

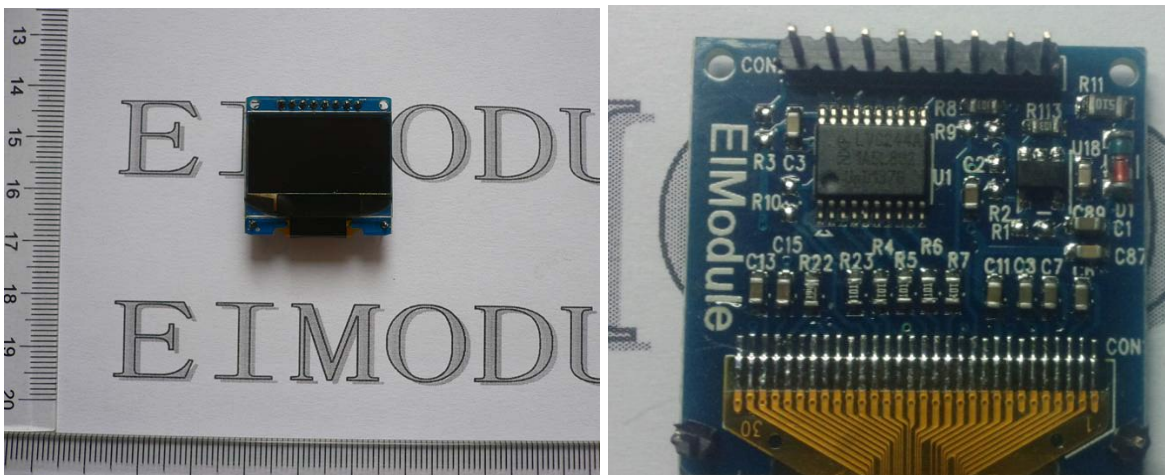
EIModule

0.96" OLED Module (5V)

1. Introduction

We design this OLED module with 0.96" 128 X 64 OLED

- 1) SPI interface is used for driving this OLED.
- 2) All the peripheral components for OLED are on board. User just considers it as a component with SPI interface.
- 3) 8 pin board to board connector with 2.0mm pitch
- 4) Module dimension: 26.7mm x 25.4mm



Two colors of OLED (WHITE and BLUE) for your selection

1.1 Display Specification

- 1) Display Mode: Passive Matrix
- 2) Display Color: Monochrome (WHITE or BLUE)
- 3) Drive Duty: 1/64 Duty

