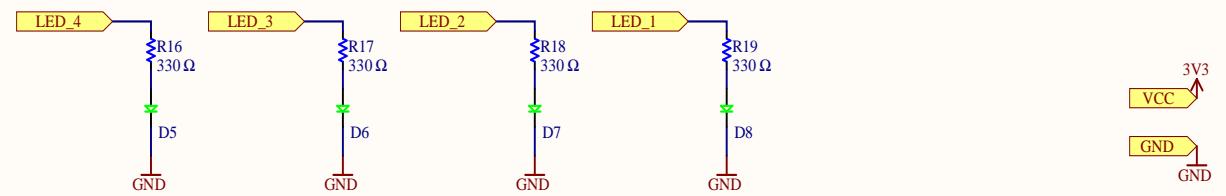


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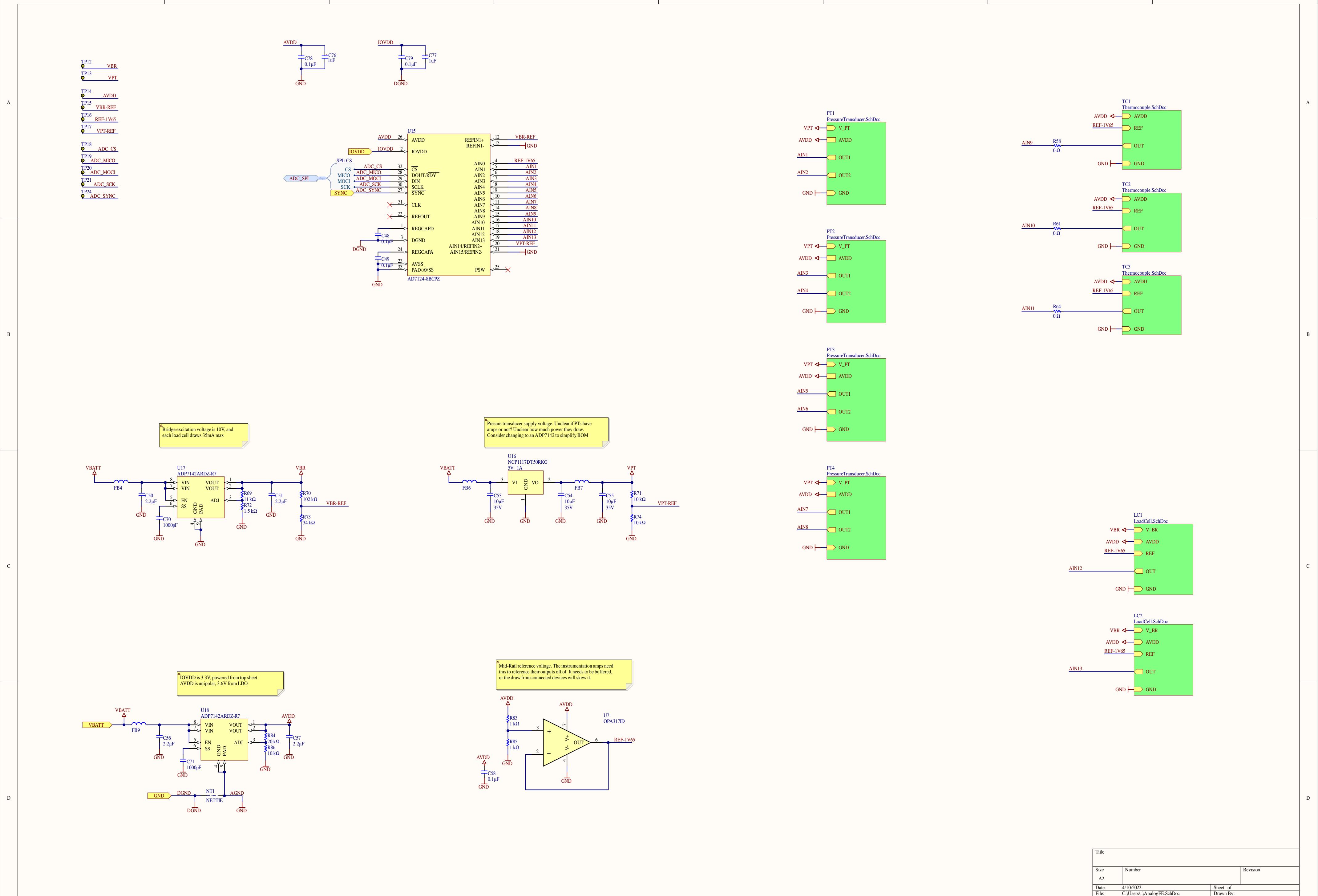
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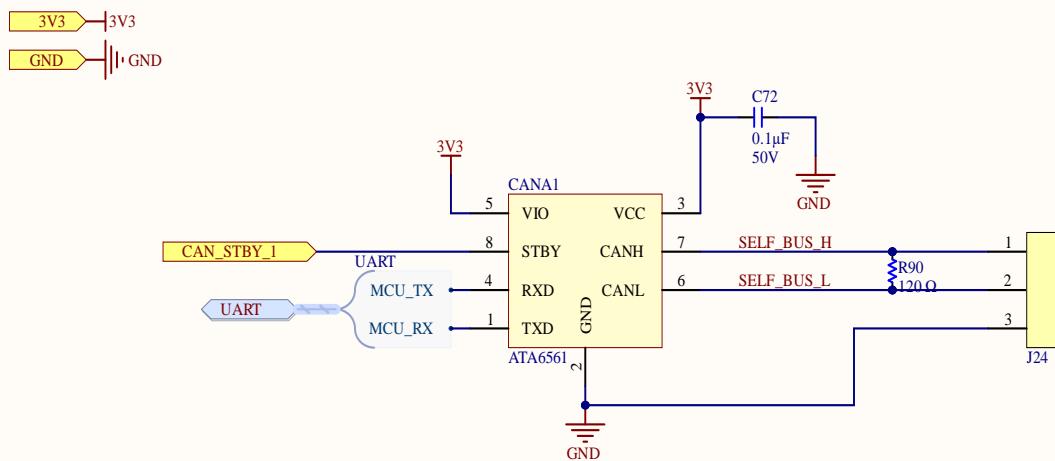
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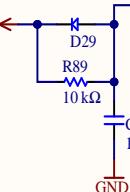
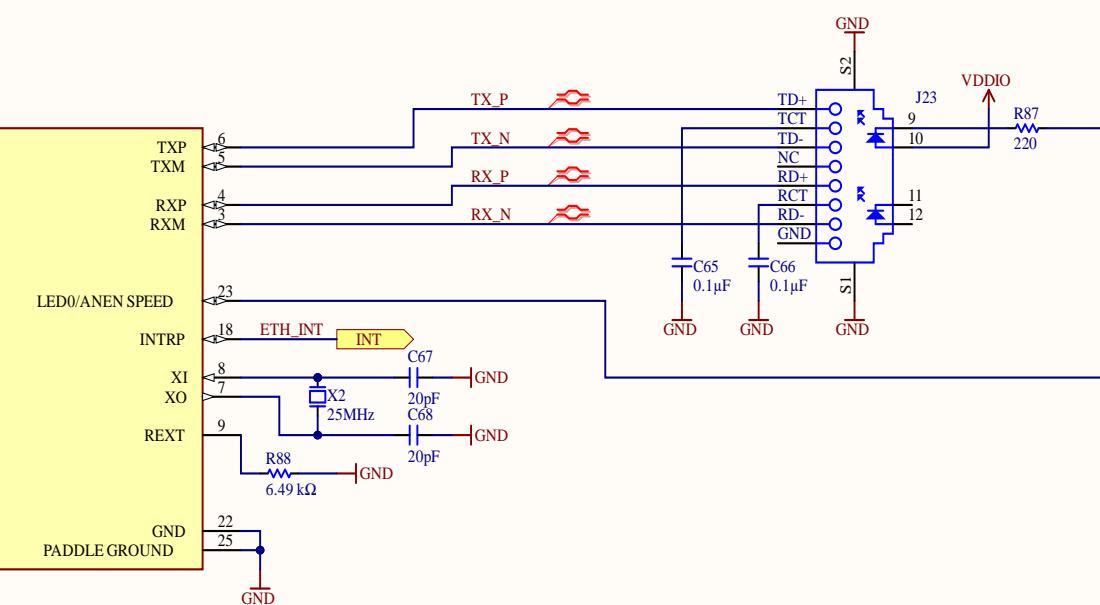
