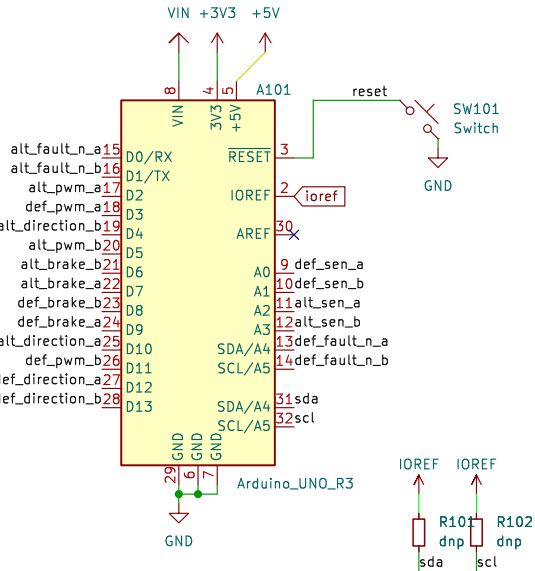


Arduino Header



Standard Motorshield Assignments:

Channel A:
D12 – Direction
D3 – PWM (work duty)
D9 – Brake
A0 – current sensing.

Channel B:

D13 – Direction
D11 – PWM (work duty)
D8 – Brake
A1 – current sensing

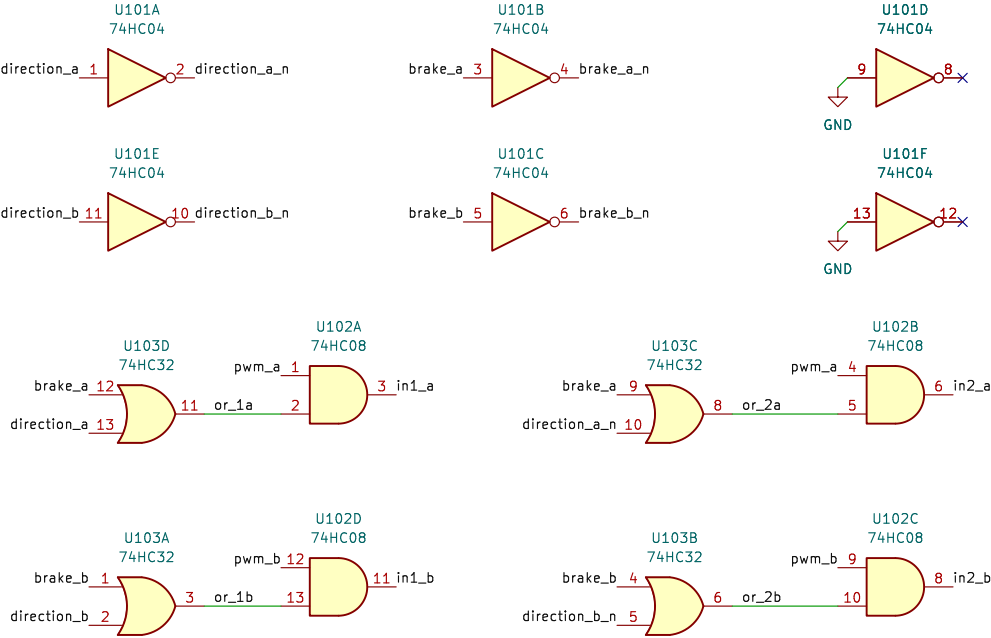
DRV8874 control logic:

PH/EN Mode (PMODE Low)
nSleep/EN/PH out1/2
0 X X ZZ
1 0 X 00
1 1 0 01
1 1 1 10

nSleep = high / pwm
EN = not brake / pwm
PH = dir

PWM Mode (PMODE High)
nSleep/in1/2 out1/2
0 X X ZZ
1 0 0 ZZ
1 0 1 01
1 1 0 10
1 1 1 00

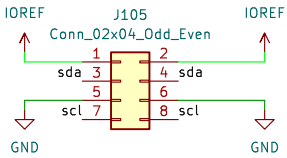
nSleep = high
in1 = pwm and (dir or brake)
in2 = pwm and (not dir or brake)



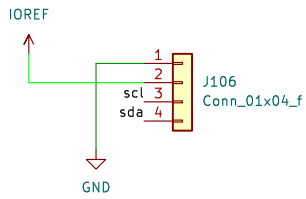
out1a_1 J101
out2a_2 Phoenix Contact MC 1.5/ 2–G–3.5
out1a_1 J102
out2a_2 dnp

