

5V Buck Converter

U2
AP63357_(SparkFun_Buck_Regulator_5V)

The diagram shows a 5V Buck Converter circuit. The input is VCC, which is connected to the VIN pin of the AP63357 regulator (U2) through a 10 uF capacitor (C1) and a 68k resistor (R2). A test point (TP1) is located at the input. The EN pin is connected to ground through a 3.6k resistor (R3). The COMP pin is connected to ground. The BST pin is connected to the SW pin through a 0.1 uF capacitor (C2). The SW pin is connected to the output filter inductor (L1, 6.8 uH) and a 4.7 pF capacitor (C3). The FB pin is connected to the feedback network, which consists of a 157k resistor (R5) and a 30k resistor (R6) in series, with a 22 uF capacitor (C4) connected to ground. The PG pin is connected to ground. The output is taken from the SW pin, which is connected to the anode of a Schottky diode (D1) and a 22 uF capacitor (C5) to ground. The output voltage is +5V, labeled as +5V_BUCK, with a test point (TP2) and a 1k resistor (R7) connected to ground.

VCC

TP1
TestPoint

C1
10 uF

GND

68k
R2

3.6k
R3

GND

BUCK1_COMP

GND

U2
AP63357_(SparkFun_Buck_Regulator_5V)

VIN

EN

COMP

GND

BST

BUCK1_BST

C2
0.1 uF

SW

BUCK1_SW

L1
6.8 uH

C3
4.7 pF

157k
R5

30k
R6

FB

BUCK1_FB

PG

X

GND

TP2
TestPoint

+5V
+5V_BUCK

D1

C4
22 uF

C5
22 uF

GND

1k
R7

GND

Input Range: 6V to 32V
Output Current: 3.5A Max

UVLO Hi: 21.9V
UVLO Lo: 21.6V (6*3.6)
Refer to datasheet for R2/R3

3.3V Buck Converter

The diagram illustrates a 3.3V Buck Converter circuit. The input voltage (VCC) is connected to the VIN pin (pin 3) of the AP63203 IC. A 10 uF capacitor (C6) is connected between VCC and GND. A 68k resistor (R10) is connected between VCC and the EN pin (pin 2). A 3.6k resistor (R11) is connected between the EN pin and GND. The GND pin (pin 4) is connected to GND. The IC is labeled with its pin numbers: 3 VIN, 2 EN, 4 GND, 6 BUCK1_BST, 5 BUCK2_SW, and FB. The output of the converter is taken from the BUCK2_SW pin (pin 5) and is connected to a 4.7 uH inductor (L2). A 0.1 uF capacitor (C7) is connected between the BUCK1_BST pin (pin 6) and GND. The output of the inductor is connected to a test point (TP3) and a 3.3V output. A 22 uF capacitor (C8) is connected between the output and GND. A 22 uF capacitor (C9) is connected between the output and GND. The output is connected to a 3.3V LED (D2) through a 1k resistor (R12). The LED is labeled CMD17-21VRD/TR8 LED. The circuit is powered by a 3.3V source.

Input Range: 3.8V to 32V
Output Current: 2A Max

UVLO Hi: 21.9V
UVLO Lo: 21.6V (6*3.6)
Refer to datasheet for R10/R11

Voltage Divider

OUTDATED: 1/5 sufficient up to 4S (14.8V)

Vout MUST be lower than 3.3V!

$$V_{\text{teensy}} = V_{\text{bat}} * (R1 / (R1 + R2))$$

3.3V = $2 * 10^{-1} = 1023$ and 1/5 voltage divider gives $1023 / (3.3 \times 5) = 62$

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Code: Voltage=(float)analogRead(15)/62;
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[illegible]

Wire Cutter

TERMBLOCK_OSTTE020104_35MM

P5

1

2

5.6

R9

TIP

DMN3001

U3

4.0 A Id

GATE

DRAIN

SOURCE

BOTR

PYRO CUT

GND

R8

470

R9 Values

9V -> 3.90hm -> $2.3A / 2 = 1.15A$ each

25.2V -> 100hm -> $2.52A / 2 = 1.26A$ each

OBC Connector

The diagram illustrates the pin configuration for the OBC Connector, labeled J1. It is a 6-pin connector with the following specifications:

Pin	Signal
1	GND
2	VOLTAGE
3	PYRO CUT
4	PY1
5	+3.3V
6	+5V

The connector is identified as J1, 440055-6_6POS_2MM.

The diagram illustrates the connection of PWR_FLAG pins to various power supply rails. It consists of four vertical lines, each representing a connection. From left to right:

- The first line connects a PWR_FLAG pin (bottom) to VCC (top).
- The second line connects a PWR_FLAG pin (bottom) to +5V (top).
- The third line connects a PWR_FLAG pin (bottom) to +3.3V (top).
- The fourth line connects a PWR_FLAG pin (bottom) to GND (top).

 Each connection is represented by a vertical line with a diamond symbol at the top and a triangle symbol at the bottom.

