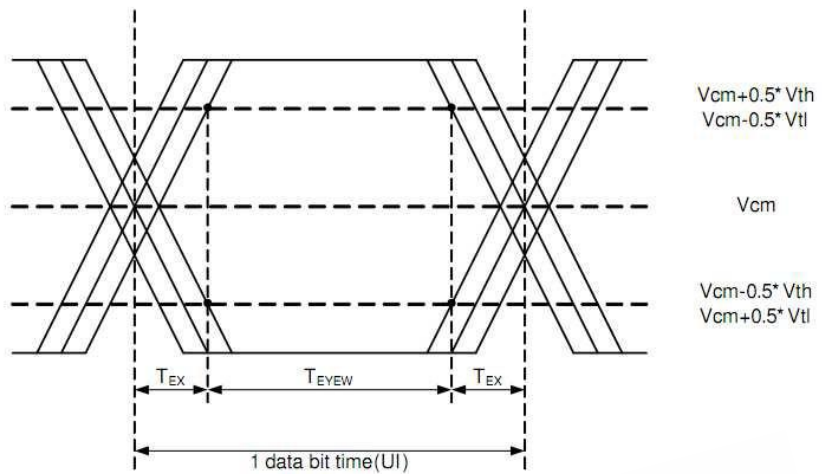
5.4.1 LVDS AC electrical characteristics

Table 8: AC characteristics of LVDS

Parameter	Symbol	Min.	Typ.	Max.	Unit
Clock frequency	F_{LVDC}	30	-	TBD	MHz
Clock period	T_{LVDC}	11.76	-	-	ns
1 data bit time	UI	-	1/7	-	T_{LVDC}
Clock high time	T_{LVCH}	-	4	4.2	UI
Clock low time	T_{LVCL}	2.8	3	4.2	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_{EVEW}	1.1	-	-	UI
Input eye border	T_{EX}	-	-	500	ps
LVDS wake up time	T_{ENLVDS}	-	-	150	us



