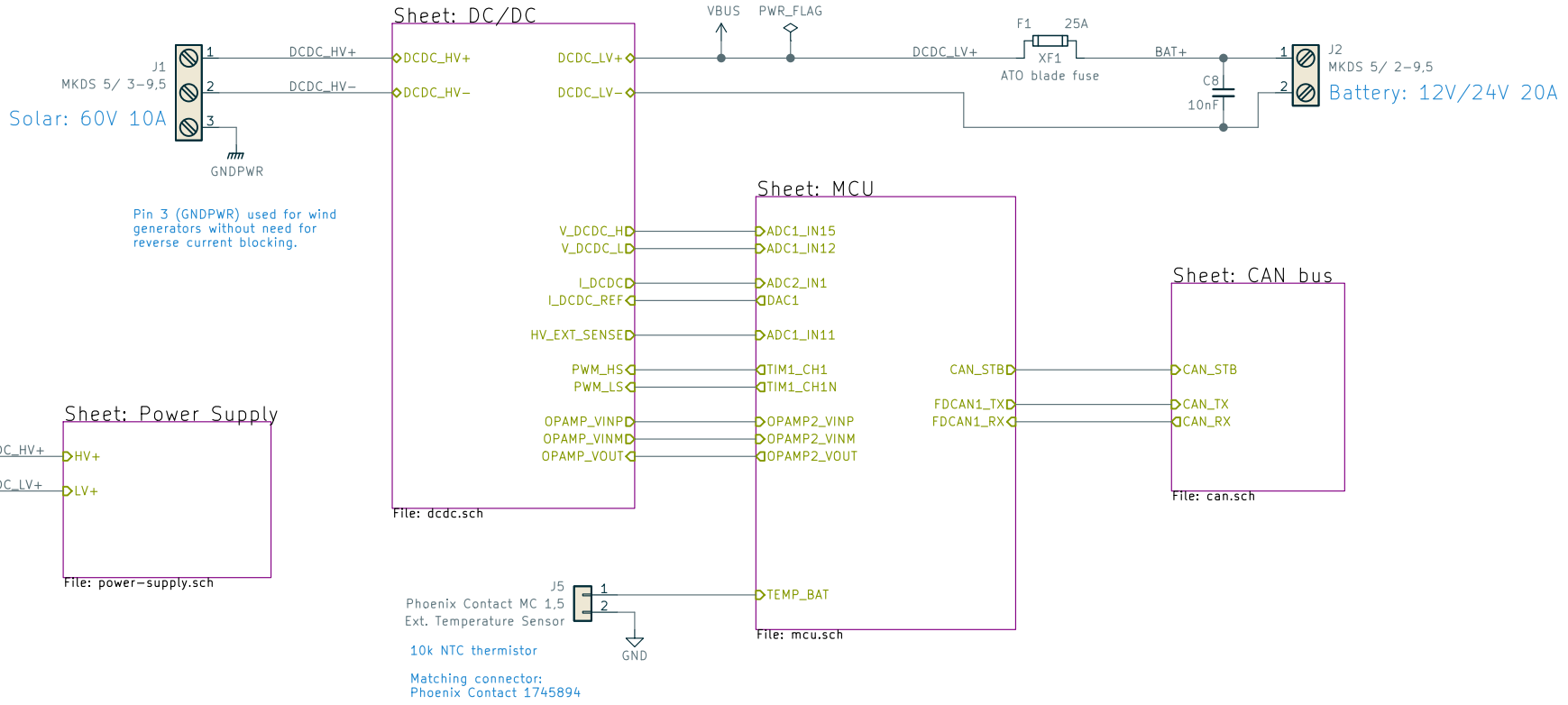
MPPT charge controller for DIN rail mounting



