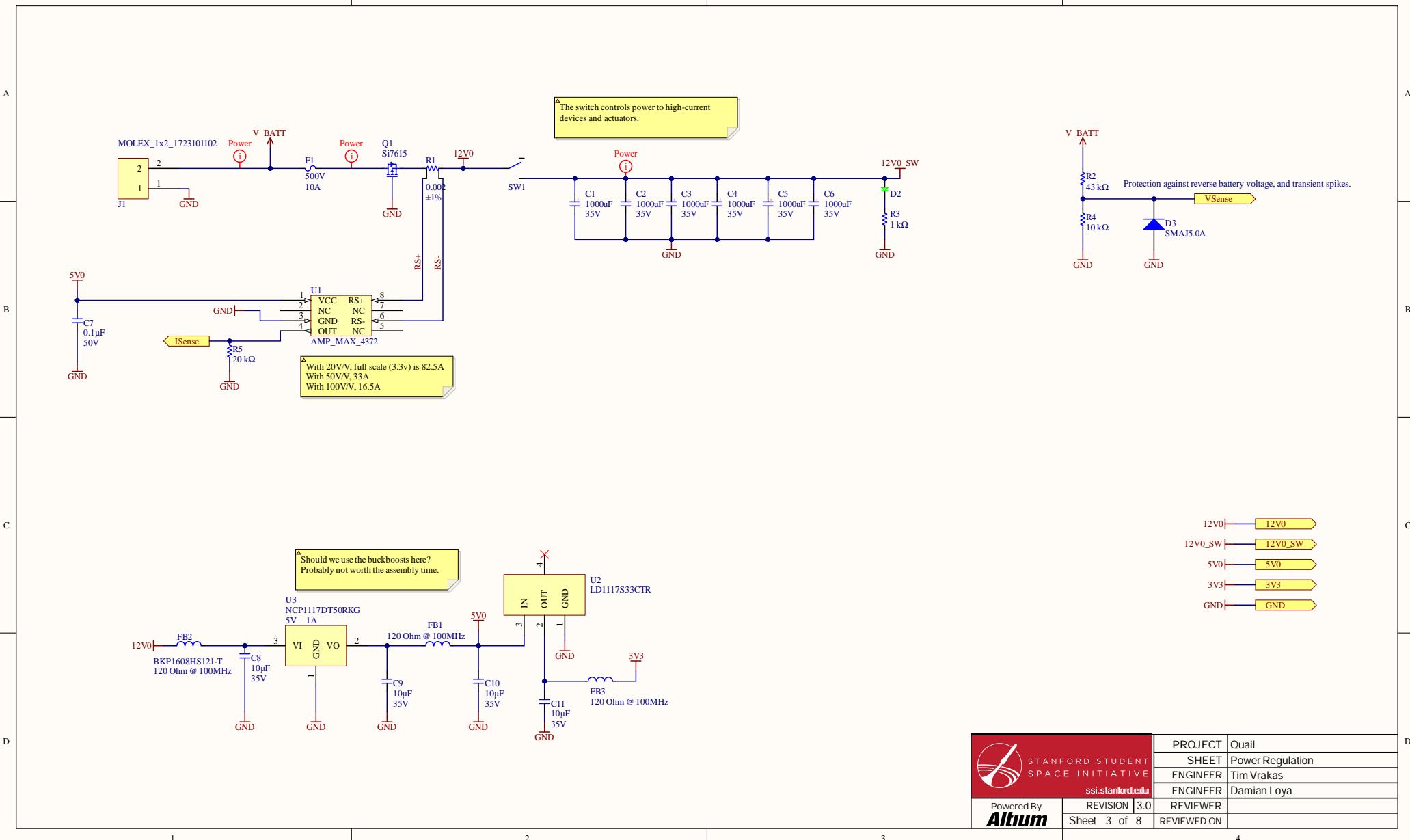


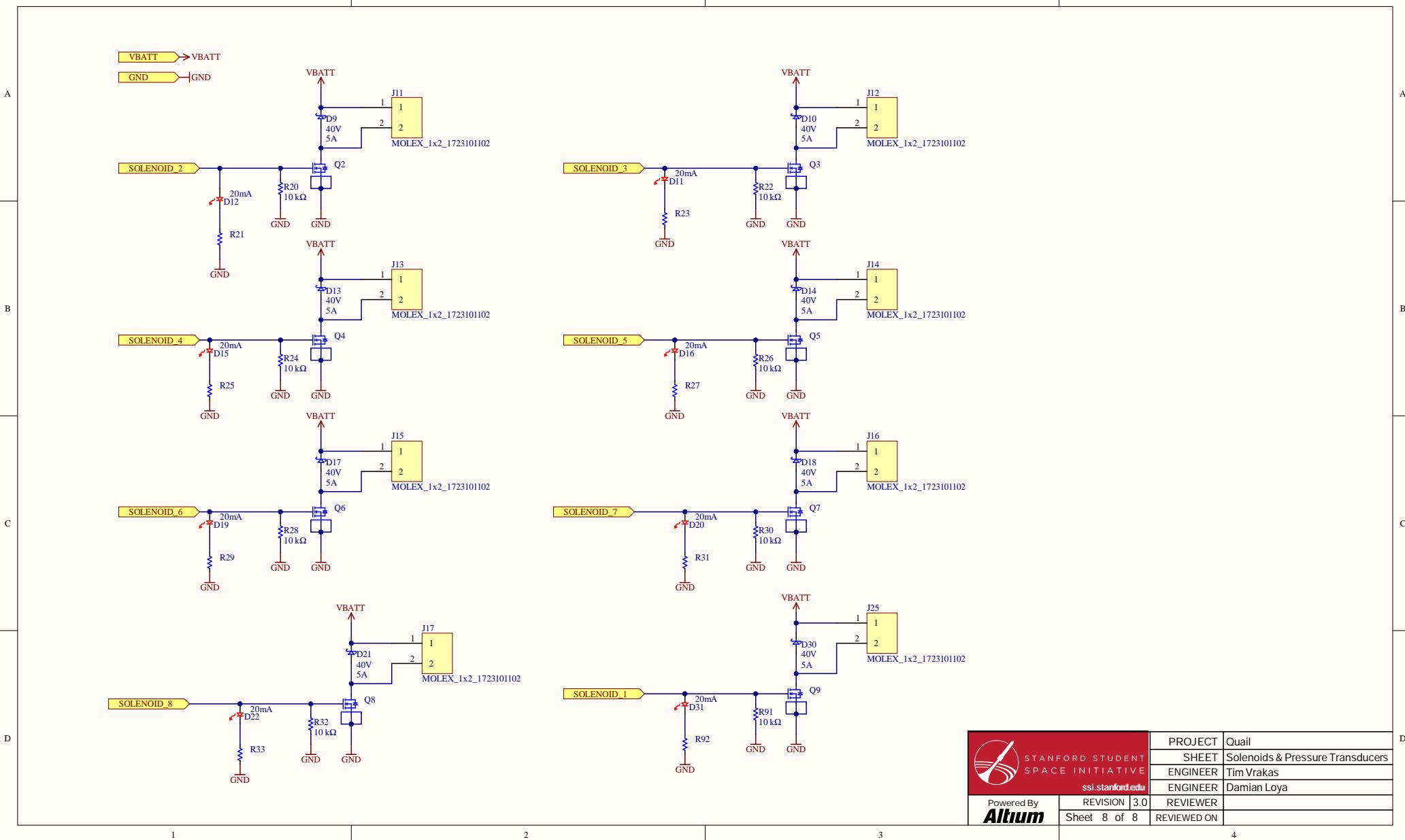
STANFORD STUDENT
SPACE INITIATIVE

PROJECT	Quail
SHEET	Top Sheet
ENGINEER	Tim Vrakas
ENGINEER	Damian Loya
REVIEWER	
REVIEWED ON	

1 2 3 4



