

Questa scheda si basa sull'integrato ESP32-S3  
Ha le seguenti interfacce

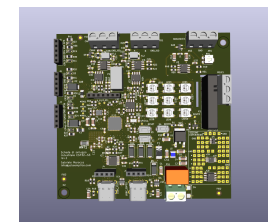
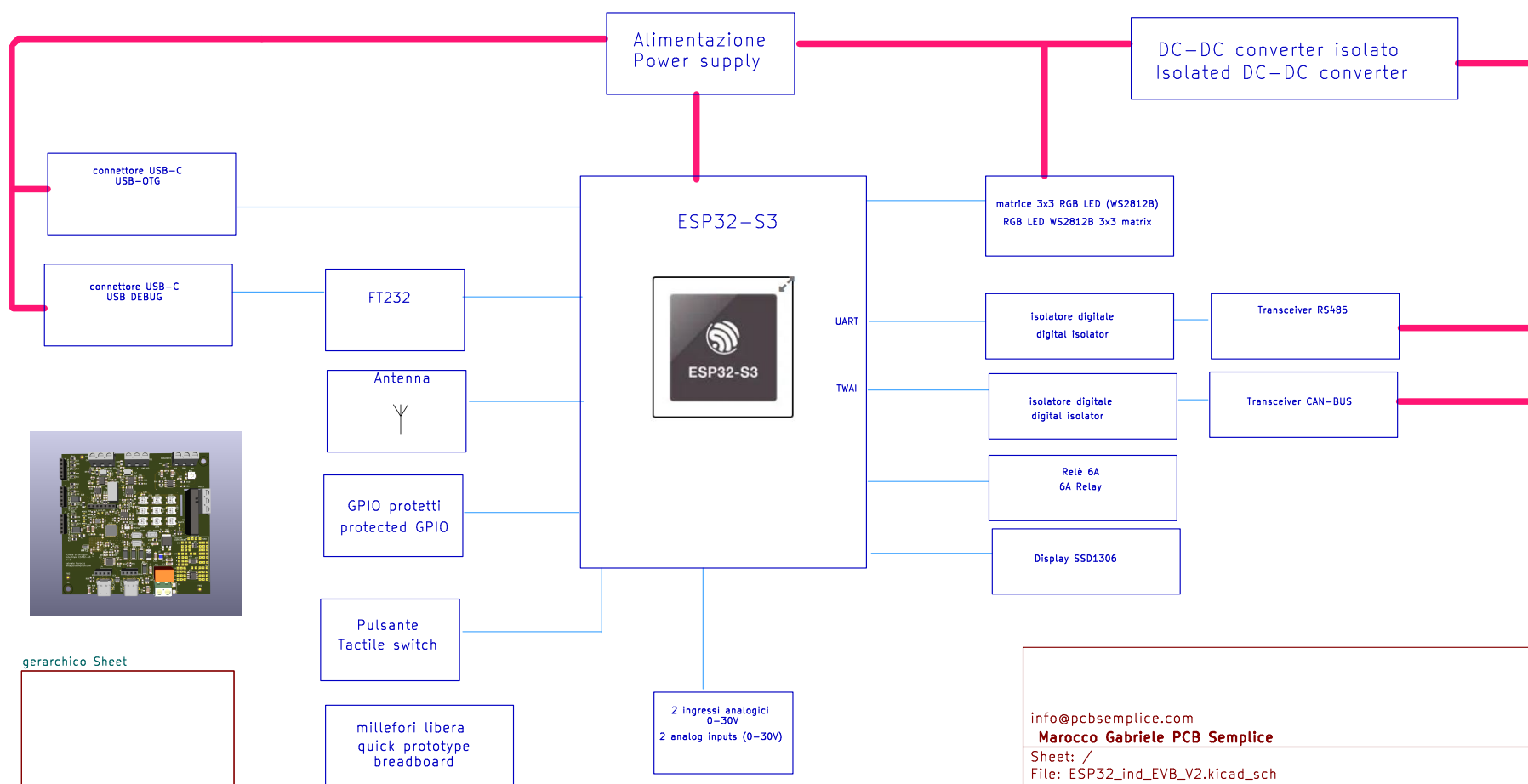
- USB di debug (collegata a una porta UART dell'integrato
  - USB nativa
  - CAN BUS isolato
  - RS485 isolata

