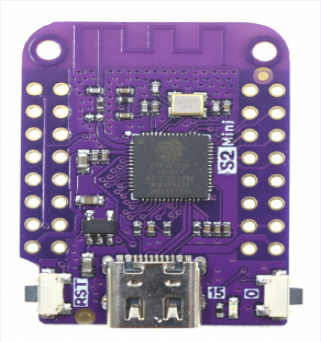
ESP32-S2 Mini V1.0.0 Development Board

Compact 2.4 GHz Wi-Fi development board with USB Type-C, 4 MB flash, 2 MB PSRAM and 27 I/O channels.

Product identity

Product name: ESP32-S2 Mini Wi-Fi development board
Model / variant: S2 Mini V1.0.0
Controller listed by supplier: ESP32-S2FN4R2; default firmware listed: MicroPython



4 MB flash
2 MB PSRAM
27 I/O channels
USB Type-C / OTG
2.4 GHz Wi-Fi

Controller	Memory	Interfaces	Software
ESP32-S2FN4R2	**4 MB + 2 MB**	**ADC/DAC/I2C/SPI/UART**	**MicroPython/Arduino/IDF**

Product Specifications

Processor / memory	ESP32-S2FN4R2 Wi-Fi controller, 4 MB flash and 2 MB PSRAM as listed by the supplier.
Wireless	2.4 GHz Wi-Fi with PCB onboard antenna. Wireless range depends on firmware, enclosure, interference and local radio rules.
Power / USB	5 V working voltage and USB Type-C interface are listed. USB OTG is supported; confirm the port role and cable before operation.
I/O / peripherals	27 I/O channels with ADC, DAC, I2C, SPI, UART and USB OTG capabilities. Pin functions depend on firmware and board mapping.
Compatibility	Compatible with MicroPython, Arduino and ESP-IDF; supplier also lists compatibility with LOLIN D1 mini shields. Verify voltage and pin mapping first.
Size / weight	Supplier fields list approximately 3.9 × 2.5 cm, while the package table lists 3.4 × 2.0 × 0.3 cm; listed weight is about 8 g. Measure the delivered board for enclosure design.

Operating Instructions

1. Inspect the board, USB Type-C socket, antenna area, reset/boot controls and pin labels before connecting anything.

2. Connect a suitable USB Type-C cable to a regulated 5 V source or computer. Install the required USB driver if the board is not detected.

3. Select an ESP32-S2/S2 Mini target and the correct USB/serial port in MicroPython, Arduino IDE or ESP-IDF. Use boot mode only when required.

4. Upload a verified test program, then configure Wi-Fi. Connect sensors or shields only after checking pin mapping, logic voltage, polarity and current.

5. Disconnect power before changing wiring. Keep the PCB antenna clear and monitor the board during the first extended test.

Use Limitations

- Development hardware only; it is not a finished consumer appliance, charger, safety controller or certified radio installation.

- Use 5 V DC only through the marked USB input and stay within USB and regulator limits. Do not connect mains voltage or an unregulated source.

- Do not short I/O, 3.3 V or 5 V pins, reverse polarity or attach peripherals that exceed pin current or logic-voltage limits. Motors require drivers.

- Keep the PCB dry and protected from conductive dust, metal fragments, heat and static discharge. Do not touch exposed circuitry while powered.

- Shield compatibility, USB OTG behavior, firmware and pin functions vary by application. Verify the delivered silkscreen and software configuration.

WARNING - SAFETY INFORMATION

Disconnect USB power before soldering, rewiring, attaching modules or touching exposed pins. Use a regulated 5 V supply and correct polarity. Never connect mains voltage directly. Do not short pins or obstruct the PCB antenna. Stop use if the PCB, USB connector or cable is damaged or becomes unusually hot.

Care, Storage and Disposal

Power down before cleaning. Use a soft, dry, lint-free cloth; never spray liquid onto the PCB or USB connector. Store the board in an anti-static bag away from moisture and metal objects. Recycle electronic parts and packaging through local collection systems.