

Nicholas Loehrke
University of Wisconsin-Platteville

Sheet: /
File: power_supply.kicad_sch

Title: Power Supply

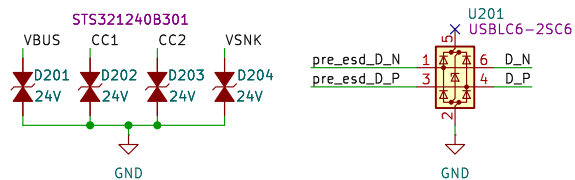
Size: A4 Date: 2024-10-27

KiCad E.D.A. 8.0.6

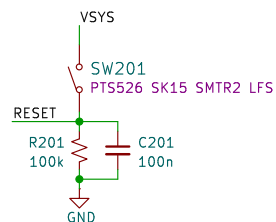
Rev: 0.1.0

Id: 1/7

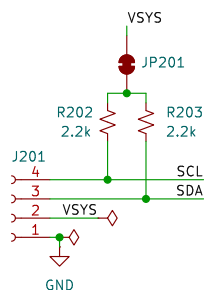
ESD Protection



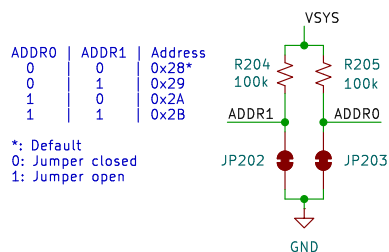
Reset Switch



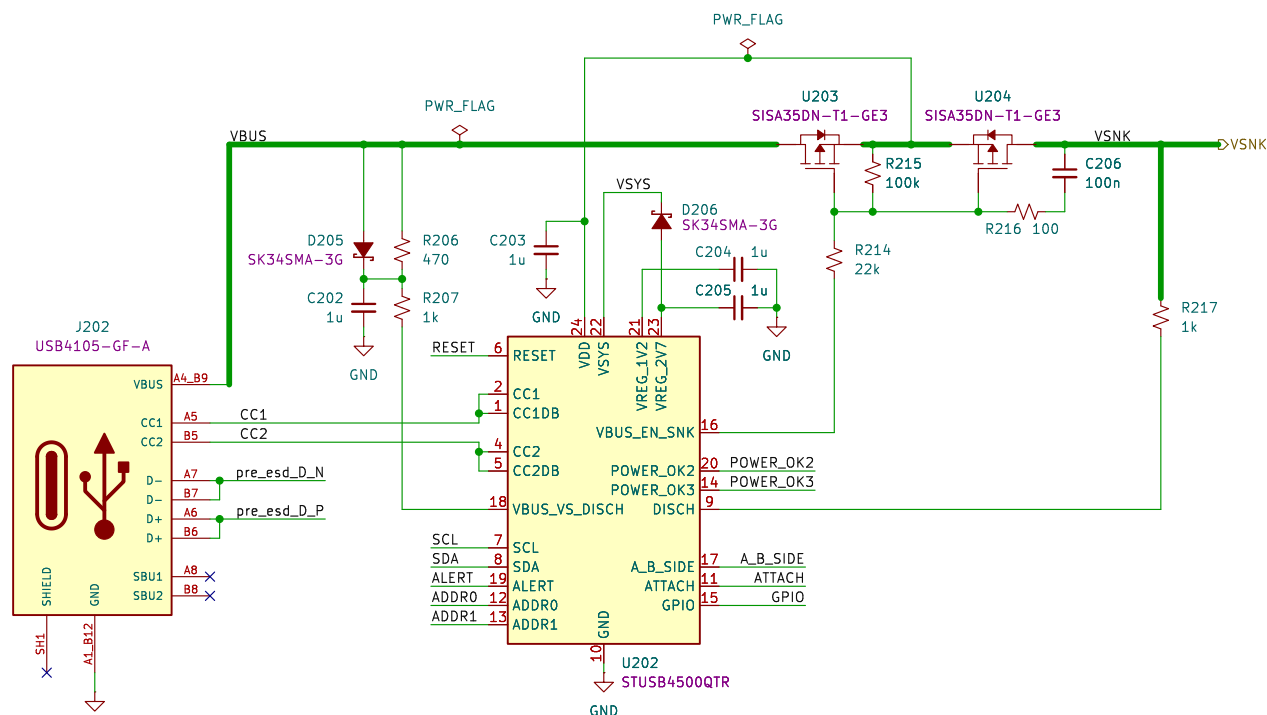
I2C Connector and Pull-ups



I2C Address Selection



USB-C PD Controller

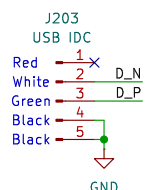


Required PDO configuration:

PDO1 = Doesn't matter, the minimum VIN for the MP2759 is 6.6V to charge a 1-cell battery
 PDO2 = 9V, 2A (18W, 1-cell max.)
 PDO3 = 15V, 2A (30W, 3-cell max.)

Make sure to set the charger ILIM to the lowest current of PDO2 and PDO3

USB Header



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Sheet: /USB-C PD/
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Title:

Size: A4

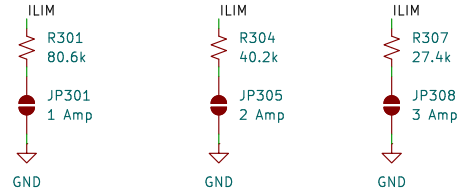
Date: 2024-10-27

Rev: 0.1.0

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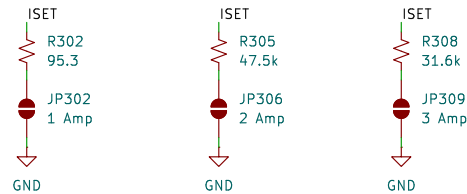
Id: 2/7

Input Current Limit Setting



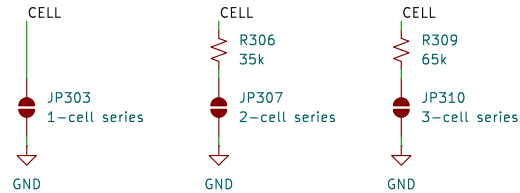
Note: Bridge only the desired current limit's jumper

Charging Current Setting



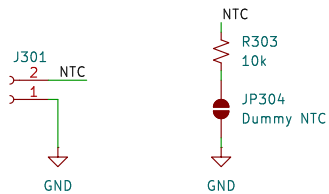
Note: Bridge only the desired current limit's jumper

Cell Count Setting



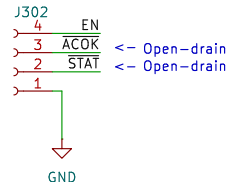
Note: Bridge only the desired cell count's jumper

