

Nicholas Loehrke
University of Wisconsin-Platteville

Sheet: /
File: power_supply.kicad_sch

Title: Power Supply

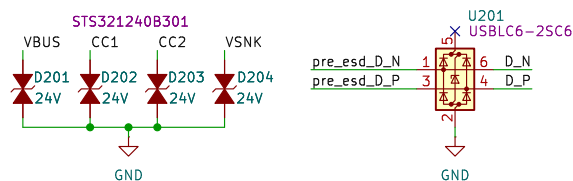
Size: A4 Date: 2024-10-27

KiCad E.D.A. 8.0.6

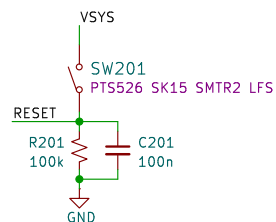
Rev: 0.1.0

Id: 1/7

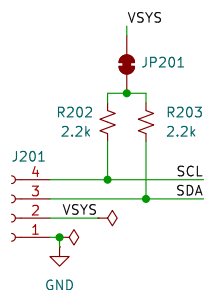
ESD Protection



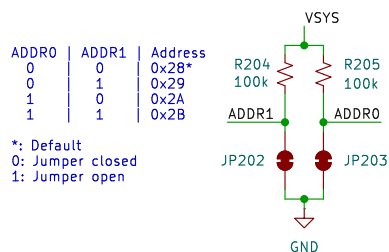
Reset Switch



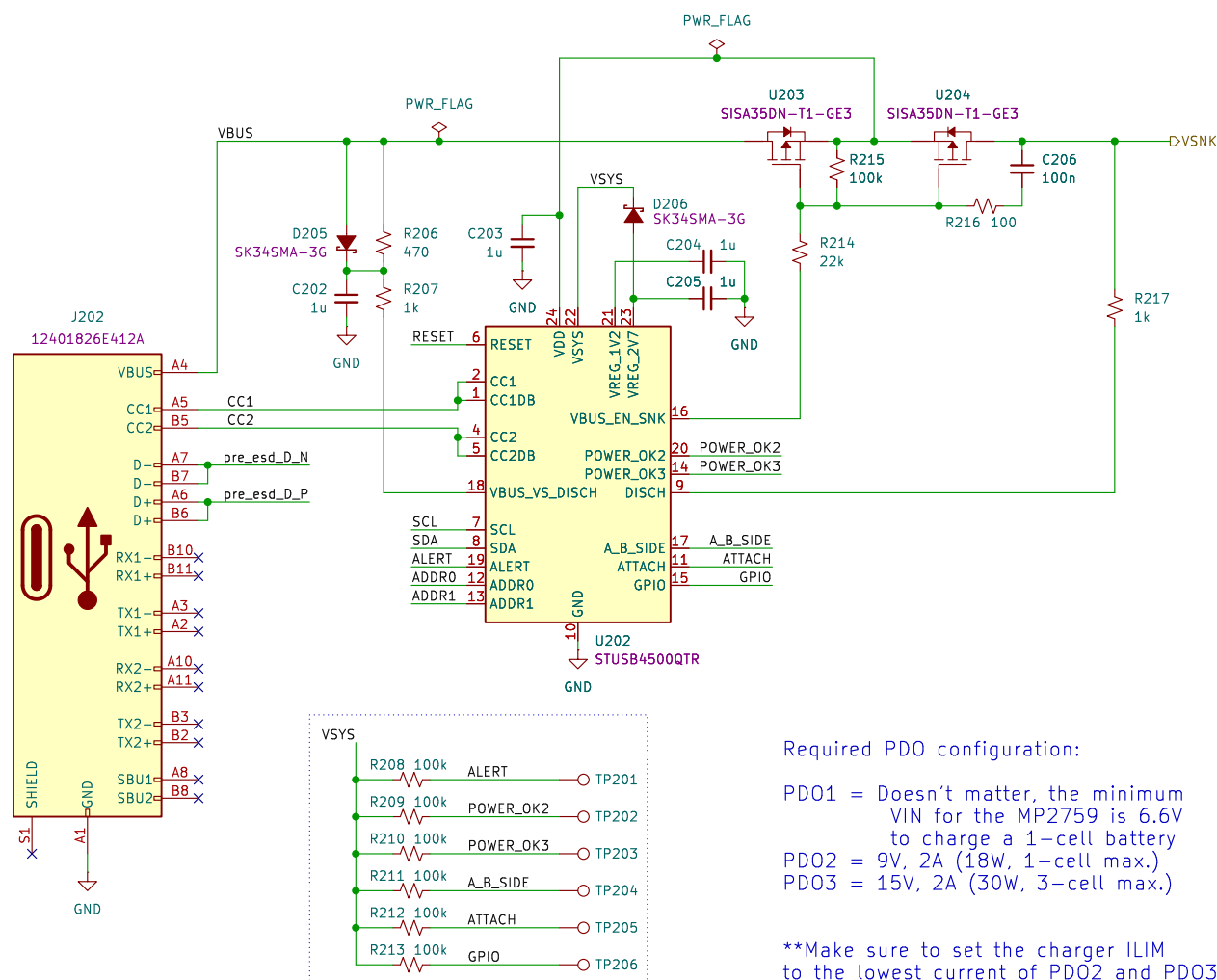
I2C Connector and Pull-ups



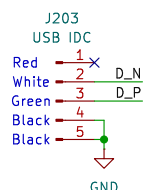
I2C Address Selection



USB-C PD Controller



USB Header



