SPECIFICATION

Customer: _____

Model Name: SAT080BO40I36Y03-45117L092IN-202

ERP NO: 1010800202

Spec Vision: V.1

Date: 2022-12-10

■ **Preliminary Specification**

☐ **Final Specification**

Approved by	Comment

Prepared by	Reviewed by	Approved by

Record of Revision

Version	Revise Date	Page	Content	Modified by
V.1	2022-12-10	-	First Issued.	HuangXun

Contents

1. General Specifications

this color active matrix thin film transistor (TFT) liquid crystal di splay (LCD) that uses amorphous silicon TFT as a switching device. It is composed of a TFT LCD panel, Driver IC, FPC and Backlight.

1.1 LCD Characteristics

NO.	Item	Specification	Remark
1	Panel Size	8.0 inch(Diagonal)	
2	Resolution	1024 x 3(RGB) x 600	
3	Driver Method	A-Si TFT active matrix	
4	Active Area	173.8752(H) ×101.88(V) mm	
5	Dot Pitch	0.1698(H) × 0.1698(V) mm	
6	Pixel Arrangement	RGB-stripe	
7	Module Size	192.8(H)×116.9(V)×4.4(D) mm	
8	Display Mode	Normally Black	
9	Display Color	16.7M	
10	Viewing Direction	ALL	
11	Interface	LVDS	
12	Driving IC	JD9165A-B	
13	Luminance	500(TYP)	cd/m^2
14	Weight	TBD	g

2. Pin Assignment

2.1. TFT PIN Description

No.	Symbol	Function	Remarks
1	VCOM	Common Voltage	
2	DVDD	Digital power	
3	DVDD	Digital power	
4	NC	-	
5	RESET	Common Voltage	
6	U/D	NC	
7	L/R	NC	
8	STBYB	Standby mode selection.(Default pull High)	
9	GND	Power ground	
10	NINC	Negative LVDS differential Data inputs	
11	PINC	Positive LVDS differential Data inputs	
12	GND	Power ground	
13	NIND0	Negative LVDS differential Data inputs	
14	PIND0	Positive LVDS differential Data inputs	
15	GND	Power ground	
16	NIND1	Negative LVDS differential Data inputs	
17	PIND1	Positive LVDS differential Data inputs	
18	GND	Power ground	
19	NIND2	Negative LVDS differential Data inputs	
20	PIND2	Positive LVDS differential Data inputs	
21	GND	Power ground	
22	NIND3	Negative LVDS differential Data inputs	
23	PIND3	Positive LVDS differential Data inputs	
24	GND	Power ground	
25	SELB	NC	
26	GND	Power ground	
27	AVDD	Analog Power	
28	GND	Power ground	
29	VGH	Gate on Voltage	
30~31	NC	-	
32	VGL	Gate off Voltage	
33	GND	Power ground	
34	NC	-	
35~36	LEDK	Power for LED backlight(Cathode)	
37~38	NC	-	
39~40	LEDA	Power for LED backlight(anode)	

3. Operation Specifications

3.1. Absolute Maximum Ratings

Voltage (AGND=GND=0V, Ta = 25℃)

Item	Symbol	Values		Unit	Remark
		Min.	Max.		
Power Voltage	DVDD	-0.3	6.0	V	
	AVDD	-0.5	14.85	V	
	VGH	-0.3	40.0	V	
	VGL	-20.0	0.3	V	
	VGH-VGL	12.0	40.0	V	

Note: The absolute maximum rating values of this product are not allowed to be exceeded at any times. Should a module be used with any of the absolute maximum ratings case, the module may be permanently destroyed.

3.1.1. Typical Operation Range

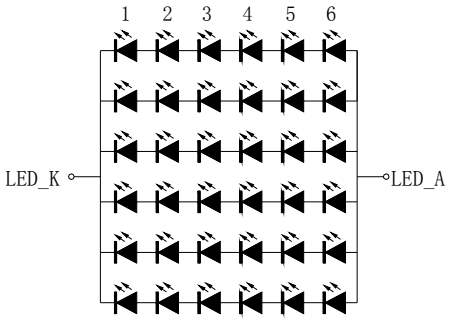
Item	Symbol	values			Unit
		Min.	Typ.	Max.	
Power Voltage	VDD	3.0	3.3	3.6	V
	AVDD	10.3	10.5	10.7	V
	VGH	20.5	21	21.5	V
	VGL	-8.5	-8	-7.5	V
Input signal voltage	VCOM	3.8	4.0	4.2	V
Input logic high voltage	V_{IH}	0.7 V_{DD}	-	V_{DD}	V
Input logic low voltage	V_{IL}	0	-	0.3 V_{DD}	V