Thermister Setting and Connector

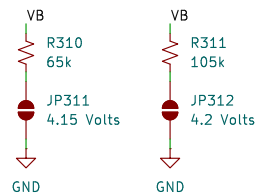


Note: Bridge 'Dummy NTC' when not using a thermistor

IO Connector

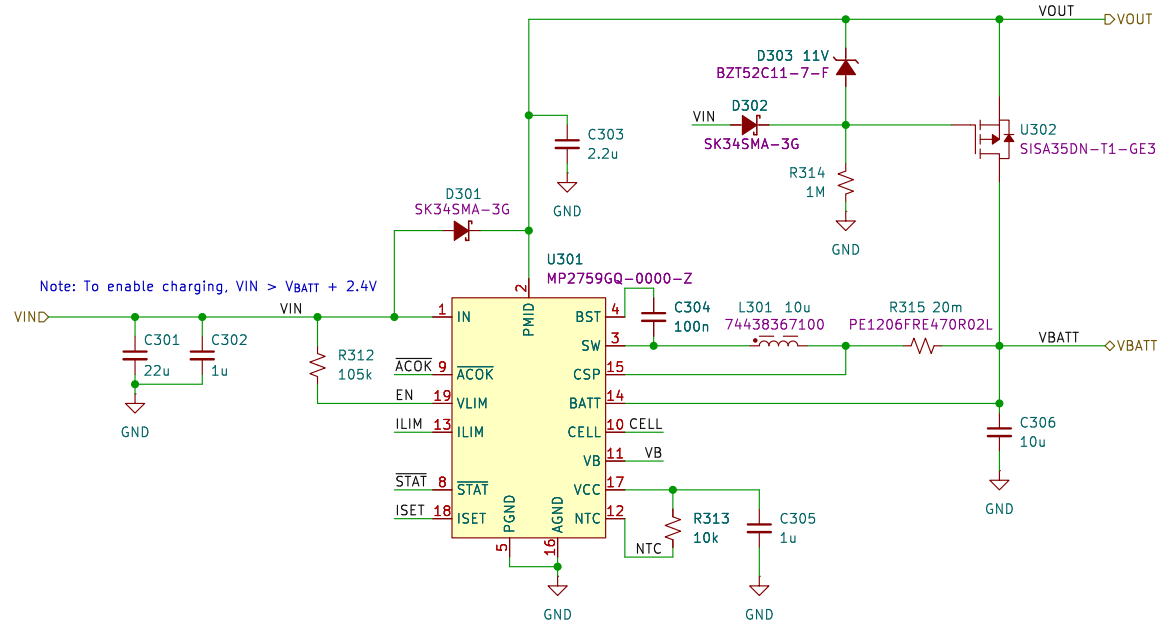


Charge Voltage Setting



Note: Bridge only the desired charge voltage's jumper

Charger



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Sheet: /Charger/
File: charger.kicad_sch

Title:

Size: A4

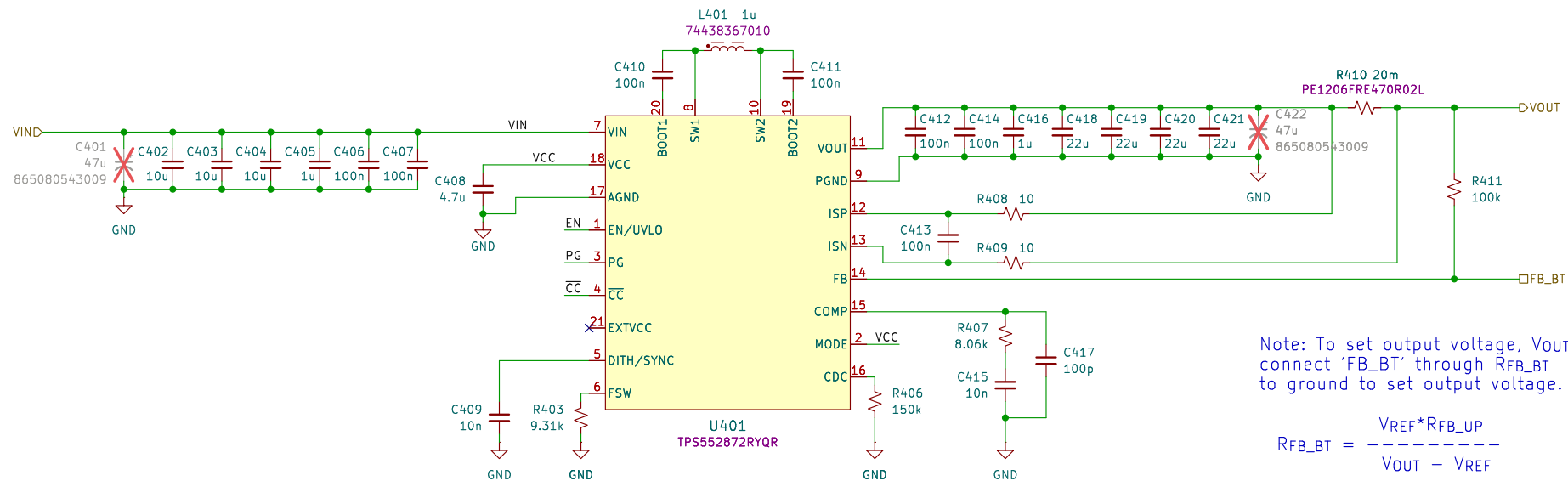
Date: 2024-10-27

Rev: 0.1.0

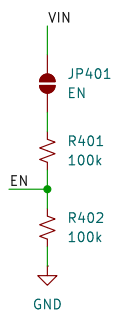
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Id: 3/7

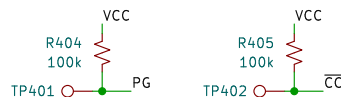
Buck-Boost Converter



Enable



Test Points



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

Title:

