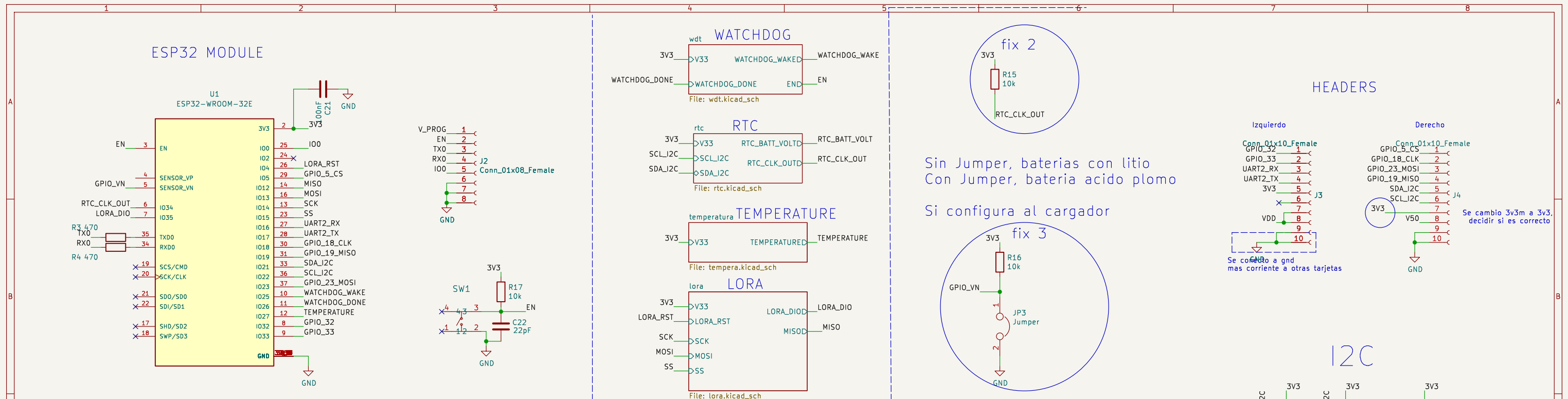
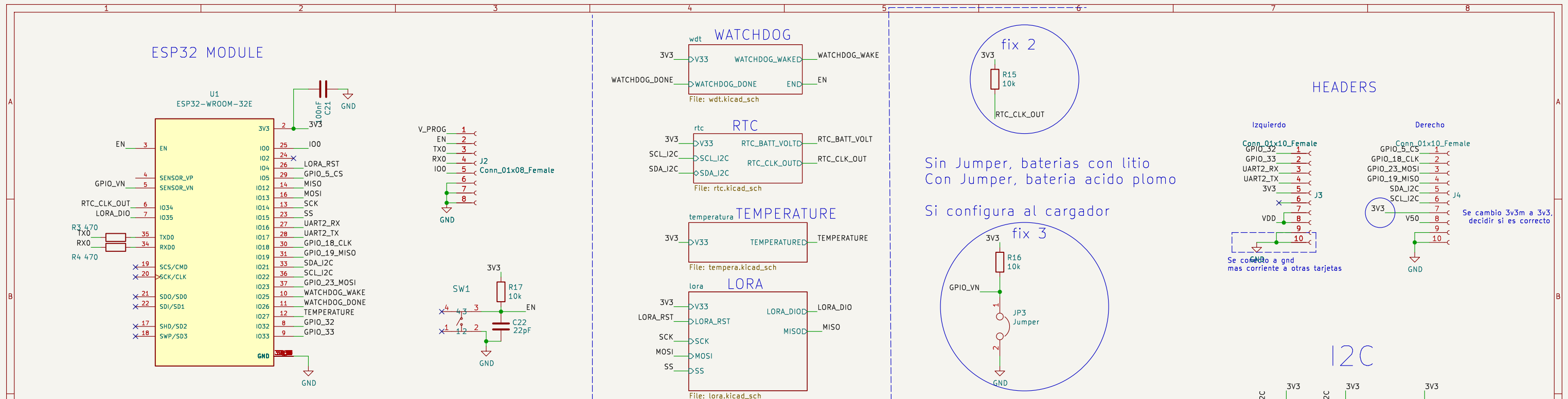
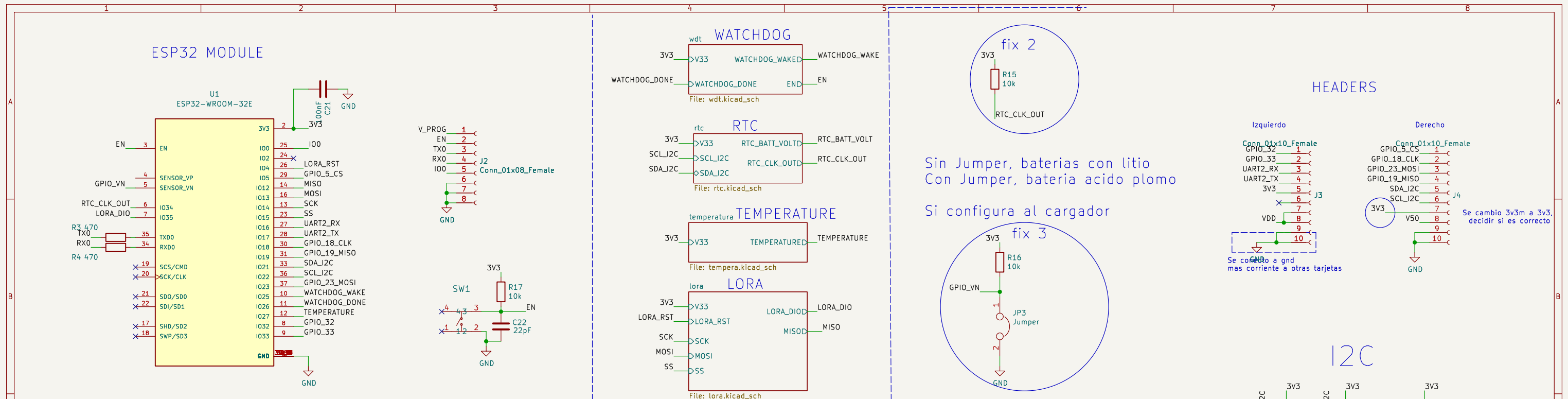
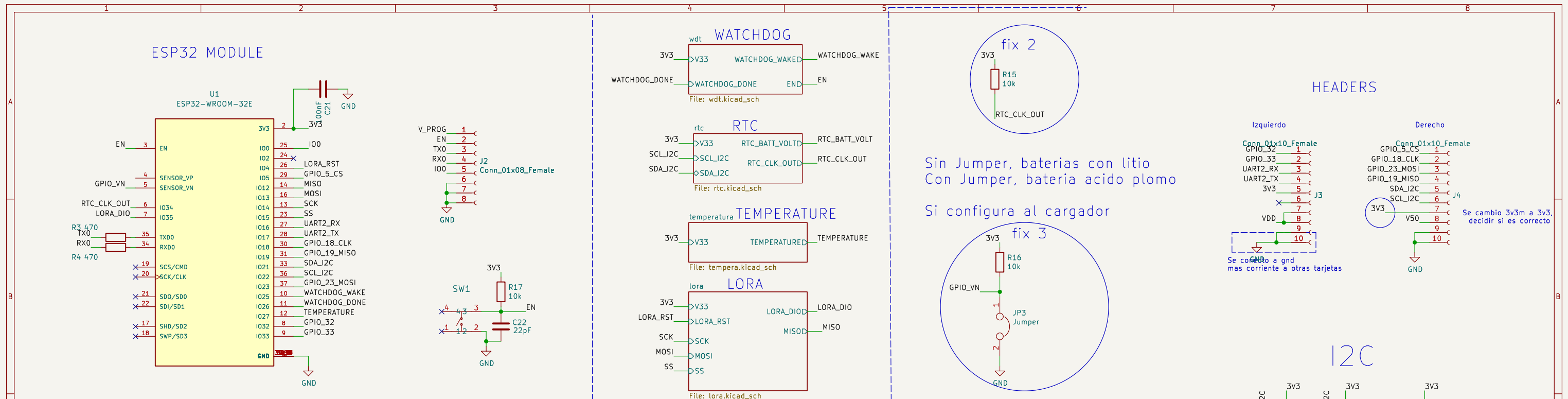
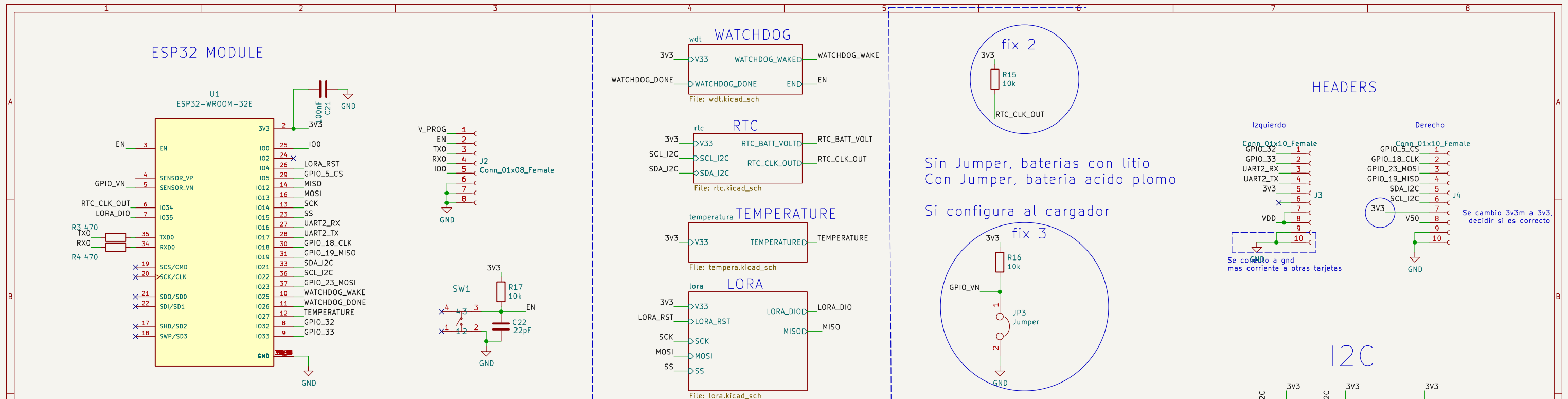
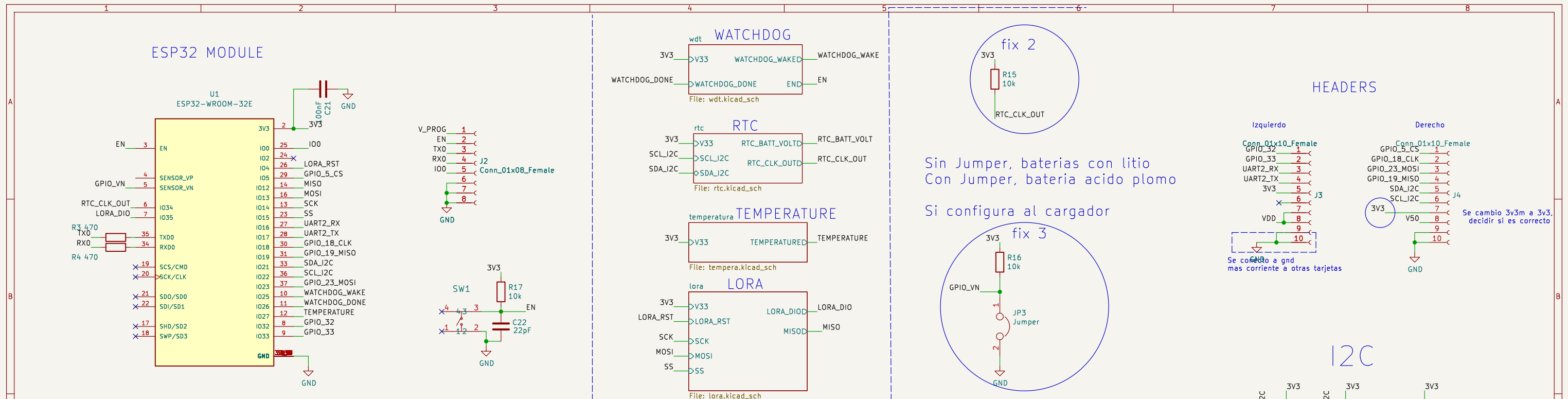
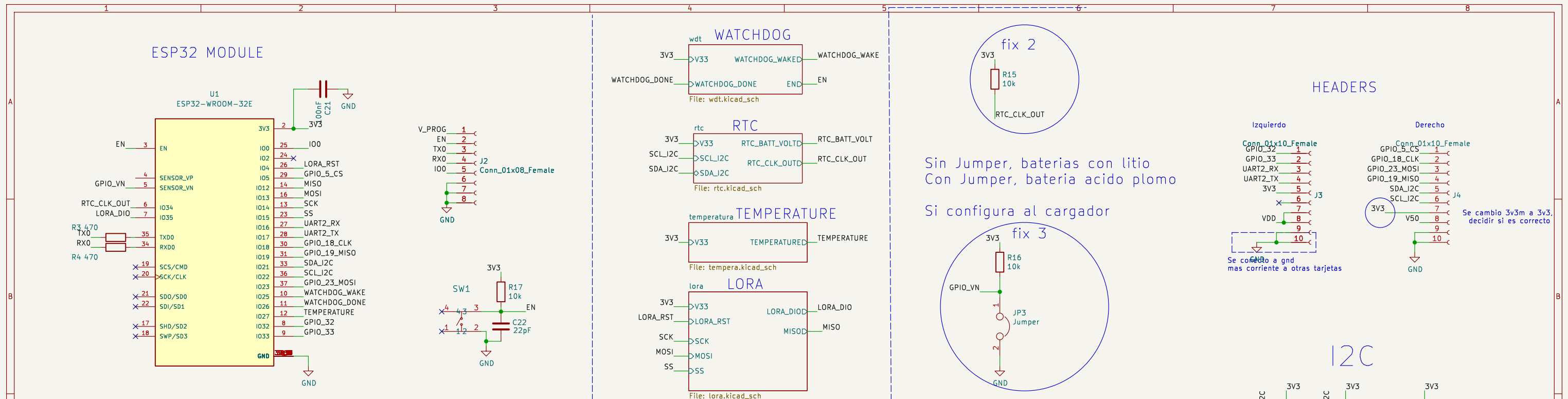
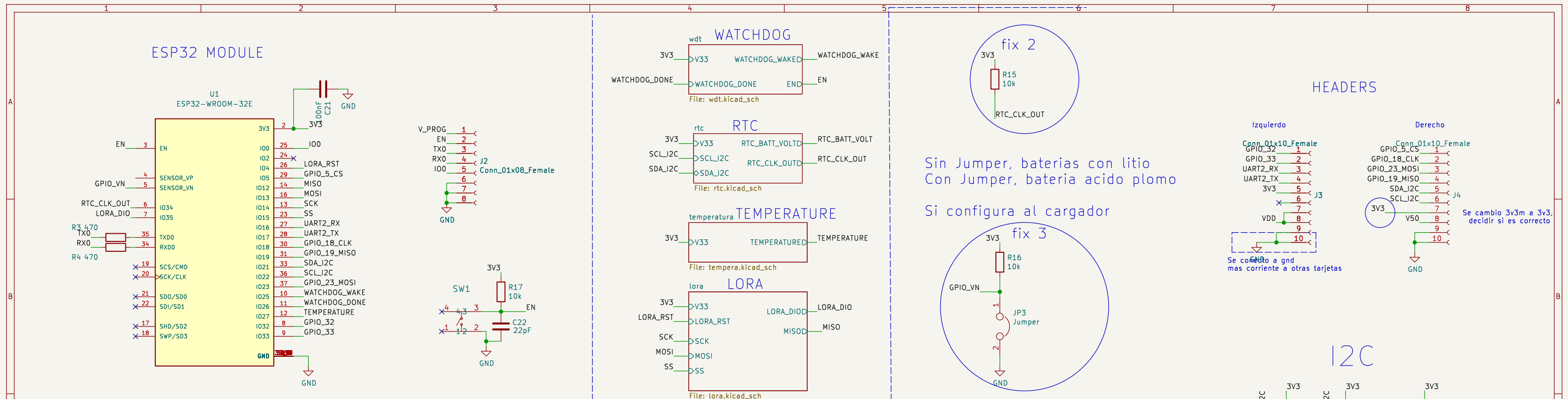
