LCD / LCM SPECIFICATION

WINSTAR Display Co.,Ltd.

華凌光電股份有限公司

SPECIFICATION

MODULE NO.: WG20232A

General Specification

Item	Dimension	Unit
Number of Characters	202 x 32	—
Module dimension	146.0 x 43.0 x 13.7(MAX)	mm
View area	123.0 x 23.0	mm
Active area	119.16 x 18.86	mm
Dot size	0.57 x 0.57	mm
Dot pitch	0.59x 0.59	mm
Duty	1/32	
Backlight Type	LED	
IC	SBN1661G-M18	
Interface	6800	

Absolute Maximum Ratings

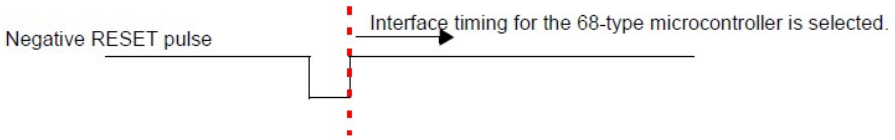
Item	Symbol	Min	Typ	Max	Unit
Operating Temperature	T_{OP}	-20	—	+70	℃
Storage Temperature	T_{ST}	-30	—	+80	℃
Input Voltage	V_I	-0.3	—	V_{DD}+0.3	V
Supply Voltage For Logic	V_{DD}-V_{SS}	-0.3	—	+6.0	V
LCD bias voltage	V_{LCD}	3.5	—	13	V

Electrical Characteristics

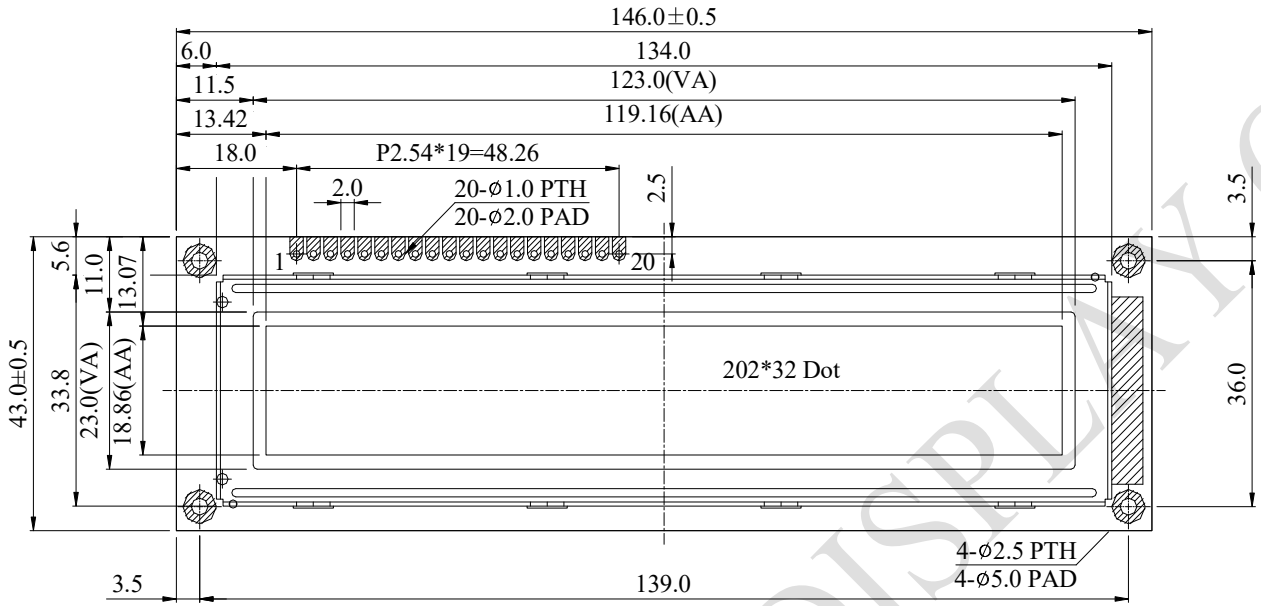
Item	Symbol	Condition	Min	Typ	Max	Unit
Supply Voltage For Logic	V_{DD}-V_{SS}	—	4.5	5.0	5.5	V
Supply Voltage For LCD	V_{DD}-V_0	Ta=-20℃	—	—	—	V
		Ta=25℃	4.8	5.0	5.2	V
		Ta=+70℃	—	—	—	V
Input High Volt.	V_{IH}	V_{DD} =5.0V	3.0	5.0	V_{DD}+0.5	V
Input Low Volt.	V_{IL}	—	0	0.7	1.1	V
Output High Volt.	V_{OH}	—	V_{DD}-0.3	—	V_{DD}	V
Output Low Volt.	V_{OL}	—	0	—	0.3	V
Supply Current	I_{DD}	V_{DD}=5.0V	—	10.0	—	mA

