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Introduction

ESP32-S2- WROOM is a generic WiFi MCU module featuring rich peripherals and high performance. The module has **42 pins** and 4MB flash, which can perform stable performance in industrial scenes.

At the core of this module is the ESP32-S2 chip. ESP32-S2 is based on the Xtensa® 32-bit LX7 CPU that can operate at up to 240Mhz. The ULP coprocessor can run while the chip is in sleep mode(CPU powered down), which allows it to be used to monitor the state change of peripheral devices or detect if an analog quantity exceeds the preset threshold. Moreover, the ESP32-S2 provides a rich set of peripheral interfaces including SPI, I2S, UART, I2C, LED_PWM, LCD interface, camera interface, ADC, DAC, touch sensor, temperature sensor, as well as 43 GPIOs. It also includes a full-speed USB On-The-Go (OTG) interface to enable USB communication.

Note: This module is recommended for developers currently. The peripheral circuit needs to be soldered when using, and few peripheral interfaces may not perform the full functionality of the sample code. There are still bugs that have to be found and fixed.

Specification

MCU

- Built-in ESP32-S2 chip, Xtensa® single-core 32bit LX7 microcontroller, up to 240MHz
- Support multiple low-power modes: fine-grained clock gating, dynamic voltage and frequency scaling
- Security: eFuse, Secure Boot, Flash Encryption, Digital Signature, Integrated AES, SHA and RSA algorithms
- 128 KB ROM
- 320 KB SRAM
- 16 KB RTC SRAM

WIFI

- 802.11 b/g/n
- Data rate up to 150Mbps
- TX/RX A-MPDU, RX A-MSDU
- 0.4μs guard interval
- Center frequency range of operating channel: 2412 ~ 2484 MHz

Hardware

- Port: GPIO, SPI, UART, I2C, I2S, LCD interface, Camera interface, IR, pulse counter, LED, PWM, USB1.1, ADC, DAC, capacitive touch sensor, temperature sensor
- 40 MHz Oscillator
- 4 MB SPI Flash
- Operating Voltage/Power Voltage: 3.0 ~ 3.6 V
- Suggested Operating Temperature: -40 ~ 85 °C
- Package Size: (18 x 31 x 3.3) mm

Certification

- RoHS/REACH
- RF Certification: FCC/CE-RED/SRRC

Test

- HTOL/HTSL/uHAST/TCT/ESD

Documents

- ESP32 S2 WROOM Datasheet
- ESP32-S2 Technical Reference Manual
- ESP32-S2 Hardware Design Guidelines

Shipping List

- ESP32-S2-WROOM Wi-Fi Module(PCB antenna) x1

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