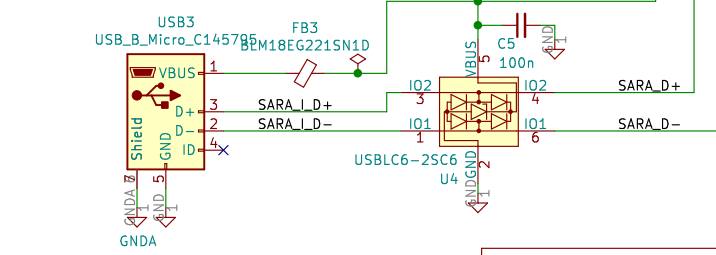
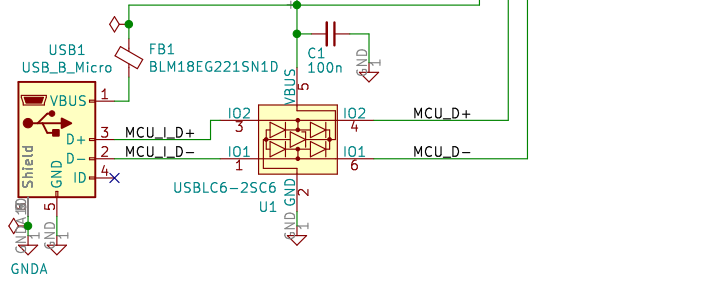
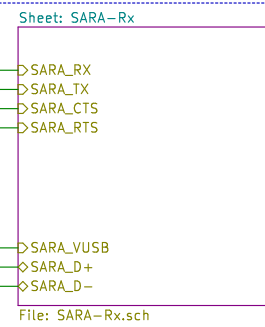
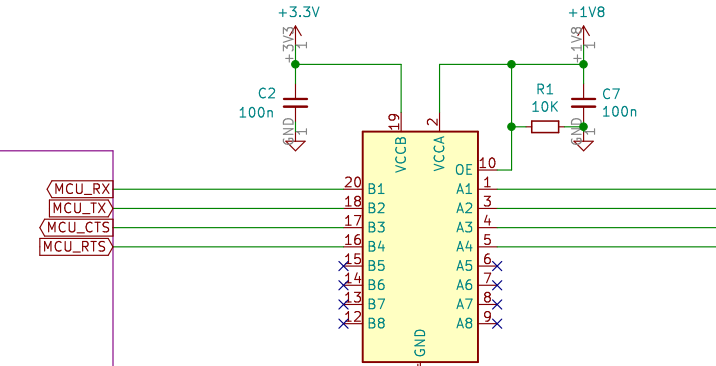
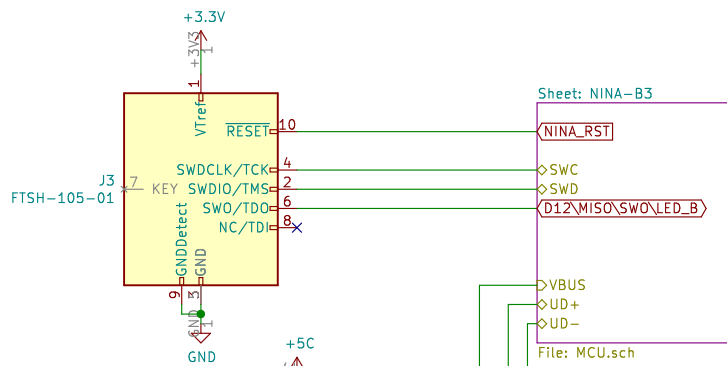
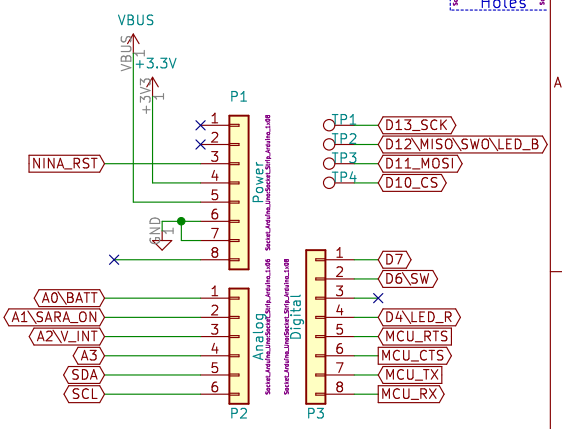
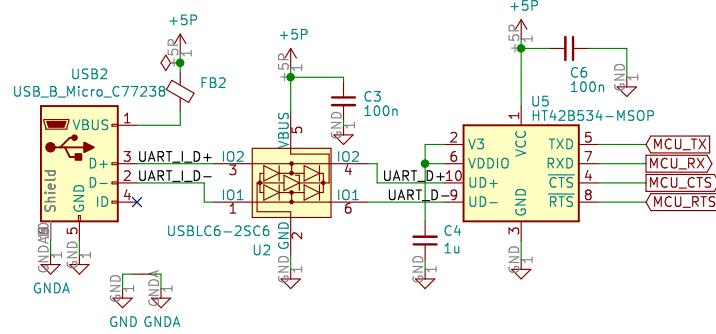
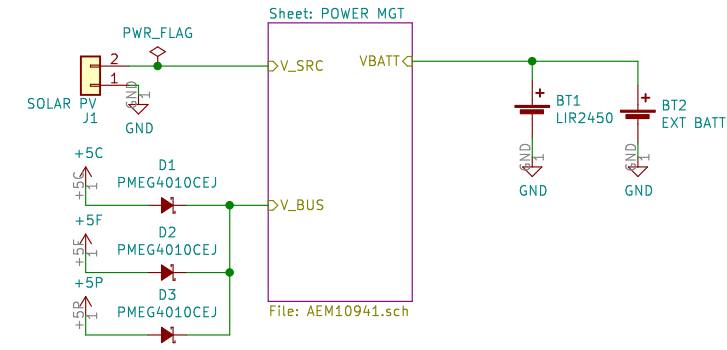
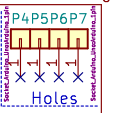