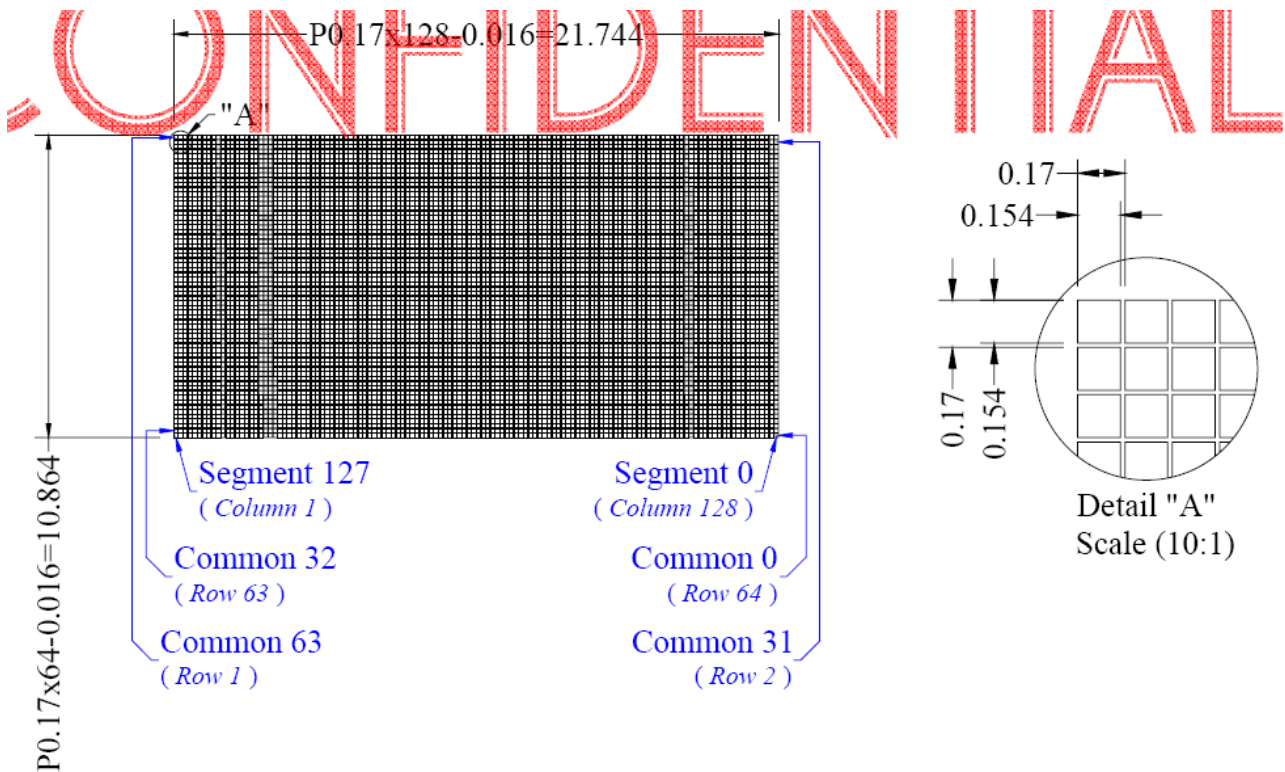
1.2 Mechanical Specification

- 1) Number of Pixels: 128X 64

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- 2) Active Area: 21.744 X 10.864(mm)
- 3) Pixel Pitch: 0.17 X 0.17 (mm)
- 4) Pixel Size: 0.154X0.154 (mm)

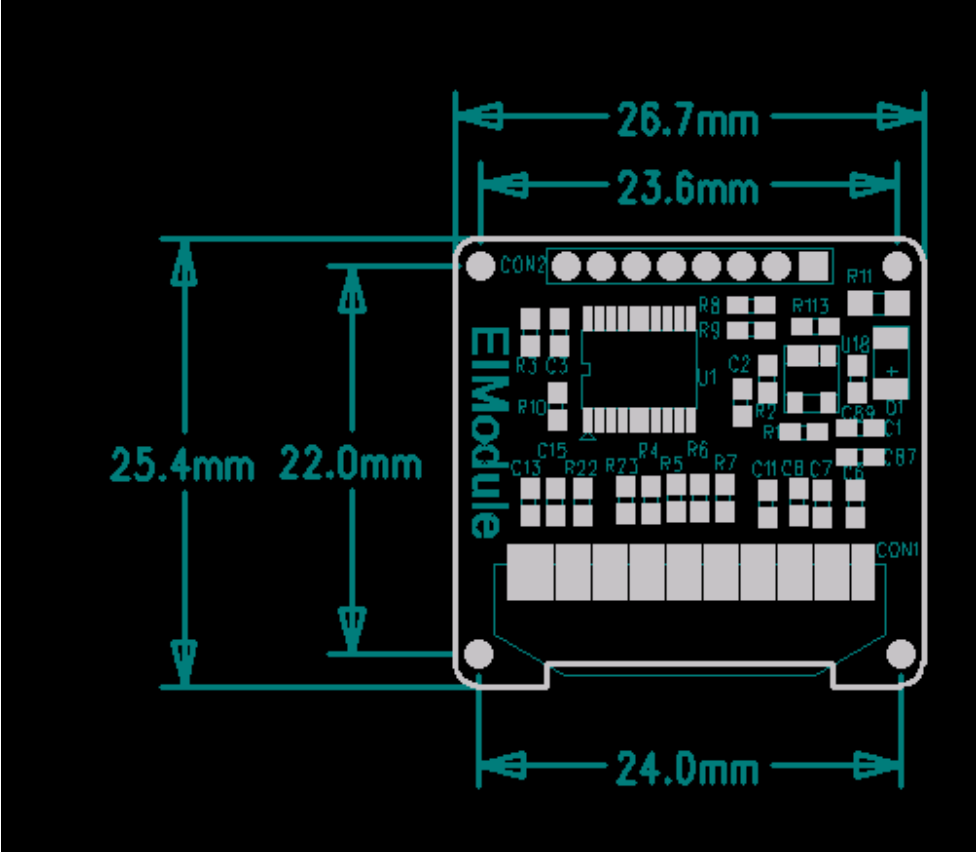


1.3 Electrical Specification

- 1) Power supply: 4.5V – 5.5V
- 2) Interface voltage: 3.2-5.5.

