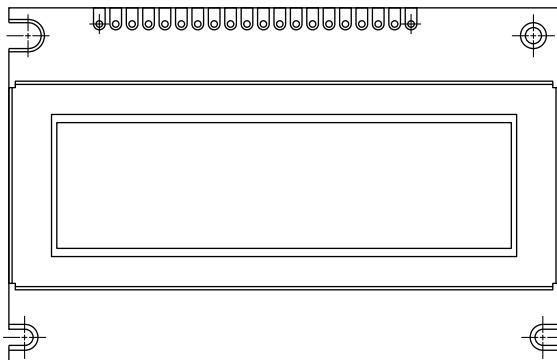


## 160 x 32 Graphic LCD



### FEATURES

- Type: graphic
- Display format: 160 x 32 dots
- Built-in controller: SBN1661G
- Duty cycle: 1/32
- Available for external oscilation 2 kHz
- N.V. optional for +3 V power supply
- Material categorization: for definitions of compliance please see [www.vishay.com/doc299912](http://www.vishay.com/doc299912)


**RoHS**  
COMPLIANT

MECHANICAL DATA		
ITEM	STANDARD VALUE	UNIT
Module dimension	85.2 x 55.0	mm
Viewing area	74.0 x 22.0	
Dot size	0.40 x 0.56	
Dot pitch	0.44 x 0.61	
Mounting hole	80.2 x 46.7	
Character size	n/a	

ABSOLUTE MAXIMUM RATINGS					
ITEM	SYMBOL	STANDARD VALUE			UNIT
		MIN.	TYP.	MAX.	
Power supply	$V_{DD}$ to $V_{SS}$	4.75	5.0	5.25	V
Input voltage	$V_I$	0	-	$V_{DD}$	

#### Note

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

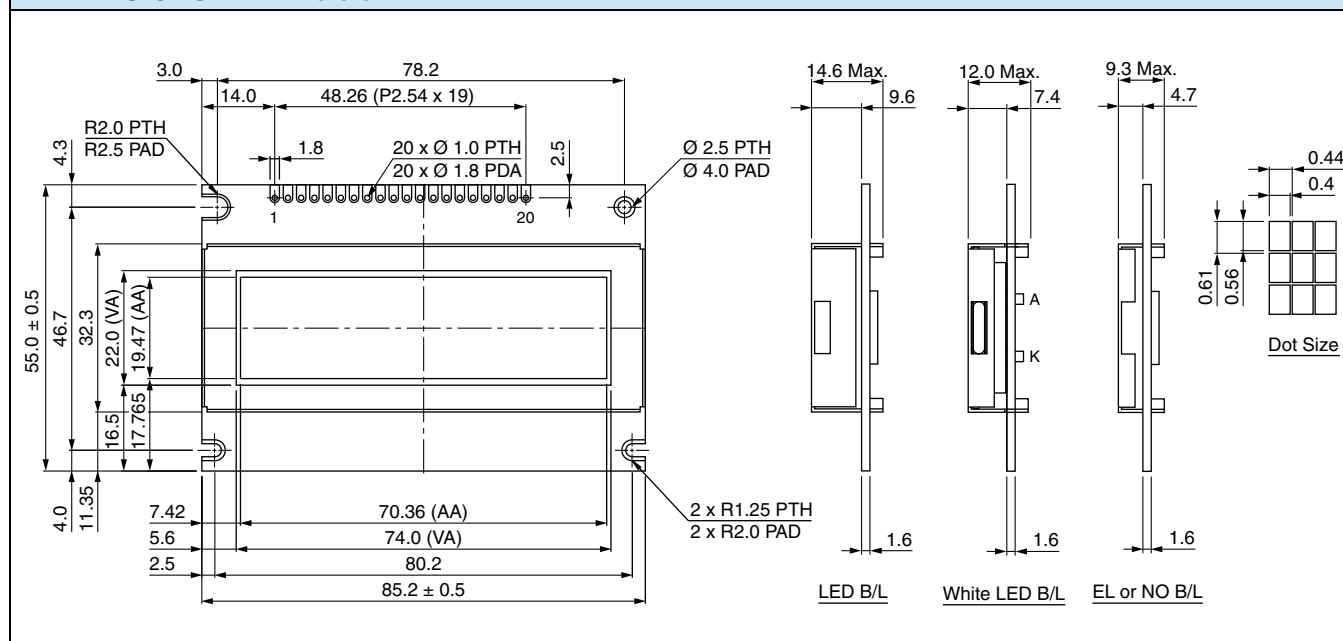
ELECTRICAL CHARACTERISTICS						
ITEM	SYMBOL	CONDITION	STANDARD VALUE			UNIT
			MIN.	TYP.	MAX.	
Input voltage	$V_{DD}$	$V_{DD} = +5$ V	4.5	5.0	5.5	V
Supply current	$I_{DD}$	$V_{DD} = +5$ V	-	1.0	1.4	mA
Recommended LC driving voltage for normal temperature version module	$V_{DD}$ to $V_0$	-20 °C	5.8	6.0	6.2	V
		0 °C	5.6	5.8	6.0	
		25 °C	5.3	5.5	5.7	
		50 °C	5.1	5.3	5.5	
		70 °C	4.8	5.0	5.2	
LED forward voltage	$V_F$	25 °C	-	4.2	4.6	V
LED forward current	$I_F$	25 °C	-	180	360	mA
EL power supply current	$I_{EL}$	$V_{EL} = 110$ V <sub>AC</sub> , 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	-

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 (+5 V)
3	V <sub>0</sub>	Contrast adjustment
4	A <sub>0</sub>	H: data / L: instruction
5	CS1	CS1 = 0, CS2 = 0 select U1 CS1 = 1, CS2 = 0 select U2 CS1 = 0, CS2 = 1 select U3
6	CS2	
7	CL	
8	E	Enable signal
9	R / $\overline{W}$	H: read data / L: write data
10	DB0	Data bus line
11	DB1	Data bus line
12	DB2	Data bus line
13	DB3	Data bus line
14	DB4	Data bus line
15	DB5	Data bus line
16	DB6	Data bus line
17	DB7	Data bus line
18	RES	H → L Reset the LCM
19	A	Power supply for LED backlight (+4.2 V)
20	K	Power supply for LED backlight (0 V)

**DIMENSIONS** in millimeters




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