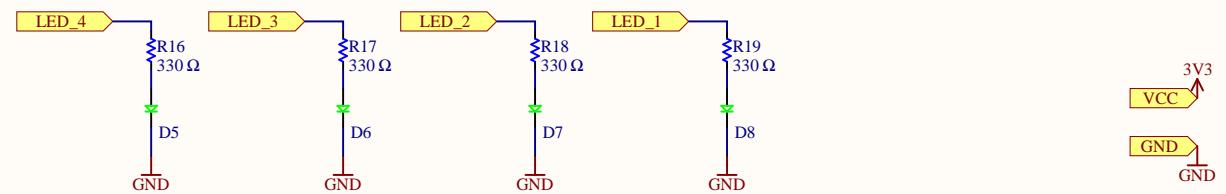


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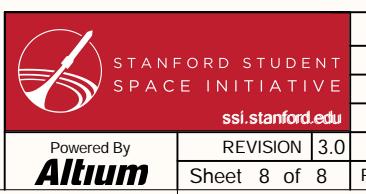
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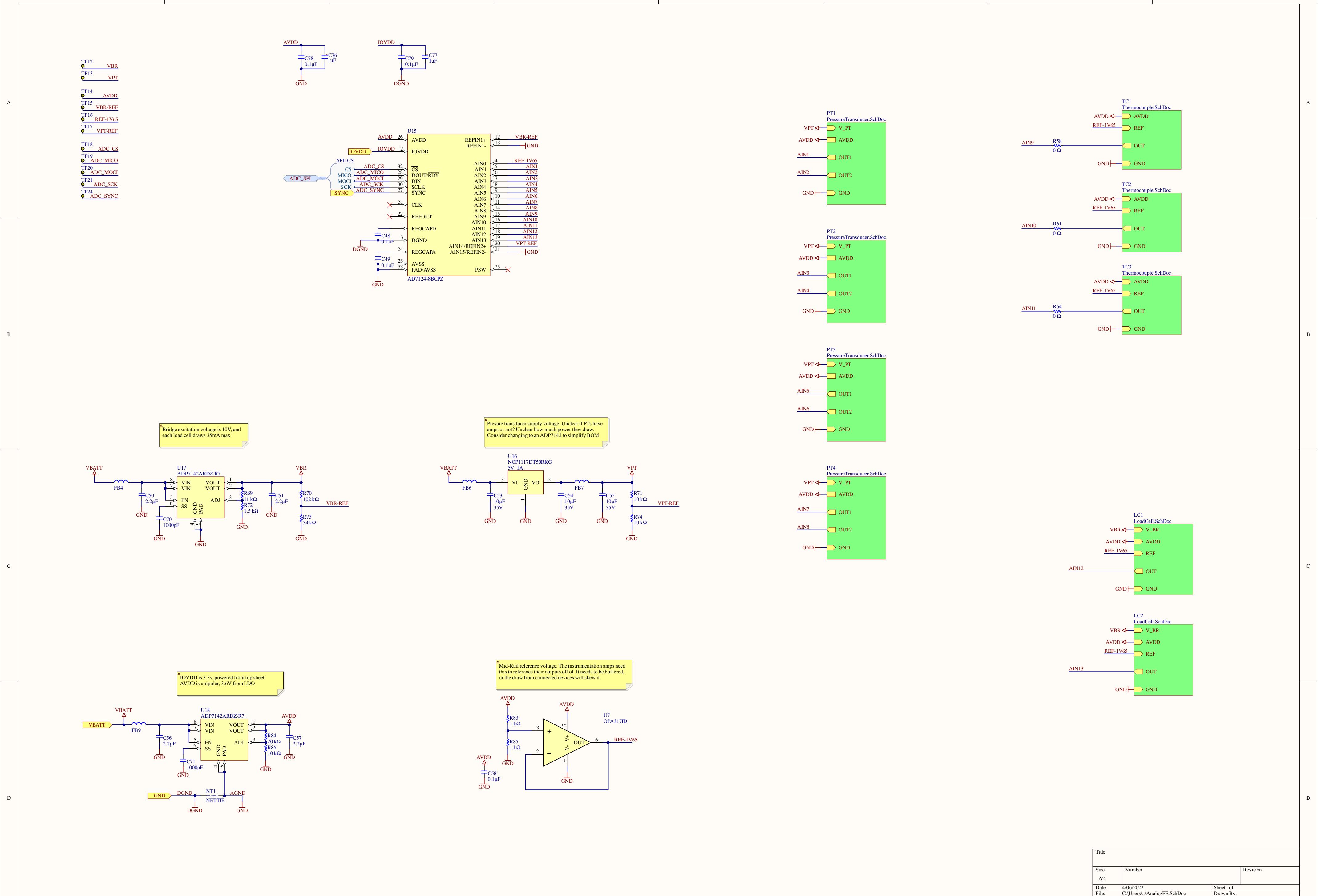