1 2 3 4



1 2 3 4

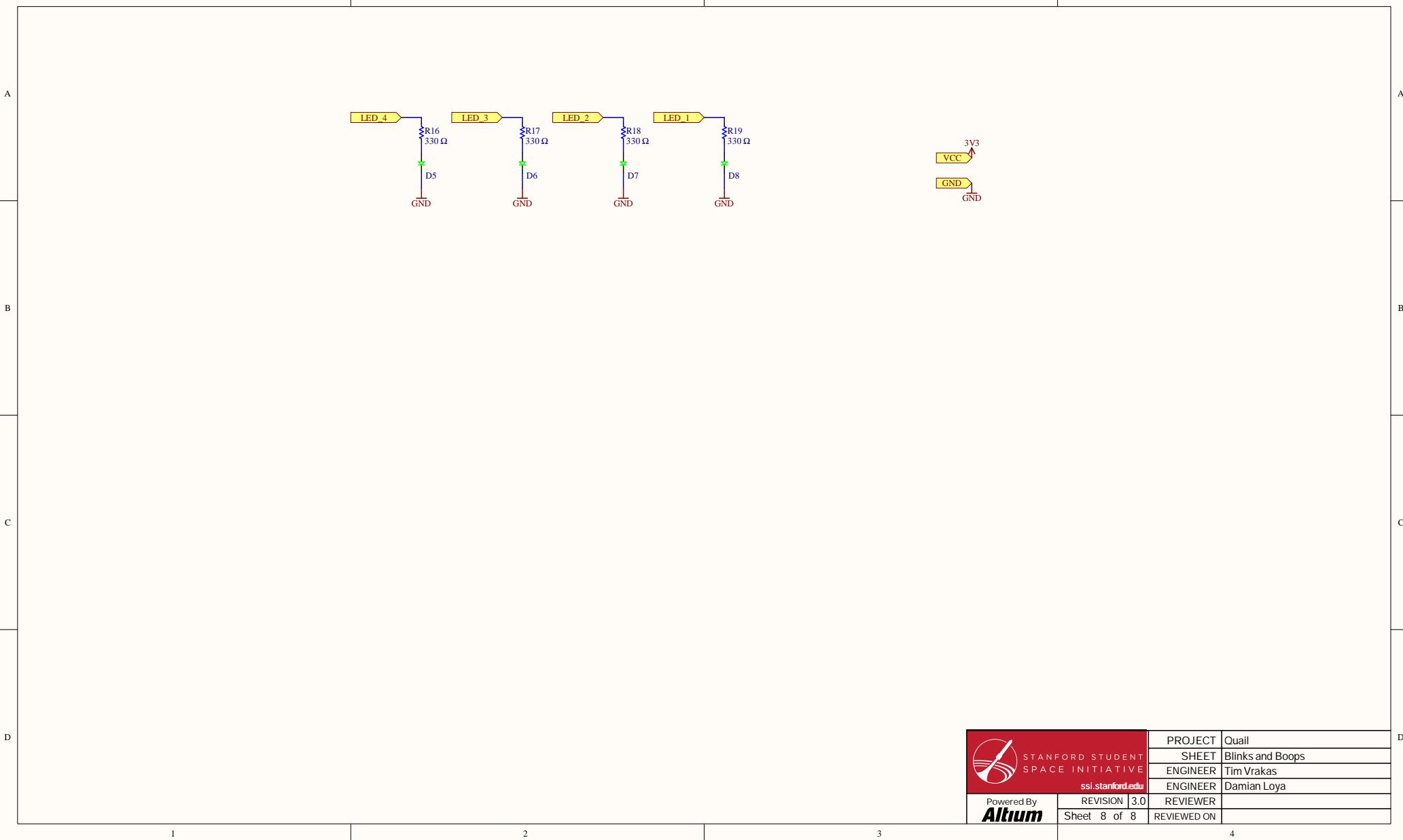
	PROJECT	Quail
	SHEET	Solenoids & Pressure Transducers
	ENGINEER	Tim Vrakas
	ENGINEER	Damian Loya
Powered By 	REVISION	3.0
	REVIEWER	
Sheet 8 of 8	REVIEWED ON	

