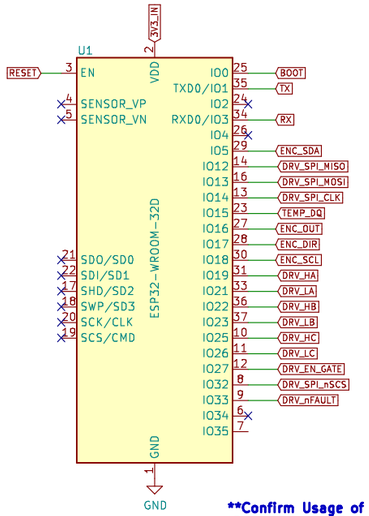
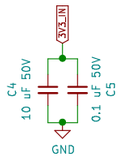
TitanLegs

Microcontroller (ESP32)

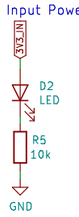


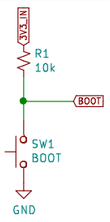
**Confirm Usage of IO 5, 12, and 15

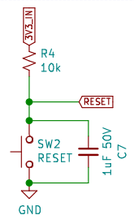
Decoupling caps, keep close to power pins

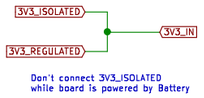


3.3V Input Power LED

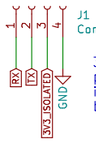






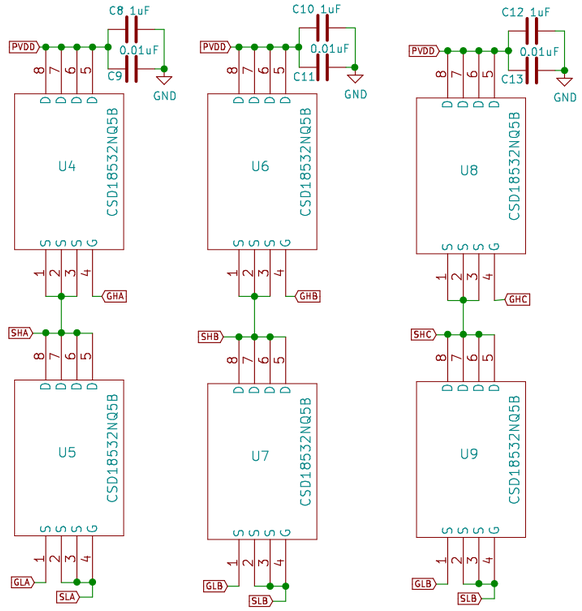


Don't connect 3V3_ISOLATED while board is powered by Battery

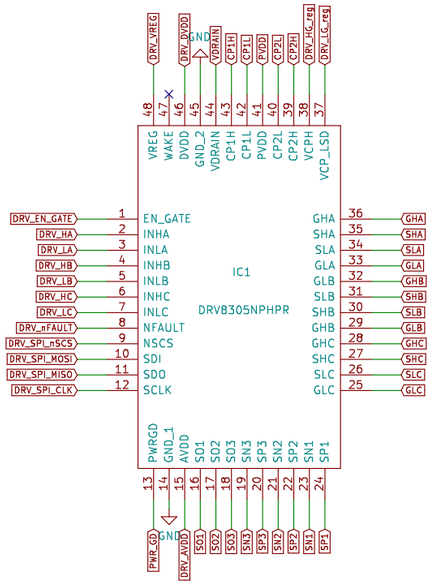


3V3_ISOLATED is used to power ESP32 when board isn't being powered by VIN. (while programming)

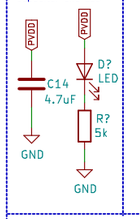
3 Phased Gate MOSFET Switches



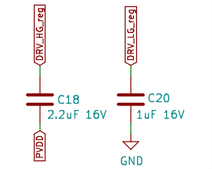
DRV8305 – Gate Driver



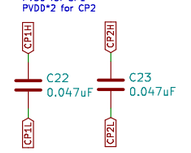
PVDD: Power Bypass Capacitor and LED



VCPH – High Side Gate Driver regulator
VCP_LSD – Low Side Gate Driver regulator

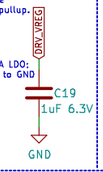


Flying capacitors for charge pumps with rating : PVDD for CP1 PVDD*2 for CP2

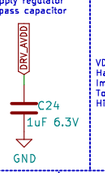


DRV_VREG: Internal amplifier reference voltage and SDO pullup.