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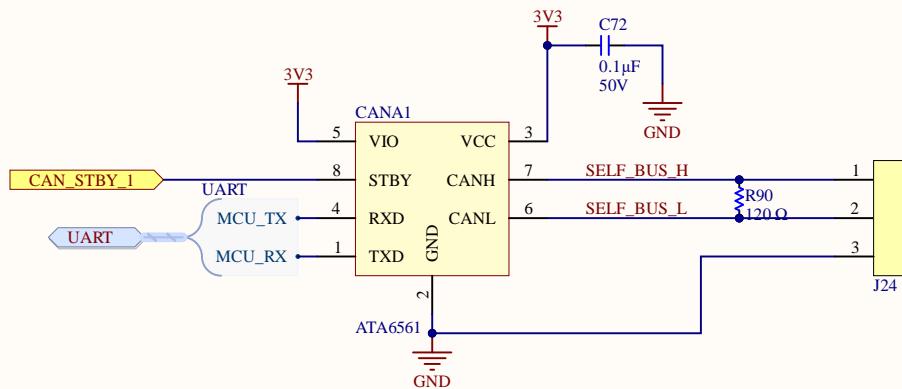
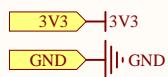
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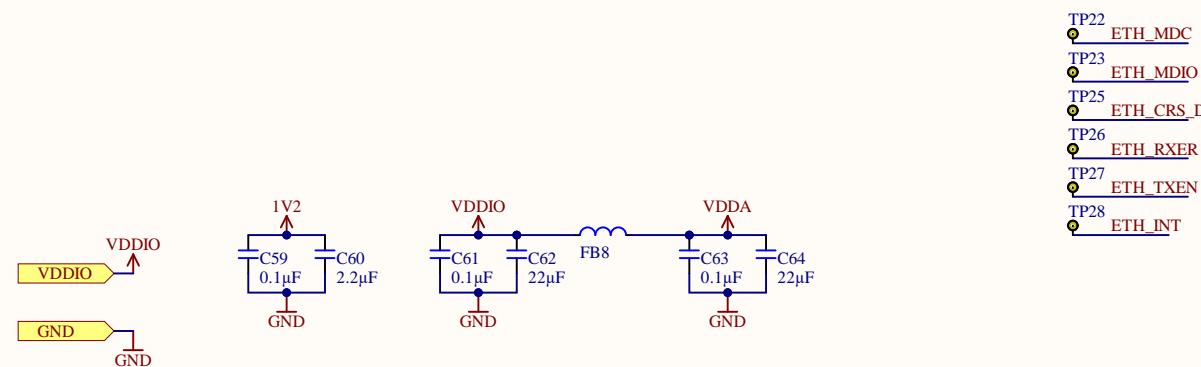
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D

