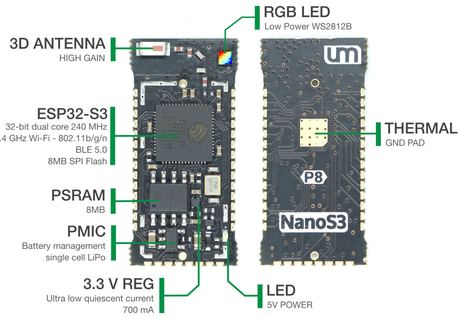
NanoS3™

NANOS3 is the world's smallest, fully-featured ESP32-S3 module!

NanoS3 a FULL Microcontroller solution, packed with power management, battery charging, RGB and other amazing features and peripherals, including wireless connectivity and stacks of Flash and PSRAM, all in the same tiny package size as the original TinyPICO Nano, and it's drop in compatible too!

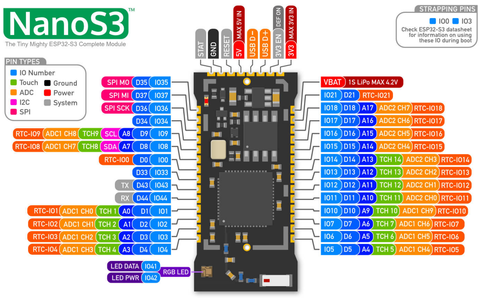


Features

- Dual 32bit Xtensa LX7 cores @ up to 240Mhz
- RISC-V Ultra Low Power Co-processor
- 2.4GHz Wifi - 802.11b/g/n
- BLE 5.0 + Mesh
- 8MB QSPI Flash
- 8MB of extra QSPI PSRAM
- 700mA 3.3V LDO Regulator
- **ULTRA LOW Deep Sleep Current**
- Low power RGB LED
- Native USB + USB Serial JTAG
- D+/D- pins for external USB connector
- LiPo Battery Charging
- 3D High Gain Antenna<
- 27 GPIO
- Only 28 x 11mm in size
- Compatible with TinyPICO Nano

Two antenna options

NanoS3 ships in 2 versions. One with an onboard antenna and one with a u.FL connector, so you can connect an external antenna.



Board Dimensions	28mm x 11mm
Max Thickness	2.4mm

Board Comparison Matrix

	NanoS3	TinyPICO Nano
MCU	ESP32-S3FN8	ESP32-PICO-D4
Cores	2x Xtensa LX7	2x Xtensa LX6
Speed	Up to 240Mhz	Up to 240Mhz
ULP CoProc	1x RISC-V, 1x FSM	1x FSM
SRAM	512K	520K
FLASH	8MB	4MB
PSRAM	8MB	4MB
GPIO	27	14
Native USB	CDC, OTG & USB Serial JTag	-
WiFi	2.4Ghz b/g/n	2.4Ghz b/g/n
Bluetooth	BLE 5 & Mesh	BT Classic & BLE 4.2
DAC	-	2x 8bit
ADC	2x 12-bit SAR /20 chan	1x 12-bit SAR /18 chan
UARTs	3	3
ETH MAC	-	Yes
DMA Controller	5x TX chan, 5x RX chan	-
SDIO	Yes	Yes
RGB LED	1515 Neopixel	-
Antenna	Onboard or External u.FL	Onboard
Release Date	July 2023	May 2020

Platforms

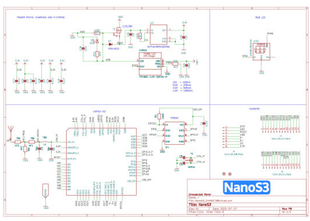
MicroPython ESP-IDF ARDUINO

Please check out the new PLATFORMS area of the Getting Started guide to find out all about developing for your new board in a range of different languages!

Downloads

This is where you can find download links for NanoS3 specific things like the Schematic, 3D model, KiCAD footprint and more!

NanoS3 Schematic



github

The Unexpected Maker ESP32-S3 github Repo includes the following items:

- 3D STEP file for the NanoS3
- KiCAD 7 symbol file for the NanoS3 that you can use when integrating one of them into your PCB designs
- KiCAD 7 footprint file for the NanoS3
- KiCAD 7 NanoS3 carrier PCB reference design
- PDF Schematic for the NanoS3
- Hi-res pinout reference card for the NanoS3
- Helper libraries for Arduino, CircuitPython and MicroPython (*soon*)

ESP32-S3 Datasheet

If you need more detailed information about the ESP32-S3, including full IO capabilities and other functionality, please refer to the ESP32-S3 Datasheet from Espressif.

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Unexpected Maker:

NS3-U-01 NS3-01