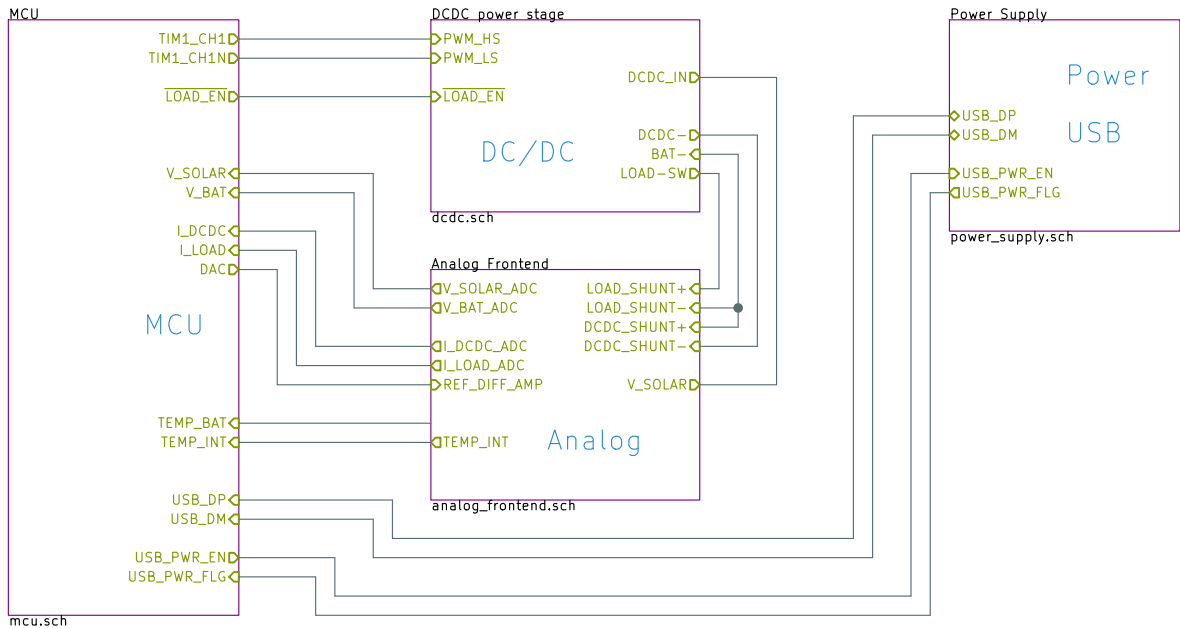
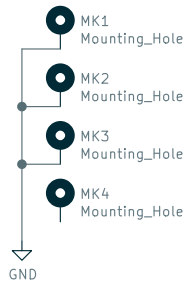


10A MPPT Charge Controller with USB



Main Specifications

- 12V battery voltage
- 10A max. charge current
- 55V max. solar input
- 32bit ARM MCU (STM32F072)
- Expandable via Olimex Universal Extension Connector (UEXT) featuring I2C, Serial and SPI interface (e.g. used for display, WIFI communication, etc.)
- USB charging