**Single-ended:
LVD [3:0]P,
LVD [3:0]N**



**Differential:
LVD [3:0]P-LVD [3:0]N**

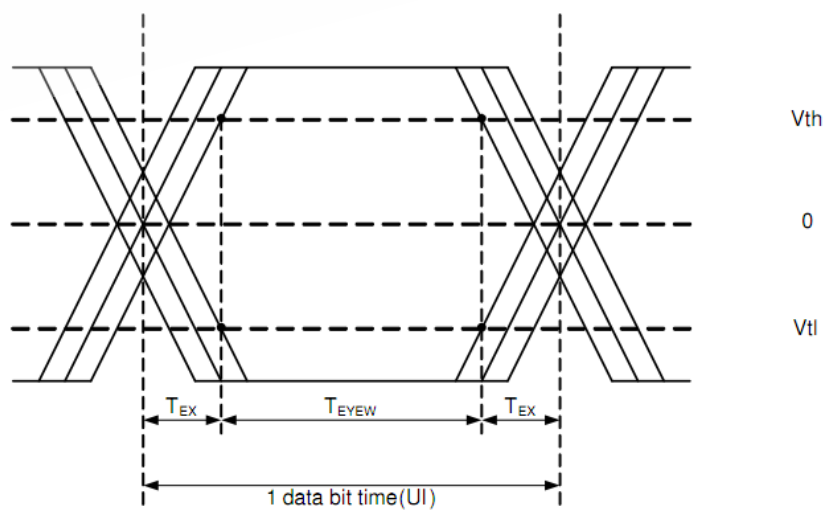


Figure 7

5.4.2 LVDS Input Format (VESA 8bit)

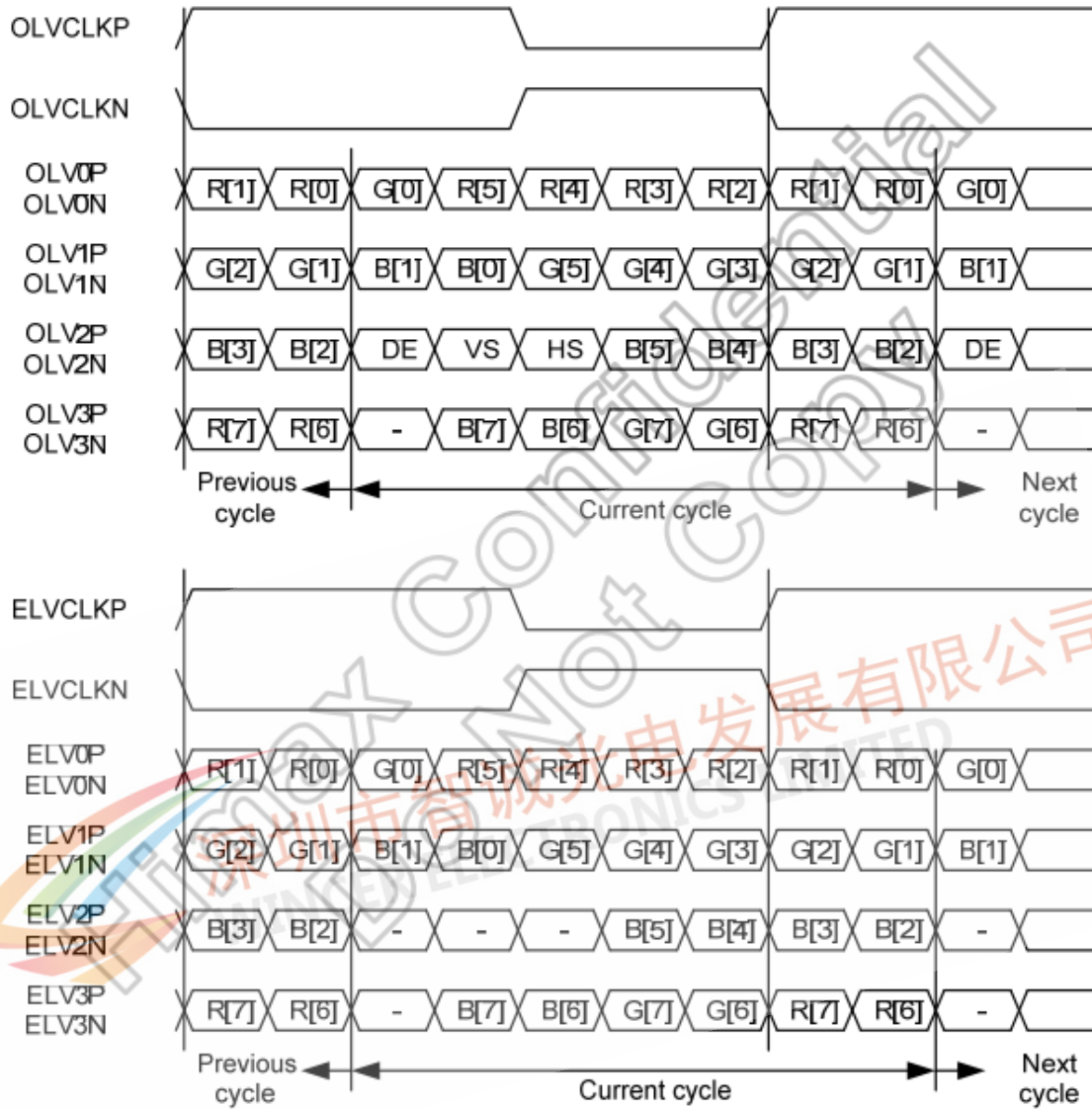


Figure 8: LVDS input data format (VESA format)

5.4.3 Video Signal Timing

Table 9: Video signal timing

Symbol	Parameter	Conditions	Related Pins	Min.	Typ.	Max.	Unit
VP	Vertical Total	-	VSYNC	729	733	745	Line
VS	VSYNC Low Pulse Width	-	VSYNC	1	2	4	Line
VBP	Vertical Back Porch	-	VSYNC	5	5	5	Line
VFP	Vertical Front Porch	-	VSYNC	4	8	20	Line
VDISP	Vertical Active Area	-	VSYNC, HSYNC	-	720	-	Line
HP	Horizontal Total	-	HSYNC	1084	1168	1248	
HS	HSYNC Low Pulse Width	-	HSYNC	1	48	50	DCK
HBP	Horizontal Back Porch	-	HSYNC	88	88	88	DCK

HFP	Horizontal Front Porch	-	HSYNC	36	120	200	DCK
HDISP	Horizontal Active Area	-	HSYNC	-	960	-	DCK
F _{frame}	Frame Frequency	-	CLK	-	60	-	Hz
f _{clk}	CLK frequency		CLK	47.4	51.4	55.8	MHz

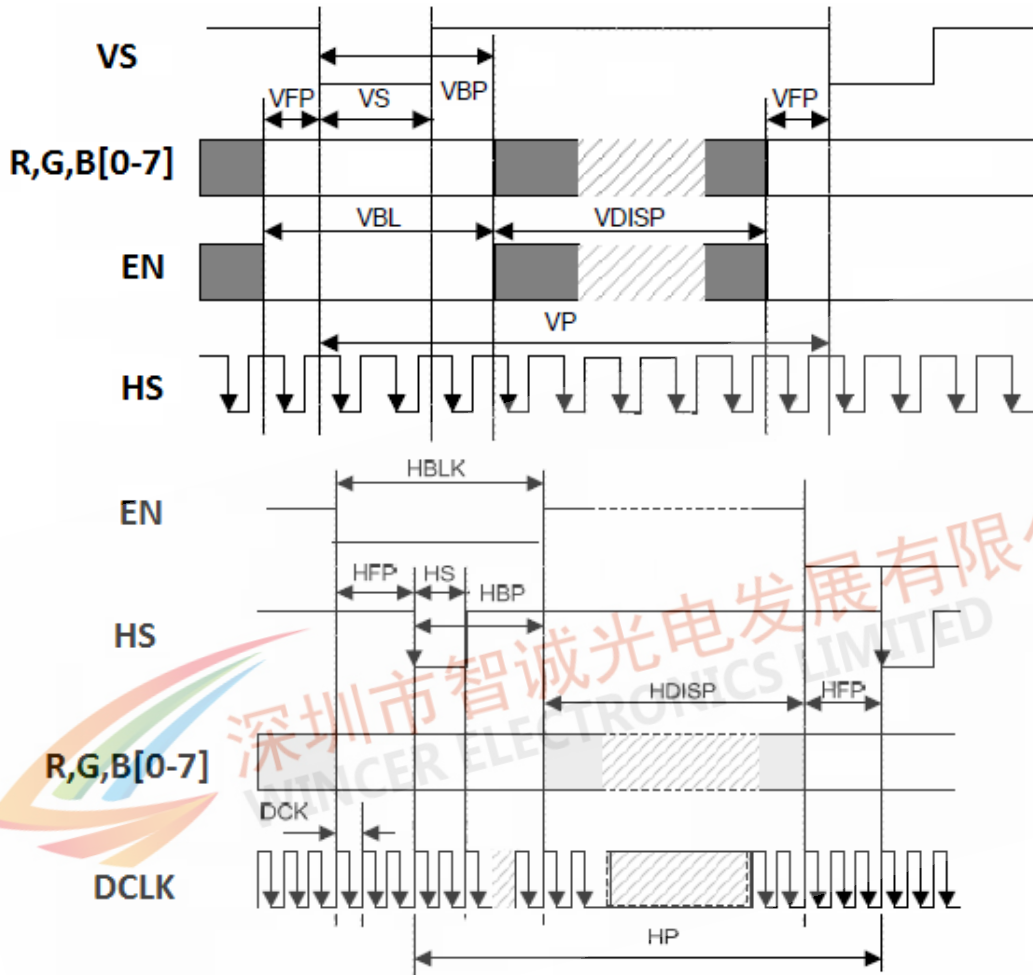


Figure 9

5.4.4 SPI interface (3 wires)

SPI interface is used to read and write the setting registers of the TFT module. All registers setting have been OTP in driver IC.

So no need to using the SPI to initialize module, just pull high SPI pins at customer's system side. When write register, customer should write the same data to all source driver ICs .

