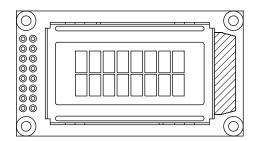
COMPLIANT

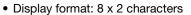


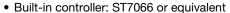
## 8 x 2 Character LCD



#### **FEATURES**

Type: Character





• Duty cycle: 1/16

• 5 x 8 dots includes cursor

• + 5 V power supply

• LED can be driven by pin 1, pin 2, or A and K

• Material categorization: For definitions of compliance please see www.vishav.com/doc?99912

| MECHANICAL DATA  |                |      |  |  |  |
|------------------|----------------|------|--|--|--|
| ITEM             | STANDARD VALUE | UNIT |  |  |  |
| Module Dimension | 58.0 x 32.0    |      |  |  |  |
| Viewing Area     | 38.0 x 16.0    |      |  |  |  |
| Dot Size         | 0.56 x 0.66    | mm   |  |  |  |
| Dot Pitch        | 0.60 x 0.70    | mm   |  |  |  |
| Mounting Hole    | 53.0 x 27.0    |      |  |  |  |
| Character Size   | 2.96 x 5.56    |      |  |  |  |

| ABSOLUTE MAXIMUM RATINGS |                      |       |      |          |      |  |
|--------------------------|----------------------|-------|------|----------|------|--|
| ITEM                     | SYMBOL               | STAN  | UNIT |          |      |  |
| IIEM                     | STIVIDUL             | MIN.  | TYP. | MAX.     | UNII |  |
| Power Supply             | $V_{DD}$ to $V_{SS}$ | - 0.3 | -    | 7.0      | W    |  |
| Input Voltage            | VI                   | - 0.3 | -    | $V_{DD}$ | \ \  |  |

#### Note

• V<sub>SS</sub> = 0 V, V<sub>DD</sub> = 5.0 V

| ELECTRICAL CHARACTERISTICS                               |                                   |  |      |      |      |      |  |
|--|-----------------------------------|--|------|------|------|------|--|
| ITEM   | OVALDOL                           | CONDITION                                      | ST   |      |      |      |  |
| IIEM   | SYMBOL                            | CONDITION                                      | MIN. | TYP. | MAX. | UNIT |  |
| Input Voltage  | $V_{DD}$                          | V <sub>DD</sub> = + 5 V                        | 4.7  | 5.0  | 5.3  | V    |  |
| Supply Current   | I <sub>DD</sub>                   | $V_{DD} = + 5 V$                               | -    | 1.5  | 1.7  | mA   |  |
| Recommended LC Driving<br>Voltage for Normal Temperature |                                   | - 20 °C  | 4.9  | 5.2  | 5.5  |      |  |
|  |                                   | 0 °C   | 4.5  | 4.8  | 5.1  |      |  |
|  | V <sub>DD</sub> to V <sub>0</sub> | 25 °C  | 4.1  | 4.4  | 4.7  | V    |  |
| Version Module   |                                   | 50 °C  | 3.8  | 4.2  | 4.4  |      |  |
|  |                                   | 70 °C  | 3.5  | 4.0  | 4.1  |      |  |
| LED Forward Voltage                                      | V <sub>F</sub>                    | 25 °C  | -    | 4.2  | 4.6  | V    |  |
| LED Forward Current                                      | I <sub>F</sub>                    | 25 °C  | -    | 70   | 140  | mA   |  |
| EL Power Supply Current                                  | I <sub>EL</sub>                   | V <sub>EL</sub> = 110 V <sub>AC</sub> , 400 Hz | -    | -    | 5.0  | mA   |  |

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

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



www.vishay.com

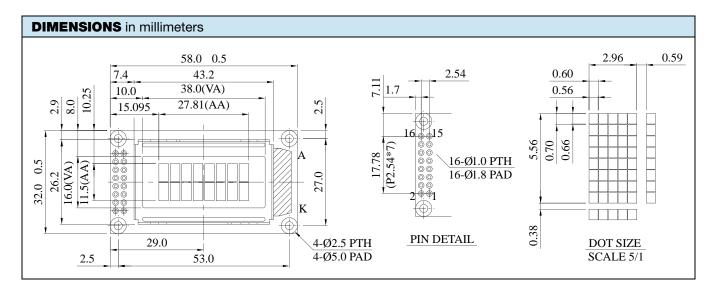
### **DISPLAY CHARACTER ADDRESS CODE**

Display Position

DD RAM Address DD RAM Address

| 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  |
|----|----|----|----|----|----|----|----|
| 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 |
| 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 |

| INTERFACE PIN FUNCTIONS |                 |   |  |  |  |
|-------------------------|-----------------|---|--|--|--|
| PIN NO. SYMBOL          |                 | FUNCTION  |  |  |  |
| 1                       | V <sub>SS</sub> | Ground  |  |  |  |
| 2                       | V <sub>DD</sub> | Supply voltage for logic + 5 V  |  |  |  |
| 3                       | V <sub>0</sub>  | Operating voltage for LCD   |  |  |  |
| 4                       | RS              | H: Data, L: Instruction code  |  |  |  |
| 5                       | R₩              | 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                      | К               | LED -   |  |  |  |





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