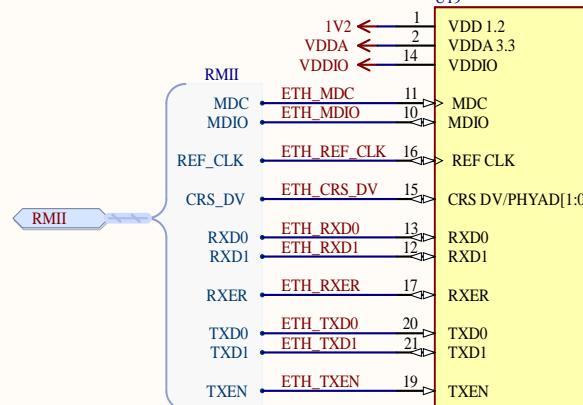
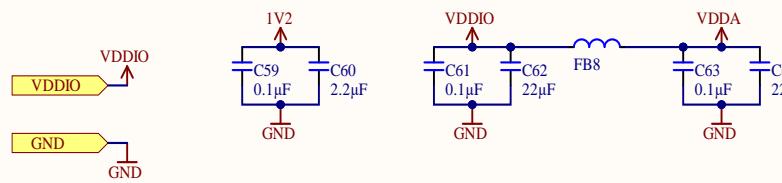
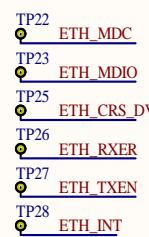
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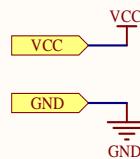
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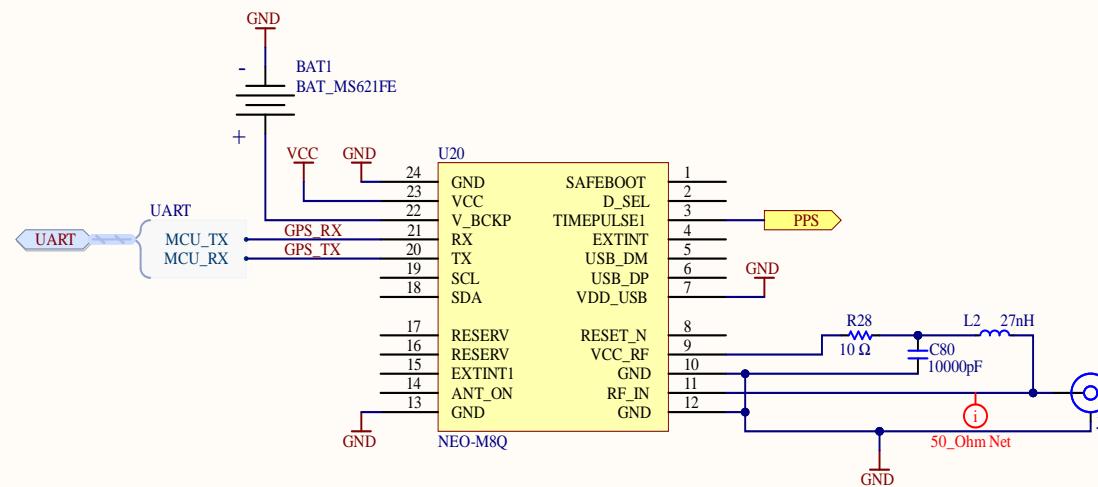