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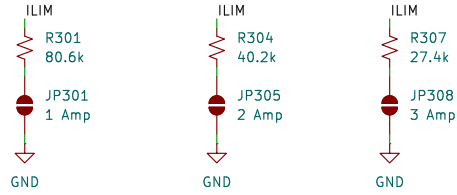
Sheet: /USB-C PD/
File: usb_c_pd.kicad_sch

Title:

Size: A4 Date: 2024-10-27
KiCad E.D.A. 8.0.6

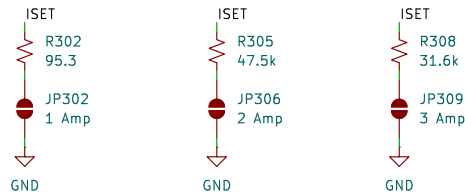
Rev: 0.1.0
Id: 2/7

Input Current Limit Setting



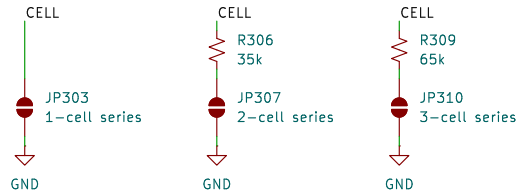
Note: Bridge only the desired current limit's jumper

Charging Current Setting



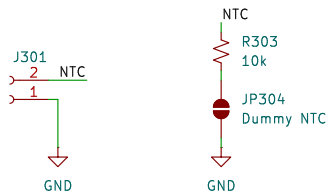
Note: Bridge only the desired current limit's jumper

Cell Count Setting



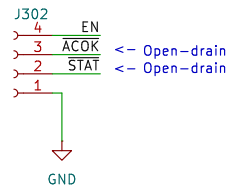
Note: Bridge only the desired cell count's jumper