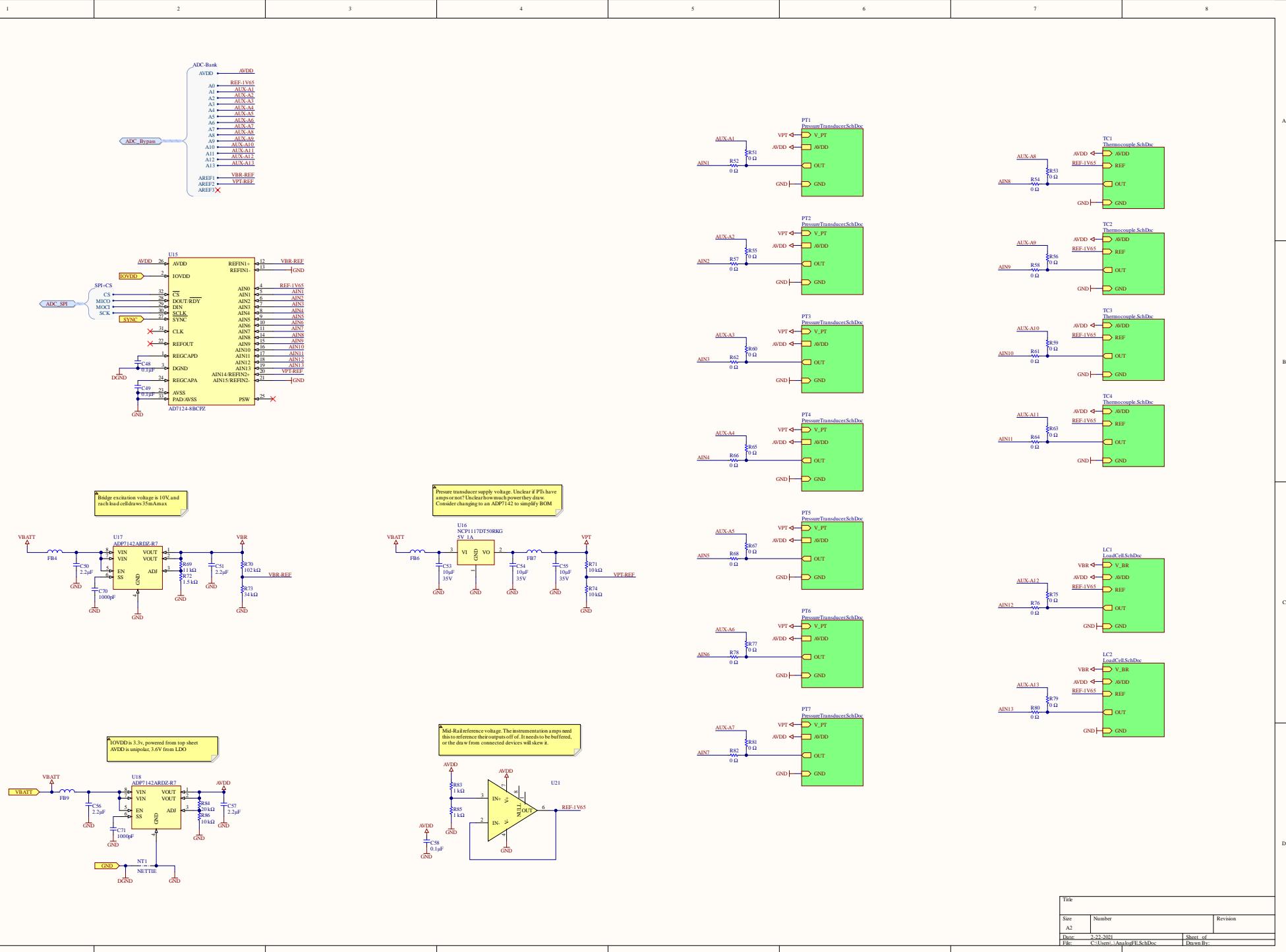
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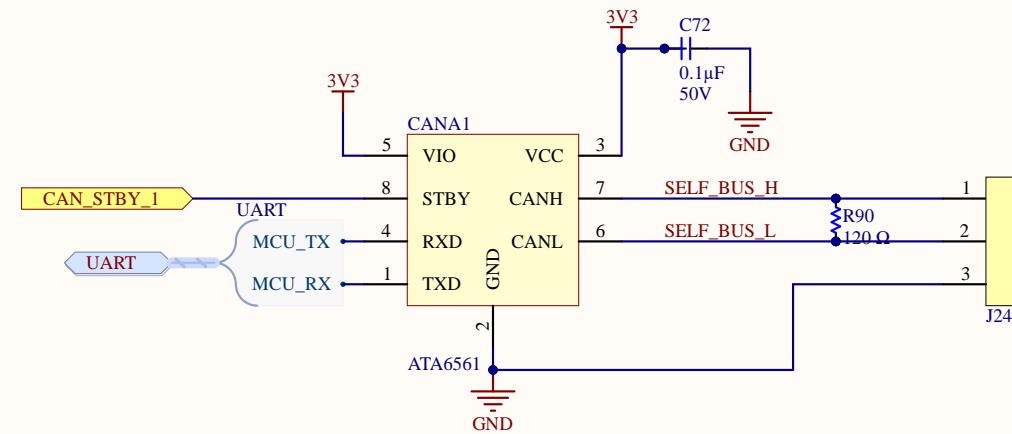




