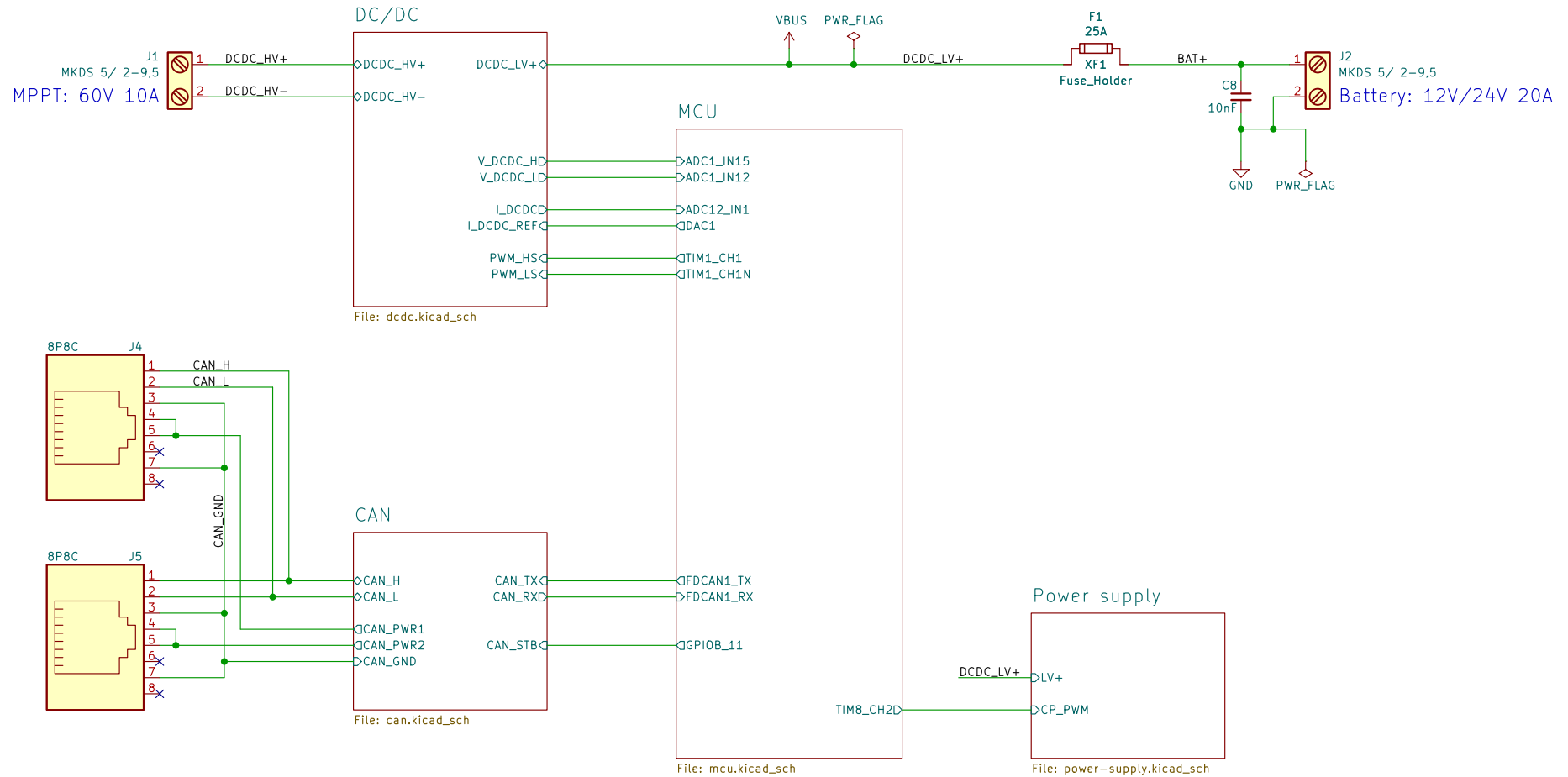


MPPT charge controller with HS load switch and CAN



MPPT 4820 HC

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Author: Martin Jäger

Sheet: /
File: mppt-4820-hc.kicad_sch

Size: A4 Date: 2021-01-06

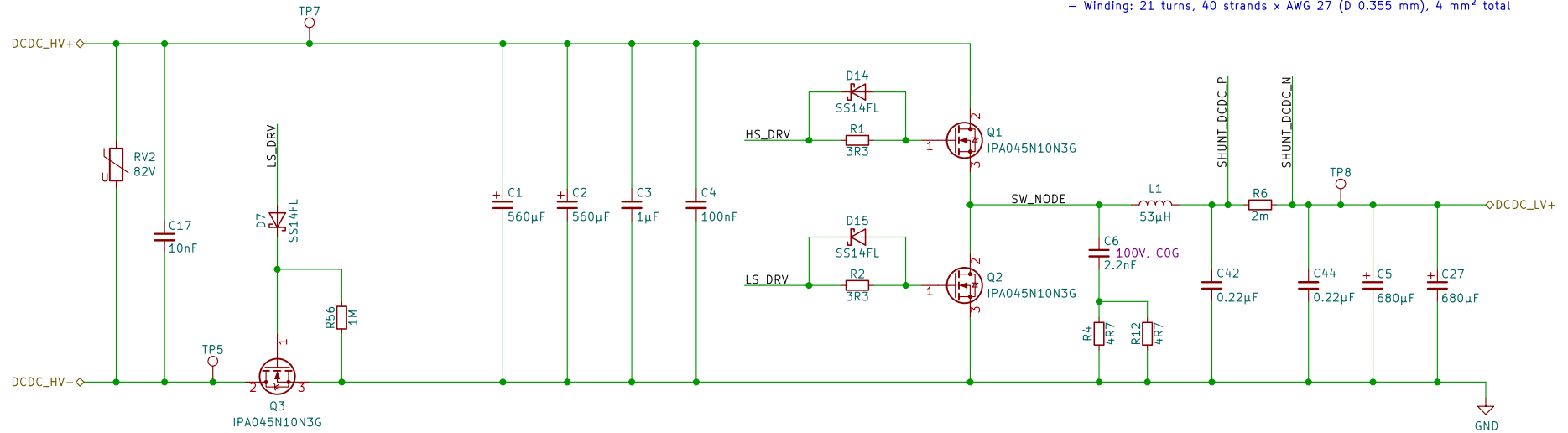
KiCad E.D.A. kicad 6.0.10-2.fc37



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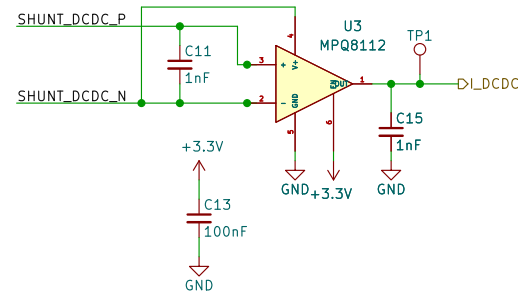
DC/DC power stage



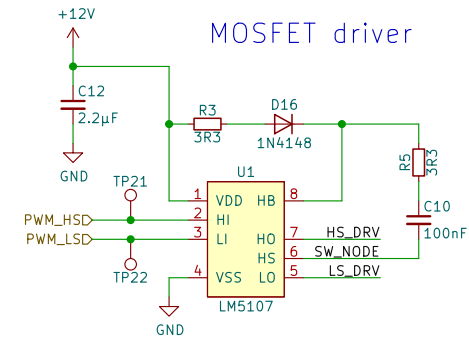
Main inductor L1 layout:
 - Core: 2x stacked MS-130060-2 (Sendust 60µ, OD 33 mm, AL 61 nH/T²)
 - Winding: 21 turns, 40 strands x AWG 27 (D 0.355 mm), 4 mm² total

Reverse polarity protection and
 PV reverse current blocking

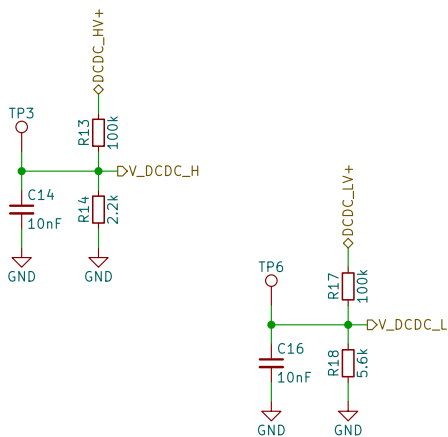
Inductor current measurement



MOSFET driver



Voltage measurement



If not stated otherwise, all MLCC 50V X7R

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Sheet: /DC/DC/
 File: dcdc.kicad_sch