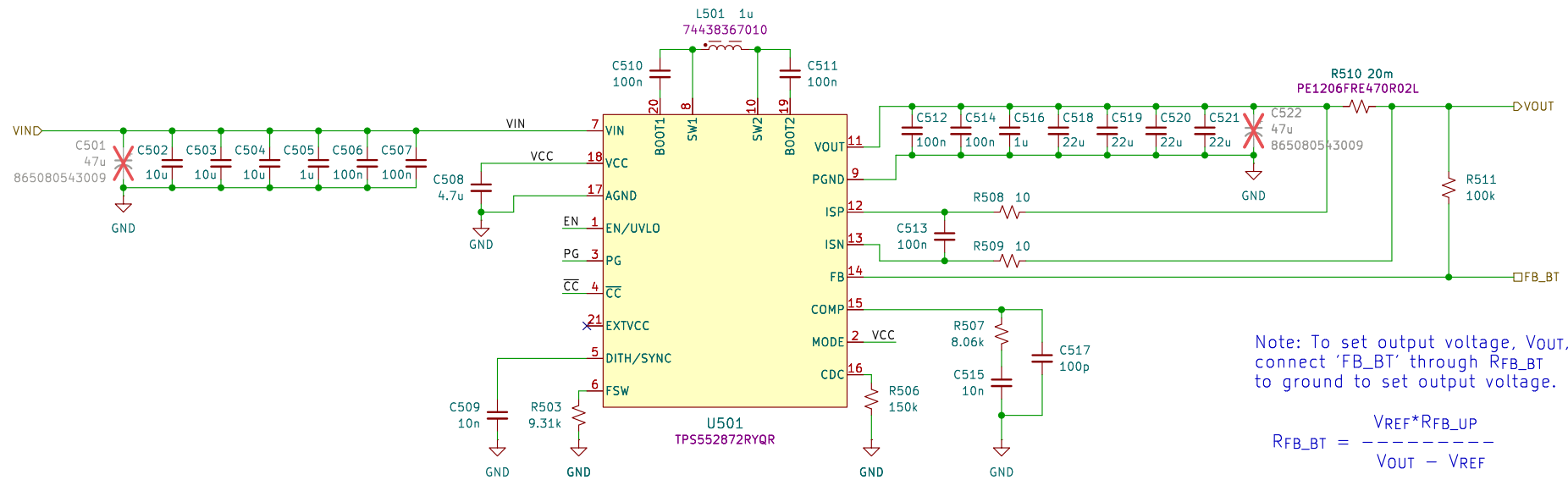
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KiCad E.D.A. 8.0.6

Date:

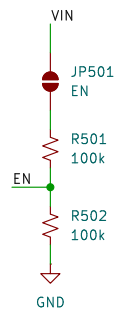
Rev:

Id: 4/7

Buck-Boost Converter



Enable



Test Points



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

Title:

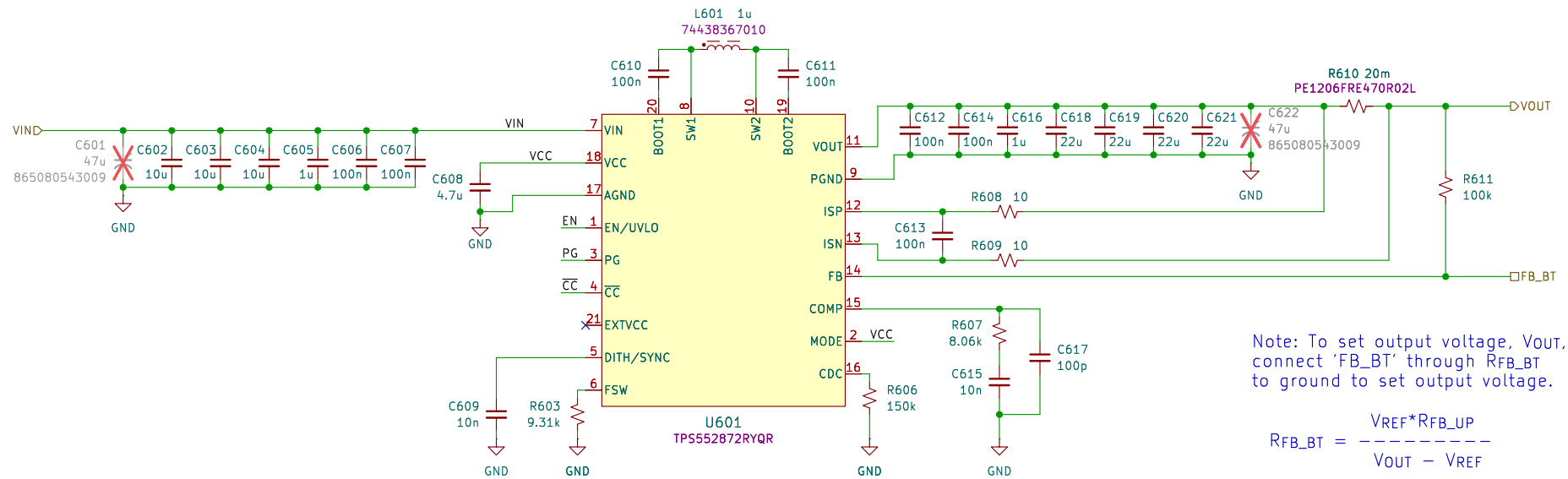
Size: A4 Date:

