
SPECIFICATION

Model: IE-G-1316AH04R24-R0-1

<p>ACCEPTED BY CUSTOMER</p>	
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Product: 5.0" TFT 800(RGB) *480 Pixels

Version: V00

Date: 2017/11/14

Catalog:

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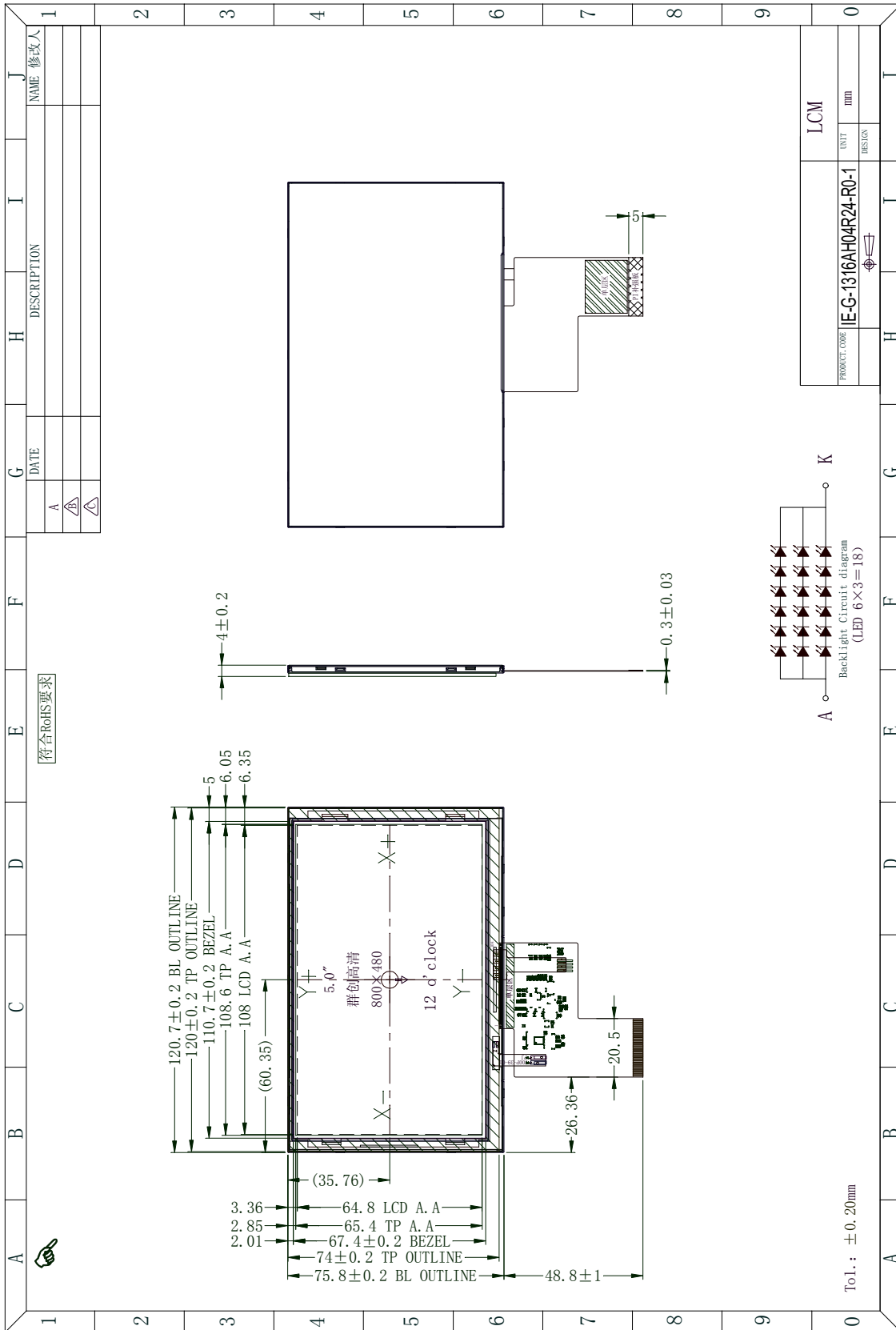
1. History Version

