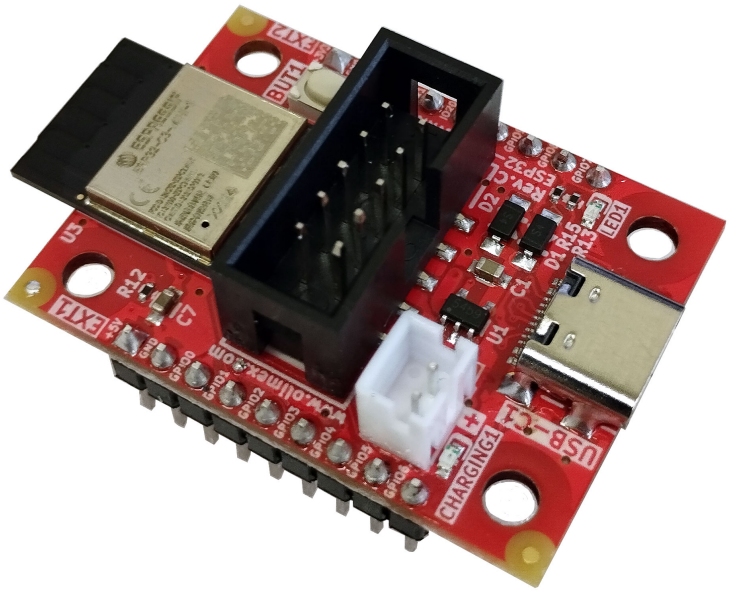


ESP32-C3-DevKit-Lipo

User Manual

Document version 2.0 March 2026

olimex.com

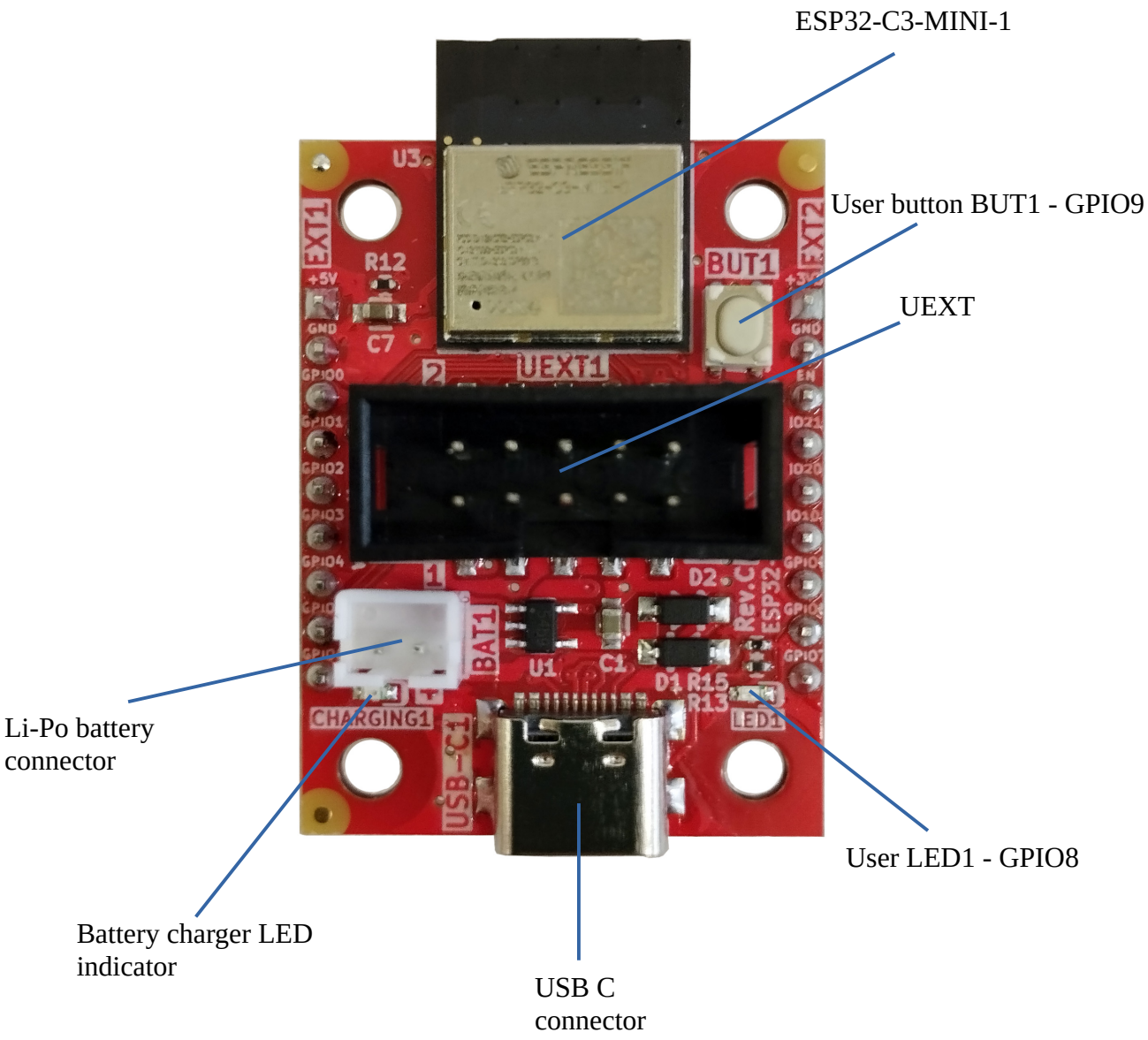
Table of Contents

What is ESP32-C3-DevKit-Lipo

ESP32-C3-DevKit-Lipo is an Open Source Hardware industrial grade (-25+85ºC) development board with Espressif ESP32-C3-MINI module and WIFI and BLE5 capabilities. It has the following features:

- ESP32-C3-MINI-1N4 module with the following features:
  - RISC-V single core processor running on 160 Mhz
  - 384 KB ROM, 400 KB SRAM (16 KB for cache), 8 KB SRAM in RTC
  - 4 MB embedded flash
  - 2.4 GHz WiFi (802.11 b/g/n) 1T1R mode with data rate up to 150 Mbps
  - Bluetooth® 5 module
- 15 GPIOs
- On-board antenna
- Built-in Li-Po battery charger with STATUS LED, for handheld operations
- Li-Po battery connector for Olimex Li-Po batteries
- User button
- STATUS LED
- UEXT 0.1" step connector
- 4 mount holes
- USB-C connector for powering, debugging, and programming
- EXT1, EXT2 headers with all signals and power supply
- Tiny size: (1.1 x 1.5)" ~ (28 x 38)mm

Board layout



ESP32-C3-DevKit-Lipo ordering options

ESP32-C3-DevKit-Lipo can be ordered as:

- ESP32-C3-DevKit-Lipo

Additional accessories:

- USB-C cable: CABLE-USB-A-C-1M
- LiPo batteries: Olimex LiPo batteries
- Breadboard: BREADBOARD1
- Jumper wires: JW-200x10, JW-200x10-FM

ESP32-C3-DevKit-Lipo Open Source Licensee

ESP32-C3-DevKit-Lipo is Open Source Hardware, ESP32-C3-DevKit-Lipo is certified Open Source Hardware with UID BG000083: https://certification.oshwa.org/bg000083.html

ESP32-C3-DevKit-Lipo software installation

How to program the board? Usually you use software that has support for ESP32-C3 chip and then plug the board to the USB. No extra steps with the hardware are needed but if you have trouble you can force the board into bootloader mode – disconnect the USB cable, press and hold button BUT1, connect the USB cable, release button BUT1.