LOGO1

LIBRE_SOLAR

HS1
Heatsink

LOGO2

OPEN_HARDWARE

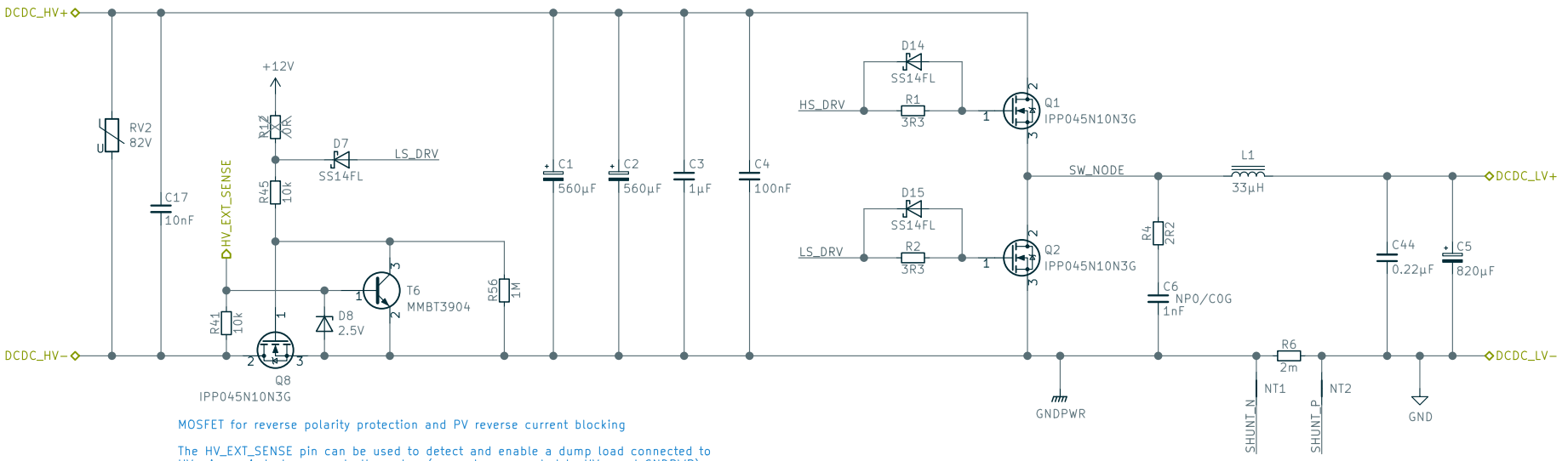
FID1
Fiducial

FID2
Fiducial

Housing: Phoenix Contact BC series
- Bottom: 2896267
- Top: 2202302
- Cover: 2896160

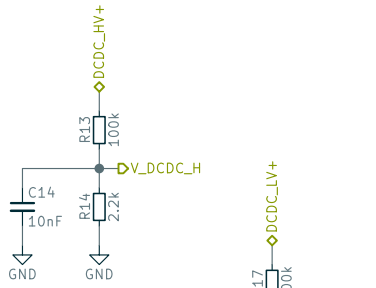
MPPT 2420 RC	LIBRESOLAR
Libre Solar Technologies GmbH Website: http://libre.solar	
Sheet: / File: mppt-2420-rc.sch	
Author: Martin Jäger	
Size: A4 / Date: 2020-05-30	Rev: 0.1.1
KiCad E.D.A. kicad 5.1.5	Page: 1/5

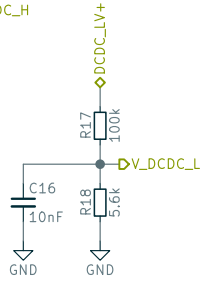
DC/DC power stage

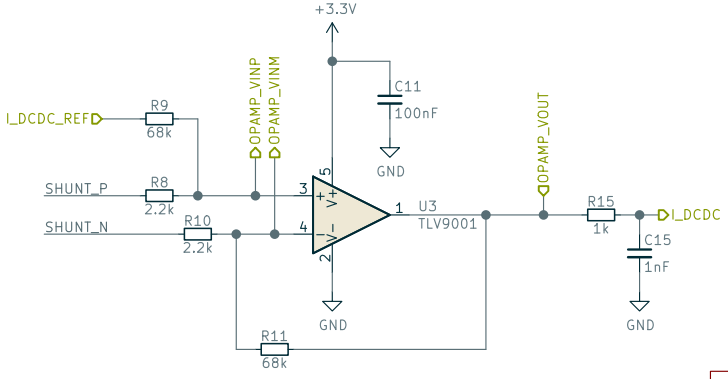


MOSFET for reverse polarity protection and PV reverse current blocking

The HV_EXT_SENSE pin can be used to detect and enable a dump load connected to HV− in a wind charge controller setup (generator connected to HV+ and GNDPWR)