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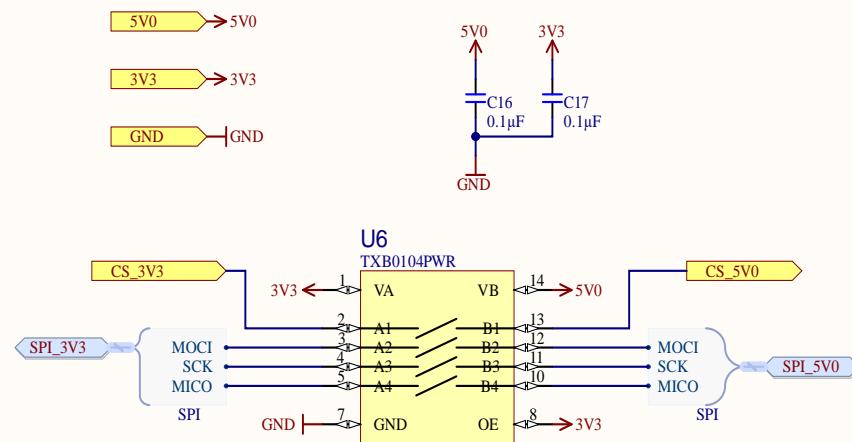
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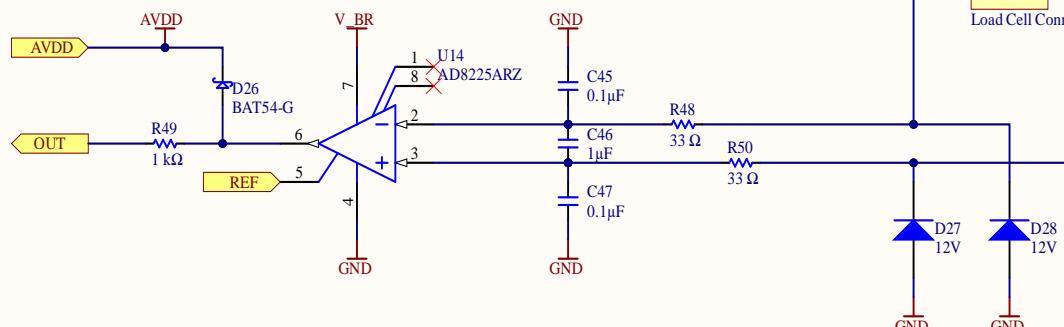
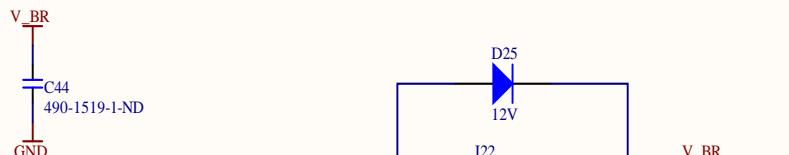
Level Shifters

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



 STANFORD STUDENT SPACE INITIATIVE <small>ssi.stanford.edu</small>	PROJECT	Quail
	SHEET	Misc
	ENGINEER	Tim Vrakas
