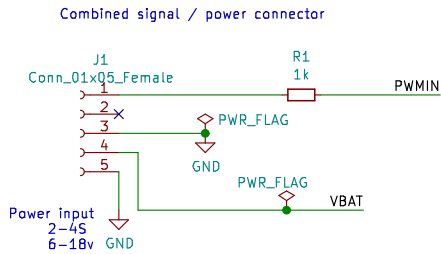


Beetleweight motor back ESC

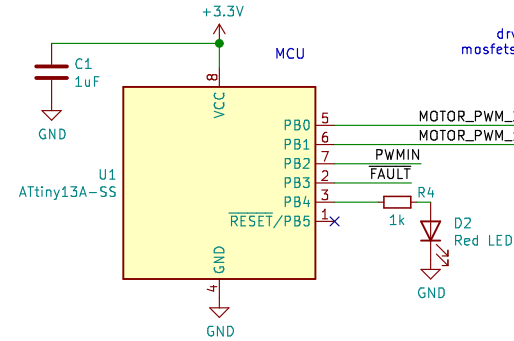


- CHECKLIST:**
1. Make sure enough space for attiny13 soic8 test-clip – for ISP
 1. Check that hi-current paths are wide enough / as possible
1. drv8701 gate drive settings – VGS is inside the correct range (YES it is)

drv8701 provides nominally about +9.5v VGS gate drive, mosfets datasheet shows absolute maximum +20v so it's ok.



NB: this should not cause damage if fitted the opposite way.

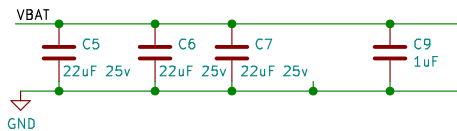


Regulation
3.3v logic is driven from the DVDD pin of drv8701

VREF:
"If the current regulation is not needed, it can be disabled by tying VREF to AVDD and tying SP and SN to GND"

Would place a shunt here for current regulation, or tie to GND.

VBAT decoupling



IDRIVE:

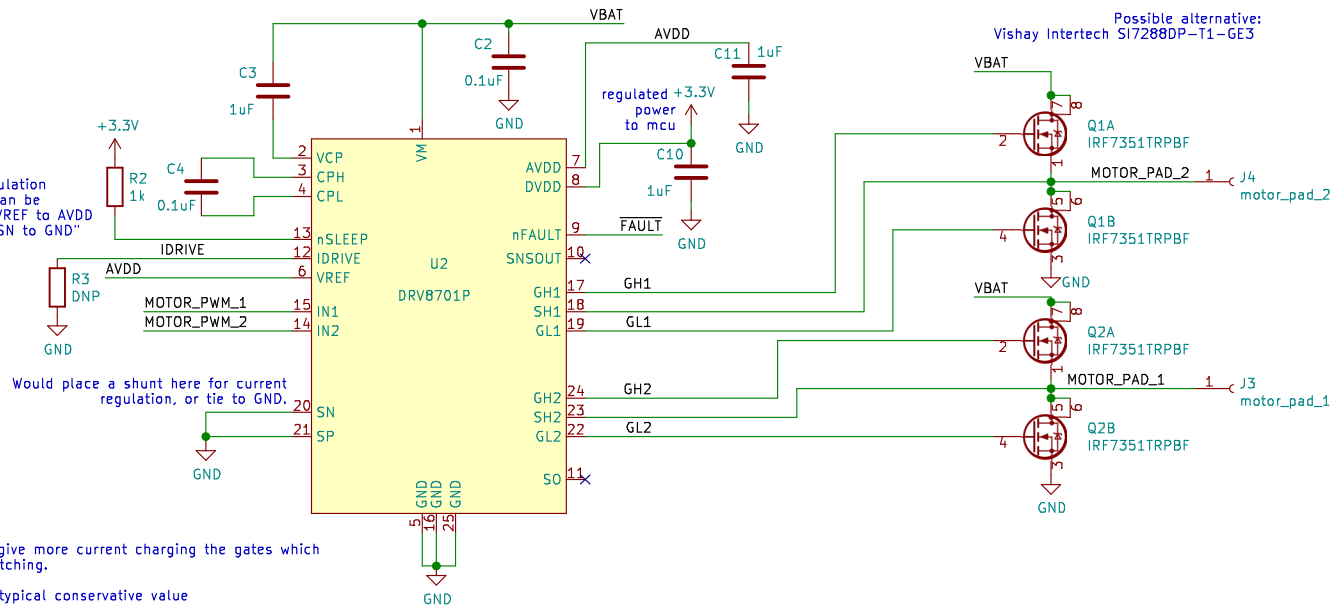
higher resistors give more current charging the gates which makes faster switching.

I think 33k is a typical conservative value

Gate-to-drain charge Q(gd)
Nominal 7.2 nC

33kohm = 25mA gate drive current
200kohm = 50mA
open circuit = 100mA
(see drv8701 electrical characteristics)

50mA gate drive current gives approx 1us worst-case.



Sheet: /	
File: beetleback.kicad_sch	
Title: Beetle Motor Back ESC	
Size: A4	Date: 2020-12-14
KiCad E.D.A. kicad 5.99.0-unknown-b90e72ed07107ubuntu18.04.1	Rev: 1/1