Esspresif guide for Arduino IDE installation

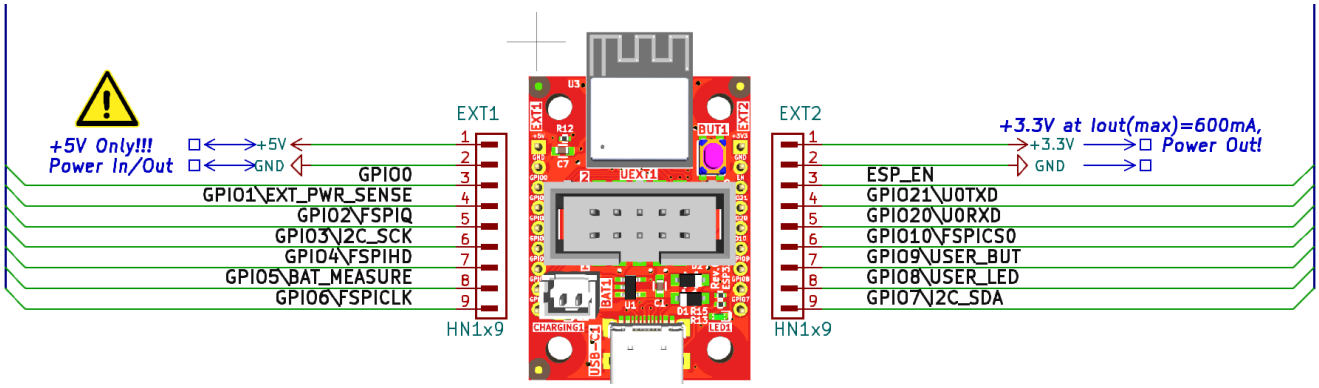
You can find simple Arduino demo here: Button, LED, serial demo

