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# WAVESHARE ESP32-S3-LCD-1.69 Low Cost High Performance MCU Board


## Product Specifications

- **Processor**: Up to 240 MHz main frequency
- **Memory**: 512KB SRAM, 384KB ROM, 8MB PSRAM, 16MB Flash memory
- **Display**: 1.69-inch capacitive LCD screen with 280, 262K colors
- **Onboard Resources**: Patch antenna, RTC clock chip, 6-axis IMU, Lithium battery charging chip, Buzzer, Type-C interface, Function buttons

## Product Usage Instructions

1. **Powering On**
   To power on the ESP32-S3-LCD-1.69 board, press and hold the power-on button until the display lights up.
2. **Charging the Lithium Battery**
   Connect a lithium battery to the M1.25 Lithium battery interface for charging. The onboard Lithium battery charging chip facilitates safe and efficient charging.
3. **Display Usage**
   The 1.69-inch LCD screen supports clear color pictures. Use the display to visualize data and interact with the board’s functions.
4. **Button Functions**

The board features various buttons for different functions:

1. **RST Button:** Press to reset the board.
2. **Function Circuit Button**: Customize for power-on and other actions like single press, double press, and long press.

5. **Connectivity**
   Utilize the Type-C interface for flashing demos and log printing. Connect to the ESP32-S3 USB for data transfer and debugging.

## Introduction

ESP32-S3-LCD-1.69 is a low-cost, high-performance MCU board designed by Waveshare. It is equipped with a 1.69-inch capacitive LCD screen, a lithium battery charging chip, a six-axis sensor (three-axisaccelerometer and a three-axis gyroscope), RTC and other peripherals, which are convenient for development and embedding into the product.

## Features

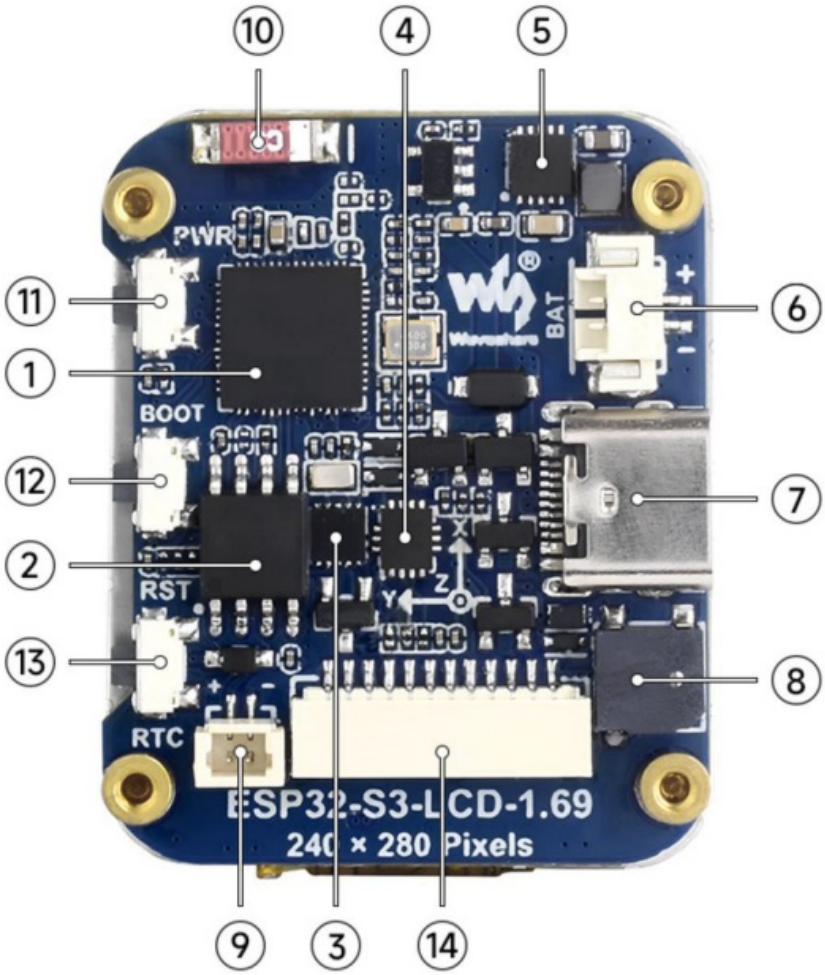
- Equipped with a high-performance Xtensa®32-bit LX7 dual-core processor, up to 240 MHz main frequency
- Supports 2.4GHz Wi-Fi (802.11 b/g/n) and Bluetooth®5(BLE), with onboard antenna
- Built in 512KB of SRAM and 384KB ROM, with onboard 8 MBPS RAM and an external 16MB Flash memory
- Built-in 1.69-inch capacitive LCD screen with a resolution of 240×280, 262K colors for clear color pictures