Sample version	Doc. version	Date	Description	Modify
V00	V00	2017-11-14	First issue	

2. Mechanical Description

Name	Content	Unit
Outline Size	120.70 (W) * 75.8 (H) * 4.00(T)	mm
Module size	5.0 (A. A)	inch
Resolution	800(RGB)* 480 Pixels	-
Viewing size	108.0(W) * 64.8(H)	mm
Pixel size	0.135 * 0.135	mm
LCD Type	TFT (262K)/ Transmissive / Positive	-
Viewing Angle	12 0' CLOCK	-
Driver IC	-	-
Backlight Type	6 Serial 3 Parallel LED	-
Interface Type	24 Bit RGB	-

3. Mechanical Drawing

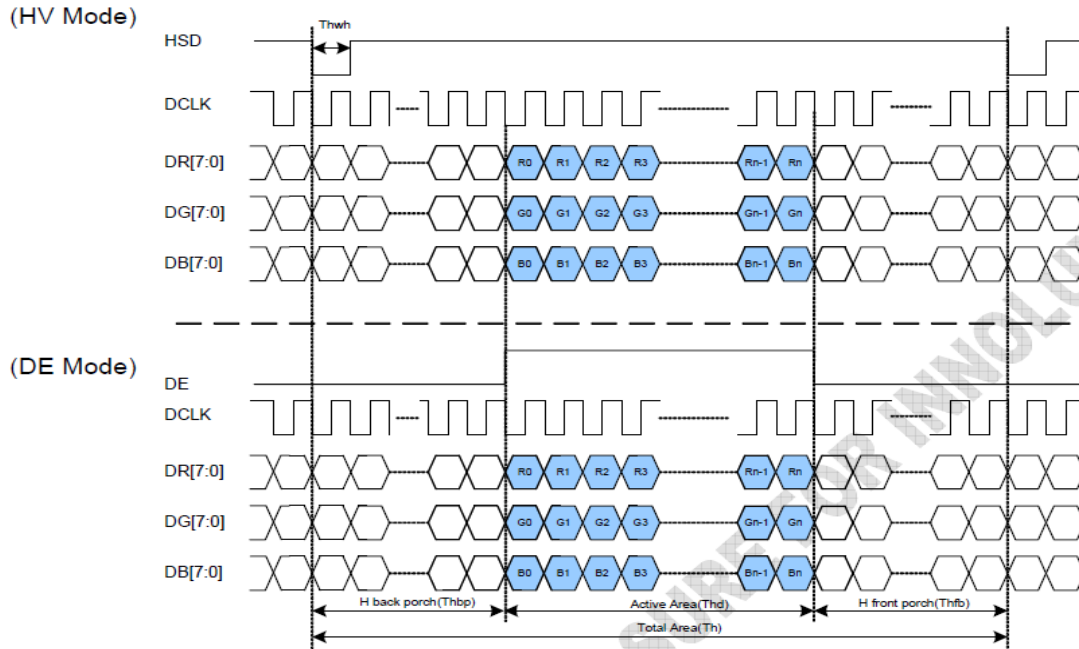


4. Interface Definition

PIN NO.	PIN Name	Function Description
1	VLED-	back light power supply negative
2	VLED+	back light power supply positive
3	GND	Ground
4	VDD	Power supply
5-12	R0-R7	Red Data
13-20	G0-G7	Green Data
21-28	B0-B7	Blue Data
29	GND	Ground
30	CLK	Clock signal
31	DISP	Display on/off
32	HSYNC	Horizontal sync input in RGB mode(short to GND if not used)
33	VSYNC	Vertical sync input in RGB mode(short to GND if not used)
34	DE	Data enable
35	NC	No Connection
36	GND	Ground
37	XR)	touch panel X-right
38	YD	touch panel Y-bottom
39	XL	touch panel X-left
40	YU	touch panel Y-up