Esspressif guide for PlatformIO installation

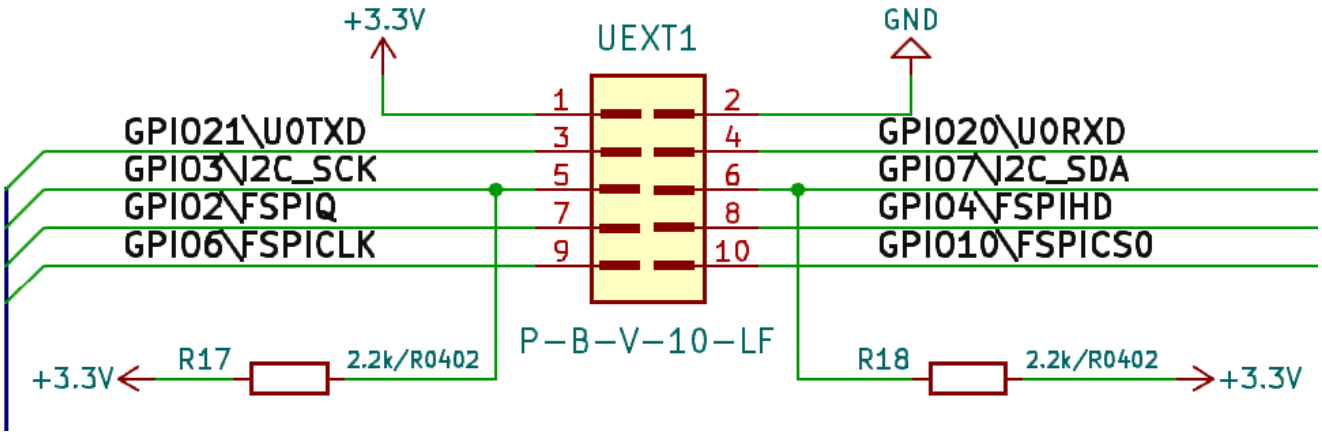
Espressif ESP-IDF installation

JTAG debugging installation

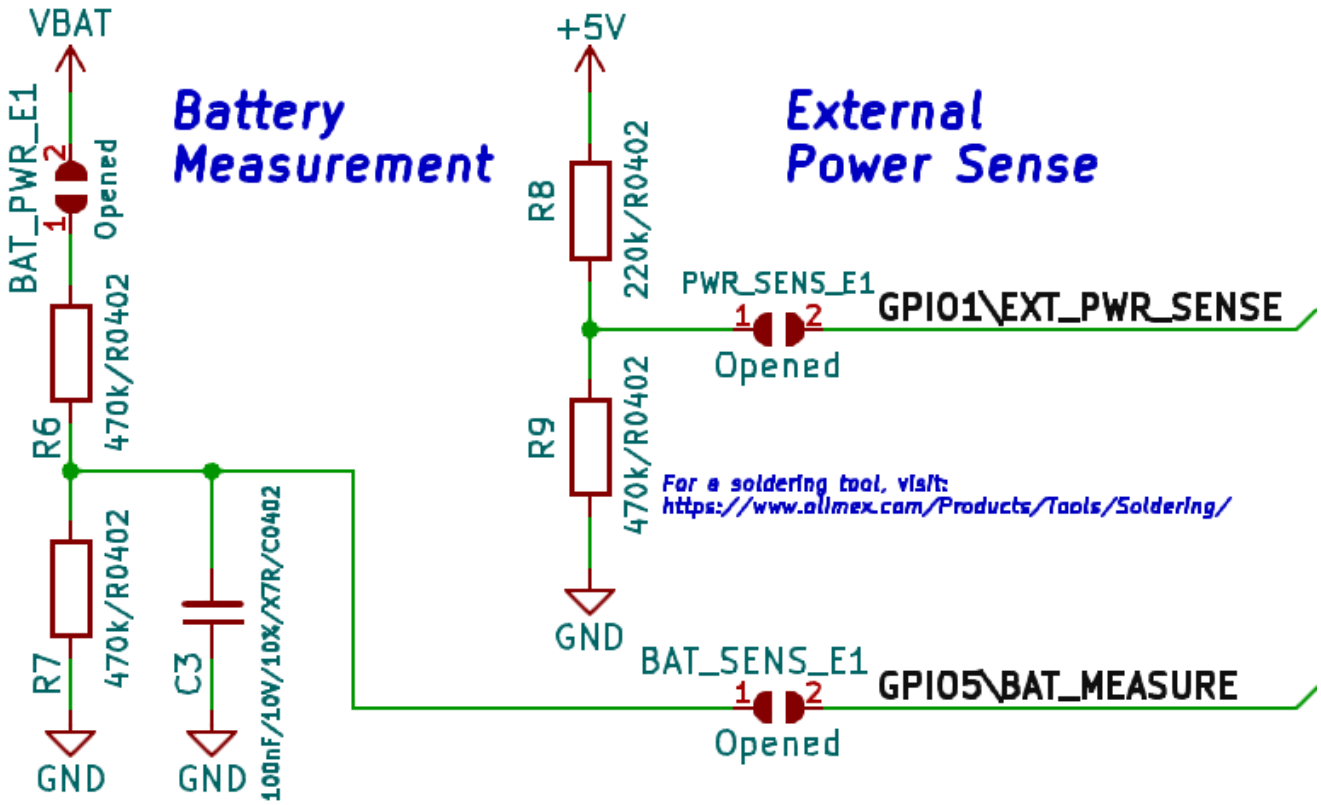
ESP32-C3-DevKit-Lipo pinout description



UEXT pinout



External power sense and battery measurement



There are external power sense and battery measurement circuits. By default these are disconnected and can be enabled if you solder together a couple of PTH jumpers.

