产品规格书

Product Type: 10.1" TFT LCD Module

LCD Nunmber: 1024x600

ModuleNo.: B101N535C-27A

CUSTOMER APPROVED	PREPARE BY	CHECK BY	APPROVED BY
SUPPLIER APPROVED	PREPARE BY	CHECK BY	APPROVED BY
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Contents

Document Revision History				
Change No.	Date	Subject And Reason	Version No.	Responser
1	2022.03.05	New	01	

1. General Specifications

No.	Item	Specification	Remark
1	LCD size	10.1 inch(Diagonal)	
2	Resolution	1024(H)×600(V)	
3	Display mode	Normally Black	
4	Sub pixel size	72.5(H)x208.8(V) um	
5	Active area	222.72(H)x125.28(V) mm	
6	Module size	235(W) ×143(H) ×3.5(D) mm	
7	Color arrangement	RGB-stripe	
8	Display Color	16.7M	
9	Interface	Digital, Parallel 8-bit RGB	
10	Weight (cell)	811.7g(TYP)	

2.0 Interface Connection:

Pin No	Symbol	I/O	Function	Remark
1	VLED+	P	Power for LED backlight (Anode)	
2	VLED+	P	Power for LED backlight (Anode)	
3	VLED-	P	Power for LED backlight (Cathode)	
4	VLED-	P	Power for LED backlight (Cathode)	
5	GND	P	Power ground	
6	Vcom	I	Common voitage	
7	DVdd	P	Ppwer for Digital Circuit	
8	MODE	I	DE/SYNC mode select	Note 1
9	DE	I	Data input Enable	
10	VS	I	Vertical Sync input	
11	HS	I	Horizontal Sync input	
12	B7	I	Blue data(MSB)	
13	B6	I	Blue data	
14	B5	I	Blue data	
15	B4	I	Blue data	
16	B3	I	Blue data	
17	B2	I	Blue data	
18	B1	I	Blue data	Note 2
19	B0	I	Blue data(LSB)	Note 2
20	G7	I	Green data(MSB)	
21	G6	I	Green data	
22	G5	I	Green data	
23	G4	I	Green data	
24	G3	I	Green data	
25	G2	I	Green data	
26	G1	I	Green data	Note 2

27	G0	I	Green data (LSB)	Note 2
28	R7	I	Red data(MSB)	
29	R6	I	Red data	
30	R5	I	Red data	
31	R4	I	Red data	
32	R3	I	Red data	
33	R2	I	Red data	
34	R1	I	Red data	Note 2
35	R0	I	Red data(LSB)	Note 2
36	GND	P	Power Ground	
37	DCLK	I	Sample clocd	Note 3
38	GND	P	Power Ground	
39	L/R	I	Left/right selection	Note 4,5
40	U/D	I	Up/down selection	Note 4,5
41	Vgh	P	Gata ON Voltage	
42	Vgl	P	Gata OFF Voltage	
43	Avdd	P	Power for Analog Circuit	
44	RESET	I	Global reset pin	Note 6
45	NC	_	No connection	
46	Vcom	I	Common Voltage	
47	DLTHB		Dithering function	Note 7
48	GND	P	Power Ground	
49	NC	_	No connection	
50	NC	_	No connection	

1:input,O:output,P:Power

Note 1:DE/SYNC mode select.Normally pull high.

When select DE mode,MODE="1",VS dnd HS must pull high.

When select SYNC mode,MODE="0",DE must be grounded.

Note 2:When input 18 bits PGB date,the two low bits of R,G and B and must be grounded.

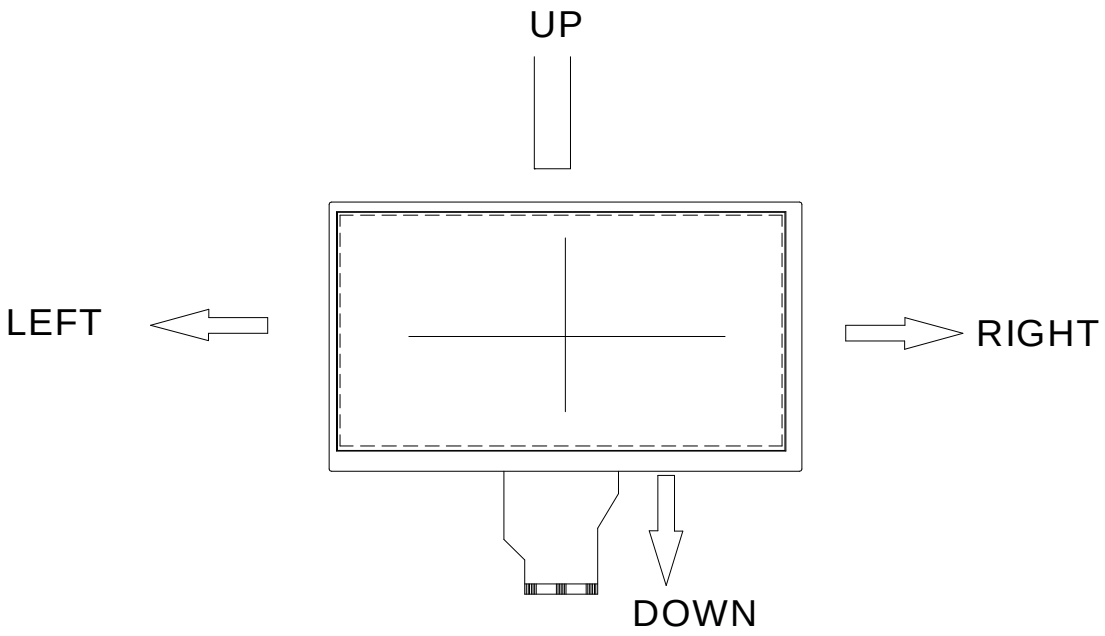
Note 3:Data shall be latched at the falling edge of DCLK.