E' presente una matrice di 9 LED (3X3) RGB WS12B  
E' contenuta una sezione libera destinata ad esperimenti

This board is based on the microcontroller ESP32-S3  
There are the following physical communication interfaces

- debug USB (it is connected to a UART port of ESP32-S3
  - native USB
  - isolated CAN BUS with termination resistor
  - isolated RS485 with termination resistor

There is a 9 RGB LED matrix (WS2812B)  
There is a free section of testpoints for experiments



gerarchico Sheet

File: gerarchico.kicad\_sch

info@pcbsemplce.com

**Marocco Gabriele PCB Semplice**

Sheet: /

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**Title: ESP32-S3 industrial EVB**

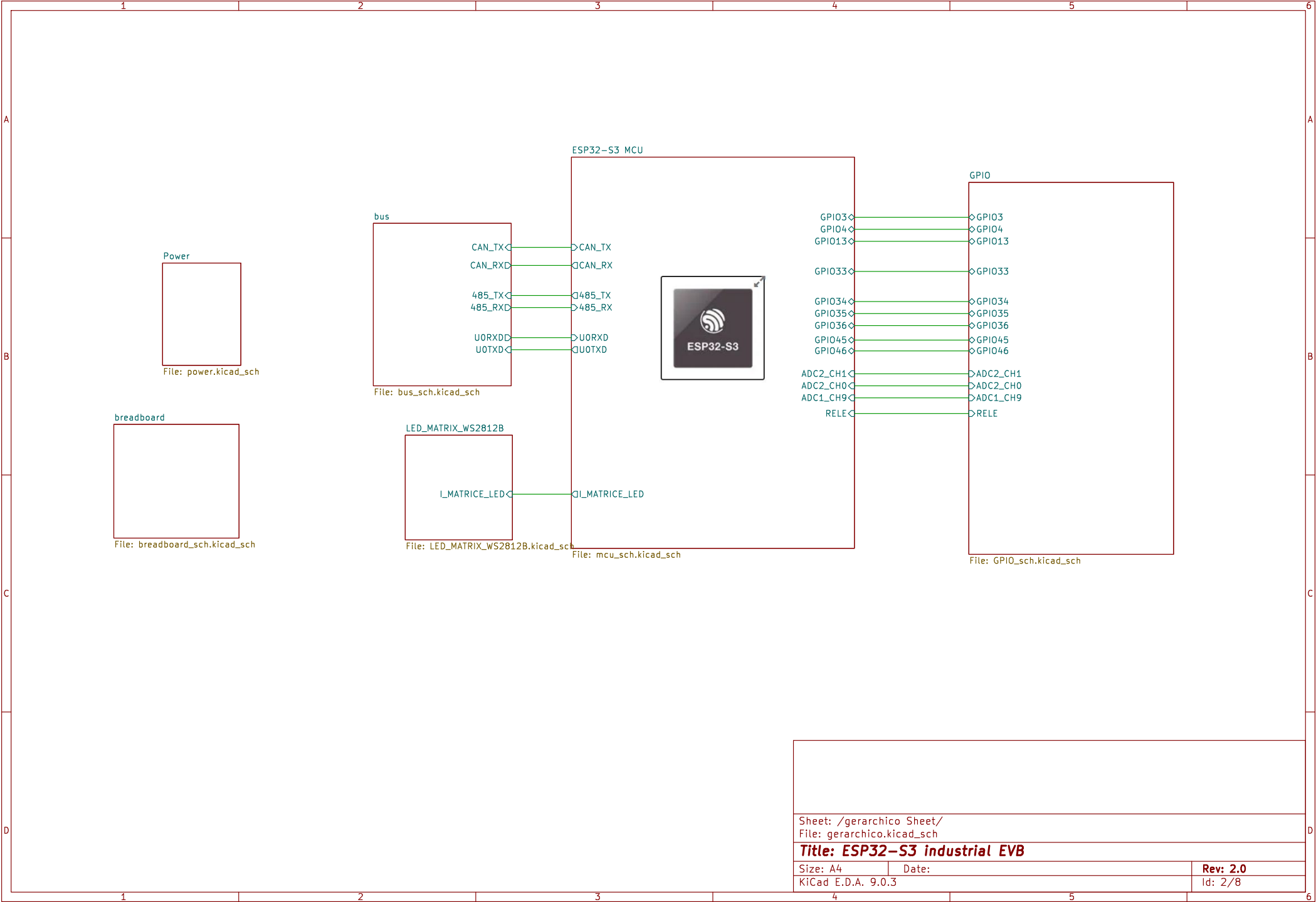
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Date: 2024-08-03

