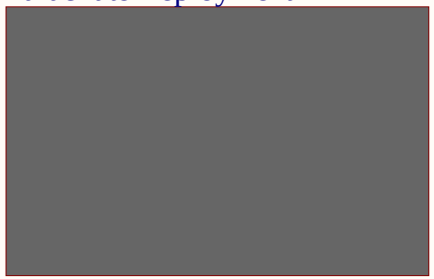
Power and Connectors

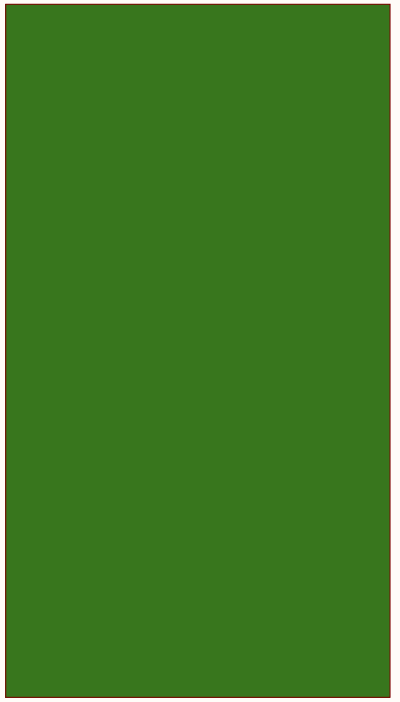
Parachute Deployment



Sensors

Comms

MCU



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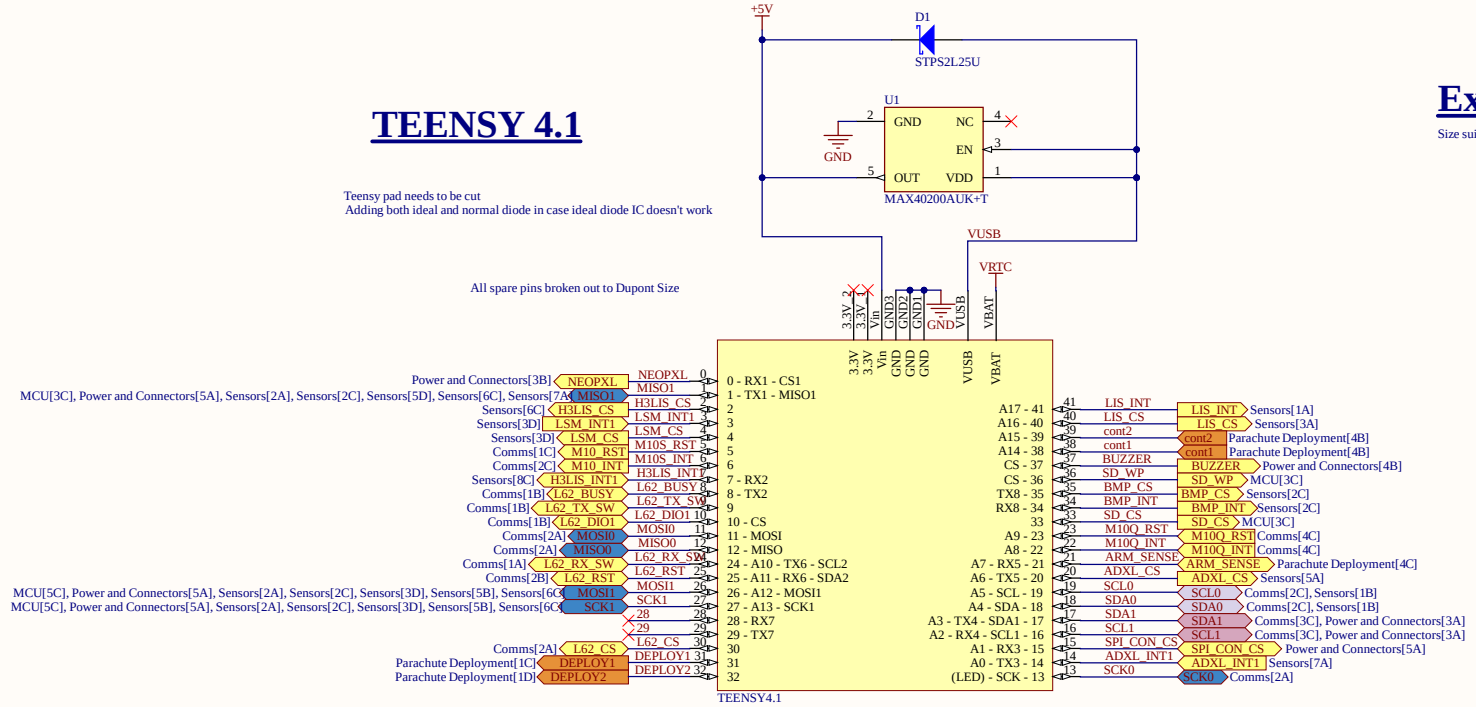
File: C:\Users\tomto\Desktop\Engineering\Altium Designer\MRAS-KAlpha\Overview.SchDoc			