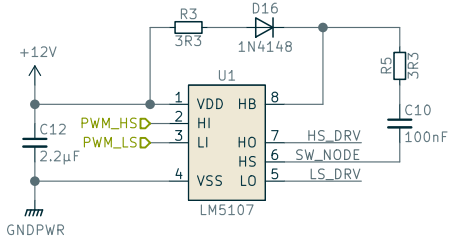






Use MCU internal OPAMP if U3 is not populated.

MOSFET driver



If not stated otherwise, all MLCC 50V X7R

MPPT 2420 RC		LIBRESOLAR
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Sheet: /DC/DC/ File: dcdc.sch		
Author: Martin Jäger		
Size: A4	Date: 2020-05-30	Rev: 0.1.1
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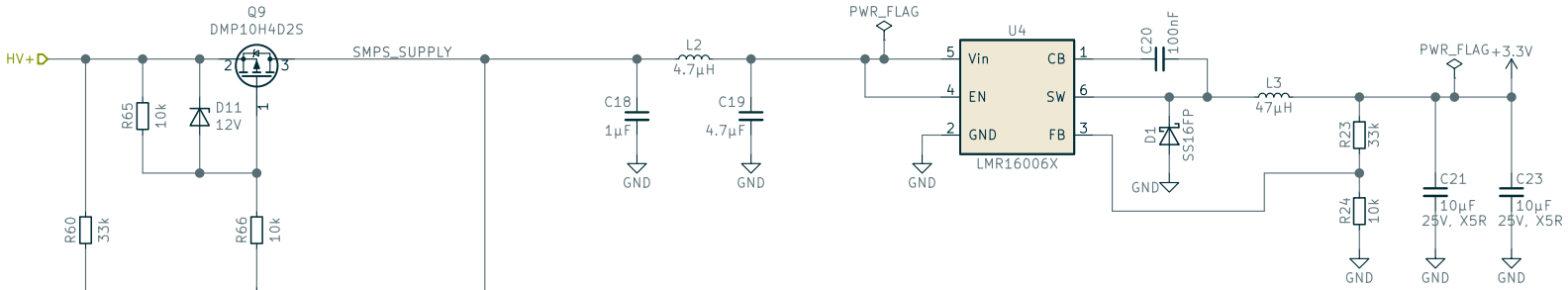
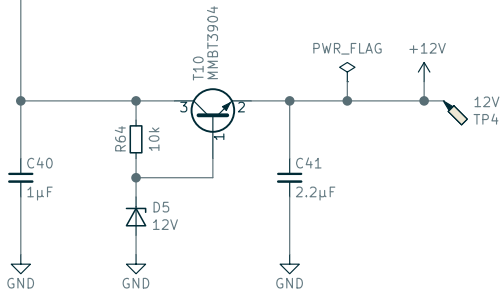
HV/LV side to 3.3V (SMPS)



12V MOSFET driver supply voltage (emitter follower)



Use voltage from low side
if available. For special cases
(e.g. battery-less operation)
take power from high-side