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2. The assembly drawing

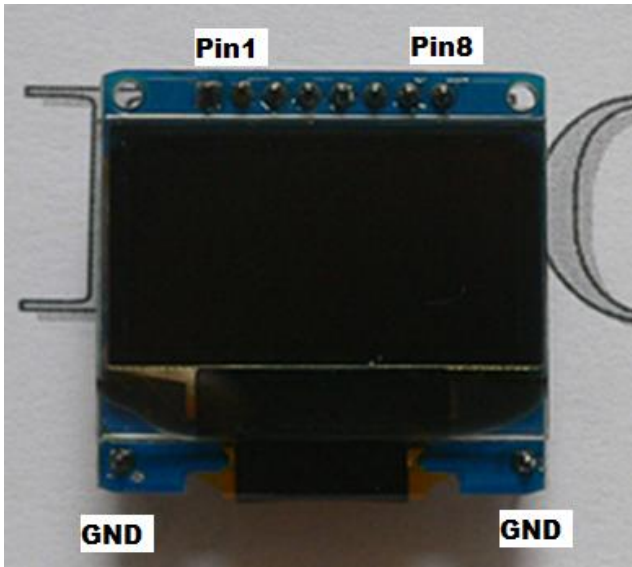


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3. How to drive this OLDE

3.1 Hardware description

1) Pin definition



Pin Number	Symbol	Type	Function
1	VDD	P	This is a voltage supply pin.
2	GND	P	This is a ground pin.
3	CS	I	Chip select This pin is the chip select input. This chip is enabled for MCU communication only when CS is pulled low
4	RES	I	Power Rest for controller and Driver This pin is reset signal input. When this pin is low, initialization of the chip is executed
5	DC	I	Data/Command Control When this pin is pulled high, the data at SDIN is treated as data. When it is pulled low, the data at SDIN will be transferred to the command register.
6	SCLK	I	Serial clock input
7	SDIN	I	Serial Input data
8	NC		Not connected

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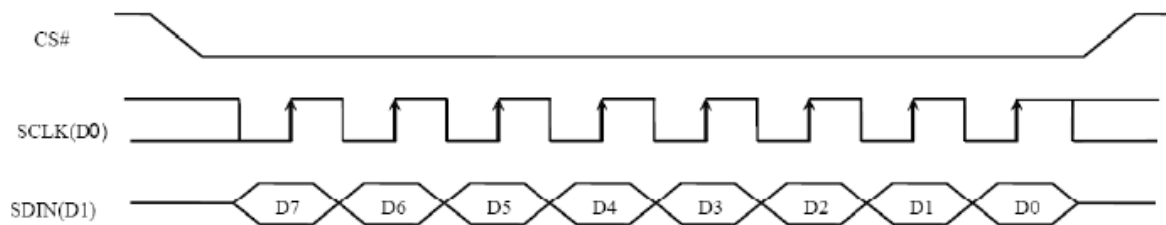
2) DC Characteristics

Characteristics	Symbol	Min	Typ	Max	Unit
<i>Supply Voltage for DC/DC</i>	V_{DD}	4.5	-	5.5	V
High Level Input	V_{IH}	3.2V	-	5.5	V
Low Level Input	V_{IL}	0	-	0.66	V

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3.2 Software description

1) SPI interface (4-wire SPI)



You can use SPI peripheral of MCU or use GPIO to generate the above signals timing to send the command and data to OLED.

2) Initialization

Using the following initial sequence to initialize the OLED

After the OLED is initialized, the OLED display content can be sent to the memory of OLED for display.

