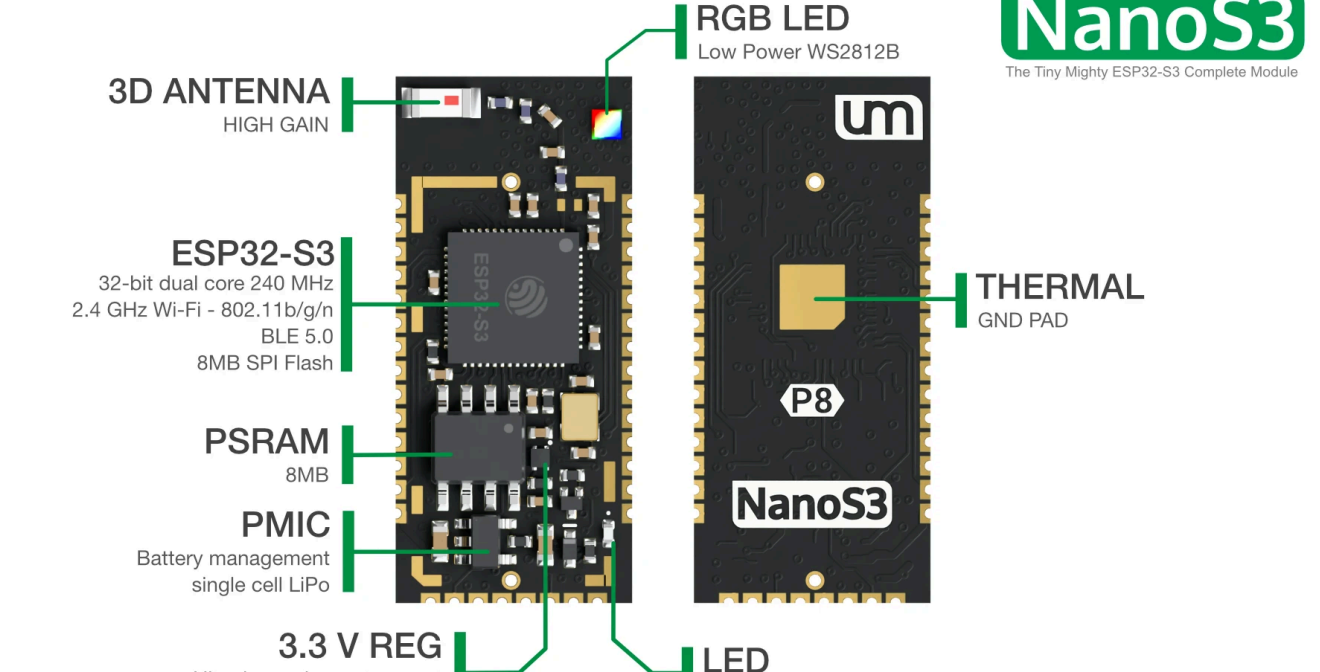


# NanoS3™

## Meet NanoS3

NANOS3 is the world's second smallest, fully-featured ESP32-S3 microcontroller module – just drop it on your PCB and focus on your features!



