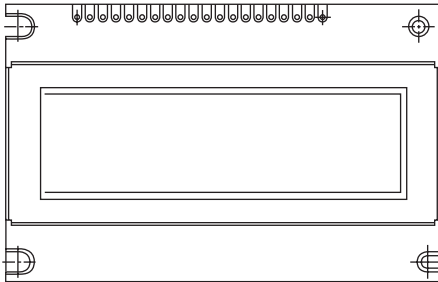


## 160 x 32 Dots Graphic LCD



### FEATURES

- Available for external oscillation 2KHz
- Epson-SED 1520, or equivalent
- 1/32 duty cycle
- N.V. optional for + 3V power supply

| MECHANICAL DATA  |                |      |
|------------------|----------------|------|
| ITEM             | STANDARD VALUE | UNIT |
| Module Dimension | 85.2 x 55.0    | mm   |
| Viewing Area     | 72.0 x 22.0    | mm   |
| Mounting Hole    | 80.2 x 46.7    | mm   |
| Dot Pitch        | 0.44 x 0.61    | mm   |

| ABSOLUTE MAXIMUM RATING |         |                |      |      |      |
|-------------------------|---------|----------------|------|------|------|
| ITEM                    | SYMBOL  | STANDARD VALUE |      |      | UNIT |
|                         |         | MIN.           | TYP. | MAX. |      |
| Power Supply            | VDD-VSS | 4.75           | 5.0  | 5.52 | V    |
| Input Voltage           | VI      | - 0.3          | -    | VDD  | V    |

**NOTE:** VSS = 0 Volt, VDD = 5.0 Volt

| ELECTRICAL SPECIFICATIONS                                      |        |                     |                |      |      |      |
|--|--------|---------------------|----------------|------|------|------|
| ITEM   | SYMBOL | CONDITION           | STANDARD VALUE |      |      | UNIT |
|  |        |                     | MIN.           | TYP. | MAX. |      |
| Input Voltage  | VDD    | VDD = + 5V          | 4.5            | 5.0  | 5.5  | V    |
| Supply Current   | IDD    | VDD = 5V            | -              | 1.0  | 1.4  | mA   |
| Recommended LC Driving Voltage for Normal Temp. Version Module | VDD-V0 | - 2                 | 5.8            | 6.0  | 6.2  | V    |
|  |        | 25°C                | 5.3            | 5.5  | 5.7  |      |
|  |        | + 7                 | 4.8            | 5.0  | 5.2  |      |
| LED Forward Voltage  | VF     | 25°C                | -              | 4.2  | 4.6  | V    |
| LED Forward Current  | IF     | 25°C                | -              | 180  | 360  | mA   |
| EL Power Supply Current  | IEL    | Vel = 110VAC; 400Hz | -              | -    | 5.0  | mA   |

| PIN NUMBER | SYMBOL | FUNCTION                         |
|------------|--------|----------------------------------|
| 1          | Vss    | GND                              |
| 2          | Vdd    | (+ 5V)                           |
| 3          | Vo     | Contrast Adjustment              |
| 4          | Ao     | H →Data L →Instruction           |
| 5          | CS1    | CS1 = 0, CS2 = 0 Select U1       |
| 6          | CS2    | CS1 = 1, CS2 = 0 Select U2       |
| 7          | CL     | CS1 = 0, CS2 = 1 Select U3       |
| 8          | E      | External Clock 2KHz              |
| 9          | R/W    | Enable Signal                    |
| 10         | DB0    | H: Read Data L: Write Data       |
| 11         | DB1    | Data Bus Line                    |
| 12         | DB2    | Data Bus Line                    |
| 13         | DB3    | Data Bus Line                    |
| 14         | DB4    | Data Bus Line                    |
| 15         | DB5    | Data Bus Line                    |
| 16         | DB6    | Data Bus Line                    |
| 17         | DB7    | Data Bus Line                    |
| 18         | RES    | H →L Reset the LCM               |
| 19         | A      | Power Supply forLED B/L (+ 4.2V) |
| 20         | K      | Power Supply forLED B/L (0V)     |

## DIMENSIONS in millimeters

