



**WINSTAR Display Co.,Ltd.**  
**華凌光電股份有限公司**

## SPECIFICATION

**MODULE NO.: WG12232M**

### General Specification

Item	Dimension	Unit
Number of dots	122 x 32	—
Module dimension	65.4 x 28.2 x 6.8 (MAX)	mm
View area	54.8 x 19.0	mm
Active area	48.76 x 15.32	mm
Dot size	0.36 x 0.41	mm
Dot pitch	0.40 x 0.45	mm
Duty	1/32	
Backlight Type	LED	
IC	ST7920	
Interface	6800	

# Absolute Maximum Ratings

Item	Symbol	Min	Typ	Max	Unit
Operating Temperature	$T_{OP}$	-20	—	+70	°C
Storage Temperature	$T_{ST}$	-30	—	+80	°C
Input Voltage	$V_{IN}$	-0.3	—	$V_{DD}+0.3$	V
Supply Voltage For Logic	$V_{DD}-V_{SS}$	-0.3	—	5.5	V
LCD Driver Voltage	$V_{LCD}$	-0.3	—	7.0	V

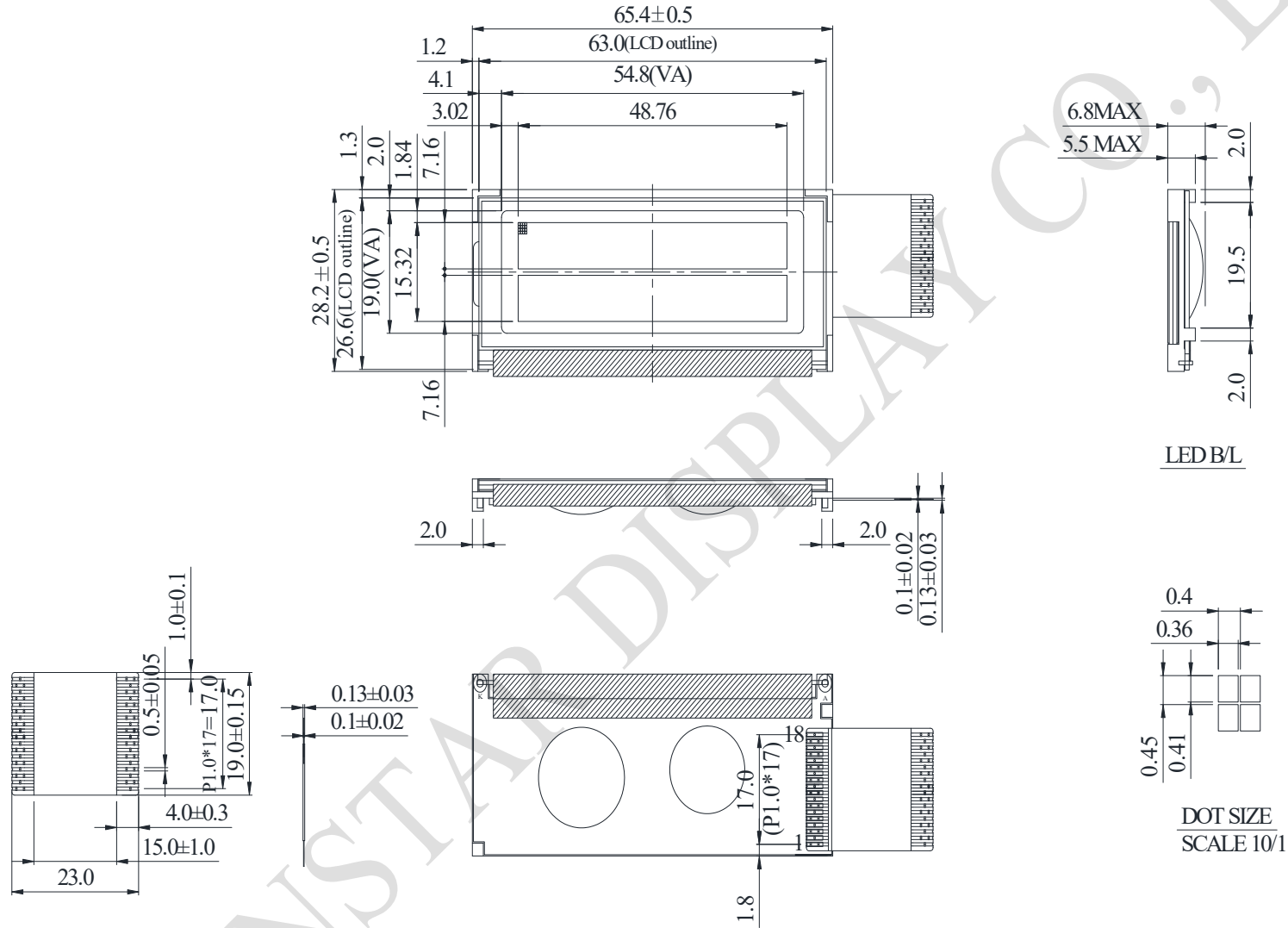
# Electrical Characteristics

Item	Symbol	Condition	Min	Typ	Max	Unit
Supply Voltage For Logic	$V_{DD}-V_{SS}$	—	4.5	5.0	5.5	V
Supply Voltage For LCD	$V_0-V_{SS}$	$T_a=-20^{\circ}C$	—	—	5.3	V
		$T_a=25^{\circ}C$	4.6	4.75	4.9	V
		$T_a=+70^{\circ}C$	4.2	—	—	V
Input High Volt.	$V_{IH}$	—	$0.7V_{DD}$	—	$V_{DD}$	V
Input Low Volt.	$V_{IL}$	—	-0.3	—	0.6	V
Output High Volt.	$V_{OH}$	—	$0.8 V_{DD}$	—	$V_{DD}$	V
Output Low Volt.	$V_{OL}$	—	—	—	0.4	V
Supply Current	$I_{DD}$	$V_{DD}=5.0V$	0.8	1.0	1.2	mA

# Interface Pin Function

Pin No.	Symbol	Level	Description
1	Vdd	5V	Power supply for logic
2	Vss	0V	Ground
3	Vo	(Variable)	Positive operating voltage for LCD
4	/RES	H/L	H→L Reset the LCM;
5	E	H/L	Enable signal;
6	Vout	—	Positive voltage output
7	R/W	H/L	Enable signal;
8	RS	H/L	Data/ Instruction
9	DB0	H/L	Data bus
10	DB1	H/L	Data bus
11	DB2	H/L	Data bus
12	DB3	H/L	Data bus
13	DB4	H/L	Data bus
14	DB5	H/L	Data bus
15	DB6	H/L	Data bus
16	DB7	H/L	Data bus
17	NC	—	No connection
18	NC	—	No connection

# Contour Drawing



PIN NO.	SYMBOL
1	Vdd
2	Vss
3	Vo
4	RES
5	E
6	Vout
7	R/W
8	RS
9	DB0
10	DB1
11	DB2
12	DB3
13	DB4
14	DB5
15	DB6
16	DB7
17	NC
18	NC

DOT SIZE  
SCALE 10/1

The non-specified tolerance of dimension is  $\pm 0.3$  mm.