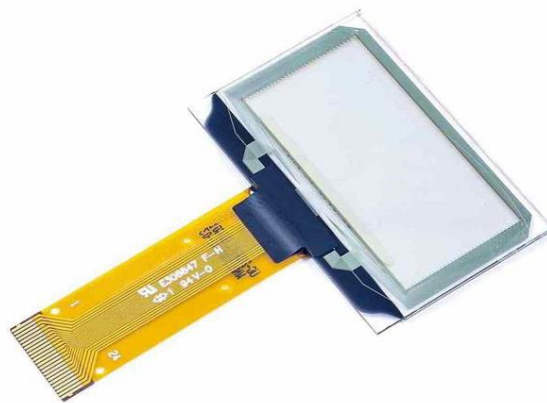# Interfacing 1.51inch OLED Display SSD1309 Driver with ESP32

1.51inch OLED Display SSD1309 Driver Features

The 1.51-inch Transparent OLED Display with SSD1309 Driver in Blue is an impressive display module that offers vivid visuals and easy integration. With its clear and crisp blue color, this transparent OLED display captures attention and delivers sharp images. Powered by the SSD1309 driver, it ensures smooth performance and compatibility with various devices and projects. Its compact size and see-through design make it suitable for a wide range of uses, from wearable tech to industrial displays. Easy to connect and simple to operate, this OLED display is perfect for hobbyists and professionals alike looking to enhance their projects with striking visuals. Experience the brilliance of transparent OLED technology with the 1.51-inch display in Blue, and take your creations to the next level.

1.51inch OLED Display SSD1309 Driver-1

For more information, you can read this datasheet

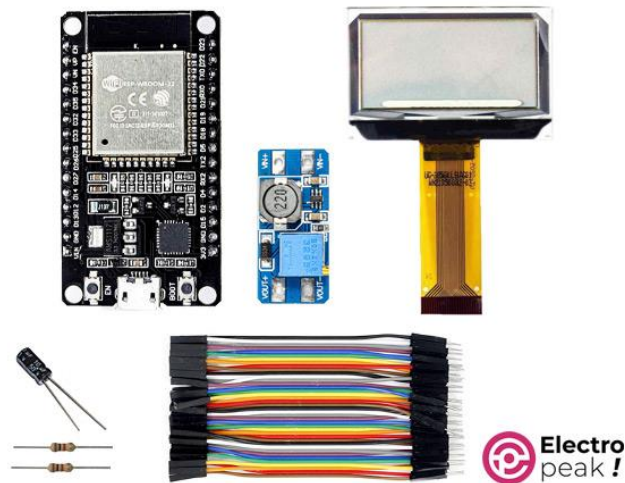## 1.51inch OLED Display SSD1309 Driver Pinout

The 1.51inch OLED Display SSD1309 Driver has 24 pin connector.

Pin	Symbol	Connect to (in SPI Mode)	Pin	Symbol	Connect to (in SPI Mode)
1	N.C (GND)	GND	2	VLSS	GND
3	VSS	GND	4	N.C.	-
5	VDD	3.3V	6	BS1	GND
7	BS2	GND	8	CS	CS (GPIO5)
9	RES	(GPIO 2)	10	D/C	(GPIO 4)
11	R/W	GND	12	E/RD	GND
13	D0	SCK (GPIO18)	14	D1	MOSI (GPIO23)
15	D2	GND	16	D3	GND
17	D4	GND	18	D5	GND

