华田信科电子有限公司

HTDISPLAY ELECTRONICS CO.,LTD.

The professional LCD manufacturer

www.htdisplay.com

SPECIFICATIONS

Product Name: LCD Module

Model PartNumber: HS00B37-NR62N-VA

Revision: R00 Date: 2025.5.21

Prepared By:	Reviewed By:	Approved By:
ZJL	JYQ	HK

Customer: _____

Customer Approved Result: _____ □ OK □ NG _____

Customer Confirmed Message: _____

_____

Approved By: _____ Date: _____

Contents

Record of History

The following table tracks the history of the changes made to this document.

Release Date	Rev.	Summary	Design
20250521	R00	初版	ZJL

1. Technology Specifications

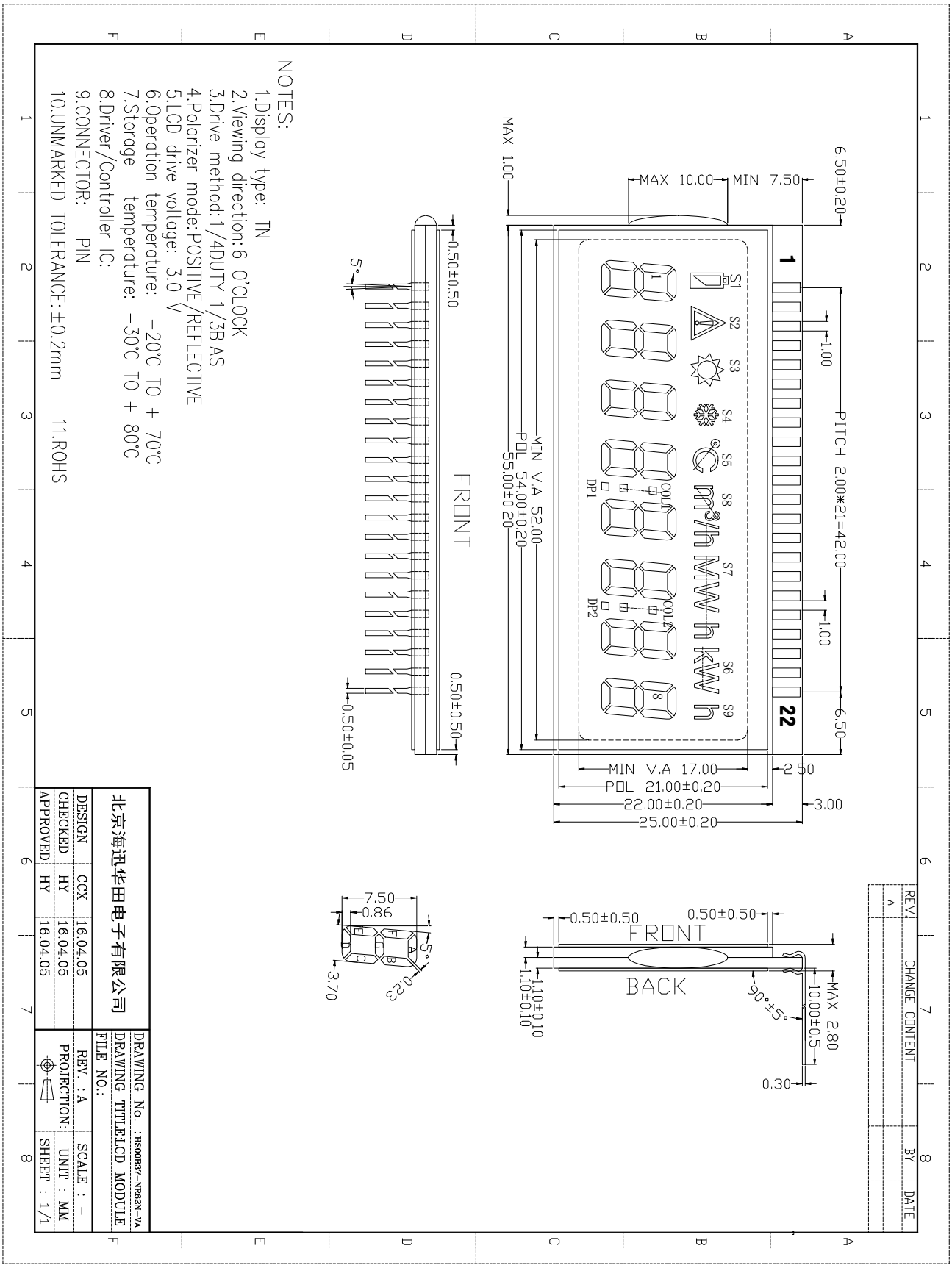
1.1 Features

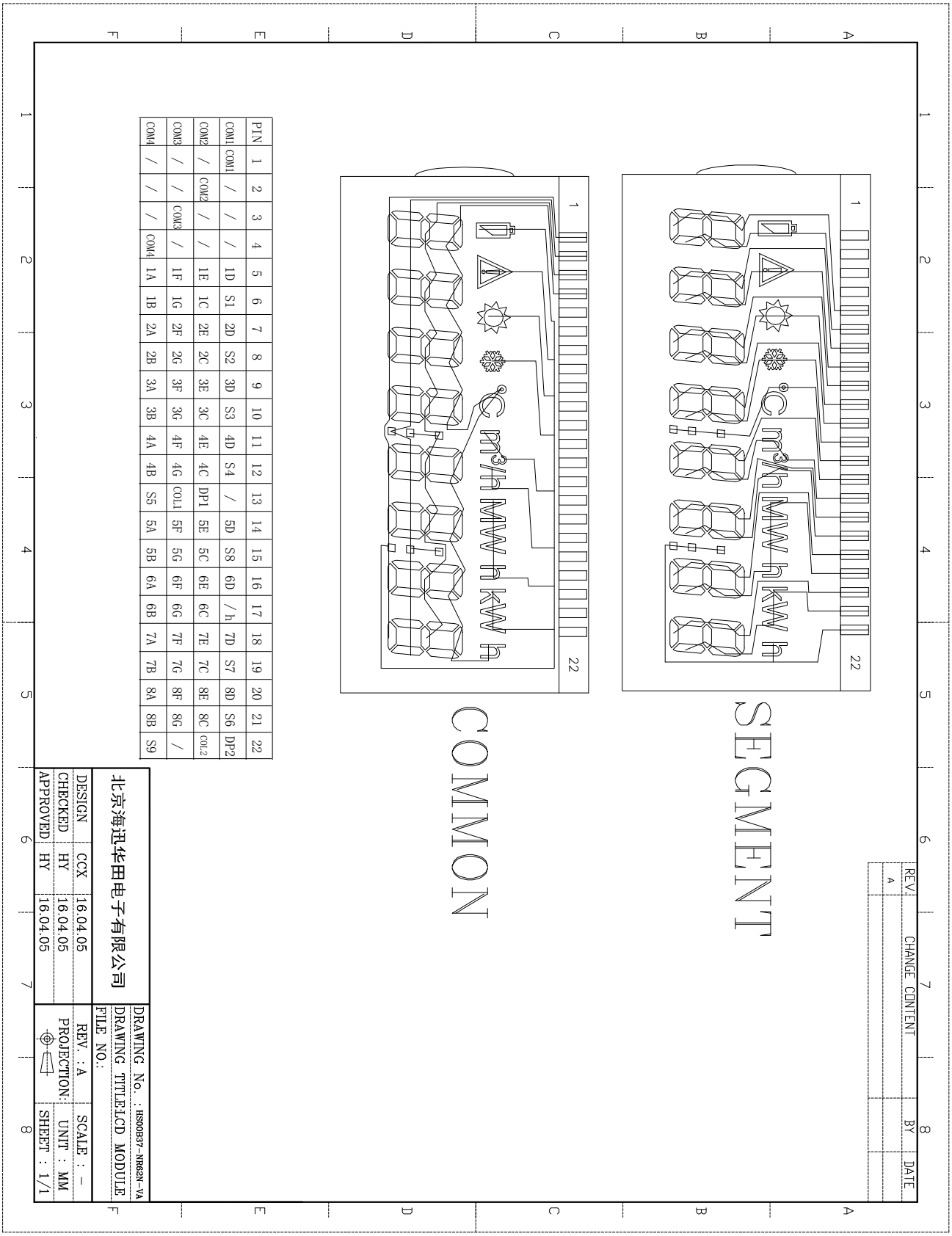
S/N	ITEM		SPEC
1	Display Format	:	22 pattern（18SEG*4COM）
2	Display Mode	:	TN,Positive
3	Polarizer Mode	:	Reflective
4	Driving Method	:	1/4Duty, 1/3Bias, Vop 3.0V
5	Viewing Direction	:	6:00
6	Backlight	:	without
7	Controller	:	without
8	Interface	:	——
9	Weight	:	——

