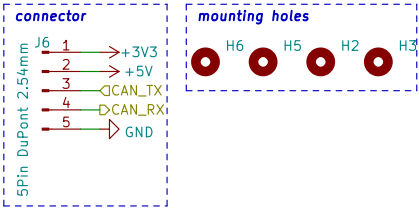
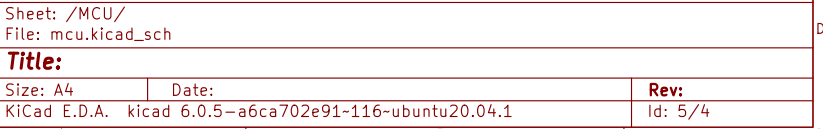
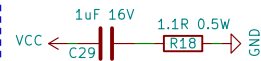


CAN requierements:
- galvanic isolation
- isolated DC/DC converter
- base is a dedicated PCB due
different chip/converter impl.
(because semiconductor componts are rare)

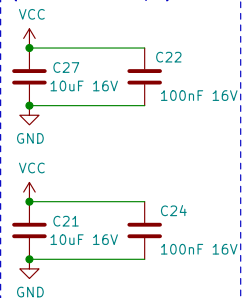




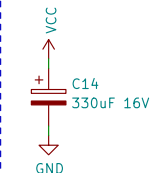
high frequency filtering
place near chip



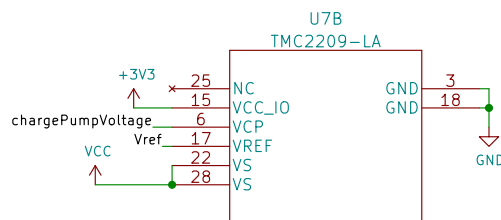
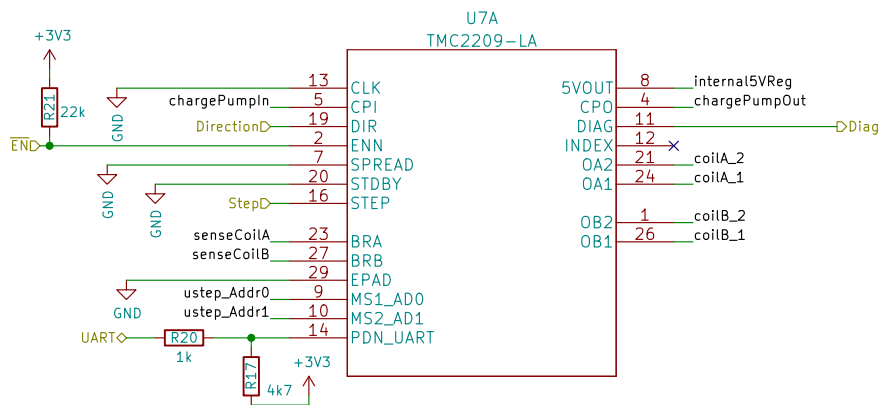
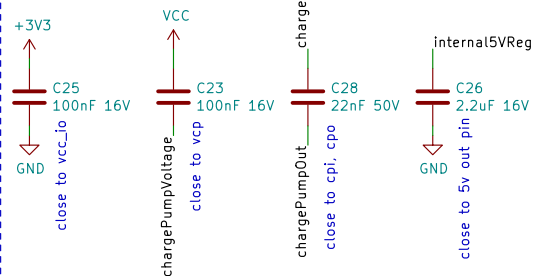
drive stage decoupling
(one for each VS pin)



bulk capacity
select low ESR
electrolytics (<20m)

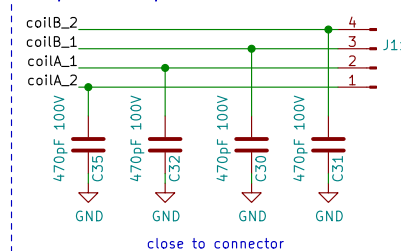


further bypass caps



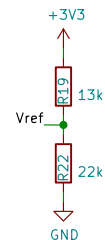
layout: P in high current condition around 1.4W
70x133mm 4 layer board 30 K/W
Junction-Pad 6 K/W

ESD protection caps



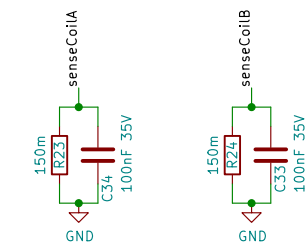
current scaling

100% = 1.2A = Vref >= 2.5V
We use 1A motor
 $1.0A / 1.2A = 83\%$
 $83\% * 2.5V \text{ Vref} = 2.075V$



current sense shunt

sourcing: low L (film/composite type),
 I^2R peak power: $(1.2A)^2 * 150m\Omega = 216mW$
ESD protection caps, voltage will be greater
close to resistors



layout: each shunt must have own vias to ground

micro step selection

00: 8th,
01: 32th,
10: 64th,
11: 16th
or uart address



Sheet: /StepperDriver/
File: TMC2209.kicad_sch

Title:

Size: A4

Date:

KiCad E.D.A. kicad 6.0.5-a6ca702e91-116-ubuntu20.04.1

Rev:

Id: 6/4