3.1.2. Current Consumption

Item	Symbol	Values			Unit	Remark
		Min.	Typ.	Max.		
Current for Driver	I_{GH}	-	0.5	1.5	mA	VGH=21V
	I_{GL}	-	0.5	1.5	mA	VGL=-8V
	I_{VDD}	-	10	20	mA	VDD=3.3V
	I_{AVDD}	-	20	50	mA	AVDD=10.5V

3.1.3. Backlight Driving Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit
Supply voltage of white LED backlight	V_L	16.2	18	19.8	V
Current for LED backlight	I_L	-	120	-	mA
Power dissipation	Pd	-	2160	-	mW
Luminance (on the module surface ,BM-7)		450	500	-	cd/m^2
LED life time	-	30000	-	-	Hr



LED CIRCUIT DIAGRAM:
6S6P=36LED
VF=16.2-19.8V ; IF=120mA

3.2. Power Sequence

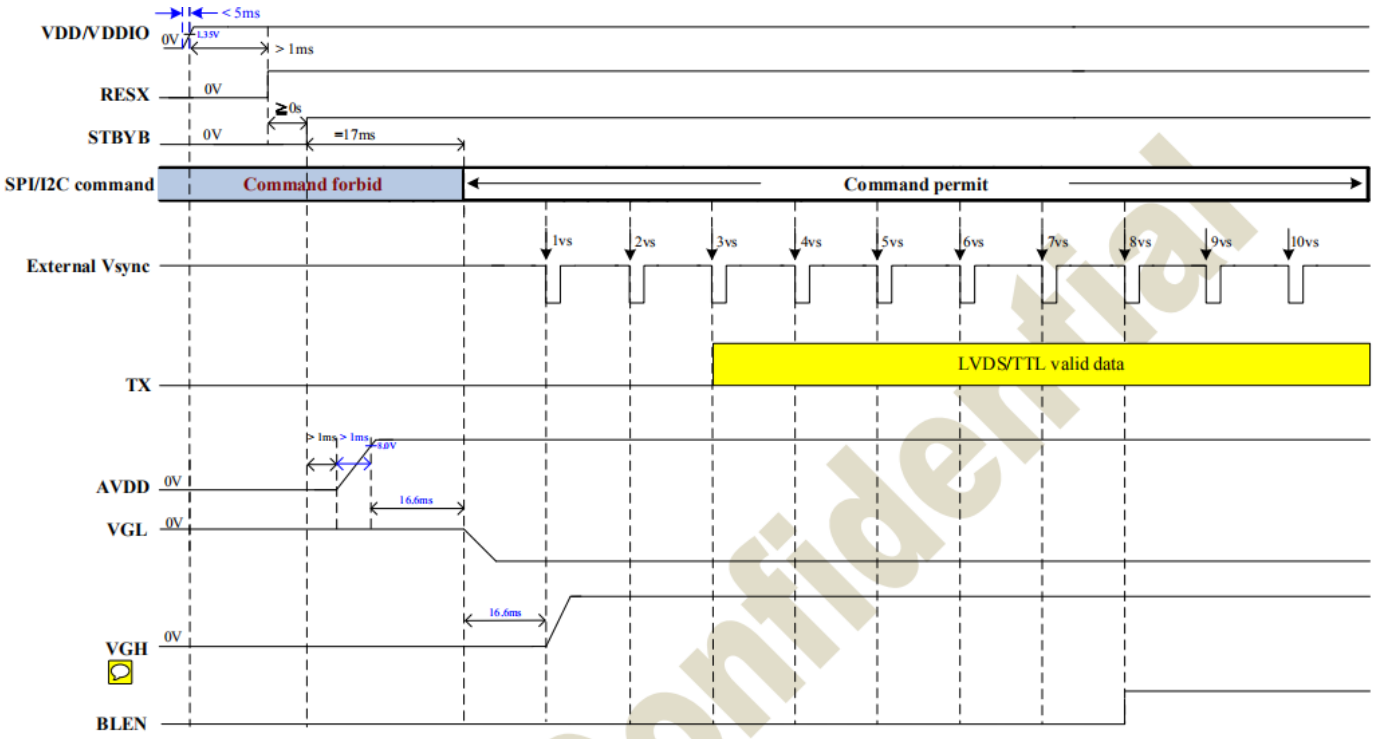


Figure 5.1: Power On timing chart

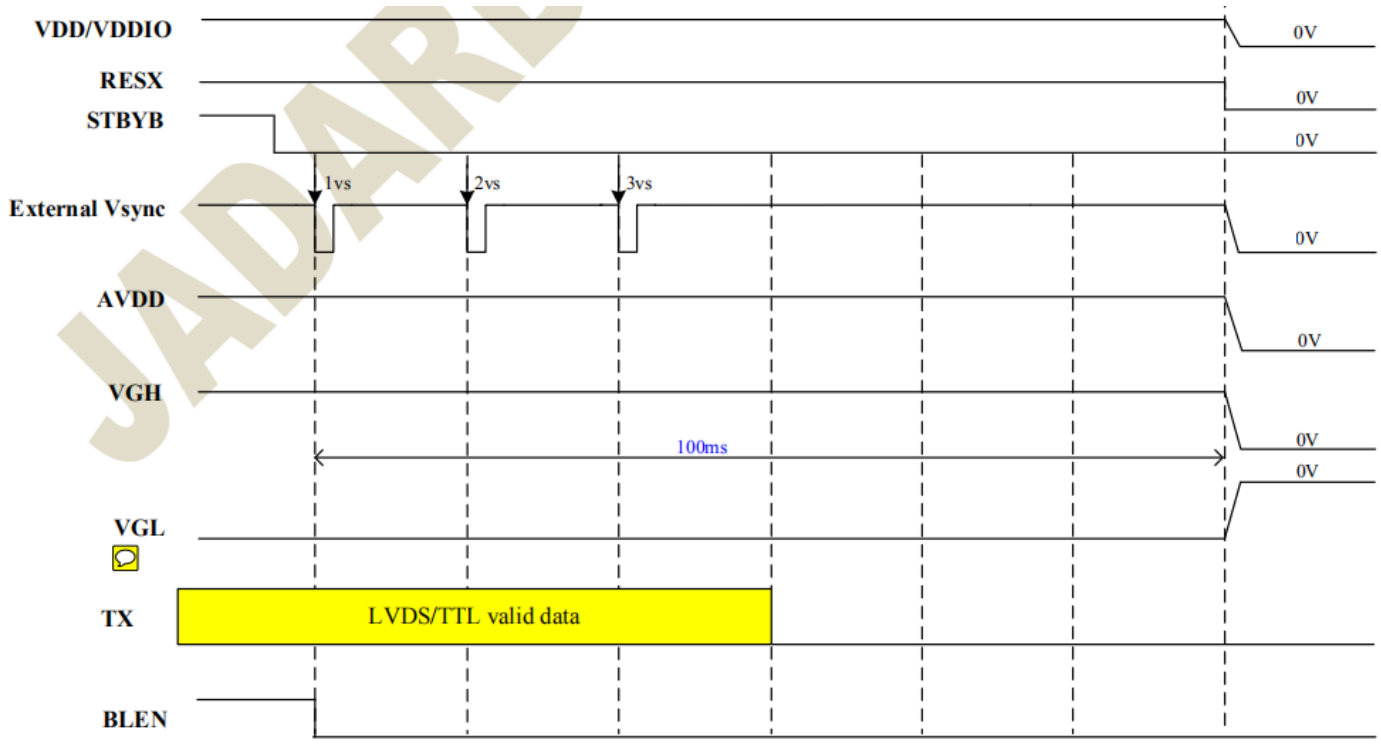


Figure 5.2: Power Off timing chart

3.3. Timing Characteristics

3.3.1. DC Electrical Characteristics

Parameter	Symbol	Spec.			Unit	Note
		Min.	Typ.	Max.		
Supply power voltage	VDD	-0.30	-	3.96	V	
IO supply voltage	VDDIO	-0.30		3.96	V	
AVDD voltage	AVDD	-0.30	-	12	V	
VGH voltage	VGH	-0.30	-	VGL+32V	V	
