

# Hunan Huayuan display technology CO.,LTD

## **GH1602-2301**

### **STN DOTS LCD MODULE**

### **SPECIFICATION**

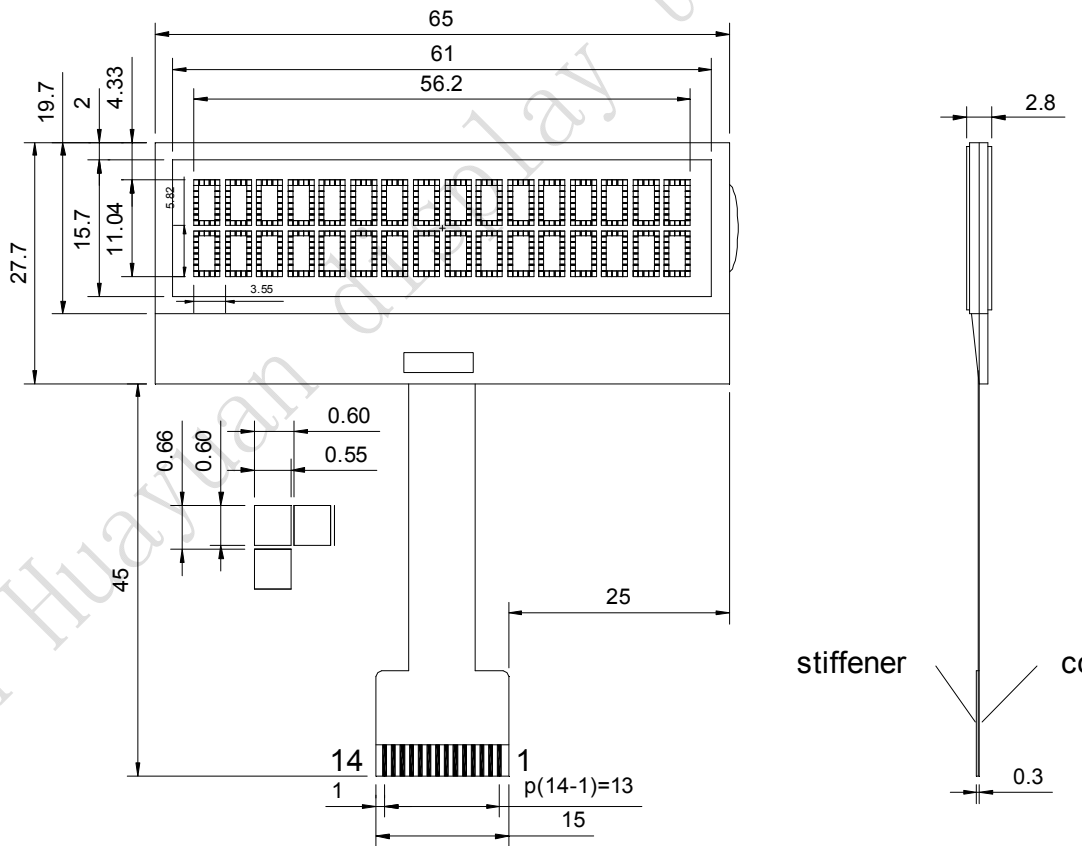
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1、 GENERAL SPECIFICATIONS

Screen size	2.3"(Diagonal)
Display color	Display color: White Background color: Blue
Type	STN
View angle direction	6'clock
Driver mode	1/16 DUTY 1/5 BIAS
Backlight	LED
Controller IC	Nt7605
Data bus	8 bit
Temperature range	Operation: -20 °C ---- +70°C Storage: -30 °C ---- +80°C
Number of Dots	16 x 2
Dot size	0.55 x 0.6mm
Dot pitch	0.6 x 0.66mm
Viewing size	61.0 x 15.7mm
Active area	56.2 x 11.04mm
Outline dimension	65.0 x 27.7 x 2.85mm Max.

2、 EXTERNAL DIMENSIONS



**3、 ELECTRICAL CHARACTERISTICS**

Parameter	Symbol	Min	Type	Max	Unit
Supply voltage for logic	$V_{DD}-V_{SS}$	4.75	5.0	5.25	V
Supply Voltage for LCD Driving	$V_{DD}-V_{ADJ}$	Ta=0	-	-	
		Ta=25	-	4.5	
		Ta=50	-	-	
Input Voltage	$V_{IH}$	2.2	-	$V_{DD}$	
	$V_{IL}$	0	-	0.6	
LCM Operating Current	$I_{DD}$	-	1.2	2.5	mA
Supply Current for LED	$I_{LED}$	-	-	-	
Supply Current for LCD	$I_{EE}$	-	1.0	-	

**4、 ABSOLUTE MAXIMUM RATINGS**

Parameter	Symbol	Min	Max	Unit	Remark
Supply voltage for logic	$V_{DD}-V_{SS}$	-0.3	7	V	
Supply Voltage for LCD Driving	$V_{DD}-V_{ADJ}$	-	10		
Operating temperature	$T_{OP}$	-20	+70	°C	
Storage temperature	$T_{ST}$	-30	+80		

