

3V3 VOLTAGE REGULATOR

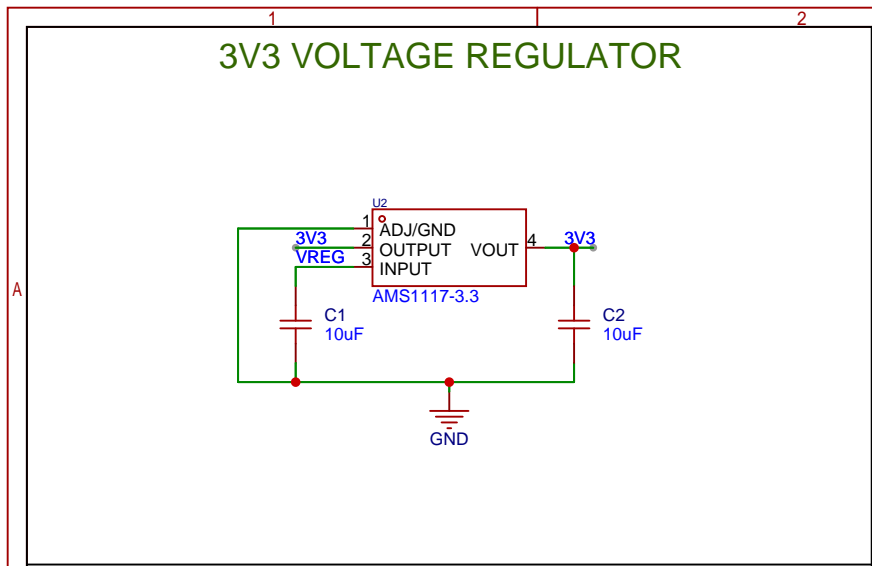
The diagram illustrates a 3V3 voltage regulator circuit. The central component is the AMS1117-3.3 voltage regulator IC, labeled U2. It is a three-terminal device with the following pins:

- Pin 1 (top left): ADJ/GND, connected to ground.
- Pin 2 (bottom left): OUTPUT, labeled VREG, which provides the 3V3 output.
- Pin 3 (bottom right): INPUT, connected to the 3V3 input source.
- Pin 4 (top right): VOUT, which is also connected to the 3V3 output.

The circuit includes two electrolytic capacitors for filtering:

- C1 (10uF): Input filter capacitor connected between the 3V3 input and ground.
- C2 (10uF): Output filter capacitor connected between the 3V3 output and ground.

The ground connection is labeled GND.

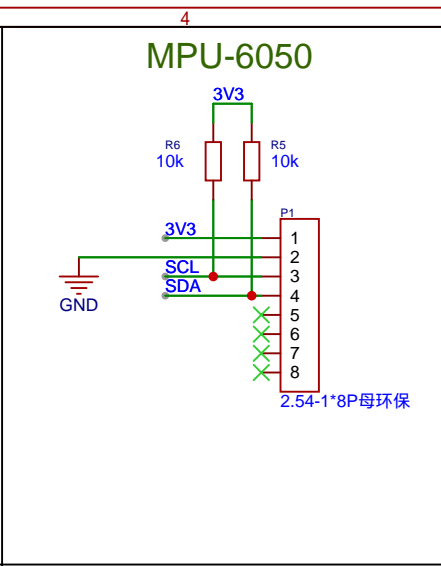
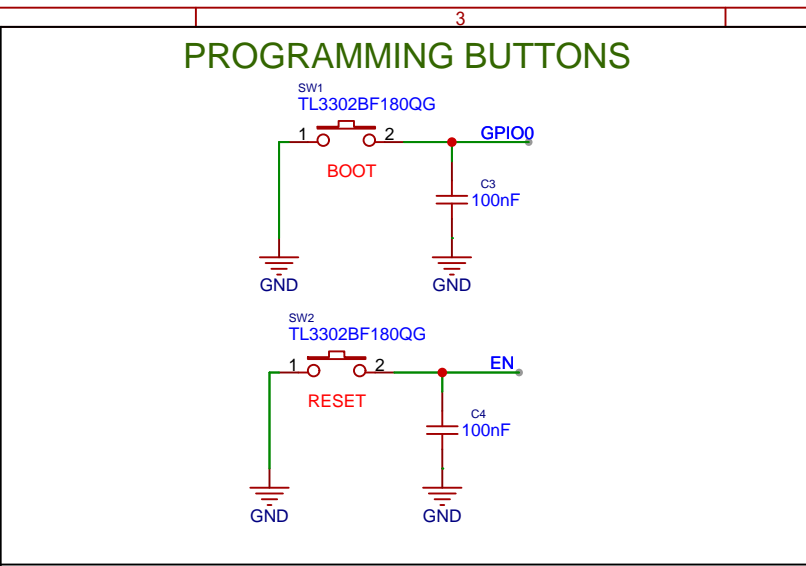


