

# ESP32-S3-LCD-1.69 hardware specification

## Introduction

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

## Features

- Equipped with 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 8MB PSRAM and an external 16MB Flash memory
- Built-in 1.69inch capacitive LCD screen with a resolution of 240 × 280, 262K colors for clear color pictures

## Onboard Resources

- Onboard patch antenna, as shown in the figure ⑩

- Onboard PCF85063 RTC clock chip and RTC battery interface, facilitating timing and scheduling functions, as shown in ③ and ⑨
- Onboard QMI8658 6-axis inertial measurement unit (IMU) containing a 3-axis gyroscope and a 3-axis accelerometer, as shown in ④
- 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 ⑤ and ⑥
- Onboard buzzer can be utilized as an audio peripheral, as shown in ⑧
- 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 ⑫ and ⑬
- 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 ⑪



**1. ESP32-S3R6**

The SoC with Wi-Fi and Bluetooth, up to 240MHz operating frequency, with onboard 512K PSRAM

**2. W25Q128JVSQ**

128Kbit NOR Flash

**3. PCF8593**

RTC chip

**4. QM6655**

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

**5. STA069**

high-efficiency lithium battery recharge manager

**6. MX125 2P battery header**

MX125 2P connector for 1.7V 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. PWR button**

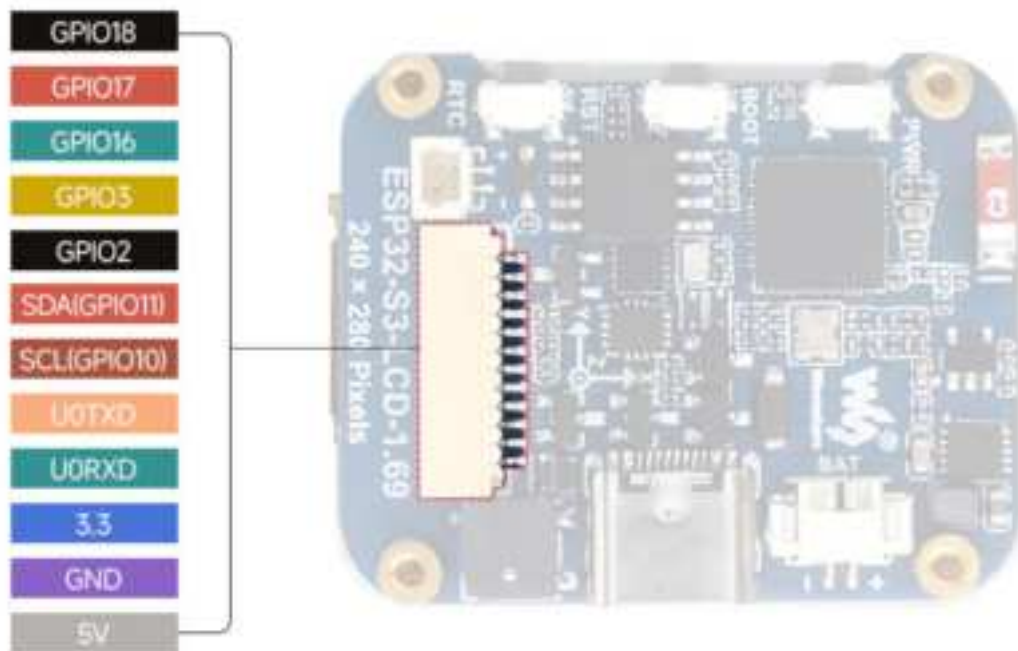
supports battery power supply control, single-press, double-press, multi-press and long-press operations

**12. BOOT button**

**13. RST Reset button**

**14. 12PIN header**

## Pinout Definition



## Dimensions



Unit:mm

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 into 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.