VGL voltage	VGL	VGH-32V	-	0.30	V	
VMID voltage	VMID	-0.30	-	6.6	V	
VCOM voltage	VCOM_OP	-0.30	-	5.43	V	
VOTP **(OTP power)**	VOTP	-	-	9	V	
Operating Temperature	TOPR	-20	-	+85	℃	
Storage temperature	TSTG	-55	-	125	℃	

3.3.2. TIMING

LVDS Input Timing	Symbol	1024RGBx768			1024RGBx600			800RGBx600			Unit
		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	
DCLK Frequency	-	52	65	71	40.8	51.2	67.2	32.6	39.6	62.4	MHZ
Horizontal Total	tht	1114	1344	1400	1114	1344	1400	890	1000	1300	DCLK
Hsync Pulse width	ths	1	24	HBP-1	1	24	HBP-1	1	24	HBP-1	DCLK
Horizontal Back Porch	thb	60	160	160	60	160	160	60	88	250	DCLK
Horizontal Valid Data	thd		1024			1024			800		DCLK
Horizontal Front Porch	thfp	30	160	216	30	160	216	30	112	250	DCLK
Vertical Total	tvt	778	806	845	610	635	800	610	660	800	THT
Vsync Pulse Width	tvs	1	2	VBP-1	1	2	VBP-1	1	2	VBP-1	THT
Vertical Back Porch	tvb	8	23	33	8	23	100	8	39	100	THT
Vertical Valid Data	tvd		768			600			600		THT
Vertical Front Porch	tvfp	2	15	44	2	12	100	2	21	100	THT

