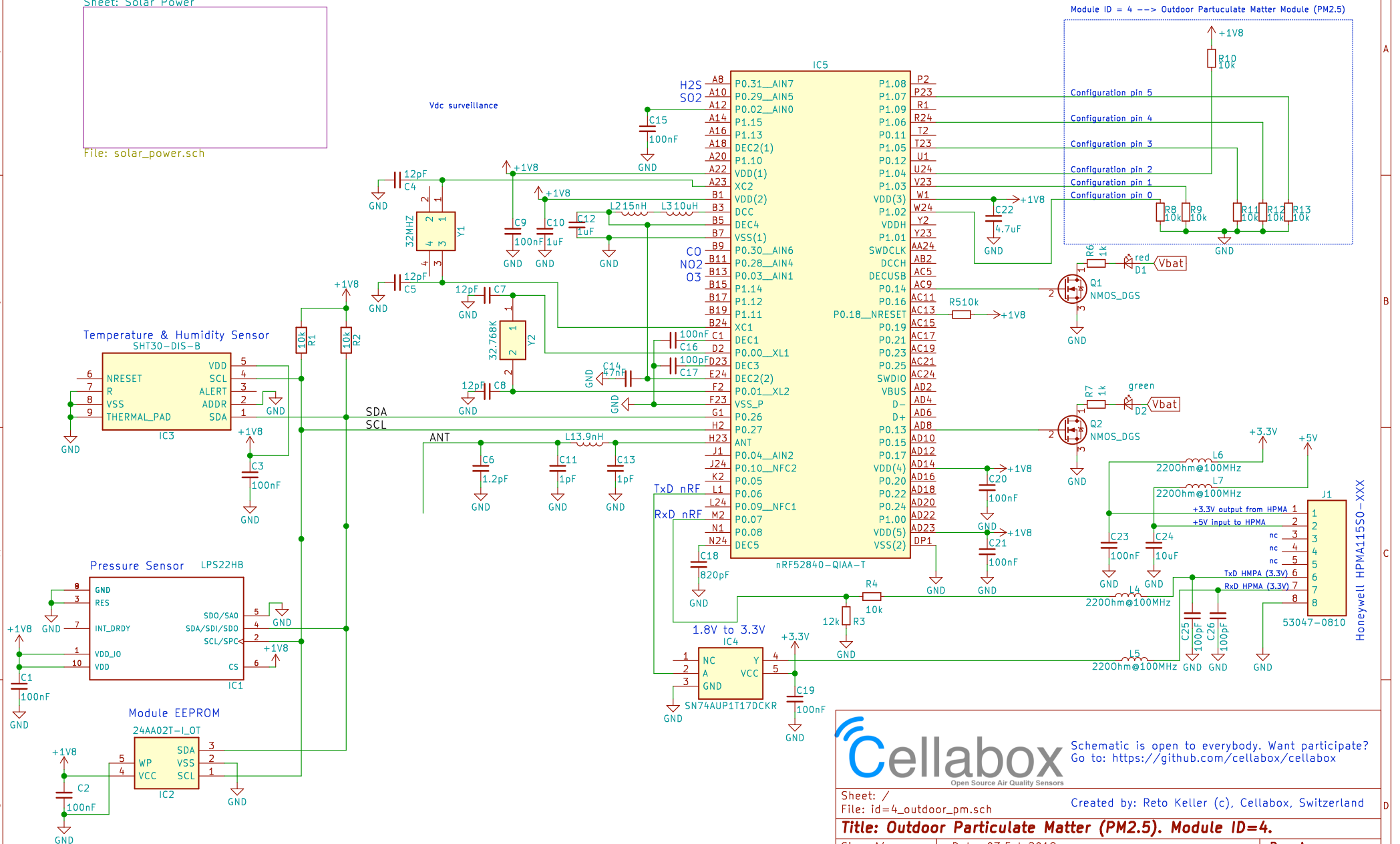


Sheet: Solar Power

File: solar_power.sch

Vdc surveillance

Module ID = 4 --> Outdoor Particulate Matter Module (PM2.5)



Schematic is open to everybody. Want participate?
Go to: <https://github.com/cellabox/cellabox>

Sheet: /

File: id=4_outdoor_pm.sch

Created by: Reto Keller (c), Cellabox, Switzerland

Title: Outdoor Particulate Matter (PM2.5). Module ID=4.

Size: A4 Date: 03.Feb.2018

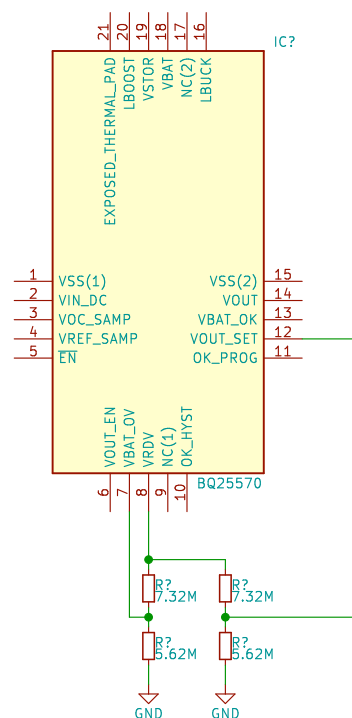
Rev: A

KiCad E.D.A. kicad 4.0.7

Id: 1/2

Solar energy harvesting runs with 2.7V, because the 5V boost converter is much more efficient with 2.7V input voltage compared to 1.8V input voltage.

- VIN_DC = 0.1...VBAT_OV (in order to get maximum out of MPPT: 0.5...4V, PIN<400mW)
- VBAT_OV = 4.2V (externally programmable, RSUMOV=ROV1+ROV2=13M0hm, ROV1=3/2*13M0hm*1.21V/4.2V=5.62M0hm, ROV2=13M0hm-5.62M0hm=7.32M0hm)
- VBAT_OK_HYST = 3.7V → battery back to normal after being <VBAT_OK (do NOT use externally programmable, use ADC to measure VBAT in FW)
- VBAT_OK = 3.2V → customer message: recharge battery (do NOT use externally programmable, but ADC to measure VBAT in FW)
- VBAT_UV = 2.0V → bq25570 internally set (1.91...2.0V), when VSTOR < VBAT_UV buck is disabled!
- VOUT = 2.7V (externally programmable, RSUMOUT=ROUT1+ROUT2≈13M0hm, VOUT=VBIAΣ*(ROUT2+ROUT1)/ROUT1, ROUT1=1.21V/2.7V*13M0hm=5.62M0hm, ROUT2=13M0hm-5.62M0hm=7.32M0hm)



Schematic is open to everybody. Want participate?
Go to: <https://github.com/cellabox/cellabox>

Sheet: /Solar Power/
File: solar_power.sch

Created by: Reto Keller (c), Cellabox, Switzerland

Title: Outdoor Particulate Matter (PM2.5). Module ID=4.

Size: A4 Date: 10.Feb.2018

Rev: A

KiCad E.D.A. kicad 4.0.7

Id: 2/2