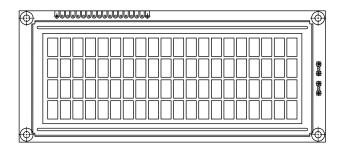
## LCD-020N004L



Vishay

## 20 x 4 Character LCD



MECHANICAL DATA								
ITEM	STANDARD VALUE	UNIT						
Module Dimension	146.0 x 62.5							
Viewing Area	123.5 x 43.0							
Dot Size	0.92 x 1.10							
Dot Pitch	0.98 x 1.16	mm						
Mounting Hole	139.0 x 55.5							
Character Size	4.84 x 9.22							

## FEATURES

- Type: Character
- Display format: 20 x 4 characters
- Built-in controller: ST 7066 (or equivalent)
- Duty cycle: 1/16
- 5 x 8 dots includes cursor
- + 5 V power supply (also available for + 3 V)
- LED can be driven by pin 1, pin 2, pin 15, pin 16 or A and K
- N.V. optional for + 3 V power supply
- Material categorization: For definitions of compliance please see <u>www.vishay.com/doc?99912</u>

ABSOLUTE MAXIMUM RATINGS										
ІТЕМ	SYMBOL	STAN	UNIT							
	STINDUL	MIN.	TYP.	MAX.	UNIT					
Power Supply	$V_{\text{DD}}$ to $V_{\text{SS}}$	- 0.3	-	7.0	v					
Input Voltage	VI	- 0.3	-	$V_{DD}$	v					

Note

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

ELECTRICAL CHARACTERISTICS										
ITEM	SYMBOL	CONDITION	ST	UNIT						
	STMBOL	CONDITION	MIN. TYP.		MAX.					
Input Voltage	V	V <sub>DD</sub> = + 5 V	4.7	5.0	5.3	v				
Input Voltage	V <sub>DD</sub>	$V_{DD} = +3 V$	2.7	3.0	5.3	v				
Supply Current	I <sub>DD</sub>	V <sub>DD</sub> = + 5 V	-	8.0	10.0	mA				
Recommended LC Driving		- 20 °C	5.0	5.1	5.7					
		0 °C	4.6	4.8	5.2					
Voltage for Normal Temperature	$V_{DD}$ to $V_0$	25 °C	4.1	4.5	4.7	V				
Version Module		50 °C	3.9	4.2	4.5					
		70 °C	3.7	3.9	4.3					
LED Forward Voltage	V <sub>F</sub>	25 °C	-	4.2	4.6	V				
LED Forward Current	I <sub>F</sub>	25 °C	-	540	1080	mA				
EL Power Supply Current	I <sub>EL</sub>	V <sub>EL</sub> = 110 V <sub>AC</sub> , 400 Hz	-	-	5.0	mA				

OPTIONS											
		PROCES		BACK	LIGHT						
TN	STN Gray	STN Yellow	STN Blue	FSTN B&W			LED	EL	CCFL		
x	х	х	Х	х		Х	Х	х			

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

DISPLAY CHARACTER ADDRESS CODE																				
Display Position																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
DD RAM Address	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13
DD RAM Address	40	41	42	43	44	45	46	47	48	49	4A	4B	4C	4D	4E	4F	50	51	52	53
DD RAM Address	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F	20	21	22	23	24	25	26	27
DD RAM Address	54	55	56	57	58	59	5A	5B	5C	5D	5E	5F	60	61	62	63	64	65	66	67

Revision: 09-Oct-12

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Pb-free

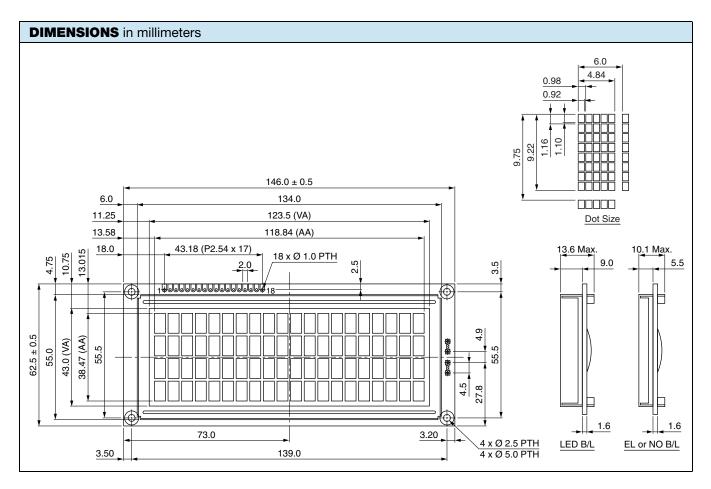
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INTERFACE PIN FUNCTION								
PIN NO.	SYMBOL	FUNCTION						
1	V <sub>SS</sub>	Ground						
2	V <sub>DD</sub>	+ 3 V or + 5 V						
3	V <sub>0</sub>	Contrast adjustment						
4	RS	H/L register select signal						
5	R/W	H/L read/write signal						
6	E	$H \rightarrow L$ enable signal						
7	DB0	H/L data bus line						
8	DB1	H/L data bus line						
9	DB2	H/L data bus line						
10	DB3	H/L data bus line						
11	DB4	H/L data bus line						
12	DB5	H/L data bus line						
13	DB6	H/L data bus line						
14	DB7	H/L data bus line						
15	A	Power supply for LED (4.2 V)						
16	К	Power supply for B/L (0 V)						
17	NC/V <sub>EE</sub>	NC or negative voltage output						
18	NC	NC connection						



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