KiCad E.D.A. 8.0.6

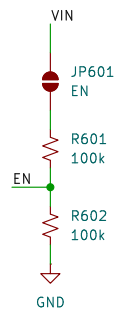
Rev:

Id: 5/7

Buck-Boost Converter



Enable



Test Points



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

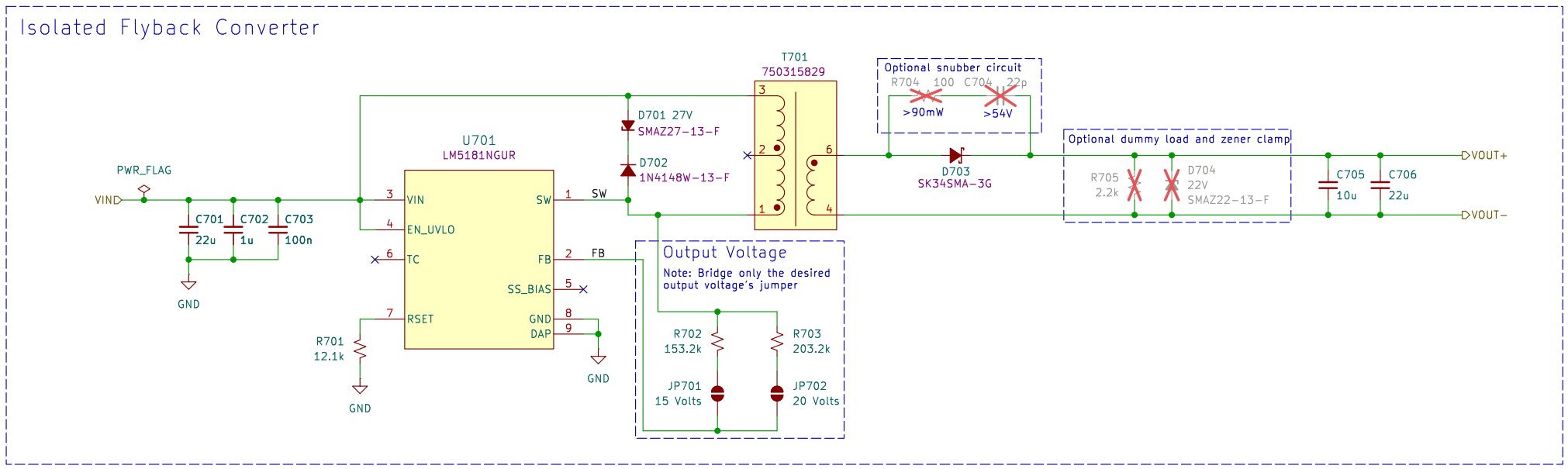
Title:

Size: A4 Date:

KiCad E.D.A. 8.0.6

Rev:

Id: 6/7



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Sheet: /Isolated Flyback/
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KiCad E.D.A. 8.0.6

Rev: 0.1.0

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