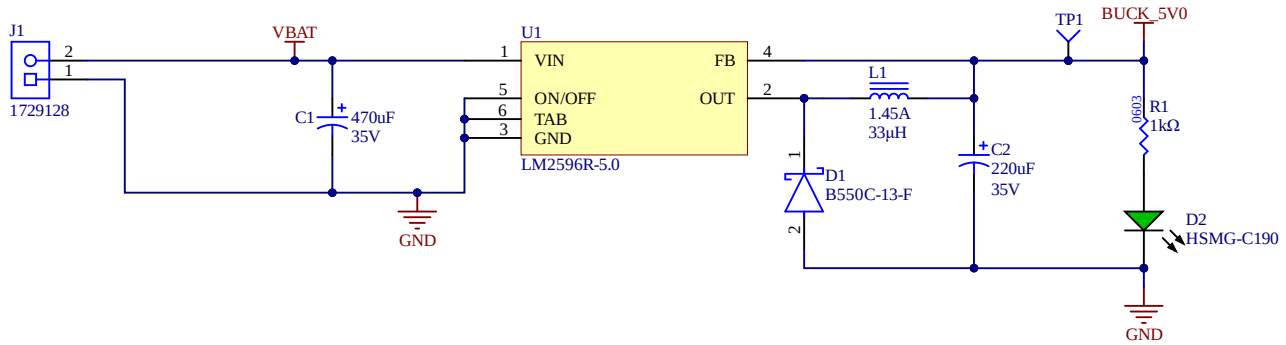
Power Conversions

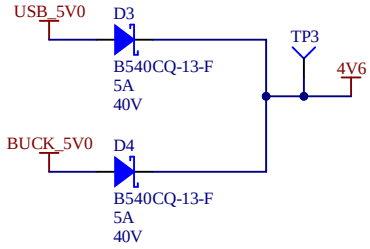
VBAT to 5V 3A Buck

External Power Input
VBAT input range is 12V to 24V



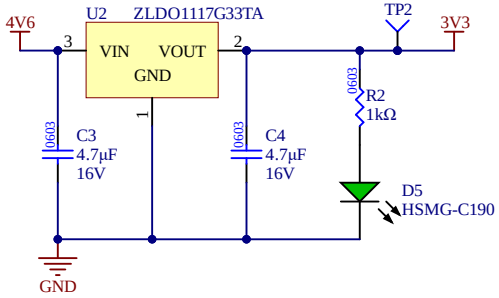
Green LED voltage drop: 2.2V
- I = (5V - 2.2V) / (1kOhm) = 2.8mA