out1b_1 J103
out2b_2 Phoenix Contact MC 1.5/ 2–G–3.5
out1b_1 J104
out2b_2 dnp

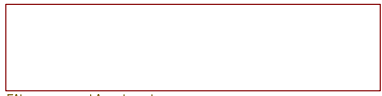
i2c headers



OLED Header

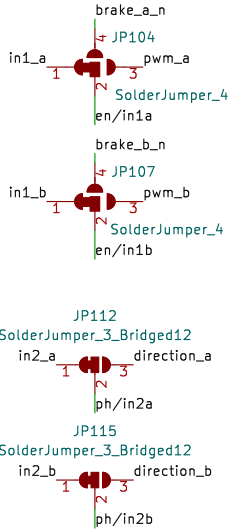
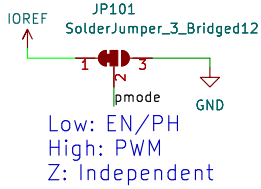
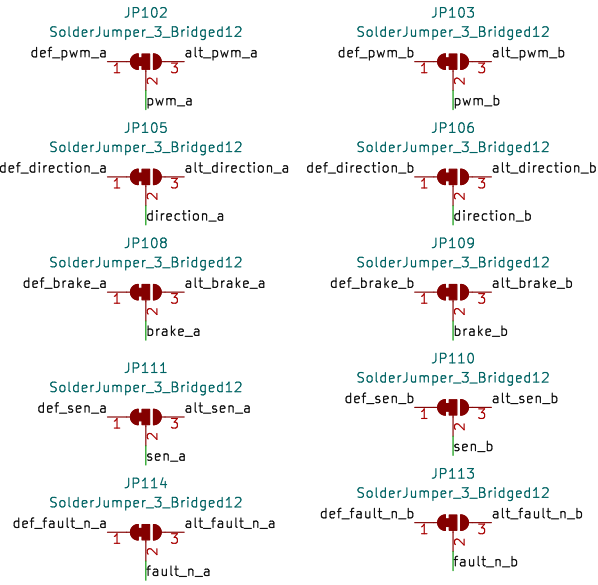


Power Sheet

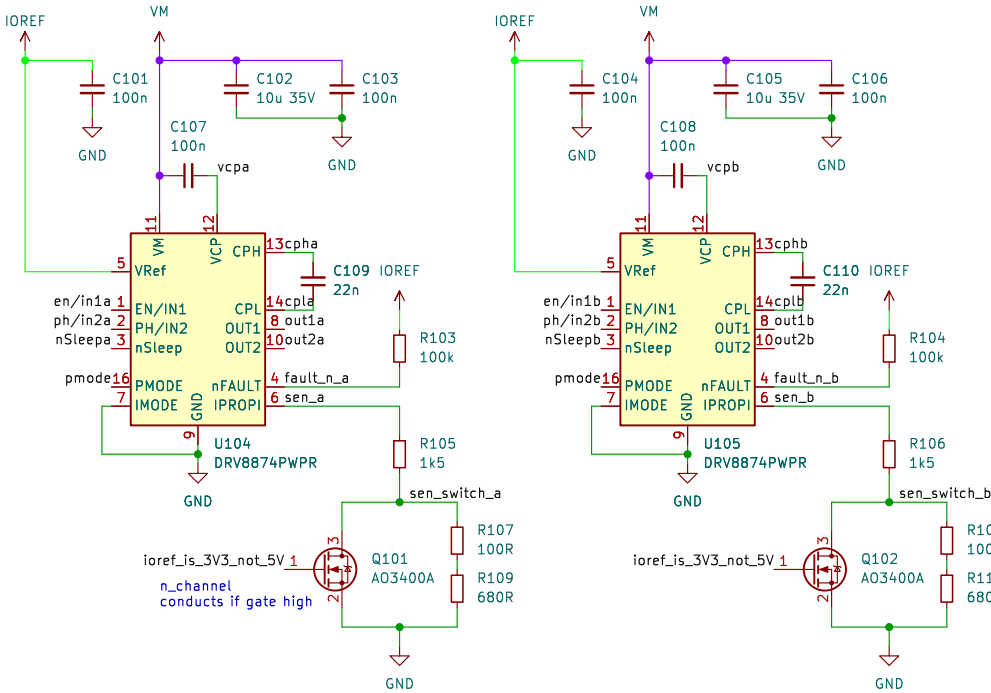


File: power.kicad_sch

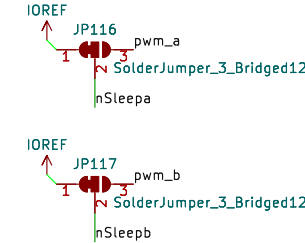
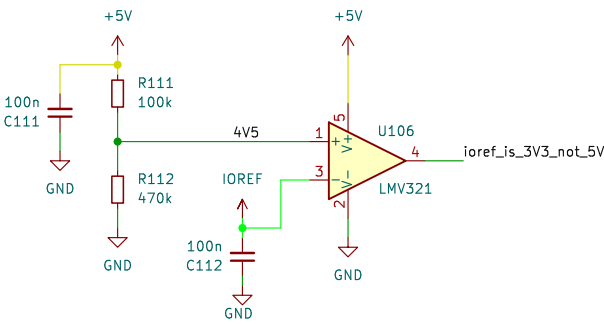
Alternative pinout to allow stacking



DRV8874 Motor Driver



OpAmp as IORef Comparator



DRV8874 Current Sensing:

0.000455 A_prop per A

5V = 0.000455*(1500+780)*A => A=4,82
3,3V = 0.000455* 1500 *A => A=4,83

V_prop is limited to VRef inside DRV8874

- FID101 Toolinghole_jlc
- FID102 Toolinghole_jlc
- FID103 Toolinghole_jlc
- FID104 Fiducial
- FID105 Fiducial
- FID106 Fiducial

Engineer: Erwin Peterlin
semify-eda.com

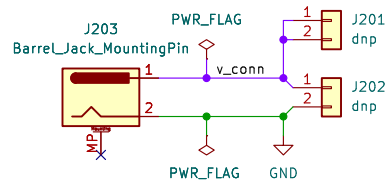
Sheet: /
File: motor-shield.kicad_sch

Title: Motor Shield (DCC-EX compatible)

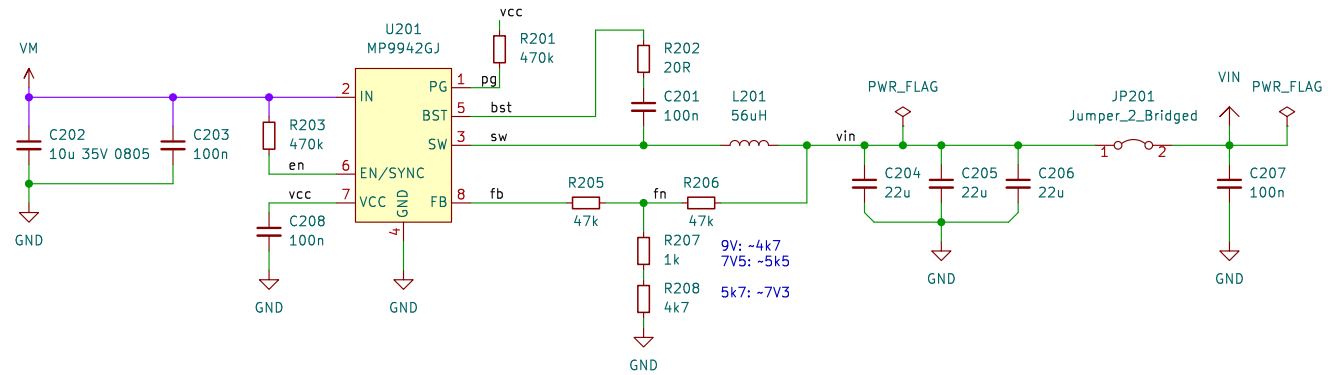
Size: A3 Date: 2023-02-06
KiCad E.D.A. kicad (7.0.0)

Rev: Prototype A
Id: 1/2

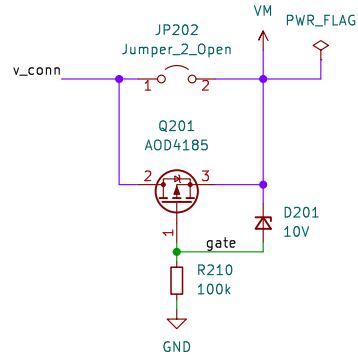
Barrel Jack



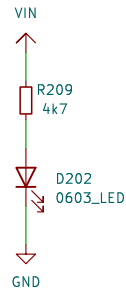
VIN DCDC Buck Converter



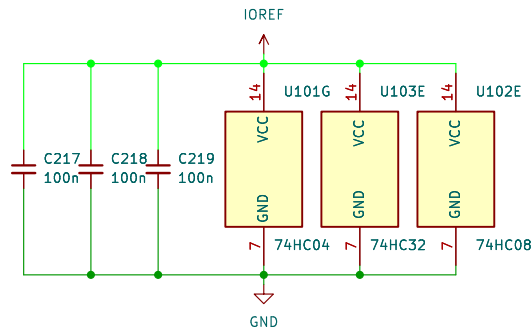
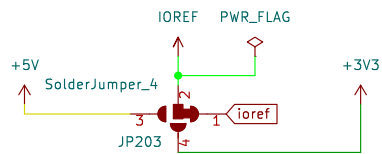
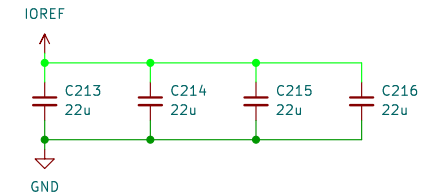
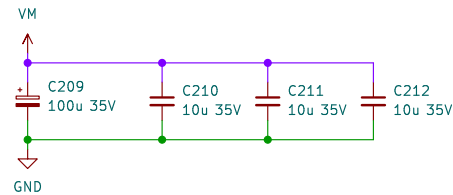
Reverse Polarity Protection



Status LEDs



Bulk Caps



Engineer: Erwin Peterlin

semify-edu.com

Sheet: /Power/

File: power.kicad_sch

Title: Motor Shield (DCC-EX compatible)

Size: A4

Date: 2023-02-06

Rev: Prototype A

KiCad E.D.A. kicad (7.0.0)

Id: 2/2