PROGRAMMING BUTTONS

The image shows two circuit diagrams for programming buttons, SW1 and SW2, both using TL3302BF180QG components.

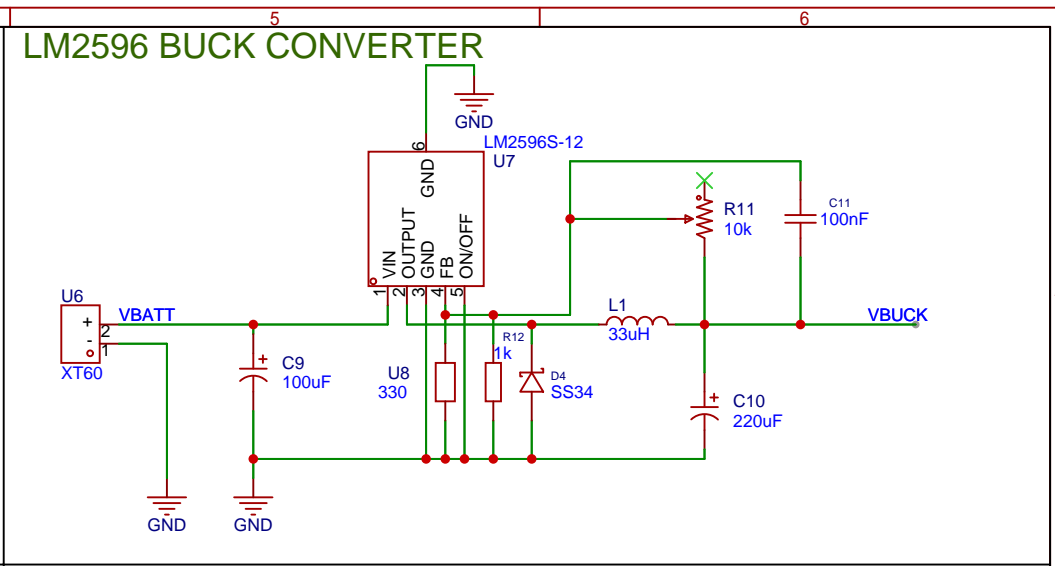
SW1 Circuit: The SW1 button is connected to the GPIO0 pin. The button's other terminal is connected to GND. A 100nF capacitor (C3) is connected between the GPIO0 pin and GND.

SW2 Circuit: The SW2 button is connected to the EN pin. The button's other terminal is connected to GND. A 100nF capacitor (C4) is connected between the EN pin and GND.