5. Interface Timing:

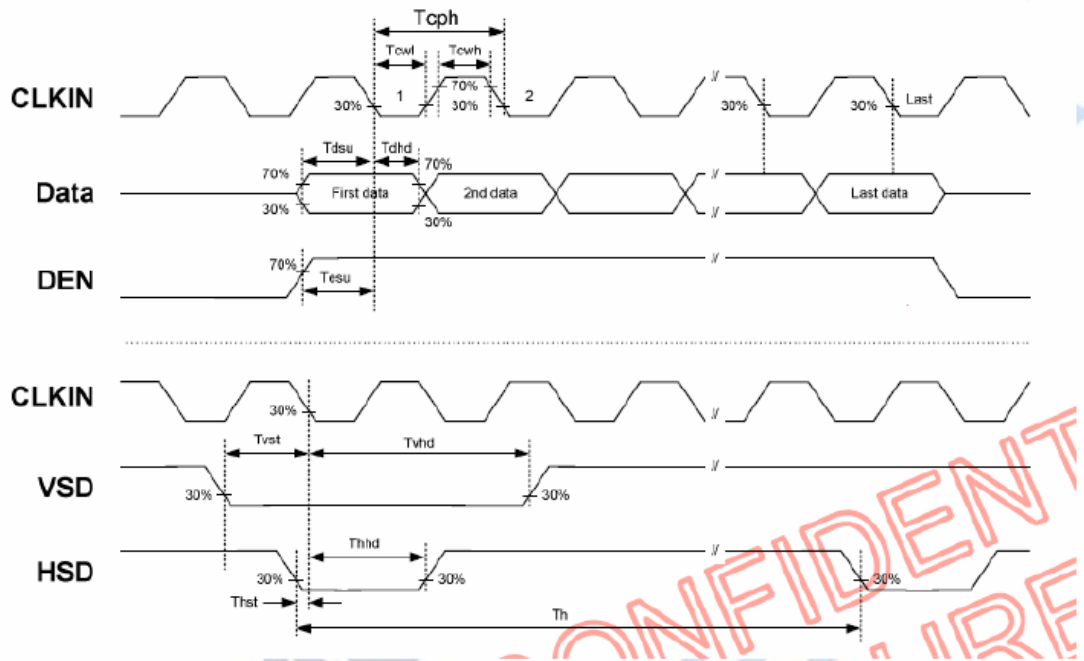
5.1 RGB Interface Timing



Item	Symbol	Values			Unit	Remark
		Min.	Typ.	Max.		
Horizontal Display Area	thd	-	800	-	DCLK	
DCLK Frequency	fclk	26.4	33.3	46.8	MHz	
One Horizontal Line	th	862	1056	1200	DCLK	
HS pulse width	thpw	1	-	40	DCLK	
HS Blanking	thb	46	46	46	DCLK	
HS Front Porch	thfp	16	210	354	DCLK	

Item	Symbol	Values			Unit	Remark
		Min.	Typ.	Max.		
Vertical Display Area	tvd	-	480	-	TH	
VS period time	tv	510	525	650	TH	
VS pulse width	tvpw	1	-	20	TH	
VS Blanking	tvb	23	23	23	TH	
VS Front Porch	tvfp	7	22	147	TH	

