RAYSTAR

RAYSTAR Optronics, Inc.
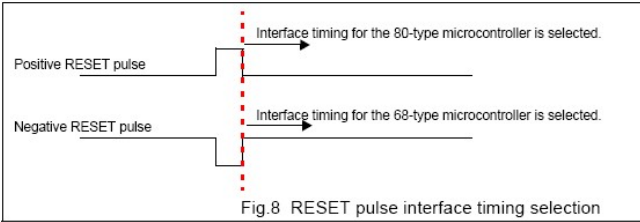曜凌光電股份有限公司

RG20232A

General Specification

The Features is described as follow:

- 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

- Number of dots: 202 x 32

- Dot size: 0.57 x 0.57 mm

- Dot pitch: 0.59x 0.59 mm

- Duty: 1/32

- Backlight Type: LED

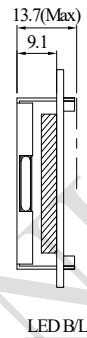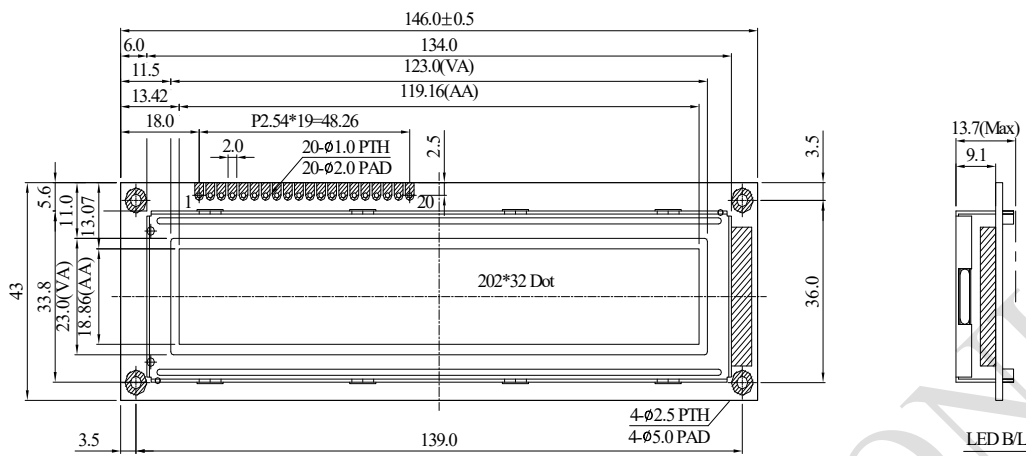- IC: SBN1661G

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, or WRITE(WR) signal for the 80-type microcontroller. If a 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. If a 80-type microcontroller is selected as the host microcontroller, this pin should be connected to the WR output of the microcontroller. 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, or READ (RD) signal for the 80-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. If a 80-type microcontroller is selected as the host microcontroller, this pin should be connected to the RD output of the microcontroller. A LOW level on this pin indicates that the microcontroller intends to read from 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. The hardware RESET is edge-sensitive. It is not level-sensitive. That is, either a falling edge or a rising edge on this pin can reset the chip. The voltage level after the reset pulse selects the type of interface timing. If the voltage level after the reset pulse stays at HIGH, interface timing for the 68-type microcontroller is selected. If the voltage level after the reset pulse stays at LOW, then interface timing for the 80-type microcontroller is selected. Therefore, a positive RESET pulse selects the 80-type microcontroller for interface and a negative RESET pulse selects the 68-type microcontroller for interface. The following diagram illustrates the reset pulse and the selected type of microcontroller. Fig.8 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, or READ (RD) signal for the 80-type microcontroller. If a 68-type micrcotroller 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.

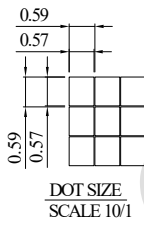|			
			If a 80-type microcontroller is selected as the host microcontroller, this pin should be connected to the RD output of the microcontroller. A LOW level on this pin indicates that the microcontroller intends to read from the SBN1661G_X series..
20	CS3	H/L	Enable signal (E) for the 68-type microcontroller, or READ (RD) signal for the 80-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. If a 80-type microcontroller is selected as the host microcontroller, this pin should be connected to the RD output of the microcontroller. A LOW level on this pin indicates that the microcontroller intends to read from the SBN1661G_X series.

Contour Drawing

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

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

202*32 Dot

146.0±0.5
134.0
123.0(VA)
119.16(AA)
13.42
11.5
6.0
18.0
P2.54*19=48.26
20-ϕ1.0 PTH
20-ϕ2.0 PAD
2.0
2.5
3.5
13.7(Max)
9.1
36.0
5.6
11.0
13.07
43
33.8
23.0(VA)
18.86(AA)
3.5
139.0
4-ϕ2.5 PTH
4-ϕ5.0 PAD
LED B/L

0.59
0.57
0.59
0.57

DOT SIZE
SCALE 10/1

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