■ Tentative Specification

☐ Preliminary Specification

☐ Approval Specification

MODELNAME:YH128JUW1-A01

Version:LA01

Customer: Common

APPROVED BY **SIGNATURE**

Name / Title

Note

Please return 1 copy for your confirmation with your signature and comments.

Approved By	Checked By	Prepared By

Record of Revision

Version	Revise Date	Page	Content
Pre-spec .01	2022/01/15		Initial Release.

2. Revision Record

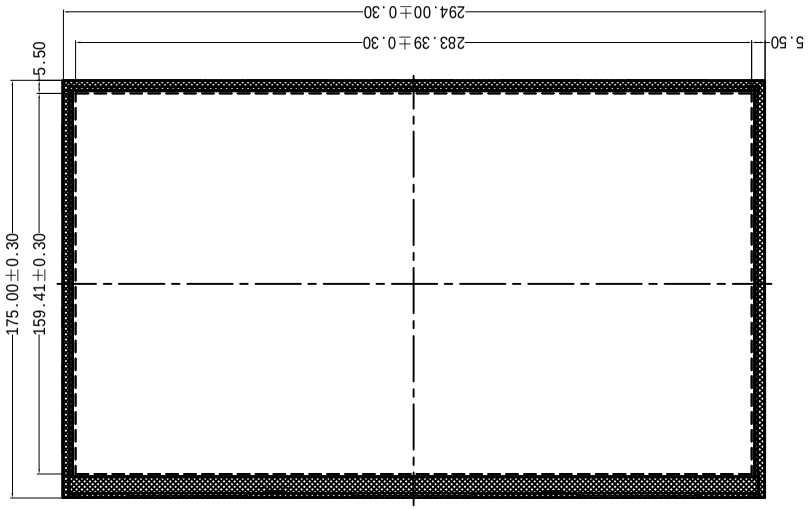
Date	Rev.No.	Page	Revision Items	Prepared
2021.08.12	**V1**		**The first release**	**Huang**

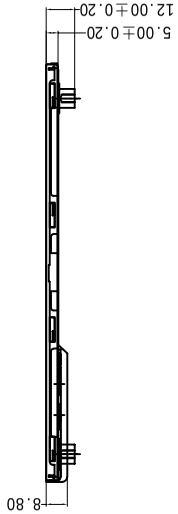
3. General Specifications

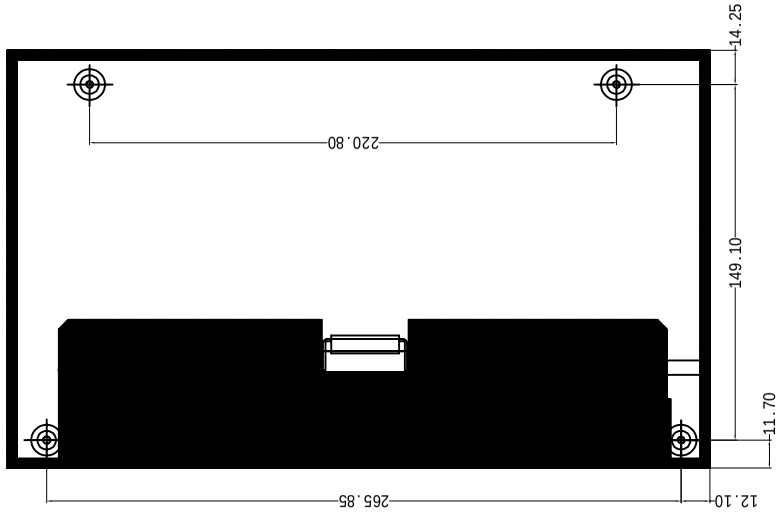
YH128JUW1-A01is a TFT-LCD module. It is composed of a TFT-LCD panel, driver IC, FPC, a back light unit. The 12.8′′ display area contains 1920 x 1080 pixels and can display up to 16.7M colors. This product accords with RoHS environmental criterion.

Item	Contents	Unit	Note
LCD Type	TFT	-	
Display color	16.7M		1
Viewing Direction	ALL	O'Clock	
Operating temperature	-20~+70	℃	
Storage temperature	-30~+80	℃	
Module size	294.00 x 175.00 x 5.0	mm	2
Active Area(W×H)	283.392 x 159.408	mm	
Number of Dots	1920×RGB×1080	dots	
Outline Dimensions	Refer to outline drawing	-	
Backlight	63-LEDs (white)	pcs	
Weight	---	g	
Data Transfer	2&LVDS	-	

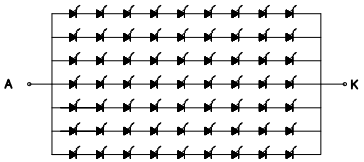
Note 1: Color tune is slightly changed by temperature and driving voltage.
Note 2: Without FPC and Solder.