1.2 Mechanical Specifications

Item	Description	Unit
Dimensional Outline	55.00(L) ×25.00(W) ×2.8MAX(T)	mm
Viewing Area	52.00(L) ×17.00(W)	mm
PIN Pitch	2.00	mm
PIN Length	10.0±0.5	mm
Number of PIN	22	mm

1.3 Dimensional Outline





PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
COM1	COM1	/	/	1D	S1	2D	S2	3D	S3	4D	S4	/	5D	S8	6D	/ h	7D	S7	8D	S6	DP2	
COM2	/	COM2	/	1E	1C	2E	2C	3E	3C	4E	4C	DP1	5E	5C	6E	6C	7E	7C	8E	8C	COL2	
COM3	/	/	COM3	/	1F	1G	2F	2G	3F	3G	4F	4G	COL1	5F	5G	6F	6G	7F	7G	8F	8G	/
COM4	/	/	/	COM4	1A	1B	2A	2B	3A	3B	4A	4B	S5	5A	5B	6A	6B	7A	7B	8A	8B	S9

2、Absolute Maximum Ratings

Item	MIN	TPY	Max.	Unit	Remark
Operating Temperature	-20	---	+70	℃	
Storage Temperature	-30	---	+80	℃	
AC voltage	----	----	10	V	1hr
DC voltage	----	----	5	V	1hr
Tolerable DC component	----	0	50	mV	
Tolerable atmospheric pressure	86	----	106	kPa	
Tolerable vibration	----	0	50	m/s^2	

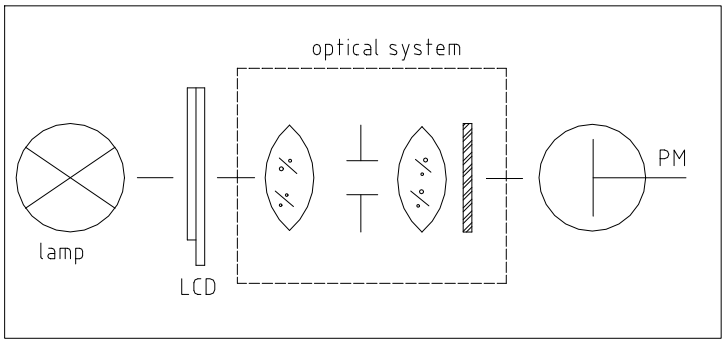
3、Electrical Characteristics

ITEM 项目	SYMBOL 符号	CONDITION 条件	MIN 最小值	TYP 平均值	MAX 最大值	UNIT 单位	Remark	Note
Operating Voltage	Vop	-20℃	3.0	3.2	3.4	V		(1)
		25℃	2.8	3.0	3.2			
		70℃	2.6	2.8	3.0			
V_{th}	V_{th1}	0°C	---	---	---	V	θ =10°	(2)
		25°C	---	1	--			
		50°C	---	---	--			
	V_{th2}	0°C	---	---	---		θ =40°	
		25°C	--	1.73	---			
		50°C	---	---	---			
Response Time	Rise time	-20°C	---	---	---	ms	Vop= 3.0V	(3)
		25°C	23	40	55			
		70°C	---	---	---			
	Decay time	-20°C	---	---	---			
		25°C	20	37	60			
		70°C	---	---	---			
Current consumption (all seg on)	I_{op}	25°C	---	---	3	μA /㎠		(4)
Contrast ratio	C_r	25°C	---	4	---	---		(5)
Frame frequency	f		32	64	128	Hz		(1)
Capacitance (all seg)	C	25°C	---	---	2.0	nF/㎠		(6)
Viewing angle $C_r \geq 2$	θ	25°C	0	---	40	Deg	Φ=180°	(7)
	θ	25°C	0	---	5	Deg	Φ=0°	
	θ	25°C	0	---	30	Deg	Φ=270°	
	θ	25°C	0	---	30	Deg	Φ=90°	