	ENGINEER	
	REVISION	3.0
Powered By Altium	REVIEWER	
Sheet n of m	REVIEWED ON	

Designed to prevent ADC overvoltage. The diode will cap 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

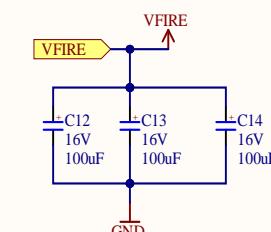
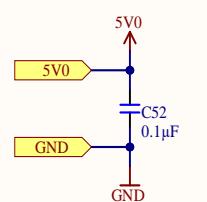
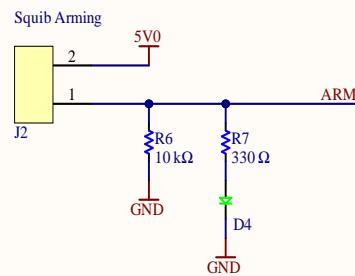
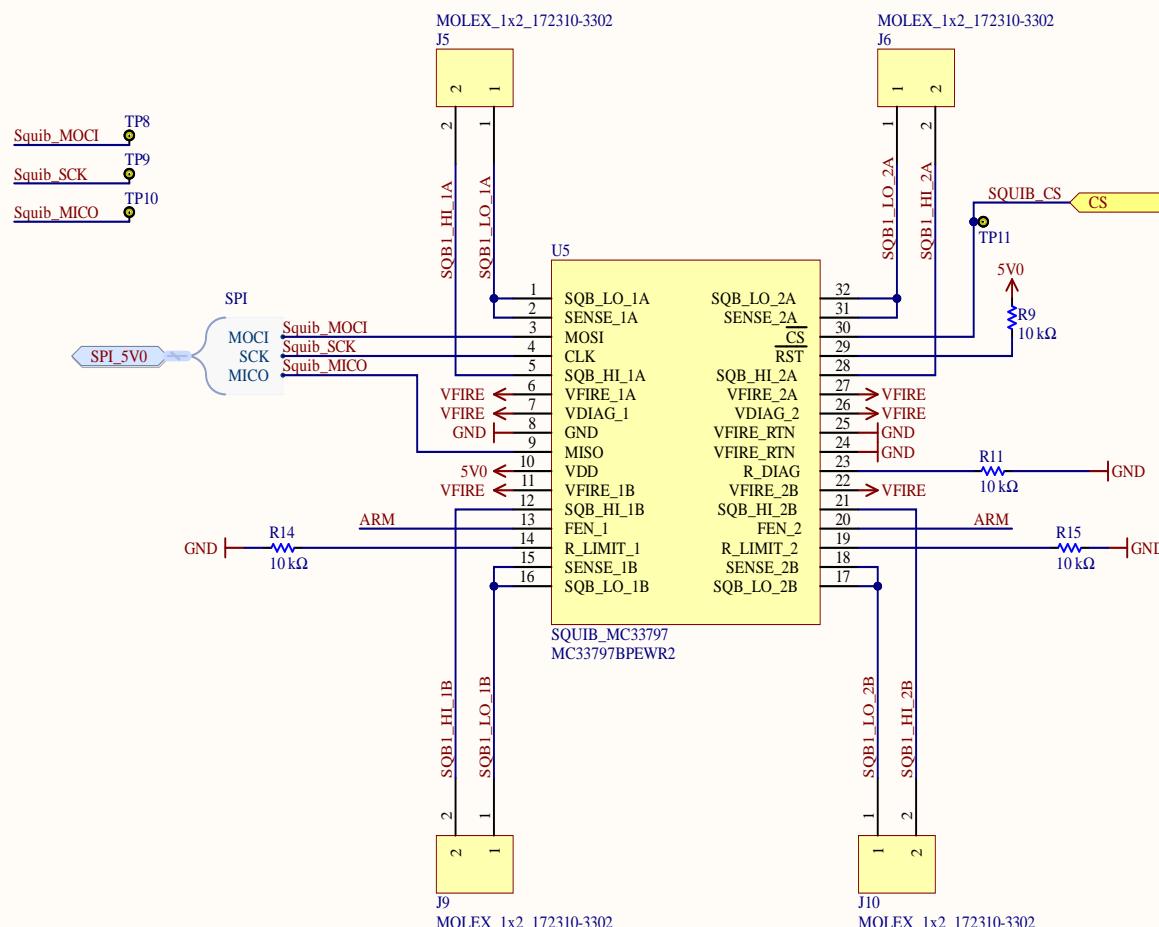