KiCad E.D.A. 9.0.3

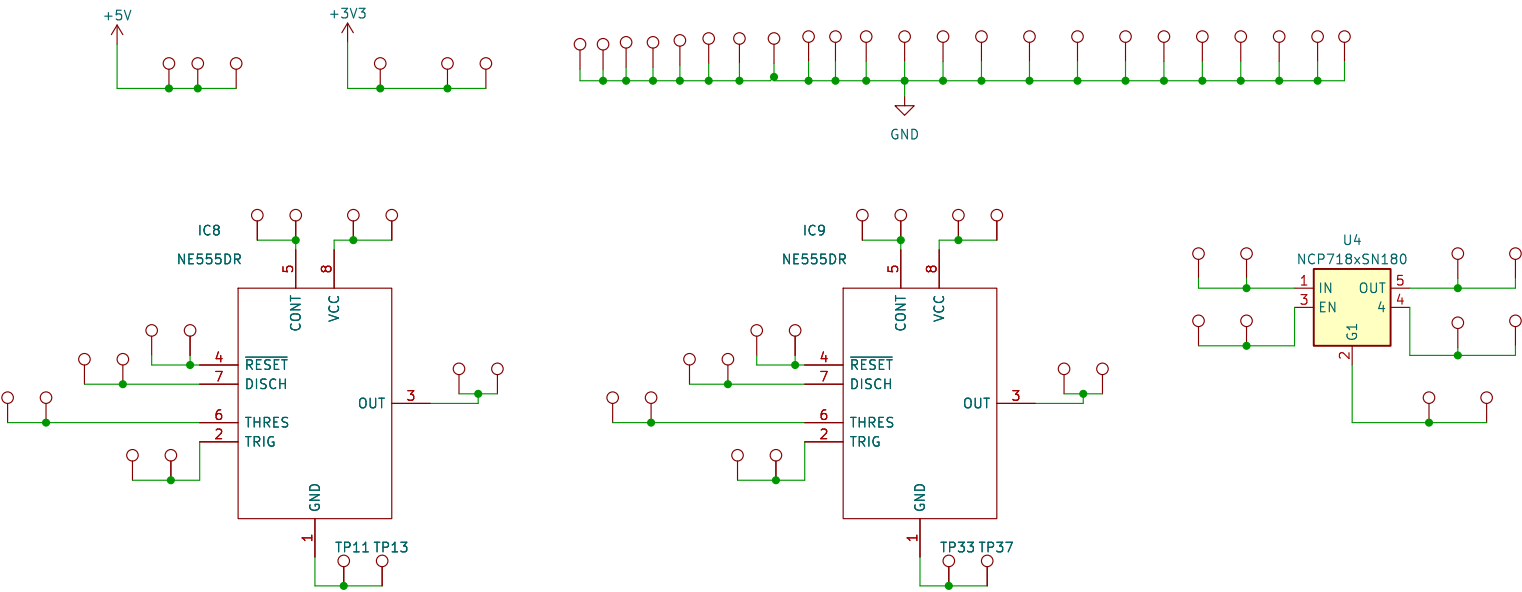
**Rev: 2.0**

Id: 1/8

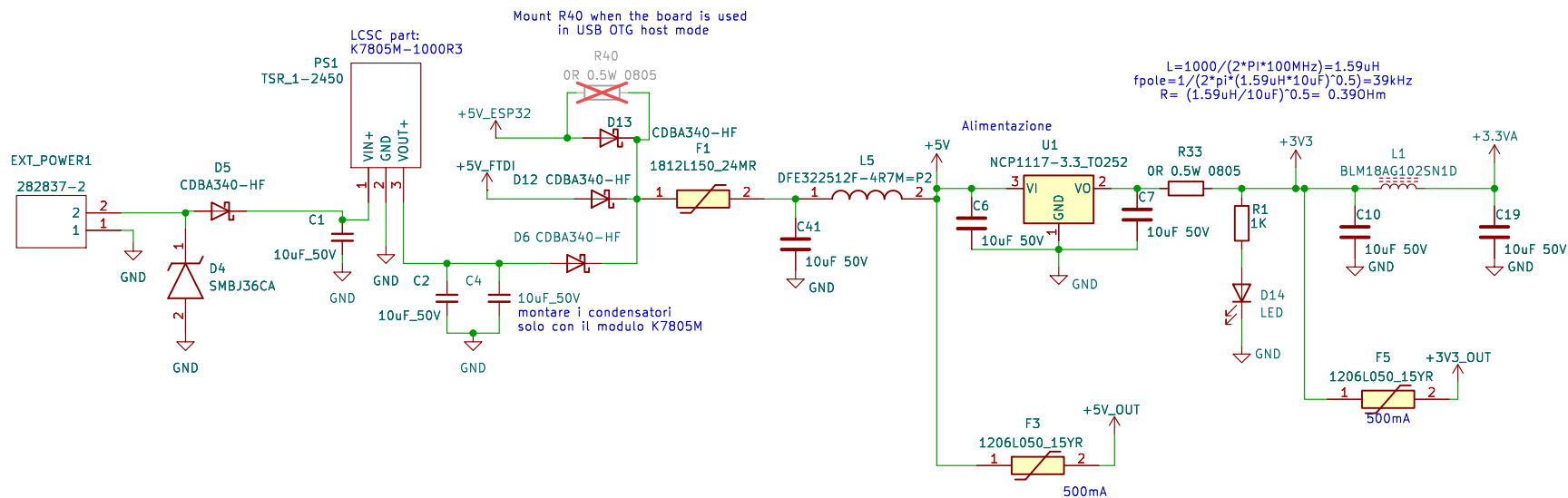


Testpoint e piazzole libere per esperimenti

Free testpoints and pads for experiments



*Gabriele Marocco*



*Gabriele Marocco*

info@pcbsemplce.com

**Marocco Gabriele PCB Semplice**

Sheet: /gerarchico Sheet/Power/

File: power.kicad\_sch

**Title: ESP32-S3 industrial EVB**

Size: A4