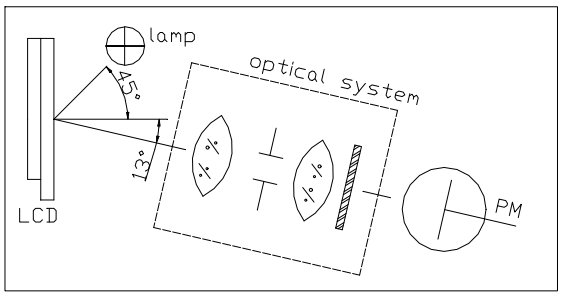
Panel only characteristics

Measurement condition: temperature 25°C humidity 40~60%

Illustration of the Electro-optical Specifications measuring system



Transmissive mode measuring system



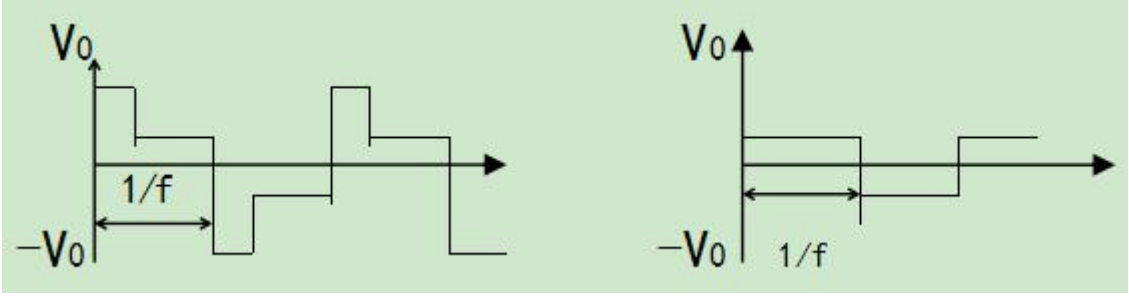
Reflective mode measuring system

Notes:

(1) Definition of operating voltage and frequency

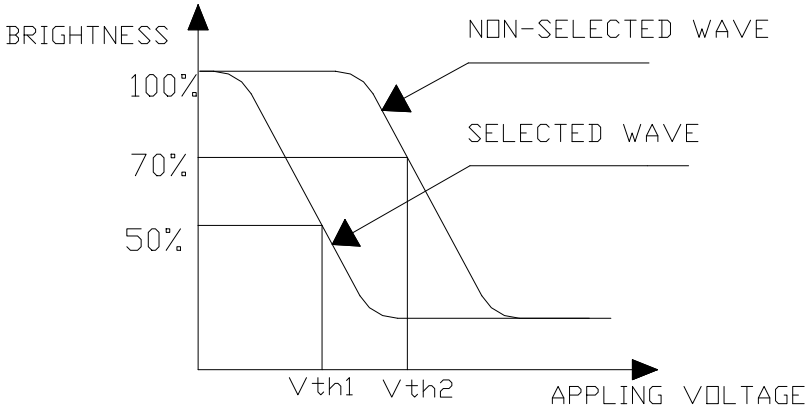
Example : 1/4Duty, 1/3Bias

Vop: Operating voltage



F :Operating frequency

(2)Definition of Vth



(a) V_{th1}

Measurement condition:

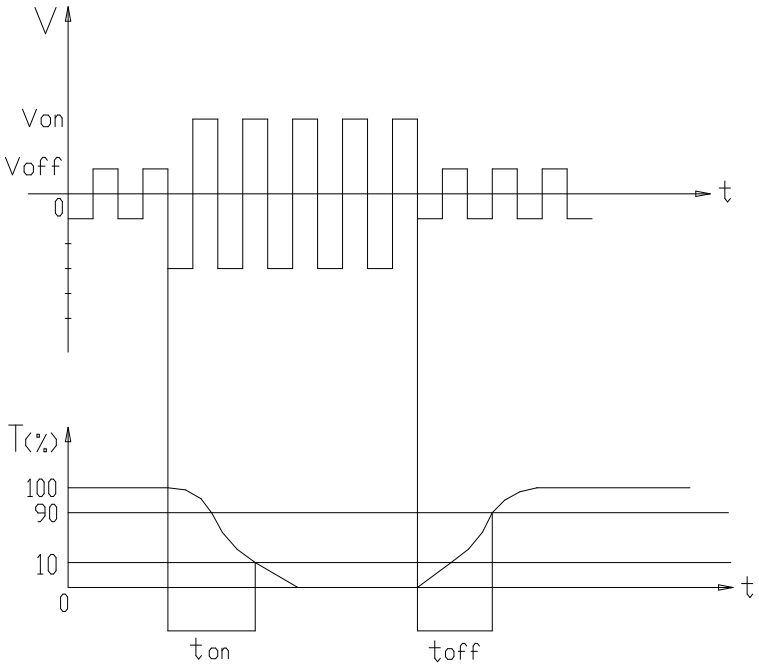
1. Measurement temp: Ref 4.electro-optical characteristics.
2. Operating frequency: 64Hz
3. Appling wave form :1/N duty 1/B bias SELECTED WAVE FORM
4. Brightness:50% Value.

