

OLED DISPLAY SPECIFICATION



RAYSTAR

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SPECIFICATION

Model No:

REX012864AH

General Specification

The Features is described as follow :

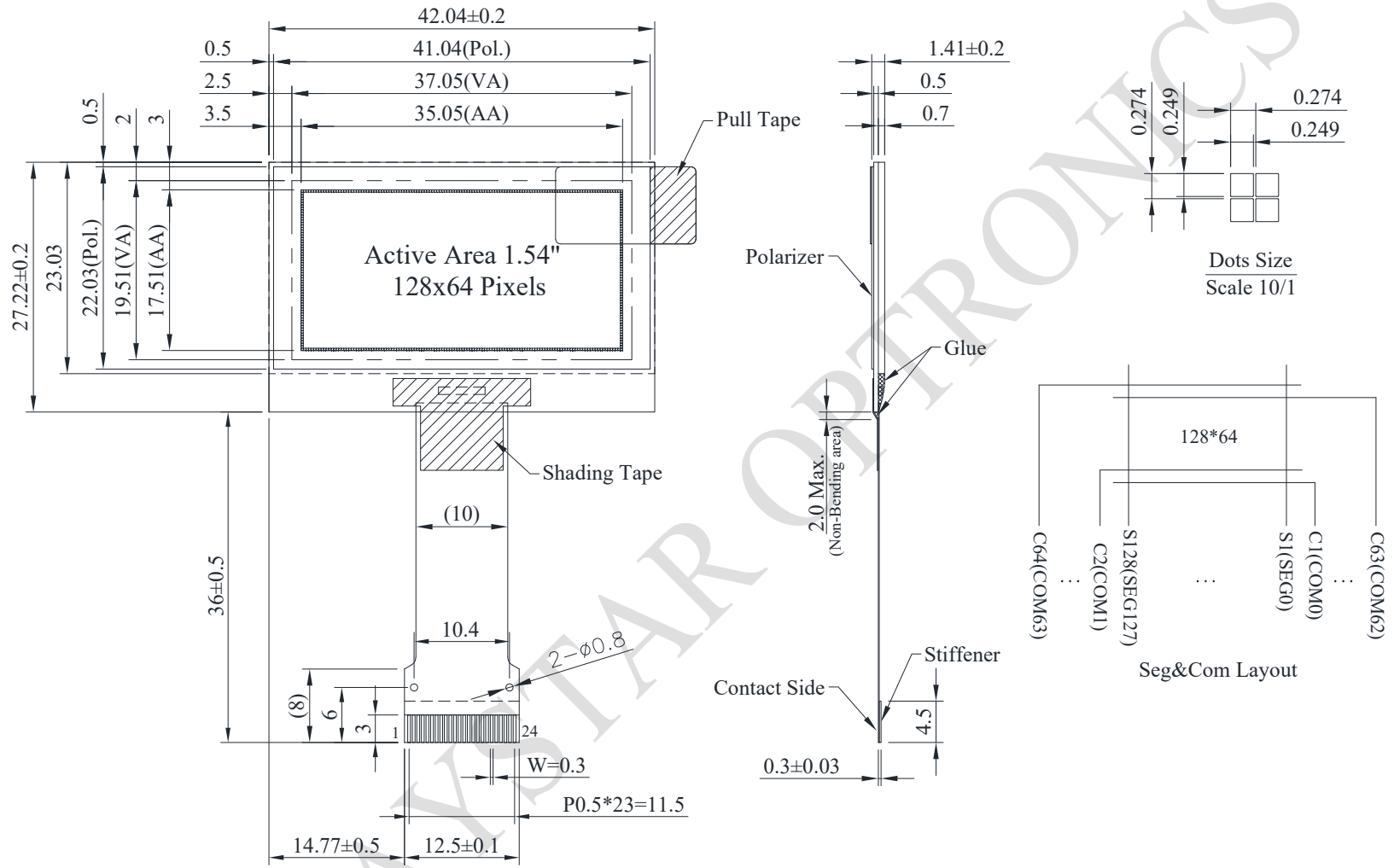
- Module dimension : 42.04 × 27.22 × 1.41 mm
- Active area : 35.05 × 17.51 mm
- Dot Matrix : 128 × 64
- Pixel Size : 0.249 × 0.249 mm
- Pixel Pitch : 0.274 × 0.274 mm
- Duty : 1/64 Duty
- Display Mode : Passive Matrix
- Display Color : Monochrome
- Interface : 6800,8080,4-Wire SPI,I2C
- IC : SH1106
- SIZE : 1.54 inch

