



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

## SPECIFICATION

**MODULE NO.: WG12232K**

### General Specification

Item	Dimension	Unit
Number of dots	122 x 32	—
Module dimension	59.0 x 32.1 x 5.5 (MAX)	mm
View area	52.0 x 15.0	mm
Active area	45.72 x 11.97	mm
Dot size	0.345 x 0.345	mm
Dot pitch	0.375 x 0.375	mm
Duty	1/32	
Backlight Type	LED	
IC	SBN1661G	
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	$V_I$	-0.3	—	$V_{DD}+0.3$	V
Supply Voltage For Logic	$V_{DD}-V_{SS}$	-0.3	—	+6.0	V
LCD bias voltage	$V_{LCD}$	3.5	—	13	V

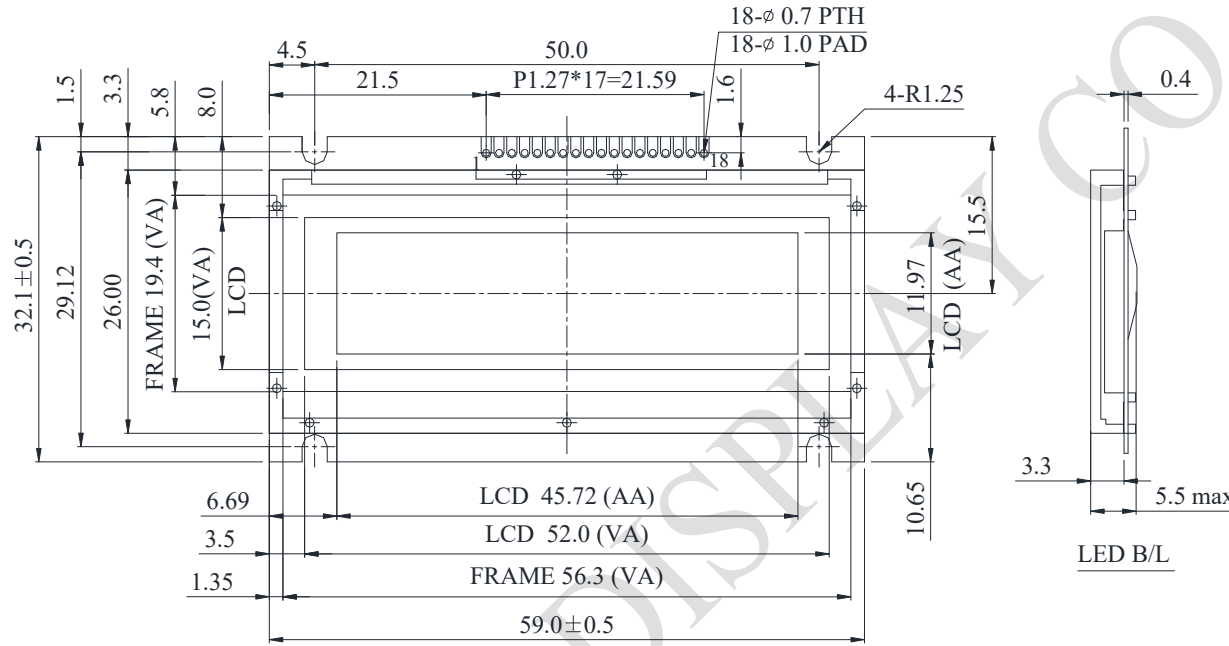
# Electrical Characteristics

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	$V_{DD}-V_0$	$T_a=-20^{\circ}C$	—	—	5.5	V
		$T_a=25^{\circ}C$	4.6	4.7	4.8	V
		$T_a=+70^{\circ}C$	3.6	—	—	V
Input High Vol	$V_{IH}$	$V_{DD}=5.0V$	3.0	5.0	$V_{DD}+0.5$	V
Input Low Vol	$V_{IL}$	—	0	0.7	1.1	V
Output High Vol	$V_{OH}$	—	$V_{DD}-0.3$	—	$V_{DD}$	V
Output Low Vol.	$V_{OL}$	—	0	—	0.3	V
Supply Current	$I_{DD}$	—	—	0.7	—	mA

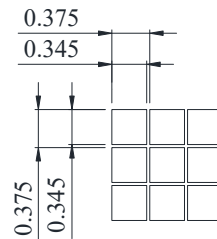
# Interface Pin Function

Pin No.	Symbol	Level	Description
1	VLED		Supply voltage for LED -
2	VSS	0V	Ground
3	VDD		Supply voltage for logic
4	Vo	(Variable)	Operating voltage for LCD
5	A0	H/L	H : Data L : Instruction
6	E1	H/L	Chip select signal for IC1 ,active “ H “
7	E2	H/L	Chip select signal for IC2 , active “ H “
8	DB0	H/L	Data bus
9	DB1	H/L	Data bus
10	DB2	H/L	Data bus
11	DB3	H/L	Data bus
12	DB4	H/L	Data bus
13	DB5	H/L	Data bus
14	DB6	H/L	Data bus
15	DB7	H/L	Data bus
16	R/W	H/L	H : Read ; L : Write
17	Vee		Negative voltage output
18	NC		No connection

# Contour Drawing



PIN NO.	SYMBOL
1	VLED
2	VSS
3	VDD
4	VO
5	AO
6	E1
7	E2
8	DB0
9	DB1
10	DB2
11	DB3
12	DB4
13	DB5
14	DB6
15	DB7
16	R/W
17	Vee
18	NC



DOT SIZE  
SCALE 15/1

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