## Onboard Resources

- Onboard patch antenna, as shown in Figure ⑩
- Onboard PCF85063 RTC clock chip and RTC battery interface, facilitating timing and scheduling functions, as shown in ③and⑨
- Onboard QMI8658 6-axis inertial measurement unit (IMU) containing a 3-axis gyroscope and a 3-axis accelerometer, as shownin④
- Onboard ETA6098 high-performance Lithium battery charging chip, M1.25 Lithium battery interface, easy to install lithium batteries charge and discharge for long-term

usage, as shown in ⑤and⑥

- Onboard buzzer can be utilized as an audio peripheral, as shownin⑧
- Onboard Type-C interface, connect to ESP32-S3 USB for demo flashing and log printing, as shown in ⑦
- Onboard BOOT and RST function buttons, easy to reset and enter the download mode, as shown in  and
- Onboard function circuit button, can be customized as the power-on button, and can identify single pressing, double pressing, and long pressing as shown in




1. **ESP32-S3R8**
   The SoC with WiFi and Bluetooth, up to 240MHz operating frequency, with onboard 8MB PSRAM
2. **W25Q128JVSIQ**
   16MB NOR-Flash
3. **PCF85063**
   RTC chip
4. **QMI8658**

6-axis IMU includes a 3-axis gyroscope and a 3-axis accelerometer

5. **ETA6098**

   high-efficiency Lithium battery recharge manager

6. **MX1.25 battery header**

   MX1.25 2P connector, for 3.7V Lithium battery, supports charging and discharging

7. **USB Type-C connector**

   for programming and log printing

8. **Buzzer**

   sound-producing peripheral

9. **RTC battery header**

   for connecting rechargeable RTC battery, supports charging and discharging

10. **Onboard antenna**

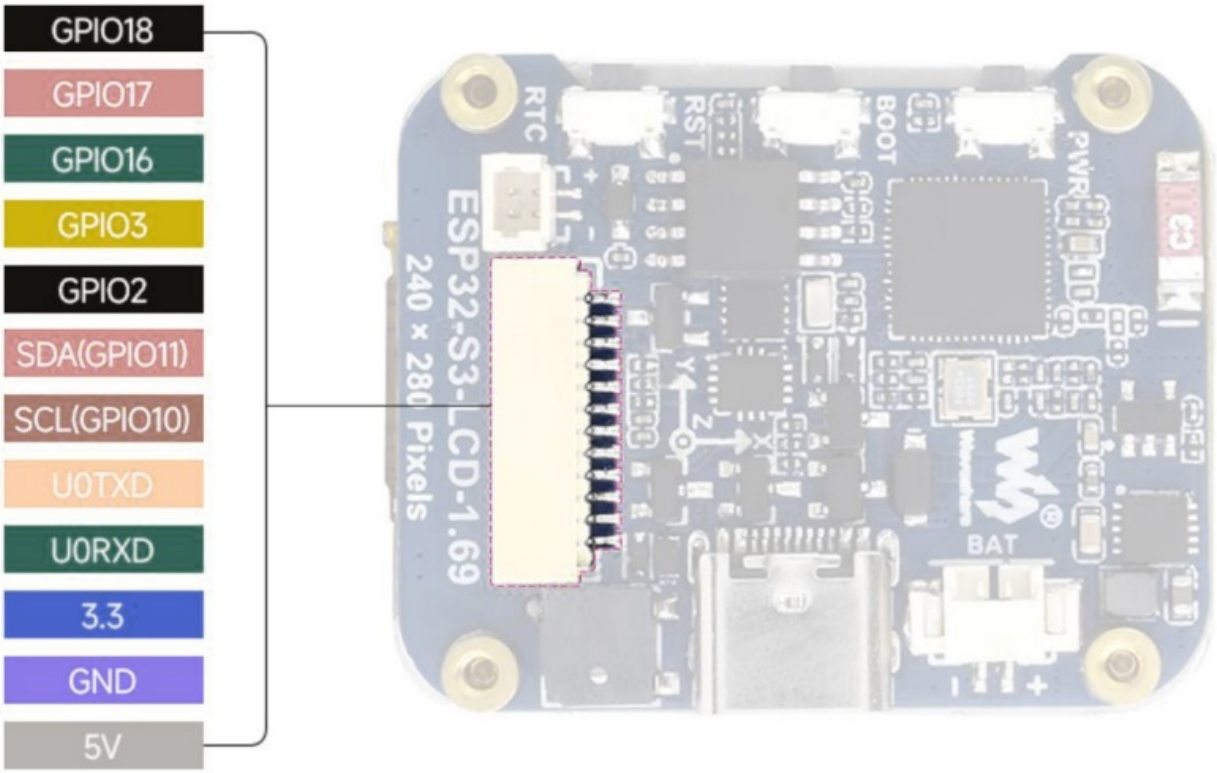
    supports 2.4 GHz Wi-Fi (802.11 b/g/n) and Bluetooth 5 (LE)

