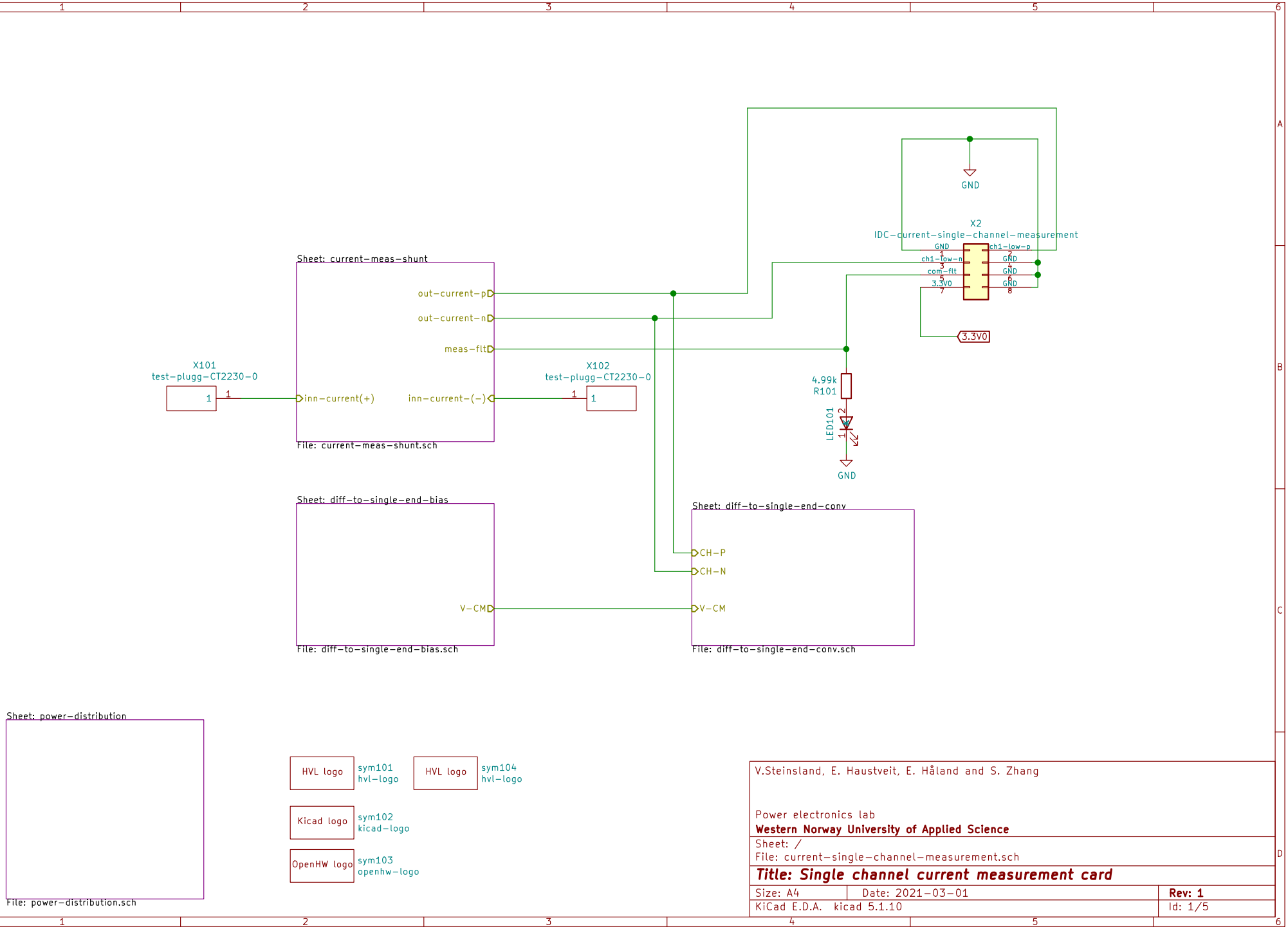

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