RAYSTAR

SPECIFICATION

OLED SPECIFICATION

Model No:

REX009664B

General Specification

The Features is described as follow:

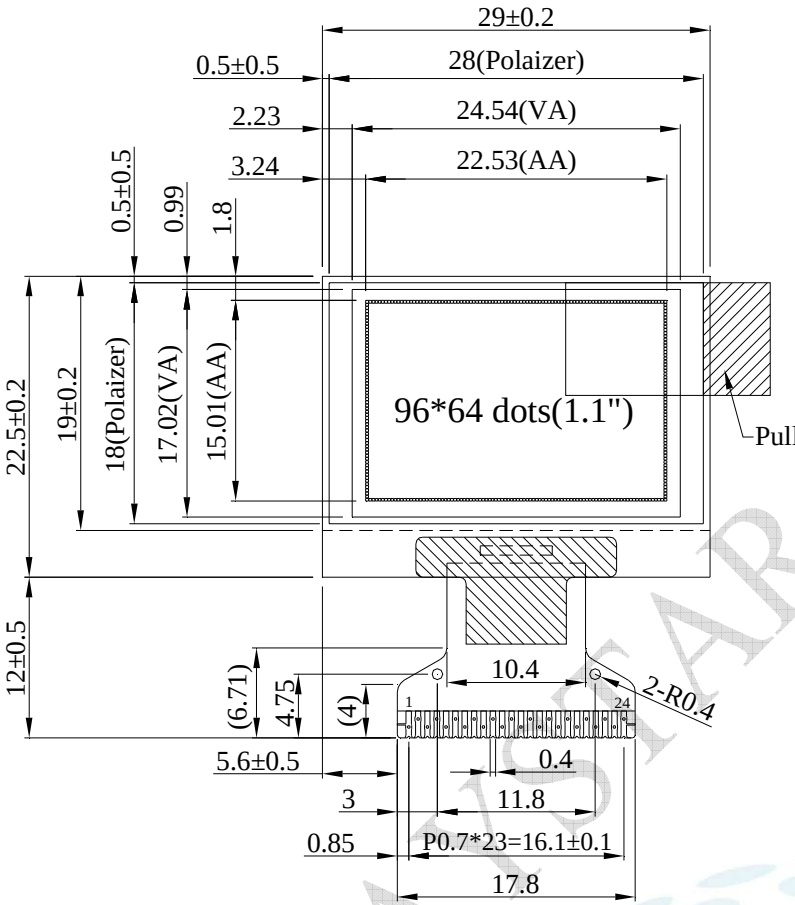
- Module dimension: 29.00 x 22.50 x 1.65 mm
- Active area: 22.53 x 15.01mm
- Dot Matrix: 96 x 64
- Dot size: 0.205 x 0.205 mm
- Dot pitch: 0.235 x 0.235 mm
- Display Mode：Passive Matrix
- Duty: 1/64 Duty
- Display Color: OLED , Monochrome
- Controller IC: SSD1327
- Interface: 4-Wire SPI, I2C, 6800, 8080
- Size: 1.1 inch