电路图:



注:

1. 需符合RoHS标准.
2. 拔模斜度 1.5°:
3. 未注圆角为: R0.3
   未注公差为: ±0.20
4. 如产品的双面胶保护膜有
   变更,我司将不另行通知.

光电参数(Ta=25° C):

项目		符号	最小值	典型值	最大值	单位	测试条件
主屏	亮度(LCD)	Lv	600	650		cd/m²	正向电流 If=380 mA
	均匀度	Avg	80			%	测试误差:
	色度坐标	X	0.28		0.35		亮度:±5%
		Y	0.28		0.35		色度坐标:±0.008
正向电压		Vf		27	28.8	V	电压:±0.1V
反向电流		Ir				mA	反向电压 Vr= 0.8V
◦使用温度: -30～+70° C ◦储存温度: -40～+80° C							
◦储存条件: 温度 (25±5° C) 湿度 (65%±20%RH)							

			产品型号:	
			客户型号:	
			设计:	
			检查:	
0	新发行	22.07.06	审核:	
标记	更改内容	时间	批准:	

	图号:		版本: A0
	单位: mm	第三视角:	页码: 1 of 1

5.Pin Assignment

SYMBOL	PIN	DISCRIPTION
GND	1	Power ground
NC/BIST	2	No connector(BIST Pin)
VCC	3-4	Digital Power/Vin = 3.3V
GND	5-6	Power ground
NC	7-8	No connector
GND	9	Power ground
ORXIN0-	10	Negative LVDS differential data input (Odd data)
ORXIN0+	11	Postive LVDS differential data inputs (Odd data)
ORXIN1-	12	Negative LVDS differential data input (Odd data)
ORXIN1+	13	Postive LVDS differential data inputs (Odd data)
ORXIN2-	14	Negative LVDS differential data input (Odd data)
ORXIN2+	15	Postive LVDS differential data inputs (Odd data)
ORXCLKIN-	16	Negative LVDS differential clock inputs (Odd clock)
ORXCLKIN+	17	Postive LVDS differential clock inputs (Odd clock)
ORXIN3-	18	Negative LVDS differential data input (Odd data)
ORXIN3+	19	Postive LVDS differential data inputs (Odd data)
ERXIN0-	20	Negative LVDS differential data input (Even data)
ERXIN0+	21	Postive LVDS differential data inputs (Even data)
ERXIN1-	22	Negative LVDS differential data input (Even data)
ERXIN1+	23	Postive LVDS differential data inputs (Even data)
ERXIN2-	24	Negative LVDS differential data input (Even data)
ERXIN2+	25	Postive LVDS differential data inputs (Even data)
ERXCLKIN-	26	Negative LVDS differential clock inputs (Even clock)
ERXCLKIN+	27	Postive LVDS differential clock inputs (Even clock)
ERXIN3-	28	Negative LVDS differential data input (Even data)
ERXIN3+	29	Postive LVDS differential data inputs (Even data)
GND	30	Power ground
FAULT	31	FAULT signal output(normal=H,abnormal=L)
RESET	32	Global reset pin,active low.
STBYB	33	Standby mode,active low
NC	34-37	No connector
GND	38-39	Power ground
NC	40	No connector
LEDA	41-43	LED power (Anode)
NC	44	No connector
LEDK	45-48	Cathode
NTC_A	49	NTC_Anode
NTC_K	50	NTC_Cathode

6. Absolute Maximum Ratings(Ta=25℃)

6.1 Electrical Absolute Maximum Ratings.(Vss=0V ,Ta=25℃)

Item	Symbol	Min.	Typ.	Max	Unit	Note
Power Supply Voltage	V_{DD}	-0.3	3.3	3.6	V	1，2
	AVDD		--			
	VGH		--			
	VGL		--			
	VCOM		--			
Logic Signal Input	$V_{IO/Reset}$	-0.3	3.3	3.6	V	

Notes:

1. If the module is above these absolute maximum ratings. It may become permanently damaged. Using the module within the following electrical characteristic conditions are also exceeded, the module will malfunction and cause poor reliability.

