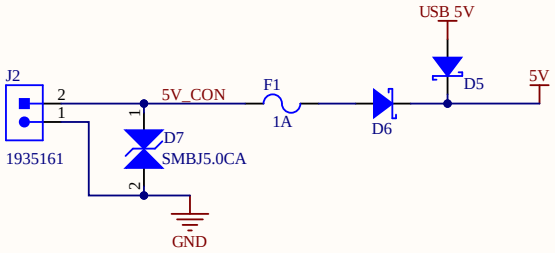
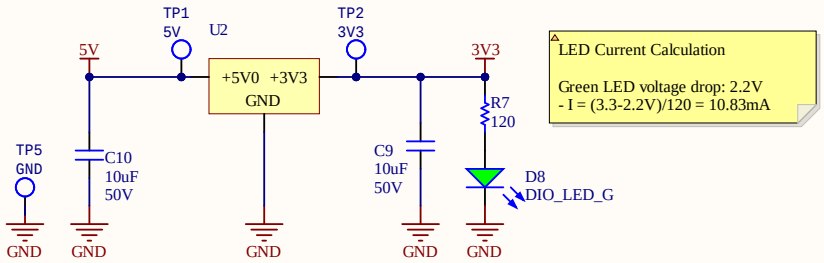
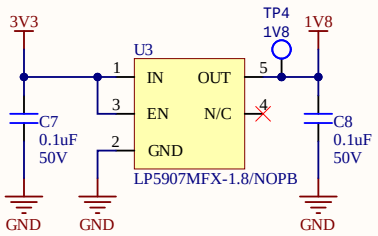
Power In



5V to 3.3V LDO



3.3V to 1.8V LDO



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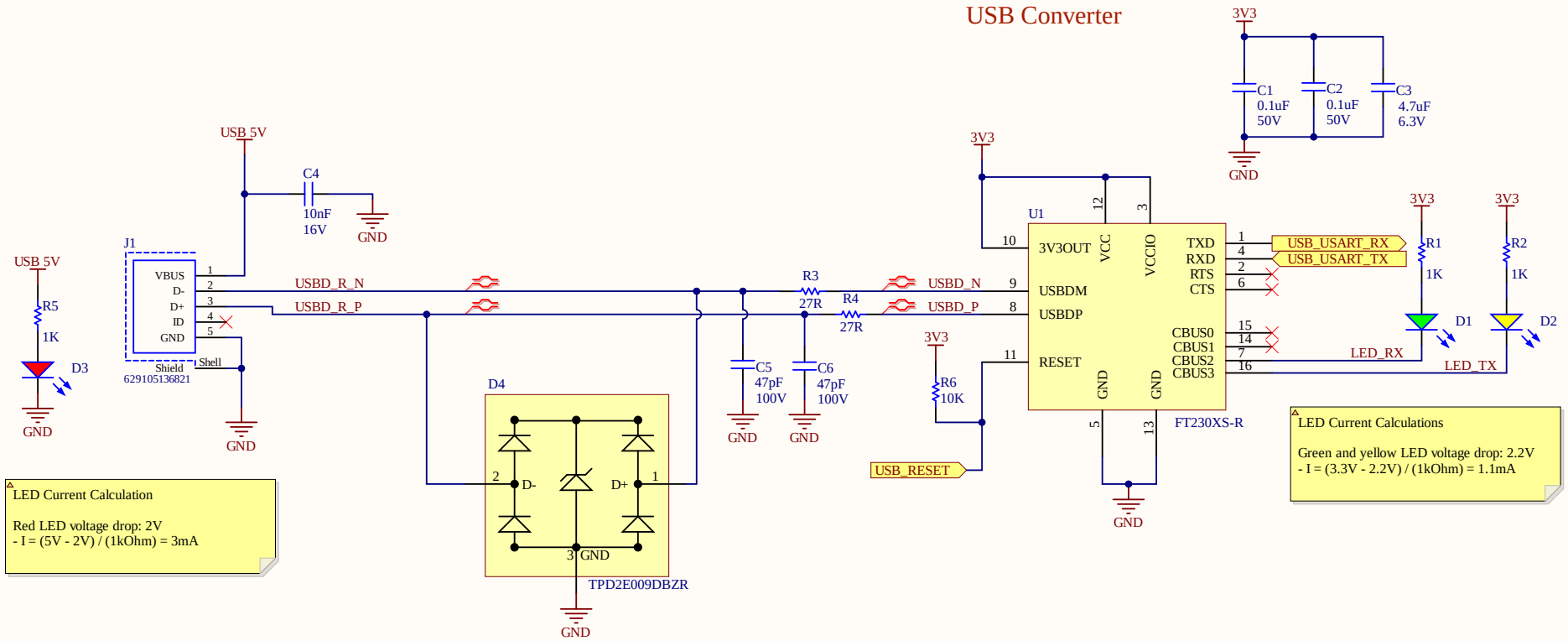