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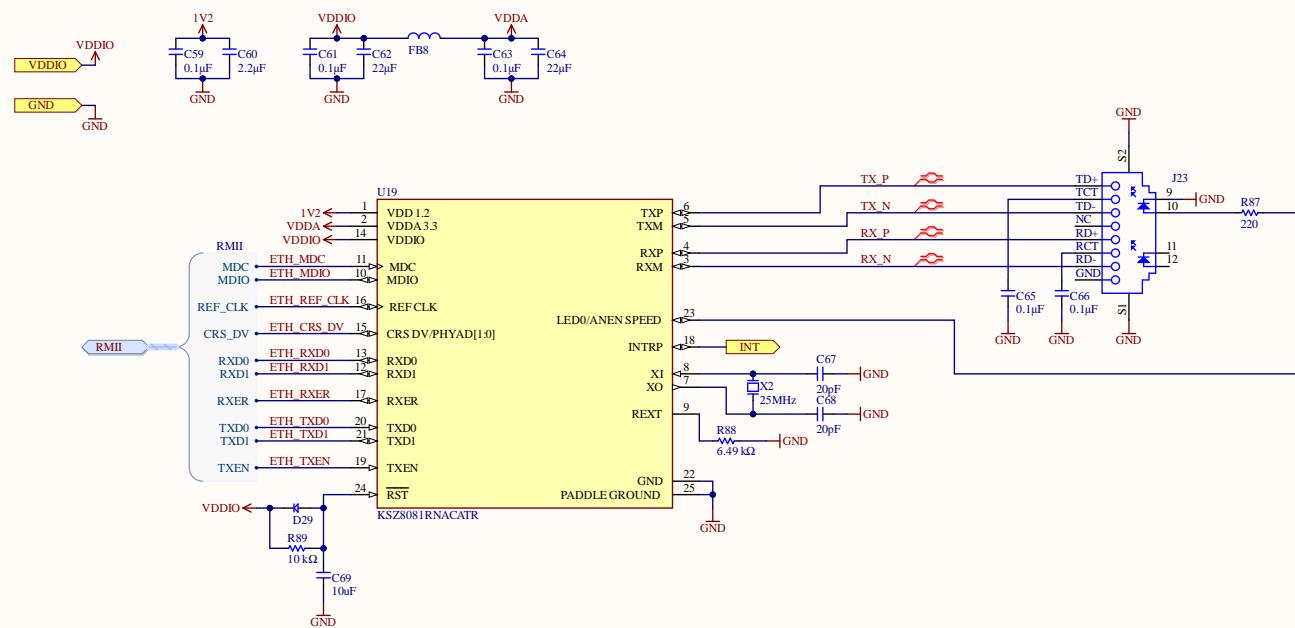
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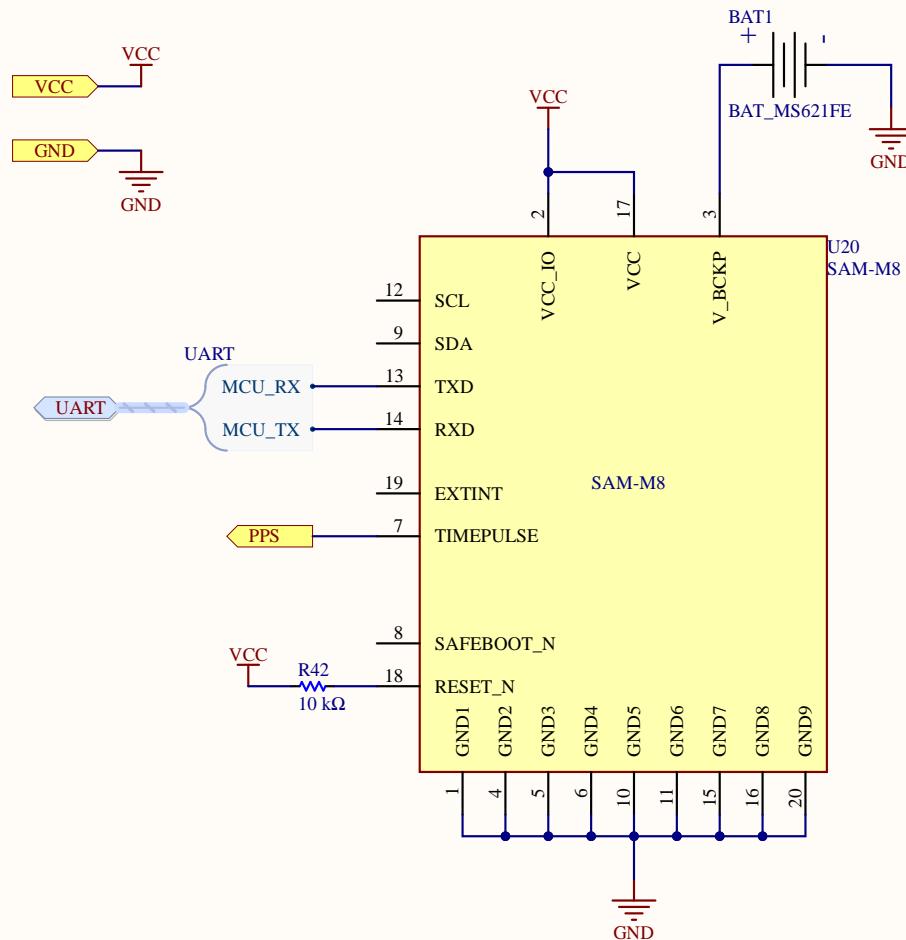
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Size	Number	Revision
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Number