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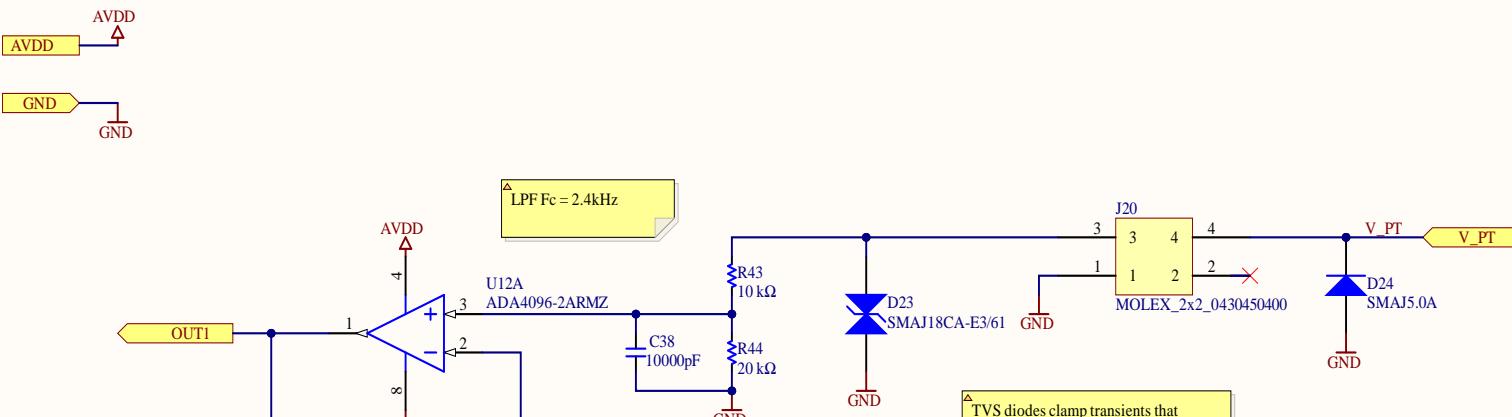
Squib Drivers

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

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



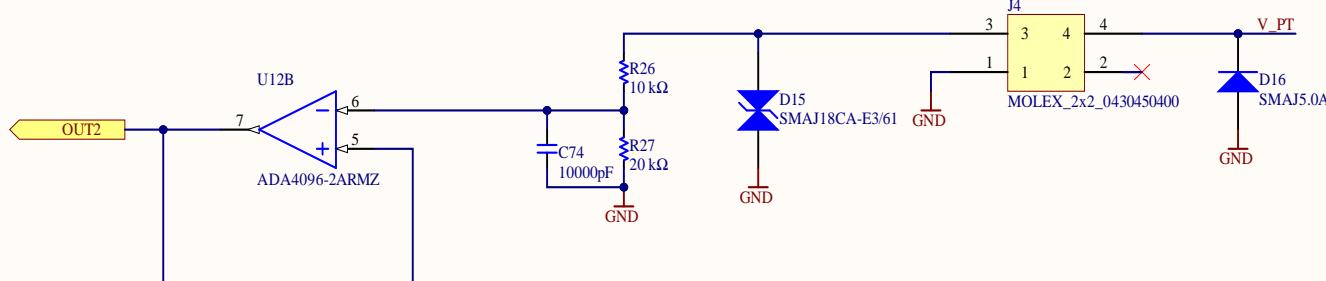
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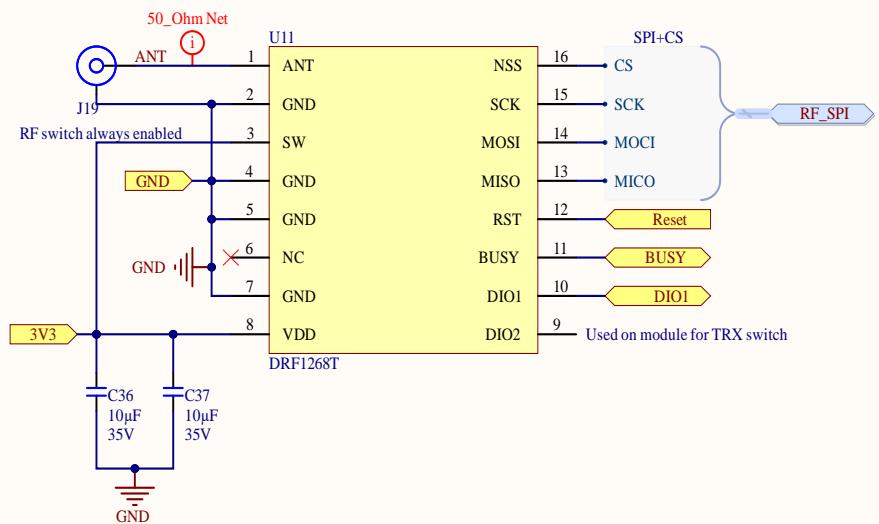
