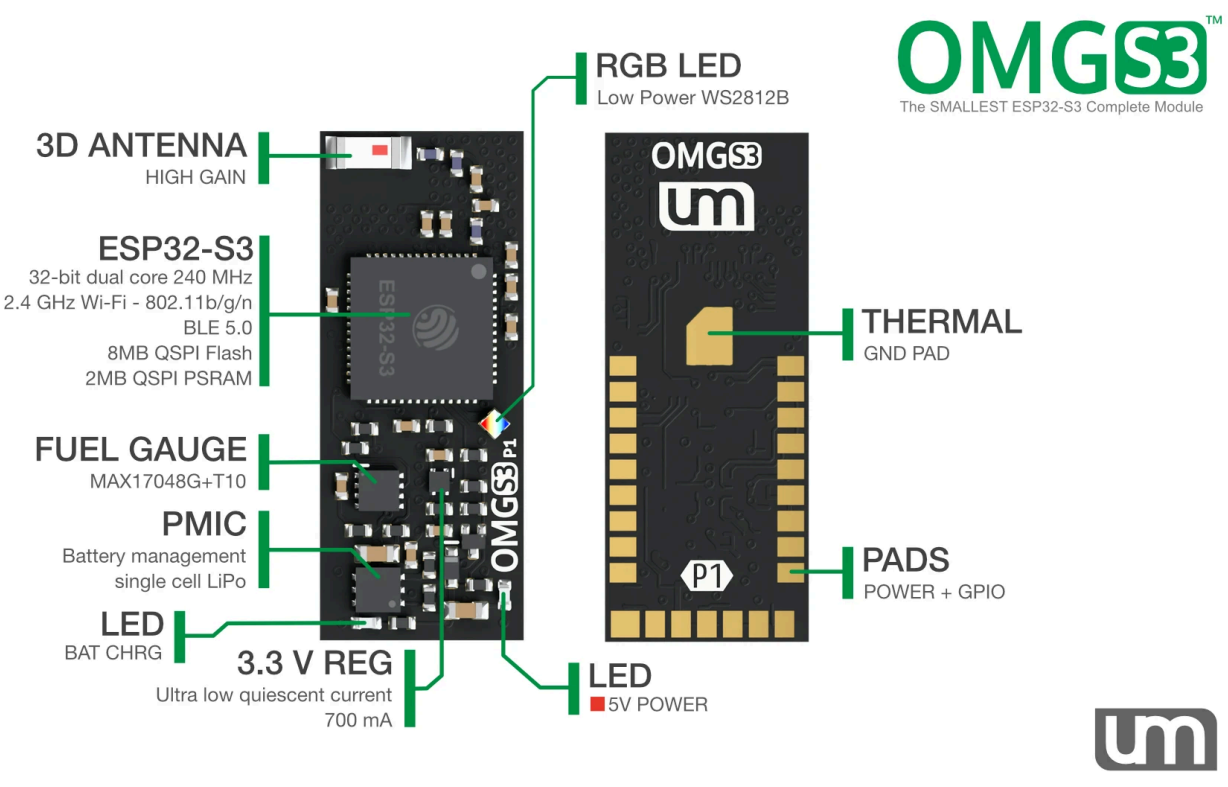
OMGS3™

Meet OMGS3

OMGS3 is the world's smallest, fully-featured ESP32-S3 microcontroller module - just drop it on your PCB and focus on your features!

It can also be used without a carrier PCB if you want to solder wires directly to it, for those tiny little projects that need the smallest of boards!



Features & Specifications

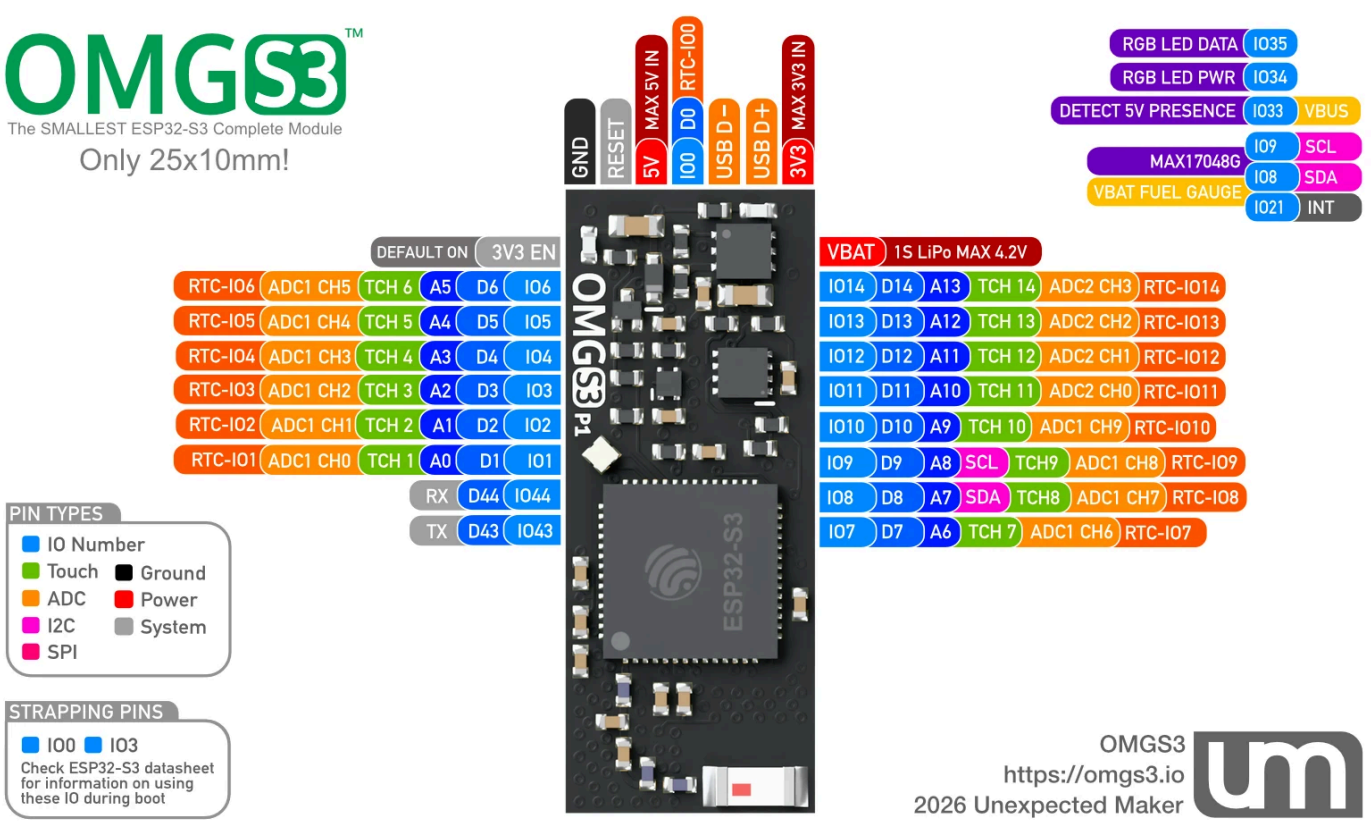
PROCESSOR	FLASH	PSRAM	GPIO
ESP32-S3-PICO	**8 MB**	**2 MB**	**17**
32-bit · Dual-core LX7 · up to 240 MHz	QSPI	QSPI	

