

MSP242X

2.42inch OLED SPI&IIC Display Module Specification



ShenZhen QDtech electronic technology Co.,LTD.

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1. GENERAL DESCRIPTION

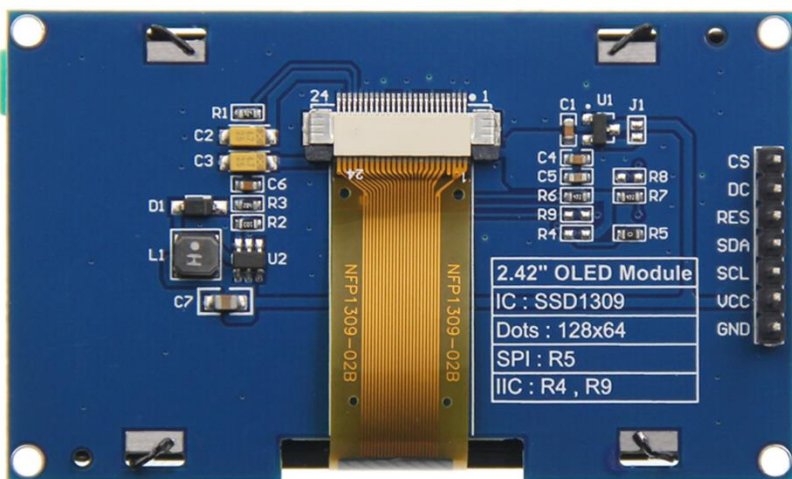
1.1. Product Introduction

MSP242X is a 2.42-inch OLED monochrome display module equipped with three monochrome displays: white, yellow, and blue. The display module is compatible with the SPI interface and IIC interface, with the SPI interface requiring at least 5 IOs for display and the IIC interface requiring at least 4 IOs for display. With a resolution of 128x64, it can be applied to various products that require high brightness, high contrast, and low-power screen display functions.

1.2. Image



Front



Back

Picture 1 MSP242X product

2. PRODUCT FEATURES

2.1. Feature Description

- 2.42" OLED monochrome screen, equipped with three monochrome displays: white, yellow, and blue
- 128x64 resolution, clear display effect, high contrast
- Large viewing angle: greater than 160 ° (the screen with the largest viewing angle in the display screen)
- Wide voltage power supply (3V~5V), compatible with 3.3V and 5V logic levels, without the need for level conversion chips
- By default, 4-wire SPI serial bus is used, supporting switching to IIC bus
- Equipped with an iron frame, it can effectively protect the display screen
- Ultra low power consumption (much lower than TFT display screen)
- Provide rich example learning programs (ESP32/STM32/Arduino/C51/CH32/RaspberryPi)
- Provide low-level driver technical support, and update WIKI information online
- Multiple tests for module aging can meet military level standards, supporting long-term stable work

3. PRODUCT PARAMETERS

3.1. Display Screen Parameters

Item	Parameters	Unit
Panel Size	2.42	inch
Panel Type	OLED	-
Resolution	128x64	pixels
Active Area	55.01(W)x27.49(H)	mm
Display Color	White/Blue/Yellow (Monochrome)	-
Driver IC	SSD1309	-
Display Interface	4-Wire SPI(default)/IIC	-
Pixel Size	0.43(H)x0.43(V)	mm

View Angle	ALL 0° CLOCK	deg
Brightness(TYP)	110	cd/m ²
Operation Temperature	-40~70	°C
Storage Temperature	-40~85	°C

3.2. Size Parameters

Item	Parameters	Unit
OLED Outline Size	60.5±0.2(W)x37.0±0.2(H)x2.0±0.1(D) (Excluding cables and adhesive backing)	mm
Module Outline Size	72.0(W)x43.0(H)x12.39(D) (including Pin Header)	mm