ID[1:0]=0, correspond to Master IC

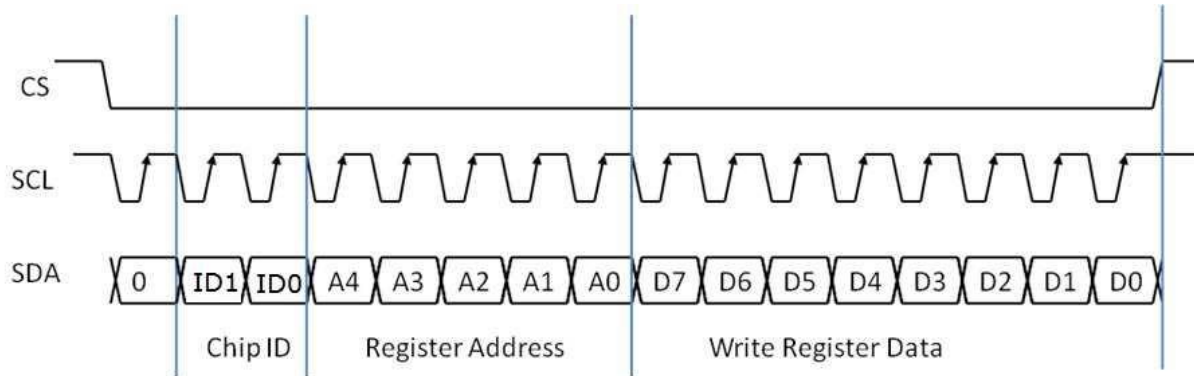


Figure 10: SPI write data format

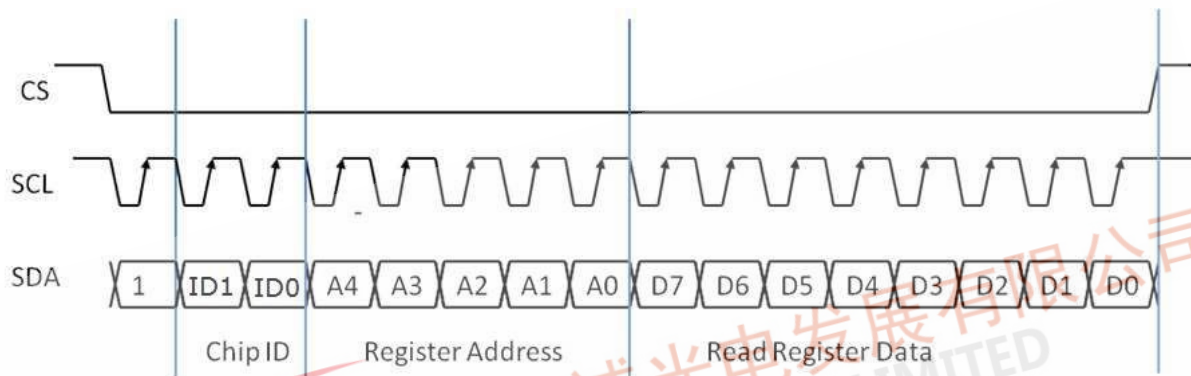


Figure 11: SPI read data format

5.4.5 SPI interface timing chart

Table 10: AC Characteristic of SPI interface

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Setup Time	tS0	CS to SCL	60	-	-	ns
	tS1	SDA to SCL	60	-	-	ns
Hold Time	tH0	CS to SCL	60	-	-	ns
	tH1	SDA to SCL	60	-	-	ns
Pulse Width	tW1L	SCL Negative cycle	75	-	-	ns
	tW1H	SCL Positive cycle	75	-	-	ns
	tW2	CS pulse width	1	-	-	us
Clock duty	-	SCL	40	50	60	%

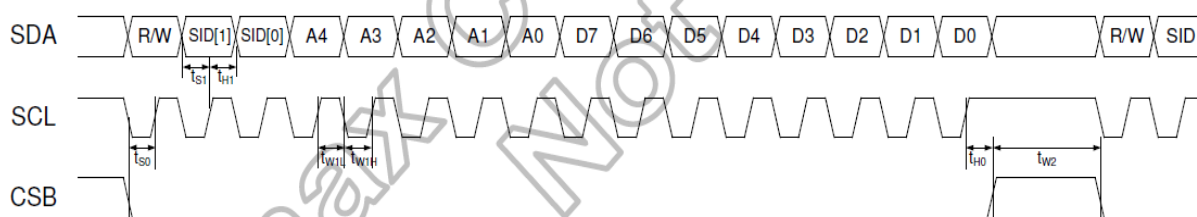


Figure 12: SPI timing

5.4.6 Reset Timing

Table 11

Symbol	Parameter	Min.	Typ.	Max.	Unit
tRW	Reset pulse width	10(note1)	-	-	us
tRT	Reset complete time	-	-	5	us
tNNS	Negative spike noise width	-	-	100	ns

Note1: There is a RC filter on STB and RESET signal line. R=10K ohm , C=0.1uF.