2 Power Sources Protection



Estimated max voltage ouput is 4.6V at 3A
Schottky Diode has a 0.4V drop at 3A

5V to 3.3V 1A LDO

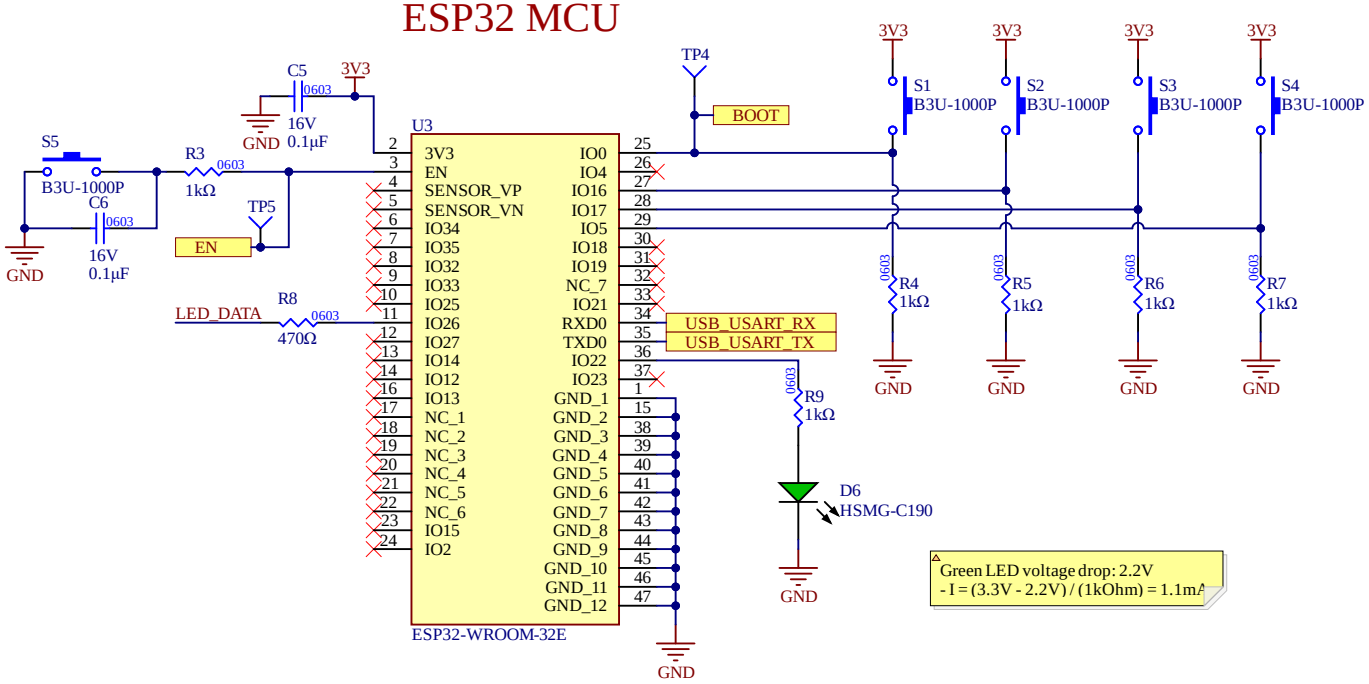


Green LED voltage drop: 2.2V
- I = (3.3V - 2.2V) / (1kOhm) = 1.1mA

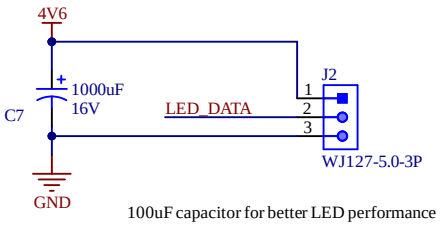
UW ROBOTICS TEAM — University of Waterloo Robotics Team, 200 University Ave W, Waterloo, Ontario, Canada, N2L 3G1		REV 1
PROJECT: LED Controller.PrjPcb, [No Variations]		
DOCUMENT: Power.SchDoc		MODIFIED: 8/30/2021
ENGINEER: Ari Wasch	REVIEWER: *	SHEET 1 OF 3

MCU

ESP32 MCU



LED STRIP CONNECTOR



100uF capacitor for better LED performance

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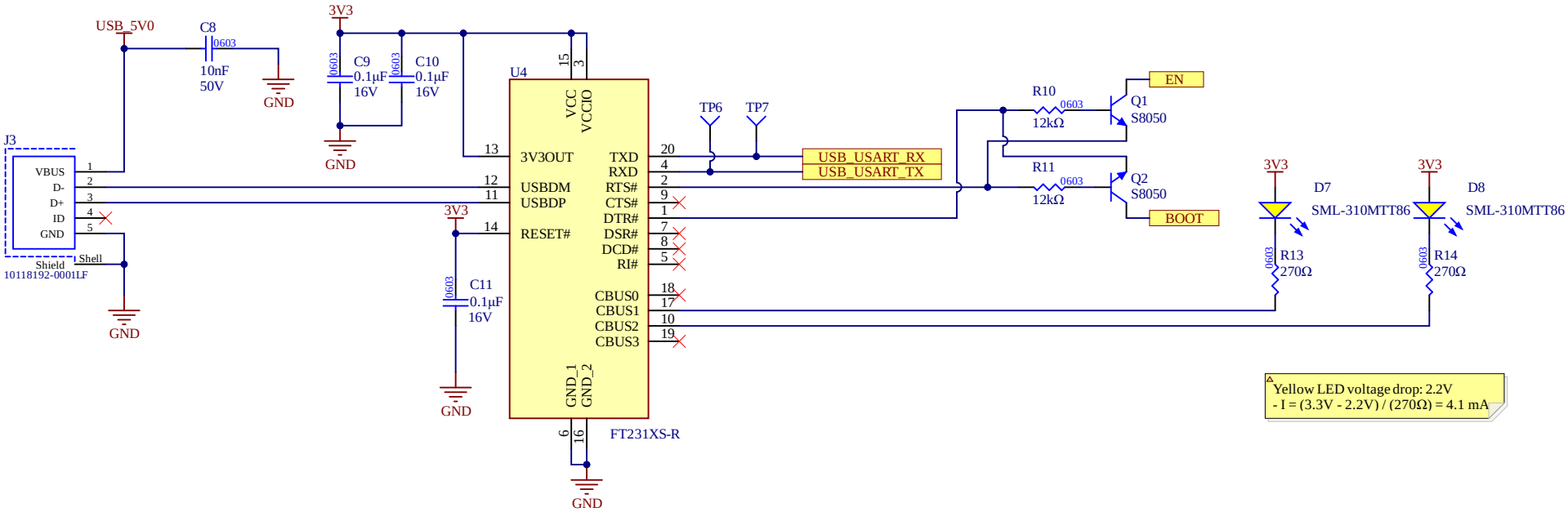
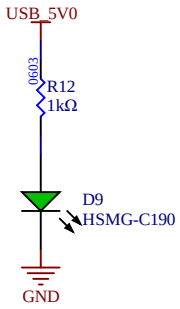
PROJECT: LED Controller.PrjPcb, [No Variations]		
DOCUMENT: MCU.SchDoc		MODIFIED: 8/23/2021
ENGINEER: Ari Wasch	REVIEWER: *	SHEET 2 OF 3

USB





UW ROBOTICS TEAM — University of Waterloo Robotics Team, 200 University Ave W, Waterloo, Ontario, Canada N2L 3G1		REV 1
PROJECT: LED Controller.PrjPcb, [No Variations]		
DOCUMENT: USB.SchDoc		MODIFIED: 8/23/2021
ENGINEER: Ari Wasch	REVIEWER: Lance Bantoto	SHEET 3 OF 3