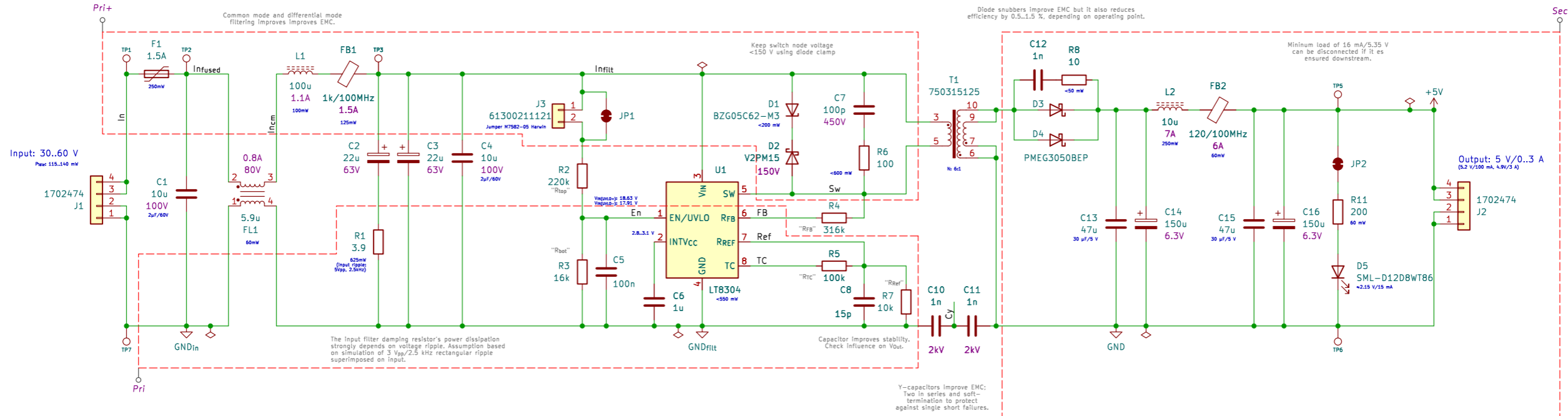


Notes

- The output is galvanically isolated.
- The input voltage can be as low as 20 V if output current is lower than 2 A.
- LT8304 minimum load ($\geq 15 \text{ mA}$) is covered by power LED. This LED can be disconnected in case the external load never ever (!) drops below this minimum.

Simulated efficiency (ver. 0.1.0)

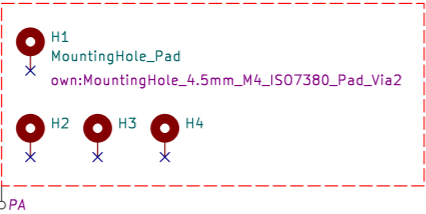
V _{in} /I _{out}	100mA	500mA	1A	2A	3A
20	82%	86%	85%	82%	n/a
30	80%	84%	85%	84%	82%
48	73%	81%	84%	85%	84%
60	69%	77%	84%	84%	84%



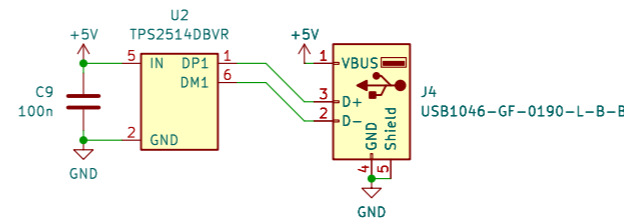
LT8304

- UVLO
- $V_{IN(UVLO+)} = 1.228 \text{ V} \times (R_{top} + R_{bot}) / R_{bot} + 2.5 \mu\text{A} \times R_{top}$
- $V_{IN(UVLO-)} = 1.214 \text{ V} \times (R_{top} + R_{bot}) / R_{bot}$
- Tolerance: -7.4% +5.1% (LT8304's tolerance (-5.5%, +3%) and resistor divider tolerance (2%))
- $V_{out} = V_{ref} \times R_{FB}/R_{ref} \times 1/N_{transf} - V_{dwd}$ (where $9.1 \text{ k}\Omega < R_{ref} < 11 \text{ k}\Omega$)
- R_{FB} to be adjusted during first time operation.

Parallel LC-filter dampening:
 $C_{damp} = 4 \times C_{crit}$ (opt. case)
 $R_{damp} = 1/(2 \times \zeta) \times \sqrt{L_{filt}/C_{crit}}$ where $\zeta = 0.1$ (1: critically damped)



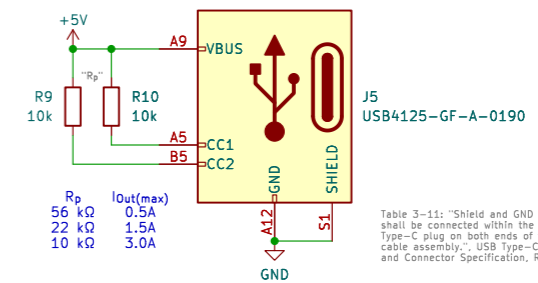
USB-B-C 1.2, YD/T 1591-2009: >1.5 A



ATTENTION:
 Be aware that both ports combined may not source more than 3A combined. The two ports are provided for flexibility, *not* for concurrent use.

USB-C 5V (without USB-PD): 3 A

R_p pull-ups advertise the current capability of the output.



Source CC Termination (R_p) Requirements, Table 4-27, USB Type-C Cable and Connector Specification, Release 2.3

All parts of this project may contain errors and are published without assuming liability for any results of its usage (intended or unintended).



Frank Bättermann (frank /at/ ich-war-hier.de)

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 File: ps-48-i5_3.kicad_sch

CERN-OHL-S
 2.0

Title: Power supply, 48V input, isolated 5V/3A output (PS-48-i5/3)

Size: A3 Date: 2025-07-29

Rev: 0.1.1

KiCad E.D.A. 9.0.3

Id: 1/1