Please verify if polarity on the battery plug matches polarity of the socket as marked on the board's soldermask besides the socket.

Shield for Arduino that uses the same pin disposition like "Uno" board Rev 3.



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AEM10941 E-PEAS Energy Harvesting

The schematic shows the AEM10941 IC (U6A) connected to a +V\_PV source and a +BATT\_SYS source. The IC has several pins: SRC (25), FB\_COLD (26), SWBOOST (28), BUFSRC (27), PAD (29), PRIM (17), BATT (16), BAL (15), LVOUT (11), HVOUT (14), FB\_HV (13), SWBUCK (2), and BUCK (3). The circuit includes a boost converter section (SRC, BOOST, LVOUT, HVOUT, FB\_HV, FB\_COLD) and a buck converter section (BUFSRC, SWBUCK, BUCK). The output of the buck converter is VBUCK (3.6V), which is connected to the LDO (U6B) input. The LDO output is 3.3V. The LDO is configured with SET\_OVCH, SET\_CHRDY, SET\_OVDIS, ENLV, ENHV, SELMPP[0], SELMPP[1], CFG[2], CFG[1], CFG[0], FBPRIM\_U, and FBPRIM\_D. The LDO output is connected to the +BATT\_SYS source.

Key components and connections:

- U6A (AEM10941):** The main energy harvesting IC. Pins include SRC (25), FB\_COLD (26), SWBOOST (28), BUFSRC (27), PAD (29), PRIM (17), BATT (16), BAL (15), LVOUT (11), HVOUT (14), FB\_HV (13), SWBUCK (2), and BUCK (3).
- U6B (AEM10941):** The LDO (Low Dropout Regulator). Pins include SET\_OVCH (22), SET\_CHRDY (23), SET\_OVDIS (24), ENLV (18), ENHV (12), SELMPP[0] (8), SELMPP[1] (7), CFG[2] (4), CFG[1] (5), CFG[0] (6), FBPRIM\_U (10), and FBPRIM\_D (9).
- Power Sources:** +V\_PV and +BATT\_SYS.
- Capacitors:** C9 (10uF), C12 (10uF), C8 (10uF), L1 (10uH), L2 (10uH), and C10 (10uF).
- Outputs:** +3.3V and VBUCK (3.6V).

