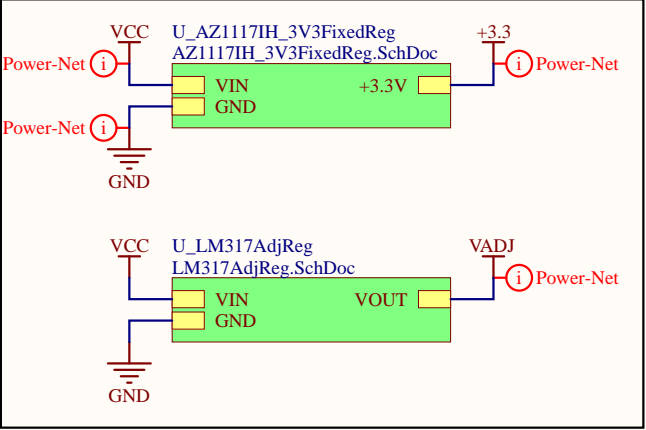
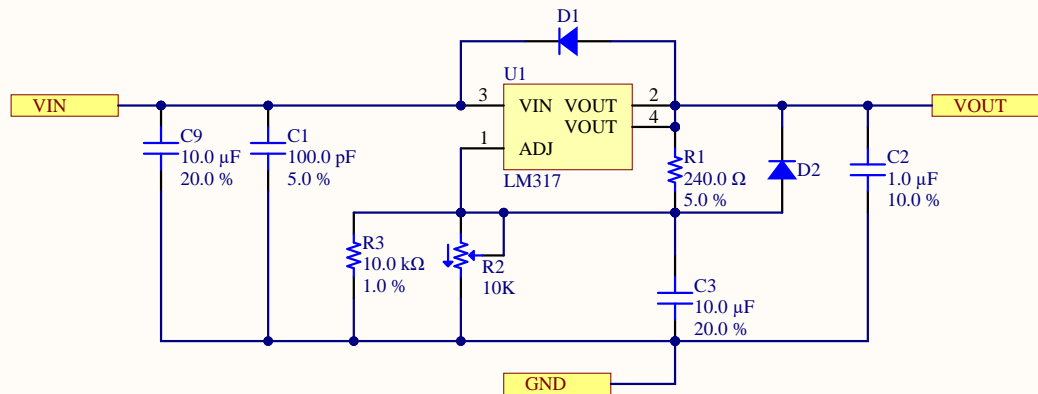


Voltage Regulation



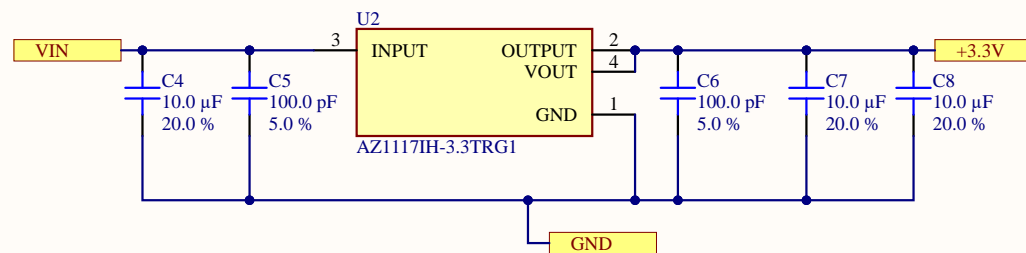
This schematic sheet contains all of the top level blocks for the project. Currently, there are two different linear voltage regulators, one 3.3V fixed regulator, and one 2-30V adjustable voltage regulator.

Title		
Top Level Schematic		
Size	Number	Revision
A		
Date:	2/06/2022	Sheet 1 of 3
File:	C:\Users\...\Top Level.SchDoc	Drawn By: LSG



Linear adjustable voltage regulator using the LM317T. The output voltage is set by configuring the values of R1 and R2. The output voltage is calculated as follows:
 $V_{out} = V_{ref} * (1 + R2/R1)$ Where V_{ref} is the voltage between the output and the adjustment potentiometer, in this case, this is the voltage across the 240 Ohm resistor.

Title		
LM317 Adjustable Linear Voltage Regulator		
Size	Number	Revision
A		
Date:	2/06/2022	Sheet 2 of 3
File:	C:\Users\...\LM317AdjReg.SchDoc	Drawn By: LSG



Linear fixed 3.3V voltage regulator using the AZ1117IH. This is a surface mount regulator that comes in a SOT223 package, as well as surface mount passive capacitors. There are 2x 10uF capacitors because the spec is for a 22uF capacitor, but rowan inly stocks up to 10uF in SMD ceramic caps.

Title		
AZ1117IH 3.3V Linear Voltage Regulator		
Size	Number	Revision
A		
Date:	2/06/2022	Sheet 3 of 3
File:	C:\Users\...\AZ1117IH_3V3FixedReg.SchDoc	Drawn By: LSG

Comment	Description	Designator	Footprint	LibRef	Quantity	Rowan Part Number
100.0 pF	100 pF ±5% 50V Ceramic Capacitor X7R 0603 (1608 Metric)	C1, C5, C6	PCB - CAPACITOR - MLCC - CAP 0603_1608	1535	3	1535
1.0 µF	1 µF ±10% 25V Ceramic Capacitor X7R 0603 (1608 Metric)	C2	PCB - CAPACITOR - MLCC - CAP 0603_1608	1552	1	1552
10.0 µF	10 µF ±20% 16V Ceramic Capacitor X5R 0603 (1608 Metric)	C3, C4, C7, C8, C9	PCB - CAPACITOR - MLCC - CAP 0603_1608	1572	5	1572
CDSU4148	Diode Standard 75 V 150mA Surface Mount 0603/SOD- 523F	D1, D2	PCB - DIODES - SOD523F	1611	2	1611
240.0 Ω	240 Ohms ±5% 0.25W, 1/4W Through Hole Resistor Axial Carbon Film	R1	PCB - RESISTOR - AXIAL	57	1	57
10K	Potentiometer	R2	TrimmerPot	Potentiometer	1	1349
10.0 kΩ	10 kOhms ±1% 0.1W, 1/10W Chip Resistor 0603 (1608 Metric) Moisture Resistant Thick Film	R3	PCB - RESISTOR - CHIP - RES 0603_1608	1416	1	1416
LM317	Linear Voltage Regulator IC Positive Adjustable 1 Output 1.5A SOT-223-4	U1	PCB - LEADED - SOT - SOT-223	1613	1	1613
AZ1117IH-3.3TRG1	IC REG LINEAR 3.3V 1A SOT223	U2	FP-SOT223-MFG	CMP-12756-000043-1	1	