11. **PWM button**

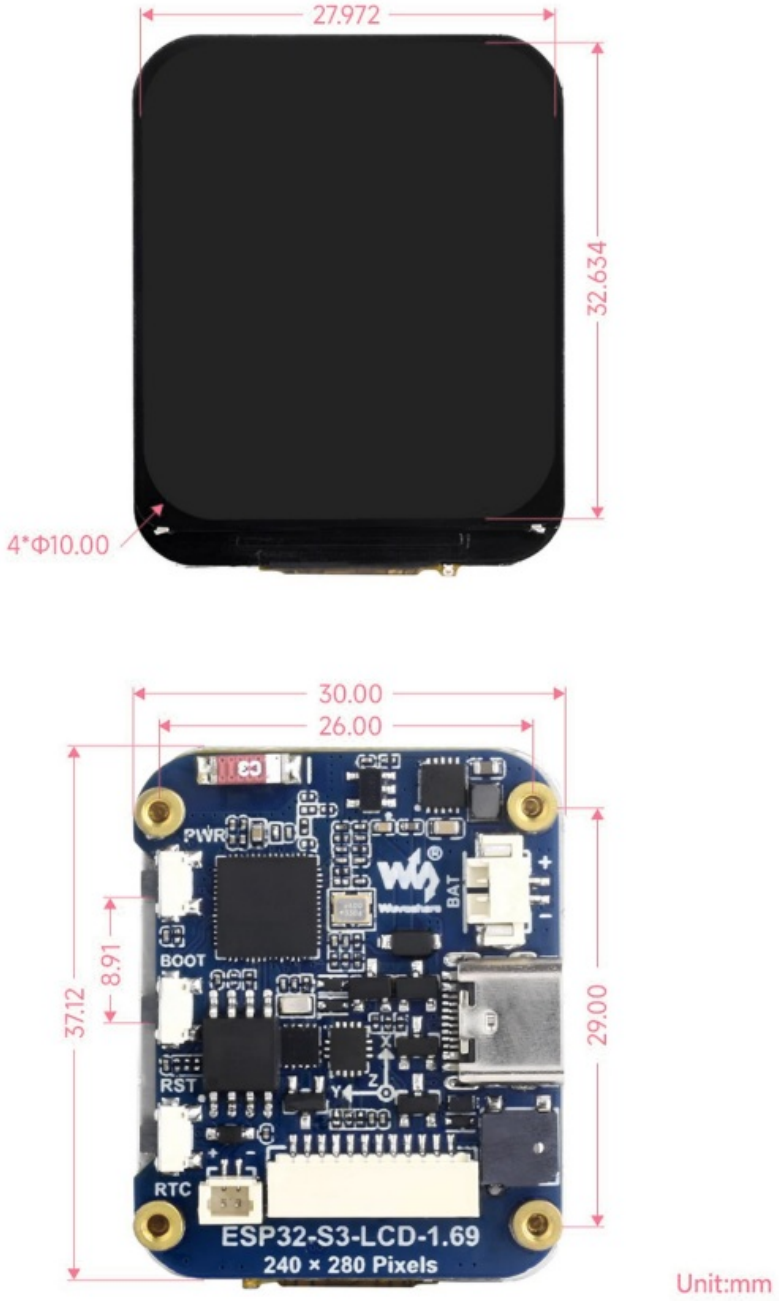
    supports battery power supply control, single-press, double-press, multi-press and long-press operations

12. **BOOT button**
13. **RST Reset button**
14. **12PIN header**

## Pinout Definition


GPIO18
GPIO17
GPIO16
GPIO3
GPIO2
SDA(GPIO11)
SCL(GPIO10)
U0TXD
U0RXD
3.3
GND
5V
RTC
RST
BOOT
PWR
ESP32-S3-LCD-1.69
240 × 280 Pixels
BAT

## Dimensions




## FCC STATEMENT

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

**NOTE:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not expressly approved by the party responsible for compliance could void the user’s authority to operate the equipment. This equipment complies with the FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator and any part of your body.

### FAQ

**Q: How do I reset the board?**
A: Press the RST button to reset the board.

**Q: Can I use the onboard buzzer for audio output?**
A: Yes, the onboard buzzer can be utilized as an audio peripheral for sound output.

# Documents / Resources

| | |
|---|---|
|  | WAVESHARE ESP32-S3-LCD-1.69 Low Cost High Performance MCU Board [pdf] Owner's Manual<br>ESP32-S3-LCD-1.69, ESP32-S3-LCD-1.69 Low Cost High Performance MCU Board, Low Cost High Performance MCU Board, High Performance MCU Board, MCU Board |

## References

- User Manual

WAVESHARE

ESP32-S3-LCD-1.69, ESP32-S3-LCD-1.69 Low Cost High Performance MCU Board, High Performance MCU Board, Low Cost High Performance MCU Board, MCU Board, WAVESHARE

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