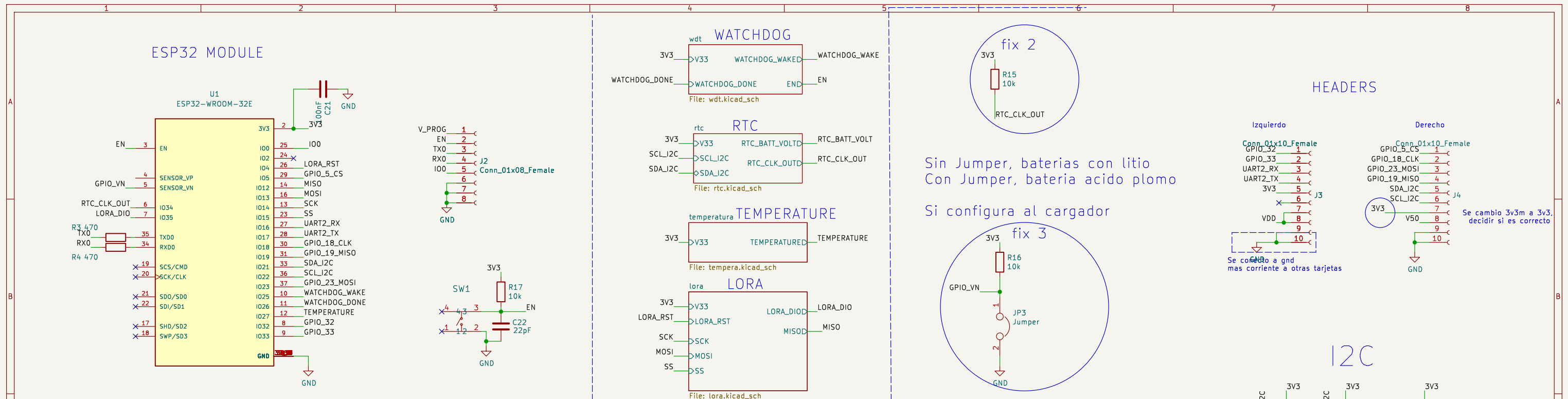
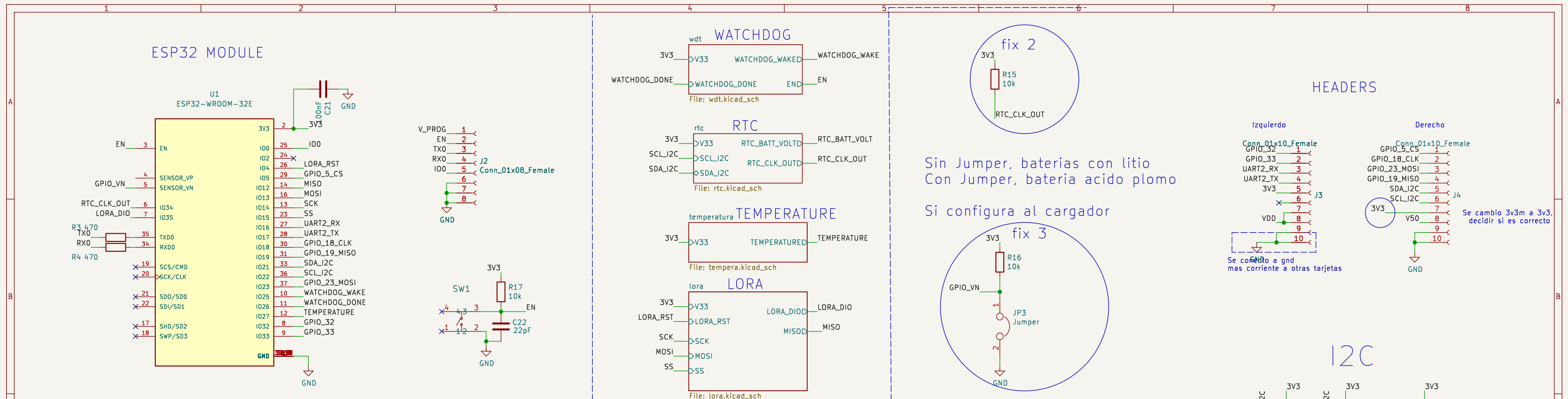
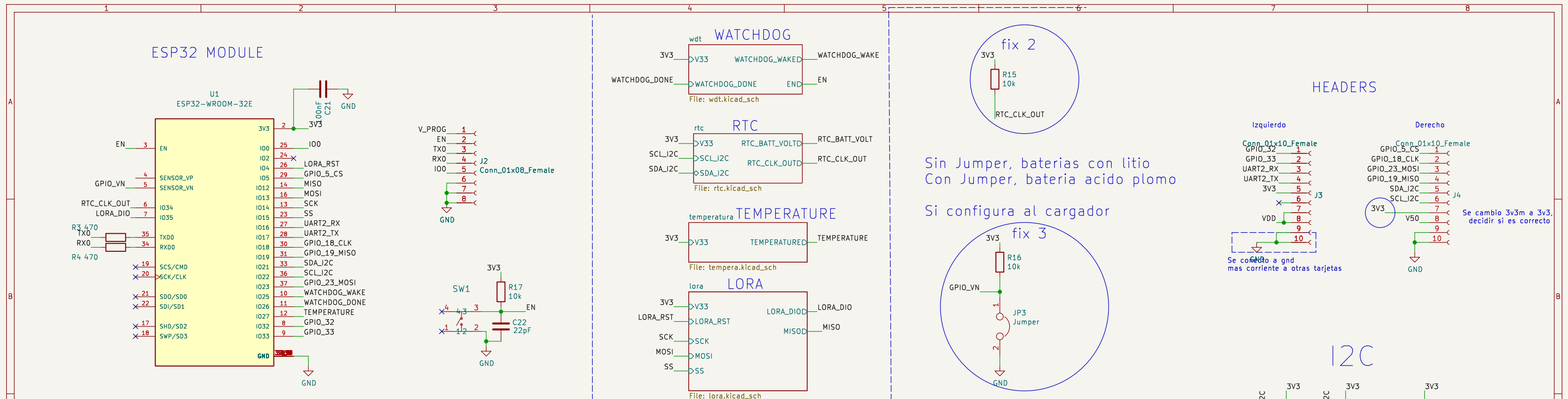
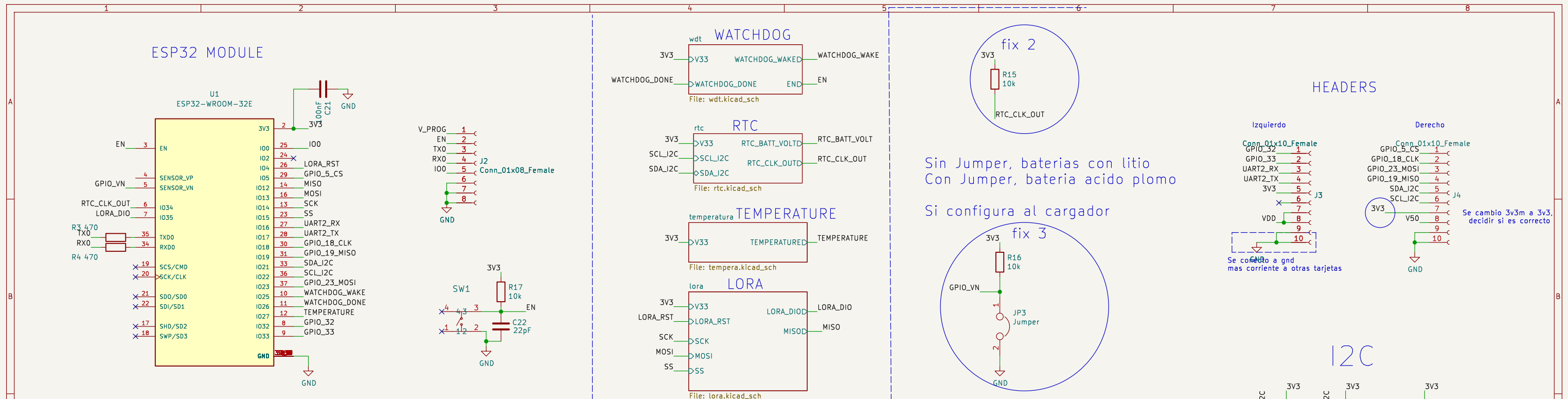
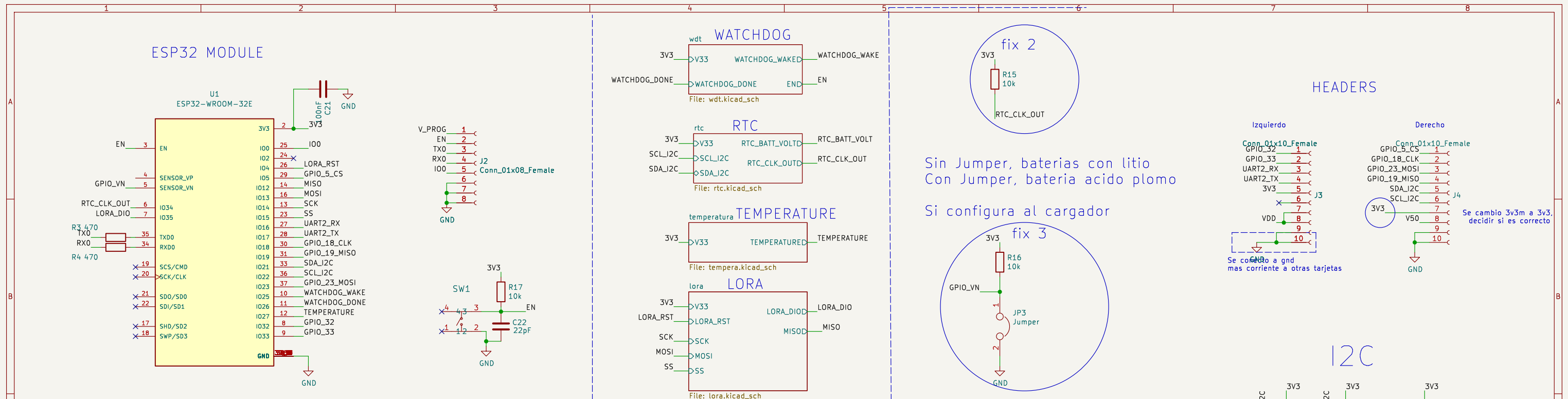
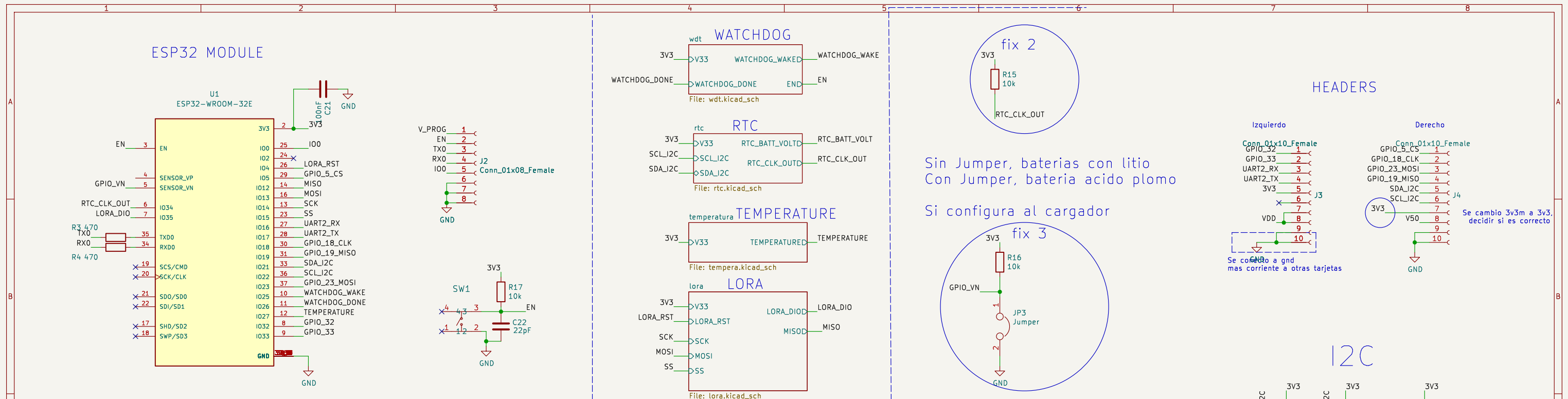
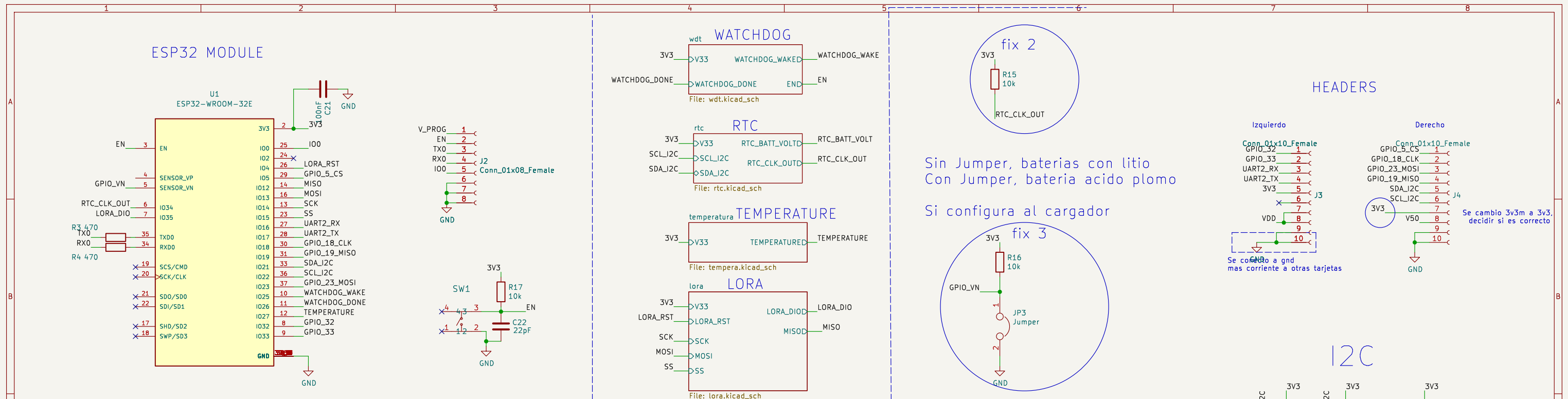




