

Hunan Huayuan display technology CO.,LTD

GH209-47M01

TN DOTS LCD MODULE

SPECIFICATION

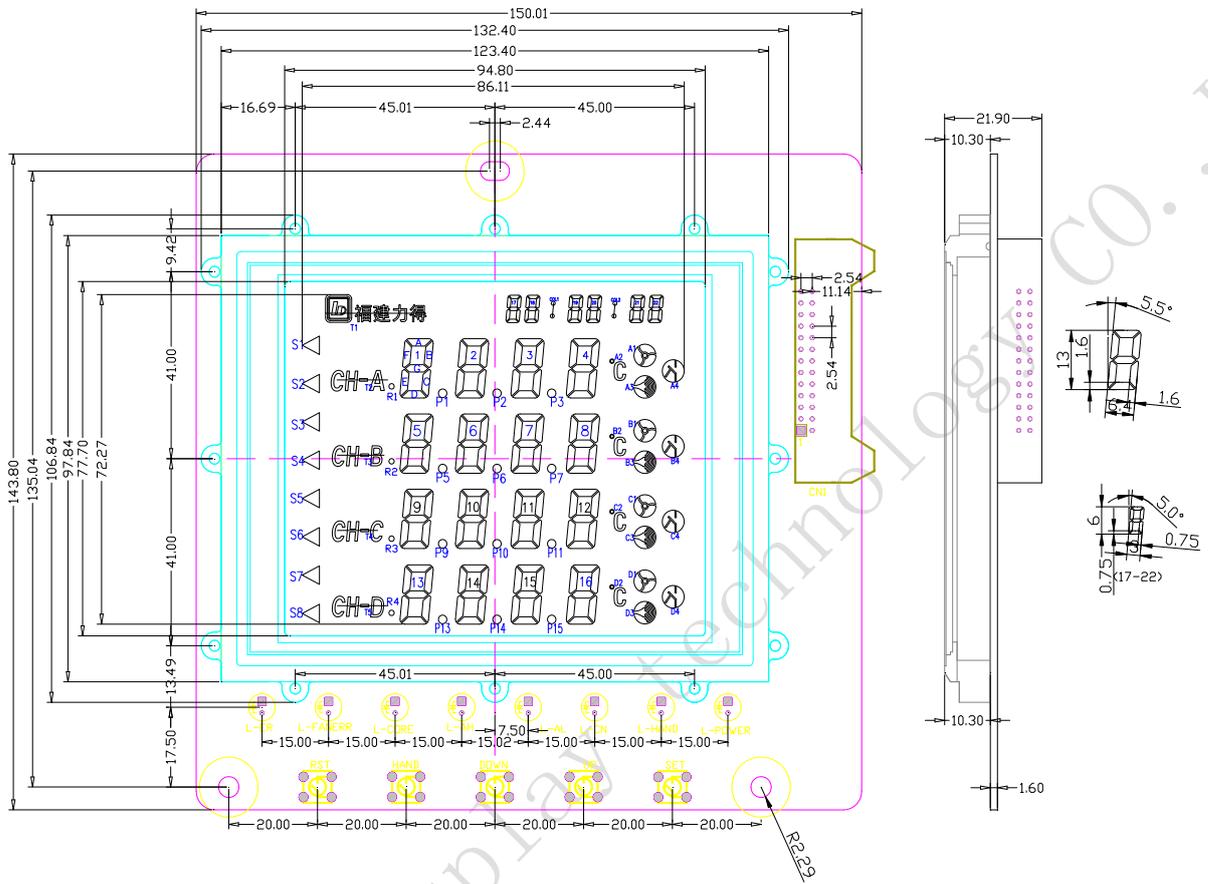
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1、 GENERAL SPECIFICATIONS

Screen size: 4.7"(Diagonal)
Display color: Display color: black Background color: Green
Type: TN-positive-transflective anti-uv
Viewangle direction:6'clock
Driver mode: 1/8 DUTY 1/4BIAS
Backlight:LED(White)
Controller IC: HT1622
Active area:90.0 x 76.00mm
Outline dimension:150.0 x 143.8 x13.0mm Max