TEENSY 4.1

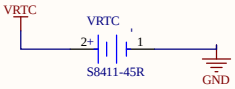
Teensy pad needs to be cut
Adding both ideal and normal diode in case ideal diode IC doesn't work

All spare pins broken out to Dupont Size

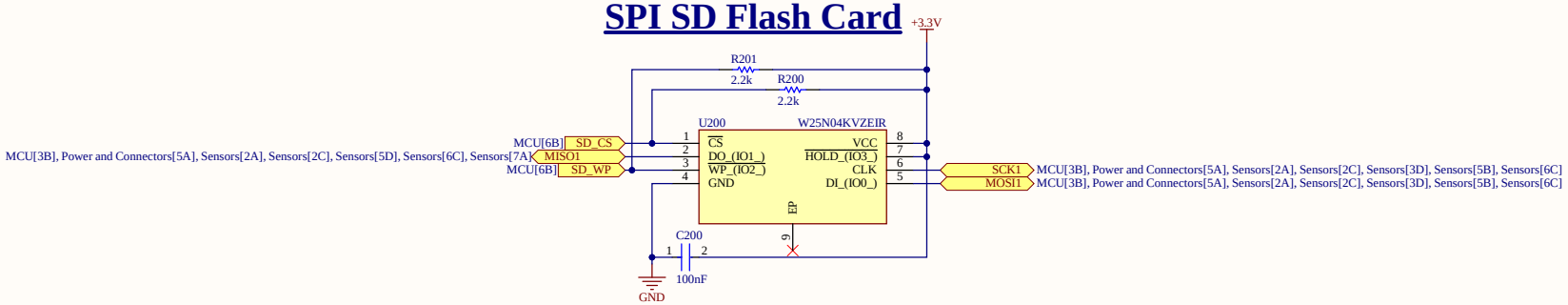


External RTC Power

Size suitable for 12mm coin cells



SPI SD Flash Card