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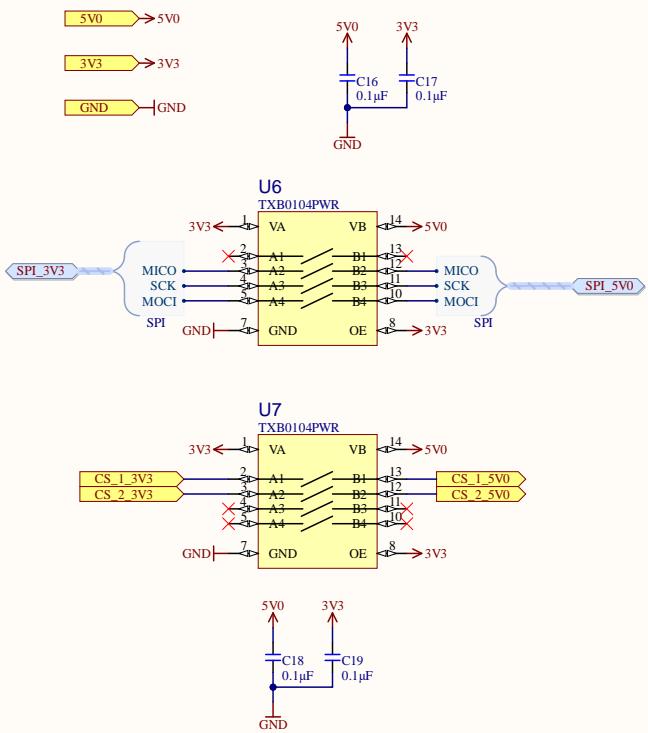
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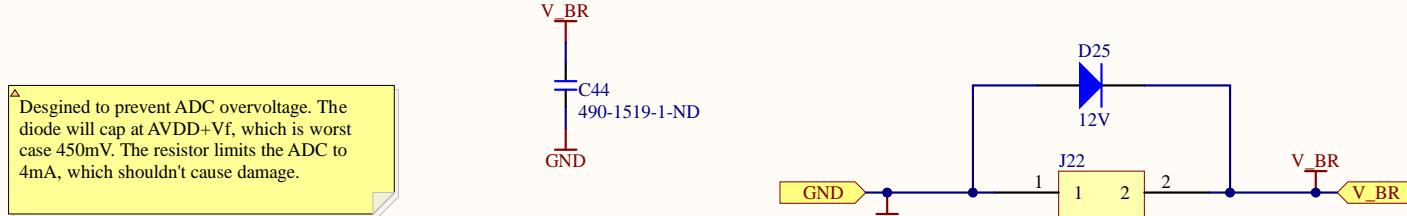
Level Shifters

The Squib Drivers operates using 5V logic, the MCU (SAMD51) uses 3.3V so the SPI interface between them needs to be converted



