WINSTAR Display

# OLED SPECIFICATION

Model No:

***WEO012832N***

WINSTAR DISPLAY CO., LTD

Represented by:

first FC components

**FIRST Components s.r.l.**
www.first-components.com
sales@first-components.com
+39 0332 1888005

# General Specification

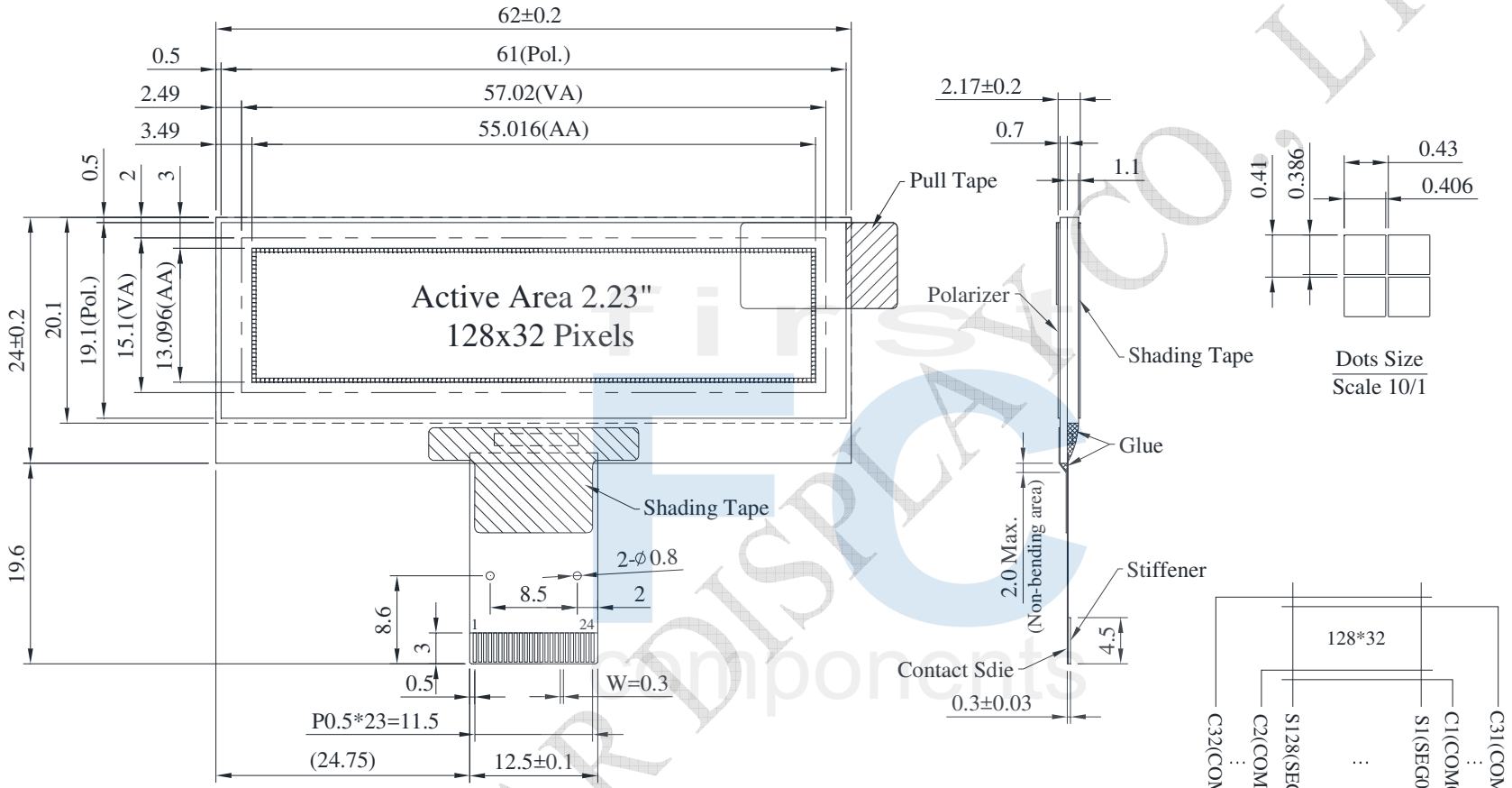
| Item | Dimension | Unit |
|---|---|---|
| Dot Matrix | 128 x 32 Dots | — |
| Module dimension | 62.0 × 24.0 × 2.17 | mm |
| Active Area | 55.016 × 13.096 | mm |
| Pixel Size | 0.406 × 0.386 | mm |
| Pixel Pitch | 0.43 × 0.41 | mm |
| Display Mode | Passive Matrix | |
| Display Color | Monochrome | |
| Drive Duty | 1/32 Duty | |
| IC | SH1106 | |
| Interface | 6800,8080,4-Wire SPI,I2C | |
| Size | 2.23 inch | |

WINSTAR DISPLAY CO.,LTD
first components



FIRST Components srl

# Contour Drawing & Block Diagram




| PIN | SYMBOL |
|---|---|
| 1 | NC(GND) |
| 2 | VSS |
| 3 | VSS |
| 4 | NC |
| 5 | VDD1 |
| 6 | IM1 |
| 7 | IM2 |
| 8 | $\overline{CS}$ |
| 9 | $\overline{RES}$ |
| 10 | A0 |
| 11 | $\overline{WR}$ |
| 12 | E/$\overline{RD}$ |
| 13 | D0 |
| 14 | D1 |
| 15 | D2 |
| 16 | D3 |
| 17 | D4 |
| 18 | D5 |
| 19 | D6 |
| 20 | D7 |
| 21 | IREF |
| 22 | VCOMH |
| 23 | VPP |
| 24 | NC(GND) |

The non-specified tolerance of dimension is ±0.3 mm .