5.2 AC Timing Diagram

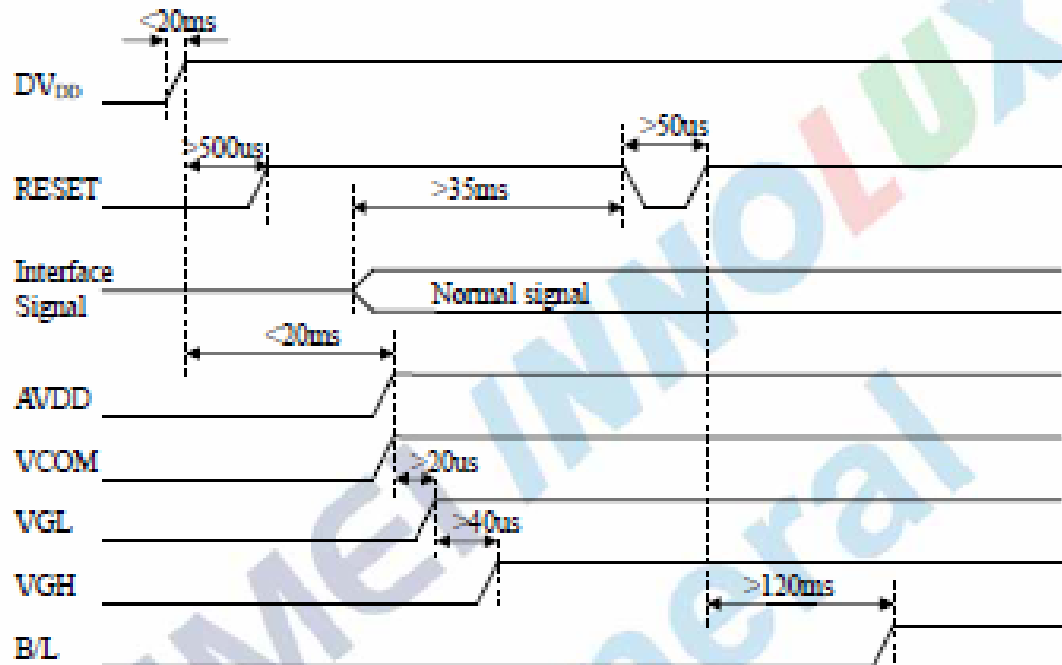


Item	Symbol	Values			Unit	Remark
		Min.	Typ.	Max.		
HS setup time	T_{hst}	8	-	-	ns	
HS hold time	T_{hhd}	8	-	-	ns	
VS setup time	T_{vst}	8	-	-	ns	
VS hold time	T_{vhd}	8	-	-	ns	
Data setup time	T_{dsu}	8	-	-	ns	
Data hole time	T_{dhd}	8	-	-	ns	
DE setup time	T_{esu}	8	-	-	ns	
DE hole time	T_{ehd}	8	-	-	ns	
DV _{DD} Power On Slew rate	T_{POR}	-	-	20	ms	From 0 to 90% DV _{DD}
RESET pulse width	T_{Rst}	1	-	-	ms	
DCLK cycle time	T_{coh}	20	-	-	ns	
DCLK pulse duty	T_{cwh}	40	50	60	%	