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Sheet: /Power Supply/ File: power-supply.sch		
Author: Martin Jäger		
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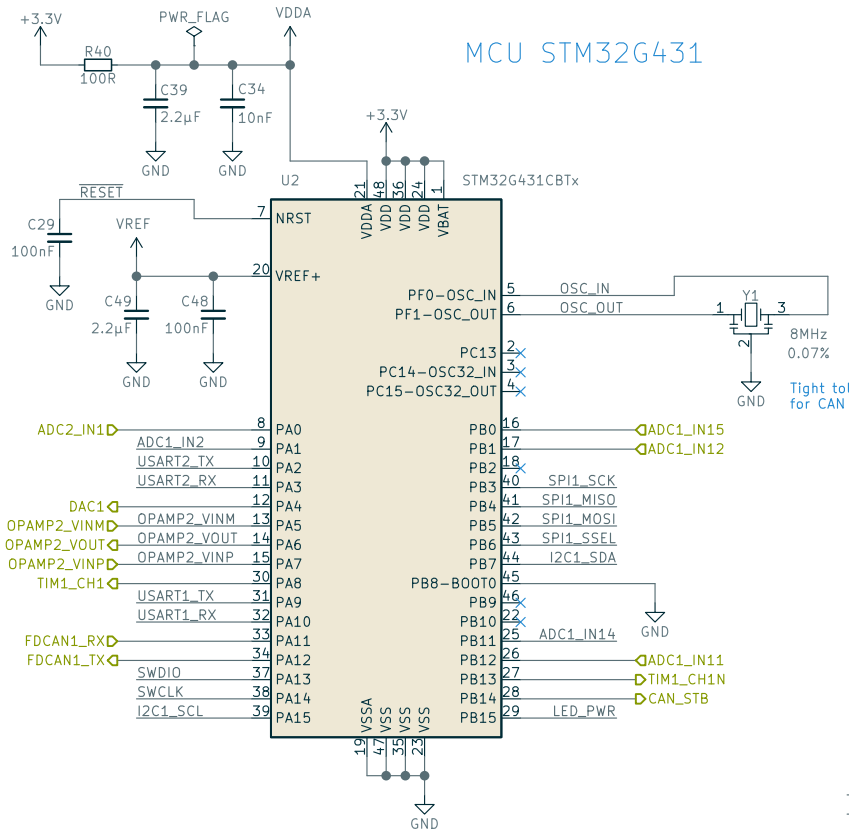

