

WINSTAR Display

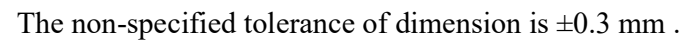
OLED SPECIFICATION

Model No:

WEA002004C

General Specification

| Item | Dimension | Unit |
|----------------------|-------------------------|------|
| Number of Characters | 20 characters x 4 Lines | — |
| Module dimension | 92.0 x 31.5 x 5.96 Max. | mm |
| View area | 72.42 x 22.82 | mm |
| Active area | 70.42 x 20.82 | mm |
| Dot size | 0.57 x 0.57 | mm |
| Dot pitch | 0.60 x 0.60 | mm |
| Character size | 2.97 x 4.77 | mm |
| Character pitch | 3.55 x 5.35 | mm |
| LCD type | OLED , Monochrome | |
| Duty | 1/32 | |
| IC | SSD1311 | |
| Interface | 6800, 8080, SPI, I2C | |
| Size | 2.89 inch | |



Interface Pin Function

| Pin No. | Symbol | Pin Type | Description |
|---------|---------------|----------|--|
| 1 | VSS | P | Ground |
| 2 | VDD | P | Power supply and power supply for interface logic level. |
| 3 | REGVDD | I | This pin is pulled LOW, internal VDD regulator is disabled (Low voltage I/O application). |
| 4 | D/C# | I | <p>This pin is Data/Command control pin connecting to the MCU.</p> <p>When the pin is pulled HIGH, the data at D[7:0] will be interpreted as data.</p> <p>When the pin is pulled LOW, the data at D[7:0] will be transferred to a command register.</p> <p>In I2C mode, this pin acts as SA0 for slave address selection.</p> <p>When serial interface is selected, this pin must be connected to VSS.</p> |
| 5 | R/W# (WR#) | I | <p>This pin is read / write control input pin connecting to the MCU interface.</p> <p>When 6800 interface mode is selected, this pin will be used as Read/Write (R/W#) selection input. Read mode will be carried out when this pin is pulled HIGH and write mode when LOW.</p> <p>When 8080 interface mode is selected, this pin will be the Write (WR#) input. Data write operation is initiated when this pin is pulled LOW and the chip is selected.</p> <p>When serial or I2C interface is selected, this pin must be connected to VSS.</p> |
| 6 | E/RD# | I | <p>This pin is MCU interface input.</p> <p>When 6800 interface mode is selected, this pin will be used as the Enable (E) signal.</p> <p>Read/write operation is initiated when this pin is pulled HIGH and the chip is selected.</p> <p>When 8080 interface mode is selected, this pin receives the Read (RD#) signal. Read operation is initiated when this pin is pulled LOW and the chip is selected.</p> <p>When serial or I2C interface is selected, this pin must be connected to VSS.</p> |