Note 4: Selection of scanning mode

Setting of scan control input		Scanning direction
U/D	L/R	
GND	DVDD	Up to down left to right
GVDD	GND	Down to up right to left
GND	GND	Up to down right to left
DVDD	DVDD	Down to up left to right

Note5: Definition of scanning direction

Refer to the figure as below



Note 6: Global reset pin Active low to enter reset state Suggest to connect with an RC Reset circuit for stability Normally pull high

Nont 7: Ditherng function enable control normally pull high

When DITHB=" 1",Disable intemal dithering function

When DITHB=" 0",Enable intemal dithering unction

Nont 8: Reserve for LED power input

3.0 Electrical Specifications

Item	Symbol	Min.	Typ.	Max.	Unit	Note
TFT Gate ON Voltage	VGH	19	22	25	V	*1,*2
TFT Gate OFF Voltage	VGL	-13	-10	-7	V	
TFT Common Voltage	Vcom	4.39	5.39	6.39	V	*3
Analog power supply voltage	AVDD	9.8	10.8	11.8	V	
Digital Power Supply Voltage	DVDD	3.0	3.3	3.6	V	

Note :

*1. VGH is TFT Gate operating Voltage.

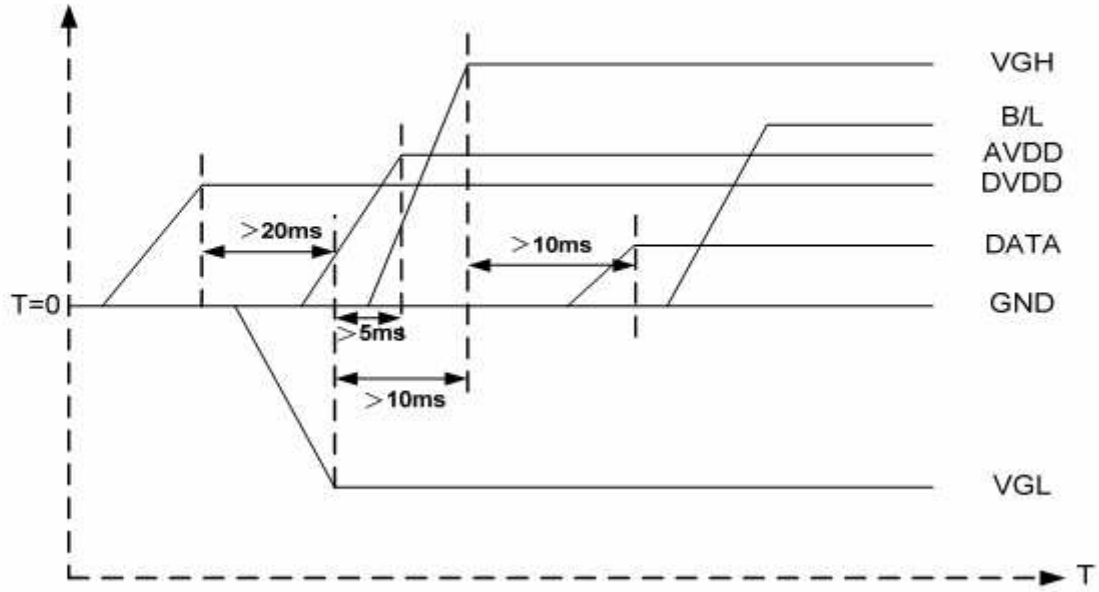
*2. VGL is TFT Gate operating Voltage.

The storage structure of this model is C_{ST}(Storage on Common)

*3. Vcom must be adjusted to optimize display quality _Cross talk, Contrast Ratio and etc.