10A MPPT Charge Controller with USB

Libre Solar
Website: <http://libre.solar>

Sheet: /
File: mppt-10a.sch

Author: Martin Jäger

Size: A4	Date: 2018-05-14
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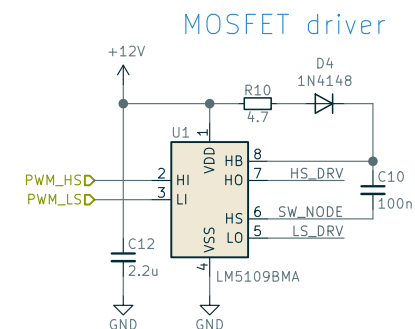
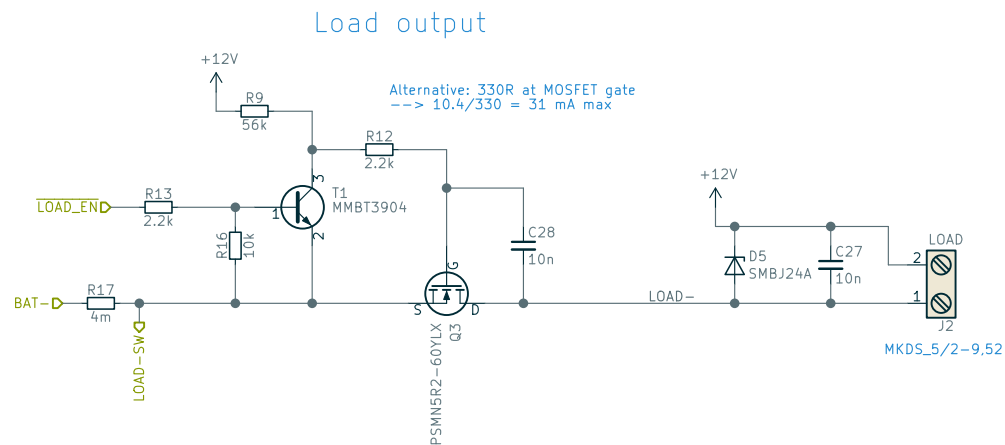
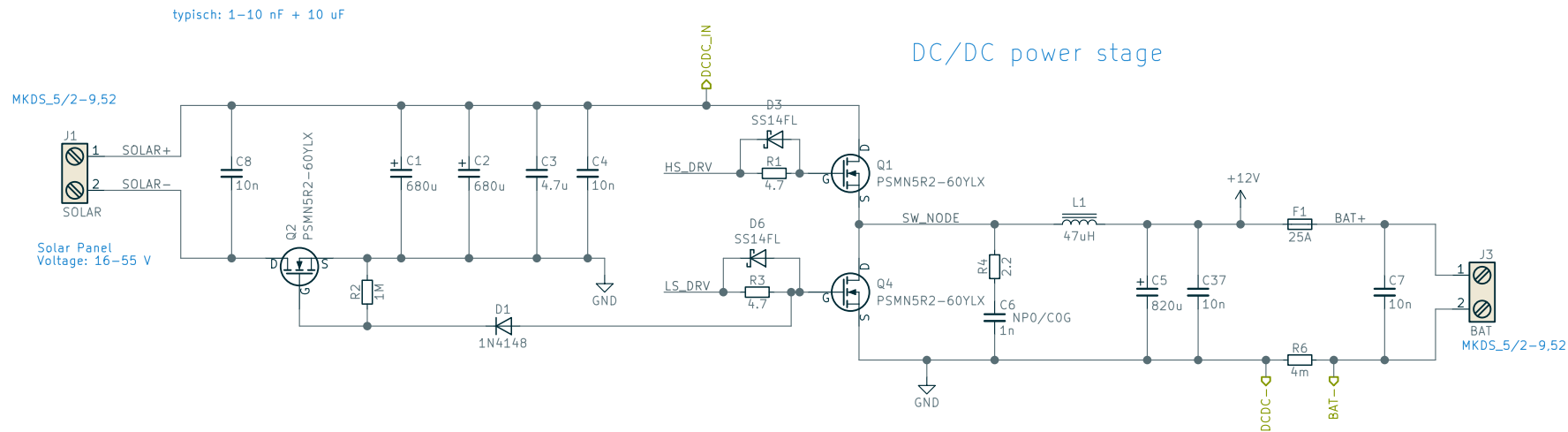
KiCad E.D.A. kicad 5.0.1



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Rev: 0.2

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10A MPPT Charge Controller with USB

Open Energy Hardware Association
Website: <http://libre.solar>

Sheet: /DCDC power stage/
File: dcdc.sch

Author: Martin Jäger

Size: A4 Date: 2018–05–14

KiCad E.D.A. kicad 5.0.1



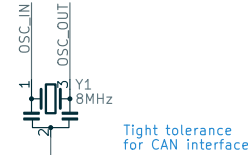
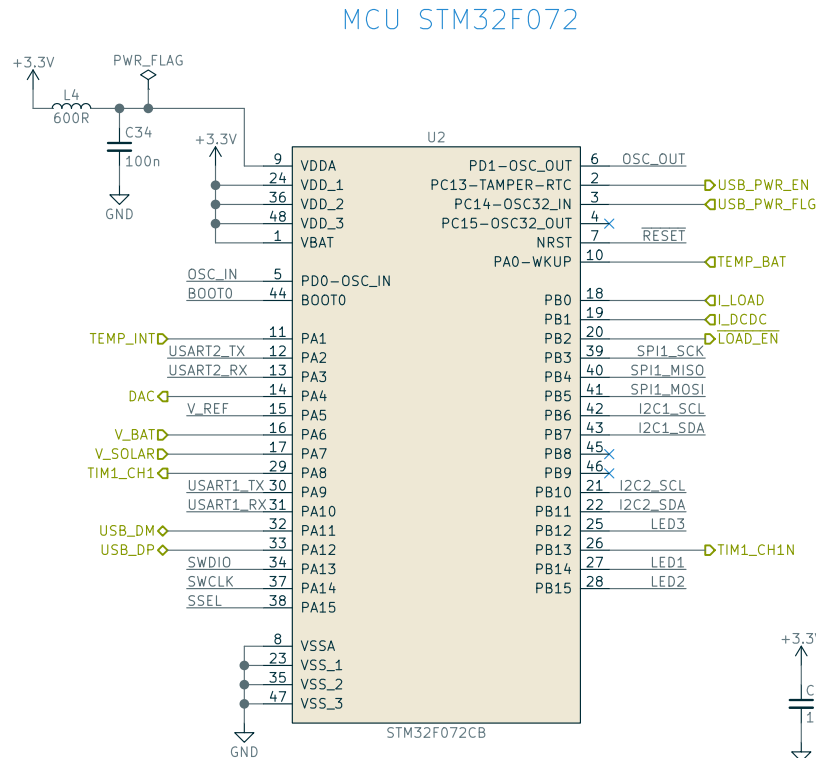
Rev: 0.2

Page: 2/5

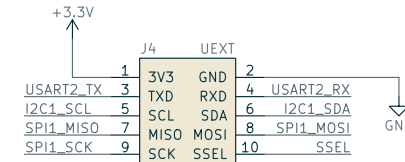
If not stated otherwise, all MLCC 50V X7R