The image shows a PCB layout for an ESP32 module, divided into eight sections (1-8). The layout includes various components and their connections:

- Section 1: ESP32 MODULE** (U1: ESP32-WROOM-32E). Pins are connected to headers (EN, GPIO_VN, RTC_CLK_OUT, LORA_DIO, TXD0, RXD0, SCS/CMD, SCK/CLK, SDO/SD0, SDI/SD1, SHD/SD2, SWP/SD3, I00, I02, I04, I05, I012, I013, I014, I015, I016, I017, I018, I019, I021, I022, I023, I025, I026, I027, I032, I033, GND).
- Section 2: 3V3 REGULATOR** (SW1). Includes a 10k resistor (R17) and a 22pF capacitor (C22).
- Section 3: WATCHDOG** (wdt) and **RTC** (rtc). Includes a 10k resistor (R15) and a 10k resistor (R16).
- Section 4: TEMPERATURE** (temperatura) and **LORA** (lora). Includes a 10k resistor (R16) and a jumper (JP3).
- Section 5: 3V3 REGULATOR** (fix 3). Includes a 10k resistor (R16) and a jumper (JP3).
- Section 6: 3V3 REGULATOR** (fix 2). Includes a 10k resistor (R15).
- Section 7: HEADERS**. Includes headers for the left and right sides of the board.
- Section 8: I2C**. Includes an I2C header with a 3V3 regulator (fix 3) and a 10k resistor (R16).

