





- Features**
- 1. 128\*64 dots graphic LCD Module
  - 2. 80 or 68 MPU interfaces
  - 3. Built-in controller
  - 4. Display Mode & Backlight Variations
  - 5. ROHS Compliant

**Interface Pin Connections**

| NO | SYM              | LEVEL | FUNCTION  | NO   | SYM    | LEVEL | FUNCTION                            |                                  |
|----|------------------|-------|---|--|--------|-------|-------------------------------------|----------------------------------|
| 1  | V <sub>SS</sub>  |       | SIGNAL GND  | 16   | P/S    | MPU   | Parallel/Serial Switch              |                                  |
| 2  | V <sub>O</sub>   |       | POWER SUPPLY<br>LCD EXTERNAL<br>CAPACITOR ABOUT<br>0.47uF~1uF | 17   | C86    | MPU   | Interface Switch                    |                                  |
| 3  | V <sub>1</sub>   |       |   | FOR VOLTAGE BOOSTER<br>CIRCUIT. EXTERNAL<br>CAPACITOR ESTIMATED<br>1uF~2.2Uf | 18     | DB0   | MPU                                 | 8-BIT<br>DIRECTIONAL<br>DATA BUS |
| 4  | V <sub>2</sub>   |       |   |  | 19     | DB1   | MPU                                 |                                  |
| 5  | V <sub>3</sub>   |       |   |  | 20     | DB2   | MPU                                 |                                  |
| 6  | V <sub>4</sub>   |       |   |  | 21     | DB3   | MPU                                 |                                  |
| 7  | C2-              |       |   |  | 22     | DB4   | MPU                                 |                                  |
| 8  | C2+              |       | 23  |  | DB5    | MPU   |                                     |                                  |
| 9  | C1+              |       | 24  |  | DB6    | MPU   |                                     |                                  |
| 10 | C1-              |       | 25  |  | DB7    | MPU   |                                     |                                  |
| 11 | C1-              |       | 26  |  | /RD/E  | MPU   | READ/WRITE/ENABLE                   |                                  |
| 12 | C3+              |       | 27  |  | /WR/RW | MPU   | READ/WRITE SELECT                   |                                  |
| 13 | V <sub>OUT</sub> |       | DC/DC Voltage Converter                                       | 28   | RS/A0  | MPU   | 0:Instruction / 1:Data Reg          |                                  |
| 14 | V <sub>DD</sub>  |       | LOGIC POWER SUPPLY  | 29   | /RSET  | MPU   | Ext Reset/Link to VDD<br>Low active |                                  |
| 15 | V <sub>SS</sub>  |       | SIGNAL GRND   | 30   | /CS1   | MPU   | Chip Select/serial/low active       |                                  |

**Absolute Maximum Rating**

| ITEM                 | SYMBOL                           | MIN  | TYP | MAX                  | UNI |
|----------------------|----------------------------------|------|-----|----------------------|-----|
| POWER SUPPLY / LOGIC | V <sub>DD</sub> -V <sub>SS</sub> | 0.3  | --- | 3.6                  | V   |
| INPUT VOLTAGE        | V <sub>IN</sub>                  | -0.3 | --- | V <sub>DD</sub> +0.3 |     |
| POWER SUPPLY / LCD   | V <sub>O</sub> -V <sub>SS</sub>  | -0.3 | --- | 13.5                 |     |
| OPERATING TEMP       | V <sub>OP</sub>                  | -20  | --- | +70                  | °C  |
| STORAGE TEMP         | V <sub>ST</sub>                  | -30  | --- | +80                  |     |

**Electrical Characteristics (DC Characteristics)**

| ITEM                     | SYM                             | CONDITION            | MIN  | TYP | MAX  | UNIT |
|--------------------------|---------------------------------|----------------------|------|-----|------|------|
| SUPPLY VOLTAGE / LCD     | V <sub>O</sub> -V <sub>SS</sub> | Ta=25°C              | ---  | 9.0 | ---  | V    |
| SUPPLY VOLTAGE / LOGIC   | V <sub>DD</sub>                 |                      | 2.85 | 3.0 | 3.15 |      |
| SUPPLY CURRENT           | I <sub>DD</sub>                 | Ta=25°C, VDD=3.0V    | ---  | 0.5 | ---  | mA   |
| BACKLIGHT SUPPLY VOLTAGE | V <sub>F</sub>                  |                      | ---  | 4.7 | ---  | V    |
| BACKLIGHT SUPPLY CURRENT | I <sub>LED</sub>                | V <sub>F</sub> =4.7V | ---  | 80  | ---  | mA   |

**Mechanical Data**

| ITEM             | STANDARD     | UNIT |
|------------------|--------------|------|
| MODULE DIMENSION | 72.0 X 46.0  | mm   |
| VIEWING AREA     | 66.0 X 432.7 | mm   |
| DOT SIZE         | 0.45 X 0.45  | mm   |
| DOT PITCH        | 0.48 X 0.48  | mm   |