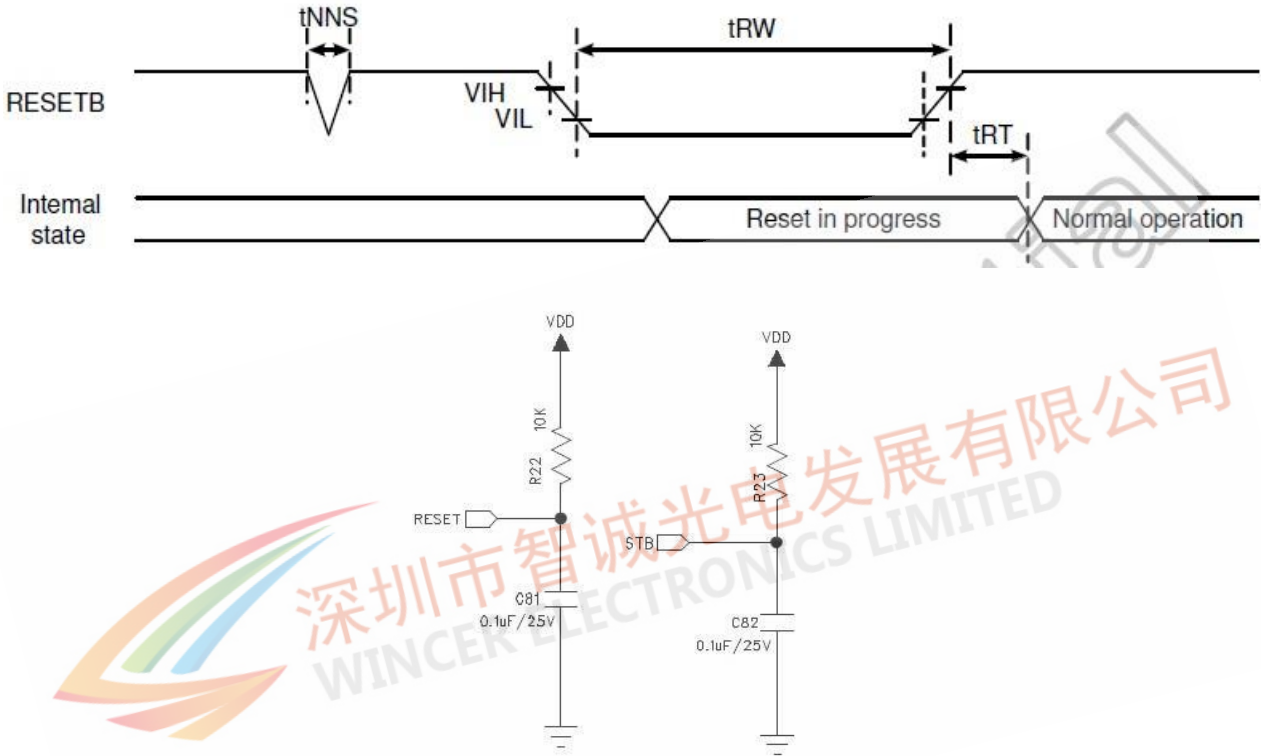


Figure 13

5.4.7 Power On/ Off Sequence

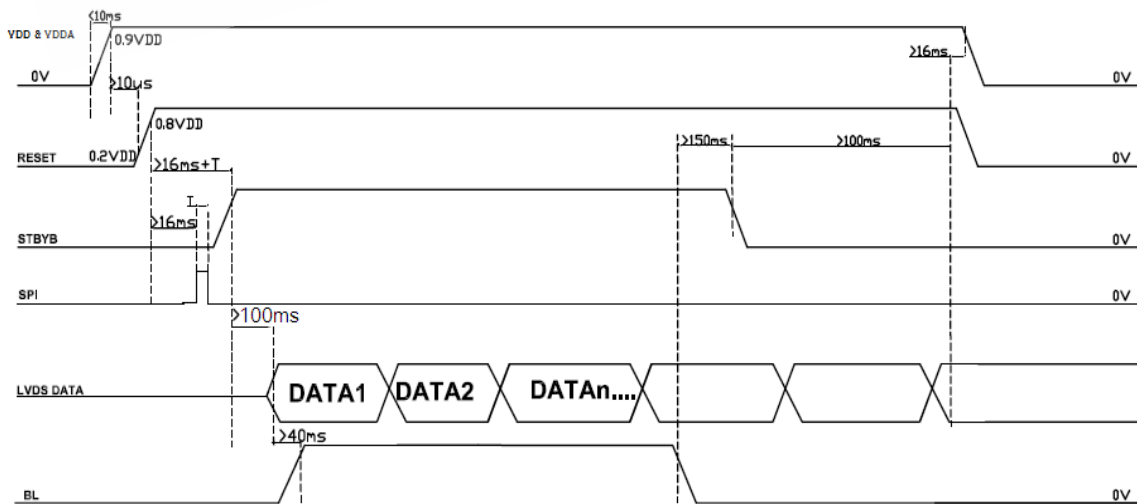
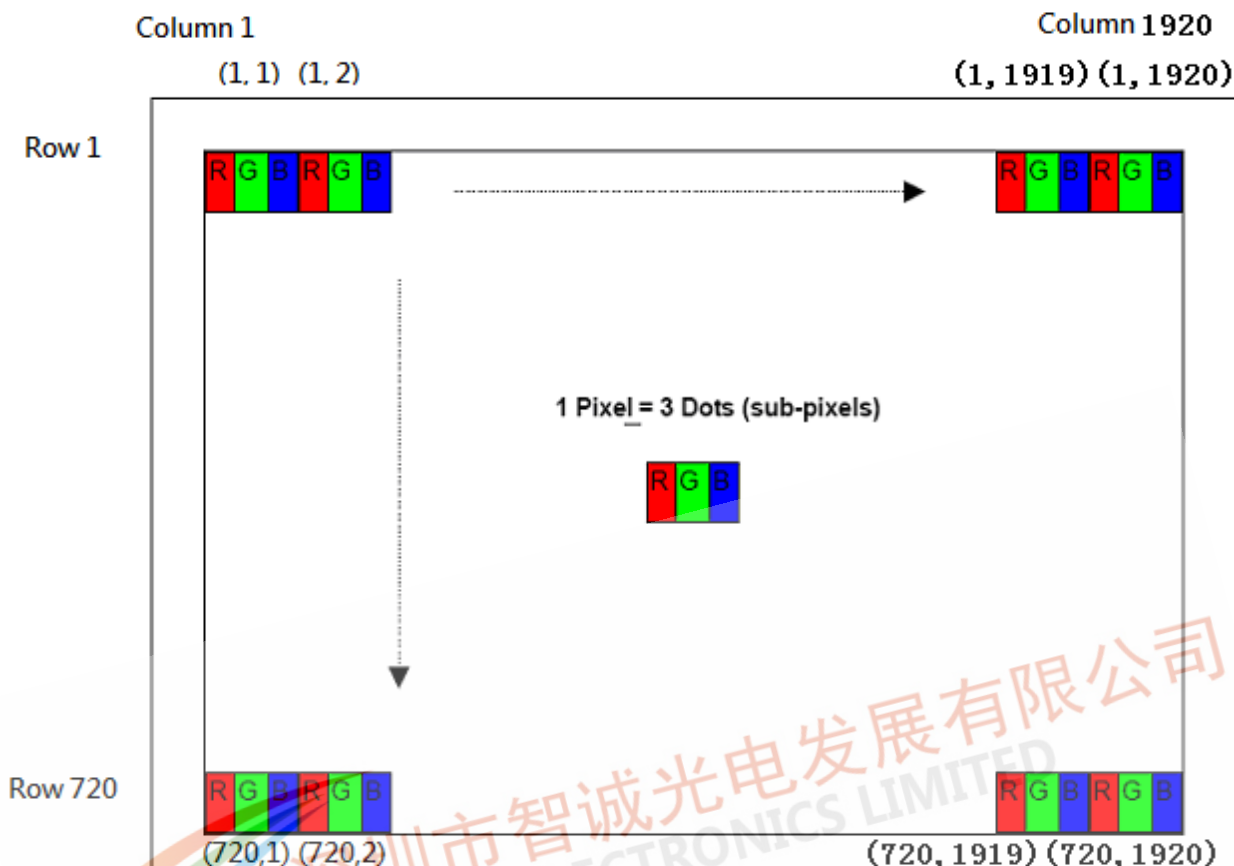