EN LDO = 3.67V  
OverCharge = 4.12V  
OverDisch = 3.60V  
LDO Output = 3.3V

# BATTERY CHARGER

VBUS

V\_BUSD

R2 10K

C11 10u

LED1

19-217/R6C-AL1M2VY/3T

R3 10K

R2P 10K

TP4054 U7

CHRG PROG

BAT

VCC

GND

+BATT\_SYS

+BATT\_SYS

1

2

3

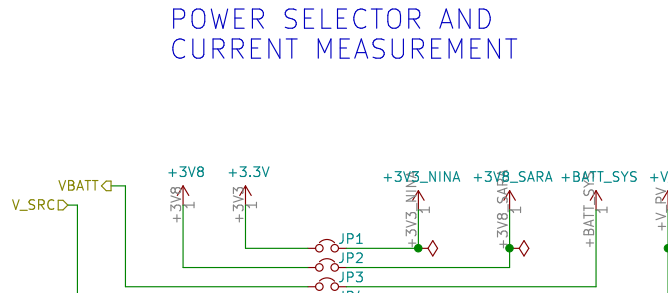
D

If Charging Current < 0.15  
 $R_{prog} = 1000 / I_{charging}$

Else  
 $R_{prog} = 1000 / I_{charging} * (1.2 - 4/3 * I_{charging})$

20k = 50mA

## POWER SELECTOR AND CURRENT MEASUREMENT

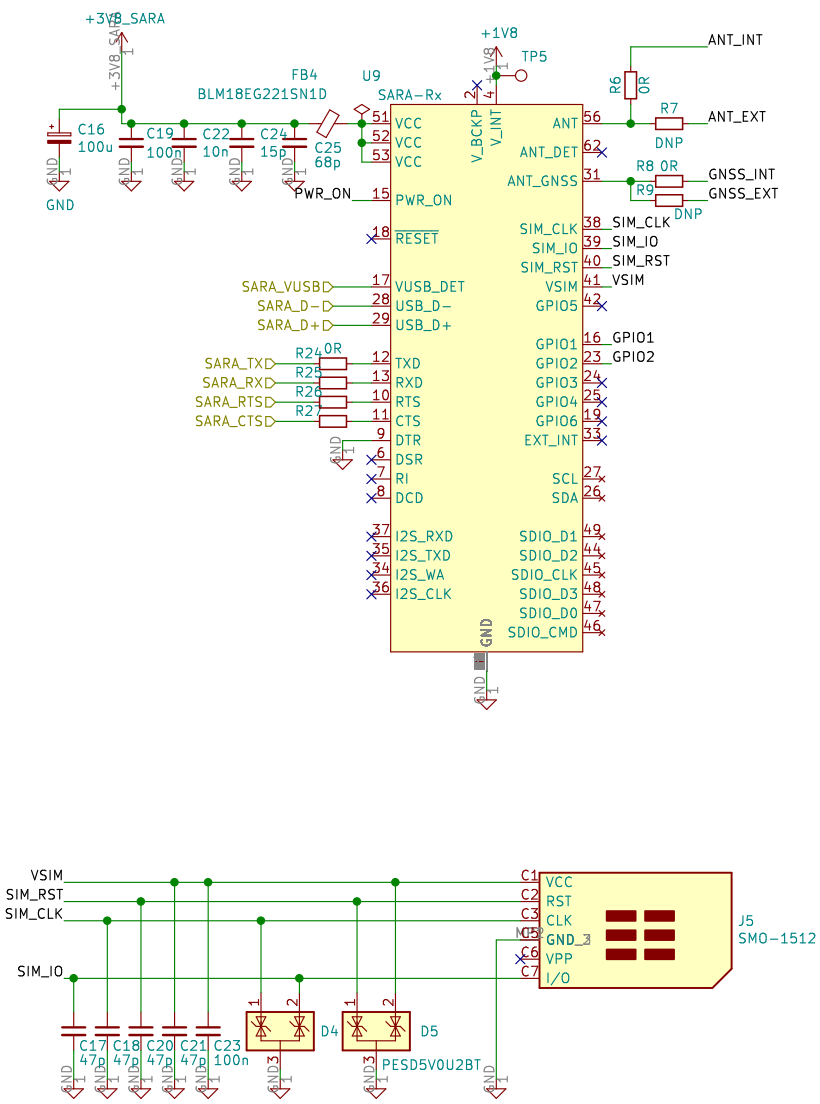


Remove Jumper, turn NINA off making SARA Pins available over the Arduino Header, therefore can be used to interface with another MCU or with m-center.

