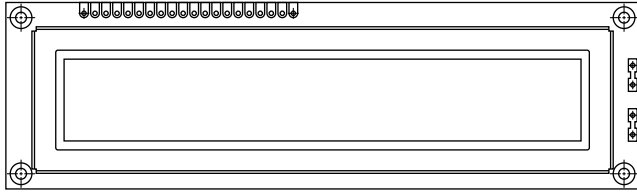


## 202 x 32 Graphic LCD



### FEATURES

- Type: Graphic
- Display format: 202 x 32 dots
- Built-in controller: Avant (SBN1661G) or equivalent
- Duty cycle: 1/32
- Built-in oscilation
- + 2.85 V to + 5 V power supply
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT

MECHANICAL DATA		
ITEM	STANDARD VALUE	UNIT
Module Dimension	146.0 x 43.0	mm
Viewing Area	123.0 x 23.0	
Dot Size	0.57 x 0.57	
Dot Pitch	0.59 x 0.59	
Mounting Hole	139.0 x 36.0	
Character Size	N/a	

ABSOLUTE MAXIMUM RATINGS					
ITEM	SYMBOL	STANDARD VALUE			UNIT
		MIN.	TYP.	MAX.	
Power Supply	$V_{DD}$ to $V_{SS}$	- 0.3	-	8.0	V
Input Voltage	$V_I$	- 0.3	-	$V_{DD}$	

**Note**

- $V_{SS} = 0\text{ V}$ ,  $V_{DD} = 5.0\text{ V}$

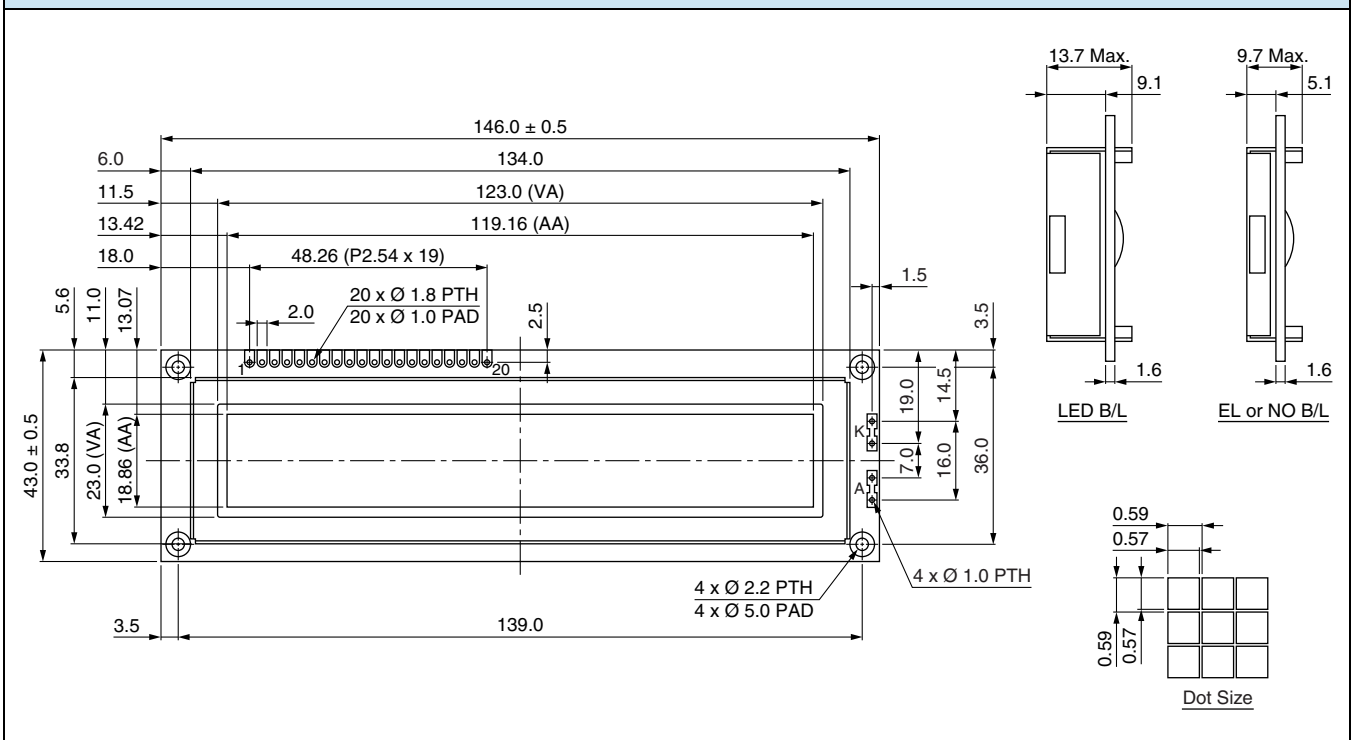
ELECTRICAL CHARACTERISTICS						
ITEM	SYMBOL	CONDITION	STANDARD VALUE			UNIT
			MIN.	TYP.	MAX.	
Input Voltage	$V_{DD}$	$V_{DD} = +3\text{ V} \pm 5\%$	2.7	3.0	3.3	V
Supply Current	$I_{DD}$	$V_{DD} = +3\text{ V}$	-	10	-	mA
Recommended LC Driving Voltage for Normal Temperature Version Module	$V_{DD}$ to $V_0$	- 20 °C	5.9	6.2	6.5	V
		0 °C	5.7	6.0	6.3	
		25 °C	4.6	4.7	4.8	
		50 °C	4.3	4.4	4.5	
		70 °C	3.3	3.4	3.5	
LED Forward Voltage	$V_F$	25 °C	1.7	-	2.5	V
LED Forward Current	$I_F$	25 °C	-	-	200	mA
EL Power Supply Current	$I_{EL}$	$V_{EL} = 110\text{ V}_{AC}$ , 400 Hz	-	-	5.0	mA

OPTIONS									
PROCESS COLOR						BACKLIGHT			
TN	STN Gray	STN Yellow	STN Blue	FSTN B&W	STN Color	None	LED	EL	CCFL
	x	x	x	x		x	x	x	

For detailed information, please see the "Product Numbering System" document.

**INTERFACE PIN FUNCTION**

PIN NO.	SYMBOL	FUNCTION
1	V <sub>SS</sub>	Ground
2	V <sub>DD</sub>	Power supply (+ 3 V, + 5 V)
3	V <sub>0</sub>	Contrast adjustment
4	A <sub>0</sub>	H: D0 to D7 are display data/L: D0 to D7 are display control data
5	R/ $\bar{W}$	WR for 80 serial R/W for 68 serial
6	CS1	Enable chip 1
7	DB0	Data bus line
8	DB1	Data bus line
9	DB2	Data bus line
10	DB3	Data bus line
11	DB4	Data bus line
12	DB5	Data bus line
13	DB6	Data bus line
14	DB7	Data bus line
15	V <sub>EE</sub>	Negative voltage output
16	$\overline{\text{RESET}}$	Reset signal
17	A	+ 4.2 V for LED, R <sub>A</sub> = 0 $\Omega$
18	K	Power supply for B/L (0 V)
19	CS2	Enable chip 2
20	CS3	Enable chip 3

**DIMENSIONS** in millimeters




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