



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

## SPECIFICATION

**MODULE NO.: WG12864E1**

### General Specification

Item	Dimension	Unit
Number of dots	128 x 64	—
Module dimension	55.0 x 50.0 x 10.0 (MAX)	mm
View area	43.5 x 29.0	mm
Active area	40.92 x 26.92	mm
Dot size	0.28 x 0.35	mm
Dot pitch	0.32 x 0.39	mm
Duty	1/64	
Backlight Type	LED	
IC	NT7107,NT7108	
Interface	68 series	

# Absolute Maximum Ratings

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

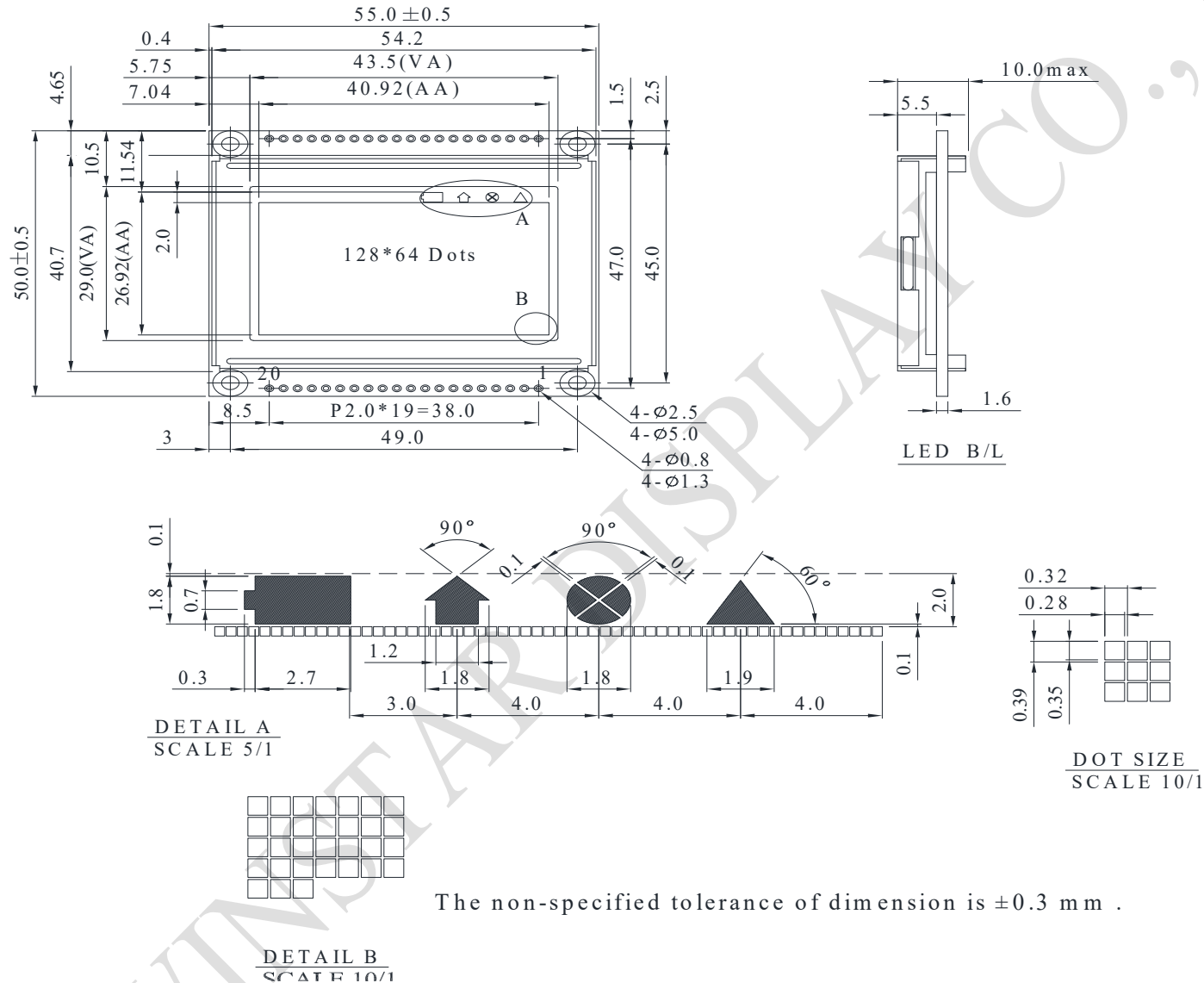
# Electrical Characteristics

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	$V_{DD}-V_O$	$T_a=-20^{\circ}C$	—	—	9.8	V
		$T_a=25^{\circ}C$	8.4	8.6	8.8	V
*Note		$T_a=70^{\circ}C$	7.0	—	—	V
Input High Volt.	$V_{IH}$	—	$0.7 V_{DD}$	—	$V_{DD}$	V
Input Low Volt.	$V_{IL}$	—	0	—	0.8	V
Output High Volt.	$V_{OH}$	—	2.4	—	—	V
Output Low Volt.	$V_{OL}$	—	—	—	0.4	V
Supply Current	$I_{DD}$	$V_{DD}=5.0V$	1.0	1.2	1.5	mA

# Interface Pin Function

Pin No.	Symbol	Level	Description
1	V <sub>ss</sub>	0V	Ground
2	V <sub>dd</sub>	5.0V	Supply voltage for logic
3	V <sub>O</sub>	(Variable)	Operating voltage for LCD
4	D/I	H/L	H: Data , L: Instruction
5	$\overline{R}/W$	H/L	H: Read(MPU←Module) , L :Write(MPU→Module)
6	E	H	Enable signal
7	DB0	H/L	Data bus line
8	DB1	H/L	Data bus line
9	DB2	H/L	Data bus line
10	DB3	H/L	Data bus line
11	DB4	H/L	Data bus line
12	DB5	H/L	Data bus line
13	DB6	H/L	Data bus line
14	DB7	H/L	Data bus line
15	CS1	H	Chip Enable (Select Column 1 ~ Column 64)
16	CS2	H	Chip Enable (Select Column 65 ~ Column 128)
17	$\overline{RST}$	L	Reset signal
18	V <sub>EE</sub>		Negative Voltage output
19	A	—	Power supply for B/L(+)
20	K	—	Power supply for B/L(-)

# Contour Drawing & Block Diagram



PIN NO.	SYMBOL
1	V <sub>ss</sub>
2	V <sub>dd</sub>
3	V <sub>o</sub>
4	D/I
5	R/ $\bar{W}$
6	E
7	DB0
8	DB1
9	DB2
10	DB3
11	DB4
12	DB5
13	DB6
14	DB7
15	CS1
16	CS2
17	$\bar{RST}$
18	V <sub>ee</sub>
19	A
20	K