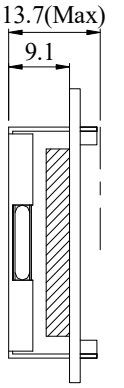
Interface Pin Function

Pin No.	Symbol	Level	Description
1	VSS	0V	Ground
2	VDD	5.0V	Power Supply
3	VO	(Variable)	Operating voltage for LCD
4	A0	H/L	H : Data L : Instruction
5	R/W	H/L	Read/Write (R/W) signal for the 68-type microcontroller 68-type microcotroller is selected as the host microcontroller, this pin should be connected to the R/W output of the microcontroller. A HIGH level on this pin indicates that the microcontroller intends to read from the SBN1661G_X series. A LOW level on this pin indicates that the microcontroller intends to write to the SBN1661G_X series.
6	CS1	H/L	Enable signal (E) for the 68-type microcontroller. 68-type microcotroller is selected as the host microcontroller, this pin should be connected to the ENABLE output of the microcontroller. A HIGH level on this pin indicates that the microcontroller intends to select the SBN1661G_X series.
7	DB0	H/L	Bi-direction, tri-state 8-bit parallel data bus for interface with a host microcontroller. This data bus is for data transfer between the host microcontroller and the SBN1661G_X.
8	DB1	H/L	Bi-direction, tri-state 8-bit parallel data bus for interface with a host microcontroller.
9	DB2	H/L	This data bus is for data transfer between the host microcontroller and the SBN1661G_X.
10	DB3	H/L	Bi-direction, tri-state 8-bit parallel data bus for interface with a host microcontroller.
11	DB4	H/L	This data bus is for data transfer between the host microcontroller and the SBN1661G_X.
12	DB5	H/L	Bi-direction, tri-state 8-bit parallel data bus for interface with a host microcontroller.
13	DB6	H/L	This data bus is for data transfer between the host microcontroller and the SBN1661G_X.
14	DB7	H/L	Bi-direction, tri-state 8-bit parallel data bus for interface with a host microcontroller.
15	VEE	-	Negative Voltage Output
16	RES	H/L	Hardware RESET and interface type selection.

			This pin is a dual function pin. It can be used to reset the SBN1661G_X and select the type of interface timing.  RESET pulse interface timing selection
17	A	—	Power Supply for LED backlight (+)
18	K	—	Power Supply for LED backlight (-)
19	CS2	H/L	Enable signal (E) for the 68-type microcontroller. 68-type microcotroller is selected as the host microcontroller, this pin should be connected to the ENABLE output of the microcontroller. A HIGH level on this pin indicates that the microcontroller intends to select the SBN1661G_X series.
20	CS3	H/L	Enable signal (E) for the 68-type microcontroller. If a 68-type microcotroller is selected as the host microcontroller, this pin should be connected to the ENABLE output of the microcontroller. A HIGH level on this pin indicates that the microcontroller intends to select the SBN1661G_X series.

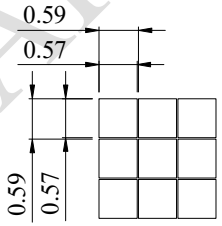
Contour Drawing





LED B/L

PIN NO.	SYMBOL
1	Vss
2	Vdd
3	Vo
4	A0
5	R/$\overline{W}$
6	CS1
7	DB0
8	DB1
9	DB2
10	DB3
11	DB4
12	DB5
13	DB6
14	DB7
15	Vee
16	$\overline{RES}$
17	A
18	K
19	CS2
20	CS3



DOT SIZE
SCALE 10/1

The non-specified tolerance of dimension is ±0.3mm.