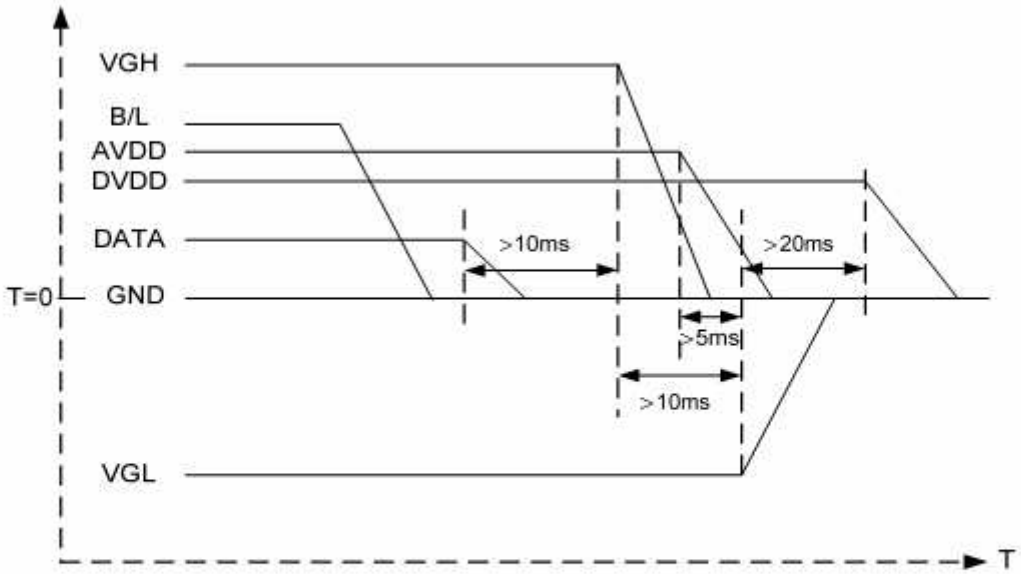
3.2. Power Sequence

a. Power on:



DV_{DD}→VGL→AVDD→VGH→Data→B/L

b. Power off:



B/L→Data→VGH→AVDD→VGL→DV_{DD}

Note: Data include R0~R7, B0~B7, GO~G7, U/D, L/R, DCLK, HS,VS,DE.

3.3 Timing Characteristics

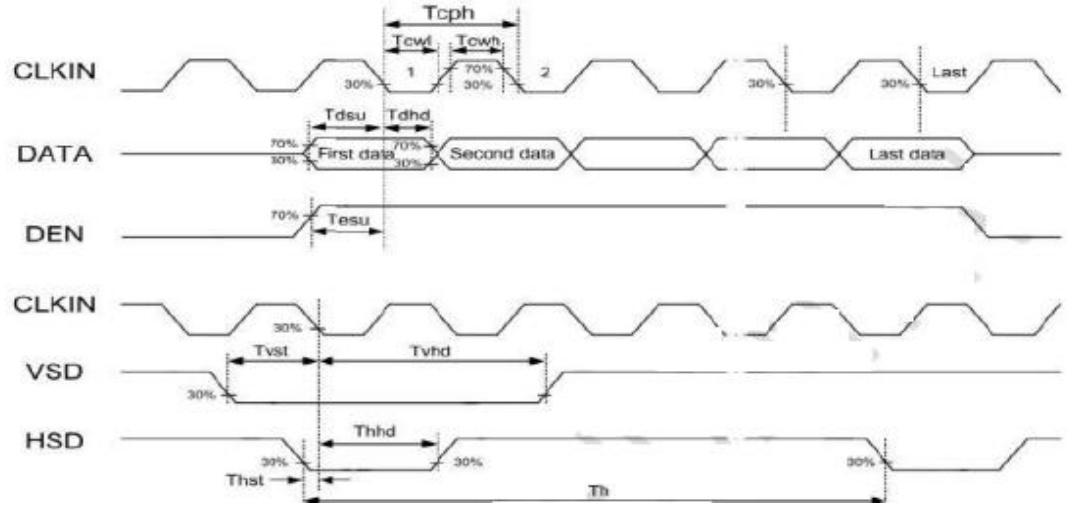
3.3.1 AC Electrical Characteristics

ltem	Symbol	Values			Unit	Remark
		Min	Typ	Max		
HS setup time	Thst	8	_	_	ns	
HS hold time	Thhd	8	_	_	ns	
VS setup time	Tvst	8	_	_	ns	
VS hold time	Tvhd	8	_	_	ns	
Data setup time	Tdsu	8	_	_	ns	
Data hole time	Tdhd	8	_	_	ns	
DE setup time	Tesu	8	_	_	ns	
DE hole time	Tehd	8	_	_	ns	
DVdd Power On Slew rate	Tpor	_	_	20	ms	From 0 to 90% DVdd
RESET pulse width	Trst	1	_	_	ms	
DCLK cycle time	Tcoh	20	_	_	ns	
DCLK pulse duly	Tcwh	40	50	60	%	