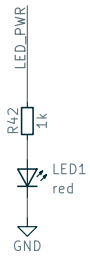

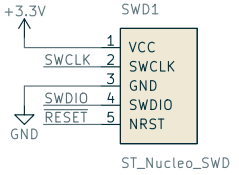

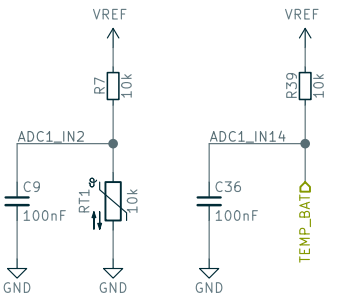

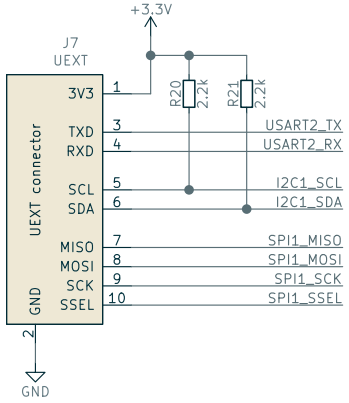

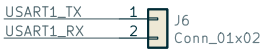

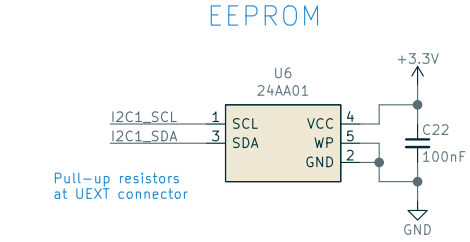

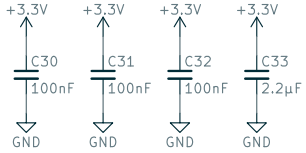

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Author: Martin Jäger		
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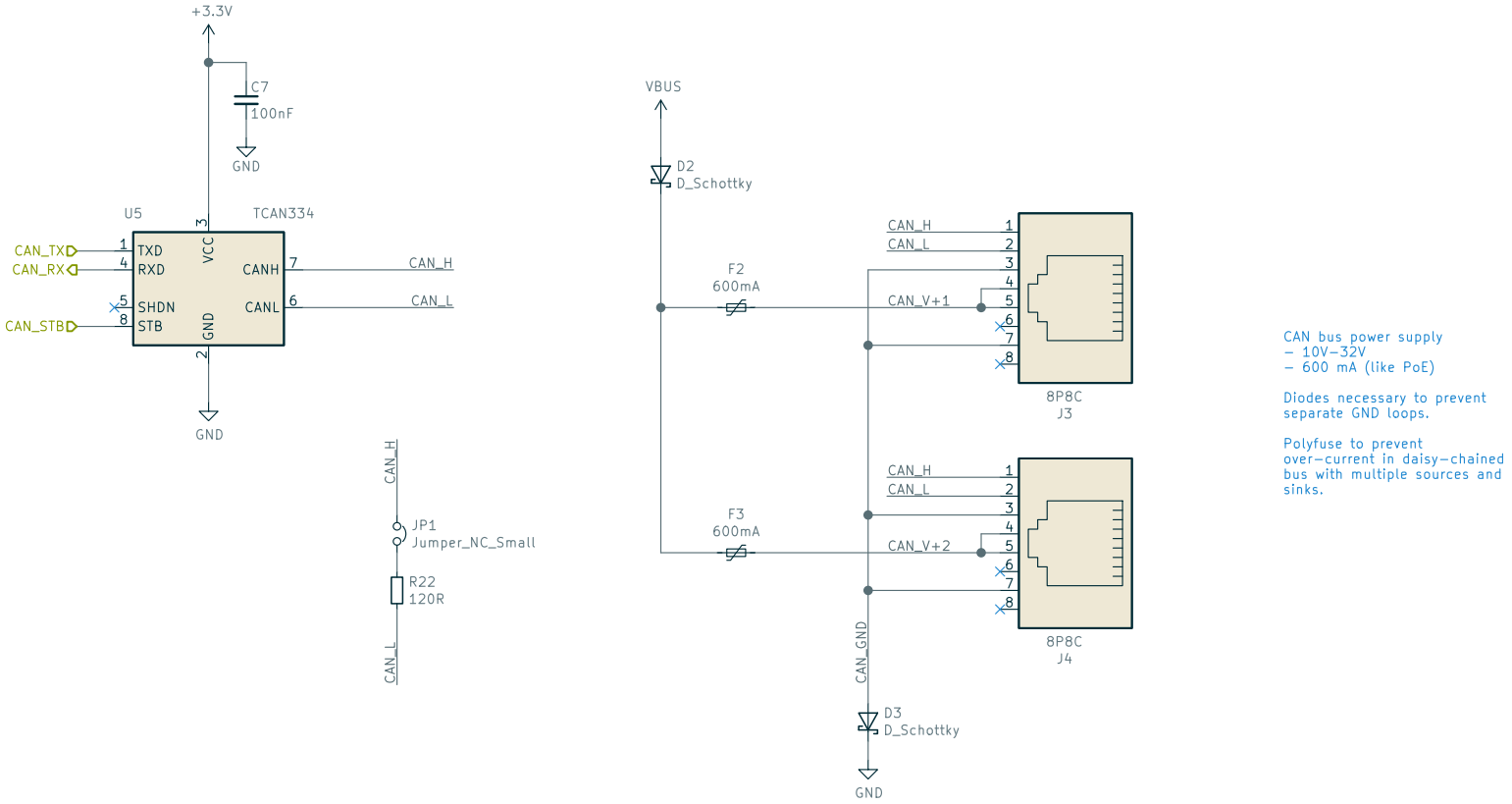

CAN bus power supply
– 10V–32V
– 600 mA (like PoE)

Diodes necessary to prevent separate GND loops.

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

MPPT 2420 RC		LIBRESOLAR
Libre Solar Technologies GmbH		
Sheet: /CAN bus/ File: can.sch		
Author: Martin Jäger		
Size: A4	Date: 2020-05-30	Rev: 0.1.1
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