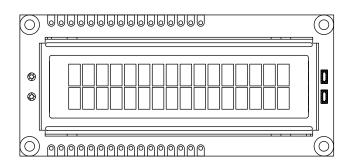


Vishay

COMPLIANT

## 16 x 2 Character LCD



### **FEATURES**

• Type: Character

• Display format: 16 x 2 characters

• Built-in controller: ST 7066

• Duty cycle: 1/16

• 5 x 8 dots includes cursor

• + 5 V power supply

Material categorization: For definitions of compliance

please see www.vishay.com/doc?99912

| MECHANICAL DATA  |                |      |  |  |  |  |  |  |
|------------------|----------------|------|--|--|--|--|--|--|
| ITEM             | STANDARD VALUE | UNIT |  |  |  |  |  |  |
| Module Dimension | 80.0 x 36.0    |      |  |  |  |  |  |  |
| Viewing Area     | 66.0 x 16.0    |      |  |  |  |  |  |  |
| Dot Size         | 0.55 x 0.65    | mm   |  |  |  |  |  |  |
| Dot Pitch        | 0.60 x 0.70    | mm   |  |  |  |  |  |  |
| Mounting Hole    | 75.0 x 31.0    |      |  |  |  |  |  |  |
| Character Size   | 2.95 x 5.55    |      |  |  |  |  |  |  |

| ABSOLUTE MAXIMUM RATINGS |                      |       |      |          |       |  |  |  |  |
|--------------------------|----------------------|-------|------|----------|-------|--|--|--|--|
| ITEM                     | SYMBOL               | STAN  | UNIT |          |       |  |  |  |  |
| ITEIVI                   | STIVIDOL             | MIN.  | TYP. | MAX.     | CINIT |  |  |  |  |
| Power Supply             | $V_{DD}$ to $V_{SS}$ | - 0.3 | -    | 7.0      | V     |  |  |  |  |
| Input Voltage            | $V_{l}$              | - 0.3 | ı    | $V_{DD}$ | V     |  |  |  |  |

#### Note

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

| ELECTRICAL CHARACTERISTICS   |                                   |                               |              |                |     |      |  |  |  |
|--|-----------------------------------|-------------------------------|--------------|----------------|-----|------|--|--|--|
| ITEM   | SYMBOL                            | CONDITION                     | ST           | STANDARD VALUE |     |      |  |  |  |
|  | STIMBUL                           | CONDITION                     | MIN. TYP. MA |                |     | UNIT |  |  |  |
| Input Voltage  | $V_{DD}$                          | V <sub>DD</sub> = + 5 V       | 4.5          | 5.0            | 5.5 | V    |  |  |  |
| Supply Current   | I <sub>DD</sub>                   | V <sub>DD</sub> = + 5 V       | 1.0          | 1.2            | 1.5 | mA   |  |  |  |
| Recommended LC Driving<br>Voltage for Normal Temperature<br>Version Module | V <sub>DD</sub> to V <sub>0</sub> | - 20 °C                       | 4.9          | 5.2            | 5.5 |      |  |  |  |
|  |                                   | 0 °C                          | 4.5          | 4.8            | 5.1 | V    |  |  |  |
|  |                                   | 25 °C                         | 4.1          | 4.4            | 4.7 | _ v  |  |  |  |
|  |                                   | 70 °C                         | 3.5          | 4.0            | 4.1 | 1    |  |  |  |
| LED Forward Voltage  | V <sub>F</sub>                    | 25 °C                         | -            | -              | 140 | V    |  |  |  |
| LED Forward Current - Array  | I <sub>F</sub>                    | 25 °C                         | -            | -              | 5.0 | mA   |  |  |  |
| EL Power Supply Current  | I <sub>EL</sub>                   | $V_{EL} = 110 V_{AC}, 400 Hz$ | -            | -              | -   | mA   |  |  |  |

| OPTIONS | 5           |               |             |             |              |      |     |    |      |
|---------|-------------|---------------|-------------|-------------|--------------|------|-----|----|------|
|         |             | PROCES        |             | BACK        | LIGHT        |      |     |    |      |
| TN      | STN<br>GRAY | STN<br>YELLOW | STN<br>BLUE | FSTN<br>B&W | STN<br>COLOR | NONE | LED | EL | CCFL |
| х       | x           | x             | x           | x           |              | x    | x   | x  |      |

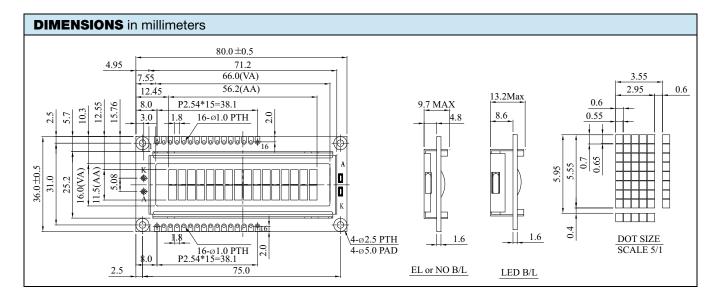
For detailed information, please see the "Product Numbering System" document.



www.vishay.com

| DISPLAY CHAP     | RACTE | ER AC | DRE | ss c | ODE |    |    |    |    |    |    |    |    |    |    |    |
|------------------|-------|-------|-----|------|-----|----|----|----|----|----|----|----|----|----|----|----|
| Display Position |       |       |     |      |     |    |    |    |    |    |    |    |    |    |    |    |
|                  | 1     | 2     | 3   | 4    | 5   | 6  | 7  | 8  | 9  | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| DD RAM Address   | 00    | 01    | 02  | 03   | 04  | 05 | 06 | 07 | 08 | 09 | 0A | 0B | 0C | 0D | 0E | 0F |
| DD RAM Address   | 40    | 41    | 42  | 43   | 44  | 45 | 46 | 47 | 48 | 49 | 4A | 4B | 4C | 4D | 4E | 4F |

| INTERFACE PIN FUNCTIONS |                 |  |  |  |  |  |  |
|-------------------------|-----------------|--|--|--|--|--|--|
| PIN NO.                 | SYMBOL          | FUNCTION   |  |  |  |  |  |
| 1                       | V <sub>SS</sub> | Ground   |  |  |  |  |  |
| 2                       | V <sub>DD</sub> | Supply voltage for logic   |  |  |  |  |  |
| 3                       | V <sub>0</sub>  | Operating voltage for LCD  |  |  |  |  |  |
| 4                       | RS              | H: data/L: instruction code  |  |  |  |  |  |
| 5                       | R/W             | H: read (MPU $\rightarrow$ module)/L: write (MPU $\rightarrow$ module) |  |  |  |  |  |
| 6                       | E               | Chip enable signal   |  |  |  |  |  |
| 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                      | A               | LED +  |  |  |  |  |  |
| 16                      | K               | LED -  |  |  |  |  |  |





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