LM2596 BUCK CONVERTER

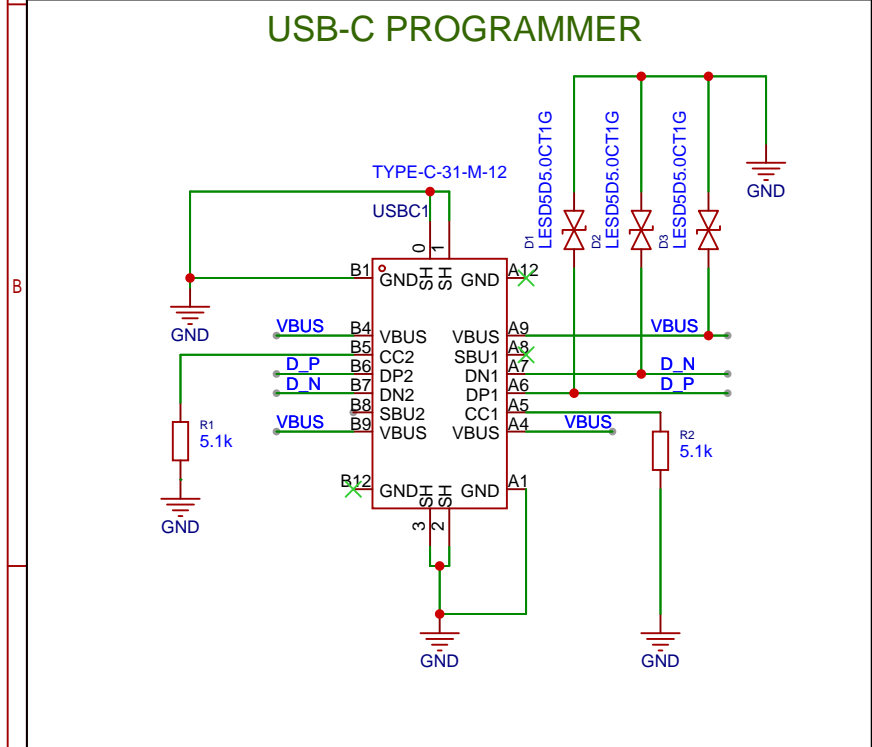
The diagram illustrates the internal circuitry of an LM2596 Buck Converter. The input voltage V_{BATT} is supplied by an XT60 connector (U6). The LM2596S-12 (U7) is configured with its VIN pin to the input, GND pin to ground, and FB pin to a feedback network consisting of a resistor R12 (1k) and a diode U8. The output of the converter is connected to a switching network (L1, D4, C10) and a filter network (R11, C11) to produce the output voltage V_{BUCK} . The ON/OFF pin is connected to ground.



USB-C PROGRAMMER

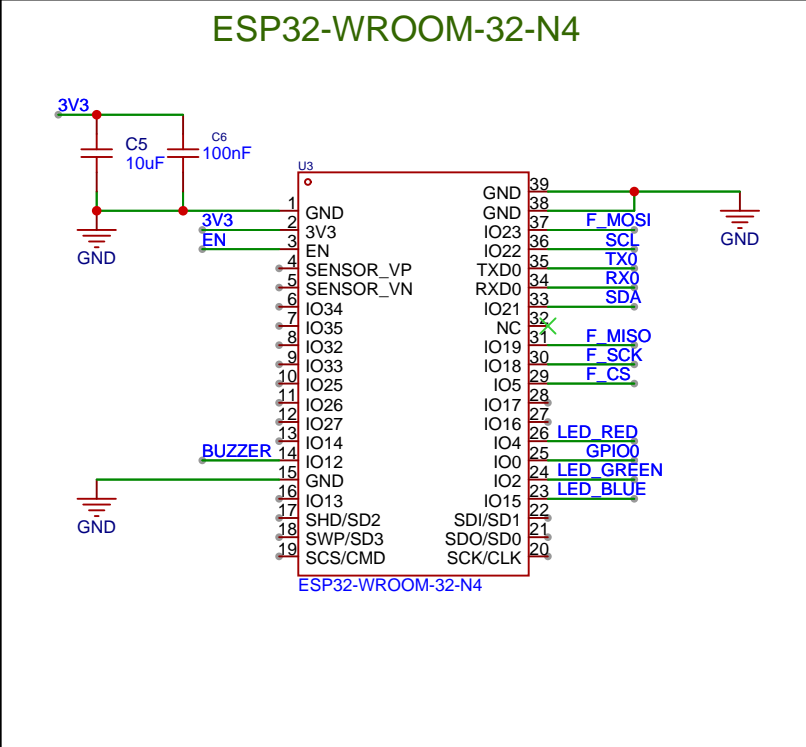
The diagram illustrates the internal wiring of a USB-C programmer. The central component is a TYPE-C-31-M-12 connector. The connections are as follows:

- Power and Ground:**
 - B1:** Connected to GND via resistor R1 (5.1k).
 - B4, B5, B6, B7, B8, B9:** Connected to VBUS, D+, D-, and VBUS respectively.
 - B12:** Connected to GND.
 - A1:** Connected to GND via resistor R2 (5.1k).
- LEDs:**
 - A12:** Connected to LEDSD5.0CT1G.
 - A8:** Connected to LEDSD5.0CT1G.
 - A7:** Connected to LEDSD5.0CT1G.
- Other Pins:**
 - A4, A5, A6, A9:** Connected to VBUS, D-, D+, and VBUS respectively.



The diagram shows the ESP32-WROOM-32-N4 module with the following connections:

- Power:** 3V3 supply connected to pins 1 (GND), 2 (3V3), and 3 (EN). A 10uF capacitor (C5) is connected between 3V3 and GND. A 100nF capacitor (C6) is connected between EN and GND.
- GPIOs:**
 - Pin 14 (BUZZER) is connected to GND.
 - Pin 31 (F_MISO) is connected to GND.
 - Pin 30 (F_SCK) is connected to GND.
 - Pin 29 (F_CS) is connected to GND.
 - Pin 25 (GPIO0) is connected to GND.
 - Pin 24 (LED_GREEN) is connected to GND.
 - Pin 23 (LED_BLUE) is connected to GND.
- Other Pins:**
 - Pins 4 (SENSOR_VP) and 5 (SENSOR_VN) are connected to GND.
 - Pins 17 (SHD/SD2), 18 (SWP/SD3), and 19 (SCS/CMD) are connected to GND.
 - Pins 20 (SCK/CLK), 21 (SDI/SD1), and 22 (SDO/SD0) are connected to GND.
 - Pins 26 (LED_RED) and 27 (LED_GREEN) are connected to GND.
 - Pins 32 (NC) and 33 (SDA) are connected to GND.
 - Pins 34 (RX0) and 35 (TX0) are connected to GND.
 - Pins 36 (SCL) and 37 (F_MOSI) are connected to GND.
 - Pins 38 (GND) and 39 (GND) are connected to GND.