3.3.2 Input Timing Table

ITE		SY BOL	IN	TYP	AX	UNIT
	DCLK Frequency	Fclk	40.8	51.2	67.2	MHz
DE mode	Horizontal Display Area	Thd		1024		Dclk
	HSD Period	Th	1114	1344	1400	Dclk
	Horizontal Blank	thb+thfp	90	320	376	Tclk
	Vertical Display Area	tvd		600		TH
	VSD Period	Tv	610	635	800	TH
	vsd Blanking	tvbp+tvfp	10	35	200	TH
HV mode	DCLK Frequency	Fclk	44.9	51.2	63	MHz
	Horizontal Display Area	Thd		1024		Dclk
	HSD Period	Th	1200	1344	1400	Dclk
	HSD Pulse Width	thpw	1	-	140	Dclk
	HSD Back Porch	thpb		160		Dclk
	HSD fornt Porch	thfp	16	160	216	Dclk
Vertical Timing	Vertical Display Area	Tvd		600		Tclk
	VSD Period	Tv	624	635	750	th
	VSD Pulse Width	Tvpw	1	-	20	th
	Vertical Front Porch	Tvb	-	20	-	th
	VSD Back Porch	Tvbp		23		th
	VSD Fornt Porch	Tvfp	1	12	127	th

3.3.3 Inputclockanddata Timing Table



3.3.4. Data Input Format

Figure 3. 1 Horizontal input timing diagram.

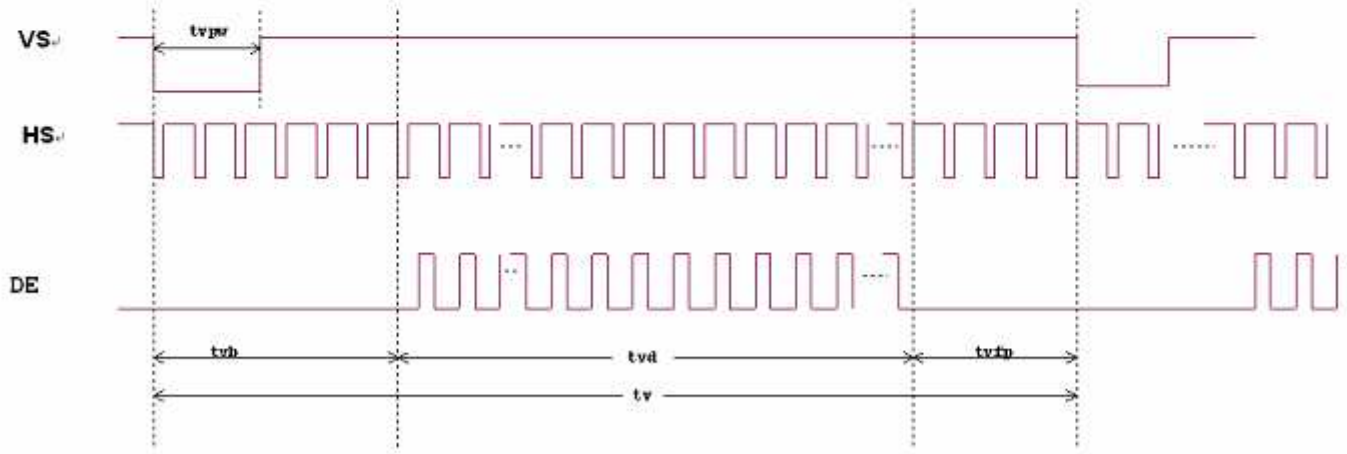


Figure 3. 2 Vertical input timing diagram.

4.0 Optical Characteristics

Item		Symbol	Condition	Min.	Typ.	Max	Unit	Note
Transmittance(without Polarizer)		T%		—	5.5	—	%	
Contrast		CR		-	1000	—		(1)(2)
Response time		TR		—	10	—	msec	(1)(3)
		TF		—	15	—		
Color gamut		S		—	50	—	%	C light
Color Filter Chromaticity (CIE 1931)	White.	X		0.28	0.30	0.33		(1)(4)
		Y		0.30	0.32	0.35		
LCM luminance (Center)		YL	I=180mA	200	250	—	cd/㎡	
Viewing Angle	Hor	θL	Point-5 CR≧10	—	80	—		(1)(4).
		θR		—	80	—		
	Ver	θU		—	80	—		
		θD		—	80	—		
		Y		0.28	0.31	0.34		°

4.1 Measuring Condition

■ Measuring surrounding : dark room .