Connect with–> 3.3V or 5V, 50–mA LDO: connect 1–µF to GND
Reference voltage: LDO disabled

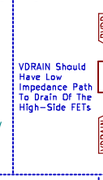


5–V internal analog supply regulator bypass capacitor

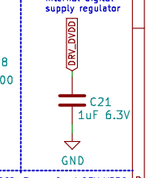


High Side MOSFET Drain

VDRAIN Should Have Low Impedance Path To Drain Of The High–Side FETs



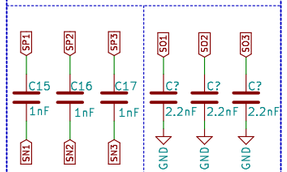
DRV_DVDD: 3.3V internal digital supply regulator



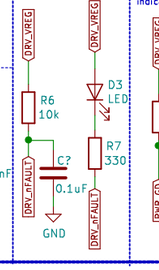
SO1, SO2 and SO3 are current amplifier output pins

SP1, SP2 and SP3 are positive current sense input pins for amplifers 1.2 and 3 respectively

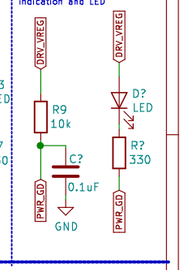
SNP1, SN2 and SN3 are negative current sense input pins for amplifers 1.2 and 3 respectively



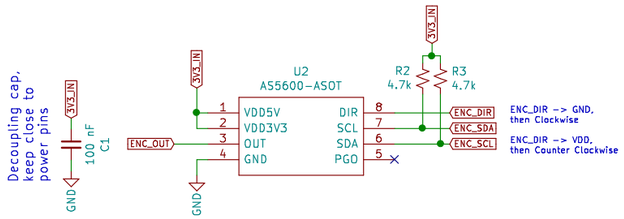
DRV_nFAULT: Fault Indicator and LED



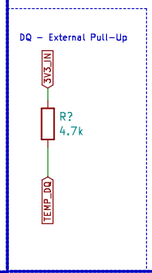
PWRGD: Power Good DRV_VREG and MCU watchdog fault indication and LED

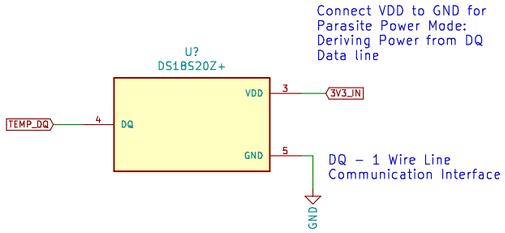


Magnetic Encoder (AS5600)

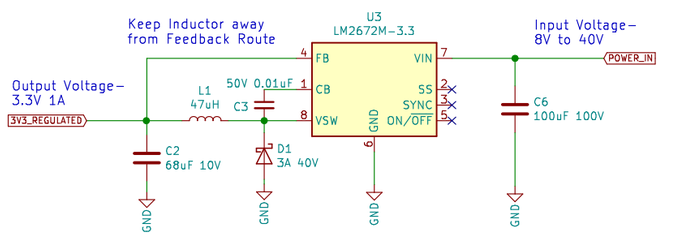


Temperature Sensor (DS18S20Z+)





Power Supply (VIN to 3.3v)



do2014ac footprint

Keep Bypass Capacitors close to Chip

SS – Soft Start
Connect Capacitor for soft start

Pull ON/OFF High To enable Switching
NC – Internal Default Pull Up

Society of Robotics and Automation, VJTI

Sheet: /
File: bldc_pcb_design.sch

Title: Titan Legs PCB Design

Size: A3	Date:	**Rev: v1.0**
KiCad E.D.A. kicad 5.1.5+dfsg1–2build2		Id: 1/1