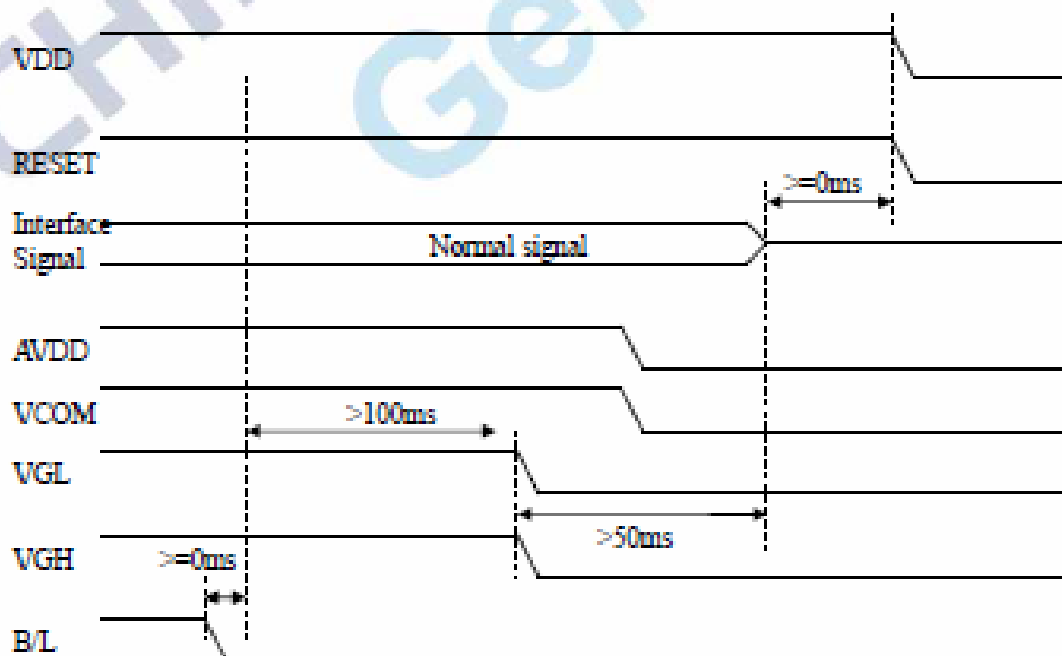
5.4 Power Sequence

To prevent a latch-up or DC operation of the LCD module, the power on/off sequence should be as the diagram below.

a. Power on sequence:



b. Power off sequence:



6. Absolute Maximum Ratings:

Name	symbol	Min	Type	Max	Unit
Operation Temperature	T _{OP}	-20	-	70	°C
Storage Temperature	T _{ST}	-30	-	80	°C

7. DC Characteristics

Name	Symbol	Min	Type	Max	Unit
Logical Voltage	V _{DD}	3.0	3.3	3.6	V
Input High Voltage	V _{IH}	0.7IOVCC	-	IOVCC	V
Input Low Voltage	V _{IL}	-0.3	-	0.3IOVCC	V
Output High Voltage	V _{OH}	0.7IOVCC	-	-	V
Output Low Voltage	V _{OL}	-	-	0.3IOVCC	V
Current Consumption	I _{DD}	-	-	10	mA

8. Backlight :

Name	Min	Type	Max	Unit
Current	45	60	-	mA
Voltage	16.8	18.6	20.4	V
Power Consumption	-	1116	-	mW
luminance	350	400	-	CD/M ² (Note1)
Luminance uniformity	70%	80%	-	(Note2)
X Color Coordinates	-	-	-	-
Y Color Coordinates	-	-	-	-

Note1: This luminance is tested with assembling the LCD.

Note2: Definition of Luminance Uniformity.

Active area is divided into 9 measuring areas (Refer to Fig. 4-4).Every measuring point is placed at the center of each measuring area.