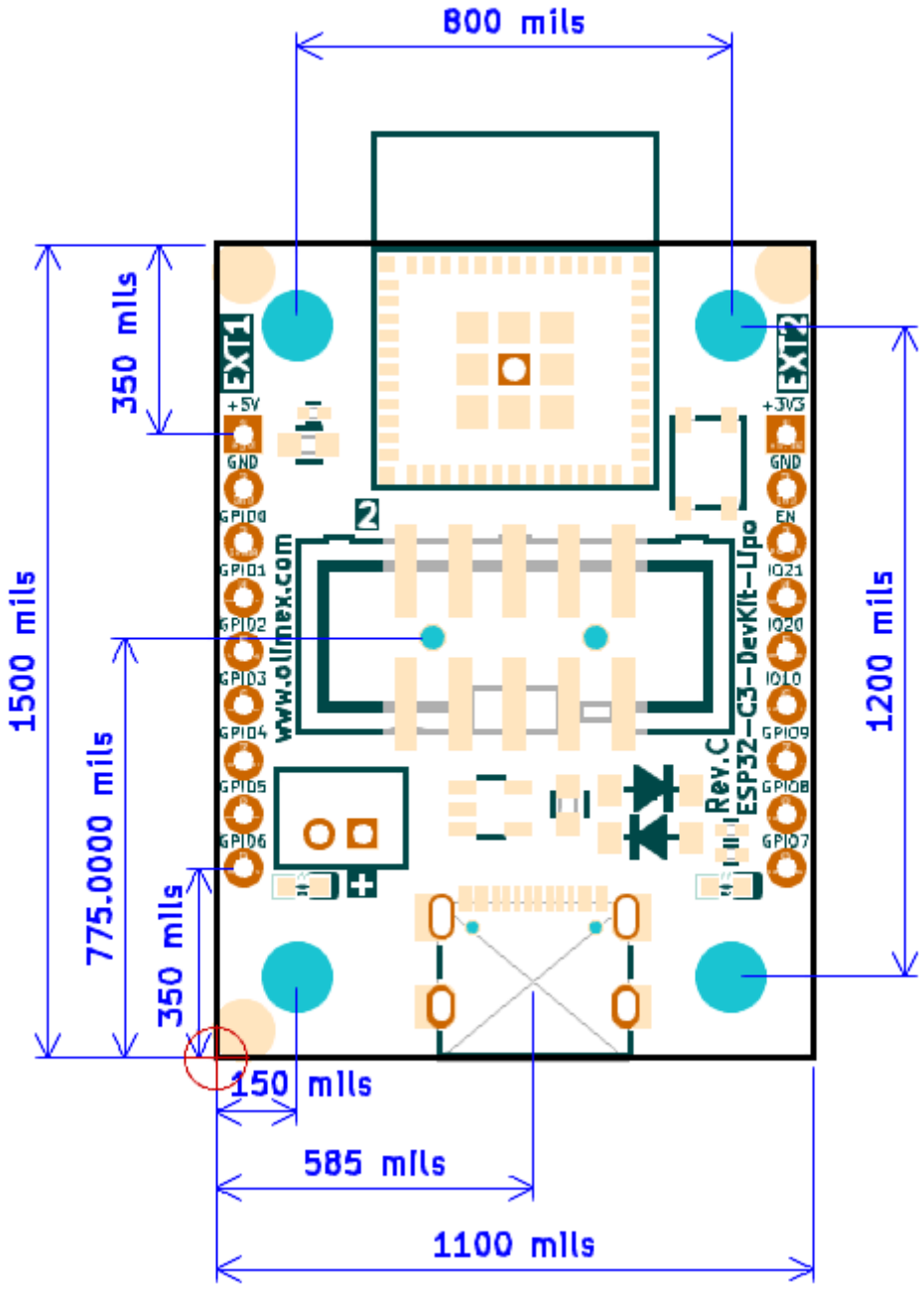
If you wish to enable the external power sense function, close PWR_SENSE_E1 – this function allows you to detect whether the board is powered from the battery or externally – very helpful if you want to conserve battery when main power supply is missing. Notice the voltage divider R8 and R9 (220K and 470K) and consider the resistor values in your calculations about the threshold. The pin that handles the external power sense function is GPIO1.

If you wish to enable the battery measurement function – you need to close two jumpers (solder pads of each jumper together) – BAT_PWR_E1 and BAT_SENS_E1. This function helps keeping track of the voltage of the battery connected so you can take certain precautions when the voltage of battery goes dangerously low. Notice the voltage divider R6 and R7 (470k and 470k) and consider the resistor values in your calculations. The pin that handles the external power sense function is GPIO5.

ESP32-C3-DevKit-Lipo power supply and consumption

- 0.2A @ Active operation
- 22mA @ Idle
- 3mA @ Sleep
- 20uA @ Power off

ESP32-C3-DevKit-Lipo dimensions



ESP32-C3-DevKit-Lipo schematic

ESP32-C3-DevKit-Lipo schematics (including for older revisons) are available at GitHub

Notice that there were major changes in the hardware design in hardware revision C (added UEXT connector; removed PROG connector; removed reset button but added user button; rotated BAT1 connector; and more).

Document version history

Revision 1.0 September 2022

- Initial release

Revision 2.0 April 2026

- Edited the document to fit hardware revision C of the board

- Documents for hardware revision B boards available at GitHub for reference