2. V_{CC} >V_{SS} must be maintained.

6.2 Environmental Absolute Maximum Ratings.

Item	Storage		Operating		Note
	MIN.	MAX.	MIN.	MAX.	
Ambient Temperature	-30℃	80℃	-20℃	70℃	1,2
Humidity	-	-	-	-	3

1. The response time will become lower when operated at low temperature.

2. Background color changes slightly depending on ambient temperature.
   The phenomenon is reversible.

3. Ta<=40℃:85%RH MAX.
   Ta>=40℃:Absolute humidity must be lower than the humidity of 85%RH at 40℃.

7.LED backlight specification(VSS=0V ,Ta=25℃)

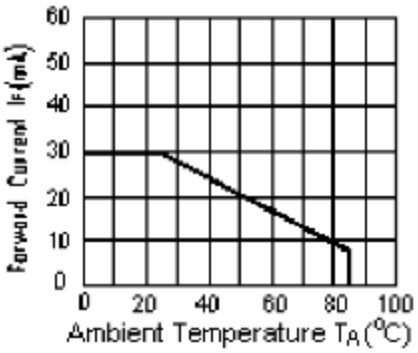
Item		Symbol	Condition	Min	Typ	Max	Unit	Note
Supply voltage		-	-	-	27	-	V	1
Supply current		I_f	-	-	380	-	mA	2
Forward current	Normal	I_{pn}	9-chip series x 7	-	-	-	mA	
	Dimming	I_{pd}		-	-	-		

Note:

1: $V_{LED}=V_{LED}(+)-V_{LED}(-)$.

2:The current of LED is 20mA.
A LED drive in constant current mode is recommended.

3: LED power consumption is around 1.125W.



ILED VS TEMP

CIRCUIT

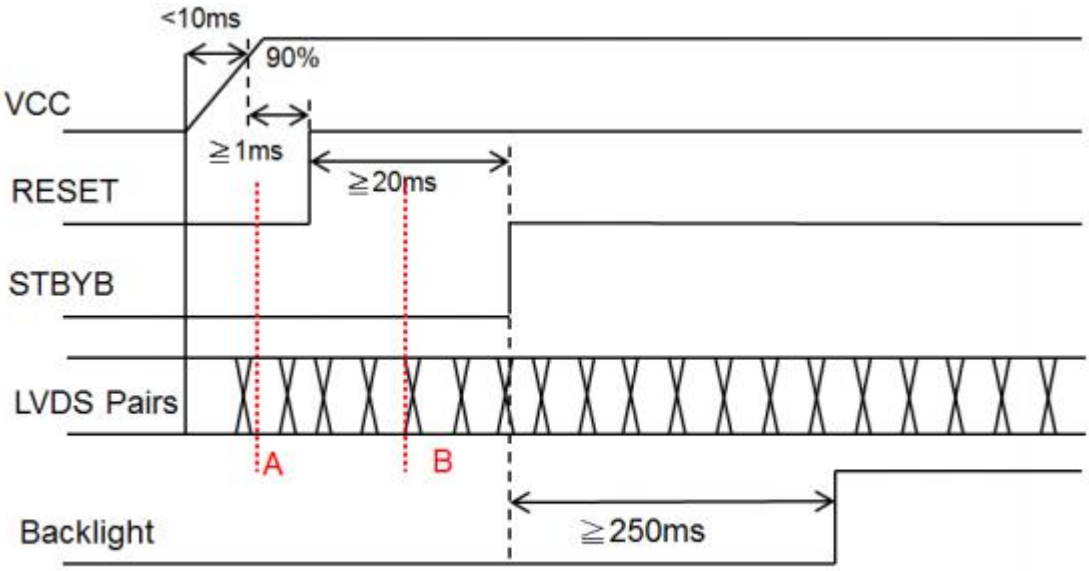
8. External system porch setting

Interface Timing (DE mode) Two Port LVDS Timing.(1920xRGBx1080)					
Item	Symbol	Min.	Typ.	M	
Frame Rate	FR	55	60	65	Hz
Vertical Display Time	T_{vd}		1080		H
Vertical pulse width	T_{vpw}	1	3	20	H
Vertical back porch	T_{vbp}	2	24	200	H
Vertical front porch	T_{vfp}	5	8	200	H
Frame Period	T_v	1087	1112	1404	H
Horizontal Display Time	T_{hd}		960		DCLK
Horizontal pulse width	T_{hpw}	10	12	200	DCLK
Horizontal back porch	T_{hbp}	5	16	200	DCLK
Horizontal front porch	T_{hfp}	24	26	200	DCLK
1 Horizontal line	T_v	989	1012	1248	DCLK
Clock Rate	F_{DCLK}	64.5	66.9	80	MHz