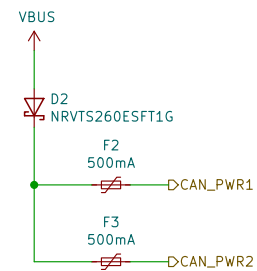
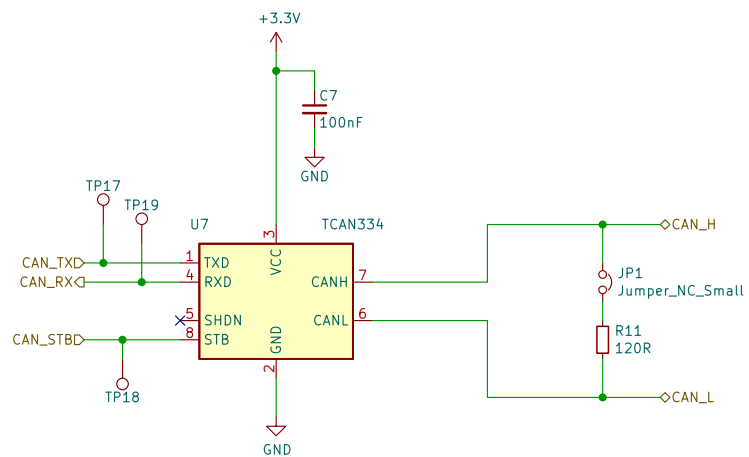
Size: A4 Date: 2021-05-03

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CAN bus power supply
 - 10V-32V
 - 600 mA (like PoE)

Diodes necessary to prevent
 separate GND loops.

Polyfuse to prevent
 over-current in daisy-chained
 bus with multiple sources and
 sinks.

MPPT 4820 HC

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Sheet: /CAN/
 File: can.kicad_sch

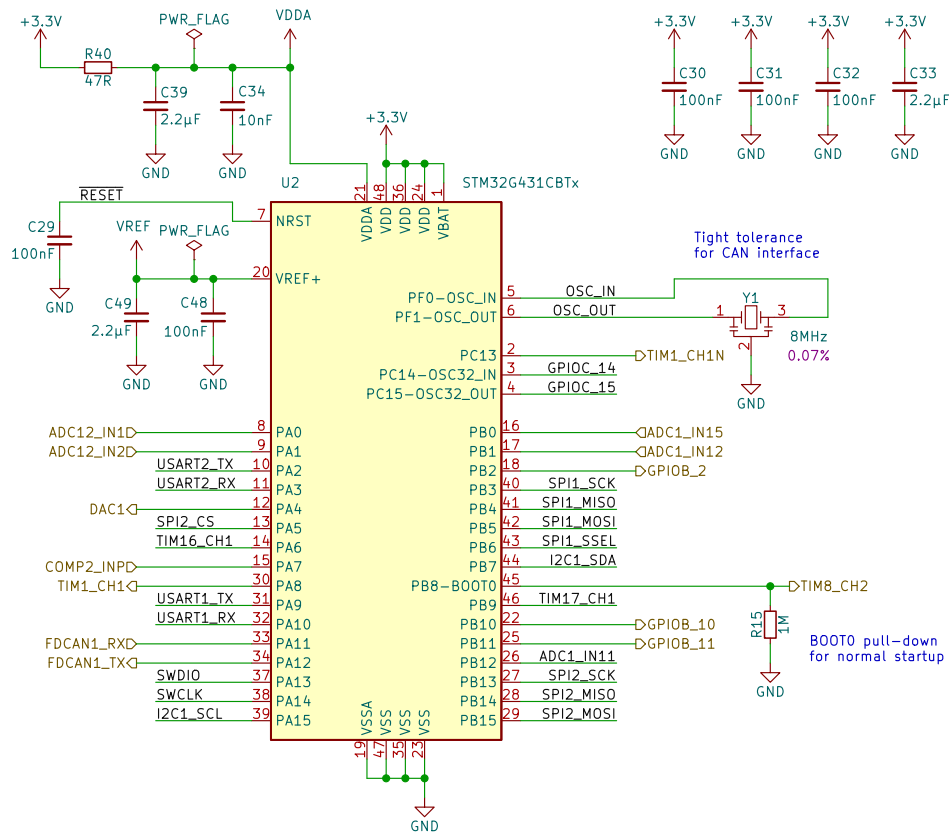
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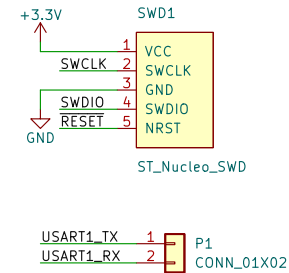


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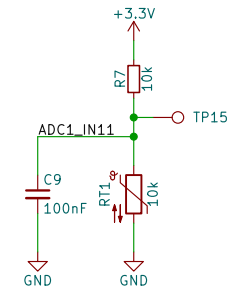
MCU STM32G431