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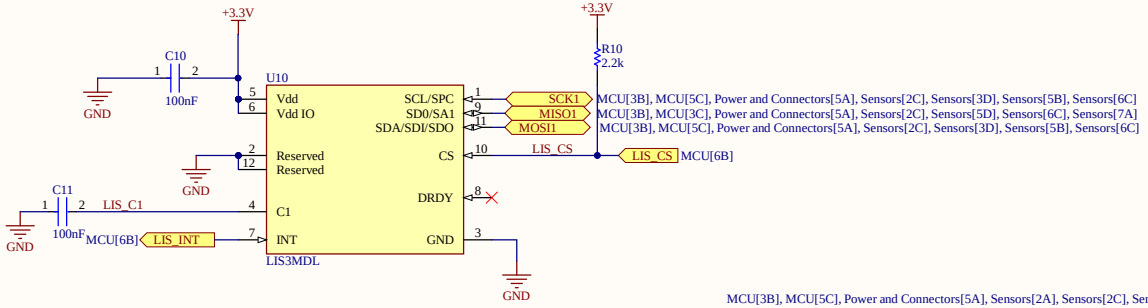
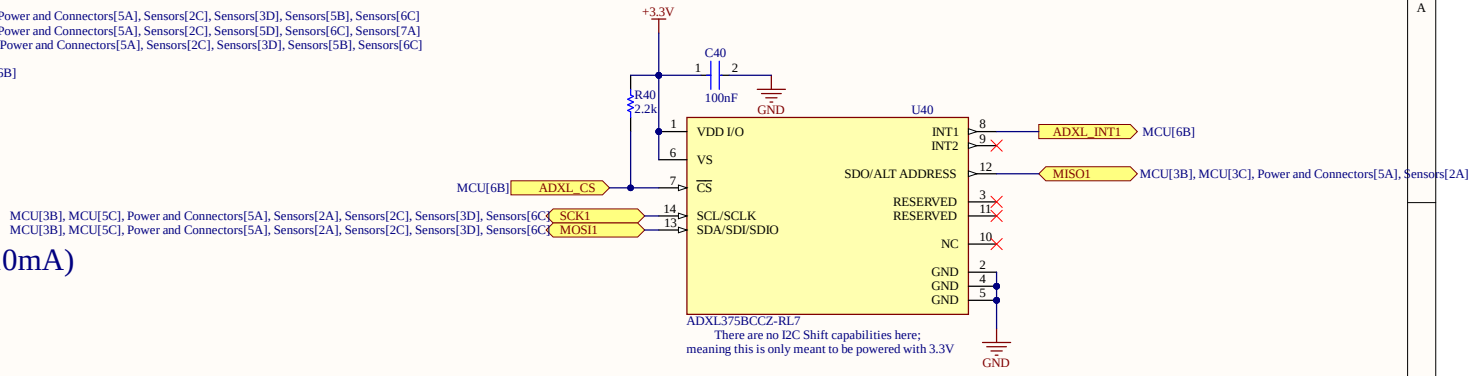
File: C:\Users\tomto\Desktop\Engineering\Altium Designer\MRAS-KAlpha\MCU.SchDoc			

LIS3MDL Magnetometer

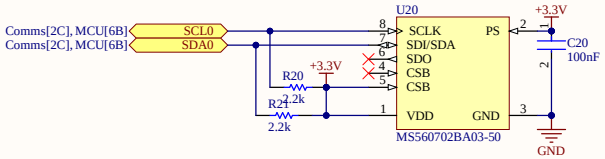


ADXL375 Accelerometer



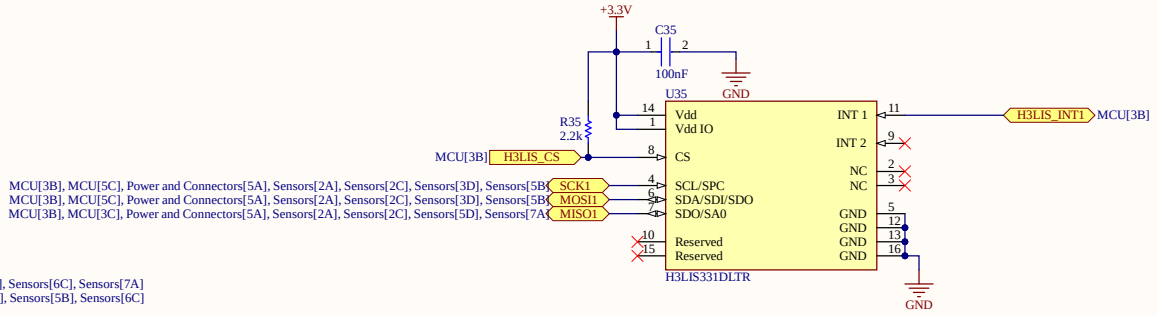
Magnetometer must be kept away from high currents (>10mA)