3.3. Electrical Parameters

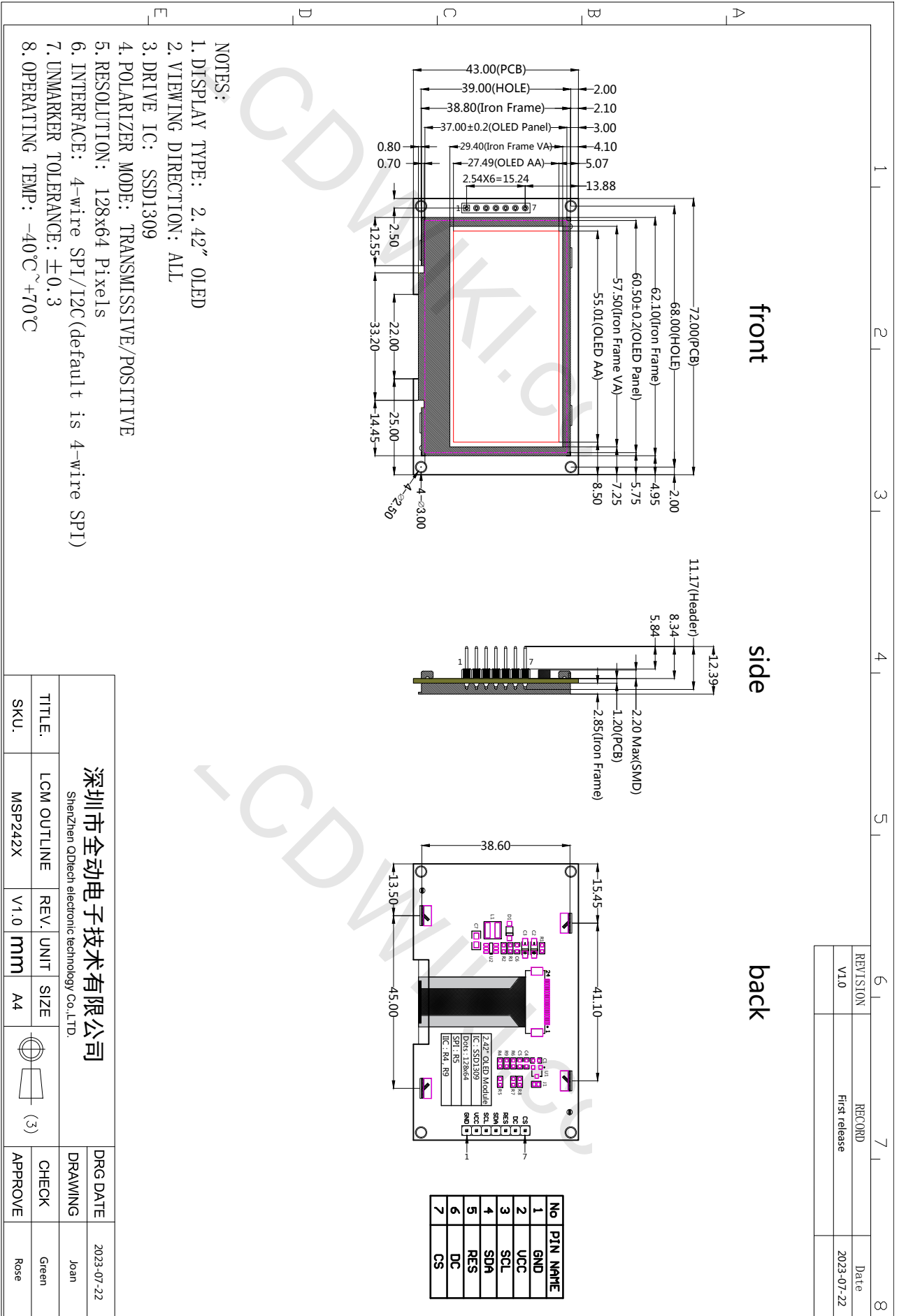
Item	Parameters	Unit
Working Voltage	5.0/3.3V	V
Working Current	52(Max)	mA
Power	0.26(Max)	W

3.4. Other Parameters

Item	Parameters	Unit
SKU	MSP242W (White)/MSP242B (Blue)/MSP242Y (Yellow)	-
Interface	7Pin 2.54mm Header	-
Weight(including package)	25	g

