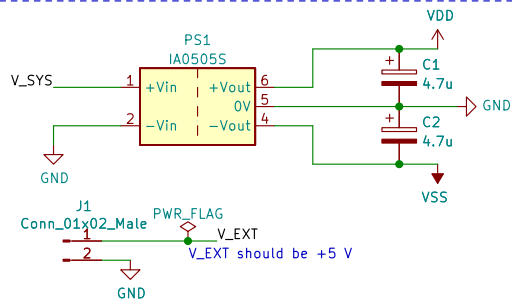


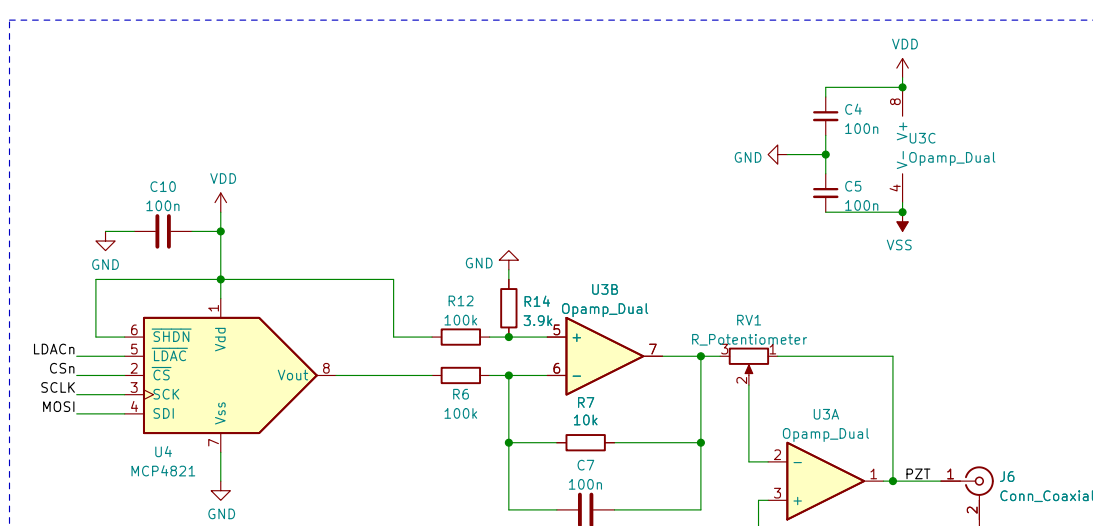
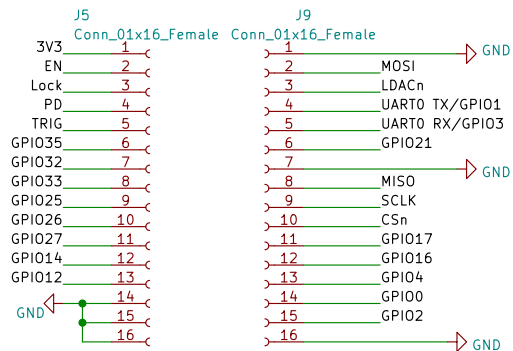
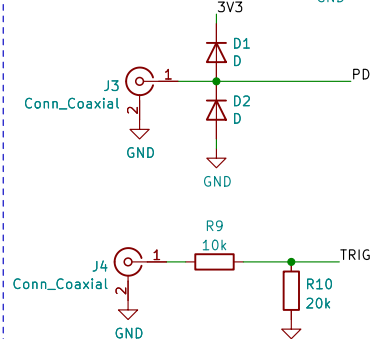
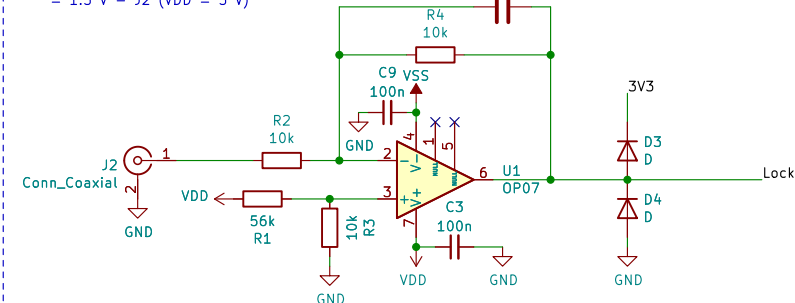
Power
VSYS is nominally +5 V
PS generates +/- 5 V
PS can handle 4.5 - 5.5 V.
Needs a minimum current of
10 mA to meet output
specifications, but lower
loads will not cause
damage



Input signals

$$\text{Lock} = \text{VDD} * (1 + R4/R2) / (1 + R1/R3) - J2 * R4/R2$$

$$= 1.5 \text{ V} - J2 (\text{VDD} = 5 \text{ V})$$

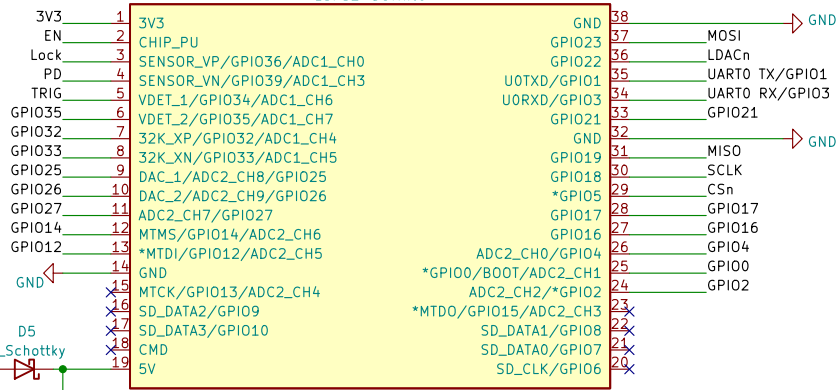


Output Signals

DAC generates voltages from 0 V to VREF, where VREF is either 2.048 V or 4.096 V, which is software-selectable. 4.096 V is the default setting.

Op-amps and resistors are use to generate bipolar output assuming VREF = 4.096 V and VDD = +5 V. Output of first op-amp is $V_{out} = \text{VDD} * (1 + R7/R6) / (1 + R12/R14) - V_{dac} * R7/R6$. This should give +/- 200 mV output, which gets multiplied by 48 in the MOGLabs DLC to give +/- 9.6 V which should cover a scan over the Rb-87 F = 2 and Rb-85 F = 3 Doppler broadened lines. The potentiometer on the second amp re-inverts the signal and scales it to a possibly more appropriate voltage range.

ESP32-DevKitC



Sheet: /
File: moglabs-remote-locking-board.kicad_sch

Title:

Size: A4
KiCad E.D.A. kicad 6.0.10-86aedd382b-118-ubuntu20.04.1

Date:
Rev:
Id: 1/1