MS5607 Altimeter

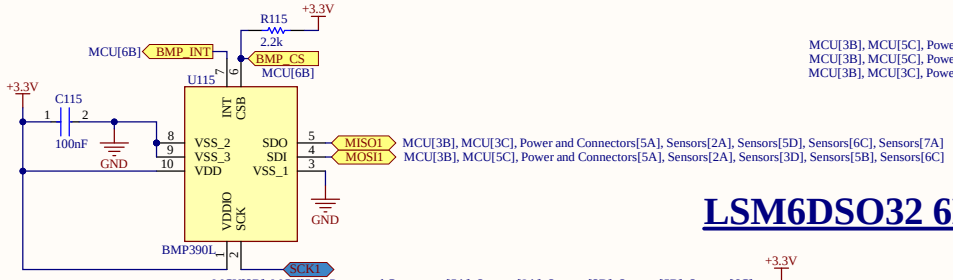


Read up on CSB pin protocol; for software

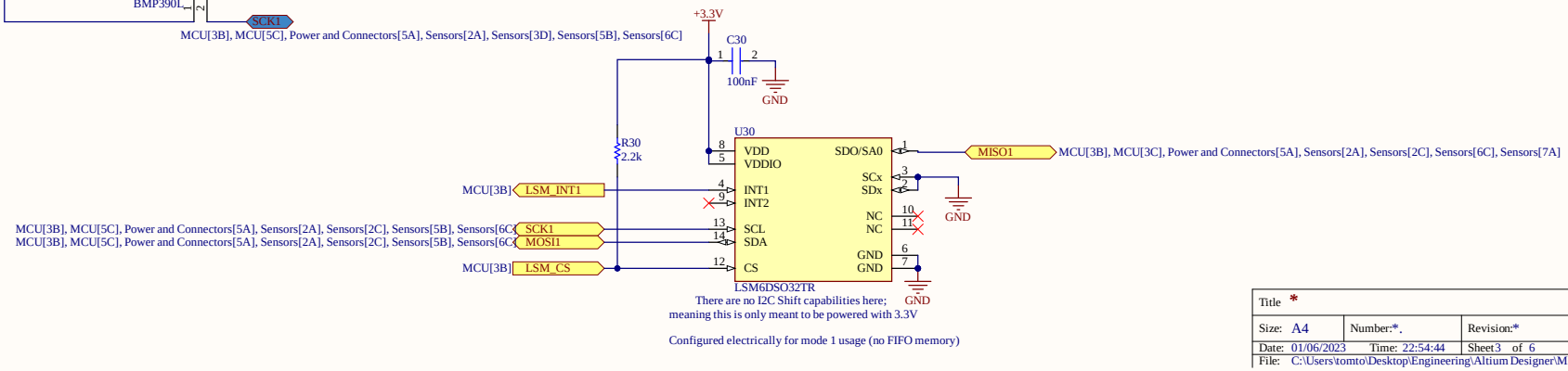
H3LIS331 Accelerometer



BMP390L Pressure Sensor



LSM6DSO32 6DOF



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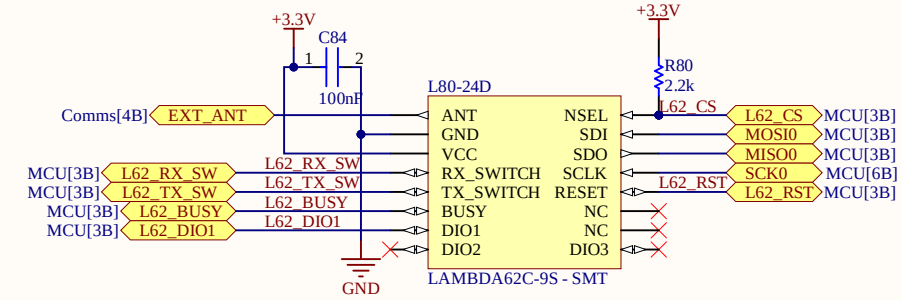
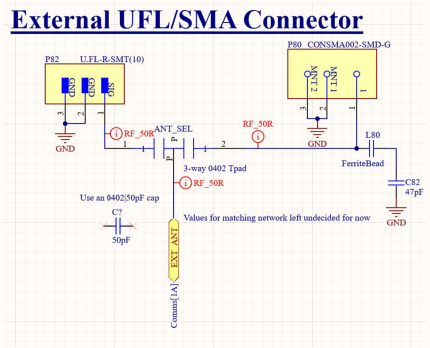
Net names are following old L62
L80 has identical footprint; so can't be assed to change

LAMBDA80-24D Tranceiver

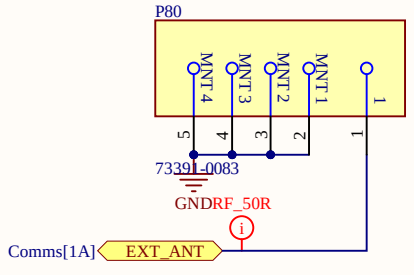


Antenna Selector (in future :(...)