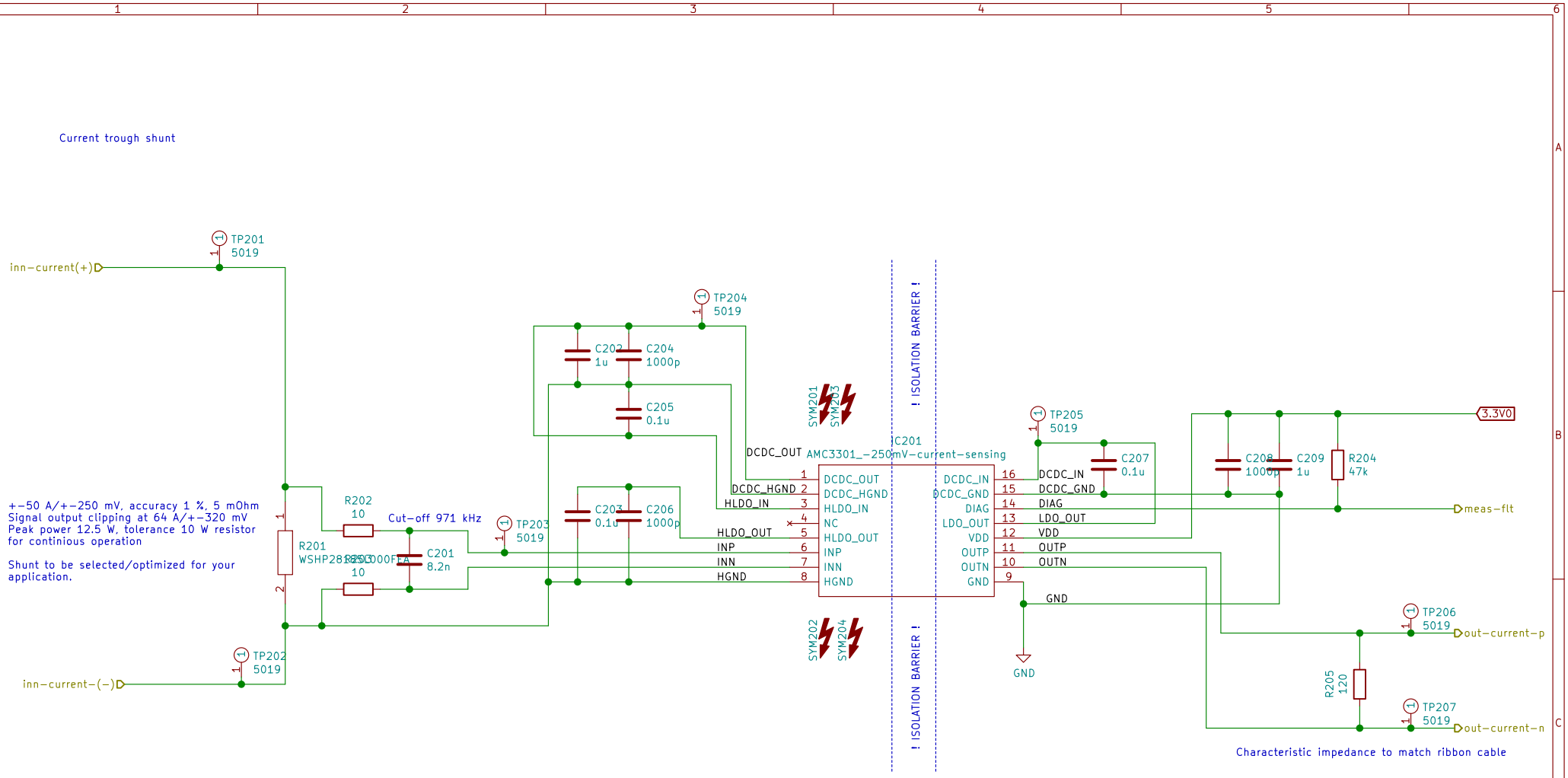
Sheet: /
File: current-single-channel-measurement.sch

