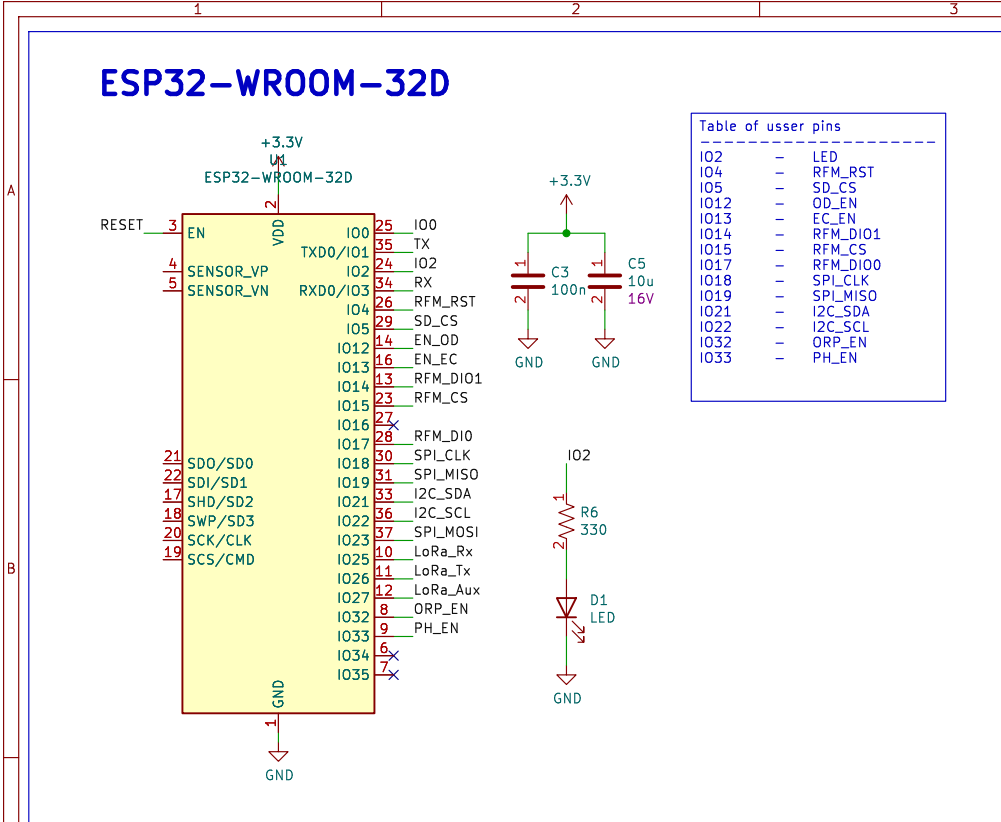


ESP32-WROOM-32D

Table of user pins

Pin	Function
IO2	LED
IO4	RFM_RST
IO5	SD_CS
IO12	OD_EN
IO13	EC_EN
IO14	RFM_DIO1
IO15	RFM_CS
IO17	RFM_DIO0
IO18	SPI_CLK
IO19	SPI_MISO
IO21	I2C_SDA
IO22	I2C_SCL
IO32	ORP_EN
IO33	PH_EN



USB to Serial

USB to Serial

USB_B_Micro (J1) Connections:

- VBUS → V_{in}
- FUSE → V_{USB}
- D+ → UD+
- D- → UD-
- ID → GND

Power Connections:

- +3.3V → V_{CC}
- GND → GND
- C1 (100nF) → GND

Serial Interface Connections:

- TXD → RX
- RXD → TX
- CTS → DTR#
- DSR → RST#
- RI → DTR#
- DCD → RST#
- DTR → DTR#
- RTS → RST#

Notes:

- If DTR is Low, toggling RTS from High to Low reset to run mode.
- If RTS is High, toggling DTR from Low to High reset to bootload mode.

Boot Mode Configuration:			
Pin	Default	Boot	Download
GPIO0	1	1	0
GPIO1	1	1	0
GPIO2	0	x	0
GPIO3	0	x	x
GPIO4	1	x	x
GPIO5	1	x	x

If GPIO0, GPIO2, GPIO3 are floating, GPIO0 determines boot mode.

Auto reset

Load sharing

The diagram illustrates a load sharing circuit. It features a USB connection with pins for GND, VIN_5V, and V_USB. A 10K resistor (R8) is connected between V_USB and the positive terminal of a battery (Q2). A Schottky diode (D3) is connected in series with the battery's positive terminal. The battery's negative terminal (Q2) is connected to the GND pin of the USB. A switch (J2) is connected in parallel with the battery, controlled by an 'ON OFF' signal. The output is labeled +5V.