9. Power on/off Sequence

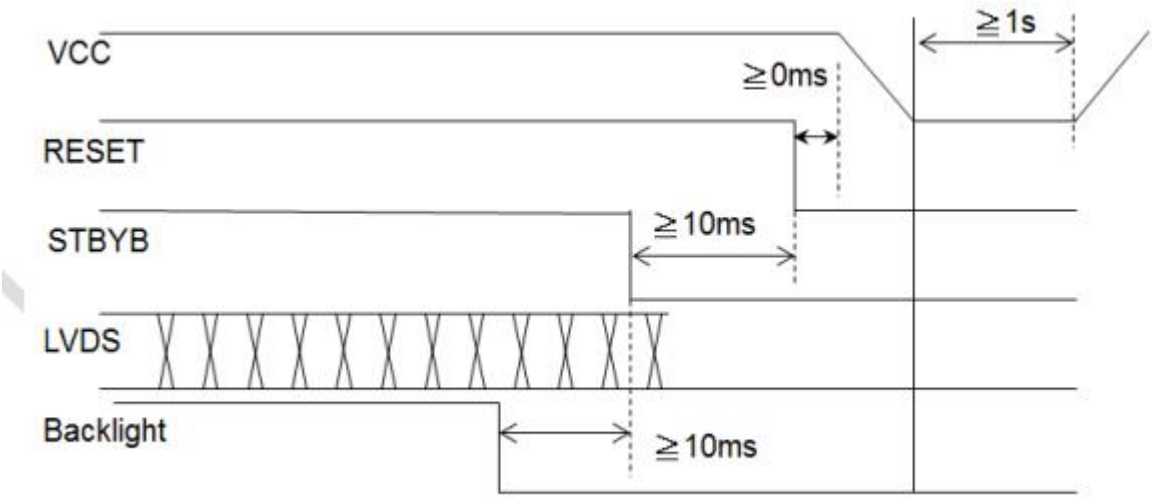
In order to power on/off correnctly , please follow the following recommended power on/off sequence.

Power On Sequence



The Application system can apply LVDS signal from point A, or B.

Power Off Sequence



10. Optical Characteristics

Item	Symbol		Condition	Min.	Typ.	Max.	Unit	Note
Brightness	Bp		θ=0° Φ=0°	600	650	-	Cd/m²	1
Uniformity	⊿Bp			75	80	-	%	1,2
Viewing Angle	Horizontal	L	Cr≥10		85		Deg	3
		R			85			
	Vertical	U			85			
		D			85			
Contrast Ratio	Cr		θ=0° Φ=0°	1200	1400		-	4
Response Time	$T_r + T_f$			-	25	35	ms	5
Color of CIE Coordinate	W	x	θ=0° Φ=0°	(0.305±0.03,0.323±0.03)			-	1,6
		y					-	
	R	x		(0.654±0.03,0.319±0.03)			-	
		y					-	
	G	x		(0.259±0.02,0.574±0.02)			-	
		y					-	
	B	x		(0.140±0.03,0.084±0.03)			-	
		y					-	
NTSC Ratio	S			-	70	-	%	

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 PR-705 (Φ8mm)

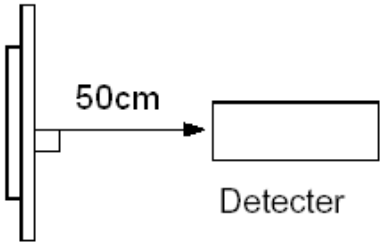
Measuring condition:

① Measuring surroundings: Dark room.

② Measuring temperature: Ta=25℃.

③ Adjust operating voltage to get optimum contrast at the center of the display.

Measured value at the center point of LCD panel after more than 5 minutes while backlight turning on.