BMP-280

U4

3V3 1

3V0 2

SCL 3

SDO 4

SDA 5

CS 6

GND 7

PM2.54-1*7

USER LEDs

LED RED R7 100 17-215SURC/S530-A2/TR8

LED GREEN R8 100 SZYY0805YG

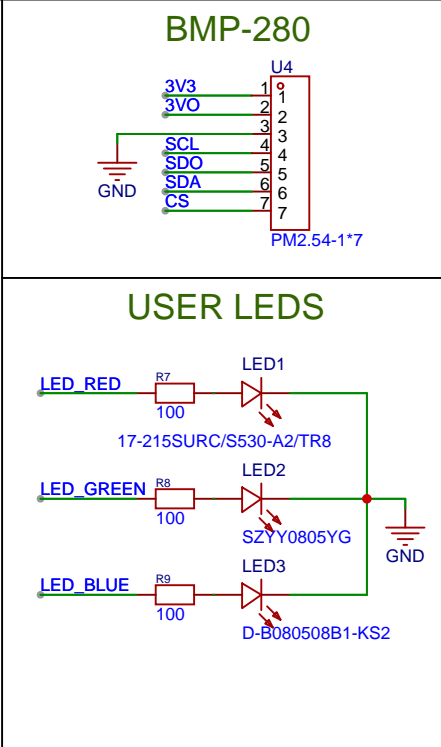
LED BLUE R9 100 D-B080508B1-KS2

LED1

LED2

LED3

GND



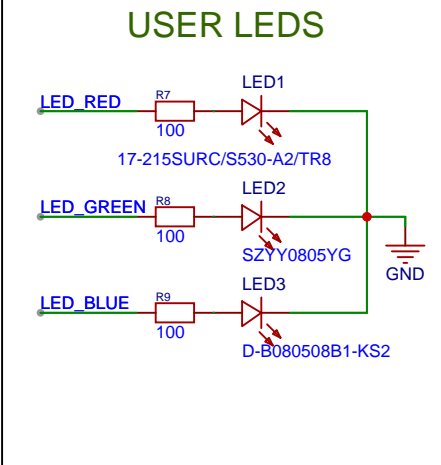
USER LEDS

LED RED R7 100 LED1 17-215SURC/S530-A2/TR8

LED GREEN R8 100 LED2 SZYY0805YG

LED BLUE R9 100 LED3 D-B080508B1-KS2

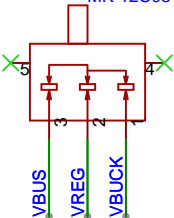
GND



POWER SOURCE SELECT

*TODO: use a power MUX IC

SW4
MK-12C03-G015



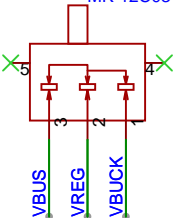
Slide switch to manually choose the primary power supply.
Slide one side to supply from the battery,
and the other end to supply from the USB-C when programming.

*TODO: Add XBee HP 900MHz for telemetry

POWER SOURCE SELECT

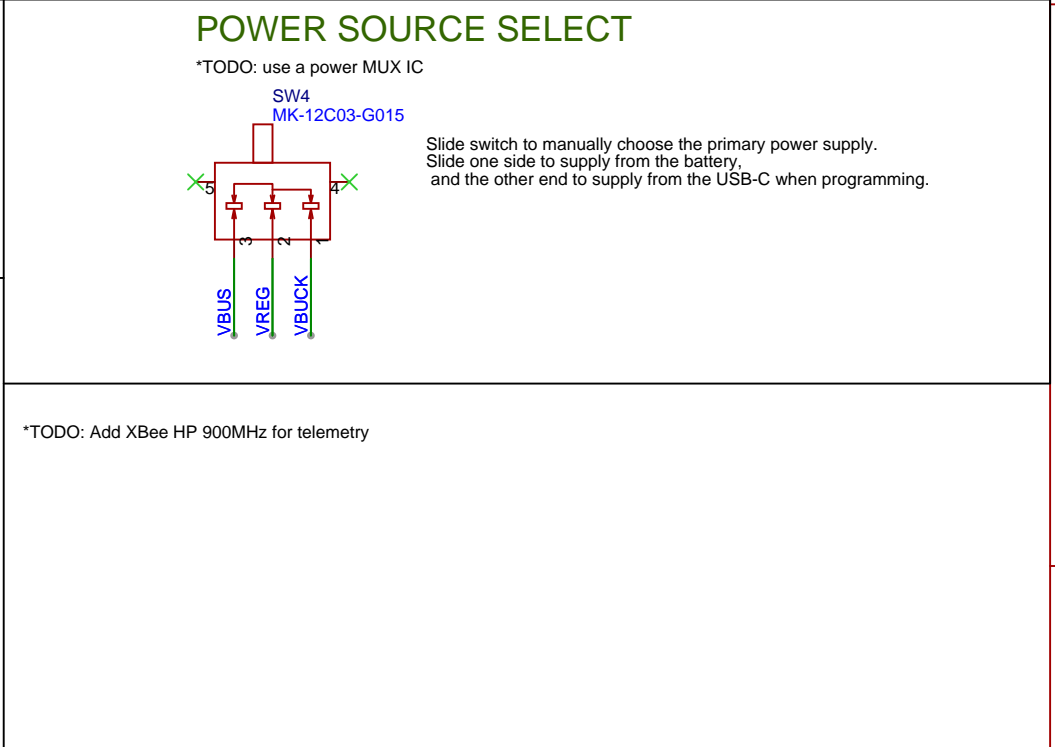
*TODO: use a power MUX IC

SW4
MK-12C03-G015



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Slide one side to supply from the battery,
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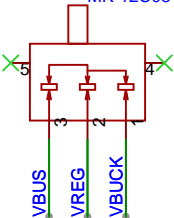
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POWER SOURCE SELECT

