2V Panel > MPPT Boost 5V > 4V2 Charger > LiFePO4 Cell > Buck/Boost 3V3

JP2 Solar Panel IN 2V 160+160mA
Vmp=2V, Voc=2.3V,
Imp=320mA, Isc=400mA
OR
JP2: 5V DC Power supply

Polyfuse protects from:
1. Reverse polarity (with TVS)
2. Short circuit

Solar panel V measurement,
can help with sun presence determine

Polyfuse protects from:
1. BAT reverse polarity (with TVS)
2. Overcurrent, SIM7070 up to 0.5A

VBAT can be measured by SIM7070

VOUT=12V 1.25*(1+R1/R2)

10k for 100mA fast charge, can by adjusted

Power harvester
2V Solar panel OR 5V DC

MCU Power

Linear/Switch mode

GNSS Antenna
Passive: replace C by R0
Active: close JP

RF

ADC Sensor

12V input: 3.9k
5V input: 20k
3V3 input: 0R

SERCOM1
USART/I2C/SPI
4K7 R for I2C only

Sensor 1 serial

SERCOM2
USART/RS485/LIN/SPI
DEBUG USART

Sensor 2 serial

Inverting optocouple

NPN input: (1+2), use (3),(4)
PNP input: (3+4), use (1),(2)
Gercon: (1+2), use (3),(4)
External power: adjust R
Internal power
External GND
Internal GND

PULSE Sensors, optocouple galvanic isolation

SERCOM capabilities:
1. USART
2. USART hardware handshake (CTS/RTS)
3. RS485 (3V3) (only SERCOM2)
4. LIN client (only SERCOM2)
5. I2C host (only SERCOM0)
6. I2C client (only SERCOM0)
7. SPI host
8. SPI client

Solar power
apolisskyi

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File: nb-iot-saml11-sim7070-solar-platform.kicad_sch

Title: NB-IoT platform based on SAML11, SIM7070

Size: A3	Date: 2022-09-18	**Rev: 1.0**
KiCad E.D.A. kicad (6.0.7-1)-1		Id: 1/1