Title: Single channel current measurement card

Size: A4	Date: 2021-03-01	**Rev: 1**
KiCad E.D.A. kicad 5.1.10		Id: 1/5



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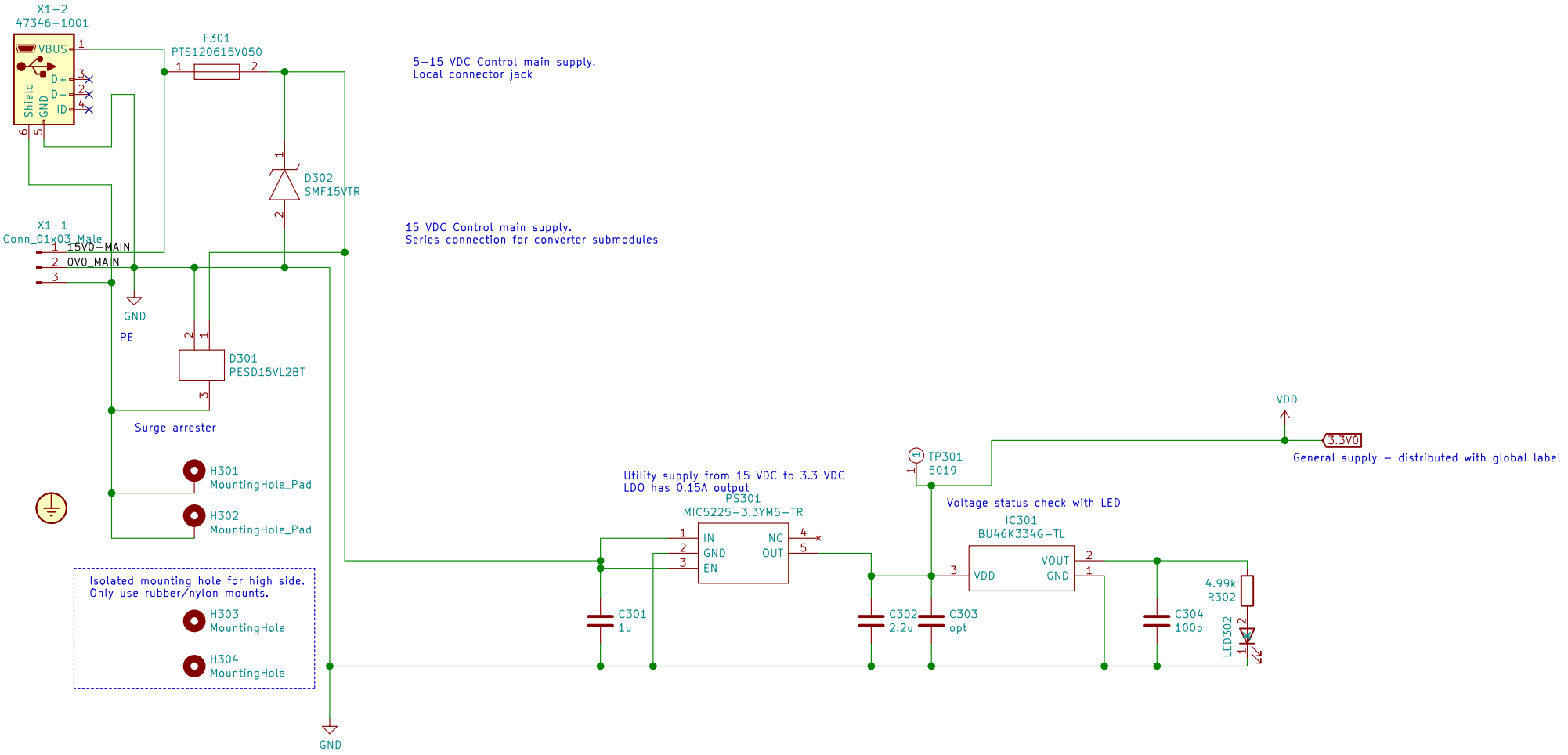
Sheet: /current−meas−shunt/
File: current−meas−shunt.sch

Title: Single channel current measurement card

Size: A4	Date: 2021−03−01	**Rev: 1**
KiCad E.D.A. kicad 5.1.10		Id: 2/5



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Sheet: /power-distribution/
File: power-distribution.sch