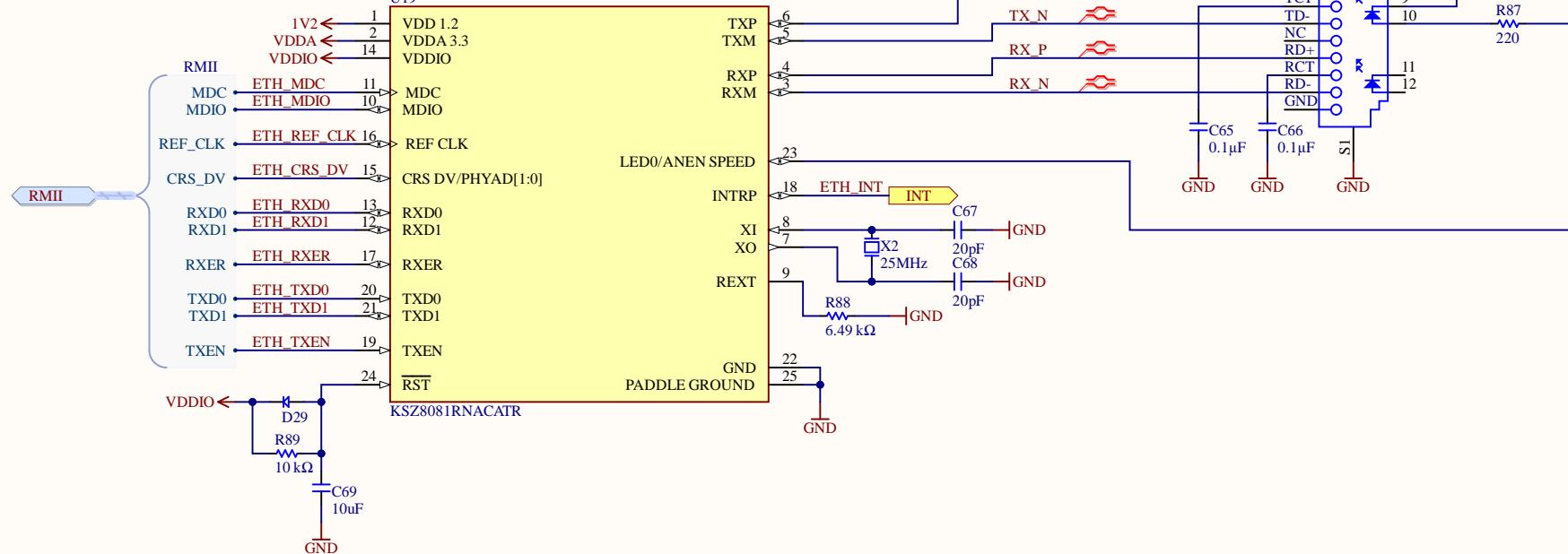
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TP22 ETH\_MDC  
TP23 ETH\_MDIO  
TP25 ETH\_CRS\_DV  
TP26 ETH\_RXER  
TP27 ETH\_TXEN  
TP28 ETH\_INT