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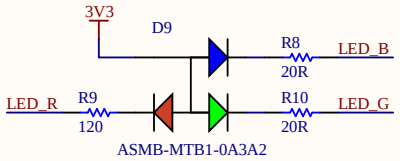
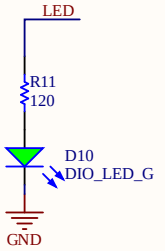
Test LEDs



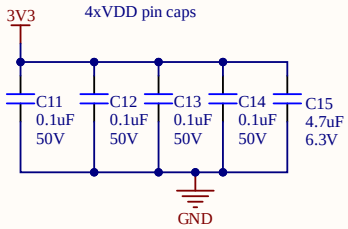


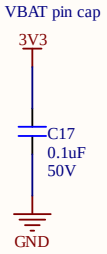
Current Calculations

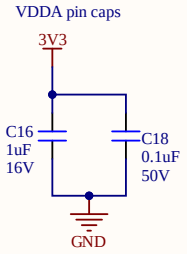
Green LED voltage drop: 2.2V
- I = (3.3-2.2V)/120 = 10.83mA

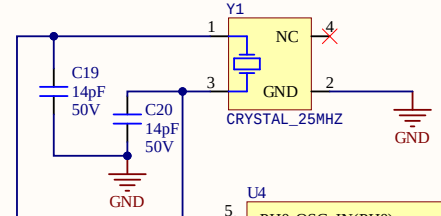
RGB LED voltage drops:
- Red: 2.1V: I = (3.3-2.1V)/120 = 10mA
- Blue: 3.1V: I = (3.3-3.1V)/20 = 10mA
- Green: 3.1V: I = (3.3-3.1V)/20 = 10mA