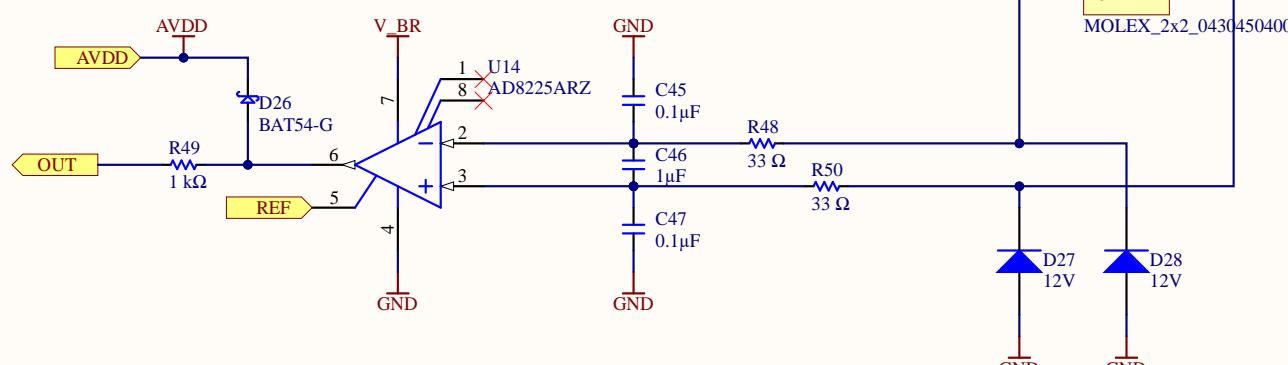
A

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C

△ This filter based on:
<https://electronics.stackexchange.com/questions/177575/capacitor-selection-for-filtering-of-low-level-signal>
 - Series resistance less than 10% of 350Ohm sensor impedance
 - Differential filter Fc = 4.8kHz
 - CM filter Fc = 24khz

It may need to be adjusted to suit a wider variety of load cells. Also, we might need better caps that don't have voltage derating

D

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Date: 2-22-2021

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File: C:\Users\.\LoadCell.SchDoc

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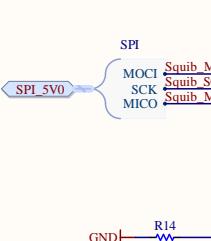
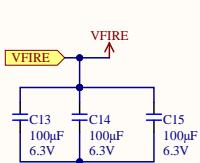
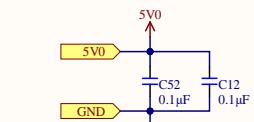
Squib Drivers

1

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SQUIB_MC33797
MC33797BPEWR2

MOLEX_1x2_1723101102

J9
J10

MOLEX_1x2_1723101102

J11
J12

MOLEX_1x2_1723101102

MOLEX_1x2_1723101102

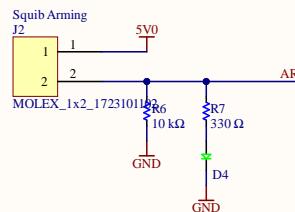
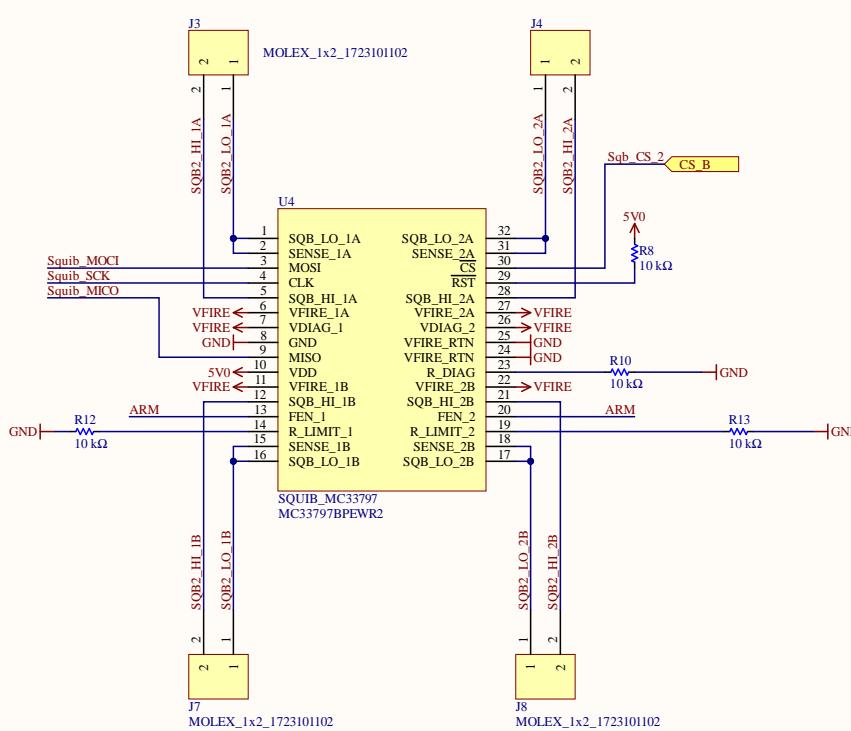
J13
J14

MOLEX_1x2_1723101102

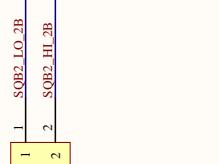
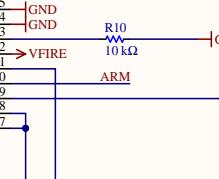
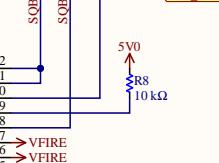
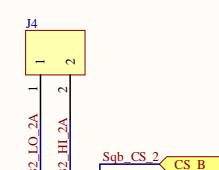
J15
J16

Two Chips (MC33797) for 8 total channels
Pin 2 is Lo and Pin 1 is High on all connectors

R Limit Calc: Ematch R=2ohm, wire is around 2-5ohm depending on length.
Recommended current is around 1 A
RSet = 10k sets limit to 1.4A