3.3.3. Data Input Format

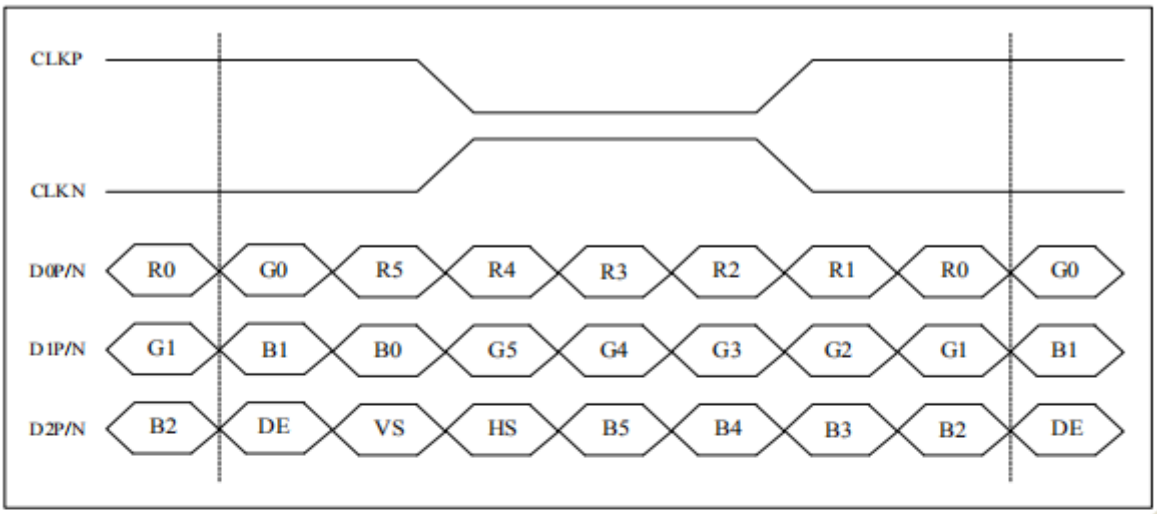


Figure 7.1: 6-bit RGB LVDS input timing

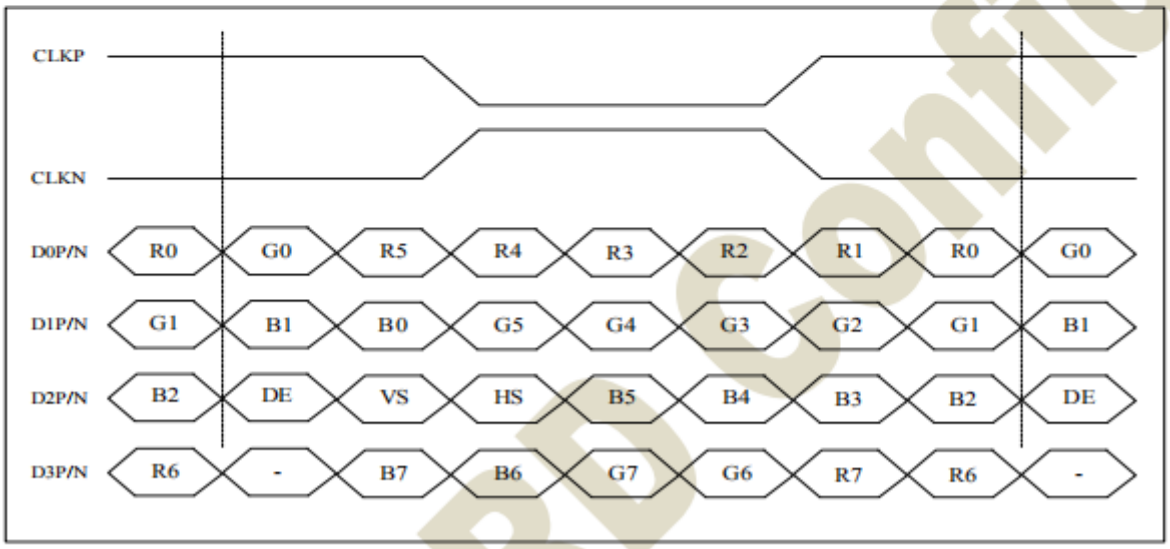


Figure 7.2: 8-bit RGB LVDS VESA input timing

4. Optical Specifications

Item		Symbol	Condition	Min.	Typ.	Max.	Unit	Note
Viewing Angle		θU	CR≥10	-	85	-	degree	3
		θD		-	85	-		
		θL		-	85	-		
		θR		-	85	-		
Contrast Ratio		CR	Θ=0°	-	1000	-	-	4
Response Time		Ton+ Toff	25℃	-	30	35	ms	5
Chromaticity	White	X	LCM	-0.03	0.275	+0.03	-	1
		Y			0.285			
Luminance (center)		L		450	500	-	cd/m²	1
Luminance Uniformity		ΔL		75	80	-	%	1.2
NTSC		ΔL		60	65	-	%	