Date: 2024-08-03

**Rev: 2.0**

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Id: 6/8

# RS-485

# CAN-BUS

# USB-UART

info@pcbsemplince.com

**Marocco Gabriele PCB Semplice**

Sheet: /gerarchico Sheet/bus/

File: bus\_sch.kicad\_sch

**Title: ESP32-S3 industrial EVB**

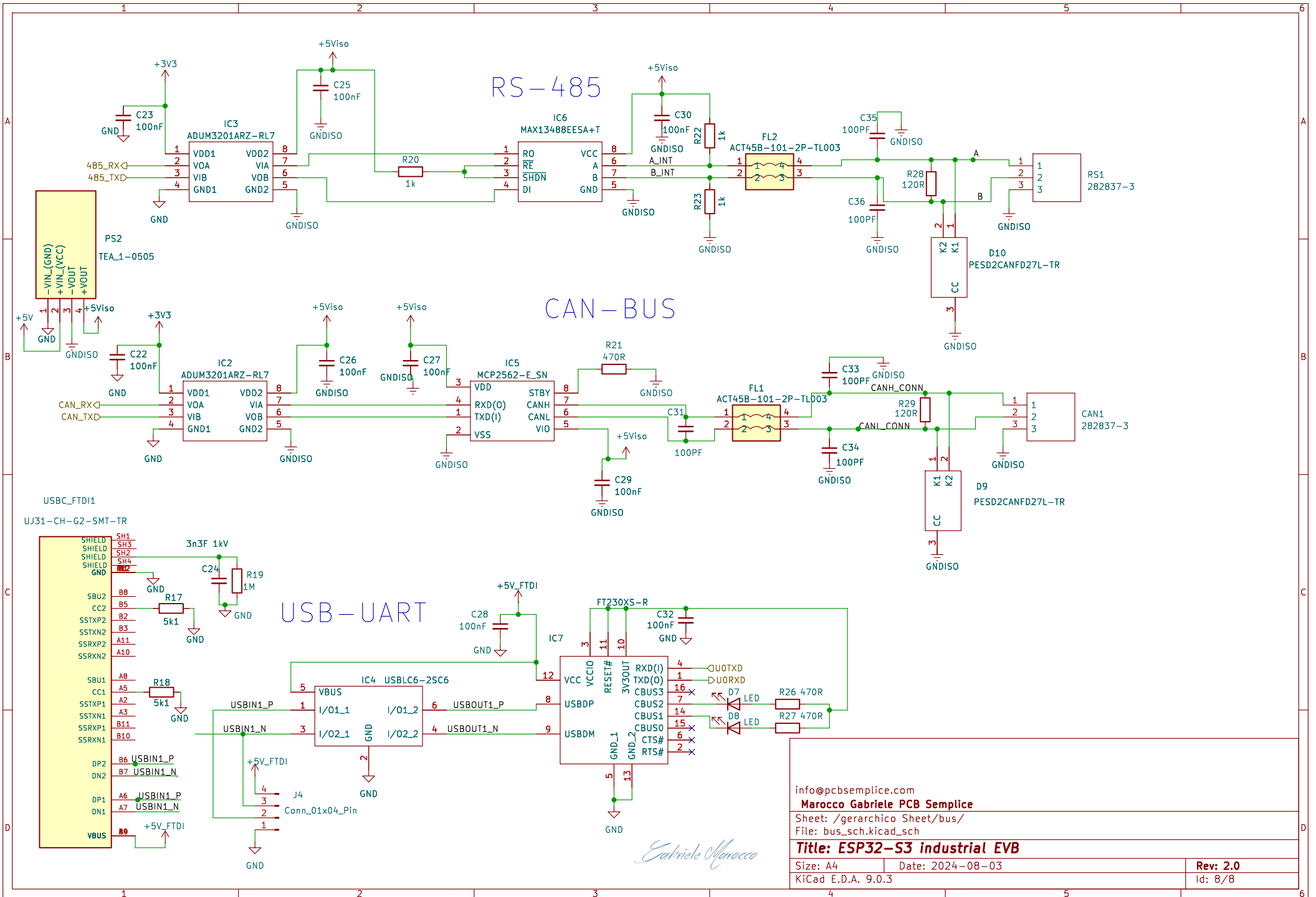
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Date: 2024-08-03