Interface Pin Function

| No. | Symbol | Function | | | | | | | | | | | | | | | |
|-----|---|---|------|------------|-----|------|------------|-----|---|---|---|---|-----|---|---|---|---|
| 1 | ESD_GND | ESD Ground pin | | | | | | | | | | | | | | | |
| 2 | VSS | Ground. | | | | | | | | | | | | | | | |
| 3 | VSS | Ground. | | | | | | | | | | | | | | | |
| 4 | NC | No connection | | | | | | | | | | | | | | | |
| 5 | VDD1 | Power supply input | | | | | | | | | | | | | | | |
| 6 | IM1 | These are the MPU interface mode select pads. <table border="1"> <thead> <tr> <th></th> <th>8080</th> <th>I2C</th> <th>6800</th> <th>4-wire SPI</th> </tr> </thead> <tbody> <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> </tbody> </table> | | 8080 | I2C | 6800 | 4-wire SPI | IM1 | 1 | 1 | 0 | 0 | IM2 | 1 | 0 | 1 | 0 |
| | 8080 | I2C | 6800 | 4-wire SPI | | | | | | | | | | | | | |
| IM1 | 1 | 1 | 0 | 0 | | | | | | | | | | | | | |
| IM2 | 1 | 0 | 1 | 0 | | | | | | | | | | | | | |
| 7 | IM2 | Note (1) 0 is connected to VSS (2) 1 is connected to VDD1 | | | | | | | | | | | | | | | |
| 8 | \overline{CS} | This pad is the chip select input. When \overline{CS} = "L", then the chip select becomes active, and data/command I/O is enabled. | | | | | | | | | | | | | | | |
| 9 | \overline{RES} | This is a reset signal input pad. When \overline{RES} is set to "L", the settings are initialized. The reset operation is performed by the \overline{RES} signal level. | | | | | | | | | | | | | | | |
| 10 | A0 | This is the Data/Command control pad that determines whether the data bits are data or a command. A0 = "H": the inputs at D0 to D7 are treated as display data. A0 = "L": the inputs at D0 to D7 are transferred to the command registers. In I2C interface, this pad serves as SA0 to distinguish the different address of OLED driver. | | | | | | | | | | | | | | | |
| 11 | \overline{WR} (R/ \overline{W}) | This is a MPU interface input pad. When connected to an 8080 MPU, this is active LOW. This pad connects to the 8080 MPU \overline{WR} signal. The signals on the data bus are latched at the rising edge of the \overline{WR} signal. When connected to a 6800 Series MPU: This is the read/write control signal input terminal. When R/ \overline{W} = "H": Read. When R/ \overline{W} = "L": Write. | | | | | | | | | | | | | | | |

| | | |
|-------|---------------------------|---|
| 12 | E/ $\overline{\text{RD}}$ | <p>This is a MPU interface input pad.</p> <p>When connected to an 8080 series MPU, it is active LOW. This pad is connected to the $\overline{\text{RD}}$ signal of the 8080 series MPU, and the data bus is in an output status when this signal is "L".</p> <p>When connected to a 6800 series MPU, this is active HIGH. This is used as an enable clock input of the 6800 series MPU.</p> <p>When $\overline{\text{RD}}$ = "H": Enable.</p> <p>When $\overline{\text{RD}}$ = "L": Disable.</p> |
| 13-20 | D0~D7 | <p>This is an 8-bit bi-directional data bus that connects to an 8-bit or 16-bit standard MPU data bus.</p> <p>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.</p> <p>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.</p> |
| 21 | IREF | <p>This is a segment current reference pad. A resistor should be connected between this pad and VSS. Set the current at 18.75uA.</p> |
| 22 | VCOMH | <p>This is a pad for the voltage output high level for common signals. A capacitor should be connected between this pad and VSS.</p> |
| 23 | VPP | <p>OLED panel power supply. Generated by internal charge pump. Connect to capacitor. It could be supplied externally.</p> |
| 24 | ESD_GND | <p>ESD Ground pin</p> |

Contour Drawing & Block Diagram



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

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

Absolute Maximum Ratings

| Parameter | Symbol | Min | Max | Unit |
|----------------------------|--------|------|------|------|
| Supply Voltage for Logic | VDD1 | -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 | VPP | — | 6.4 | 12.5 | 13.0 | V |
| High Level Input | VIH | — | 0.8×VDD1 | — | VDD1 | V |
| Low Level Input | VIL | — | VSS | — | 0.2×VDD1 | V |
| High Level Output | VOH | — | 0.8×VDD1 | — | VDD1 | V |
| Low Level Output | VOL | — | VSS | — | 0.2×VDD1 | V |
| Display 50% Pixel on | IPP | VPP =12.5V | — | 13 | 20 | mA |