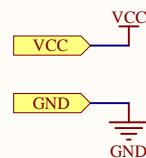
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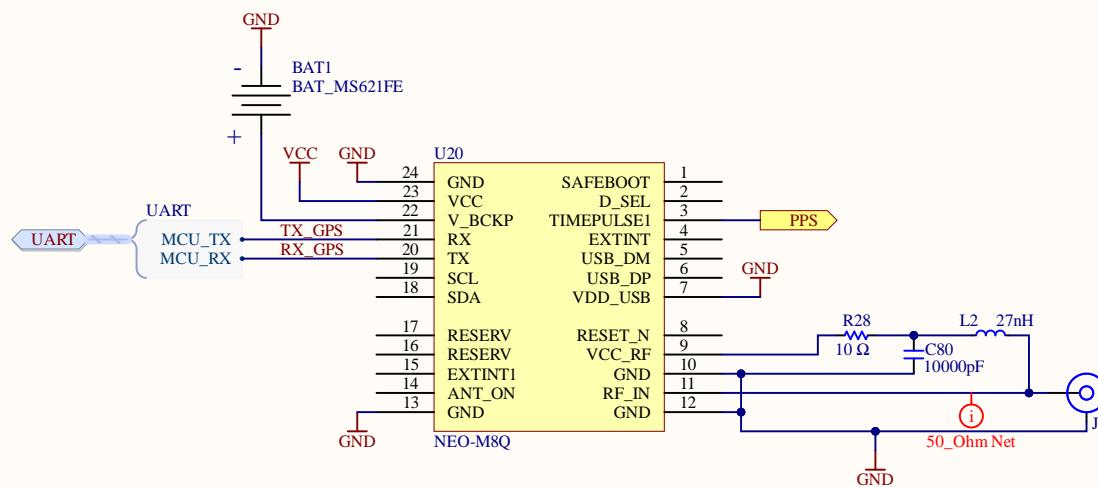
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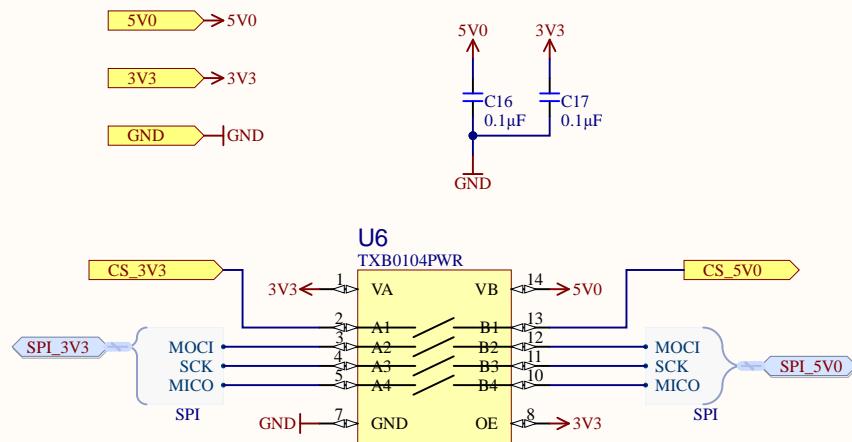
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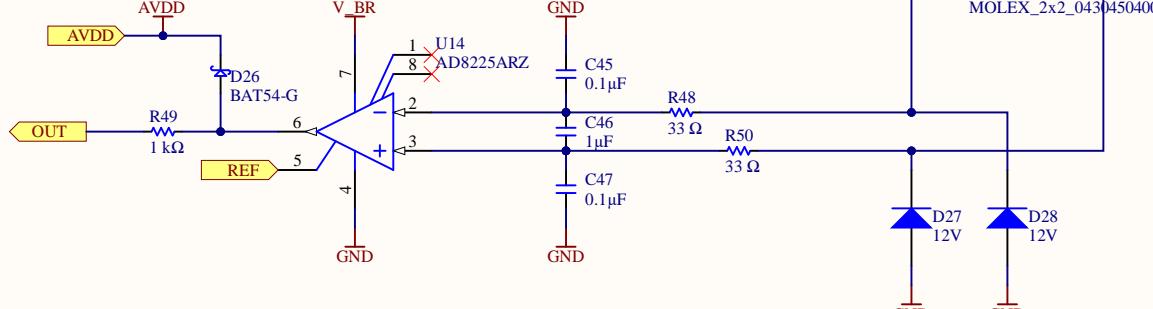
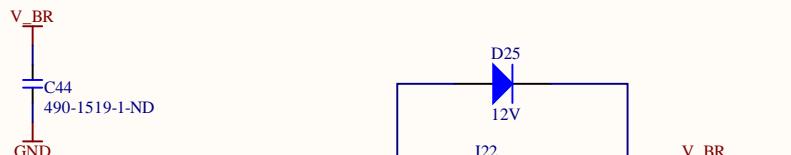
# Level Shifters