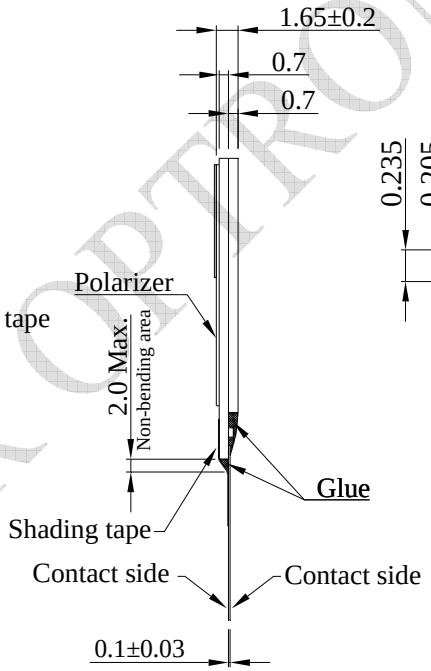
Interface Pin Function

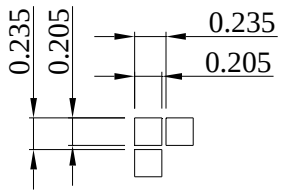
<table>
<tr><th>No.</th><th>Symbol</th><th>Function</th></tr>
<tr><td>1</td><td>VSS</td><td>Ground pin. It must be connected to external ground.</td></tr>
<tr><td>2</td><td>VCC</td><td>Power supply for panel driving voltage. This is also the most positive power voltage supply pin. It is supplied by external high voltage source.</td></tr>
<tr><td>3</td><td>VCOMH</td><td>COM signal deselected voltage level.
A capacitor should be connected between this pin and VSS. No external power supply is allowed to connect to this pin.</td></tr>
<tr><td>4</td><td>VCI</td><td>Low voltage power supply and power supply for interface logic level. It should match with the MCU interface voltage level and must be connected to external source.
VCI must always set to be equivalent to or higher than VDD.</td></tr>
<tr><td>5</td><td>VDD</td><td>Power supply pin for core logic operation.</td></tr>
<tr><td>6</td><td>BS1</td><td rowspan="2">MCU bus interface selection pins. Select appropriate logic setting as described in the following table. BS2 and BS1 are pin select.
Bus Interface selection
<table>
<tr><th>BS[2:1]</th><th>Interface</th></tr>
<tr><td>00</td><td>4 line SPI</td></tr>
<tr><td>01</td><td>I2C</td></tr>
<tr><td>11</td><td>8-bit 8080 parallel</td></tr>
<tr><td>10</td><td>8-bit 6800 parallel</td></tr>
</table>
Note (1) 0 is connected to VSS (2) 1 is connected to VCI</td></tr>
<tr><td>7</td><td>BS2</td></tr>
<tr><td>8</td><td>VSS</td><td>Ground pin. It must be connected to external ground.</td></tr>
<tr><td>9</td><td>IREF</td><td>This pin is the segment output current reference pin</td></tr>
<tr><td>10</td><td>CS#</td><td>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).</td></tr>
<tr><td>11</td><td>RES#</td><td>This pin is reset signal input.
When the pin is pulled LOW, initialization of the chip is executed.
Keep this pin pull HIGH during normal operation.</td></tr>
<tr><td>12</td><td>D/C#</td><td>This pin is Data/Command control pin connecting to the MCU.
When the pin is pulled HIGH, the data at D[7:0] will be interpreted as data.
When the pin is pulled LOW, the data at D[7:0] will be transferred to a command register.
In I2C mode, this pin acts as SA0 for slave address selection.
When 3-wire serial interface is selected, this pin must be connected to VSS.</td></tr>
<tr><td>13</td><td>R/W#</td><td>This pin is read / write control input pin connecting to the MCU interface.
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.
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.</td></tr>
</table>

14	E	This pin is MCU interface input. When 6800 interface mode is selected, this pin will be used as the Enable (E) signal. Read/write operation is initiated when this pin is pulled HIGH and the chip is selected. 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. When serial or I2C interface is selected, this pin must be connected to VSS.
15	D0	These pins are bi-directional data bus connecting to the MCU data bus. Unused pins are recommended to tie LOW. When serial interface mode is selected, D0 will be the serial clock input: SCLK; D1 will be the serial data input: SDIN and D2 should be kept NC. 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.
16	D1	
17	D2	
18	D3	
19	D4	
20	D5	
21	D6	
22	D7	
23	VCC	Power supply for panel driving voltage. This is also the most positive power voltage supply pin. It is supplied by external high voltage source.
24	VSS	Ground pin.

Contour Drawing & Block Diagram

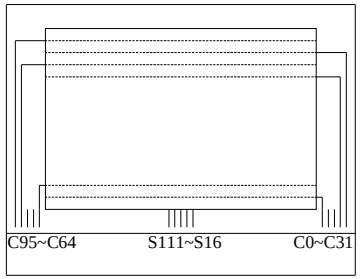






DOTS SIZE
SCALE 10/1

PIN	SYMBOL	PIN	SYMBOL
1	VSS	13	R/W#
2	VCC	14	RD#
3	VCOMH	15	D0
4	VCI	16	D1
5	VDD	17	D2
6	BS1	18	D3
7	BS2	19	D4
8	VSS	20	D5
9	IREF	21	D6
10	CS#	22	D7
11	RES#	23	VCC
12	D/C#	24	VSS



SEG & COM Layout

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

Absolute Maximum Ratings

Parameter	Symbol	Min	Max	Unit	Notes
Supply Voltage for Operation	VCI	-0.3	4.0	V	1, 2
Supply Voltage for Logic	VDD	-0.5	2.75	V	1, 2
Supply Voltage for Display	VCC	-0.5	19.0	V	1, 2
Operating Temperature	TOP	-40	+80	°C	-
Storage Temperature	TSTG	-40	+85	°C	-

Note 1: All the above voltages are on the basis of “VSS = 0V”.
Note 2: When this module is used beyond the above absolute maximum ratings, permanent breakage of the module may occur. Also, for normal operations, it is desirable to use this module under the conditions according to Section6 “Electrical Characteristics”. If this module is used beyond these conditions, malfunctioning of the module can occur and the reliability of the module may deteriorate.

Electrical Characteristics

DC Electrical Characteristics

Item	Symbol	Condition	Min	Typ	Max	Unit
Supply Voltage for Logic	VCI	—	2.8	3.0	3.3	V
Supply Voltage for Display	VCC	—	8.0	8.5	9.0	V
Input High Volt.	VIH	—	0.8×VCI	—	VCI	V
Input Low Volt.	VIL	—	VSS	—	0.2×VCI	V
Output High Volt.	VOH	—	0.9×VCI	—	VCI	V
Output Low Volt.	VOL	—	VSS	—	0.1×VCI	V
50% Check Board operating Current	ICC	VCC=8.5V	—	13.0	26.0	mA