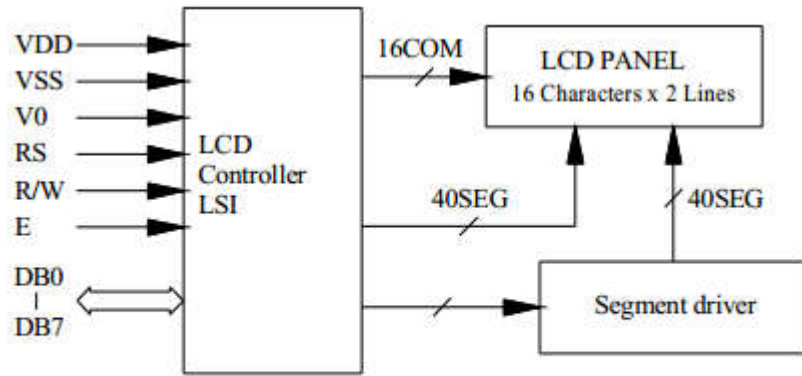
**5、 OPTICAL CHARACTERISTICS**

Item	Symbol	Condition	Typ.	Unit	Remark	
Viewing angle	$\varnothing f$	$C_R \geq 2$	40	Radian	$\varnothing f$	
	$\varnothing b$		30		$\varnothing b$	
	$\varnothing l$		30		$\varnothing l$	
	$\varnothing r$		30		$\varnothing r$	
Response time	$T_R$	$T_A = 25^\circ C$	120	ms		
	$T_F$		130			
Frame Frequency	$F_{RM}$			64	Hz	
Contrast ratio	$C_R$			6.0	-	

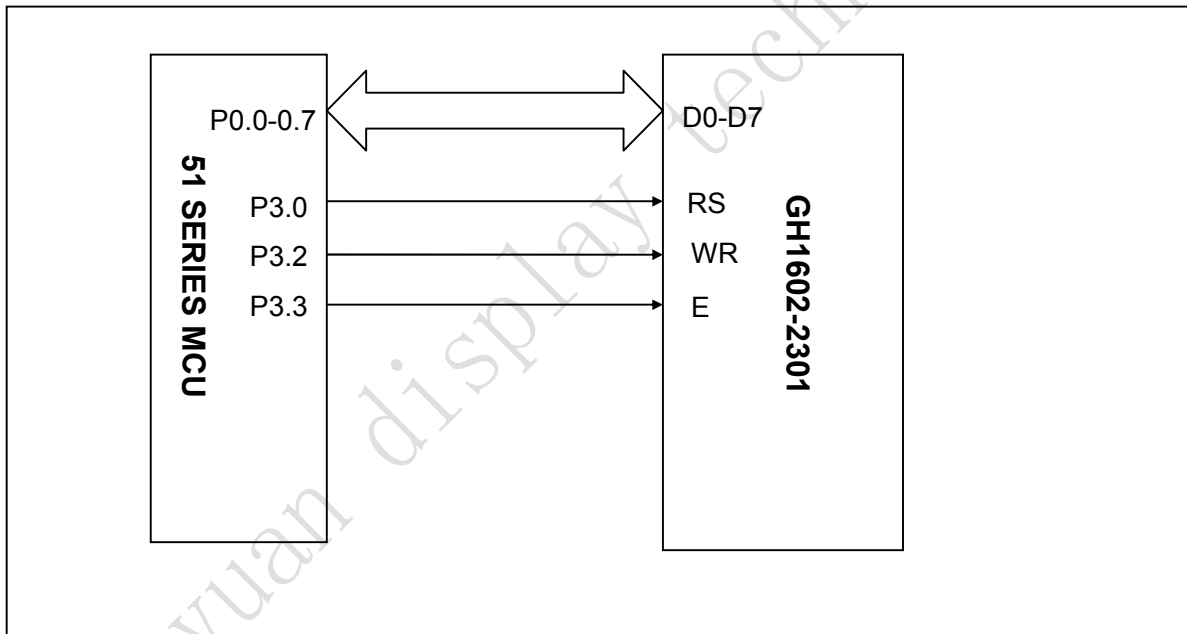
**6、 INTERFACE DESCRIPTION**

PIN	DESC	Function
14-7	D7-D0	Data Bus Line
6	E	Enable Signal
5	R/W	H: Read; L: Write
4	RS	H: Data; L: Instruction Code
3	VDD	Supply Voltage for Logic(+5V)
2	V0	Power supply for LCD
1	VSS	GND(0V)

**7、 BLOCK DIAGRAM**



**8、 APPLICATION EXAMPLES**



**9、 RELIABILITY TEST**

NO	Test Project	Test Condition	Remark
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1	High temperature	70°C ± 2°C 24H	After testing, the appearance and electrical performance deficiencies should not happen.
2	Low temperature	-20°C ± 2°C 24H	
3	High temperature and humidity test	40°C ± 5°C × 90%RH/24H	
4	Hot and cool shock test	-10°C ± 2 → 25°C → 70°C ± 2 (30min) (5min) (30min) 10 cycles	
5	Vibration test	10Hz-50Hz-10Hz Amplitude 1.5mm X、Y、Z each 3H	

**Remark:**

1. Above test number is 2 piece.
2. Do moistureproof test, should use the pure water (10M Ω resistor ").
3. individual products caused by electrostatic discharge failure damage, if the products will be reset after the restore to the normal state as a good use.
- When the panel protective film LCM, Tear down the labels slowly (more than a second recommendation).
- 4 Please use the automatic switching menu (or scroll) test mode, test mode of operation.
- 5 Suggestions Use the menu to adjust the contrast model.