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SW4
MK-12C03-G015



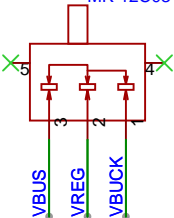
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POWER SOURCE SELECT

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SW4
MK-12C03-G015



Slide switch to manually choose the primary power supply.
Slide one side to supply from the battery,
and the other end to supply from the USB-C when programming.

*TODO: Add XBee HP 900MHz for telemetry

CP2102 USB-UART CONVERTER

CP2102-GMR

dtr	rts	en	io0
1	1	1	1
0	0	1	1
1	0	0	1
0	1	1	0

AUTO-RESET

EN

DTR

RTS

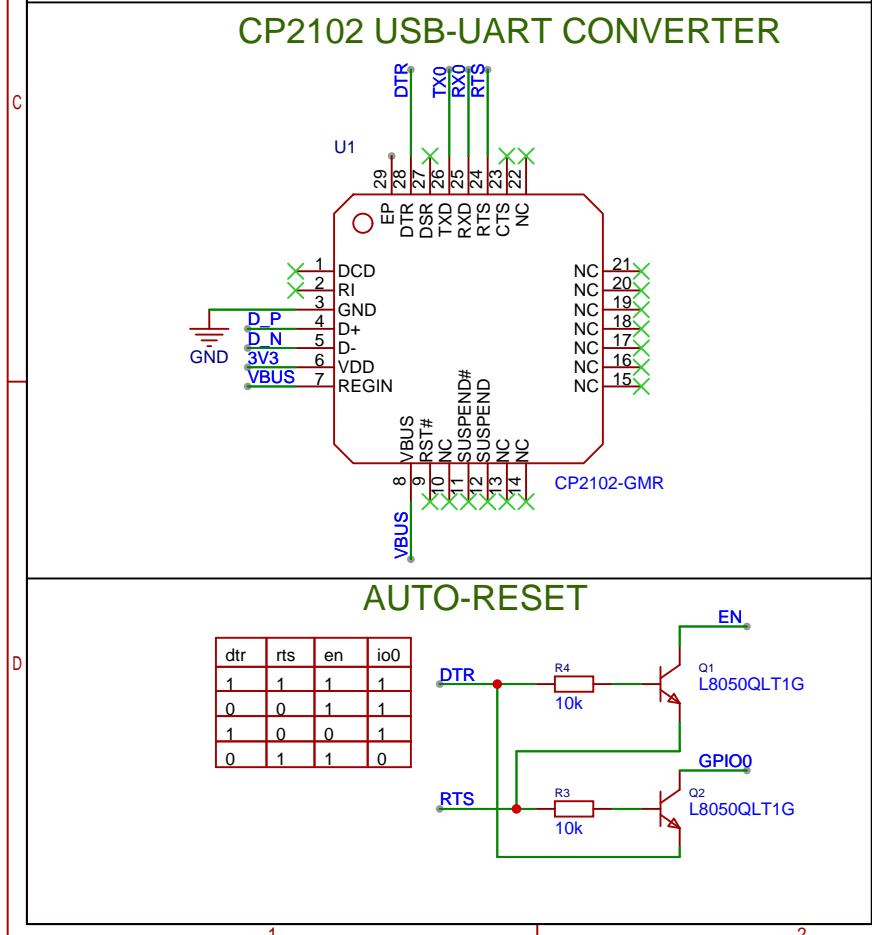
GPIO0

R4 10k

R3 10k

Q1 L8050QLT1G

Q2 L8050QLT1G



16MB SPI FLASH MEMORY