(b) V_{th2}

Measurement condition:

1. Measurement temp: Ref 4.electro-optical characteristics.
2. Operating frequency: 64Hz
3. Appling wave form :1/N duty 1/B bias NON-SELECTED WAVE FORM
4. Brightness:70% Value.

(3) Definition of response time



Measurement conditions:

1. Measurement temperature : 25 °C ±1°C
2. Operating voltage: typical value individual standard
3. Operating frequency: typical value individual standard

(4)Definition of current consumption

Io = Ion - Ioff Ion : all Seg on I off : all seg off

Measurement conditions:

1. Operating voltage : Vo
2. Measurement temp : 25°C±1°C
3. Operating frequency : 32 Hz ,static drive square wave

(5) Definition of contrast ratio

$$\text{Contrast ratio} = \left(\frac{\text{Brightness on non-selected segment}}{\text{Brightness on selected segment}} \right)^{n}$$

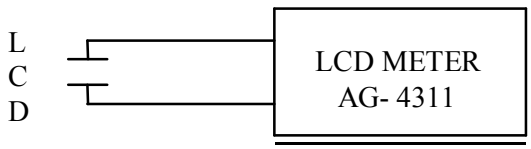
n = 1 : positive

n = -1: negative

Measurement conditions:

1. Measurement temp. : 25°C ± 1°C
2. Operating voltage: Vo
3. Operating frequency: typical value individual standard

(6) Scheme of capacitance measurement

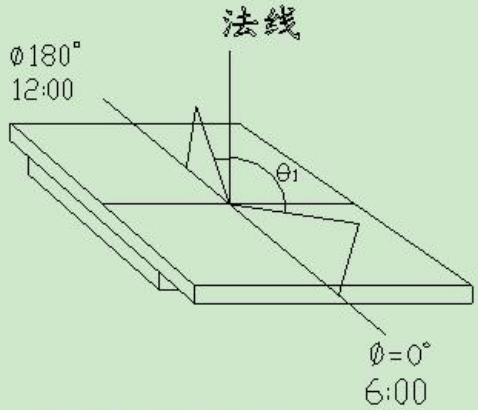


Measurement conditions:

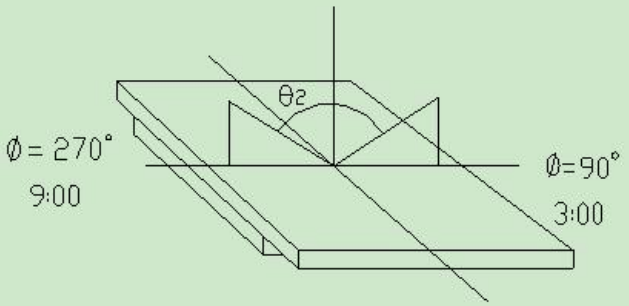
1. Measurement temp : 25°C ± 1°C
2. Waveform: Sinus wave (120Hz)
3. Operating voltage : 0.2 v

(7)Definition of viewing angle

视角范围θ	条件	典型值
上下视角θ1	ϕ=0°和 180°	45°
左右视角θ2	ϕ=90°和 270°	60°



上下视角范围 θ_1



左右视角范围 θ_2

20°

4. Reliability tests

4.1 Reliability tests

Test item	Conditions	Period	Sampling method
High storage temperature	80℃	240h	See Remarks
*High operating temperature	70℃	240h	
Low storage temperature	-30℃	240h	
*Low operating temperature	-20℃	240h	
High temperature high humidity (with polarizer)	60°C/90%RH	240h	
Thermal cycles	-30°C/30min, 25°C/10sec, 80°C/30min	10 cycles	

* These test items will be done if required by customer

Every test items shall meet the following criteria. Judgement should be made only after the LCD is exposed to room temperature for 4 hours.