The following SW code for OLED initialization

```
LCD_SendByte(COMMAND_TYPE, 0x8d);  
LCD_SendByte(COMMAND_TYPE, 0x14);  
LCD_SendByte(COMMAND_TYPE, 0xaf);  
  
//Set Display Clock  
LCD_SendByte(COMMAND_TYPE, 0xd5);  
LCD_SendByte(COMMAND_TYPE, 0xf0);  
//Set Pre-charge Period  
LCD_SendByte(COMMAND_TYPE, 0xd9);  
LCD_SendByte(COMMAND_TYPE, 0xf1);  
//Set VCOMH Deselect Level  
LCD_SendByte(COMMAND_TYPE, 0xdb);  
LCD_SendByte(COMMAND_TYPE, 0x0);  
//Set Normal Display  
LCD_SendByte(COMMAND_TYPE, 0xa6);  
//Set Contrast Control  
LCD_SendByte(COMMAND_TYPE, 0x81);  
LCD_SendByte(COMMAND_TYPE, 0xff); //1-256  
//Set Segment Re-map
```

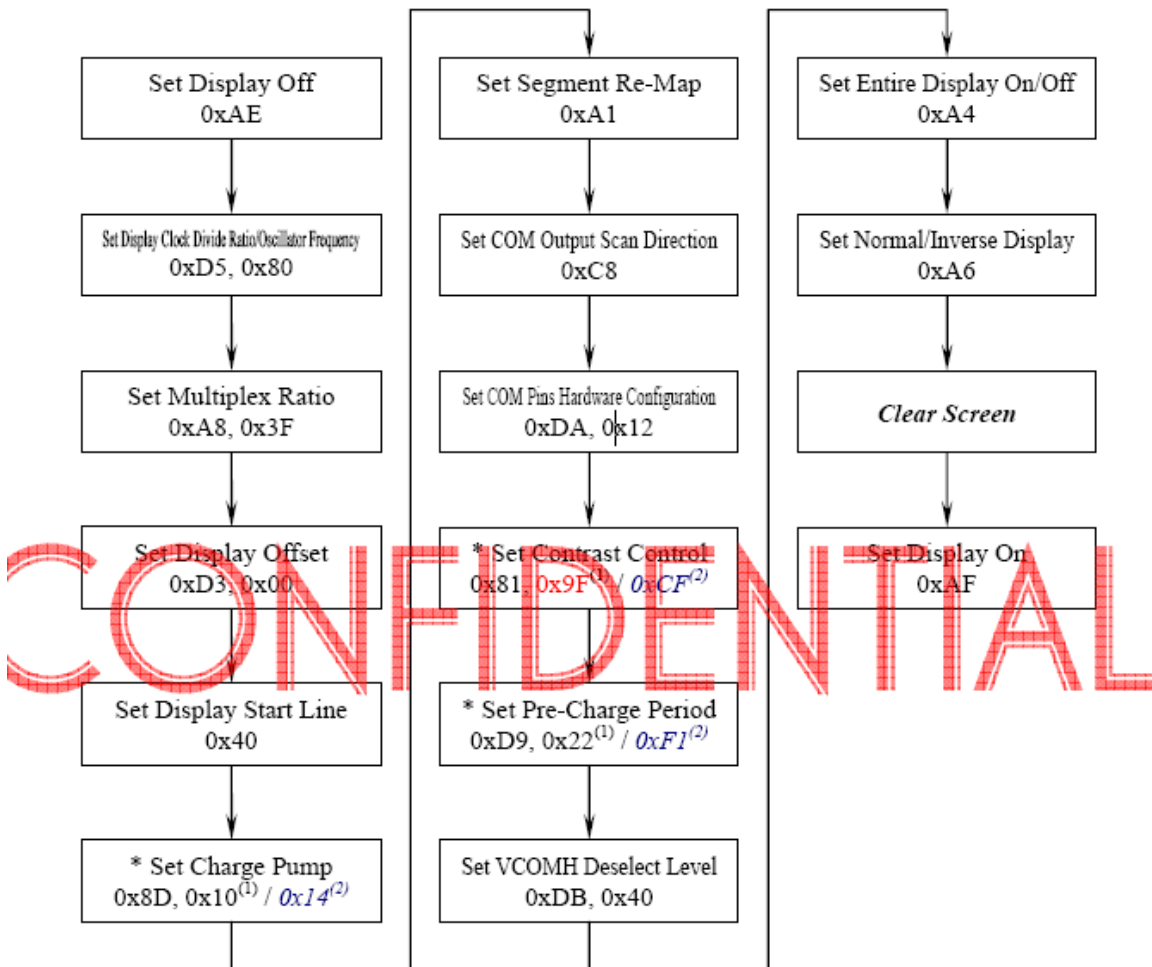
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```