MOLEX_1x2_1723101102



STANFORD STUDENT SPACE INITIATIVE

ssi.stanford.edu

Powered By

Altium

PROJECT Quail

SHEET Squibs

ENGINEER Tim Vrakas

ENGINEER Damian Loya

REVISION 3.0

REVIEWER

Sheet n of m

REVIEWED ON

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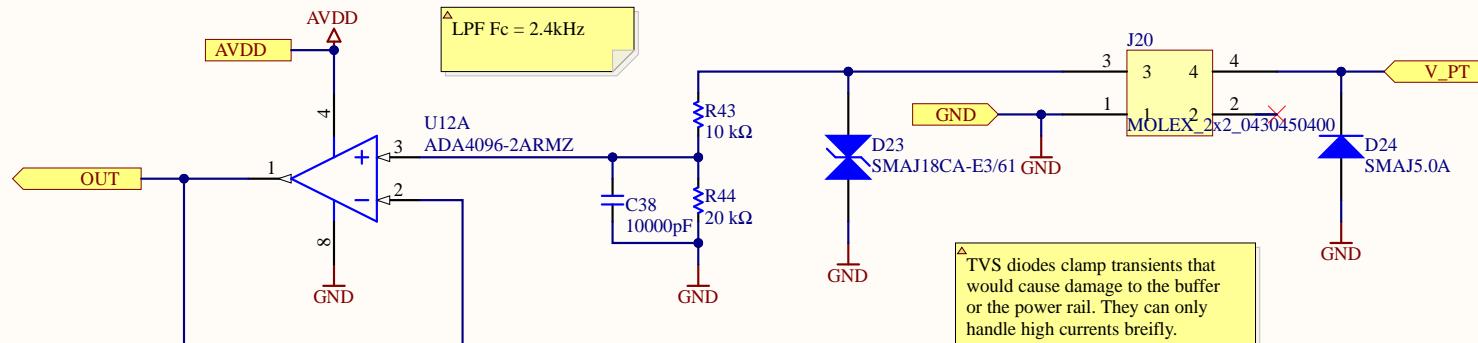
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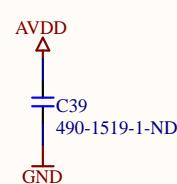
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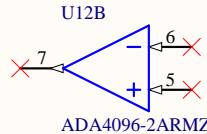
B



Buffer keeps signal between ADC rails, preventing ADC damage.

C

C



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Title

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Revision

Date: 2-22-2021

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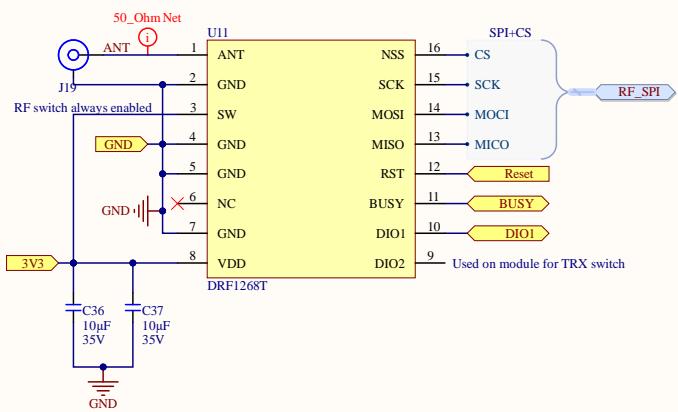
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Radio Module