U5

W25Q128JVS1Q

3V3

100nF

C7

DUMP HEADER
For data dumping post-flight

H1

2.54-1x6P直针

USER BUTTON

SW3
TL3302BF180QG

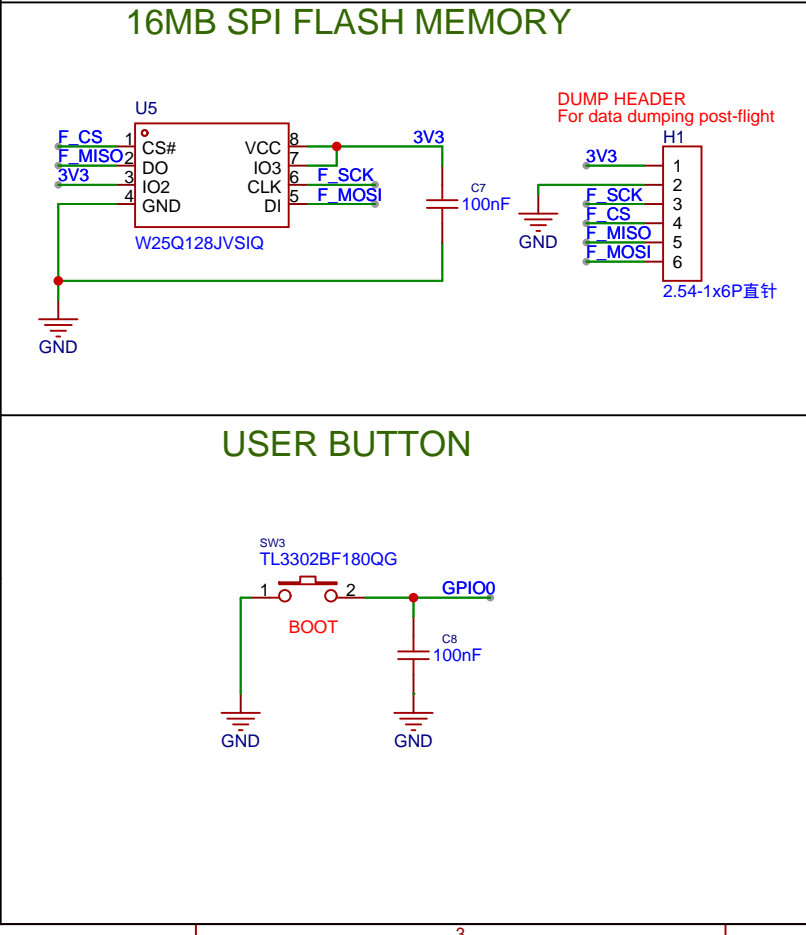
GPIO0

BOOT

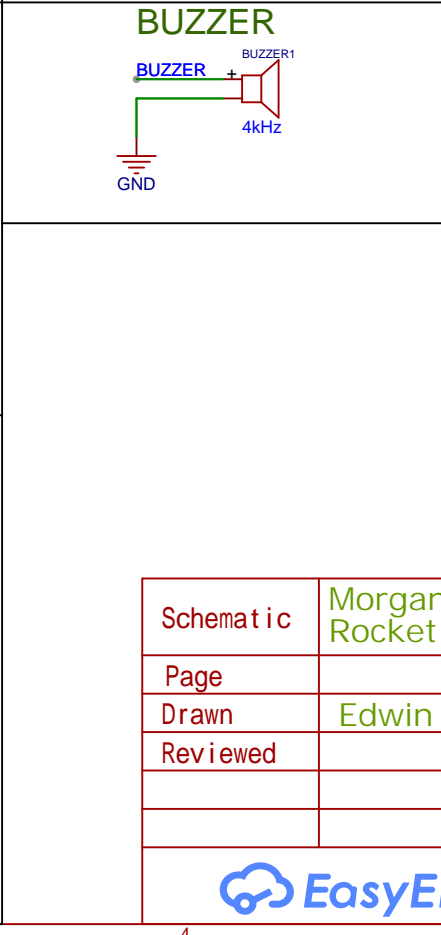
3V3

100nF

C8

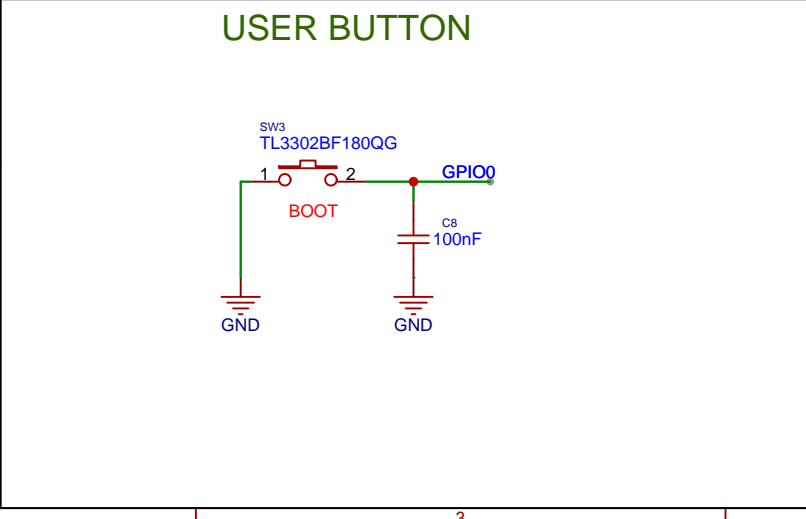


The diagram shows a buzzer component labeled "BUZZER" and "BUZZER1" with a frequency specification of "4kHz". The buzzer is represented by a trapezoidal symbol with a "+" sign on the left terminal. A green wire connects the left terminal to a ground symbol labeled "GND". A red wire connects the right terminal to a ground symbol labeled "GND".



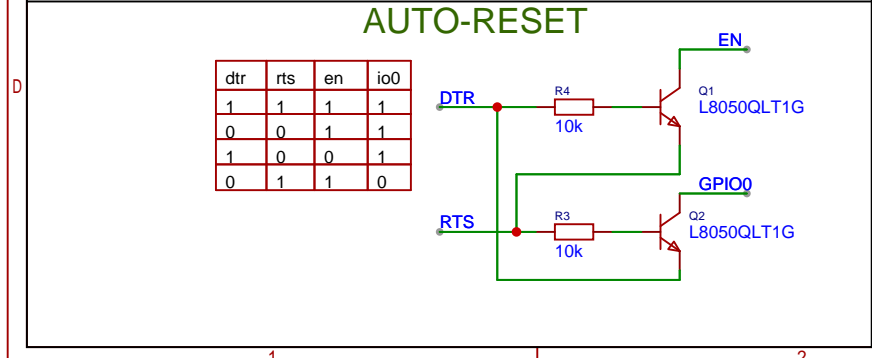
USER BUTTON


The diagram shows a circuit for a user button. The button is labeled SW3 TL3302BF180QG. One terminal of the button is connected to a ground symbol (GND). The other terminal is connected to a node labeled BOOT. This node is also connected to a capacitor labeled C8 100nF, which is connected to another ground symbol (GND). The node BOOT is also connected to a pin labeled GPIO0.



AUTO-RESET

dtr	rts	en	io0
1	1	1	1
0	0	1	1
1	0	0	1
0	1	1	0



Schematic	Morgan State University Model Rocket Flight Computer			Update Date	2024-06-29
				Create Date	2024-06-27
Page	P1			Part Number	JLPCPB-002
Drawn	Edwin Mwiti	MSU-avionics			
Reviewed					
		VER	SIZE	PAGE	1 OF 1
		V0.1	A4	EasyEDA.com	