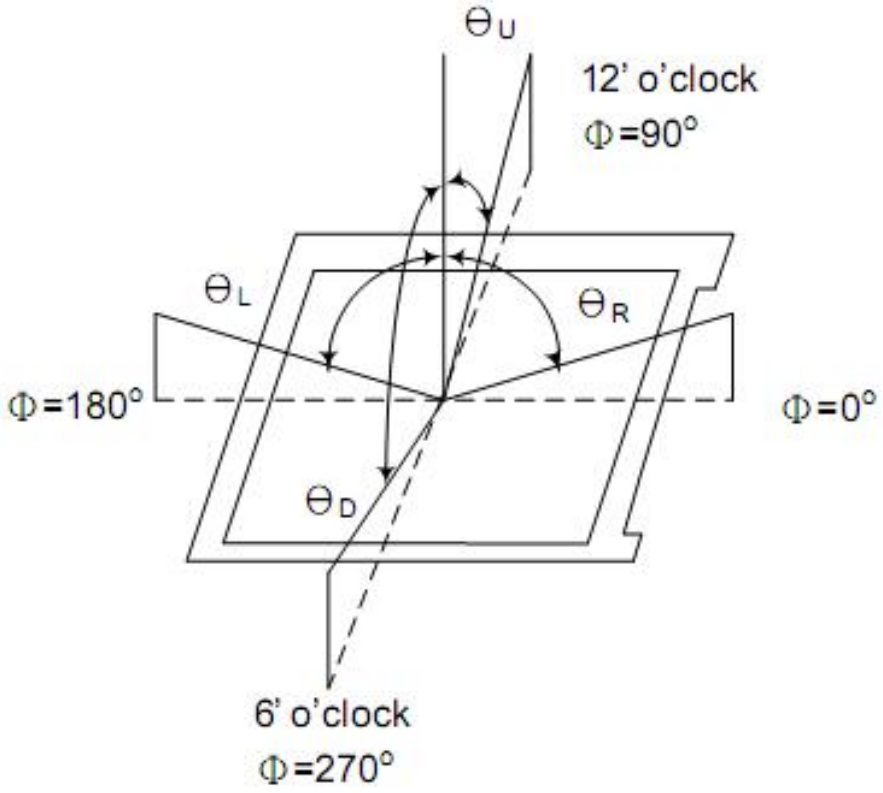
■ Ambient temperature :25±2℃ .

■ 15min .Warm-up time .

4.2 Measuring Equipment

- FPM520 of Westar Display technologies, INC., which utilized SR-3 for Chromaticit and BM-5A for other optical characteristics (or related equipments).
- Measuring spot size : 20 ~ 21 mm

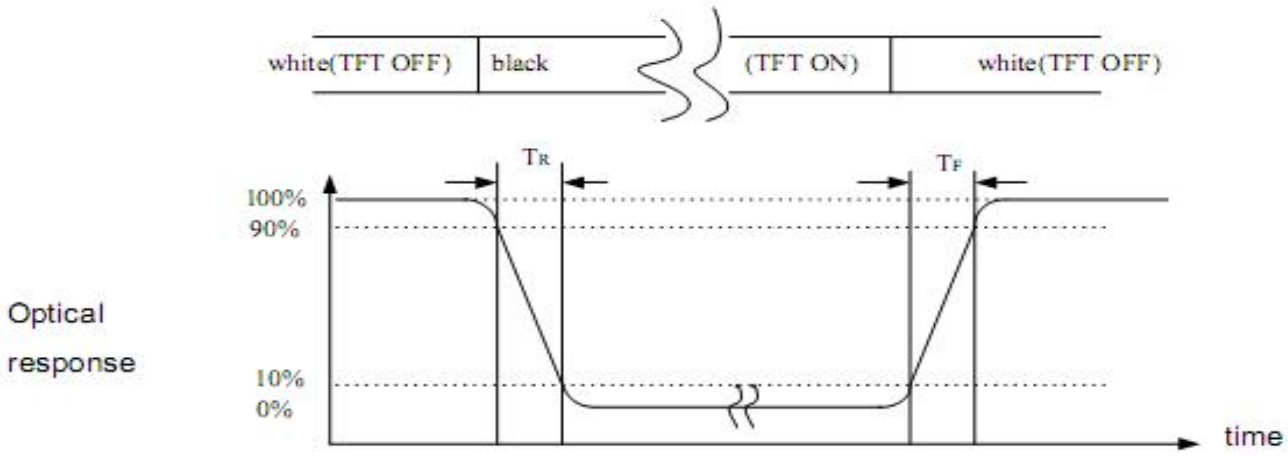
Note (1) Definition of Viewing Angle:



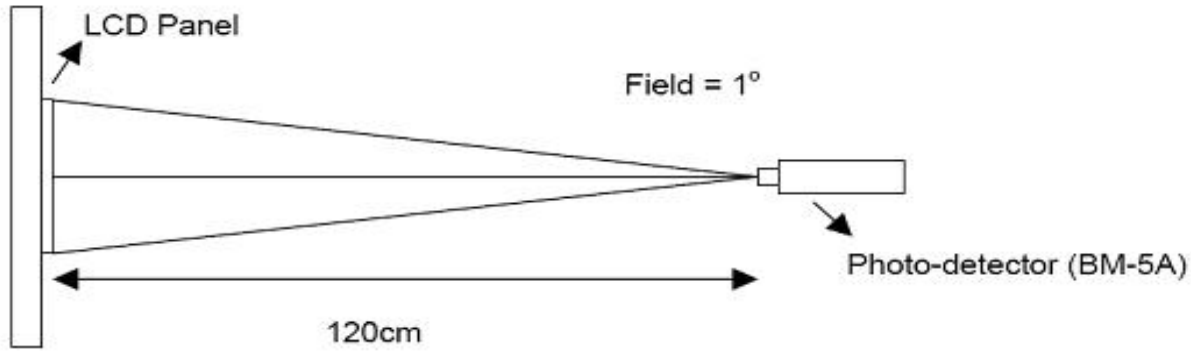
Note (2) Definition of Contrast Ratio (CR) :
measured at the center point of panel

$$CR = \frac{\text{Luminance with all pixels white}}{\text{Luminance with all pixels black}}$$

