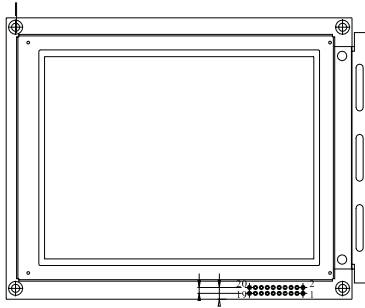


## 320 x 24 Dots Graphic LCD



### FEATURES

- Built-in SED 1335 controller and SRAM
- Built-in negative voltage generator
- 1/240 duty cycle
- Touch screen option (analog type)
- Temperature compensation option

| MECHANICAL DATA  |                |      |
|------------------|----------------|------|
| ITEM             | STANDARD VALUE | UNIT |
| Module Dimension | 148.0 x 120.24 | mm   |
| Viewing Area     | 120.14 x 92.14 | mm   |
| Dot Size         | 0.34 x 0.34    | mm   |
| Dot Pitch        | 0.36 x 0.36    | mm   |

| ABSOLUTE MAXIMUM RATING |         |                |      |      |      |
|-------------------------|---------|----------------|------|------|------|
| ITEM                    | SYMBOL  | STANDARD VALUE |      |      | UNIT |
|                         |         | MIN.           | TYP. | MAX. |      |
| Power Supply            | VDD-VSS | 4.75           | 5.0  | 5.25 | 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      | L level                | $0.7V_{DD}$    | -    | $V_{DD}$    | V     |
|  | VIO      | H level                | 0              | -    | $0.3V_{DD}$ | V     |
| Supply Current   | IDD      | VDD = 5V               | -              | 100  | 105         | mA    |
| Recommended LC Driving Voltage for Normal Temp. Version Module | VDD - V0 | 0°C                    | 22.0           | 23.0 | 24.0        | V     |
|  |          | 25°C                   | 21.3           | 22.2 | 23.0        |       |
|  |          | 50°C                   | 19.5           | 20.8 | 22.1        |       |
| CCFL Starting Voltage  | VFLS     | 25°C                   | -              | 600  | -           | Vrms  |
| CCFL Driving Voltage   | VFLD     | 25°C                   | -              | 268  | -           | Vrms  |
| CCFL Driving Current   | IFLD     | VFQ = 450Vrms<br>30KHz | -              | 5.0  | -           | mArms |
| LED Forward Voltage  | VF       | 25°C                   | -              | 4.2  | 4.6         | V     |
| LED Forward Current  | IF       | 25°C                   | -              | 180  | 360         | mA    |
| EL   | IEL      | Vel = 110VAC; 400Hz    | -              | -    | 5.0         | mA    |

| PIN NUMBER | SYMBOL           | FUNCTION  |
|------------|------------------|---|
| 1          | Vss              | Ground  |
| 2          | Vdd              | Power Supply for Logic  |
| 3          | Vo               | Driving Voltage for LCD   |
| 4          | $\overline{RD}$  | 8080 Family: Read Signal, 6800 Family: Enable Clock   |
| 5          | $\overline{WR}$  | 8080 Family: Write Signal, 6800 Family: R/W Signal  |
| 6          | Ao               | Data Select Type<br>RD = L WR = H, A0 = L: Data Read AO = H: Status Read<br>RD = H WR = L, A0 = L: Data Read AO = H: Command Write<br>For 80 Family<br>R/W = L A0 = H: Command Write A0 = L: Data Write<br>R/W = H A0 = H: Status Read AO = L: Data Read<br>For 68 Family |
| 7          | DB0              | Data Bus Line   |
| 8          | DB1              | Data Bus Line   |
| 9          | DB2              | Data Bus Line   |
| 10         | DB3              | Data Bus Line   |
| 11         | $\overline{DB4}$ | Data Bus Line   |
| 12         | $\overline{DB5}$ | Data Bus Line   |
| 13         | DB6              | Data Bus Line   |
| 14         | DB7              | Data Bus Line   |
| 15         | CS               | Chip Select, Active L   |
| 16         | RES              | Controller Rest Signal Active L   |
| 17         | Vee              | Negative Voltage Output (Optional)  |
| 18         | FGND             | Frame Ground  |
| 19         | NC               | No Connection   |
| 20         | NC               | No Connection   |

## DIMENSIONS in millimeters