Figure 14: Power on/off sequence

5.4.8 Pixel Arrangement



6. Optical Characteristics

Conditions unless specified otherwise:

- Ta = 25°C, dark room
- TFT-LCD supply voltage = 3.3 volts
- Elapsed time from switch on is greater than 30 minutes
- RGB, white and black test patterns only
- Factory settings
- Luminance = 100% unless specified
- Measurements are conducted at ambient temperature and perpendicular unless specified

Table 12: Optical characteristics

Parameter	Symbol	Condition	Min.	Typ.	Max	Unit	Remark
Viewing Angle	12'	θ	-	85	-	deg.	Note 1
	6'	θ	-	85	-		
	9'	ϕ	-	85	-		
	3'	ϕ	-	85	-		

Contrast ratio	CR	Ta=25°C		900	1100	-	-	Note 2
Luminance of complete module	I _{Module}	Ta=25°C		800	1000	-	cd/m2	-
Chromaticity Color coordinates	White	X _{White}	Ta=25°C	0.280	0.310	0.340	-	Note 3
		Y _{White}		0.300	0.330	0.360	-	
	Red	X _{Red}		0.626	0.656	0.686	-	
		Y _{Red}		0.293	0.323	0.353	-	
	Green	X _{Green}		0.305	0.335	0.365	-	
		Y _{Green}		0.600	0.630	0.660	-	
	Blue	X _{Blue}		0.118	0.148	0.178	-	
		Y _{Blue}		0.025	0.055	0.085	-	
Response Time	Tr+Tf	Ta=25°C	Viewing normal angle θ=φ=0°	-	-	30	ms	Note 4
		Ta=-20°C		-	-	300	ms	
		Ta=-30°C		-	-	500	ms	
NTSC Ratio	-	Ta=25°C	-	75	-	%		

Note 1: The definitions of viewing angle

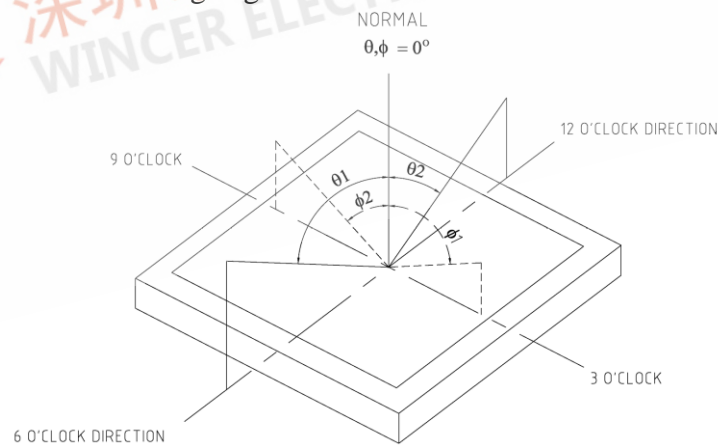


Figure 15: Viewing angle

Note 2: Contrast measurements shall be made at viewing angle of $\theta=0^\circ$ and at the center of the LCD surface by using DMS. Luminance shall be measured with all pixels in the view field set first to white, then to the dark (black) state. (See Figure 15)
 Luminance Contrast Ratio (CR) is defined mathematically.

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

Note 3: The color chromaticity coordinates specified in table 12 is the simulation result from

the TFT-LCD and the backlight spectrum. These shall be updated from the spectral data measured with all pixels first in white, red, green, blue and black. Measurements shall be made at the center of the display.

Note 4: The electro-optical response time measurements shall be made as Figure 10 by switching the “data” input signal OFF and ON. The times needed for the luminance to change from 10% to 90% is Tr, and 90% to 10% is Tf.