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



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	ENGINEER	
	REVIEWER	
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Sheet n of m	REVIEWED ON	

Designed to prevent ADC overvoltage. The diode will clip at AVDD+Vf, which is worst case 450mV. The resistor limits the ADC to 4mA, which shouldn't cause damage.



These TVS diodes prevent transients above 12V from getting to the amp or power rail. However, they'll only survive high current for a short time.

This filter based on:  
<https://electronics.stackexchange.com/questions/177575/capacitor-selection-for-filtering-of-low-level-signal>  
 - Series resistance less than 10% of 350Ω 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

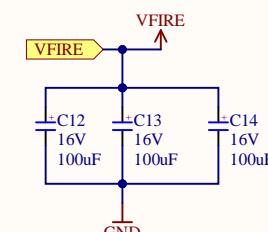
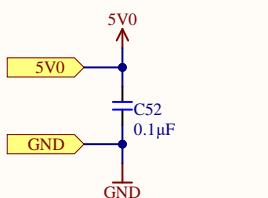
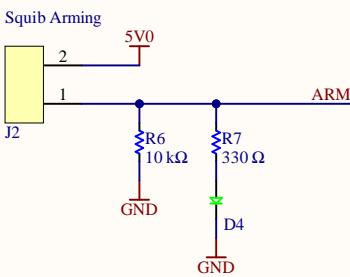
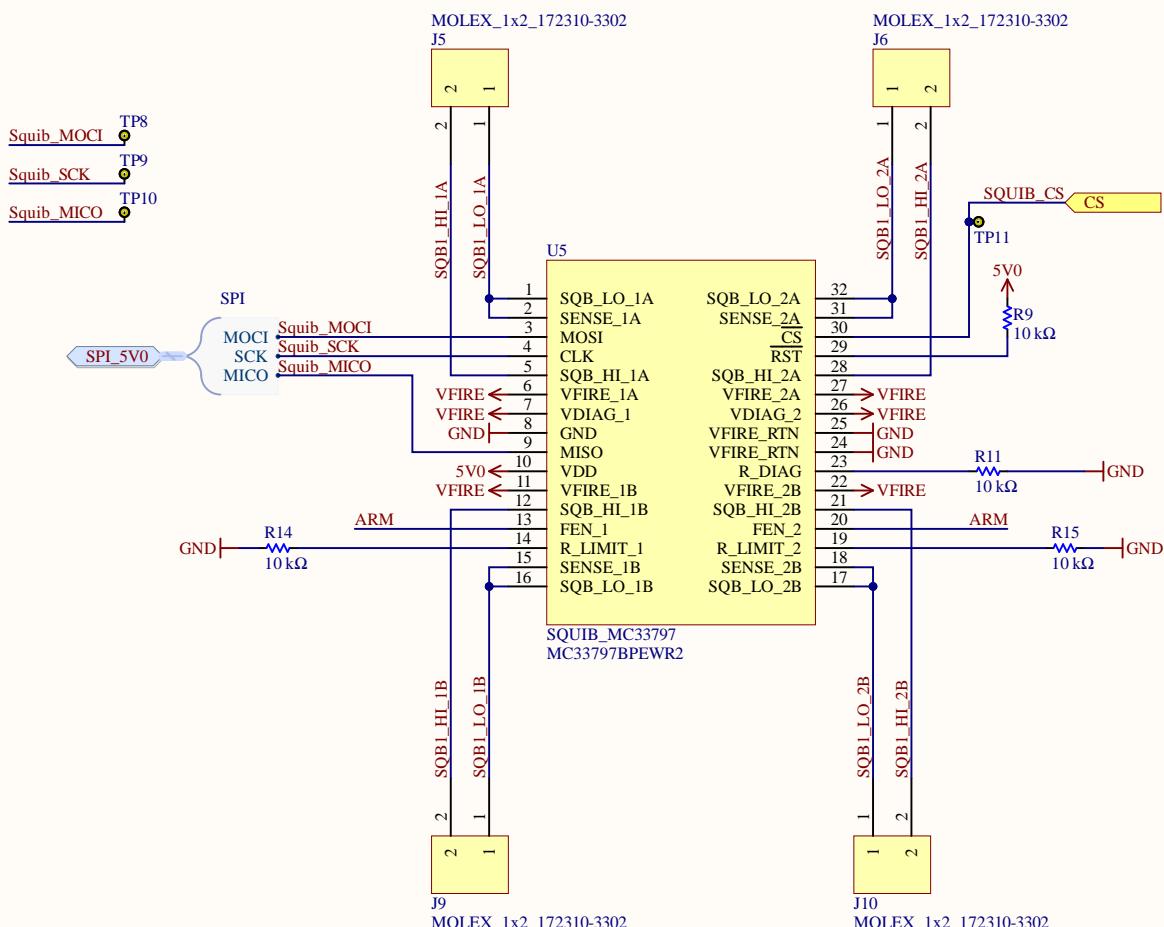
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# Squib Drivers

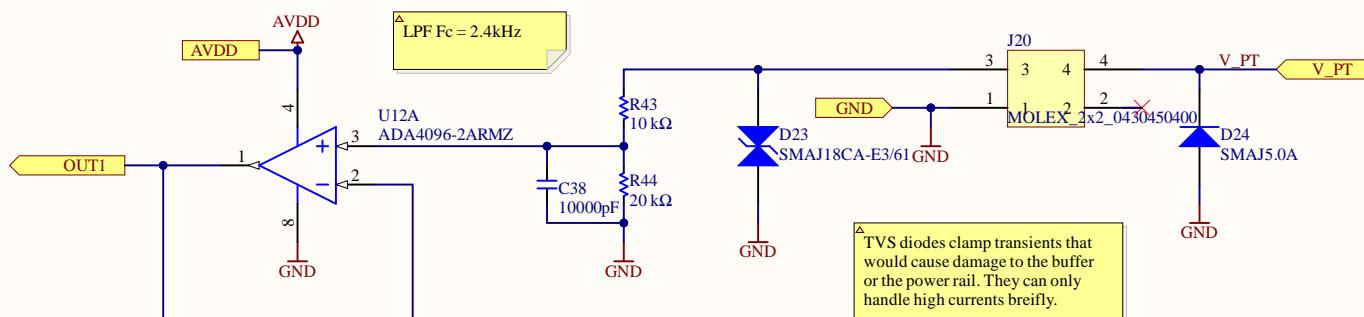
Pin 2 is Lo and Pin 1 is High on all connectors

R Limit Calc: Ematch R=20hm, wire is around 2-5ohm depending on length.  
Recomended current is around 1 A  
RSet = 10k sets limit to 1.4A