LCD_SendByte(COMMAND_TYPE, 0xa1);
//Set COM Output Scan Direction
LCD_SendByte(COMMAND_TYPE, 0xc8);
//Set Memory Addressing Mode
LCD_SendByte(COMMAND_TYPE, 0x20);
LCD_SendByte(COMMAND_TYPE, 0x00);
```

Initialization flow chart

<Initialization>



For detailed information for OLED software program, please download the following two documents on our website: www.eimodule.com (Search EIM376)

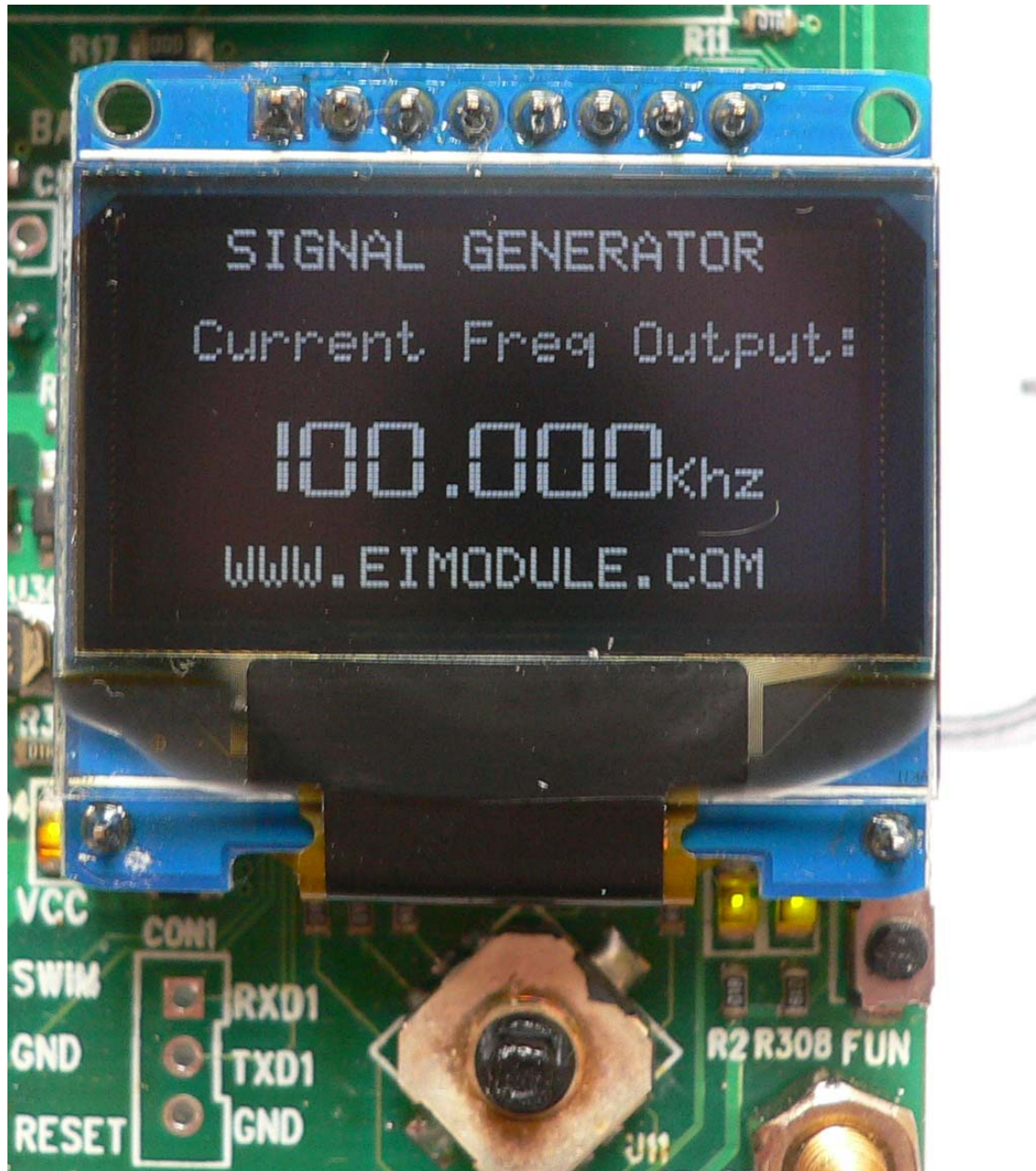
1. OLED.pdf
2. SSD1306-OLED-Controller.pdf

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4. Pictures for OLED display

White OLED



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BLUE OLED



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