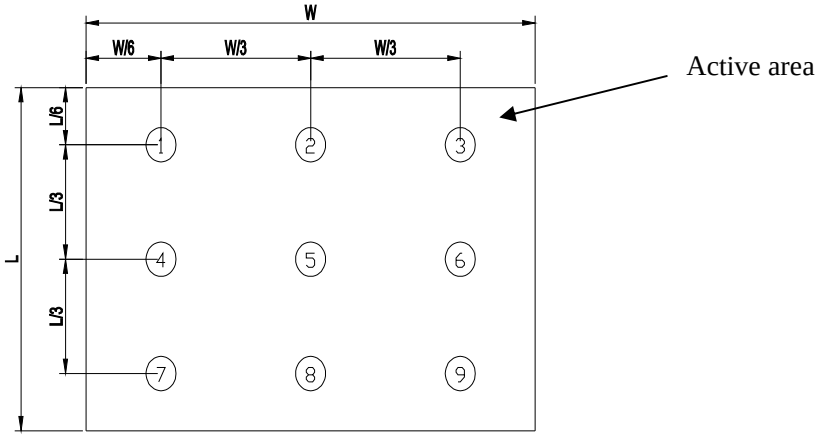


Note 2: The luminance uniformity is calculated by using following formula.

⊿Bp = Bp (Min.) / Bp (Max.)×100 (%)

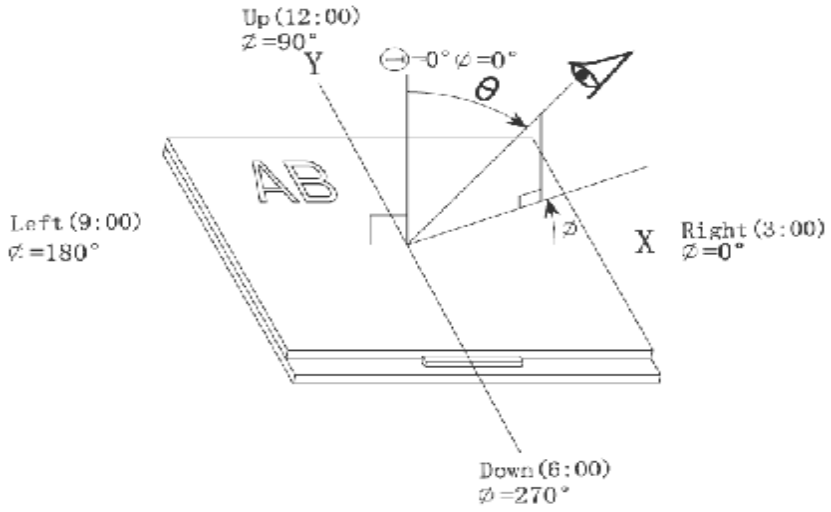
Bp (Max.) = Maximum brightness in 9 measured spots

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

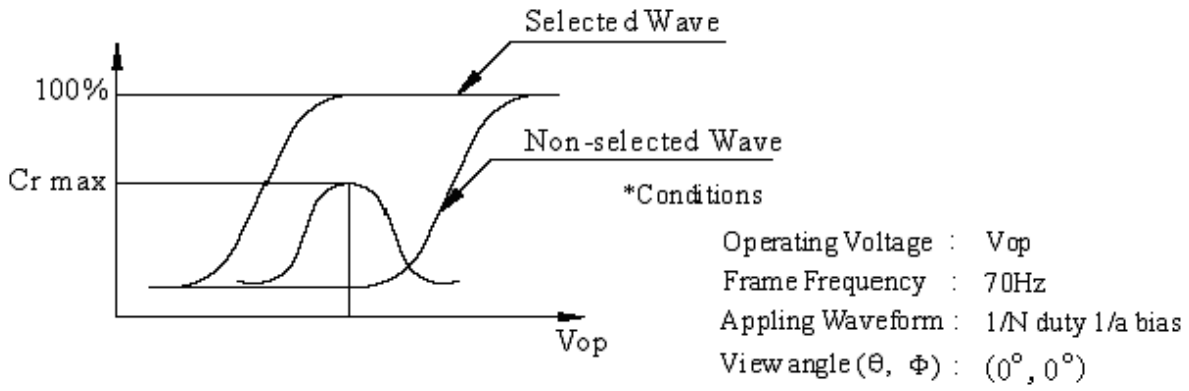


Note 3: The definition of viewing angle:

Refer to the graph below marked by *θ* and *Φ*



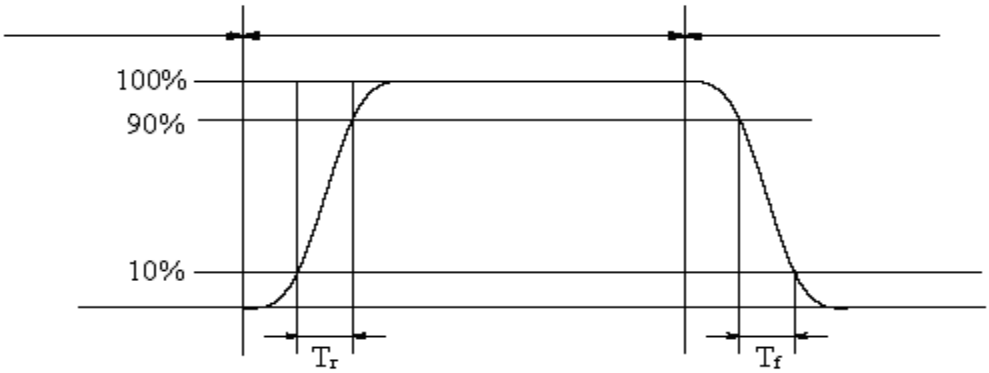
Note 4: Definition of contrast ratio.(Test LCD using DMS501)



$$Contrast\ ratio(Cr) = \frac{Brightness\ of\ selected\ dots}{Brightness\ of\ non-selected\ dots}$$

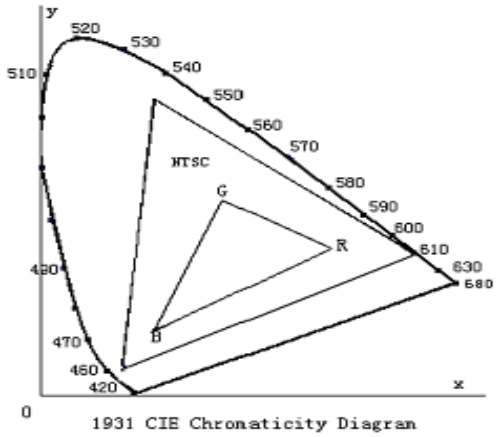
Note 5: Definition of Response time. (Test LCD using DMS501):

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



The definition of response time

Note 6: Definition of Color of CIE Coordinate and NTSC Ratio.



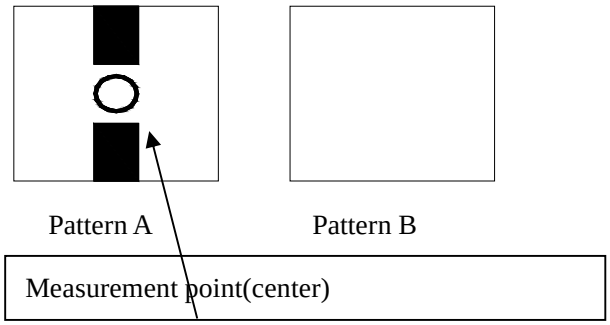
1931 CIE Chromaticity Diagram

Color gamut:

$$S = \frac{\text{area of RGB triangle}}{\text{area of NTSC triangle}} \times 100\%$$

Note 7: Definition of cross talk.

Cross talk ratio(%)=|pattern A Brightness-pattern B Brightness|/pattern A Brightness*100



Electric volume value=3F+/-3Hex

10. Reliability Test Items and Criteria

No	Test Item	Test condition	Criterion
1	High Temperature Storage	80℃±2℃ 96H Restore 2H at 25℃ Power off	1. After testing, cosmetic and electrical defects should not happen. 2. Total current consumption should not be more than twice of initial value.
2	Low Temperature Storage	-30℃±2℃ 96H Restore 2H at 25℃ Power off	
3	High Temperature Operation	70℃±2℃ 96H Restore 2H at 25℃ Power on	
4	Low Temperature Operation	-20℃±2℃ 96H Restore 4H at 25℃ Power on	

5	High Temperature/Humidity Operation	70℃±2℃ 90%RH 96H Power on	
6	Temperature Cycle	-20℃←——→70℃ after 5 cycle, Restore 2H at 25℃ 30min 5min 30min Power off	
7	Vibration Test	10Hz~150Hz, 100m/s^2, 120min	Not allowed cosmetic and electrical defects.
8	Shock Test	Half- sine wave,300m/s^2,11ms	
9	ESD Test	Air discharge:+/-8KV, Contact discharge:4KV	

Note: Operation: Supply 3.3V for logic system.

The inspection terms after reliability test, as below

ITEM	Inspection
Contrast	CR>50%
IDD	IDD<200%
Brightness	Brightness>60%
Color Tone	Color Tone+/-0,05