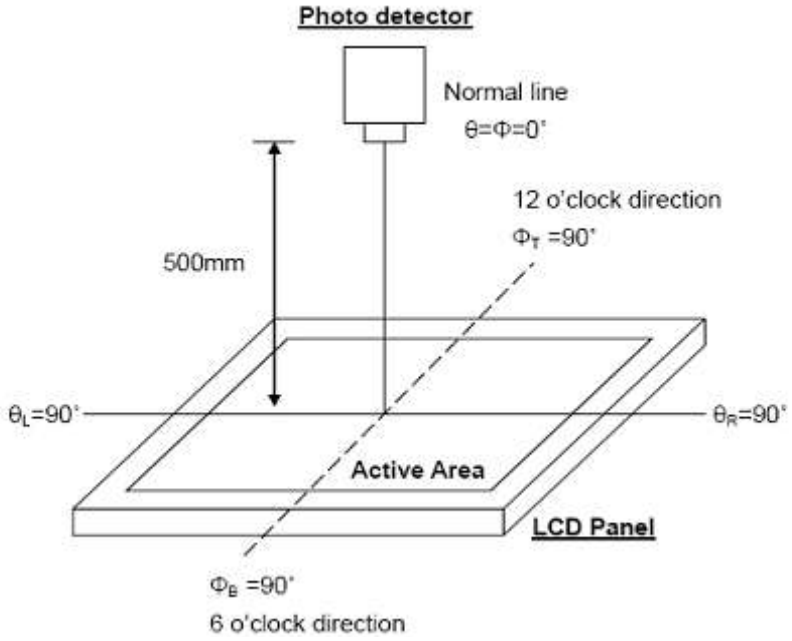
Note：The parameter is slightly changed by temperature, driving voltage and materiel

Note 1: The data are measured after LEDs are turned on for 5 minutes. LCM displays full white. The brightness is the average value of 9 measured spots. Measurement equipment BM-7 (Φ8mm)

Measuring condition:

- Measuring surroundings: Dark room.
- Measuring temperature: Ta=25℃.
- Adjust operating voltage to get optimum contrast at the center of the display.

The measured value is more than 5 minutes at the center point of the LCD panel, and the backlight is turned on at the same time.

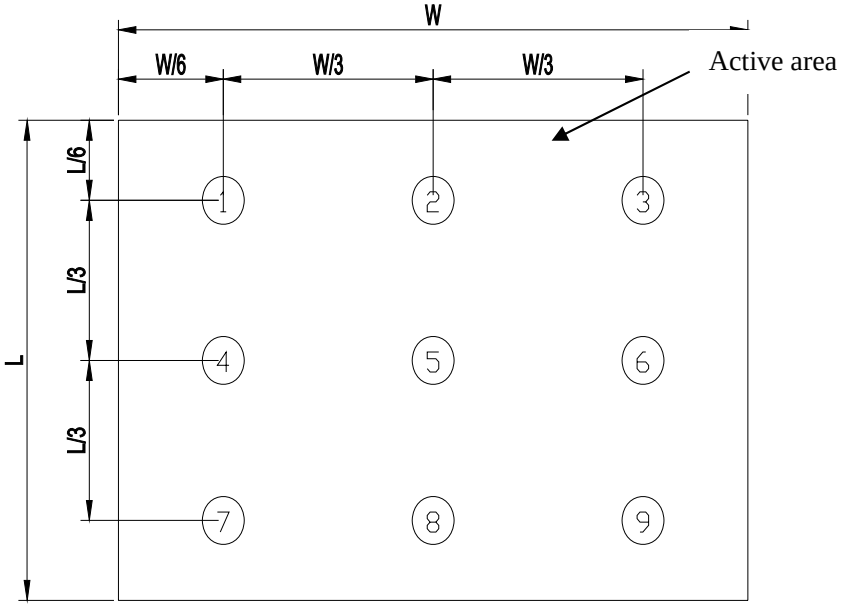


Note 2: The luminance uniformity is calculated by using following formula.

⊿Bp = Bp (Min.) / Bp (Max.)×100 (%)