External UFL/SMA Connector

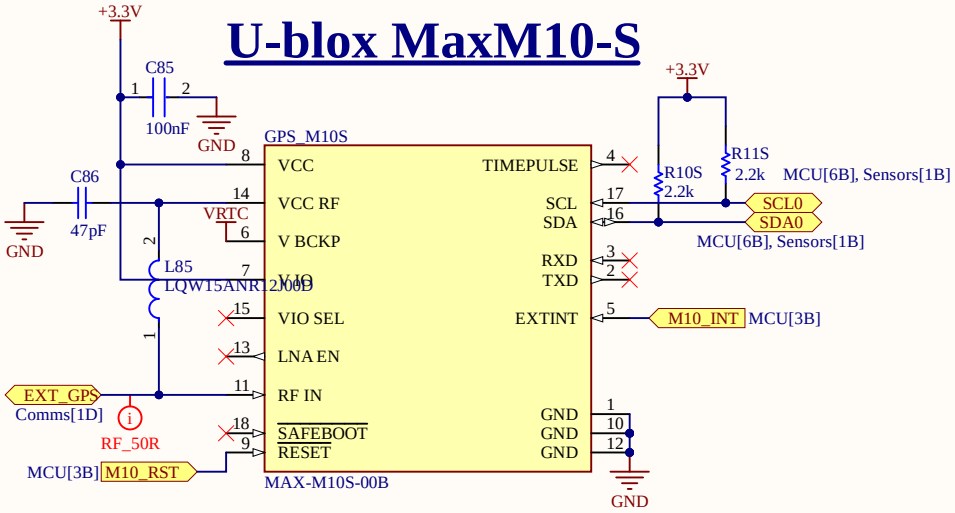


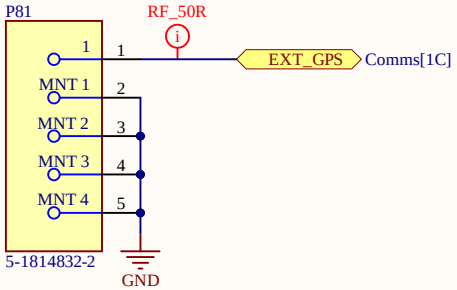
External SMA Connector

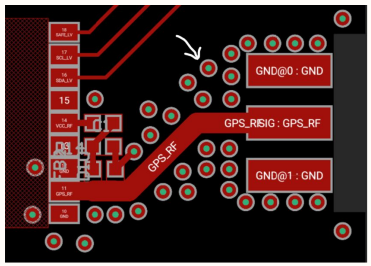


Values for matching/pi filter left undecided for now

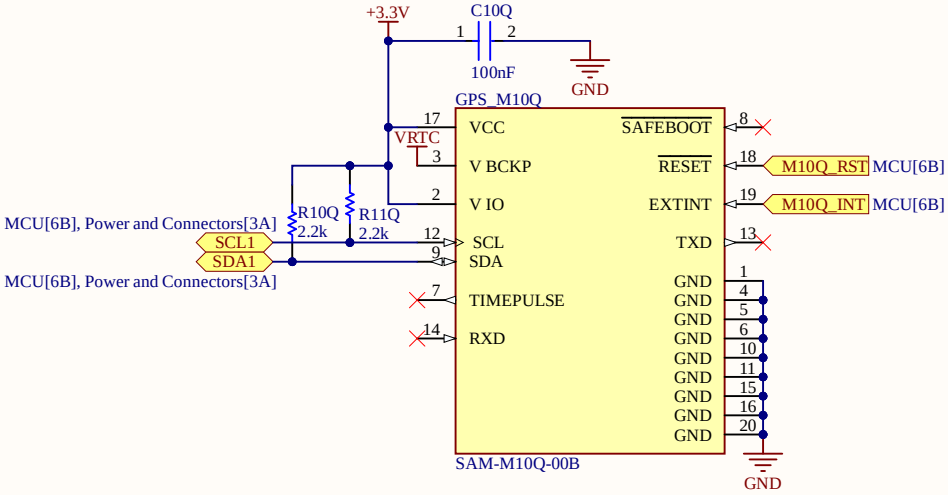
U-blox MaxM10-S







U-blox SAM-M10Q



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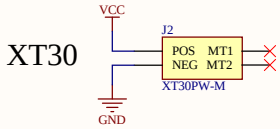
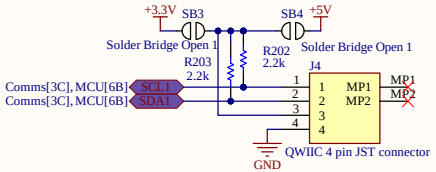
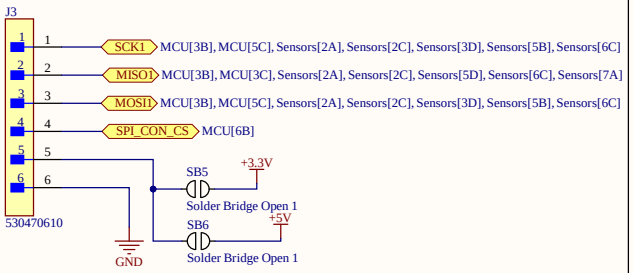
Battery connections



I2C Connectors



SPI Connectors

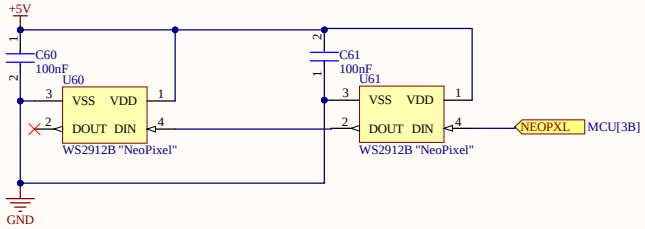


To-Do List

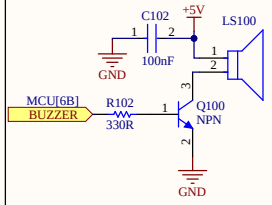