Criteria of judgement:

(1) All segments shall be usually displayed

(2) All segments should not be blurred

(3) Current consumption should not exceed the double of its original value

4.2 Active length of life :

Longer than 50,000 hours at room temperature without direct irradiation of sun light ,no obvious inferior affection to the function,efficiency and appearance.

5、Precautions For use of LCD Module

5.1 Handling Precautions

LCD modules are assembled and adjusted with a high degree of precision, do not applying excessive shocks to it or making any alterations or modifications to it, the following precautions should be taken when handing.

— The display panel is made of glass. Do not subject it to a mechanical shock by dropping it from a high place, etc.

— If the display panel is damaged and the liquid crystal substance inside it leaks out, be sure not to get any in your mouth. If the substance comes into contact with your skin or clothes, promptly wash it off using soap and water.

— Do not apply excessive force on the surface of display or the adjoining areas of LCD module since this may cause the color tone to VAy.

— If the display surface of LCD module becomes contaminated, blow on the surface and gently wipe it with a soft dry cloth. If it is heavily contaminated, moisten cloth with one of the following solvents.

·Isopropyl alcohol

·Ethyl alcohol

Solvents other than those mentioned above may damage the polarizer. Especially, do not use the following:

·Water

·Ketone

·Aromatic Solvents

— The polarizer covering the display surface of the LCD module is soft and easily scratched. Handle this polarizer carefully.

— To minimize the performance degradation of the LCD modules resulting from destruction caused by static electricity, etc., exercise care to avoid touching the following sections when handling the module:

·Terminal electrode sections.

·Part of pattern wiring on TAB, etc.

5.2 Electro-Static Discharge Control

— The IC mounted on the LCD is very susceptible to static electricity. To protect them from static electricity which your body and clothing collect, connect your body to the ground via a resistor of some 1MΩ so that electricity should discharge connect the resistor close to your body in the grounding line and protect yourself from electric shock hazard.

— Module should be store in antistatic bag or other containers resistant to static after remove from its original package.

— The LCD modules use CMOS LSI drivers, so customers are recommend that any unused input terminal would be connected to VDD or VSS, do not input any signals before power is turned on, and ground your body, work/assembly areas, assembly equipment to protect against static electricity.

— In order to reduce the generation of static electricity, a relative humidity of 50-60% is recommended.

— The LCD module is coated with a film to protect the display surface. Take care when peeling off this protective film since static electricity may be charged.
— Tools required for assembly, such as soldering irons, must be properly grounded.

5.3 Design Precautions

— The absolute maximum ratings represent the rated value beyond which LCD module can not exceed. When the LCD modules are used in excess of this rated value, their operating characteristics may be adversely affected.
— To prevent the occurrence of erroneous operation caused by noise, attention must be paid to satisfy VIL, VIH specification values, including taking the precaution of using signal cables that are short.
— The liquid crystal display exhibits temperature dependency characteristics. Since recognition of the display becomes difficult when the LCD is used outside its designated operating temperature range, be sure to use the LCD within this range. Also, keep in mind that the LCD driving voltage levels necessary for clear displays will VAy according to temperature.
— Sufficiently notice the mutual noise interference occurred by peripheral devices.
— To cope with EMI, take measures basically on outputting side.
— If DC is impressed on the liquid crystal display panel, display definition is rapidly deteriorated by the electrochemical reaction that occurs inside the liquid crystal display panel. To eliminate the opportunity of DC impressing, be sure to maintain the AC characteristics of the input signals sent to the LCD Module.