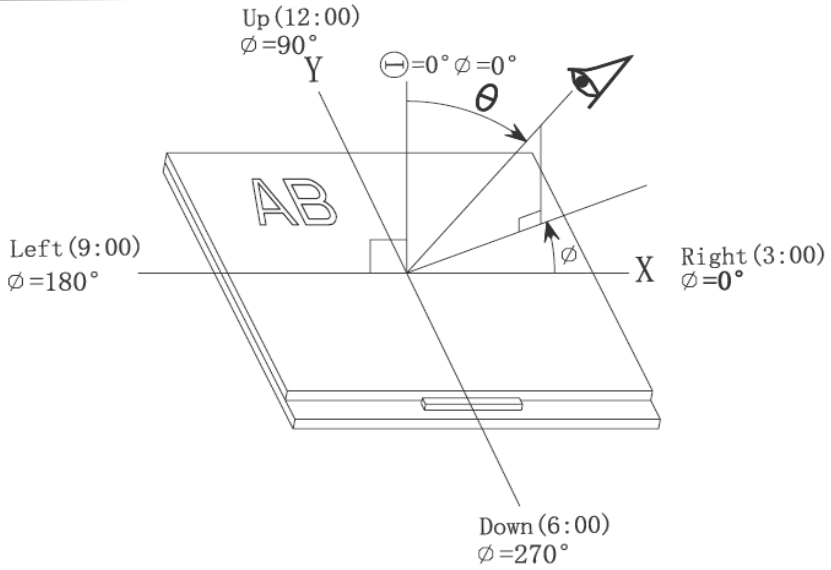
Bp (Max.) = Maximum brightness in 9 measured spots

Bp (Min.) = Minimum brightness in 9 measured spots.



Note 3: The definition of viewing angle:

Refer to the graph below marked by θ and Φ



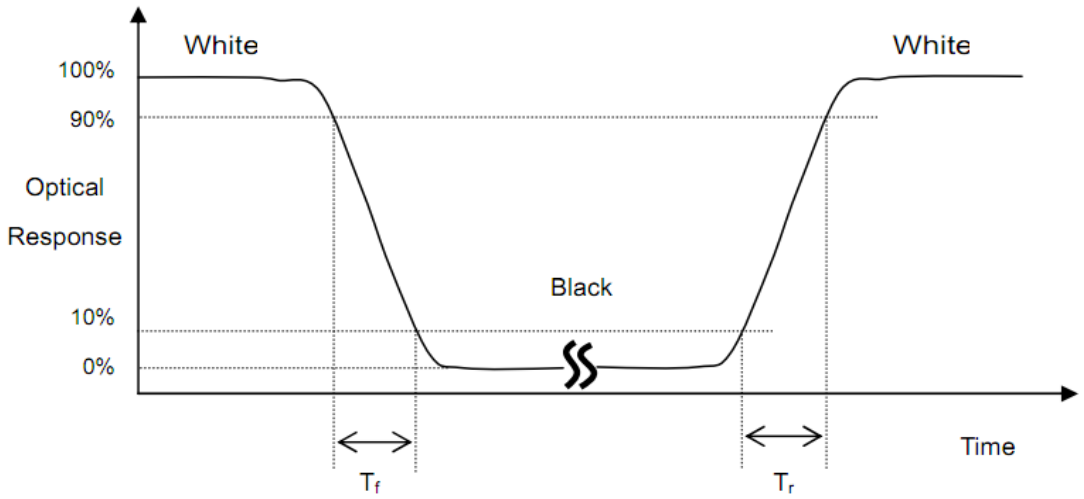
Note 4: Definition of contrast ratio

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.

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

Note 5: Definition of Response time

The output signals of photo detector are measured when the input signals are changed from “white” to “black”(Tf) and from “black” to “white”(Tr), respectively. The response time is defined as the time interval between the 10% and 90% of amplitudes. Refer to figure as below.



5. Reliability Test Items

Item	Test Conditions	Remark
High Temperature Storage	Ta=70℃ 96hrs	Note1 ,Note4
Low Temperature Storage	Ta=-30℃ 96hrs	Note1, Note4
High Temperature Operation	Ta=60℃ 96hrs	Note2 ,Note4
Low Temperature Operation	Ta=-20℃ 96hrs	Note2 ,Note4
Operation at High Temperature and Humidity	Ta=50℃,85%RH 96hrs	Note4
Thermal Shock	-20℃/30min~+60℃/30min for a total 24 cycles，	Start with cold temperature and end with high temperature
Elector Static Discharge	Contact:±4KV,Air:±8K, Human Body Mode，150pF/330Ω	Human Body Mode
Image Sticking	25℃ ；1hrs	Note5

Note1: Ta is the ambient temperature of samples.

Note2: Ts is the temperature of panel's surfaces.

Note3: In the standard condition, there shall be no practical problem that may affect the display function. After the reliability test, the product only guarantees operation, but don't guarantee all of the cosmetic specification.

Note4: before cosmetic and function test, the product must have enough recovery time, at least 2 hours at room temperature.

Note5: Condition of image sticking test :25℃±2℃, Operation with test pattern sustained for 60min,then change to gray pattern immediately. after 5 mins, the mura must be disappeared completely.