- External BMS breakout to be found
- External RF amp to be found

Power Requirements (GDrive)

NEOPIXEL Array



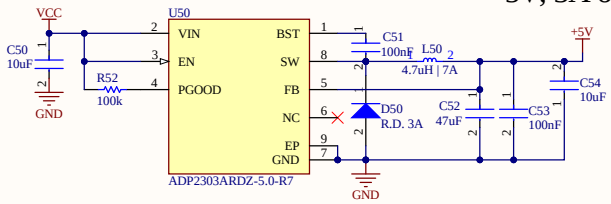
Buzzer



5V Buck Converter

*1S - 4S LiPo
4.9V - 16.8V IN

5V, 3A out



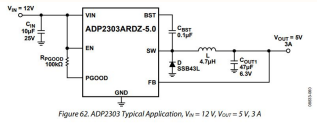
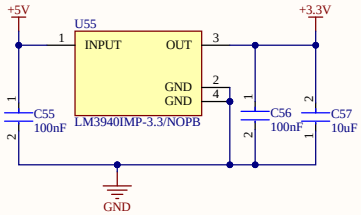


Figure 62. ADP2303 Typical Application, V_{IN} = 12 V, V_{OUT} = 5 V, 3 A

3.3V LDO Regulator

5V, ~ 500mA in 3.3V, 800mA out



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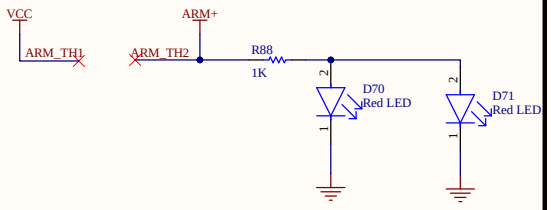
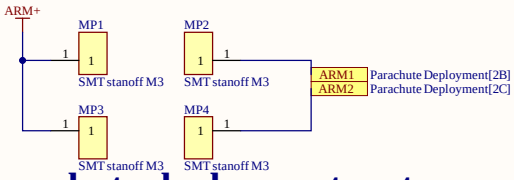
Switch for arming pyro channels