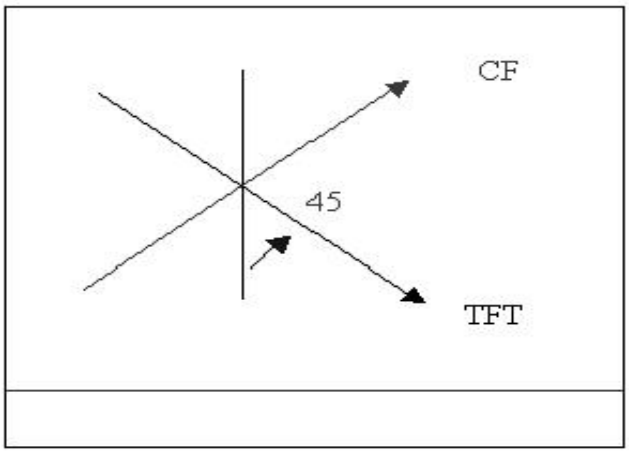
Note (3) Definition of Response Time : Sum of T_R and T_F



Note (4) Definition of optical measurement setup

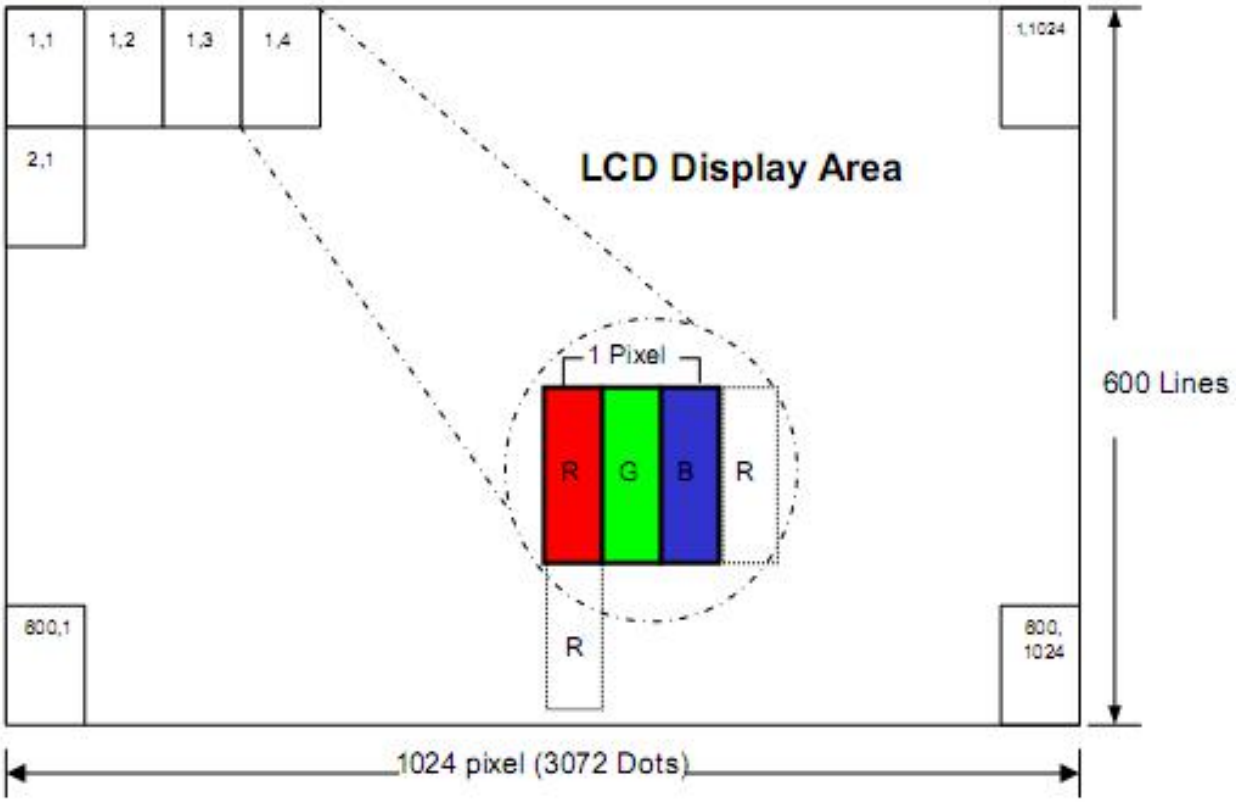


Note (5) Rubbing Direction (The different Rubbing Direction will cause the different optima view direction.