Thermister Setting and Connector

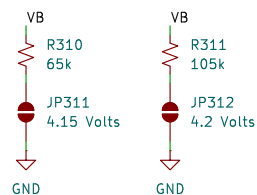


Note: Bridge 'Dummy NTC' when not using a thermistor

IO Connector

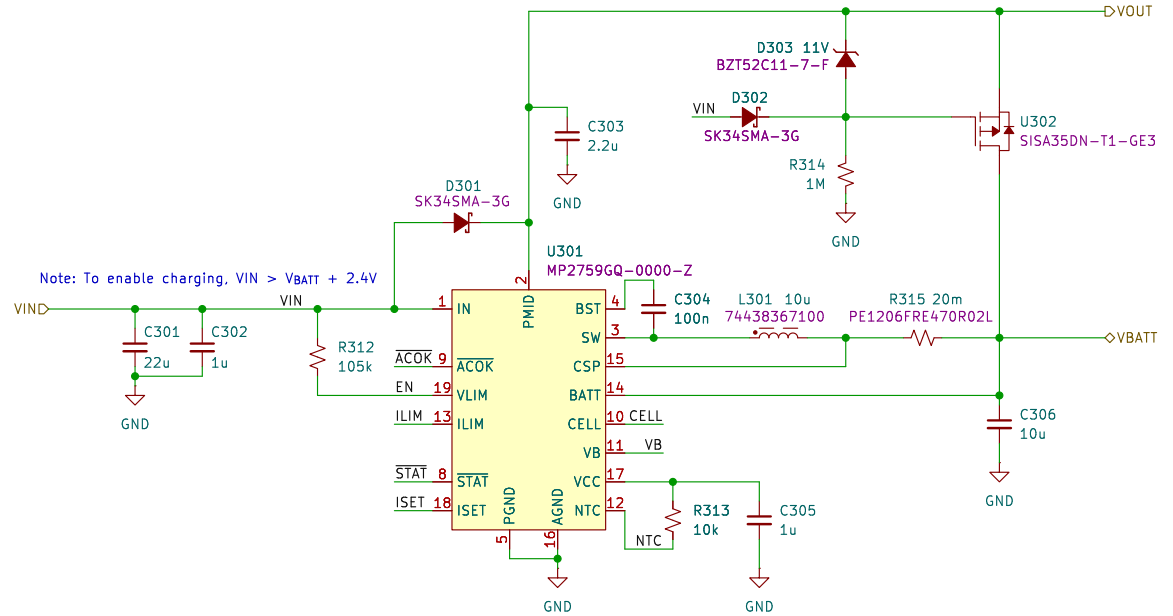


Charge Voltage Setting



Note: Bridge only the desired charge voltage's jumper

Charger



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Sheet: /Charger/
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Title:

Size: A4

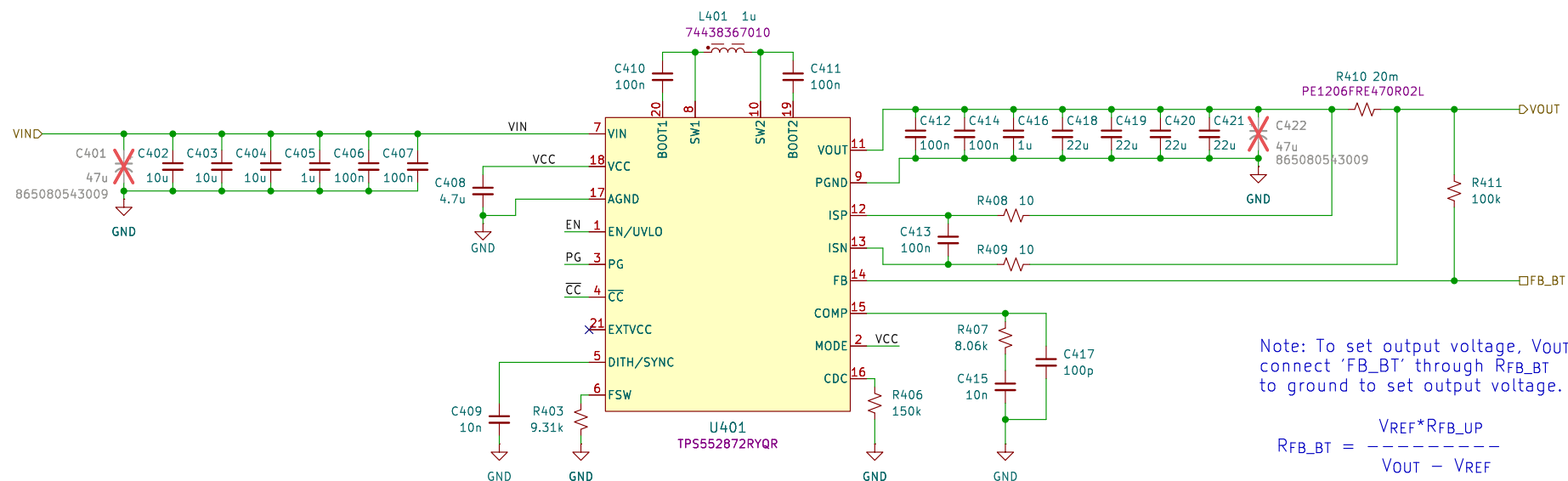
Date: 2024-10-27

Rev: 0.1.0

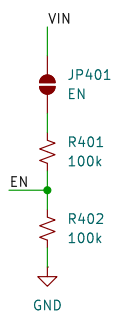
KiCad E.D.A. 8.0.6

Id: 3/7

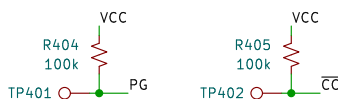
Buck-Boost Converter



Enable



Test Points



Sheet: /Buck-Boost-1/
File: buck_boost.kicad_sch

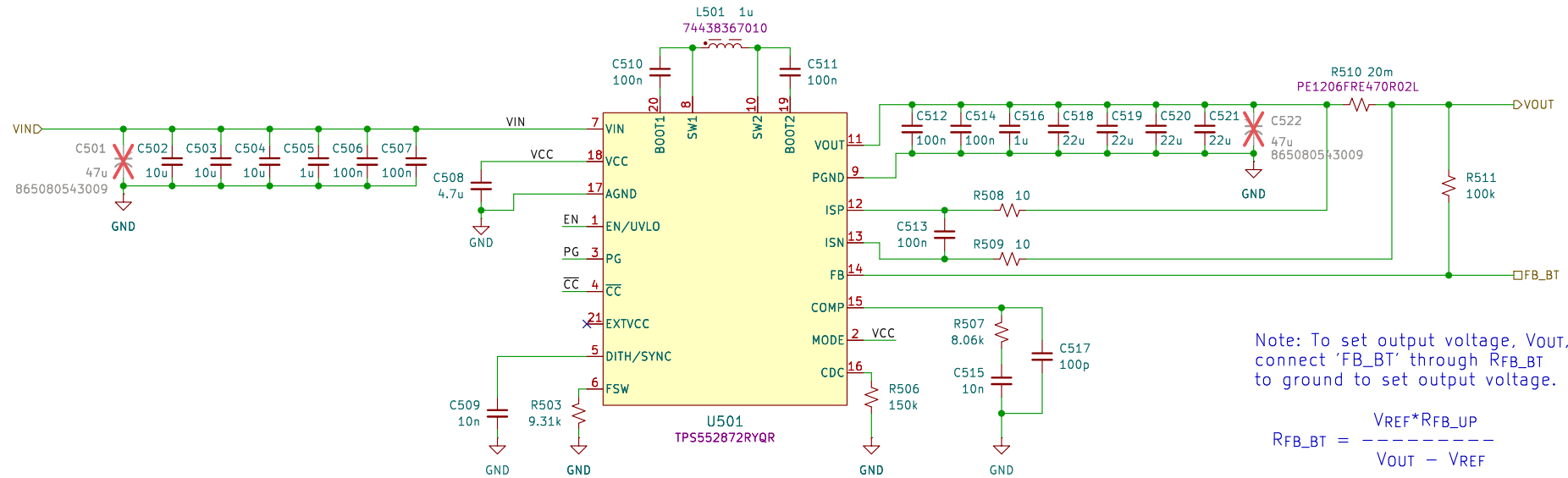
Title:

Size: A4
KiCad E.D.A. 8.0.6

Date:

Rev:
Id: 4/7

Buck-Boost Converter



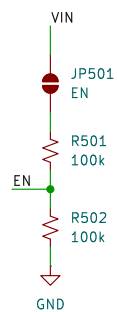
Note: To set output voltage, Vout, connect 'FB_BT' through RFB_BT to ground to set output voltage.

$$R_{FB_BT} = \frac{V_{REF} * R_{FB_UP}}{V_{OUT} - V_{REF}}$$

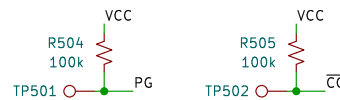
$$R_{FB_BT} = \frac{1.2 * 100k}{V_{OUT} - 1.2}$$

ex. VOUT = 12V, RFB_BT = 11.1k

Enable



Test Points



Sheet: /Buck-Boost-2/
File: buck_boost.kicad_sch

Title:

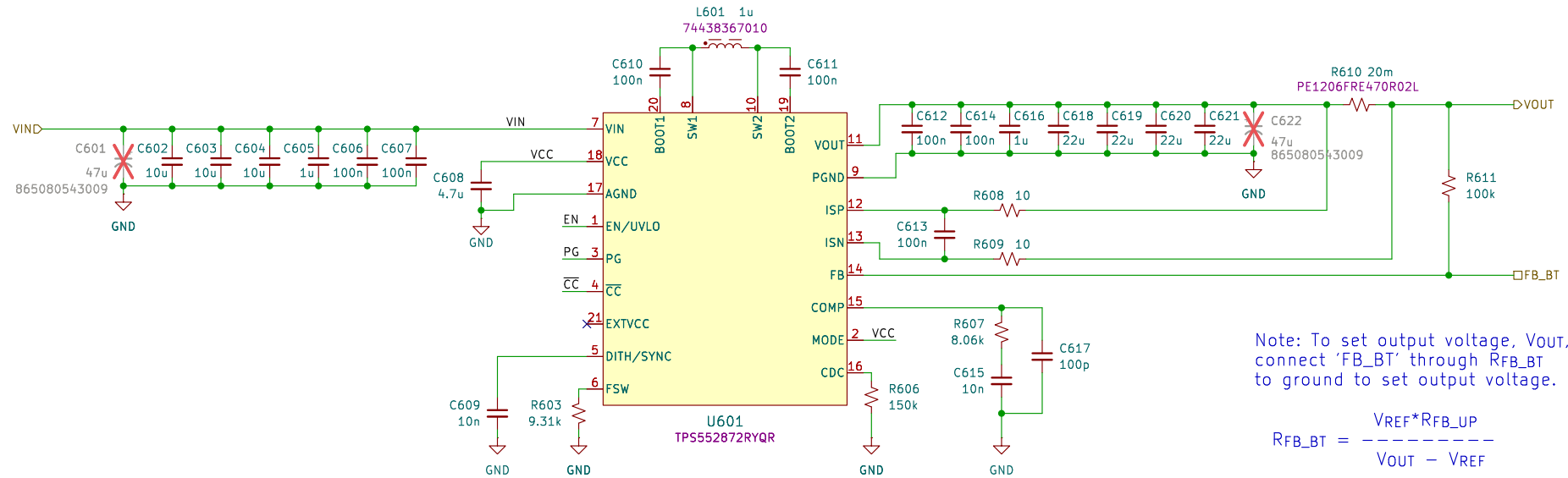
Size: A4 Date:

KiCad E.D.A. 8.0.6

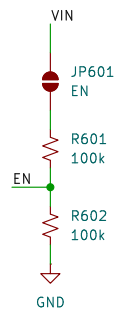
Rev:

Id: 5/7

Buck-Boost Converter



Enable



Test Points



Sheet: /Buck-Boost-3/
File: buck_boost.kicad_sch

Title:

Size: A4
KiCad E.D.A. 8.0.6

Date:

Rev:
Id: 6/7