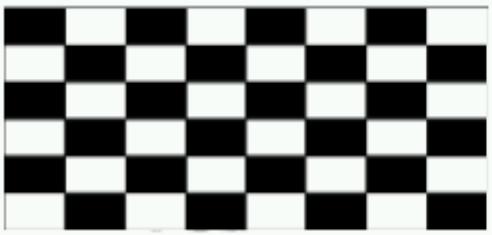
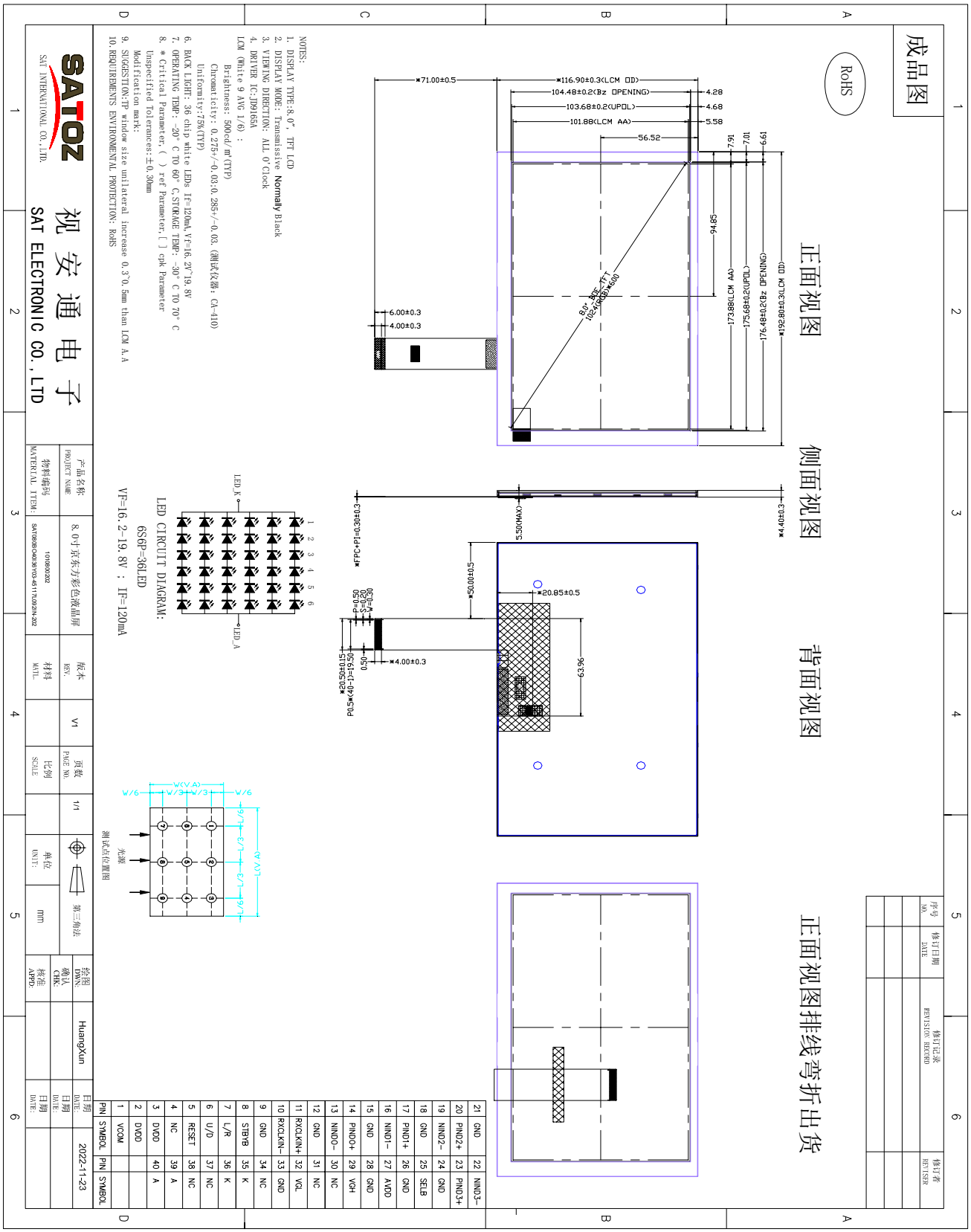