2、 EXTERNAL DIMENSIONS





PIN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	60	61	62	63
COM1	S1	T1	1F	1A	2F	2A	3F	3A	4F	4A	17F	17A	18F	18A	19F	19A	20F	20A	21F	21A	22F	22A	A1	B1	8A	8F	7A	7F	6A	6F	5A	5F				COM1
COM2	S2		1G	1B	2G	2B	3G	3B	4G	4B	17G	17B	18G	18B	19G	19B	20G	20B	21G	21B	22G	22B	A2	B2	8B	8G	7B	7G	6B	6G	5B	5G				COM2
COM3	S3		1E	1C	2E	2C	3E	3C	4E	4C	17E	17C	18E	18C	19E	19C	20E	20C	21E	21C	22E	22C	A3	B3	8C	8E	7C	7E	6C	6E	5C	5E				COM3
COM4	S4		T2	1D	P1	2D	P2	3D	P3	4D		17D		18D	COL1	19D		20D	COL2	21D		22D	A4	B4	8D	P7	7D	P6	6D	P5	5D	T3	COM4			

PIN	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59
COM1	C1	12A	12F	11A	11F	10A	10F	9A	9F	D1	16A	16F	15A				15E	14A	14F	13A	13F	S5				COM1	
COM2	C2	12B	12G	11B	11G	10B	10G	9B	9G	D2	16B	16G	15B				15G	14B	14G	13B	13G	S6				COM2	
COM3	C3	12C	12E	11C	11E	10C	10E	9C	9E	D3	16C	16E	15C				15E	14C	14E	13C	13E	S7				COM3	
COM4	C4	12D	P11	11D	P10	T0D	P9	9D	T4	D4	16D	P15	15D	R3	R2	R1	R4	P14	14D	P13	13D	T5	S8	COM4			

3、 ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Min	Type	Max	Unit
Supply voltage for logic	$V_{DD}-V_{SS}$	4.8	5.0	5.2	V
Input Voltage	V_{IH}	0.7	-	V_{DD}	
	V_{IL}	0	-	$0.3 V_{DD}$	
Supply Voltage for LED	V_{LED}	-	5.0	5.2	V
Supply Current for LED	I_{LED}	-	40	-	mA

4、 ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Min	Max	Unit	Remark
Supply voltage for logic	$V_{DD}-V_{SS}$	-0.3	7.0	V	
Operating temperature	T_{OP}	-20	+70	°C	

Storage temperature	T _{ST}	-30	+80	(Max)
Humidity	RH :	93%	60	

5、 INTERAFACE DESCRIPTION

CN1

PIN	DESC	Function
1	NC	
2	NC	
3	NC	
4	NC	
5	HandL	
6	FanL	
7	FanErL	
8	AlarmL	
9	TripL	
10	ErL	
11	CoreL	
12	Hand	
13	Set	
14	Up	
15	Down	
16	RST	
17	LCDLight	
18	Disp-CS1	
19	Disp-CS2	
20	Disp-CLK	
21	Disp-DATA	
22	VCC	
23	VCC	
24	VCC	
25	DGND	
26	DGND	

6、 LIQUID CRYSTAL MODULE USE MATTERS NEEDING ATTENTION

1. When using the liquid crystal module you design your product, pay attention to the liquid crystal perspective and uses your consistent.