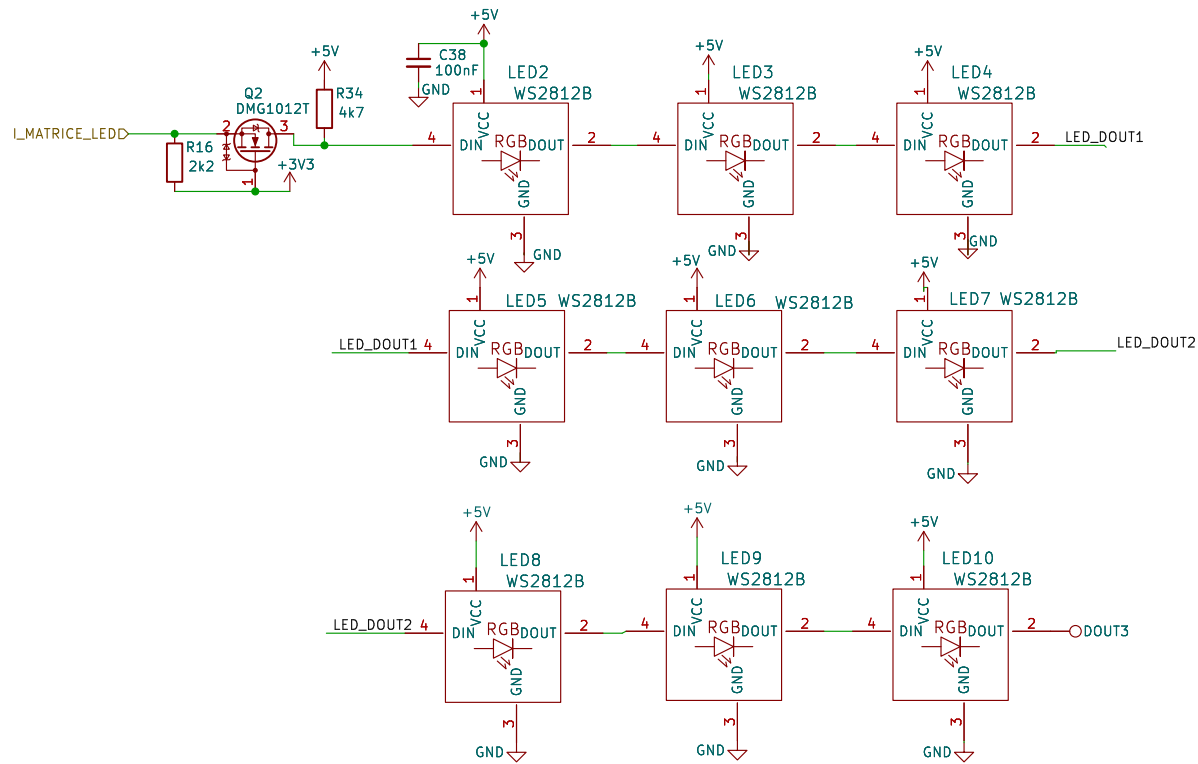
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**Rev: 2.0**

