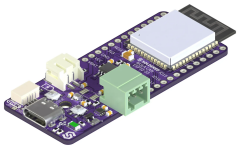
PRODUCT DATASHEET

Soldered NULA CAN ESP32-S3



333341

NULA development board with an ESP32-S3 and an onboard CAN transceiver, so you join a CAN or CAN FD bus through a three-pin plug, no extra module.

Full product documentation, files and tutorials: **solde.red/333341**

CORE ATTRIBUTES

SKU	**333341**
DIMENSIONS	**63.0 × 26.0 × — mm**
ORIGIN	**HR**
BARCODE	**0732388628308**

DESCRIPTION

Soldered NULA CAN ESP32-S3 is a development board in the NULA format, built around the **ESP32-S3-WROOM-1-N8R8** module: a dual-core Xtensa LX7 at up to 240 MHz, 512 KB of SRAM, 8 MB of flash and 8 MB of PSRAM, with 2.4 GHz Wi-Fi 4 and Bluetooth 5 LE. Next to the module sits an NXP **TJA1441A** high-speed CAN transceiver wired to the ESP32-S3's TWAI controller, so one board is both a CAN node and a wireless device.

CAN_H and CAN_L come out on a three-pin **2.5 mm pluggable terminal block**, and the plug is in the package. A **120 Ω termination** resistor is connected by default; cut JP3 to remove it. The transceiver covers CAN and CAN FD up to 5 Mbit/s on the physical layer (ISO 11898-2:2016), with TX on GPIO5 and RX on GPIO4. It needs 4.5 to 5.5 V, which it takes from USB or from the VCC pin: on battery power alone the CAN side switches off on undervoltage while the ESP32-S3 keeps running. Power comes in over USB-C with a CH340K USB to UART bridge and automatic reset, through a TP4056M Li-ion charger (400 mA) with a JST battery connector, and a TPS7A26 3.3 V regulator.

Twenty GPIO pins are broken out on two 13-pin 2.54 mm rows (headers included, unsoldered), so the board sits on a breadboard. The Qwiic connector shares the I2C bus (SDA GPIO8, SCL GPIO9) with 10 kΩ pull-ups you can disconnect at JP1. SPI is on GPIO10 to GPIO13, UART0 on GPIO43 and GPIO44, a WS2812B RGB LED on GPIO6 and the user button on GPIO0. You program it from the Arduino IDE through Espressif's ESP32 core, in MicroPython or in ESP-IDF, where the TWAI driver handles CAN.

TECHNICAL DETAILS

- **Module:** ESP32-S3-WROOM-1-N8R8, dual-core Xtensa LX7 up to 240 MHz, 512 KB SRAM, 8 MB flash, 8 MB PSRAM

- **Wireless:** 2.4 GHz Wi-Fi 4 (802.11 b/g/n), Bluetooth 5 LE
- **CAN transceiver:** NXP TJA1441A, ISO 11898-2:2016, CAN and CAN FD up to 5 Mbit/s, TX GPIO5, RX GPIO4
- **CAN connector:** 3-pin 2.5 mm pluggable terminal block (CAN_H, CAN_L, GND), plug included
- **CAN termination:** 120 Ω, connected by default, cut JP3 to remove
- **CAN transceiver supply:** 4.5 to 5.5 V from USB or the VCC pin, off on battery power alone
- **USB:** USB-C, CH340K USB to UART, automatic reset, 500 mA fuse
- **Battery:** JST 2-pin connector, TP4056M charger, 400 mA charge current
- **Regulator:** TPS7A26, 3.3 V, 500 mA
- **GPIO:** 20 pins on two 13-pin 2.54 mm headers, included unsoldered
- **I2C:** SDA GPIO8, SCL GPIO9, 10 kΩ pull-ups (JP1), Qwiic connector
- **SPI:** CS GPIO10, MOSI GPIO11, SCK GPIO12, MISO GPIO13
- **UART0:** TX GPIO43, RX GPIO44
- **Onboard:** WS2812B RGB LED on GPIO6, user button on GPIO0, reset button, power LED (JP2)
- **Logic level:** 3.3 V
- **Dimensions:** 26 × 63 mm

SPECIFICATIONS

MCU PART NUMBER	ESP32-S3
MCU CLOCK (MHZ)	240 MHz
SRAM (KB)	512 KB
FLASH (MB)	8 MB
WIFI	Wifi4
BLUETOOTH	Ble 5
WIRELESS MODULE	ESP32-S3-WROOM-1-N8R8
GPIO COUNT	20
QWIIC COMPATIBLE	Yes
BREADBOARD COMPATIBLE	Yes
BATTERY CONNECTOR	Jst 2Pin
ONBOARD BATTERY CHARGER	Yes
SUPPLY VOLTAGE	3V3 5V
LOGIC LEVEL	3V3
DEV ENVIRONMENTS	Arduino IDE, MicroPython, ESP-IDF

DOCUMENTS

Main IC Datasheet · EN	https://cms.soldered.com/products/333341/documents/ic-datasheet/333341_ic-datasheet_8857eb.pdf

LINKS

Full Documentation	https://docs2.soldered.com/soldered-nula-can-esp32-s3/
Pinout	https://cms.soldered.com/products/333341/media/333341_pinout-png_bf8575.png

GALLERY