Alternative crystal:
Abracon ABM3B-8.000MHZ-B2-T or
TXC 7B-8.000MAAJ-T

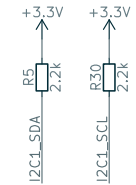
MCU STM32F072



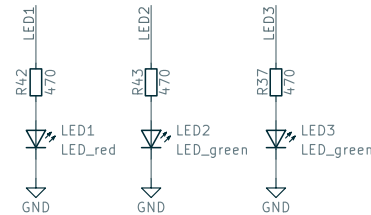
UEXT connector



I2C pull-ups

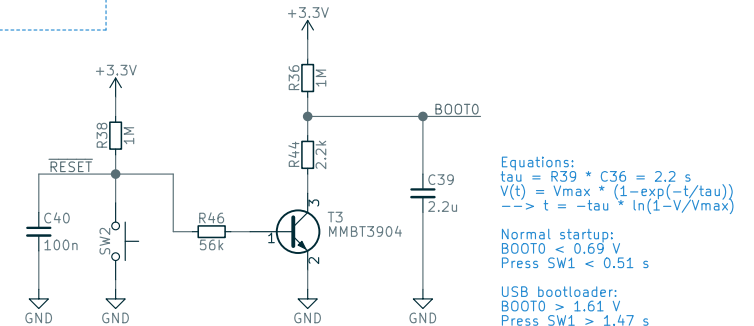


Status LEDs

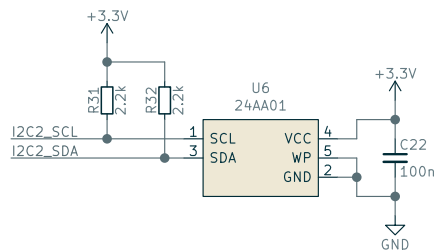


Preliminary (for testing PCBs only)

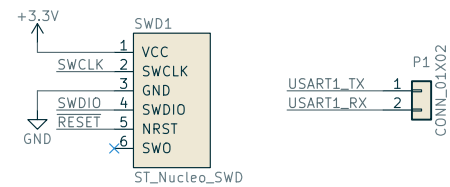
Reset and boot circuit



EEPROM



STM Nucleo SWD and USART



If not stated otherwise, all MLCC 50V X7R

10A MPPT Charge Controller with USB

Open Energy Hardware Association
Website: <http://libre.solar>

Sheet: /MCU/
File: mcu.sch

Author: Martin Jäger

Size: A4 Date: 2018-05-14

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Rev: 0.2

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A

A

B



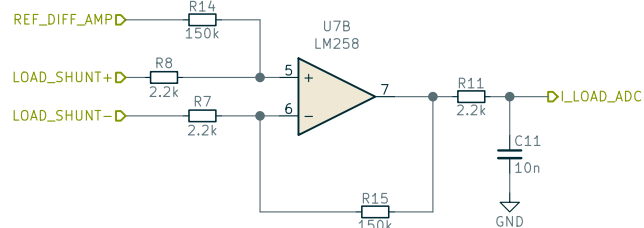
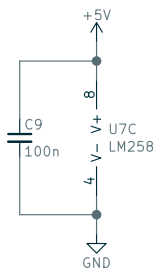
C



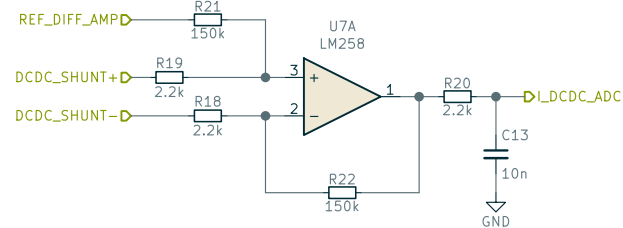
Page: 4/5



Diff. amp. reference defined by DAC pin instead of GND: variable zero current set point

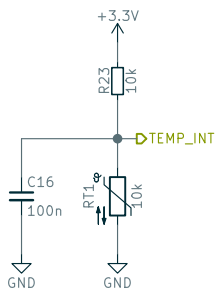


Load current

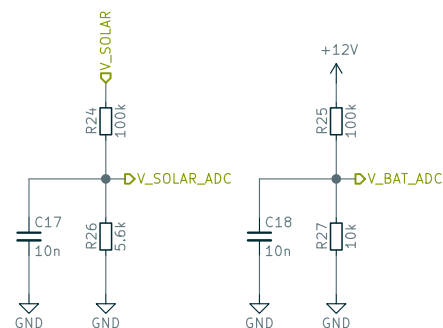


DCDC current

Temperature (internal)



Solar and battery voltage



10A MPPT Charge Controller with USB

Open Energy Hardware Association
Website: <http://libre.solar>

Sheet: /Analog Frontend/
File: analog_frontend.sch

Author: Martin Jäger

Size: A4 Date: 2018-05-14

KiCad E.D.A. kicad 5.0.1



Rev: 0.2

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If not stated otherwise, all MLCC 50V X7R