2. The LCD screen is the glass based, dropping or with a hard object impact will cause cracking or crushing the LCD screen. Especially in the corner.
3. In spite of the polarizer, liquid crystal surface can inhibit the reflective surface, should be careful not to scratch the surface, generally recommend using the protective screen of transparent plastic material in the liquid crystal surface.
4. If the LCD module storage in the following below the required temperature, liquid crystal material condenses and performance deterioration. If the LCD module storage above the specified temperature, molecular crystal orientation will be transformed into liquid, may not be restored to the original state. Beyond the temperature and humidity range, will cause the polarizer peeling or foaming. Therefore, the LCD module should be stored at the specified temperature range.
5. Such as liquid crystal surface in slobber or drop, should immediately erase, avoid long time after induced color changes or leave a stain. The water vapor will cause erosion of ITO electrode
6. If you need to clean the surface of the LCD screen, should use cotton or soft cloth lightly wipe, is still not clear, smooth and then wipe.
7. LCD module driver shall comply with the provisions of the rating index, and avoid the fault and permanent damage. DC voltage applied to the liquid crystal materials, liquid crystal materials will cause rapid deterioration, should ensure the continuous application of M signal to provide AC waveform. Especially, when a power switch shall comply with the order of power supply, avoid driving latch and DC added directly to the LCD screen.
8. Machine Matters needing attention
 - a) The LCD module is arranged on the high precision of the debugging. To avoid the impact of external force, do not modify or change
 - b) Do not tamper with Any prominent part of the metal frame
 - c) Don't punch a hole in PCB or change in shape, do not move or modify elements.
 - d) Don't touch the conductive rubber, especially in the insert backlight board. (such as EL backlight).
 - e) In the installation of the LCD module, ensure that the PCB was not affected by the twisting or bending force force. Conductive rubber contact is very precise, dislocation slightly in the original basis will lead to the missing pixels.
 - f) To avoid pressure on the metal clamping part, otherwise it will lead to the conductive rubber deformation and lost contact, causing the missing pixels.
9. Static electricity: Because the liquid crystal module internal assembly CMOS circuit, must take the following measures to prevent electrostatic
 - a) The operator
 1. Wear anti-static clothing, otherwise the body will produce static electricity.
 2. Any part of the body of the time should not be exposed conductive parts and modules, such as: integrated circuit pin, copper wire PCB, terminal interface part.
 - b) Equipment
 1. The detachment or friction may cause the equipment to generate static electricity, such as personnel, iron, table etc.
 2. the equipment connected to the appropriate resistance (1x10⁸ ohm).
 3. Just only Reasonable grounding soldering iron can use
 4. If the use of electric screwdriver, electric batch should be well grounded and adapter (brush) isolation

5. normally Should be observed overalls, anti static measurement work benches, for work bench, recommend the use of conductive rubber pad
- c) Floor
 1. The floor is the electrostatic equipment and personnel are an important part of the release. May be due to electrostatic floor insulation cannot release. Set the floor to ground (1×10^8 Ohm)
- d) Humidity
 1. Probability of proper humidity can reduce static electricity. General relative humidity should be maintained at more than 50%.
- e) Transportation and storage
 1. Because people and packaging materials may be separated or friction caused by static electricity, packaging materials need antistatic treatment. Module should be stored in anti-static bag or other ESD container.
- f) Welding
 1. Welding of I/O terminal only. Use only the reasonable grounding and no leakage of iron. Low temperature tin wire filled with solder paste.
 2. If the use of flux, should cover the liquid crystal surface, prevent solder spatter. After the removal of flux residues.
 3. The welding temperature: $280^\circ\text{C} + 10^\circ\text{C}$
 4. Welding time: 3-4 seconds.
- g) Other: with the protective film attached to the surface of the liquid crystal screen and to prevent scratches on the surface or pollution, in stripping the protective film, should use the static eliminator. Static eliminator should also be installed in the table, from static to prevent
10. operating
 - 1). The drive voltage should be controlled within a specified range, beyond the range will shorten the service life of the liquid crystal
 - 2). Liquid crystal response time will increase with the decrease of temperature
 - 3). When the temperature is higher than the operating temperature range, the liquid crystal display will turn black or dark blue, which may lead to "break" column. No matter what, do not squeeze the display area
 - 4) Mechanical disturbance during operation (such as in the display region extrusion) may lead to "break" column
11. If the outflow of liquid glass layer damaged, wash thoroughly with soap and water come into contact with the body, although very low toxicity, still need to remind the attention
12. Dismantling the LCD module can cause permanent damage, should be strictly prohibited
13. Liquid crystal with image retention afterglow, in order to avoid image afterglow don't long time display fixed pattern. Image persistence is not liquid crystal deterioration, when the display pattern changes will automatically eliminate
14. Do not use a volatile epoxy resin and silicone adhesives, to prevent the resulting Polaroid color
15. To avoid the liquid crystal module long time exposure to sunlight or ultraviolet irradiation
16. Brightness of the LCD module may be due to the coupling of shunt CCFL lead to the metal shell of the affected. Inverter design should take full account of this part of the leakage. It is necessary to fully assess the LCD module and the inverter is installed in the host apparatus, ensure the requirement of brightness

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