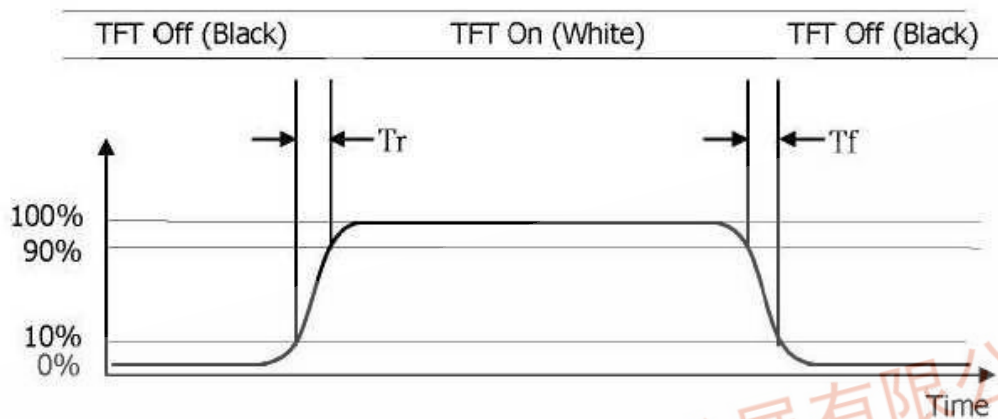


Figure 16: Response Time Testing

7. Reliability Tests / Environmental

7.1 Reliability Test Conditions

Table 13: List of reliability tests

Test	Symbol	Condition	Reference	Quantity
1 High Temperature Storage	HST	+95°C / 240 hrs	IEC 60068-2-2 Bb	5pcs
2 Low Temperature	LST	-40°C / 240 hrs	IEC 60068-2-1 Ab	5pcs
3 High Temperature Operating (Note 1)	HOT	+85°C / 500 hrs	IEC 60068-2-2 Bb	5pcs
4 Low Temperature Operating	LOT	-40°C / 500 hrs	IEC 60068-2-1 Ab	5pcs
5 Accelerated Humidity Test Operating	AHTO	+60°C / 90% RH / 500 hrs	IEC60068-2-78 Cab	5pcs
6 Temperature Shock Test	TST	-30°C <> +85°C, 30min/5min/30min,100cycles Non-Operating	IEC 60068-2-14Na	5pcs
7 UV exposure resistance	UV	1KW Xenon/ 100 hrs Power off.	IEC 60068-2-5 Sa	2pcs

8	Mechanical Shock (Note 2)	3 directions: X,Y,Z axes Repeats:6 Peak acc.:100 G Pulse duration: 6 ms (half sine wave) Non-Operating	IEC 60068-2-27Ea	2pcs
9	Mechanical Vibration (Note 2)	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	IEC 60068-2-6Fc	1box
10	Image sticking	65degC, 1hr, Test pattern: 5x5 Chess, Inspection pattern: 50% grey. <= Level 2.		4pcs

Note 1: Panel surface temperature should not exceed 95°C.

Note 2: No optical performance guarantee below -30 °C.

Note 3:For module internal structure robustness test purpose only. Customer application design should take care of overall mounting robustness with module.

Note 4:Corner bluish maybe show in low temperature and disappear in normal temperature.
Not define as a issue.

7.2 Electrostatic Discharge (ESD)

Table 14: ESD test conditions

Test	Condition	Method	Remark	Quantit
Human body model	R = 330Ω, C = 150pF, • Air discharge: ±15 KV to display surface • Contact discharge: ±8 KV to metal frame	IEC61000-4-2	Not operating	2pcs

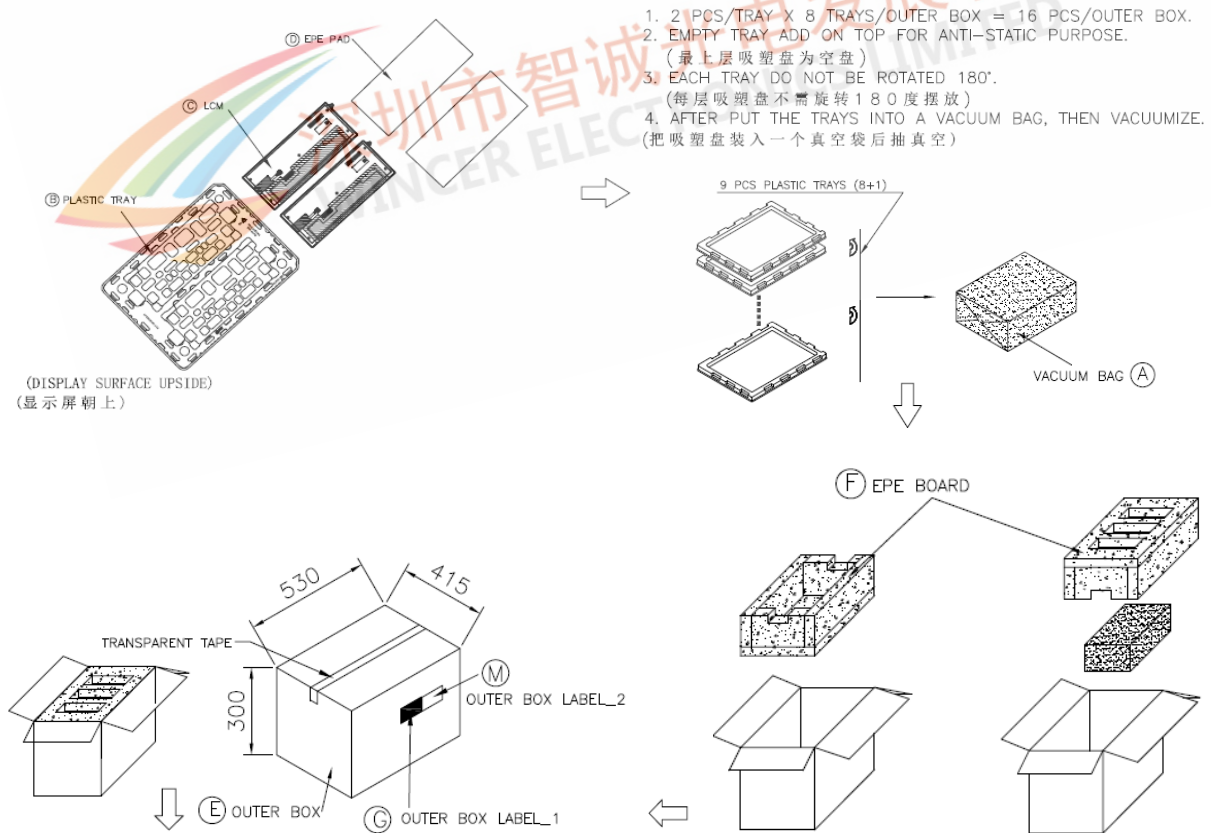
Note 1: The TFT-LCD panel and IC on module are sensitive to electrostatic discharge. Please make sure equipment and operators are properly ground before during handling.