TODO

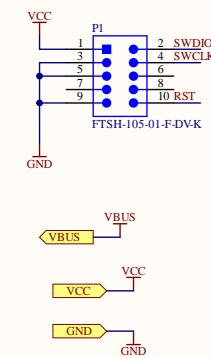
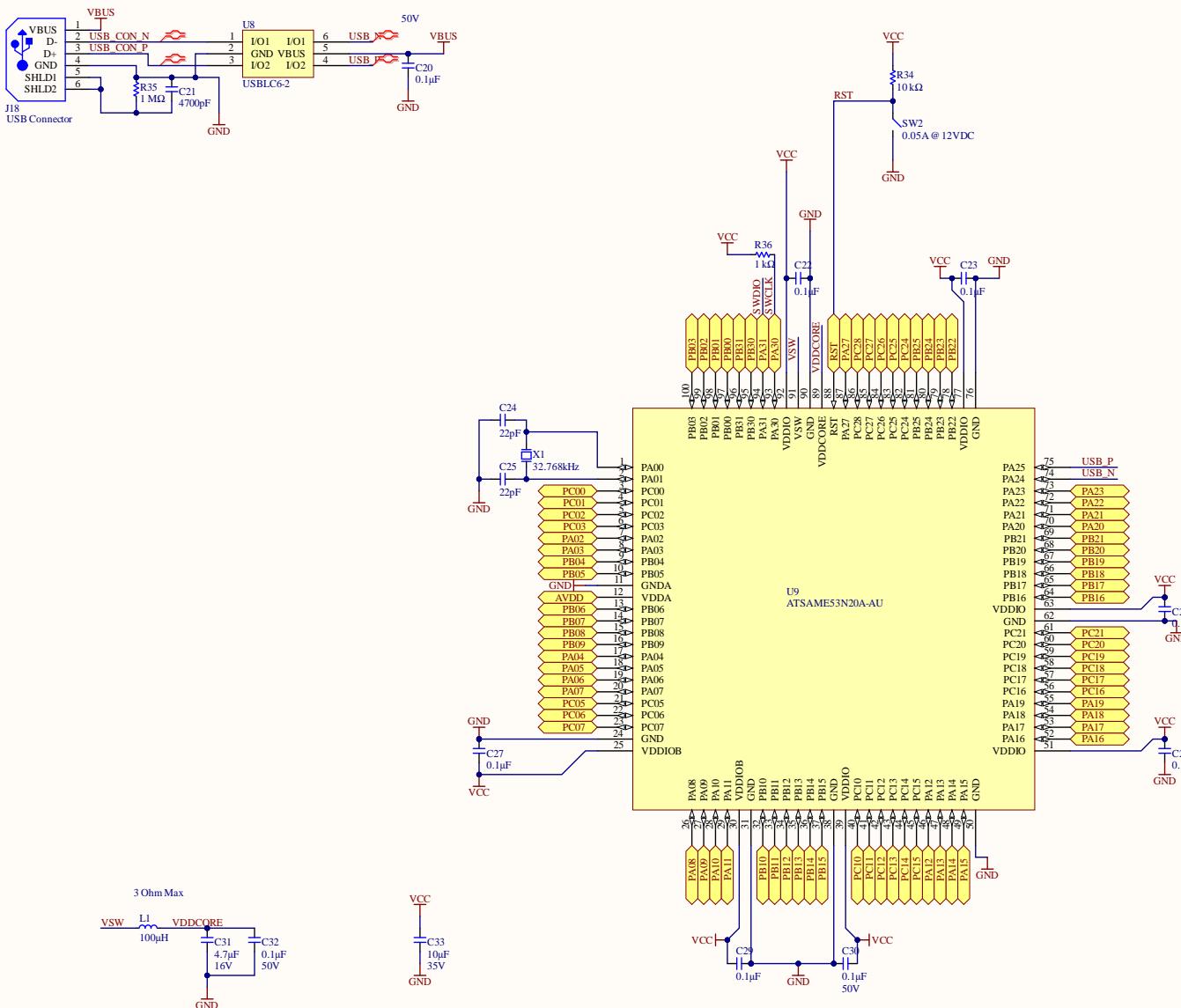
Swap Out with DRF Module

Radio for wireless communications
Dorji DRF1268T being used
Mainly on Tims Recomendation



(G)FSK4(G)FSK LoRa Modulation
433MHz transceiver
Max. 2.2dBm output power
-147dBm sensitivity
Standard SPI interface
Low RX current: 5.7 mA
Automatic RF sense and CAD monitor
Data Rate: <300 kbps
Standby current: <1uA
Supply voltage: 3.3V





A

A

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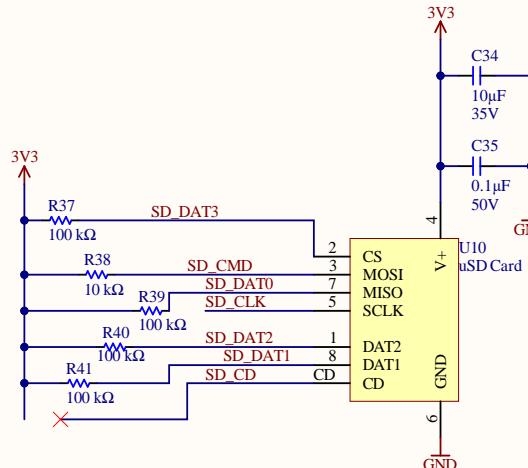
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A

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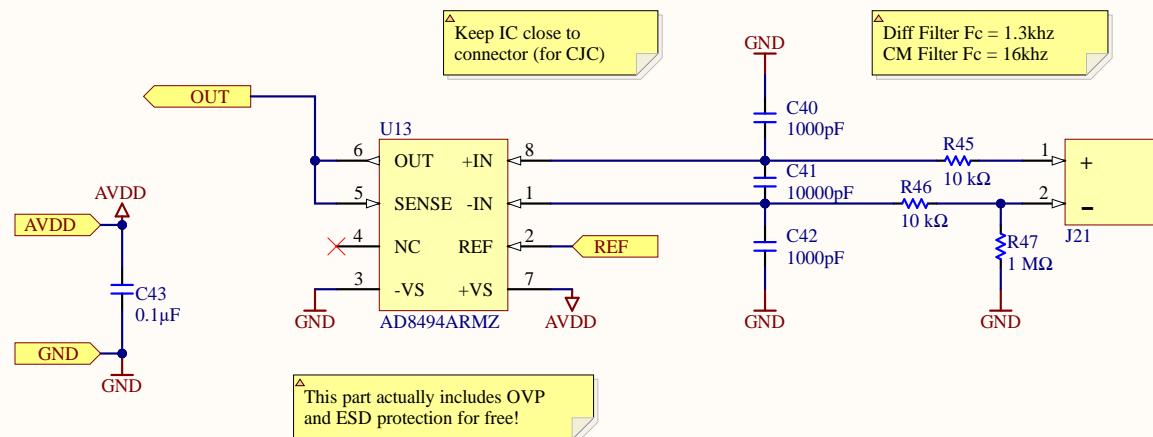
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