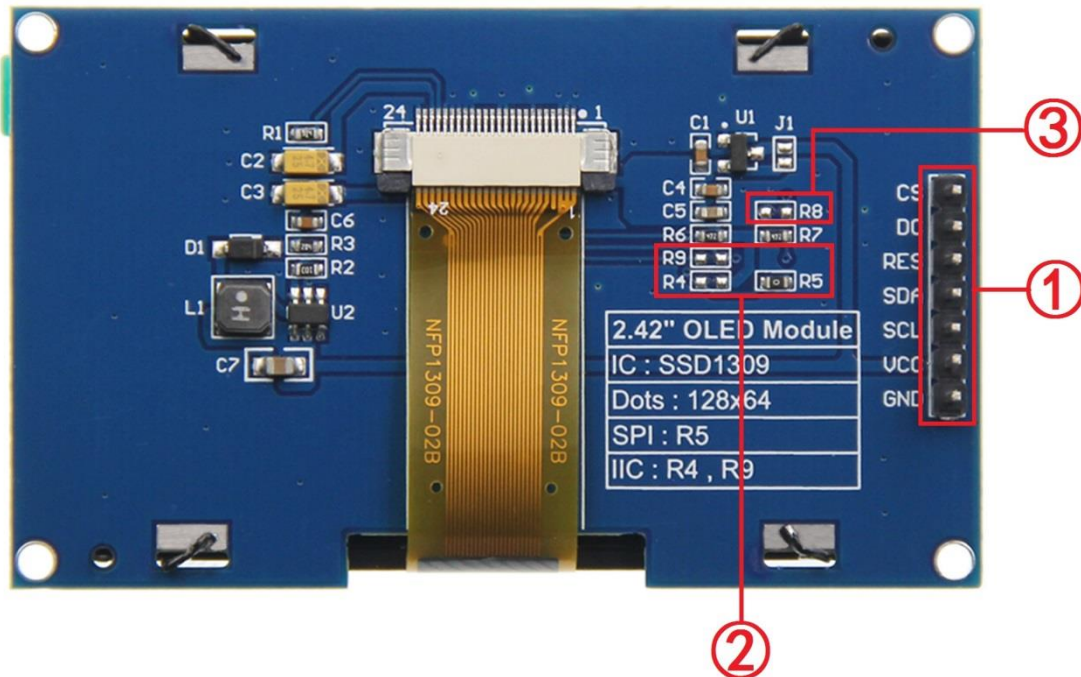
4. PRODUCT OUTLINE DRAWING

4.1. MSP242X Outline Drawing



5. PRODUCT INTERFACE

5.1. Interface Function Description



Picture 3 Product Interface

Number	Interface	Function Description
①	7 Pin Header	2.54mm spacing row pins, module signal input pins
②	Communication Interface Switching Resistor	If only R5 resistors are welded, use SPI communication interface (default) If only R4 and R9 resistors are welded, use the IIC communication interface
③	CS Pin Grounding Resistance	R8 resistors are not welded by default. If the R8 resistor is welded, the CS pin can be suspended

5.2. Pin Function Description

Module Pin	Pin Function Description
GND	OLED screen power supply ground
VCC	OLED screen power supply positive pole (connected to 5V/3.3V)
SCL	Using SPI interface: SPI bus clock signal Using IIC interface: IIC bus clock signal
SDA	Using SPI interface: SPI bus to write data signals Using IIC interface: IIC bus data signal

RES	OLED screen reset control signal, low-level reset (if using IIC interface, this pin can be left unchecked and connected to 3.3V high-level)
DC	Using SPI interface: OLED screen command/data selection control signal (high level: data, low level: command) Using IIC interface: The IIC bus selects signals from the device address (high level: 0x7A, low level: 0x78, which can be controlled by the master GPIO or connected to 3.3V high level or GND)
CS	OLED screen chip selection control signal, effective at low level (if R8 resistor is soldered, this pin can be suspended. If R8 resistor is not soldered, when using IIC interface, this pin must be connected to low level, which can be controlled by master GPIO or GND)

6. PRECAUTIONS

6.1. Safe Use of Products

- Do not use violence to press or hit the screen to avoid damaging it
- Do not use hard objects to scratch the screen to avoid scratching it
- Do not place heavy items on the product to avoid crushing the screen
- Please keep the product clean and do not drip water or oil on the screen
- Please use a clean, soft, and dry cloth to wipe the screen, and do not spray water or cleaning agents directly onto the screen
- Do not disassemble the product randomly to avoid damaging the screen or wiring
- Do not place the product in a high temperature and humidity environment
- Please place the product facing upwards in a stable place to prevent it from falling and damaging the product
- Please use the correct voltage to connect to the product to avoid damage due to high voltage
- When using the product, do not touch the components or pins with wet hands to avoid causing short circuits and damaging the product
- Please use conditions below the absolute maximum rating to avoid damaging the product
- Try to avoid using the product under strong light for a long time as much as possible

6.2. Frequently Asked Questions FAQ

- **Question 1: After receiving the product, the wiring runs the program without any display on the screen**

Analysis:

Due to the fact that this product is an OLED display module and does not have a dedicated backlight structure, everything needs to be normal to display. If there is no display, there are generally the following reasons:

- 1) The actual wiring pins do not match the pins defined in the program;
- 2) Program usage error or communication interface not switched over, such as planning to use SPI interface but burning IIC program or burning SPI program but module is IIC interface (not switched to SPI interface);
- 3) Program issues. For example, if the SPI rate or IIC rate in the program is set too high, causing the module to be unable to receive and transmit data normally, it is necessary to reduce the SPI rate or IIC rate in the program. Incorrect initialization settings in the program can also result in no display.
- 4) Hardware issues with the module itself, such as poor soldering, loose FPC cables, poor external wiring contact, etc.

- **Question 2: The product shows residual shadows**

Analysis:

If the OLED display screen is fixed on the touch screen for a long time, there may be a burning phenomenon (leaving residual shadows). Turn off the power on the display screen and let it sit for a period of time before turning it back on, and the residual image will disappear.

- **Question 3: What if there are no examples in the demo that are applicable to my main control**

Analysis:

As is well known, there are over ten thousand types of main control models, and the development boards derived from them are countless. Our demo is configured with examples of the ESP32/STM32/CH32/C51/Arduino/RaspberryPi

platform by default, and each example will only be released after being tested and certified. All source code is free and open-source learning, and is mostly written in pure C language, making it convenient for customers to transplant to their own microcontroller platform; If you cannot find a directly usable example in the demo, you need to refer to our code and transplant it yourself. If necessary, you can also purchase our test board to test the screen first to determine its quality and increase confidence; Our company provides low-level driver technical support. Welcome to communicate, exchange, and learn!