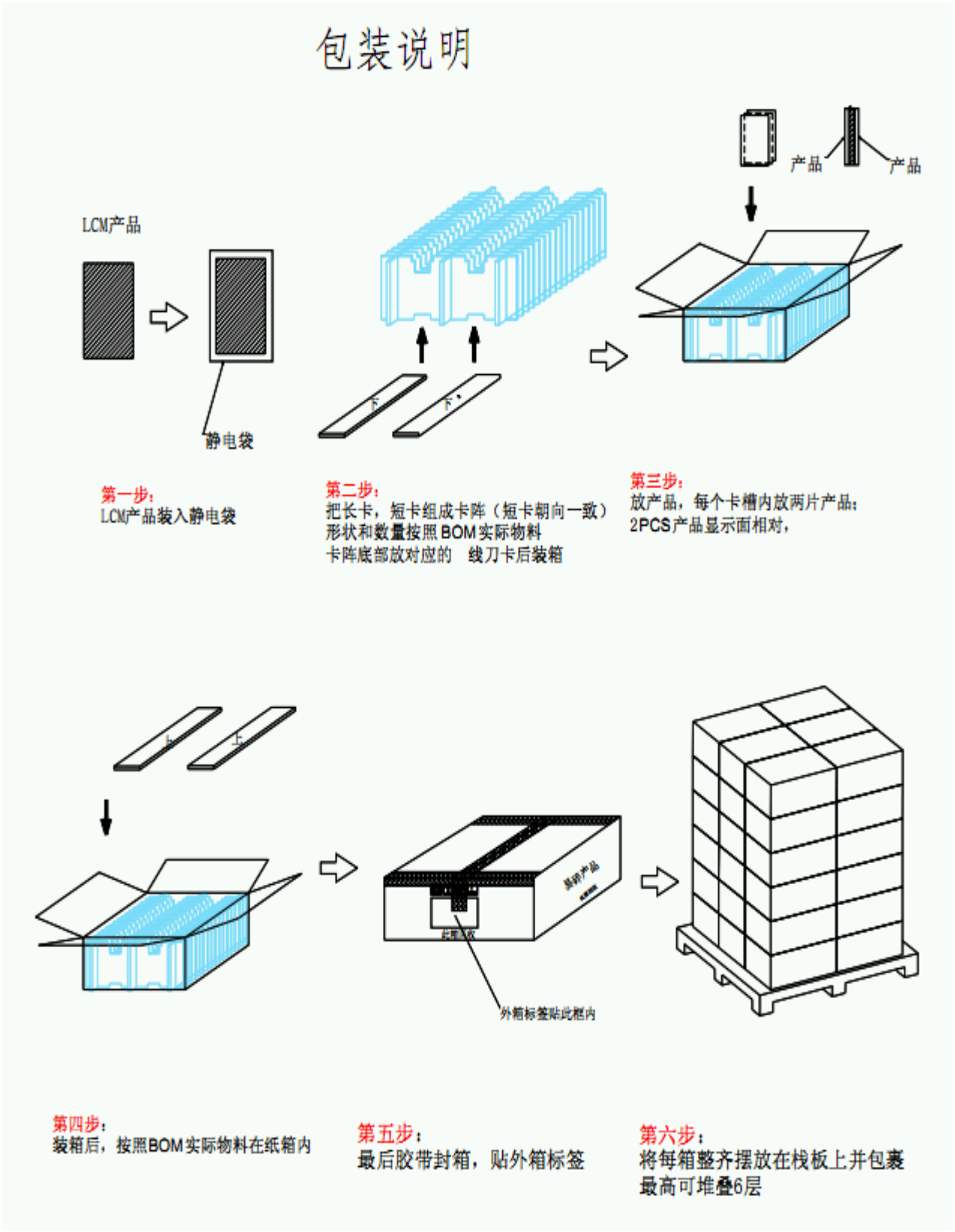
Image Sticking –pattern

Lv127 Gray pattern

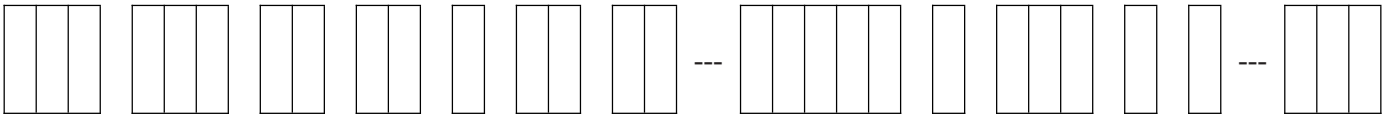
6. Mechanical Drawing



7. Package Drawing



8. Numbering System



NO.	Definition	Specifications
A	Company code	SAT INTERNATIONAL CO.LTD.
B	Display monitor opposite angle line size	Unit : inch (size<10inch:take two integers;size>=10inch:takes three integers)
C	LCD Brands	AU-AUO；CP-CPT；IV-IVO；TM-TIANMA；HS-HSD; CM-CMO；BO-BOE；AT--INNOLUX；
D	Interface PIN Number	Arabic numerals from 01 to 99
E	LCD Type	A--Alternated Video Signal; D--Data Video Signal; I--IPS
F	Backlight LED Number	Arabic numerals from 01 to 99
G	Backlight Color Are	Include R1、R2、Y0、Y1、B1、B2;
H	Structure Size	Include module length and width size
I	Interface Mode	T:TTL L:LVDS M:MIPI
J	FPC Length	It represents the length of FPC with three figures, divided into long rows ,middle rows and short rows
K	View Angles	Z : represent narrow viewing angle K : represent wide viewing angle I : represent all viewing angle
L	Operating Mode	D: DE mode V: VSD mode F: Inverting mode N: No mode requirements
M	Suffix	1. NULL ; 2. TP/CTP-- Touch panel; 3. other--Insignificance