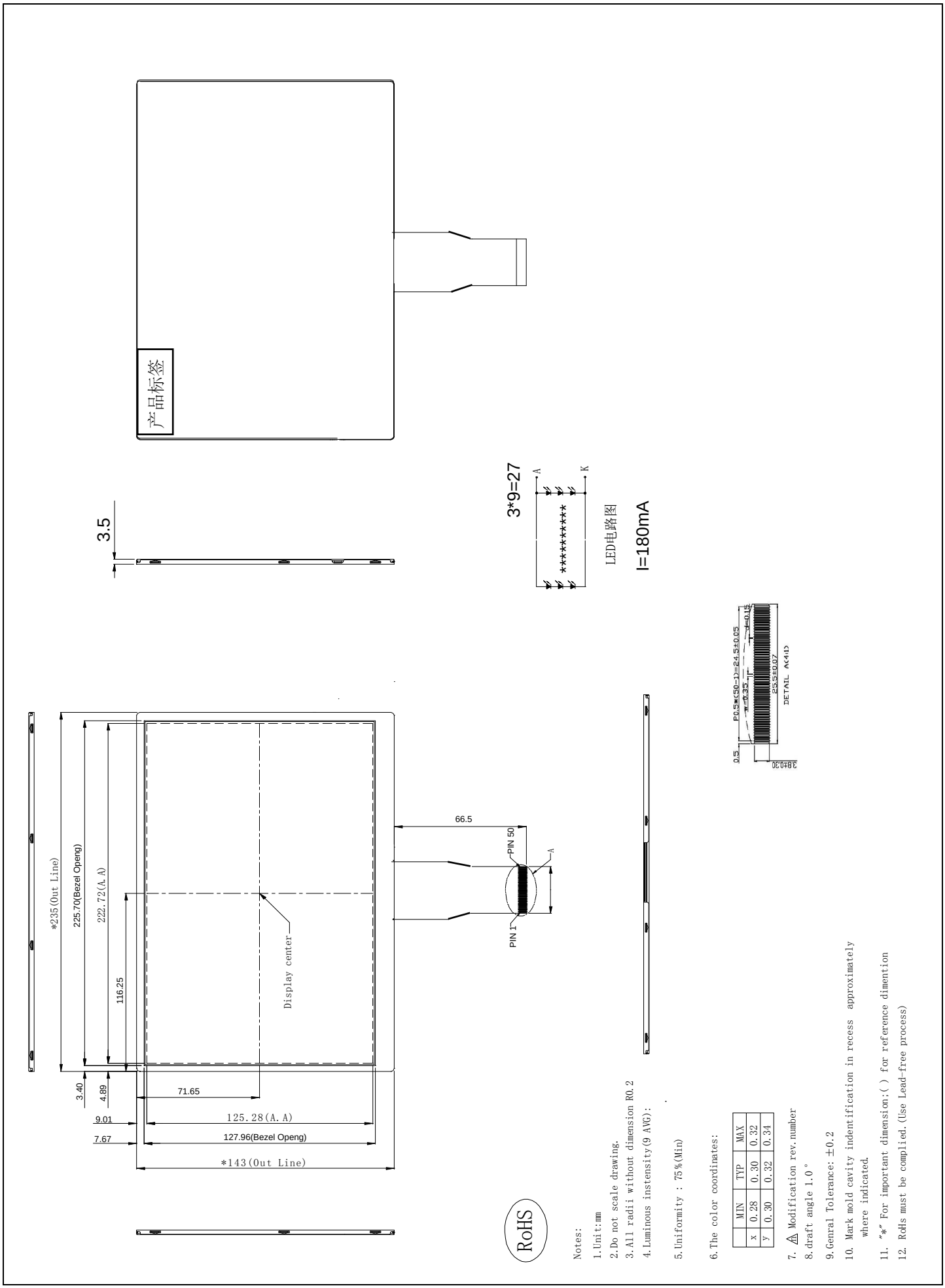


(Alignment Direction)

5.0 Pixel Format



5. Outline dimension



	MIN	TYP	MAX
x	0.28	0.30	0.32
y	0.30	0.32	0.34

Notes:

1. Unit: mm
2. Do not scale drawing.
3. All radii without dimension R0.2
4. Luminous instensity(9 AVG):
5. Uniformity : 75%(Min)
6. The color coordinates:
7. ⚠ Modification rev.number
8. draft angle 1.0°
9. Genral Tolerance: ±0.2
10. Mark mold cavity indentification in recess approximately where indicated.
11. "*" For important dimension;( ) for reference dimention
12. RoHs must be complied.(Use Lead-free process)