Id: 8/8



matrice di LED RGB (WS2812)  
WS2812 RGB LED matrix



*Gabriele Marocco*

info@pcbsemplce.com

**Marocco Gabriele PCB Semplice**

Sheet: /gerarchico Sheet/LED\_MATRIX\_WS2812B/

File: LED\_MATRIX\_WS2812B.kicad\_sch

**Title: ESP32-S3 industrial EVB**

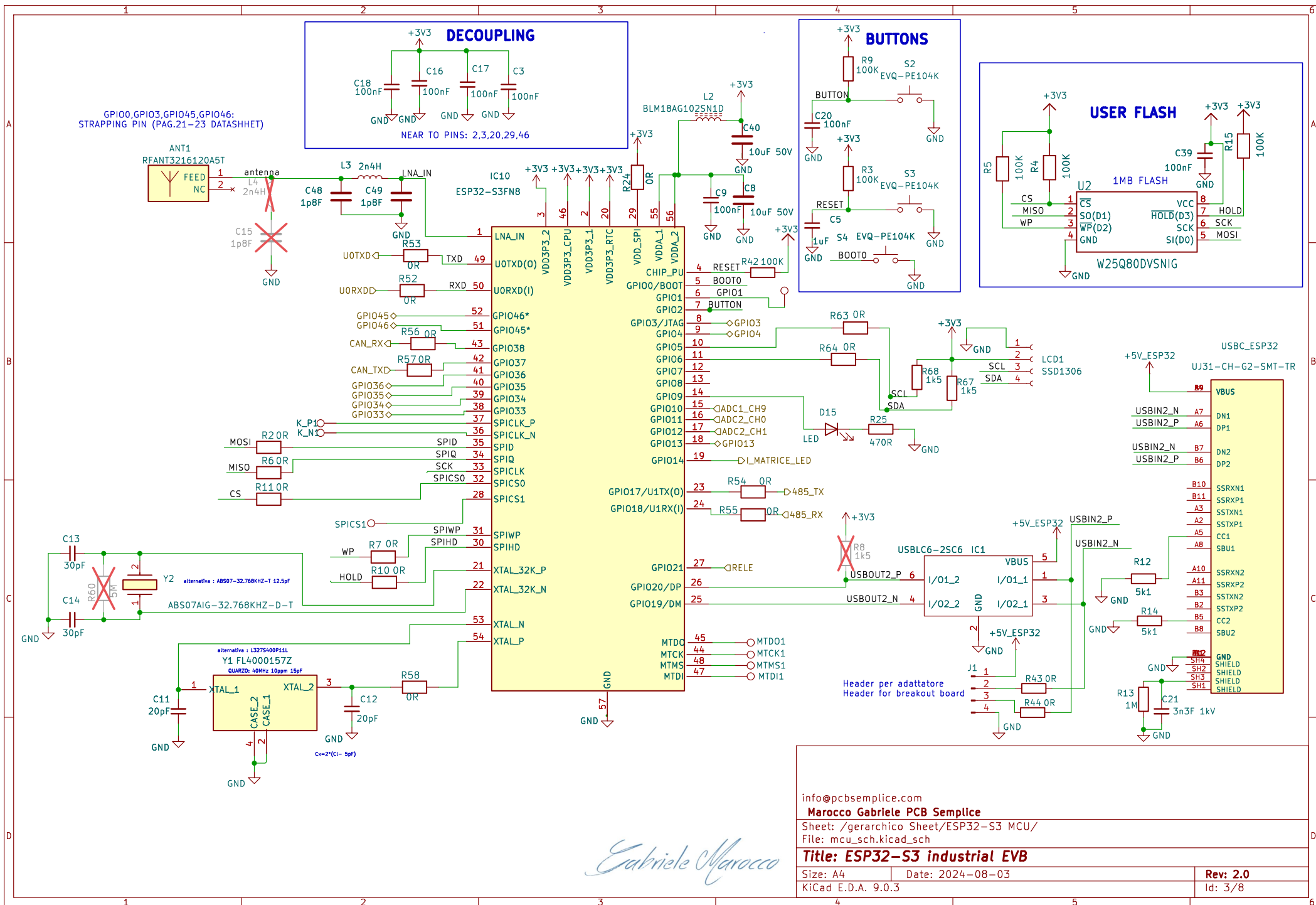
Size: A4

Date: 2024-08-03

KiCad E.D.A. 9.0.3

**Rev: 2.0**

Id: 5/8



## EXTERNAL CONNECTORS

The diagrams illustrate ESD protection for three external connectors: J5, J6, and J7. Each connector is a 1x5 pin header. The protection circuit for each connector consists of three ESD7351HT1G diodes (D11, D19, D23 for J5; D1, D2, D3 for J6; D22, D24, D25 for J7) connected to the pins. The diodes are connected to ground (GND) through their cathodes. The anodes of the diodes are connected to the pins. The pins are also connected to various components: resistors (R41, R36, R35 for J5; R32, R31, R30 for J6; R39, R38, R37 for J7) and power rails (+3V3\_OUT, +5V\_OUT). The resistors are 49R9. The power rails are connected to the anodes of the diodes. The diodes are labeled ESD7351HT1G. The power rails are labeled +3V3\_OUT and +5V\_OUT. The ground connections are labeled GND. The GPIO pins are labeled GPIO3, GPIO4, GPIO13, GPIO33, GPIO34, GPIO35, GPIO36, GPIO45, and GPIO46.

### ANALOG SIGNALS

The diagram illustrates the analog signal conditioning circuit. It features two LMV358IDR op-amp buffers (U3A and U3B). U3A buffers the signal from the ADC2\_CH0 input, which is connected to a voltage divider (RV1) and a 30V source. U3B buffers the signal from the ADC2\_CH1 input, which is connected to a differential input module (D26) and a 30V source. The circuit also includes a decoupling capacitor (C37) and a ground connection (GND).

## RELAYS

The diagram illustrates a relay control circuit. A +5V supply is connected to the NC (Normally Closed) contact of relay K1 (FINDER-34.51). The NO (Normally Open) contact of K1 is connected to the COM (Common) terminal of relay RELE1 (282837-3). The COM terminal of K1 is connected to the COM terminal of RELE1. The COM terminal of K1 is also connected to the COM terminal of a motor (Q1, DRDC3105F-7). The motor is connected to a switch (R47, OR) and a GND terminal. The switch is connected to the +5V supply.

- Id: 4/8

*Gabriele Marocco*