WIRELESS

Wi-Fi 4 2.4 GHz · 802.11b/g/n **BLE 5 + Mesh**

USB	D+/D- pads for an external USB connector · USB Serial/JTAG support
Power	700 mA · 3.3 V regulator
Battery	LiPo charging · optimised power path for low-power battery use
Fuel gauge	I²C · MAX17048G+T10
Onboard	Ultra Low-power RGB LED
Antenna	3D high-gain antenna
Connection	1.27 mm pitch pads
Size	25 × 10 mm

Pinout



Board dimensions 25 × 10 mm

Compare the modules.

Find your next module.	 EdgeS3[D]	 OMGS3	 NanoS3	 TinyPICO Nano
MCU	ESP32-S3-PICO	ESP32-S3-PICO	ESP32-S3FN8	ESP32-PICO-D4
Processor	Dual-core LX7 · up to 240 MHz	Dual-core LX7 · up to 240 MHz	Dual-core LX7 · up to 240 MHz	Dual-core LX6 · up to 240 MHz
Flash	8 MB	8 MB	8 MB	4 MB
PSRAM	2 MB	2 MB	8 MB	4 MB
Available IO	29 + 8	17	27	27
2.4 GHz Wi-Fi	Wi-Fi 4	Wi-Fi 4	Wi-Fi 4	Wi-Fi 4
Bluetooth	BLE 5 + Mesh	BLE 5 + Mesh	BLE 5 + Mesh	Classic BT + BLE 4.2
Zigbee / Thread	—	—	—	—
Format / connection	M.2 B-Key module	Surface-mount module	Surface-mount module	Surface-mount module
USB	Via carrier · USB OTG / JTAG	Via carrier · USB OTG / Serial / JTAG	Via carrier · USB OTG / Serial / JTAG	Via carrier · USB-to-serial
3.3 V regulators	1 × 700 mA	1 × 700 mA	1 × 700 mA	1 × 700 mA
STEMMA QT	—	—	—	—
RGB LED	—	NeoPixel	NeoPixel	—
Antenna	Onboard + u.FL · software switch	Onboard	Onboard	Onboard
Battery	I²C fuel gauge + LiPo charging	I²C fuel gauge + LiPo charging	LiPo charging	LiPo charging
Size	22 × 23 mm	25 × 10 mm	28 × 12.7 mm	27 × 13 mm

Code any way you like!

Ships with CircuitPython pre-installed!

The OMGS3 ships with the latest version of CircuitPython that supports the ESP32-S3. It also ships with the UF2 bootloader, so you can easily update your OMGS3 with the latest CircuitPython firmware, whenever you desire.

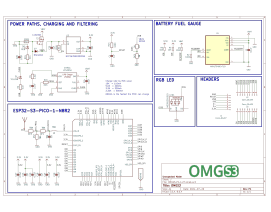
Of course, you can choose from a wonderful array of other languages and platforms. Explore them all below....

- CircuitPython
- MicroPython
- Arduino
- ESP-IDF
- PlatformIO
- .NET nanoFramework
- Rust
- PHP
- TinyGo

Downloads

Download OMGS3 resources, including the schematic, 3D model, KiCAD footprint and more.

Schematic



Download ↓

GitHub

The Unexpected Maker ESP32-S3 GitHub repository includes:

- 3D STEP files for OMGS3, its carrier and OMGUSB
- Pinout reference card for OMGS3
- KiCAD footprint for OMGS3
- Helper libraries for Arduino and CircuitPython shipping files

Open GitHub repository →

ESP32-S3 datasheet

For detailed information about the ESP32-S3, including full IO capabilities and other functionality, refer to the datasheet from Espressif.

View ESP32-S3 datasheet →

Certification

OMGS3 ships uncertified. If you use a OMGS3 on a project that requires certification, you'll be required to also certify the WiFi and Bluetooth radios as part of your final product.