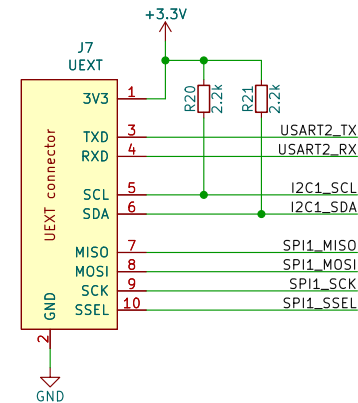
STM Nucleo SWD and USART



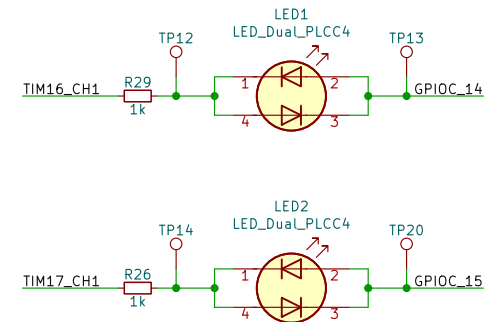
Internal temperature



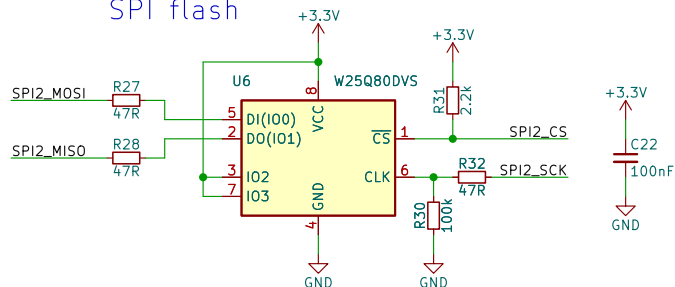
UEXT



Status LEDs



SPI flash



If not stated otherwise, all MLCC 50V X7R

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File: mcu.kicad_sch

Size: A4 Date: 2021-03-17

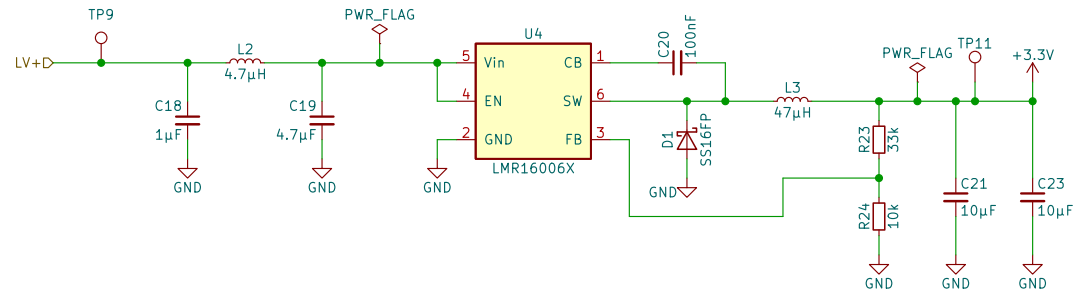
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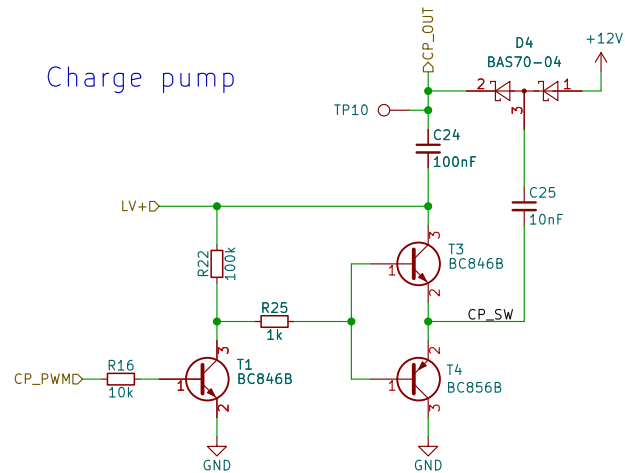
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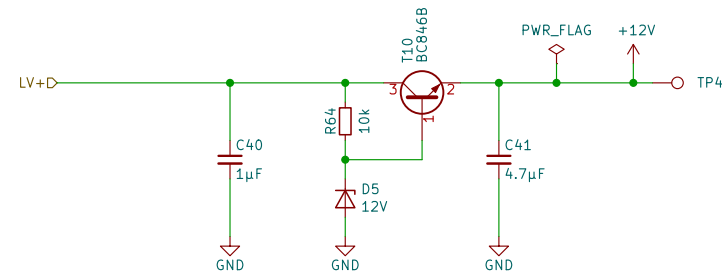
LV side to 3.3V (SMPS)



Charge pump



12V MOSFET driver supply voltage (emitter follower)



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