| 7 | D0 | I/O | <p>These pins are bi-directional data bus connecting to the MCU data bus.</p> <p>Unused pins are recommended to tie LOW.</p> <p>When serial interface mode is selected, D0 will be the serial clock input: SCLK; D1 will be the serial data input: SID and D2 will be the serial data output: SOD.</p> <p>When I2C mode is selected, D2, D1 should be tied together and serve as SDAout, SDAin in application and D0 is the serial clock input, SCL.</p> | | | | | | | | | | | | | | | | | | |
|---------|---------------------|-----|--|---------|-----------|-----|------------------|-----|---------|-----|------------------|-----|---------|-----|---------------------|-----|---------------------|-----|---------------------|-----|---------------------|
| 8 | D1 | | | | | | | | | | | | | | | | | | | | |
| 9 | D2 | | | | | | | | | | | | | | | | | | | | |
| 10 | D3 | | | | | | | | | | | | | | | | | | | | |
| 11 | D4 | | | | | | | | | | | | | | | | | | | | |
| 12 | D5 | | | | | | | | | | | | | | | | | | | | |
| 13 | D6 | | | | | | | | | | | | | | | | | | | | |
| 14 | D7 | | | | | | | | | | | | | | | | | | | | |
| 15 | CS# | I | <p>This pin is the chip select input connecting to the MCU. The chip is enabled for MCU communication only when CS# is pulled LOW (active LOW).</p> <p>In I2C mode, this pin must be connected to VSS.</p> | | | | | | | | | | | | | | | | | | |
| 16 | RES# | I | <p>This pin is reset signal input.</p> <p>When the pin is pulled LOW, initialization of the chip is executed.</p> <p>Keep this pin pull HIGH during normal operation.</p> | | | | | | | | | | | | | | | | | | |
| 17 | BS0 | I | <p>setting as described in the following table. BS2, BS1 and BS0 are pin select.</p> <p>Bus Interface selection</p> <table><tr><th>BS[2:0]</th><th>Interface</th></tr><tr><td>000</td><td>Serial Interface</td></tr><tr><td>001</td><td>Invalid</td></tr><tr><td>010</td><td>I²C</td></tr><tr><td>011</td><td>Invalid</td></tr><tr><td>100</td><td>8-bit 6800 parallel</td></tr><tr><td>101</td><td>4-bit 6800 parallel</td></tr><tr><td>110</td><td>8-bit 8080 parallel</td></tr><tr><td>111</td><td>4-bit 8080 parallel</td></tr></table> <p>Note</p> <p>(1) 0 is connected to VSS</p> <p>(2) 1 is connected to VDD</p> | BS[2:0] | Interface | 000 | Serial Interface | 001 | Invalid | 010 | I ² C | 011 | Invalid | 100 | 8-bit 6800 parallel | 101 | 4-bit 6800 parallel | 110 | 8-bit 8080 parallel | 111 | 4-bit 8080 parallel |
| BS[2:0] | Interface | | | | | | | | | | | | | | | | | | | | |
| 000 | Serial Interface | | | | | | | | | | | | | | | | | | | | |
| 001 | Invalid | | | | | | | | | | | | | | | | | | | | |
| 010 | I ² C | | | | | | | | | | | | | | | | | | | | |
| 011 | Invalid | | | | | | | | | | | | | | | | | | | | |
| 100 | 8-bit 6800 parallel | | | | | | | | | | | | | | | | | | | | |
| 101 | 4-bit 6800 parallel | | | | | | | | | | | | | | | | | | | | |
| 110 | 8-bit 8080 parallel | | | | | | | | | | | | | | | | | | | | |
| 111 | 4-bit 8080 parallel | | | | | | | | | | | | | | | | | | | | |
| 18 | BS1 | | | | | | | | | | | | | | | | | | | | |
| 19 | BS2 | | | | | | | | | | | | | | | | | | | | |
| 20 | VSS (FRGnd) | P | Ground | | | | | | | | | | | | | | | | | | |

Absolute Maximum Ratings

| Item | Symbol | Min | Max | Unit | Notes |
|--------------------------|---------|------|-----|------|-------|
| Operating Temperature | TOP | -40 | +80 | °C | - |
| Storage Temperature | TST | -40 | +85 | °C | - |
| Supply Voltage For Logic | VDD-VSS | -0.3 | 3.6 | V | - |

Electrical Characteristics

DC Electrical Characteristics

| Item | Symbol | Condition | Min | Typ | Max | Unit |
|--------------------------|---------|------------|---------|-----|---------|------|
| Supply Voltage For Logic | VDD-VSS | — | 2.8 | 3.0 | 3.3 | V |
| Input High Volt. | VIH | — | 0.8xVDD | — | VDD | V |
| Input Low Volt. | VIL | — | GND | — | 0.2xVDD | V |
| Output High Volt. | VOH | IOH=-0.5mA | 0.8xVDD | — | VDD | V |
| Output Low Volt. | VOL | IOL=0.5mA | GND | — | 0.2xVDD | V |
| Display 50% Pixel on | IDD | VDD=3V | - | 110 | 220 | mA |