Title: Single channel current measurement card

Size: A4	Date: 2021-03-01	**Rev: 1**
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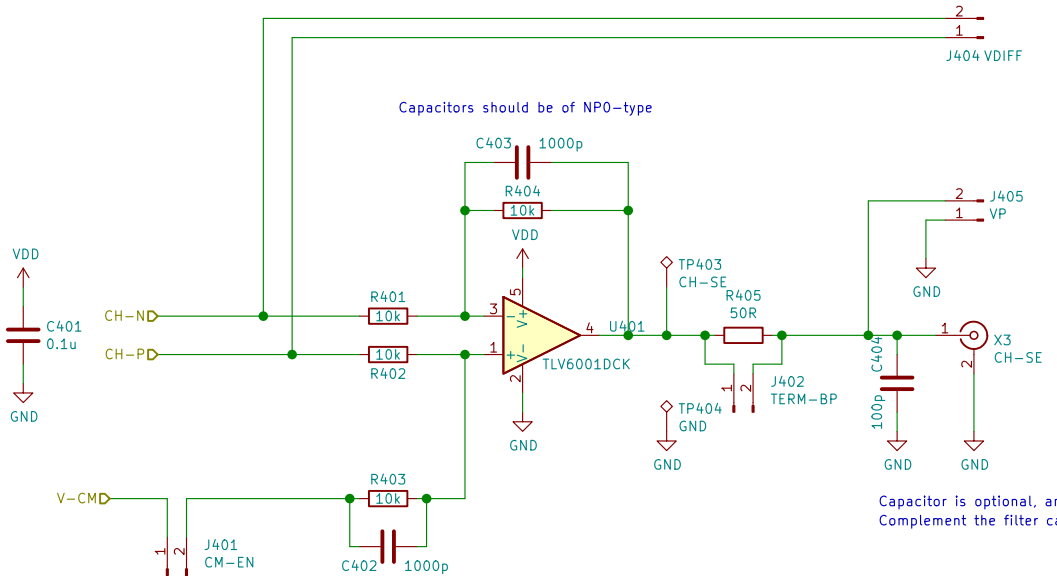
The relatively low bandvith of the voltage sensors, suggests that the 50 Ohm termination is probably not neccecary.
Also most cheap oscilloscopes only have 1 MOhm input impedance, and proper termination will require external resistor on the scope end.
Proper termination on one end however, is usually better than nothing.



R1 = R2 = R3 = R4 => Vout = (Vp - Vn) + Vcm

Capacitor is optional, and should be added if lowpass (anti-alias) filter is needed.
Complement the filter cap by replacing the 50R resistor by a 10k resistor.

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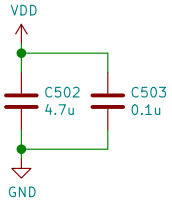
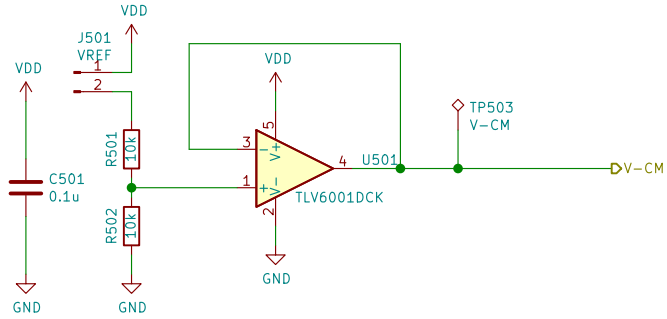
Sheet: /diff-to-single-end-conv/
File: diff-to-single-end-conv.sch

Title: Single channel current measurement card

Size: A4	Date: 2021-03-01	**Rev: 1**
KiCad E.D.A. kicad 5.1.10		Id: 4/5





User resistor divider to set common mode voltage level if bias is needed.
VDD is 3.3 V
Resistors should be of 0.1% tolerance if high accuracy is needed.
But you should also take the stability of VDD into account.
Consider using a voltage reference (e.g. REF5030) if high accuracy is needed.

This board interfaces the signal from a AMC3330 isolation amplifier.
The common mode output from AMC3330 is 1.44 V
Each output are +/- 1.245 V. Thus the differential output is +/- 2.49 V

V.Steinsland, E. Haustveit, E. Håland and S. Zhang
Differential to single-ended converter with BNC output
Designed for use with voltage sensing board
Power electronics lab
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Sheet: /diff-to-single-end-bias/
File: diff-to-single-end-bias.sch

Title: Single channel current measurement card

Size: A4	Date: 2021-03-01	**Rev: 1**
KiCad E.D.A. kicad 5.1.10		Id: 5/5