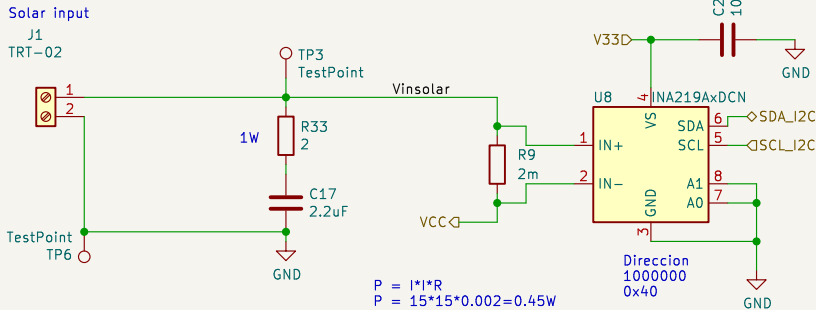
-
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- Section 1: ESP32 MODULE** (U1: ESP32-WROOM-32E). Pins are connected to headers (EN, GPIO_VN, RTC_CLK_OUT, LORA_DIO, TXD0, RXD0, SCS/CMD, SCK/CLK, SDO/SD0, SDI/SD1, SHD/SD2, SWP/SD3, I00, LORA_RST, GPIO_5_CS, MISO, MOSI, SCK, SS, UART2_RX, UART2_TX, GPIO_18_CLK, GPIO_19_MISO, SDA_I2C, SCL_I2C, GPIO_23_MOSI, WATCHDOG_WAKE, WATCHDOG_DONE, TEMPERATURE, GPIO_32, GPIO_33).
 - Section 2: 3V3 REGULATOR** (SW1). Includes a 10k resistor (R17) and a 22pF capacitor (C22).
 - Section 3: WATCHDOG** (wdt) and **RTC** (rtc). Includes a 10k resistor (R15) and a 10k resistor (R16).
 - Section 4: TEMPERATURE** (temperatura) and **LORA** (lora). Includes a 10k resistor (R16) and a jumper (JP3).
 - Section 5: 3V3 REGULATOR** (fix 3). Includes a 10k resistor (R16) and a jumper (JP3).
 - Section 6: 3V3 REGULATOR** (fix 2). Includes a 10k resistor (R15).
 - Section 7: HEADERS**. Includes headers for the left and right sides, including a 3V3 regulator (V50) and a 10k resistor (R15).
 - Section 8: 3V3 REGULATOR** (V50). Includes a 10k resistor (R15).