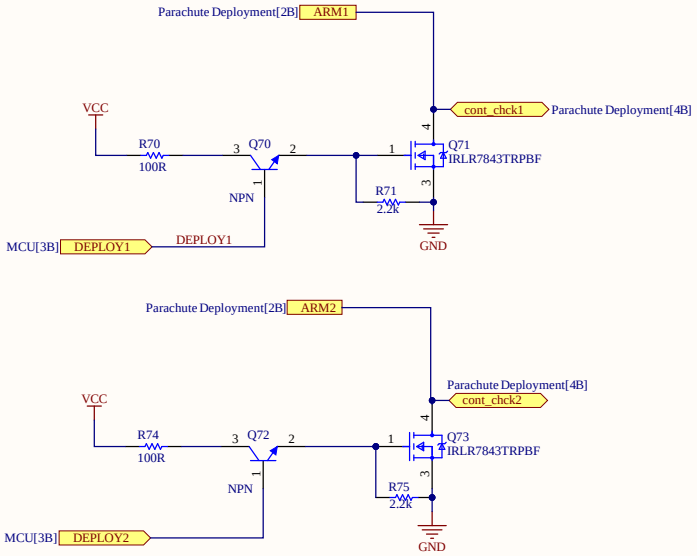
Barrier block terminals

Rated for 30A; 2A under theoretical calculations but can't find better that is appropriate for this usage

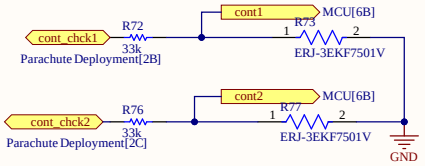


Parachute deployment system

2 Parachute Channels - each supporting 2 e-matches



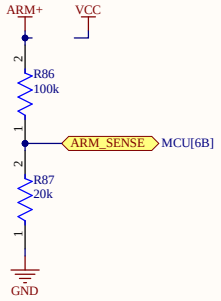
Continuity Checkers

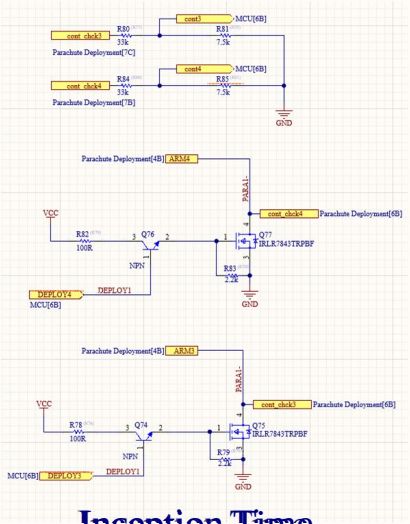


Maximum Input is 4S (16.8V)
Voltage should range from 0.81-3.11V depending on Lipo choice
Each checker draws max 0.1mA - max. total of 0.2mA

Voltage divider detector

Maximum input 16.8V (4S)
Voltage should range from 2.8V to 0V - resoloution of 3mV





Inception Time

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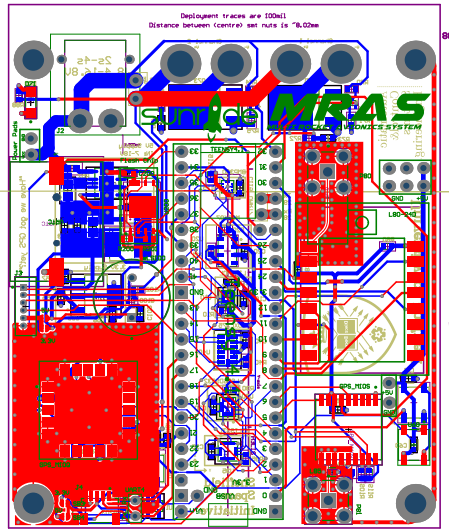

- 70mm x 80mm are finalised dimensions