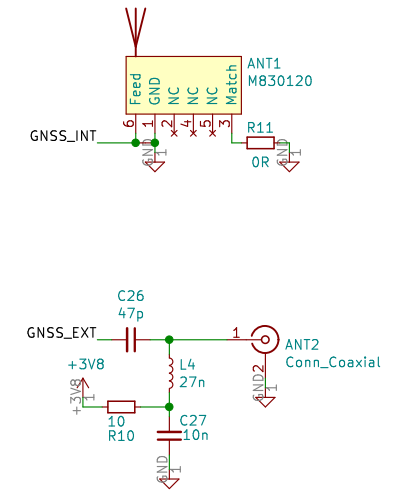
# BOOST DC-DC CONVERTER

$V_{out} = (R4/R5 + 1) * 0.8$

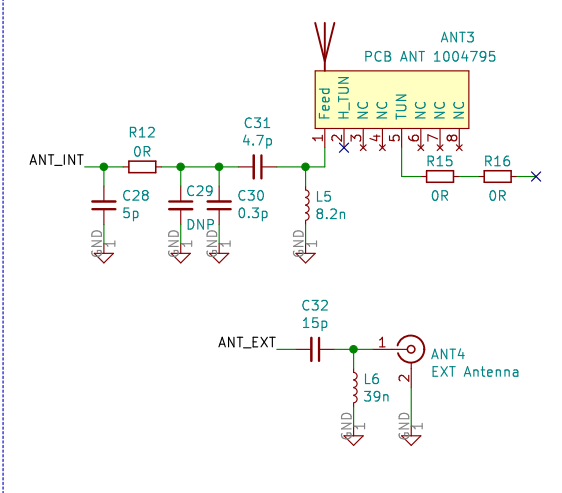
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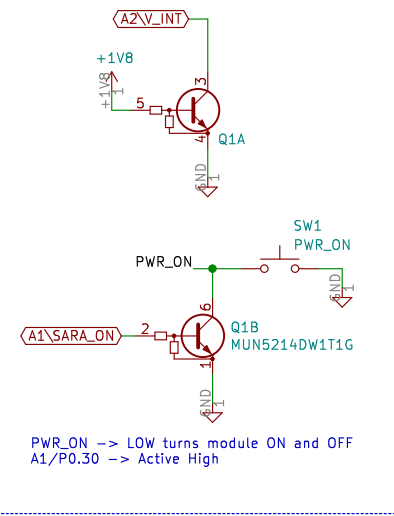
### GNSS ANTENNA



### CELLULAR ANTENNA

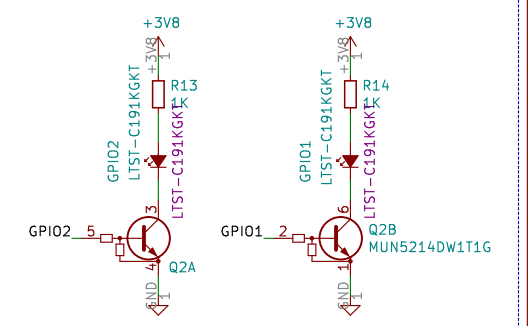


### Configure A2/P0.05 as Input Pull-up



PWR\_ON -> LOW turns module ON and OFF  
 A1/P0.30 -> Active High

### SARA GPIO LEDs



Output indicating when the cellular Power Amplifier integrated in the module is transmitting