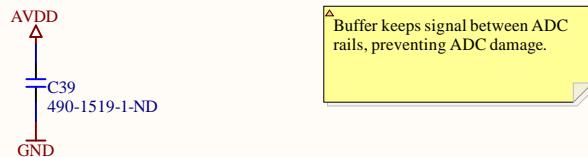


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	SHEET	Squibs
	ENGINEER	Tim Vrakas
	ENGINEER	
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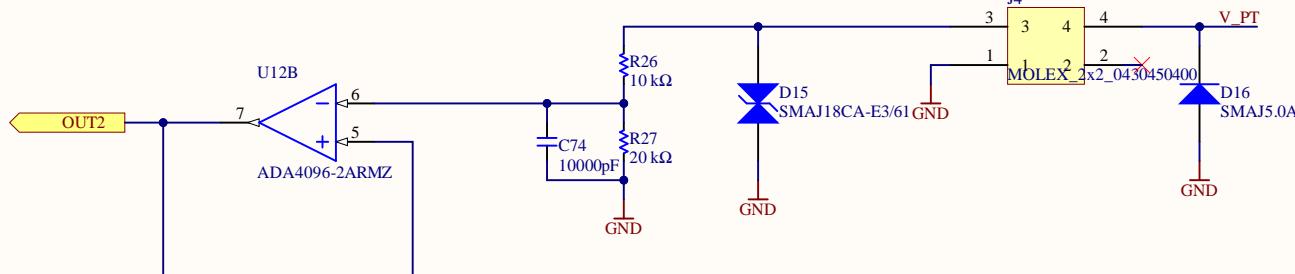
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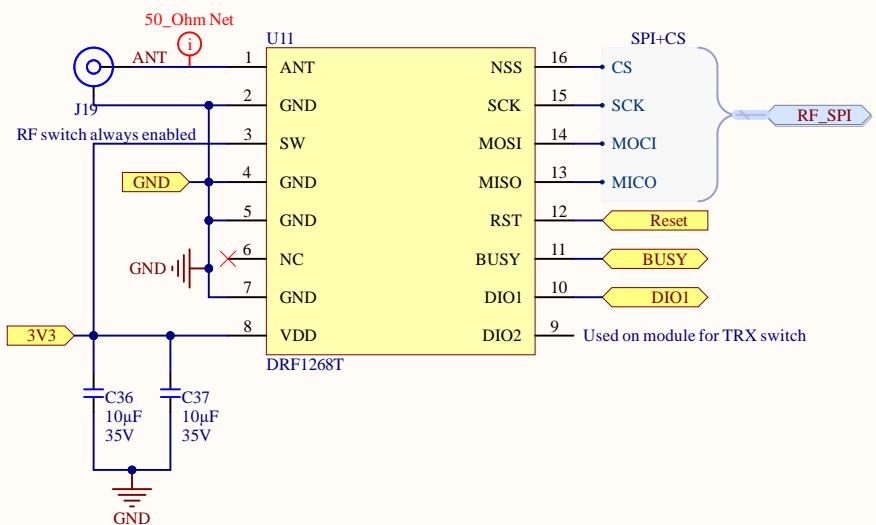
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# Radio Module

**TODO**

Swap Out with DRF Module

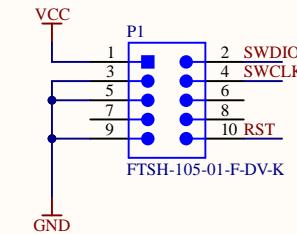
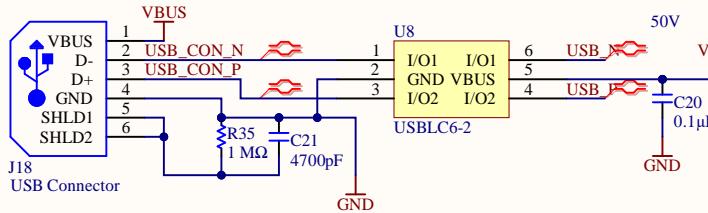
Radio for wireless communications  
Dorji DRF1268T being used  
Mainly on Tims Recomendation