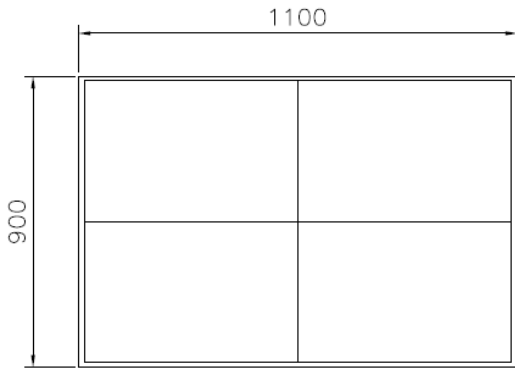
Note 2: As different customer application have different interfacing designs and assembly processes, the display module has no ESD protection circuitry. Customer is required to take special care on ESD level control in the assembly and test processes.

Note 3: I/O Pins fulfill AEC-Q100 ESD part standard according below table:

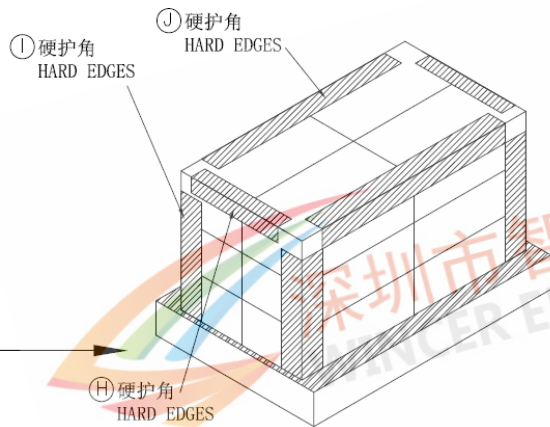
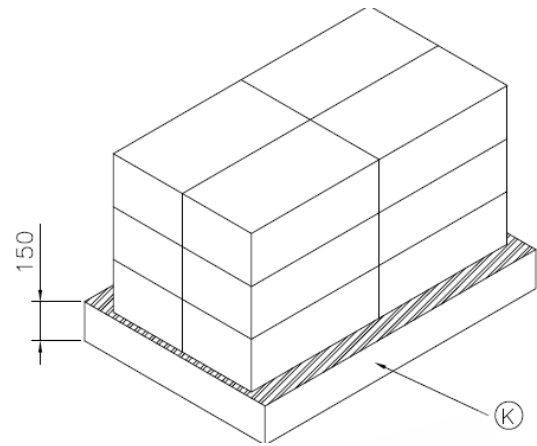
Electrostatic discharge Human Body Model/ Machine Model	HBM / MM	E2	H, P, B, D	See Test Method	1	0 Fails 2KV HBM (H2 or better) 200V MM (M3 or better)	AEC Q100-002 Q100-003	Test before and after ESD at room and hot temperature.at least one of these model must be performed, device maximum withstand voltage level. Device levels<2000V HBM and/or <200V MM require specific user approval
Electrostatic discharge Charge Device Model	CDM	E3	H, P, B, D	See Test Method	1	0 Fails 750V comer pin.500V all other pins (C3B or better)	AEC Q100-011	Test before and after ESD at room and hot temperature. Device shall be classified according to be maximum withstand voltage level. Device levels<750V corner pins and/or <500V all other pins CDM require specific user approval

8. Packing Specification

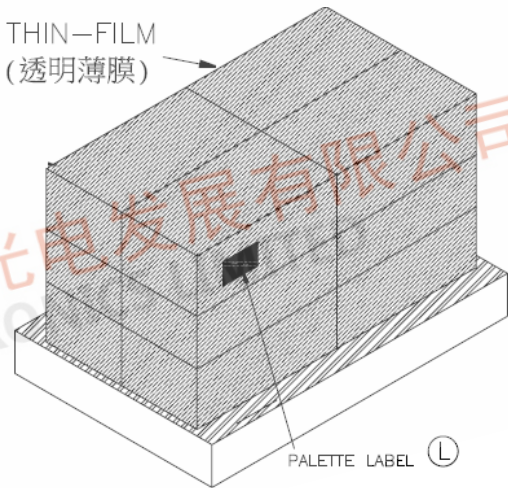




> 4 BOXES PER LEVEL (每层放4个BOX)
 > 3 LEVEL PER PALLETTE (每卡板放3层)

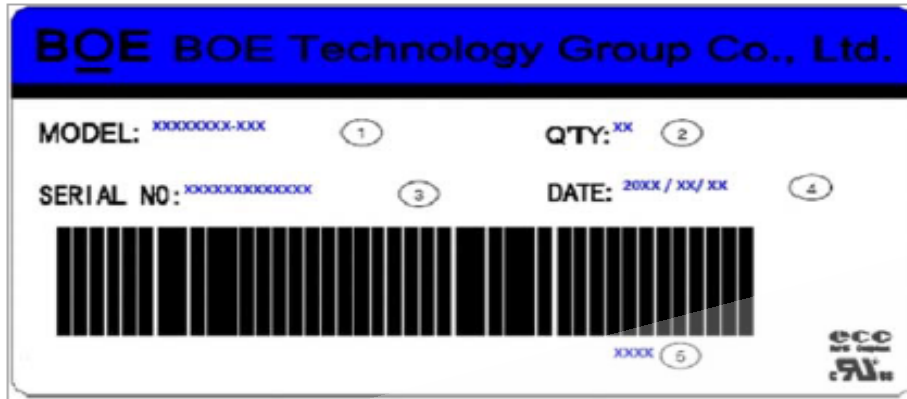


THIN-FILM
 (透明薄膜)



OUTER BOX LABEL_1

1、LABEL的格式:



2、LABEL的描述:

- 2.1 FIRST 15 CHARACTERS OF VX ITEM NUMBER:
COG-VLBJT024-01;
- 2.2 QTY / BOX;
- 2.3 BOX ID, 编码规则如下;
- 2.4 BOX PACKING DATE;
- 2.5 LAST 2 CHARACTERS OF VX ITEM NUMBER: 01.

