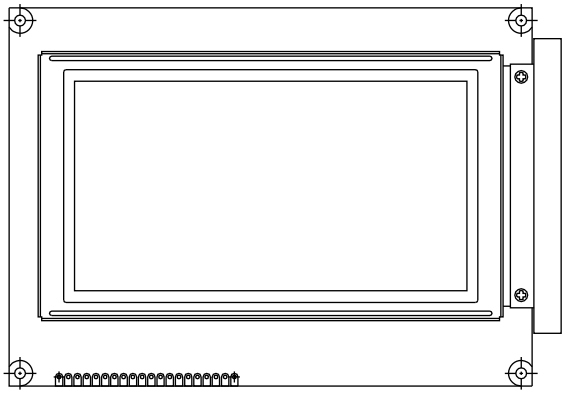
# 240 x 128 Graphic LCD



## FEATURES

- Type: graphic
- Display format: 240 x 128 dots
- Built-in controller: RA6963
- Duty cycle: 1/128
- Built-in N.V.
- Temperature compensation optional
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

Pb-free

RoHS COMPLIANT

## MECHANICAL DATA

| ITEM | STANDARD VALUE | UNIT |
|---|---|---|
| Module dimension | 144.0 x 104.0 | mm |
| Viewing area | 114.0 x 64.0 | |
| Dot size | 0.40 x 0.40 | |
| Dot pitch | 0.45 x 0.45 | |
| Mounting hole | 138.0 x 99.0 | |
| 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 | $V_I$ | -0.3 | - | $V_{DD}$ | |

**Note**

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

## ELECTRICAL CHARACTERISTICS

| ITEM | SYMBOL | CONDITION | STANDARD VALUE | | | UNIT |
|---|---|---|---|---|---|---|
| | | | MIN. | TYP. | MAX. | |
| Input voltage | $V_{DD}$ | L level | 0.7 $V_{DD}$ | - | $V_{DD}$ | V |
| | $V_{IO}$ | H level | - | - | 0.3 $V_{DD}$ | |
| Supply current | $I_{DD}$ | $V_{DD}$ = +5 V | 0 | 55 | 60 | mA |
| Recommended LC driving voltage for normal temperature version module | $V_{DD}$ to $V_0$ | -20 °C | - | - | - | V |
| | | 0 °C | 20.3 | 21.4 | 22.5 | |
| | | 25 °C | 18.0 | 19.1 | 20.2 | |
| | | 50 °C | 17.8 | 18.9 | 20.0 | |
| | | 70 °C | - | - | - | |
| LED forward voltage | $V_F$ | 25 °C | - | 4.2 | - | V |
| LED forward current | $I_F$ | 25 °C | - | 900 | 1800 | mA |
| CCFL forward voltage | $V_F$ | 25 °C | - | 250 | 590 | $V_{RMS}$ |
| CCFL forward current | $I_F$ | 25 °C | - | - | 5.5 | $mA_{RMS}$ |
| EL power supply current | $I_{EL}$ | $V_{EL}$ = 110 $V_{AC}$, 400 Hz | - | - | 5.0 | mA |

## OPTIONS

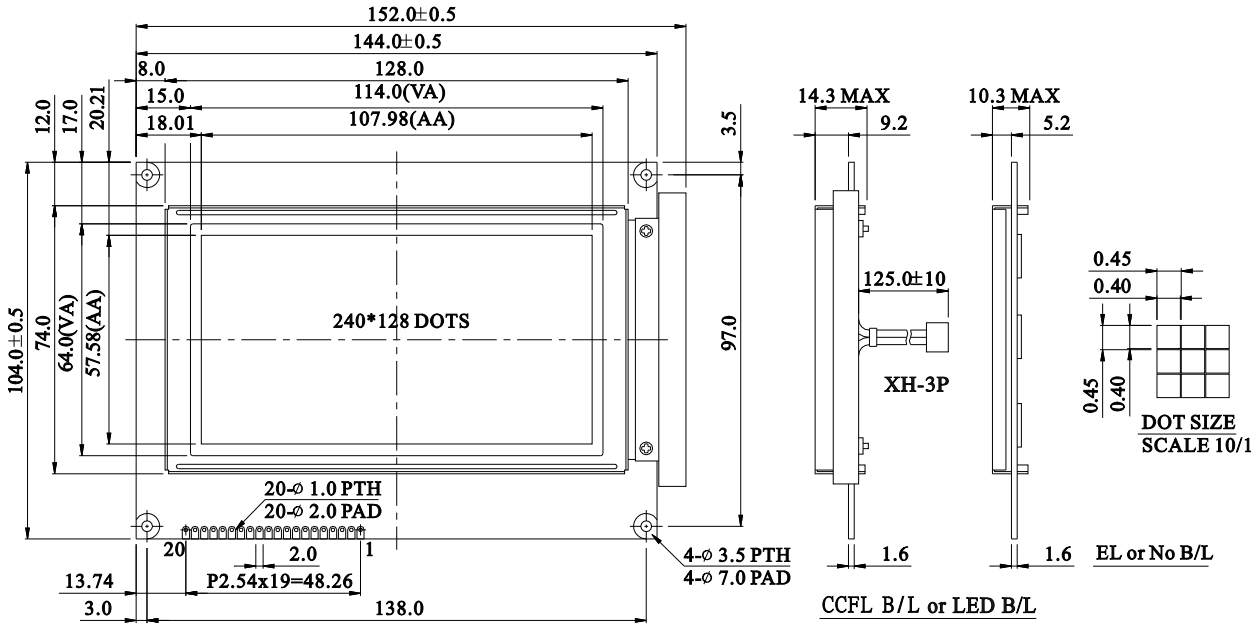
| PROCESS COLOR | | | | | | BACKLIGHT | | | |
|---|---|---|---|---|---|---|---|---|---|
| TN | STN GRAY | STN YELLOW | STN BLUE | FSTN B&W | STN COLOR | NONE | LED | EL | CCFL |
| - | x | x | x | x | - | x | x | x | x |

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

## INTERFACE PIN FUNCTION

| PIN NO. | SYMBOL | FUNCTION |
|---|---|---|
| 1 | $V_{SS}$ | Power supply (ground) |
| 2 | $V_{DD}$ | Power supply (+5 V) |
| 3 | $V_0$ | Power supply for LCD driving |
| 4 | C / D | Command / data read / write |
| 5 | RD | Data read |
| 6 | WR | Data write |
| 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 | $\overline{CE}$ | Chip enable |
| 16 | $\overline{RESET}$ | Reset signal |
| 17 | $V_{EE}$ | Negative voltage output |
| 18 | MD2 | Control signal |
| 19 | FS1 | Font selection |
| 20 | NC | No connection |

## DIMENSIONS in millimeters



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