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Radio Module

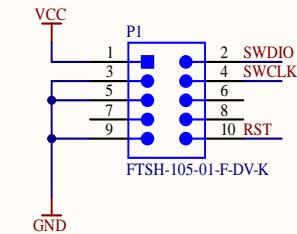
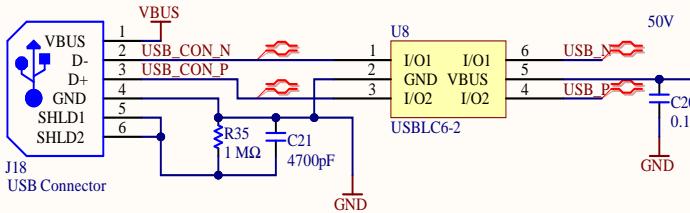
Radio for wireless communications
Dorji DRF1268T being used



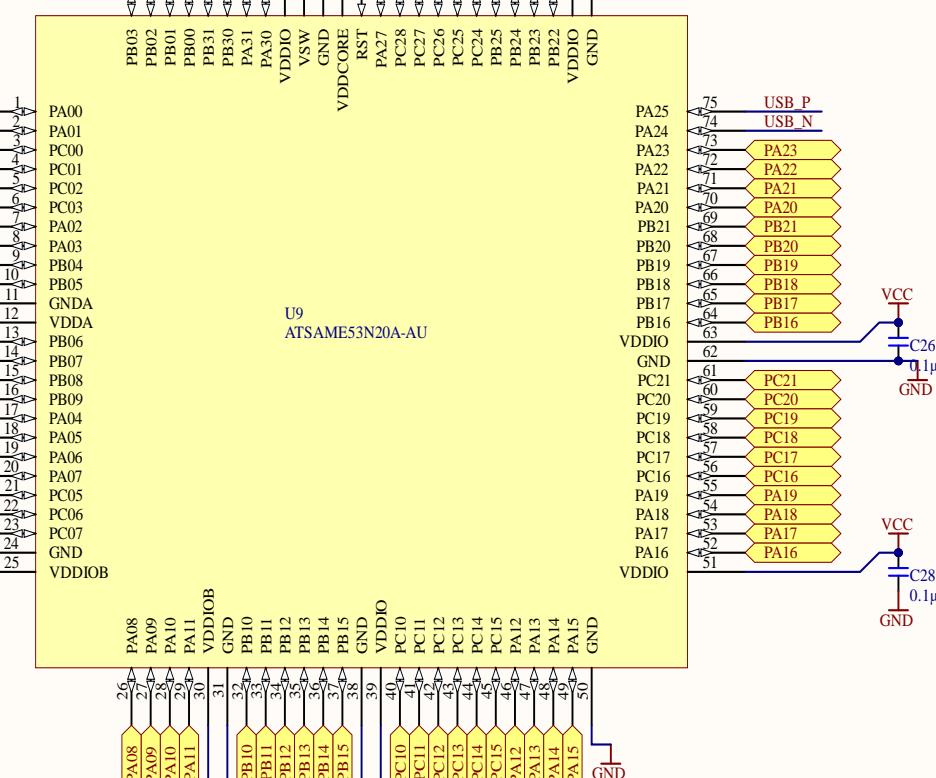
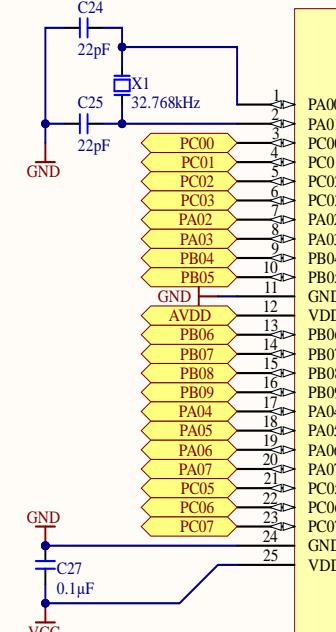
(G)FSK/4(G)FSK/LoRa Modulation
433MHz transceiver
Max.22dBm output power