The image shows a PCB layout for an ESP32 module, divided into eight sections (1-8). The layout includes various components and their connections:

- Section 1: ESP32 MODULE** (U1: ESP32-WROOM-32E). Pins are connected to headers (EN, GPIO_VN, RTC_CLK_OUT, LORA_DIO, TXD0, RXD0, SCS/CMD, SCK/CLK, SDO/SD0, SDI/SD1, SHD/SD2, SWP/SD3, I00, LORA_RST, GPIO_5_CS, MISO, MOSI, SCK, SS, UART2_RX, UART2_TX, GPIO_18_CLK, GPIO_19_MISO, SDA_I2C, SCL_I2C, GPIO_23_MOSI, WATCHDOG_WAKE, WATCHDOG_DONE, TEMPERATURE, GPIO_32, GPIO_33).
- Section 2: 3V3 REGULATOR** (SW1). Includes a 10k resistor (R17) and a 22pF capacitor (C22).
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- Section 4: TEMPERATURE** (temperatura) and **LORA** (lora). Includes a 10k resistor (R16) and a jumper (JP3).
- Section 5: 3V3 REGULATOR** (fix 3). Includes a 10k resistor (R16) and a jumper (JP3).
- Section 6: 3V3 REGULATOR** (fix 2). Includes a 10k resistor (R15).
- Section 7: HEADERS**. Includes headers for the left and right sides, including a 3V3 regulator (V50) and a 10k resistor (R15).
- Section 8: 3V3 REGULATOR** (V50). Includes a 10k resistor (R15).