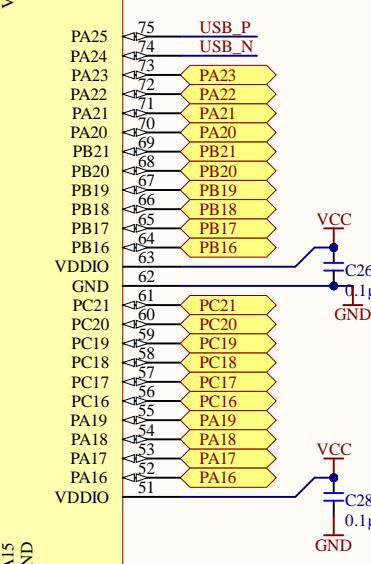
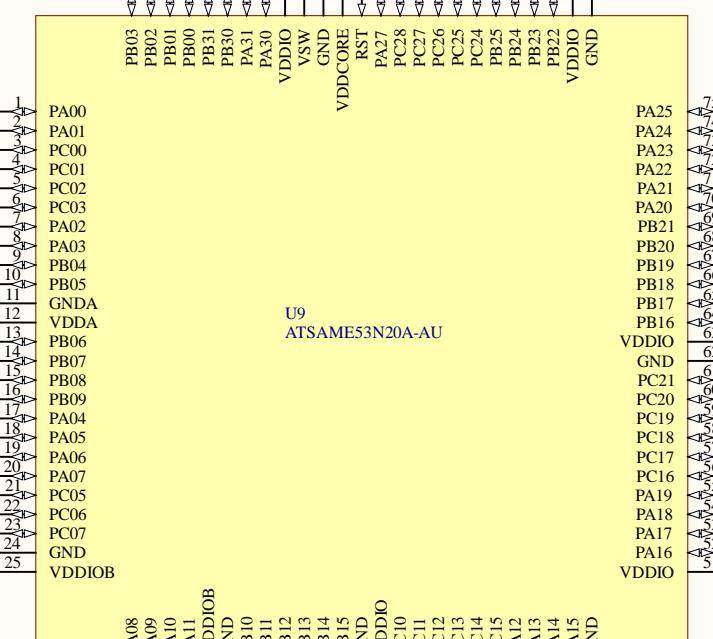
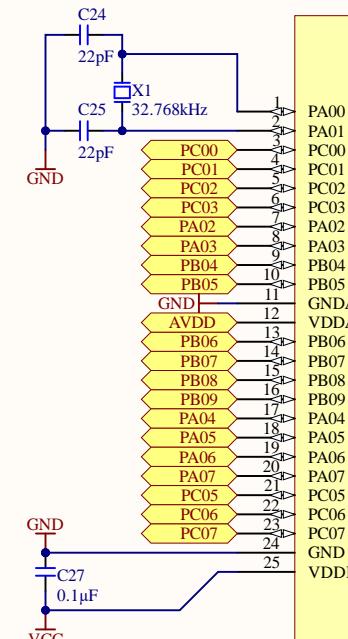
▲ (G)FSK/4(G)FSK/LoRa Modulation  
433Mhz transceiver  
Max.22dBm output power  
-147dBm sensitivity  
Standard SPI interface  
Low RX current: 5.7 mA  
Automatic RF sense and CAD monitor  
Data Rate: <300 kbps  
Standby current: <1uA  
Supply voltage: 3.3V