WINSTAR DISPLAY CO., LTD
FIRST Components

# Interface Pin Function

<table>
<tr><th>No.</th><th>Symbol</th><th>Function</th></tr>
<tr><td>1</td><td>N.C.(GND)</td><td>No connection.</td></tr>
<tr><td>2~3</td><td>VSS</td><td>Ground.</td></tr>
<tr><td>4</td><td>N.C.</td><td>No connection.</td></tr>
<tr><td>5</td><td>VDD1</td><td>Power supply input.</td></tr>
<tr><td>6</td><td>IM1</td><td rowspan="2"><table><tr><td></td><td>8080</td><td>I2C</td><td>6800</td><td>4-SPI</td></tr><tr><td>IM1</td><td>1</td><td>1</td><td>0</td><td>0</td></tr><tr><td>IM2</td><td>1</td><td>0</td><td>1</td><td>0</td></tr></table>These are the MPU interface mode select pads.</td></tr>
<tr><td>7</td><td>IM2</td></tr>
<tr><td>8</td><td>$\overline{CS}$</td><td>This pad is the chip select input. When CSB = “L”, then the chip select becomes active, and data/command I/O is enabled.</td></tr>
<tr><td>9</td><td>$\overline{RES}$</td><td>This is a reset signal input pad. When RES is set to “L”, the settings are initialized. The reset operation is performed by the RES signal level.</td></tr>
<tr><td>10</td><td>A0</td><td>This is the Data/Command control pad that determines whether the data bits are data or a command.<br>A0 = “H”: the inputs at D0 to D7 are treated as display data.<br>A0 = “L”: the inputs at D0 to D7 are transferred to the command registers.<br>In I2C interface, this pad serves as SA0 to distinguish the different address of OLED driver.</td></tr>
<tr><td>11</td><td>$\overline{WR}$</td><td>This is a MPU interface input pad.<br>When connected to an 8080 MPU, this is active LOW. This pad connects to the 8080 MPU WR signal. The signals on the data bus are latched at the rising edge of the WR signal.<br>When connected to a 6800 Series MPU: This is the read/write control signal input terminal.<br>When R/W = “H”: Read.<br>When R/W = “L”: Write.</td></tr>
<tr><td>12</td><td>E/$\overline{RD}$</td><td>This is a MPU interface input pad.<br>When connected to an 8080 series MPU, it is active LOW. This pad is connected to the RD signal of the 8080 series MPU, and the data bus is in an output status when this signal is “L”.<br>When connected to a 6800 series MPU , this is active HIGH. This is used as an enable clock input of the 6800 series MPU.<br>When RD = “H”: Enable.<br>When RD = “L”: Disable.</td></tr>
</table>

WINSTAR DISPLAY CO., LTD

| | | |
|---|---|---|
| 13~20 | D0~D7 | This is an 8-bit bi-directional data bus that connects to an 8-bit or 16-bit standard MPU data bus.<br>When the serial interface is selected, then D0 serves as the serial clock input pad (SCL) and D1 serves as the serial data input pad (SI). At this time, D2 to D7 are set to high impedance.<br>When the I2C interface is selected, then D0 serves as the serial clock input pad (SCL) and D1 serves as the serial data input pad (SDAI). At this time, D2 to D7 are set to high impedance. |
| 21 | IREF | This is a segment current reference pad. A resistor should be connected between this pad and VSS. Set the current at 18.75uA. |
| 22 | VCOMH | This is a pad for the voltage output high level for common signals.<br>A capacitor should be connected between this pad and VSS. |
| 23 | VPP | OLED panel power supply. Generated by internal charge pump.<br>Connect to capacitor. It could be supplied externally. |
| 24 | NC(GND) | No connection. |

WINSTAR DISPLAY CO.,LTD
first components

# Absolute Maximum Ratings

| Parameter | Symbol | Min | Max | Unit |
|---|---|---|---|---|
| Supply Voltage For Logic | VDD1-VSS | -0.3 | 3.6 | V |
| Supply Voltage for Display | VPP | -0.3 | 14.5 | V |
| Operating Temperature | TOP | -40 | +80 | °C |
| Storage Temperature | TSTG | -40 | +85 | °C |

# Electrical Characteristics

## DC Electrical Characteristics

| Item | Symbol | Condition | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Supply Voltage for Logic | VDD1 | — | 1.65 | 3.0 | 3.3 | V |
| Supply Voltage for Display | VPP | — | 6.4 | 12.0 | 12.5 | V |
| Input High Volt. | VIH | — | 0.8XVDD1 | — | VDD1 | V |
| Input Low Volt. | VIL | — | VSS | — | 0.2xVDD1 | V |
| Output High Volt. | VOH | — | 0.8xVDD1 | — | VDD1 | V |
| Output Low Volt. | VOL | — | VSS | — | 0.2xVDD1 | V |
| Display 50% Pixel On | IPP | VPP=12V | — | 15 | 30 | mA |

WINSTAR DISPLAY CO., LTD
First Components



FIRST Components srl