5.4 Soldering Precautions

Soldering should apply to I/O terminals only.
— Soldering temperature is 280℃+(-)10℃.
— Soldering time 3-4 seconds.
— Eutectic solder (rosin flux filled) should be used.
— Only properly grounded soldering iron should be used.
— If soldering flux is used, be sure to remove any remaining flux after finishing the soldering operation and LCD surface should be covered during soldering to prevent any damage to flux spatters.
— When remove the lead wires from the I/O terminals, use proper de-soldering methods, e.g. suction type de-soldering irons. Do not repeat wiring by soldering more than three times at the pads and plated though holes may be damaged.

5.5 Operational Precautions

— Do not remove the panel or frame from the liquid crystal display module.
— Power supplies should always be turned on before the independent input signal sources turned on, and input signals should be turned off before power supplies turned off.
— The IC would break down if the driving voltage exceeds the limit. Make sure of electrical specifications, particularly the supply voltage.

— It is an indispensable condition to drive LCD's within the specified voltage limit since the higher voltage than the limit causes the shorter LCD life. The use of direct current drive should be avoided because an electrochemical reaction due to direct current causes LCD's undesirable deterioration.

— Some font will be abnormally displayed when the display area is pushed hard during operation. But It resumes normal condition after turning off once.

— The response of the display is slow when the ambient temperature is below the lower limit, and the display surface appears dark everywhere when the ambient temperature is above the upper limit, in any case, id does not mean failure. It operates properly in the normal operating temperature range.

— The contrast of the liquid crystal display VAies with the viewing angle, ambient temperature, and driving voltage. Adjust the driving voltage for the best contrast by installing external VAiable switch.

— If the LCD modules have been operating for a long time showing the same display patterns, the display patterns may remain on the screen as ghost images and a slight contrast irregularity may also appear. A normal operating status can be regained by suspending use for some time. It should be noted that this phenomenon does not adversely affect performance reliability.

— Condensation on terminals can cause an electrochemical reaction disrupting the terminal circuit. To reduce the amount of static electricity generated, do not conduct assembly and other work under dry conditions. Therefore it must be used under the relative condition of 50% RH.

5.6 Storage Precautions

— Take care to minimize corrosion of the electrodes. Water droplets or a current flow in a high humidity environment accelerates corrosion of the electrodes.

— When storing the LCD module, avoid exposure to direct sunlight or to the light of fluorescent lamps. Keep the LCD module in sealed polyethylene bags designed to prevent static electricity charging under low temperature / normal humidity conditions (avoid high temperature / high humidity and low temperature below 0). The temperature range of 0℃~ -30℃ and at low humidity is recommended.

Whenever possible, the LCD module should be stored in the same conditions in which they were shipped from our company.

6. Quality Specification

6.1 Acceptable Quality Level

Inspection items	Sampling procedures	AQL
Function Display Function Photoelectric property	GB/T2828.1-2003 Inspection level Ⅱ Normal inspection Single sample inspection	0.1
Structure size	GB/T2828.1-2003 Inspection level Ⅱ Normal inspection Single sample inspection	0.1
Appearance	GB/T2828.1-2003 Inspection level Ⅱ Normal inspection Single sample inspection	0.65