3、条码的内容: 内容参考BOX ID, BARCODE TYPE: 128。

*BOX ID编码规则:

Factory code
 e.g.: VX HEYUAN ==> 1
 VX CHENGDU ==> 2

Month (JAN~DEC: 1,2,3.....9,A,B,C)

Item	1	2	3	4	5	6	7	8	9	10	11	12	13
Code	S	S	2	2	1	5	B	0	0	0	0	0	1
Describe	Single	Grade	VX CD	Year	Month	Revlslon	Serial number						

OUTER BOX LABEL_2

1、LABEL的格式:

物料标签

日期: _____ ①

料号: _____ ②

品名: _____ ③

规格: _____ ④

数量: _____ ⑤

供应商: _____ ⑥

2、LABEL的描述:

- 2.1 BOX PACKING DATE;
- 2.2 料号: E024011123B0;
- 2.3 品名: 12.3寸BOE液晶屏;
- 2.4 FIRST 15 CHARACTERS OF VX ITEM NUMBER:
COG-VLBJT024-01;
- 2.5 QTY / BOX;
- 2.6 供应商: 奥斯汀

9.0 HANDLING & CAUTIONS

9.1 Mounting Method

- The panel of the LCM consists of two thin glasses with polarizer which easily get damaged. So extreme care should be taken when handling the LCM.
- Excessive stress or pressure on the glass of the LCM should be avoided. Care must be taken to insure that no torsional or compressive forces are applied to the LCM unit when it is mounted.
- If the customer's set presses the main parts of the LCM, the LCM may show the abnormal display. But this phenomenon does not mean the malfunction of the LCM and should be pressed by the way of mutual agreement.
- To determine the optimum mounting angle, refer to the viewing angle range in the specification for each model.
- Mount a LCM with the specified mounting parts.

9.2 Caution of LCM Handling and Cleaning

- Since the LCM 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 maybe broken.
- The polarizer on the surface of panel are made from organic substances. Be very careful for chemicals not to touch the polarizer or it leads the polarizer to be deteriorated.
- If the use of a chemical is unavoidable, use soft cloth with solvent recommended below to clean the LCM's surface with wipe lightly.
-IPA (Isopropyl Alcohol), Ethyl Alcohol, Tri-chloro, tri-florothane.
- Do not wipe the LCM's surface with dry or hard materials that will damage the polarizer and others. Do not use the following solvent—Water, acetone, Aromatics.
- It is recommended that the LCM be handled with soft gloves during assembly, etc. The polarizer on the LCM's surface are vulnerable to scratch and thus to be damaged by shape particles.
- Do not drop water or any chemicals onto the LCM's surface.
- A protective film is supplied on the LCM and should be left in place until the LCM is required for operation.
- 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 from the ITO corrosion, customers are recommended that the ITO area would be covered by UV or silicon.
- Please clean the LCD without ultrasonic to avoid line open.

9.3 Caution Against Static Charge

- The LCM 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.
- 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.
- Avoid the use work clothing made of synthetic fibers. We recommend cotton clothing or other conductivity-treated fibers.
- In handling the LCM, wear non-charged material gloves. And the conducting wrist to the earth and the conducting shoes to the earth are necessary.

9.4 Caution For Operation

- It is indispensable to drive the LCM within the specified voltage limit since the higher voltage than the limit causes LCM's life shorter. An electro-chemical reaction due to DC causes undesirable deterioration of the LCM so that the use of DC drive should avoid.
- Do not connect or disconnect the LCM to or from the system when power is on.
- Never use the LCM under abnormal conditions of high temperature and high humidity.
- When expose to drastic fluctuation of temperature(hot to cold or cold to hot), the LCM may be affected; specifically, drastic temperature fluctuation from cold to hot, produces dew on the LCM's surface which may affect the operation of the polarizer on the LCM.
- Response time will be extremely delay at lower temperature than the operating temperature range and on the other hand LCM may turn black at temperature above its operational range. However those phenomenon do not mean malfunction or out of order with the LCM. The LCM will revert to normal operation once the temperature returns to the recommended temperature range for normal operation.
- Do not display the fixed pattern for a long time because it may develop image sticking due to the LCM structure. If the screen is displayed with fixed pattern, use a screen saver.
- Do not disassemble and/or re-assemble LCM module

9.5 Packaging

- Modules use LCM element, and must be treated as such.
 - Avoid intense shock and falls from a height.
 - To prevent modules from degradation, do not operate or store them exposed directly to sunshine or high temperature/humidity for long periods.

9.6 Storage

- A slight dew depositing on terminals is a cause for electro-chemical reaction resulting in terminal open circuit. Relative humidity of the environment should therefore be kept below 60%RH.
- Original protective film should be used on LCM's surface (polarizer). Adhesive type protective film should be avoided, because it may change color and/or properties of the polarizer.
- Do not store the LCM near organic solvents or corrosive gasses.
- Keep the LCM safe from vibration, shock and pressure.
- Black or white air-bubbles may be produced if the LCM is stored for long time in the lower temperature or mechanical shocks are applied onto the LCM.
- In the case of storing for a long period of time for the purpose or replacement use, the following ways are recommended.
 - Store in a polyethylene bag with sealed so as not to enter fresh air outside in it.
 - Store in a dark place where neither exposure to direct sunlight nor light is.
 - Keep temperature in the specified storage temperature range.
 - Store with no touch on polarizer surface by the anything else. If possible, store the LCM in the packaging situation when it was delivered.

9.7 Safety

- For the crash damaged or unnecessary LCM, it is recommended to wash off liquid crystal by either of solvents such as acetone and ethanol and should be burned up later.
- In the case of LCM is broken, watch out whether liquid crystal leaks out or not. If your hands touch the liquid crystal, wash your hands cleanly with water and soap as soon as possible.
- 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.
- If the liquid crystal get in your eyes, flush your eyes with running water for at least fifteen minutes.
- If the liquid crystal touches your skin or clothes, remove it and wash the affected part of your skin or clothes with soap and running water.

10.0 Applicable Scope

- This product specification only applies to the products manufactured and sold by our company.
- Any specification, quality etc. about other parts mentioned in this product spec are no concern of our company.