-147dBm sensitivity
Standard SPI interface
Low RX current: 5.7 mA
Automatic RF sense and CAD monitor
Data Rate: <300 kbps
Standby current: <1uA
Supply voltage: 3.3V



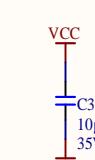
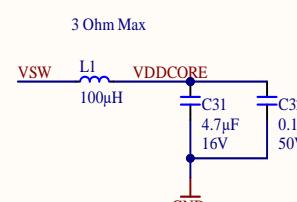
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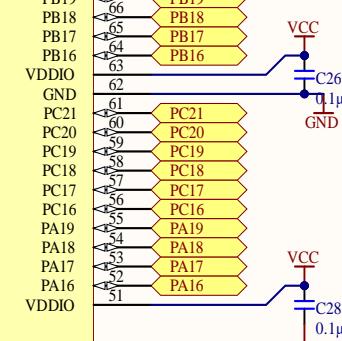
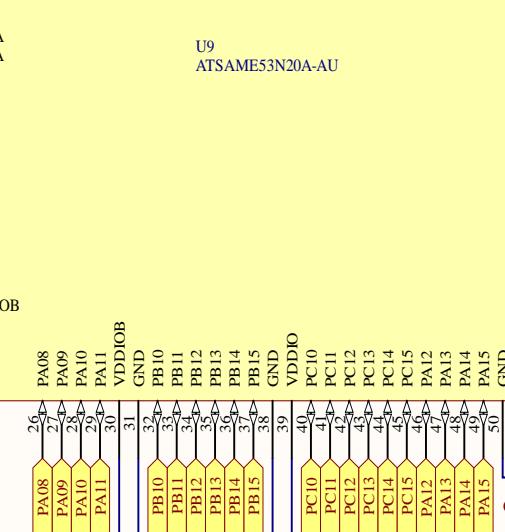
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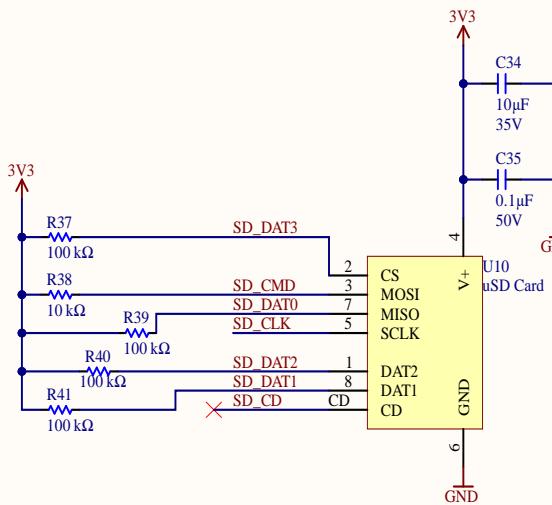
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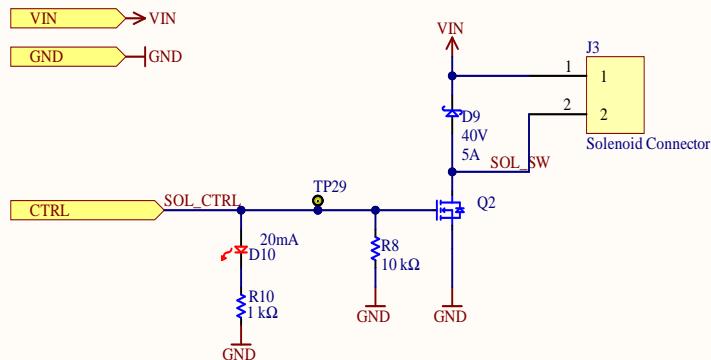
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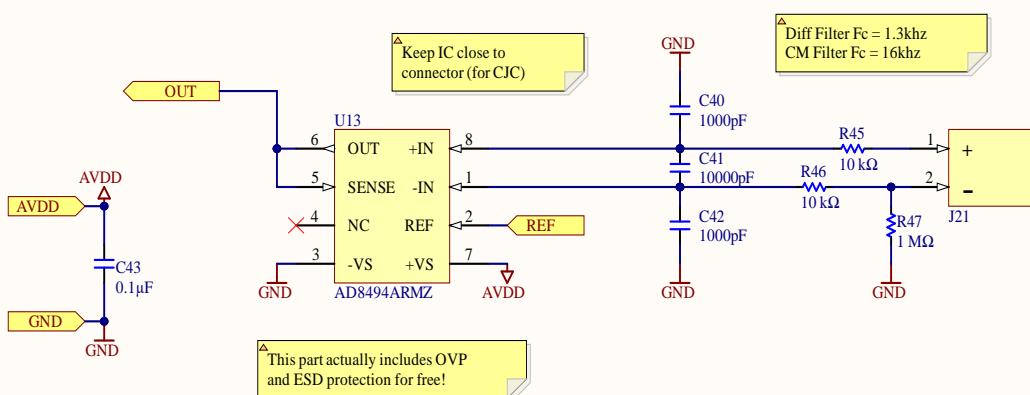
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