$$\text{Luminance Uniformity (Yu)} = \frac{B_{min}}{B_{max}}$$

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

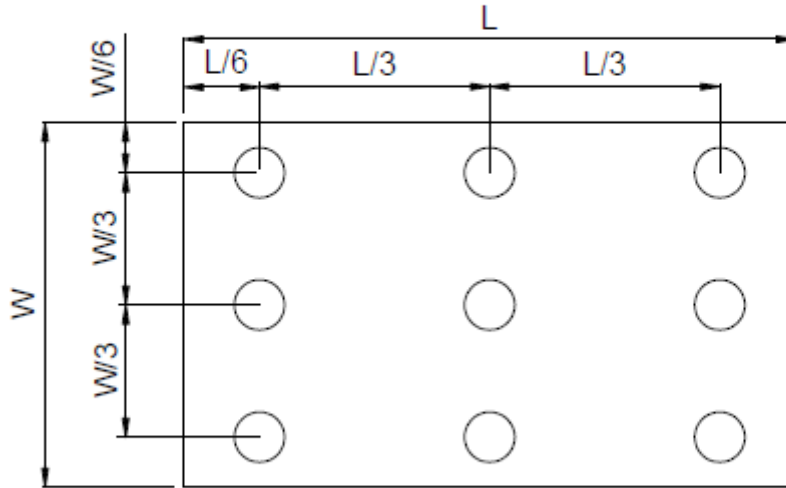


Fig. 4-4 Definition of measuring points

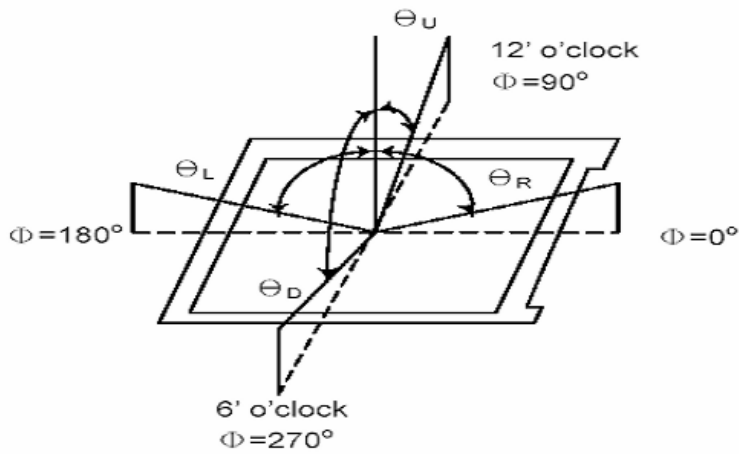
B_{max} : The measured maximum luminance of all measurement position.

B_{min} : The measured minimum luminance of all measurement position.

9. Optical Specification

Name	Symbol	Min	Type	Max	Unit
Transmittance rate	T (%)	-	4	-	%
Contrast ratio	C/R	400	500	-	-
Response time	Tr+Tf	-	10	-	ms
Viewing Angle	θU	60	70	-	degree (C/R>10)
	θD	40	50	-	
	θL	60	70	-	
	θR	60	70	-	

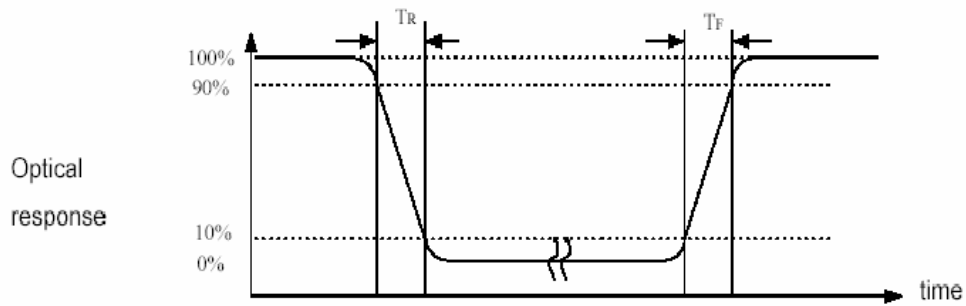
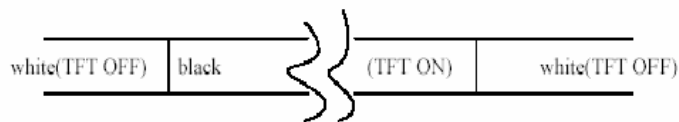
*Viewing angle description:



*Contrast rate description (CR) :
 Tested in the center of the LCM panel

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

*Response time description : Sum of TR and TF



10. Reliability testing:

Item No	Name	Condition	Remark
1	High temperature Operating	70° C , 168Hours	Finish product (With polarizer)
2	Low temperature Operating	-20° C , 168 Hours	Finish product (With polarizer)
3	High temperature Storage	80° C , 168 Hours	Finish product (With polarizer)
4	Low temperature Storage	-30° C , 168 Hours	Finish product (With polarizer)
5	High temperature & humidity Storage	60° C , 90%RH, 168 Hours	Finish product (With polarizer)
6	Thermal Shock Storage (No operation)	-20° C , 30min. <=> 70° C , 30min. 10 Cycles	Finish product (With polarizer)
7	ESD test	Voltage:+8KV R:330 ohm, C:150pF Air discharge, 10 times	Finish product (With polarizer)
8	Vibration test	10 => 55 => 10 => 55 => 10 Hz, within 1 minute; Amplitude: 1.5mm. 15 minutes for each Direction (X, Y, Z)	Finish product (With polarizer)
9	Drop test	Packed, 100CM free fall 6 sides, 1 corner, 3edges	Finish product (With polarizer)

*One single product test for only one item.

* Judgment after test: keep in room temperature for more than 2 hours.

- Current consumption < 2 times of initial value
- Contrast > 1/2 initial value
- Function: work normally