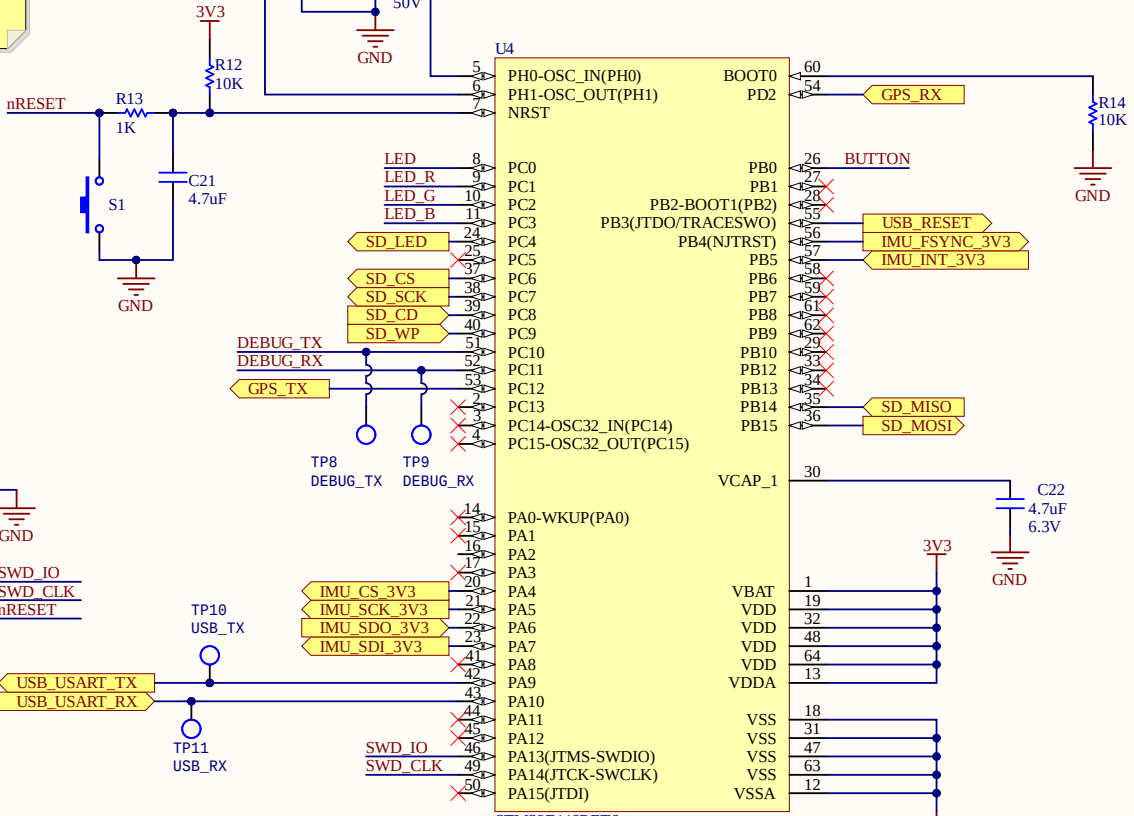
Decoupling Caps



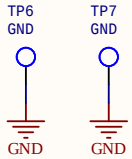




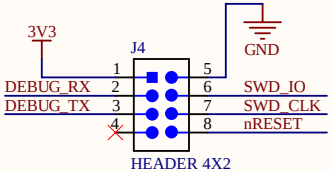




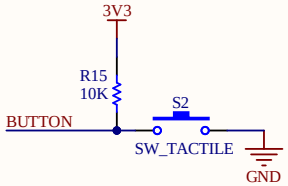
GND Test Points



Debug/Programming



Test Button



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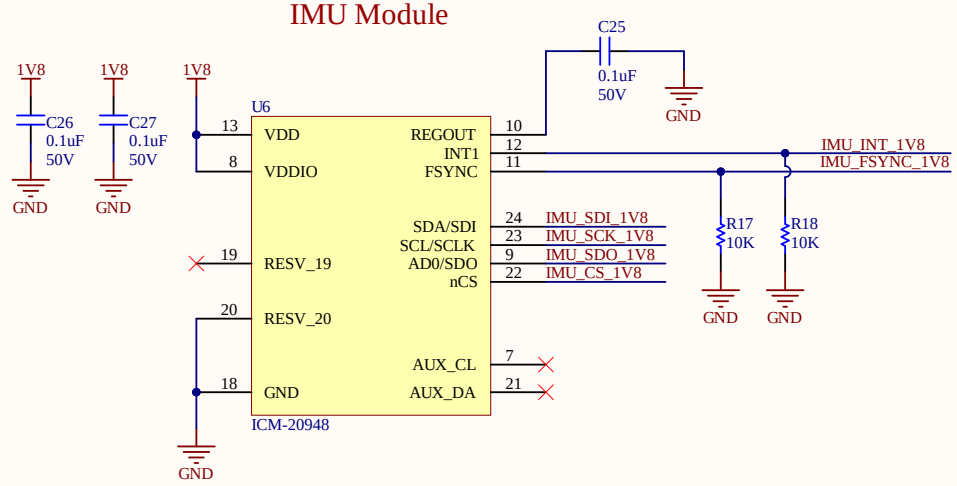
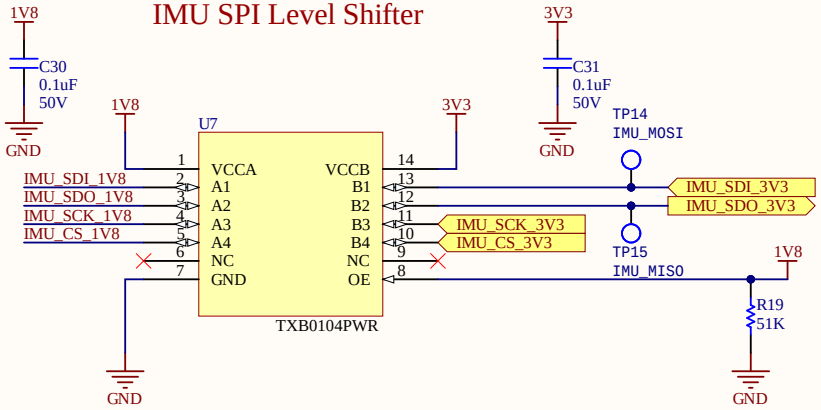
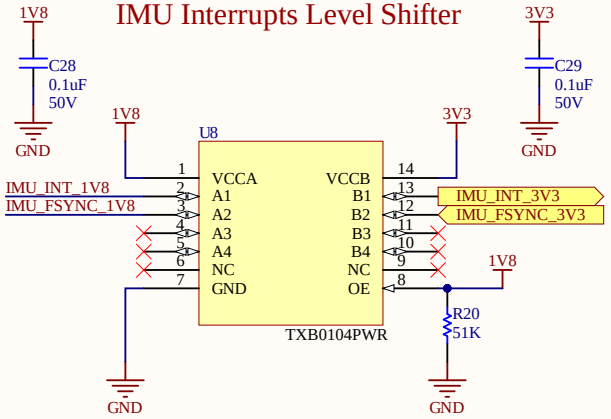
IMU Module