CURRENT SENSOR SOLAR INPUT



Vin de 10Vdc a 24Vdc
Corriente mínima de entrada 0.5A, para operación de regulador principal y circuitos sin reguladores externos activos
Corriente media para carga de batería máxima de 6 A
Corriente máxima para carga de batería y reguladores activos 9A

Sheet: /input_solar/
File: lin.kicad_sch

Title:

Size: A4

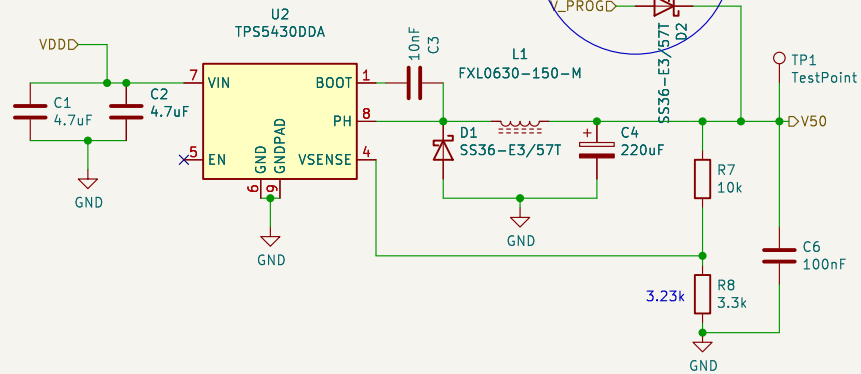
Date:

KiCad E.D.A. 9.0.9

Rev:

Id: 2/10

Verificar si este diodo se queda o se cambia por uno de menor corriente



Sheet: /regulador_5v0/
File: reg5v0.kicad_sch

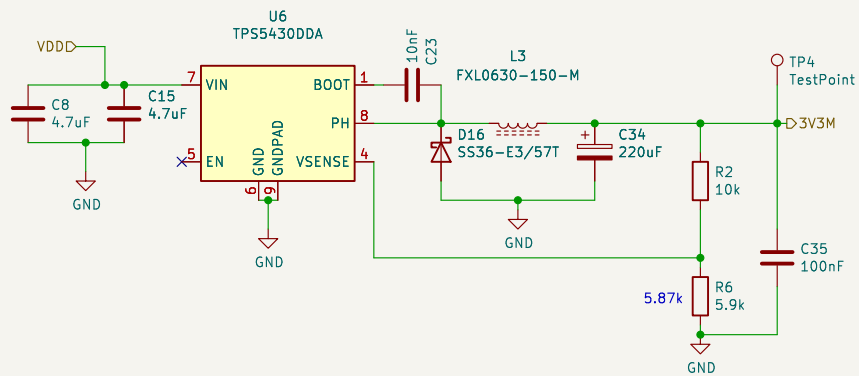
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Size: A4 Date:

KiCad E.D.A. 9.0.9

Rev:

Id: 3/10



Sheet: /regulador_3v3/
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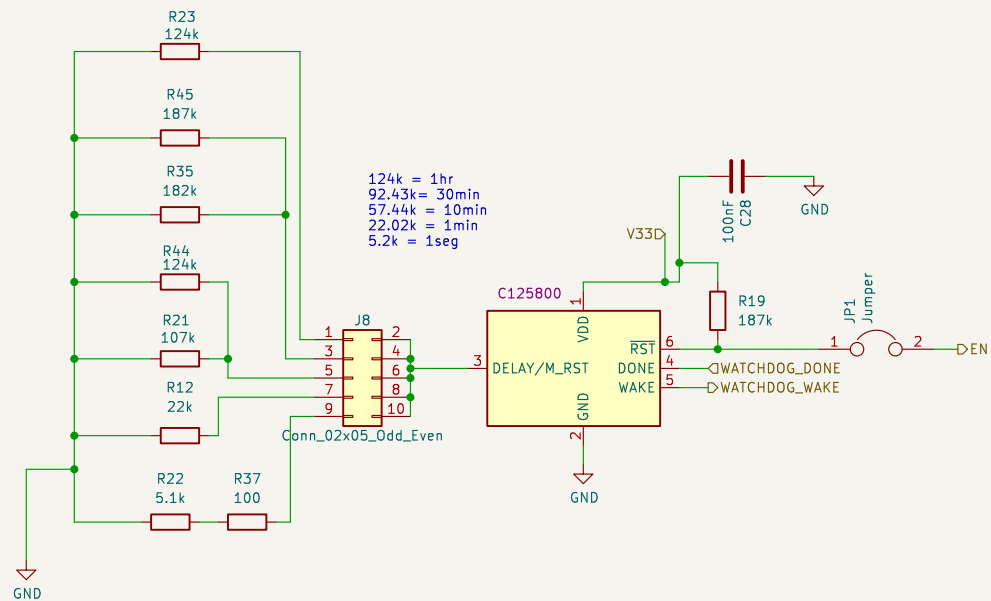
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KiCad E.D.A. 9.0.9

Rev:

Id: 4/10



Sheet: /wdt/
File: wdt.kicad_sch

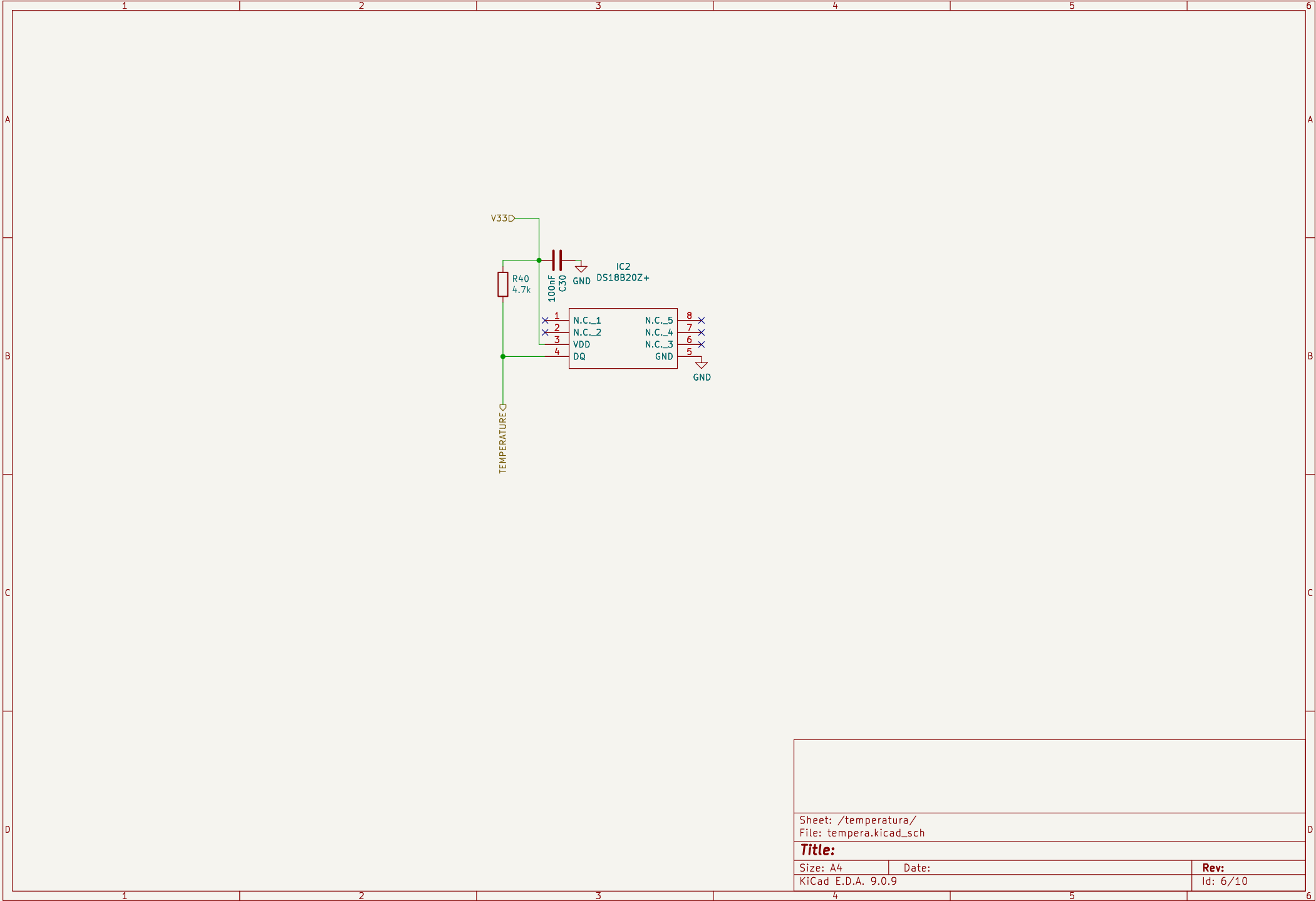
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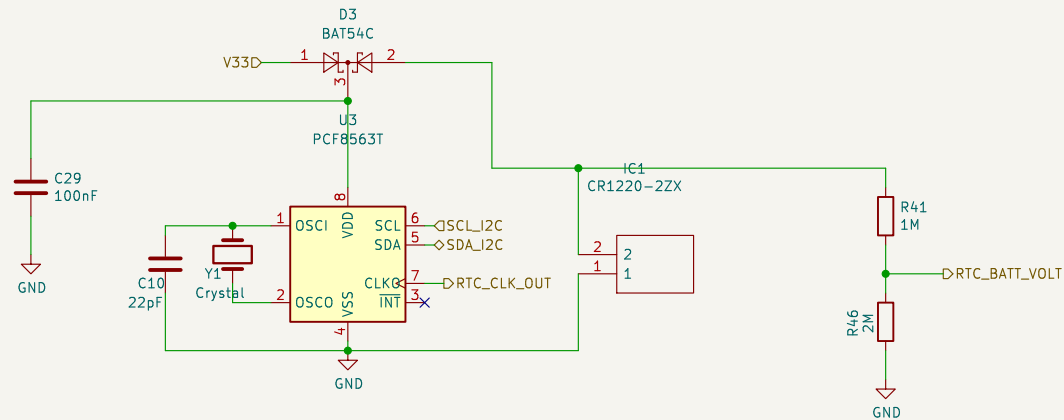
Size: A4 Date:

KiCad E.D.A. 9.0.9

Rev:

Id: 5/10





Sheet: /rtc/
File: rtc.kicad_sch

Title:

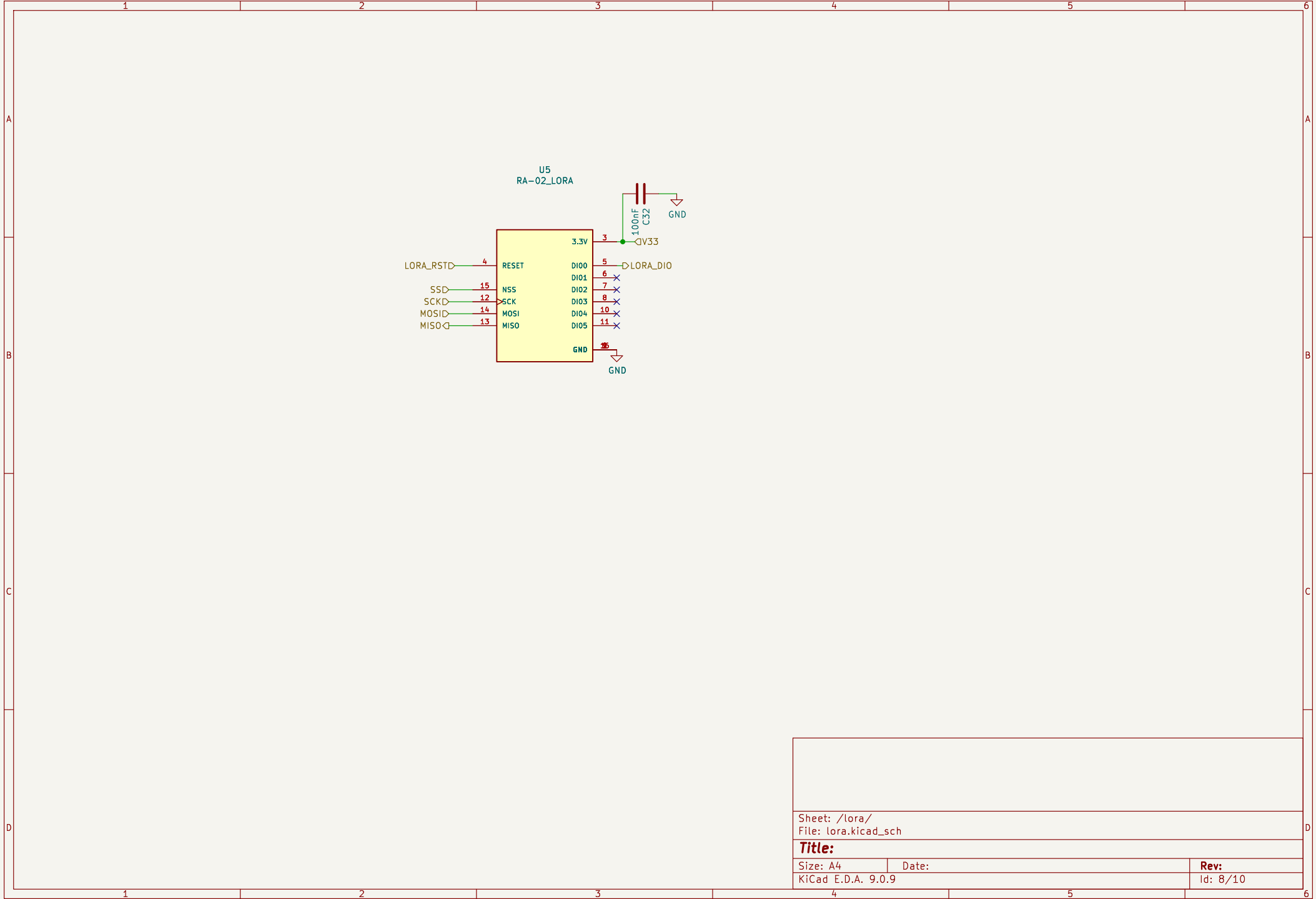
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Date:

KiCad E.D.A. 9.0.9

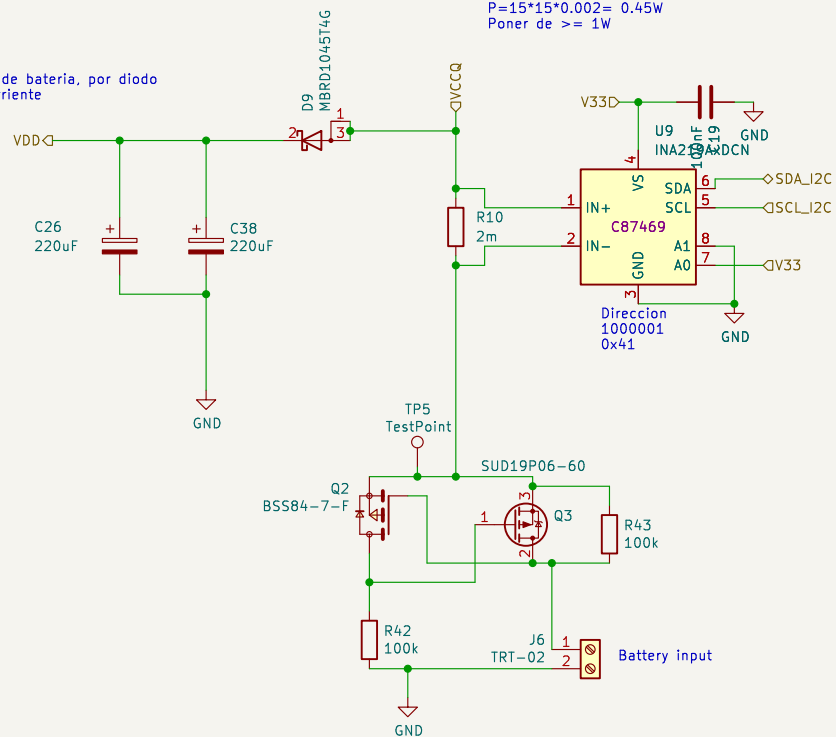
Rev:

Id: 7/10



VDD = salida de voltaje de bateria, por diodo evita retorno de corriente

Potencia Rshunt
 $P = I * I * R$
 $P = 15 * 15 * 0.002 = 0.45W$
 Poner de $\geq 1W$



Sheet: /bateria/
 File: bateria.kicad_sch

Title:

Size: A4

Date:

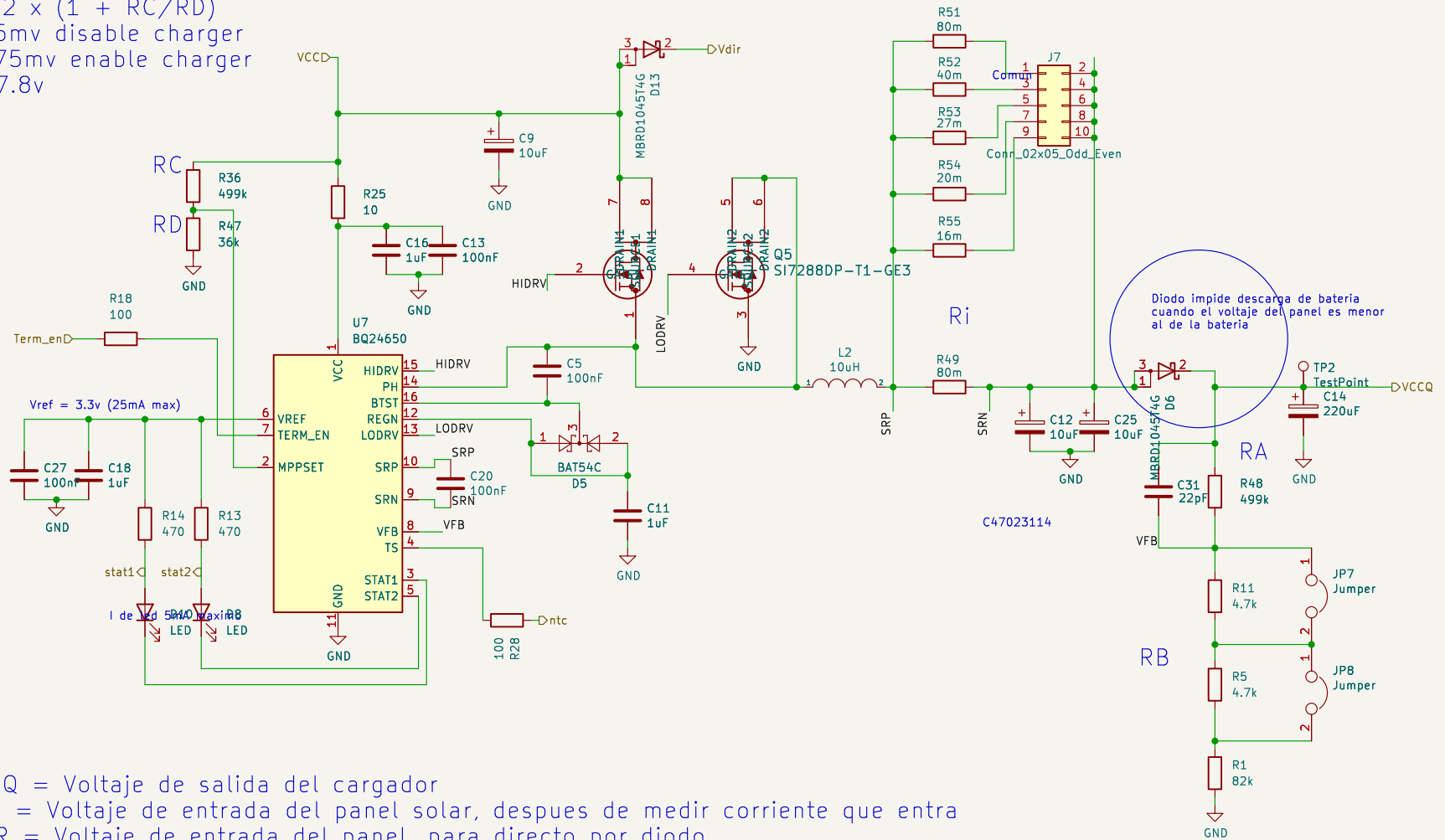
KiCad E.D.A. 9.0.9

Rev:

Id: 9/10

Para 1.0A / $R_i = 0.040$ / $P = 0.04W$ (3)
 Para 1.48A / $R_i = 0.027$ / $P = 0.06W$ (5)
 Para 2.0A / $R_i = 0.020$ / $P = 0.08W$ (7)
 Para 2.5A / $R_i = 0.016$ / $P = 0.10W$ (9)
 La corriente limite de los jumper es 3A
 Usar maximo de 2.5A por seguridad

$V_{mppt} = 1.2 \times (1 + RC/RD)$
 $v_{mppt} < 75mv$ disable charger
 $v_{mppt} > 175mv$ enable charger
 $V_{mppt} = 17.8v$



Sheet: /charger/
 File: charger_batt.kicad_sch

Title:

Size: A4
 KiCad E.D.A. 9.0.9

Date:

Rev:
 Id: 10/10

$V_{bat} = 2.1V \times (1 + RA/RB)$
 $RA = 499k$