The diagram shows the RV-8803 module connected to an I2C bus. The module's I2C_SCL and I2C_SDA pins are connected to the bus lines. The module is powered by a 3.3V supply and a battery (BT1 Battery_Cell). The I2C address is 0x32.

[illegible]

EZO modules

The diagram illustrates the wiring for six EZO modules (X2, X3, X4, X5, X6, X7) connected to a common power supply and SMA connectors. Each module has a pin header with VCC, EN, GND, A_o, B_o, Tx, Rx, and PGND pins. The modules are connected to a common power supply (+5V) and ground (GND). The SMA connectors are labeled J13, J14, J17, J15, J16, and J12.

Module X2: VCC (1) to +5V, EN (2) to GND, GND (3) to GND, A_o (4) to GND, B_o (5) to GND, Tx (6) to GND, Rx (7) to GND, PGND (8) to GND. SMA connector J13: ezo_prb_1 (1) to Tx, ezo_pgnd_1 (2) to PGND.

Module X3: VCC (1) to +5V, EN (2) to GND, GND (3) to GND, A_o (4) to GND, B_o (5) to GND, Tx (6) to GND, Rx (7) to GND, PGND (8) to GND. SMA connector J14: ezo_prb_2 (1) to Tx, ezo_pgnd_2 (2) to PGND.

Module X4: VCC (1) to +5V, EN (2) to GND, GND (3) to GND, A_o (4) to GND, B_o (5) to GND, Tx (6) to GND, Rx (7) to GND, PGND (8) to GND. SMA connector J17: ezo_prb_3 (1) to Tx, ezo_pgnd_3 (2) to PGND.

Module X5: VCC (1) to +5V, EN (2) to GND, GND (3) to GND, A_o (4) to GND, B_o (5) to GND, Tx (6) to GND, Rx (7) to GND, PGND (8) to GND. SMA connector J15: ezo_prb_4 (1) to Tx, ezo_pgnd_4 (2) to PGND.

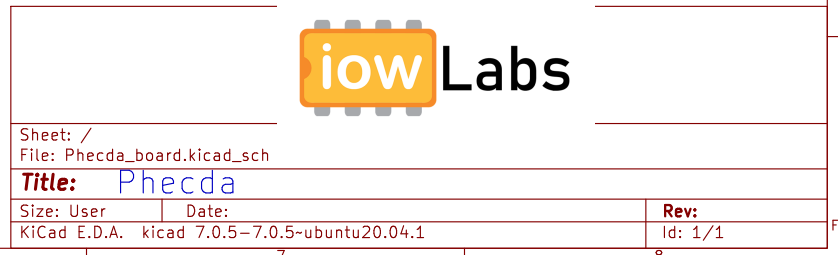
Module X6: VCC (1) to +5V, EN (2) to GND, GND (3) to GND, A_o (4) to GND, B_o (5) to GND, Tx (6) to GND, Rx (7) to GND, PGND (8) to GND. SMA connector J16: ezo_prb_5 (1) to Tx, ezo_pgnd_5 (2) to PGND.

Module X7: VCC (1) to +5V, EN (2) to GND, GND (3) to GND, A_o (4) to GND, B_o (5) to GND, Tx (6) to GND, Rx (7) to GND, PGND (8) to GND. SMA connector J12: ezo_prb_6 (1) to Tx, ezo_pgnd_6 (2) to PGND.

General connectors for input and outputs

The diagram illustrates the general connectors for input and outputs, showing the following components and connections:

- VIN_5V**: Connected to pin 1 of connector J7 (HDR-2x1).
- GND**: Connected to pin 2 of connector J7 (HDR-2x1).
- I2C OLED**: Connected to pins 1, 2, 3, and 4 of connector J8 (HDR-4x1).
 - Pin 1: GND
 - Pin 2: scl_5v
 - Pin 3: sda_5v
 - Pin 4: +5V
- Extra I2C**: Connected to pins 1, 2, 3, and 4 of connector J9 (HDR-4x1).
 - Pin 1: GND
 - Pin 2: scl_5v
 - Pin 3: sda_5v
 - Pin 4: +5V
- I2C_SDA**: Connected to pin 2 of connector J3 (BSS138).
- I2C_SCL**: Connected to pin 3 of connector J4 (BSS138).
- Level shifters**: Two BSS138 level shifters (Q3 and Q4) are used to connect the I2C_SDA and I2C_SCL lines to the +5V supply.
- Resistors**: R21 (10k) is connected between I2C_SDA and +5V. R22 (10k) is connected between I2C_SCL and +5V. R23 (10k) is connected between I2C_SDA and +5V. R24 (10k) is connected between I2C_SCL and +5V.
- Other components**: R20 (4.7k) is connected between sda_5v and scl_5v. R25 (4.7k) is connected between scl_5v and +5V.



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