IMU SPI Level Shifter



IMU Interrupts Level Shifter



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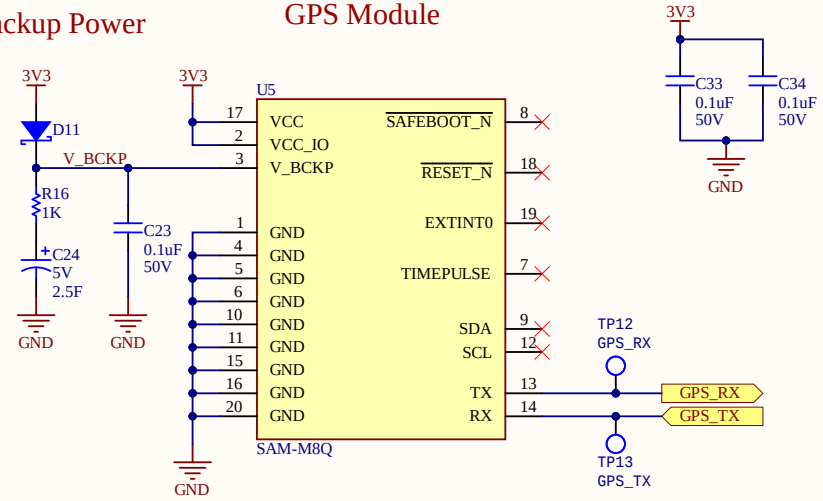
RTC Backup Power

GPS Module



Supercapacitor Calculations

Vcc = 3.3V, Vf = 0.22V, Vmin = 1.4V, I_bkp = 15uA, C = 2.5F
t_bkp = (2.5F) * (3.3V - 0.22V - 1.4V) / (15uA) = 280,000s = 3.241 days
Capacitor tolerance: -0%, +100%

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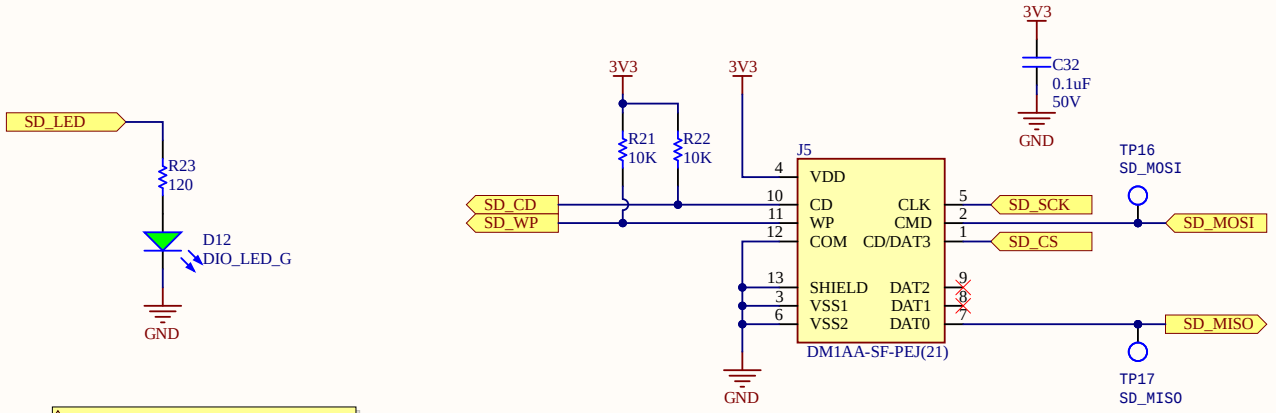
SD Card Connector



LED Current Calculation

Green LED voltage drop: 2.2V
- I = (3.3-2.2V) / (120Ohm) = 10.83mA

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