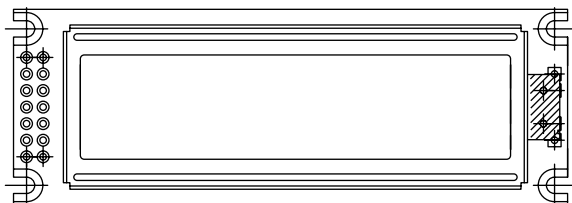


# 144 x 32 Graphic LCD



## FEATURES

- Type: Graphic
- Display format: 144 x 32 dots
- Built-in controller: (ST7920)
- Duty cycle: 1/32
- + 5 V power supply
- LED can be driven by pin 15, pin 16 or A, K
- Chinese version
- Same size with LCD-016N002D series
- Compliant to RoHS directive 2002/95/EC


**RoHS**  
COMPLIANT

| MECHANICAL DATA  |                    |      |
|------------------|--------------------|------|
| ITEM             | STANDARD VALUE     | UNIT |
| Module Dimension | 85.0 x 30.0 x 13.2 | mm   |
| Viewing Area     | 66.0 x 16.0        |      |
| Dot Size         | 0.38 x 0.38        |      |
| Dot Pitch        | 0.42 x 0.42        |      |
| Mounting Hole    | N/a                |      |
| 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  | $V_{DD}$          | -  | 4.5            | 5.0  | 5.5  | V    |
| Supply Current   | $I_{DD}$          | $V_{DD} = +5$ V                          | -              | 1.2  | 1.5  | mA   |
| Recommended LC Driving Voltage for Normal Temperature Version Module | $V_{DD}$ to $V_0$ | - 20 °C                                  | -              | -    | 6.0  | V    |
|  |                   | 25 °C                                    | -              | 4.7  | -    |      |
|  |                   | 70 °C                                    | 4.0            | -    | -    |      |
| CCFL Starting Voltage  | $V_{FLS}$         | 25 °C                                    | -              | -    | -    |      |
| CCFL Starting Voltage  | $V_{FLD}$         | 25 °C                                    | -              | -    | -    |      |
| CCFL Starting Voltage  | $I_{FLD}$         | $V_{FQ} = 450$ V <sub>RMS</sub> , 30 kHz | -              | -    | -    |      |
| LED Forward Voltage  | $V_F$             | 25 °C                                    | -              | 4.0  | 4.3  | V    |
| LED Forward Current - Array  | $I_F$             | 25 °C                                    | -              | 130  | 260  | mA   |
| LED Forward Current - Edge   | $I_{EF}$          | $V_{EL} = 110$ V <sub>AC</sub> , 400 Hz  | -              | -    | 5.0  |      |

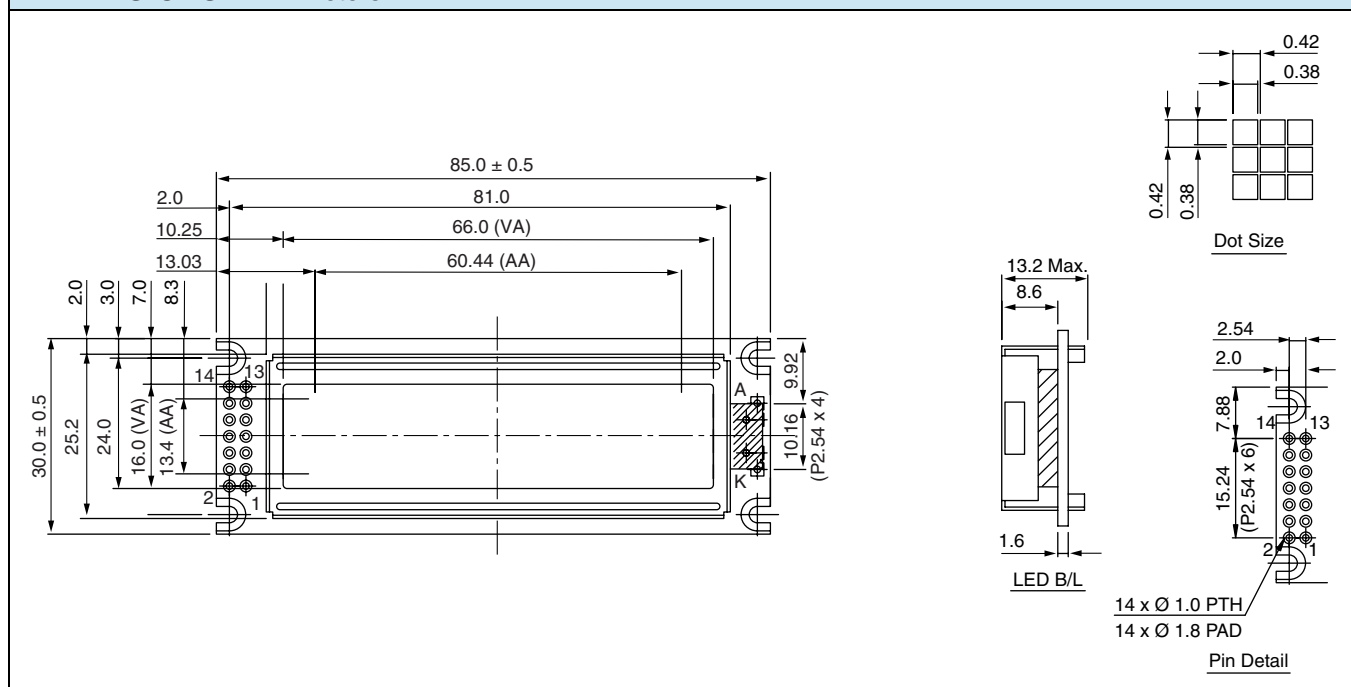
| OPTIONS       |          |            |          |          |           |           |     |    |      |
|---------------|----------|------------|----------|----------|-----------|-----------|-----|----|------|
| PROCESS COLOR |          |            |          |          |           | BACKLIGHT |     |    |      |
| TN            | STN Gray | STN Yellow | STN Blue | FSTN B&W | STN Color | None      | LED | EL | CCFL |
|               | x        | x          | x        | x        |           | x         | x   | x  |      |

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

## INTERFACE PIN FUNCTION

| PIN NO. | SYMBOL   | FUNCTION                 |
|---------|----------|--------------------------|
| 1       | $V_{DD}$ | Supply voltage for logic |
| 2       | $V_{SS}$ | Ground                   |
| 3       | $V_0$    | NC                       |
| 4       | RS       | Register select signal   |
| 5       | R/W      | H/L read/write signal    |
| 6       | E        | 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            |

## DIMENSIONS in millimeters





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