19	D6	GND	20	D7	GND
21	IREF	910KΩ Resistor to GND	22	VCOMH	10uF Capacitor
23	VCC	12V	24	N.C (GND)	GND

1.51inch OLED Display SSD1309 Driver-pin

Required Material

1.51inch OLED Display SSD1309 Driver-Required-Materials

Hardware Components

ESP-WROOM-32 ESP32 Development Board	1	https://electropeak.com/node-mcu-esp32s-edition-wifi-module https://thecaferobot.com/store/node-mcu-esp32s-edition-wifi-module
1.51inch OLED Display SSD1309 Driver	1	https://electropeak.com/1-51-inch-spi-iic-oled-display-with-ssd1309-driver https://thecaferobot.com/store/1-51-inch-spi-iic-oled-display-with-ssd1309-driver
MT3608 2A DC-DC Adjustable Step Up Booster Power Module	1	https://electropeak.com/c7a5-stepup-module-dc-28v-2a-usb https://thecaferobot.com/store/mt3608-dc-boost-voltage-module-2a-adjustable
910KΩ Resistor	1	https://thecaferobot.com/store/smd-resistor-910k-ohm-1206-5-percent-250mw
10uF Capacitor	1	https://thecaferobot.com/store/aluminum-capacitors-10uf-through-hole-radial-20-percent-p2-00011
Male/Male Jumper Wires	1	https://electropeak.com/10cm-40p-male-to-male-jumper-wire https://thecaferobot.com/store/male-male-40p-21cm

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Interfacing 1.51inch OLED Display SSD1309 Driver with ESP32

Step 1: Circuit

The following circuit shows how you should connect ESP32 to 1.51inch OLED Display SSD1309 Driver Connect wires accordingly.
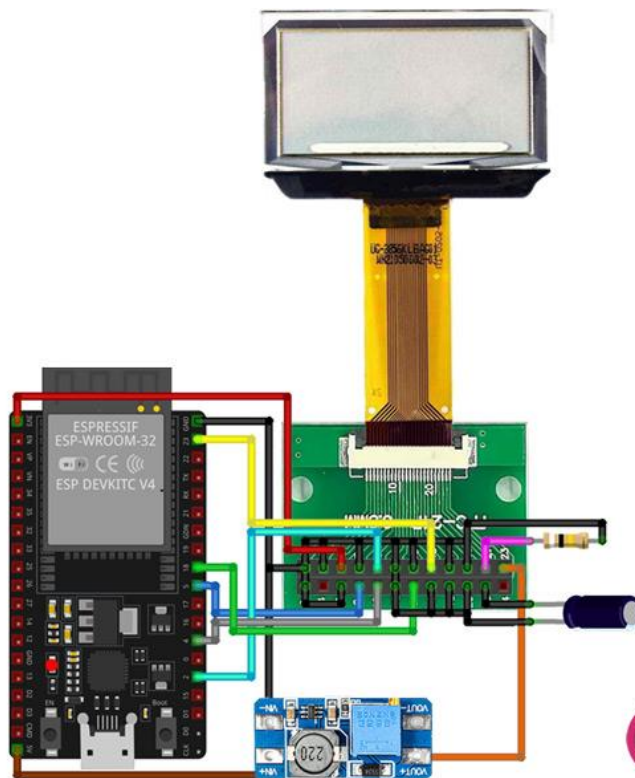
TIP:

Should set booster at 9~10 volt.

Use a resistor between 900KΩ to 1.1MΩ

Use a capacitor between 1uF to 10uF

There is no library for I2C mode, only SPI is available

1.51inch OLED Display SSD1309 Driver-wire

Step 2: Installing Library

Install the library below on your Arduino IDE.

https://github.com/olikraus/u8g2

Step 3: Code

Upload the following code to your ESP32.

```
/*
Create on February 14, 2024
Create by MohammedDamirchi base of https://electropeak.com/ina226-voltage-current-power-
monitoring-module
https://electropeak.com/learn/
*/


#include <Arduino.h>
#include <U8g2lib.h>


#ifdef U8X8_HAVE_HW_SPI
#include <SPI.h>
#endif
#ifdef U8X8_HAVE_HW_I2C
#include <Wire.h>
#endif

U8G2_SSD1309_128X64_NONAME2_F_4W_HW_SPI u8g2(U8G2_R0, /* cs=*/5, /* dc=*/4, /* reset=*/2); //
D0 = SCK =18 , D1 = MOSI = 23 , D2~D7 = GND

void setup(void)
{
  u8g2.begin();
}

void loop(void)
{
  u8g2.clearBuffer();                   // clear the internal memory
  u8g2.setFont(u8g2_font_ncenB08_tr);   // choose a suitable font
  u8g2.drawStr(0, 10, "Hello World!");  // write something to the internal memory
  u8g2.drawStr(0, 25, "Electropeak");   // write something to the internal memory
  u8g2.sendBuffer();                    // transfer internal memory to the display
  delay(1000);
}#include <INA226.h>
```

After uploading the code, you can view the module output as shown in the video below.