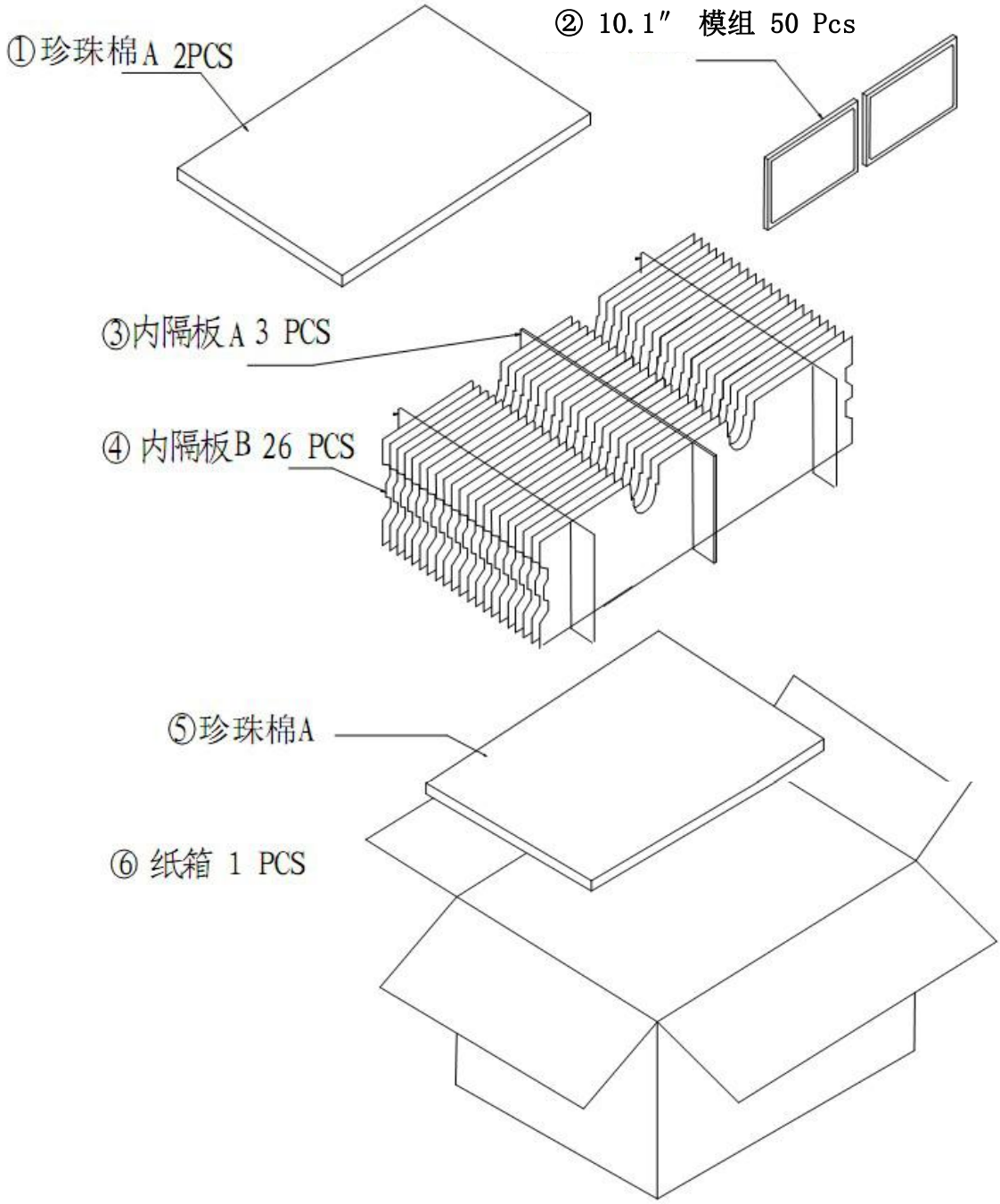
6.0 RELIABILITY TEST

No	Test Items	Conditions	Note
1	High Temperature Storage	Ta=+90℃ 120hrs	
2	Low Temperature Storage	Ta=-40℃ 120hrs	
3	High Temperature Operation	Ta=+80℃ 120hrs	
4	Low Temperature Operation	Ta=-30℃ 120hrs	
5	High Temperature High Humidity Operation	Ta=+60℃ ;90%RH 120hrs	

Note :(1)All tests above are practiced at module type

(2)There is no display function NG issue occurred , all the cosmetic specification is judged before the reliability stress.

7.0 Packing form



8.0. General Precautions

8.1. Safety

Liquid crystal is poisonous. Do not put it in your mouth. If liquid crystal touches your skin or clothes, wash it off immediately by using soap and water.

8.2. Handling

1. The LCD panel is plate glass. Do not subject the panel to mechanical shock or to excessive force on its surface.
2. The polarizer attached to the display is easily damaged. Please handle it carefully to avoid scratch or other damages.
3. To avoid contamination on the display surface, do not touch the module surface with bare hands.
4. Keep a space so that the LCD panels do not touch other components.
5. Put cover board such as acrylic board on the surface of LCD panel to protect panel from damages.
6. Transparent electrodes may be disconnected if you use the LCD panel under environmental conditions where the condensation of dew occurs.
7. Do not leave module in direct sunlight to avoid malfunction of the ICs.

8.3. Static Electricity

1. Be sure to ground module before turning on power or operating module.
2. Do not apply voltage which exceeds the absolute maximum rating value.

8.4. Storage

1. Store the module in a dark room where must keep at 25±10℃ and 65%RH or less.
2. Do not store the module in surroundings containing organic solvent or corrosive gas
3. Store the module in an anti-electrostatic container or bag.

8.5. Cleaning

1. Do not wipe the polarizer with dry cloth. It might cause scratch.
2. Only use a soft sloth with IPA to wipe the polarizer, other chemicals might permanent damage to the polarizer.