6.2 Inspection Conditions

6.2.1 The Environmental

-Room temperature: 25±3 ºC

-Humidity: 50±20%RH

6.3 Inspection Standards

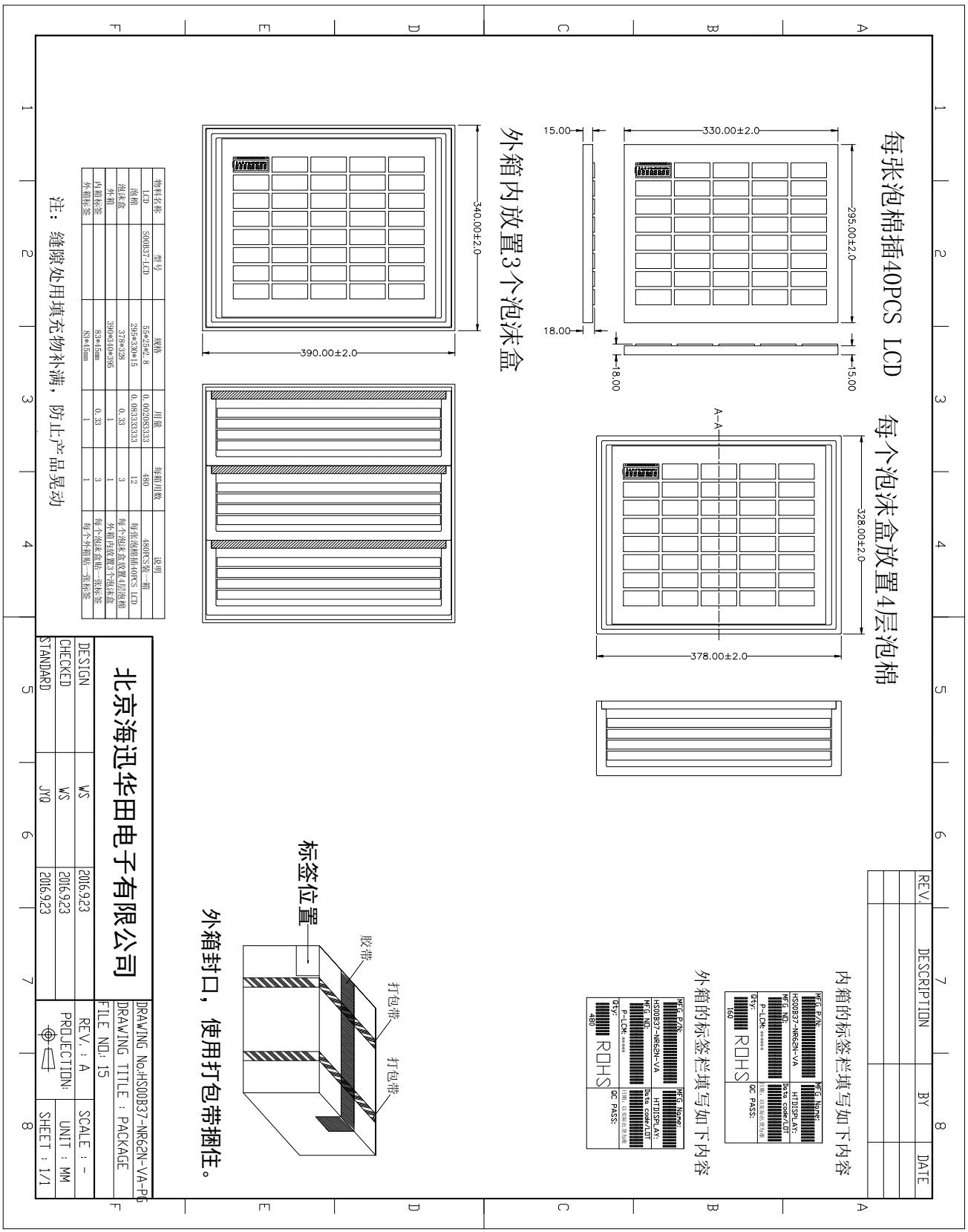
6.3.1 VISUAL WHILE OPERATING

Items to be inspected	Inspection standard
No display	If any pattern is not active at all, they can be rejected.
Irregular operating	No irregular operating are allowed Appeared different display, which they should be chosen in the pattern, or appeared in different position where they should be chosen.
Irregular display	Any segment doesn't active, they can be rejected.
Over current	The total current required to activate the module should not be exceed the MAX current in specification.
View angles	Valves that don't meet the minimum value noted in the specification. they can be rejected.
Contrast	Valves that don't meet the minimum value noted in the specification, they can be reject.
.LCD operate voltage	Meet the specification.

6.3.2 Visual while not operating

Module dimension	Meet the module outline drawing, not exceed the tolerance.
LCD panel scratch	Following scratches inside the effective viewing area considered as the defects when their width & length are larger than the following combinations. Number: one or more Width: 0.1 length: 3.0 three or more Width: 0.05 length: 2.0 three or more Width: 0.03 length: 3.0 When the defects exceed this, it can be rejected.

7. Packing information



物料名称	型号	规格	用量	每箱用数	说明
LCD	S00B37-LCD	55*25*2.8	0.0020833333	480	480PCS装一箱
泡棉		295*330*1.5	0.0833333333	12	每张泡棉插40PCS LCD
泡沫盒		378*328	0.33	3	每个泡沫盒放置4层泡棉
外箱		390*340*395	1	1	外箱内放置3个泡沫盒
内箱标签		83*45mm	1	3	每个泡沫盒贴一张标签
外箱标签		83*45mm	1	1	每个外箱贴一张标签