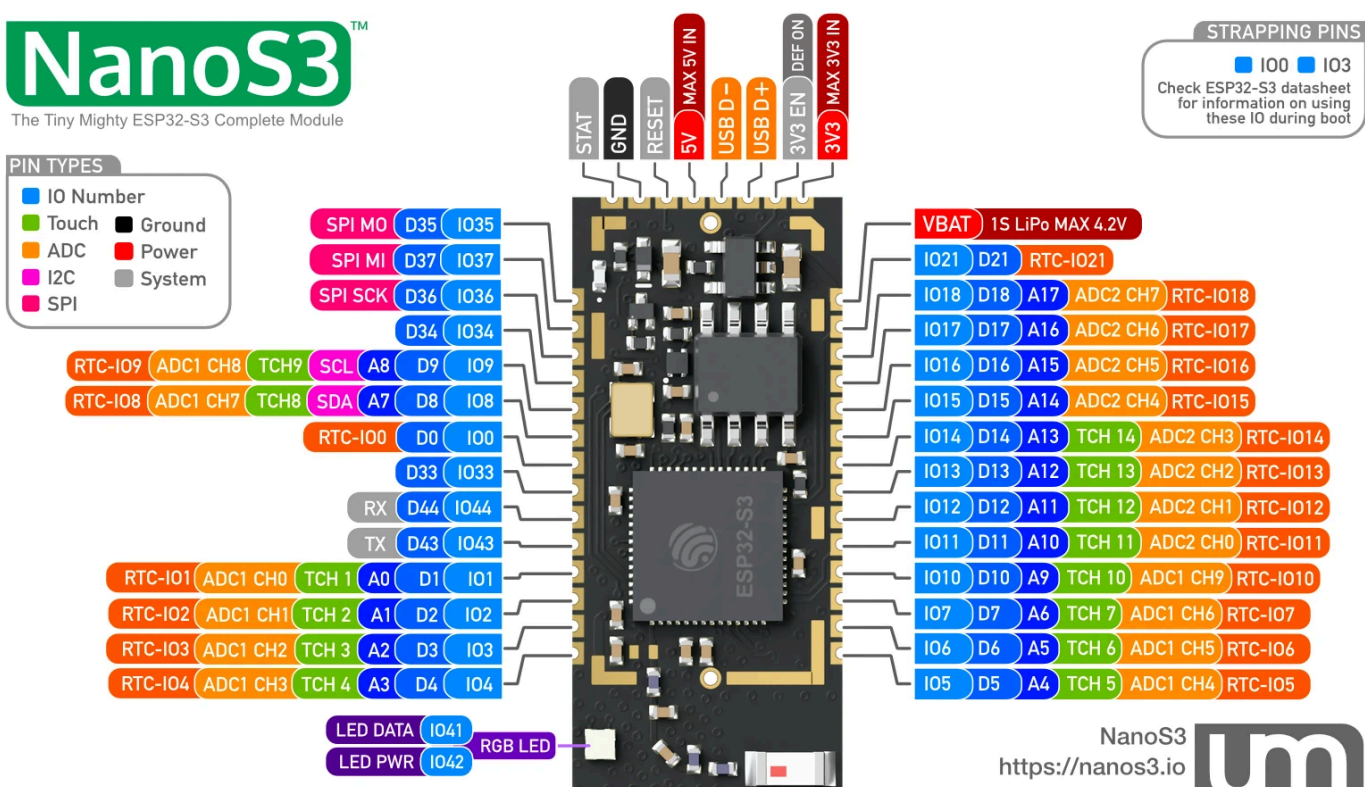
## Features & Specifications

|                                        |             |             |           |
|----------------------------------------|-------------|-------------|-----------|
| PROCESSOR                              | FLASH       | PSRAM       | GPIO      |
| <b>ESP32-S3FN8</b>                     | <b>8 MB</b> | <b>8 MB</b> | <b>27</b> |
| 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**

|                   |                                                                    |
|-------------------|--------------------------------------------------------------------|
| <b>USB</b>        | D+/D- pins for an external USB connector · USB Serial/JTAG support |
| <b>Power</b>      | 700 mA · 3.3 V regulator                                           |
| <b>Battery</b>    | LiPo charging · optimised power path for low-power battery use     |
| <b>Onboard</b>    | Low-power RGB LED                                                  |
| <b>Antenna</b>    | 3D high-gain antenna                                               |
| <b>Connection</b> | 1.27 mm pitch castellated edges                                    |
| <b>Format</b>     | TinyPICO Nano compatible                                           |
| <b>Size</b>       | 28 × 11 mm                                                         |

## Pinout



## Compare the modules.

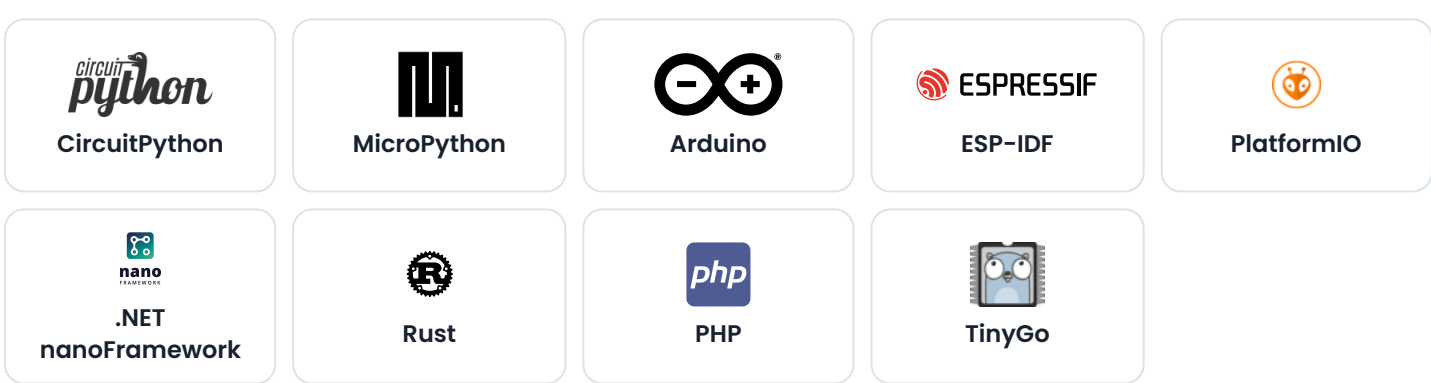
| Find your next module. | Edges3[D]                                   | OMGS3                                       | NanoS3                                | TinyPICO Nano                 |
|------------------------|---------------------------------------------|---------------------------------------------|---------------------------------------|-------------------------------|
| 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                | I <sup>2</sup> C fuel gauge + LiPo charging | I <sup>2</sup> C 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 NanoS3 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 NanoS3 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....



## Downloads

Download NanoS3 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 NanoS3 and its carrier
- Pinout reference card for NanoS3
- KiCAD footprint for NanoS3
- 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

NanoS3 ships uncertified. If you use a NanoS3 on a project that requires certification, you'll be required to also certify the WiFi and Bluetooth radios as part of your final product.