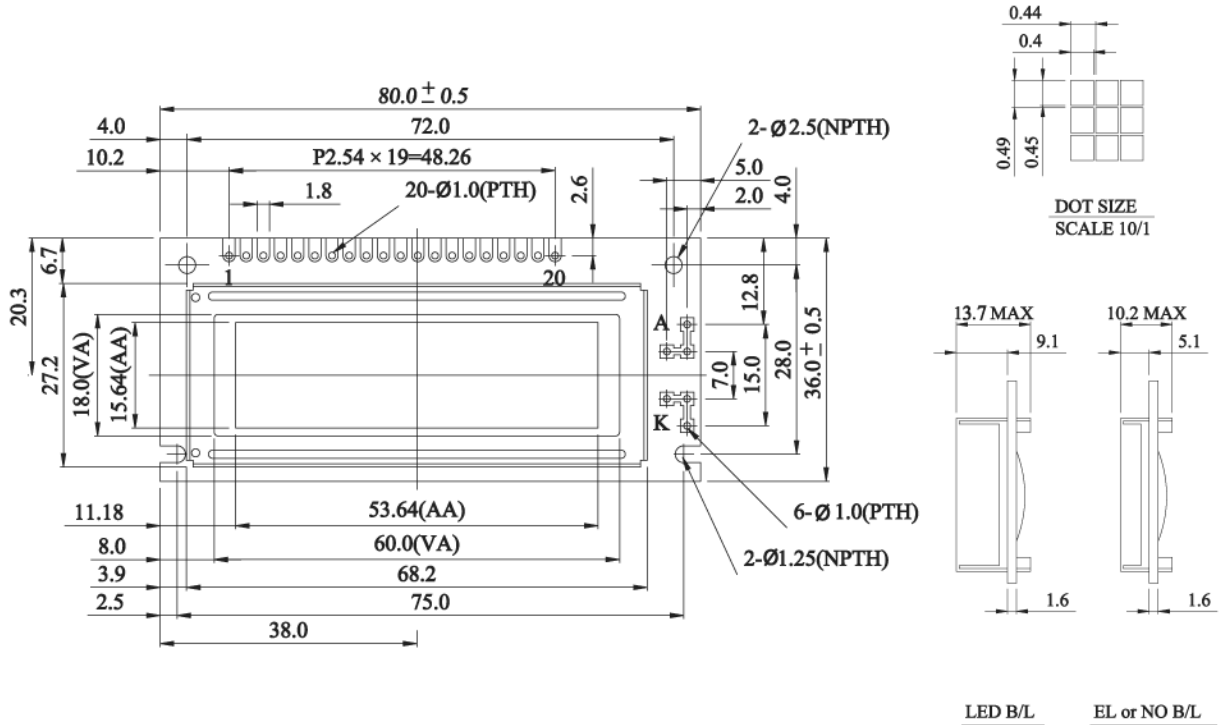


**WG12232E/J** Graphic122x32dots

**Dimension drawing**



Graphic type

**Feature**

1. Available for External (E type), internal (J type) oscilation 2KHz
2. Epson- SED 1520, or equivalent
3. 1/32 duty cycle
4. N.V. optional for +3V power supply

**Mechanical Data**

| Item             | Standard Value | Unit |
|------------------|----------------|------|
| Module Dimension | 80.0x36.0      | mm   |
| Viewing Area     | 60.0x18.0      | mm   |
| Mounting hole    | 75.0x28.0      | mm   |
| Dot Pitch        | 0.44x0.49      | mm   |

| Pin NO. | Symbol | Function  |
|---------|--------|---|
| 1       | Vss    | GND   |
| 2       | Vdd    | Power supply for logic                                    |
| 3       | Vo     | Contrast Adjustment                                       |
| 4       | Ao     | H→Data L→Instruction                                      |
| 5       | CS1    | L→Chip1 Enable  |
| 6       | CS2    | L→Chip2 Enable  |
| 7       | CL/NV  | E type:External clock 2KHz J type:Negative Voltage Option |
| 8       | E/NC   | E type:Enable Signal J type:No connection                 |
| 9       | R/W    | H: read data L: write data                                |
| 10      | DB0    | Data bus line   |
| 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/Vee  | E type:+4.2V for LED/Negative Voltage output J type:A     |
| 20      | K      | Power supply for B/L                                      |

**Absolute Maximum Rating**

| Item          | Symbol  | Standard Value |      |      | Unit |
|---------------|---------|----------------|------|------|------|
|               |         | min.           | typ. | max. |      |
| Power Supply  | VDD-VSS | 4.75           | 5    | 5.25 | V    |
| Input Voltage | VI      | 0              | ---  | VDD  | V    |

Note : VSS=0 Volt, VDD=5.0 Volt.

**Electronical Characteristics**

| 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 | -20°C            | 4.9            | 5.0  | 5.1  | V    |
|  |        | 0°C              | 4.7            | 4.8  | 4.9  |      |
|  |        | 25°C             | 4.6            | 4.7  | 4.8  |      |
|  |        | 50°C             | 4.3            | 4.4  | 4.7  |      |
| LED Forward Voltage  | VF     | 25°C             | ---            | 4.2  | 4.6  | V    |
| LED Forward Current  | IF     | 25°C             | ---            | 120  | 240  | mA   |
| EL Power Supply Current  | IEL    | Vel=110VAC;400Hz | ---            | ---  | 5.0  | mA   |