 <b>STANFORD STUDENT SPACE INITIATIVE</b> <a href="http://ssi.stanford.edu">ssi.stanford.edu</a>	PROJECT	Quail
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	ENGINEER	Tim Vrakas
	ENGINEER	
Powered By <b>Altium</b>	REVISION	3.0
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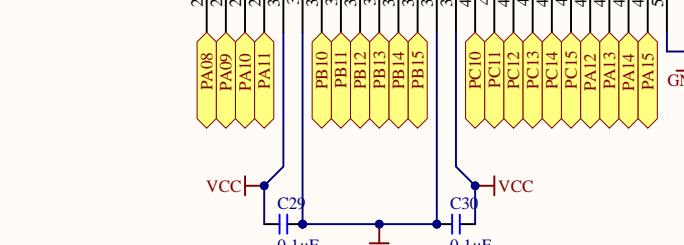
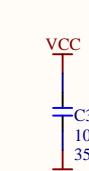
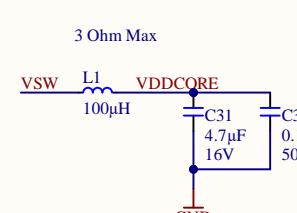
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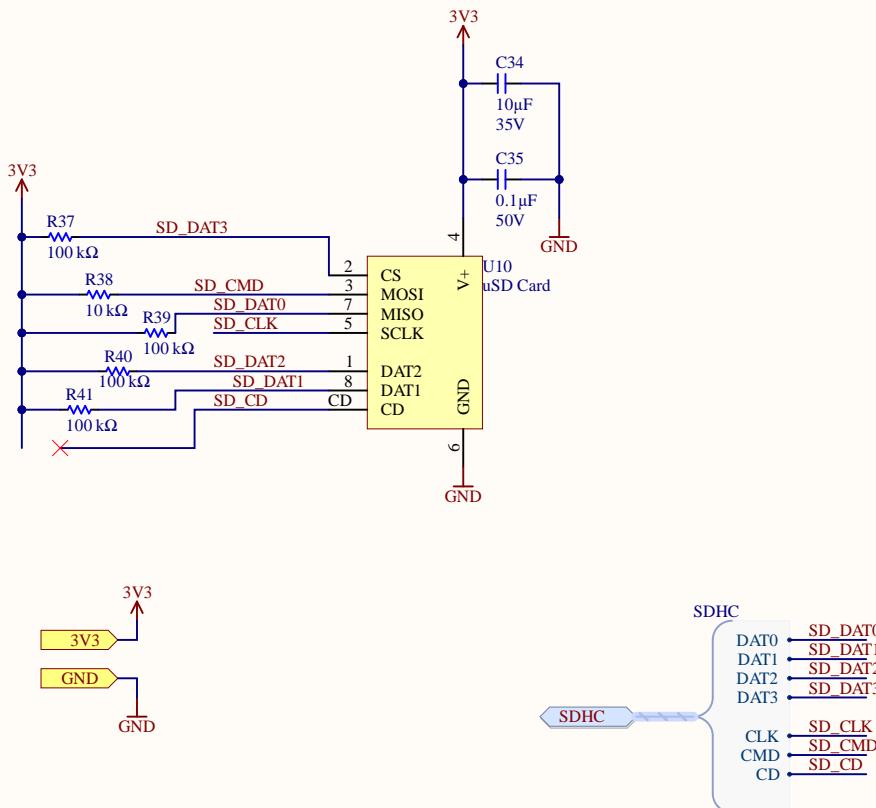
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**Altium**

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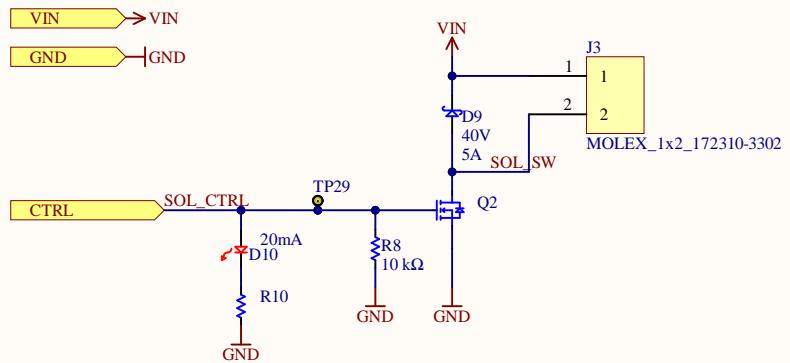
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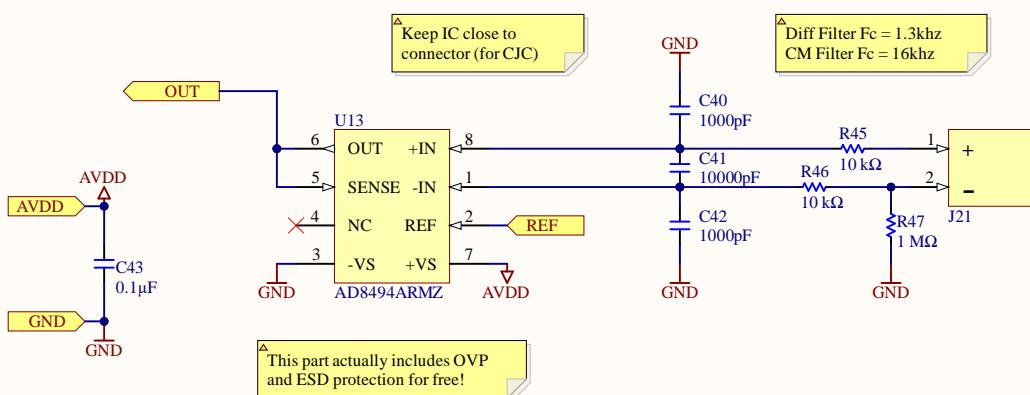
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