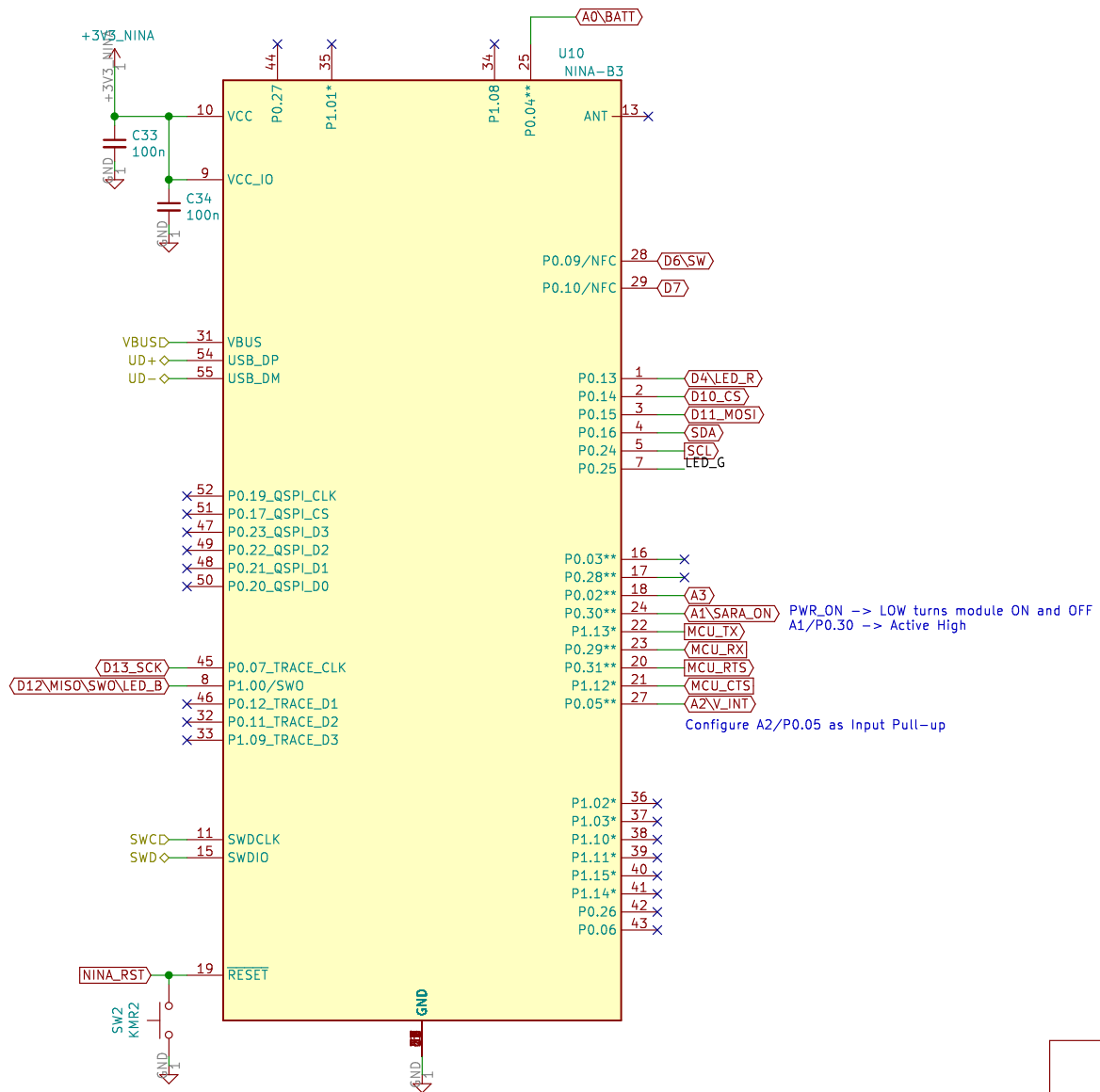
Leonardo Bispo  
**More Electronics**

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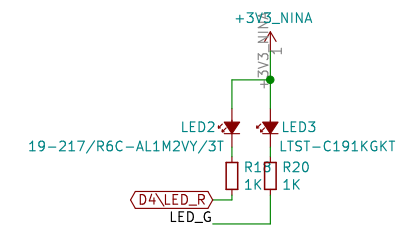
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Size: A4 Date: 2020-04-22  
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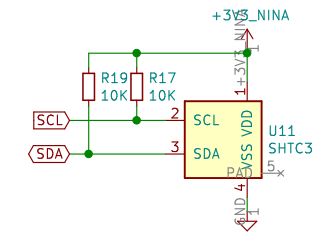
**Rev: 0.1.0**  
 Id: 3/4



## RG(B) LEDs



## I2C Temp + Hum Sensor



## USER BUTTON + BATT ADC

