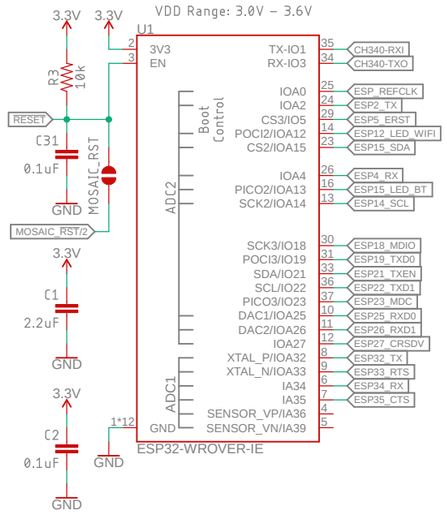
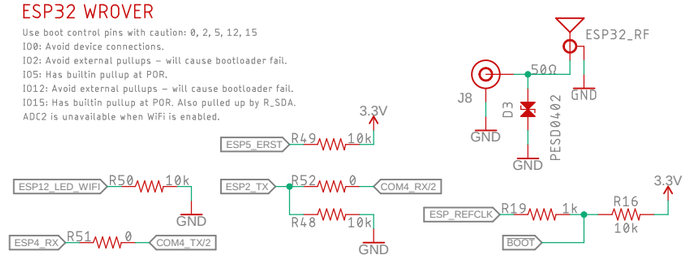


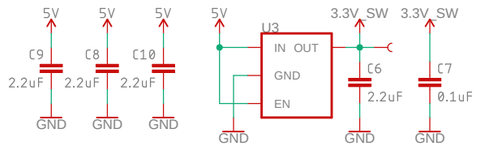
ESP32 WROVER

Use boot control pins with caution: 0, 2, 5, 12, 15
I00: Avoid device connections.
I02: Avoid external pullups – will cause bootloader fail.
I05: Has builtin pullup at POR.
I012: Avoid external pullups – will cause bootloader fail.
I015: Has builtin pullup at POR. Also pulled up by R_SDA.
ADC2 is unavailable when WiFi is enabled.

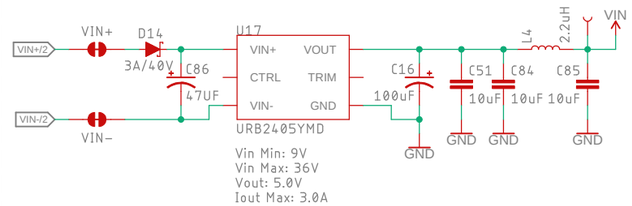


Secondary Power

AP7361C-33
Vin Max: 6.0V
Iout Max: 1A (Limit 1.5A Typ)
Vdo: 360mV @ 1A
Output Discharge: 100Ω Typ

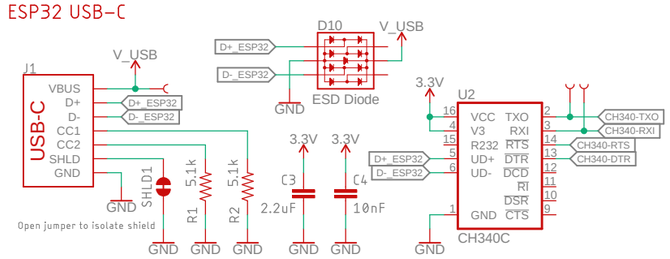


Power In

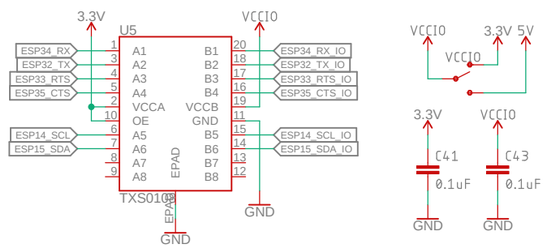


Vin Min: 9V
Vin Max: 36V
Vout: 5.0V
Iout Max: 3.0A

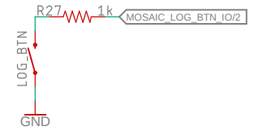
ESP32 USB-C



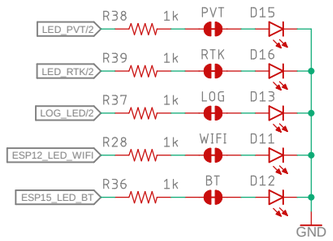
IO Level Shifting



Log / Unmount SD Button

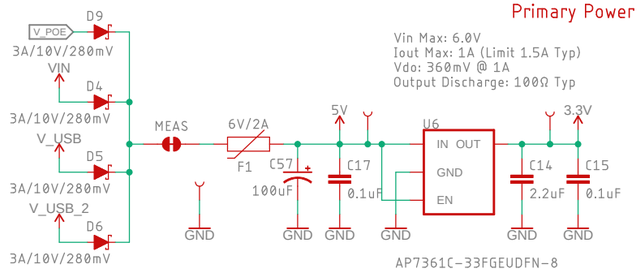


LEDs

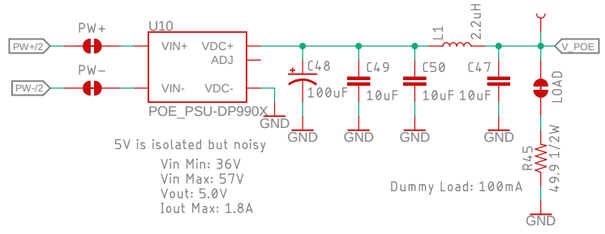


Primary Power

Vin Max: 6.0V
Iout Max: 1A (Limit 1.5A Typ)
Vdo: 360mV @ 1A
Output Discharge: 100Ω Typ



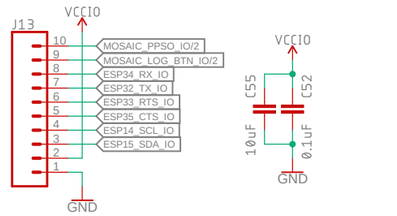
Power Over Ethernet



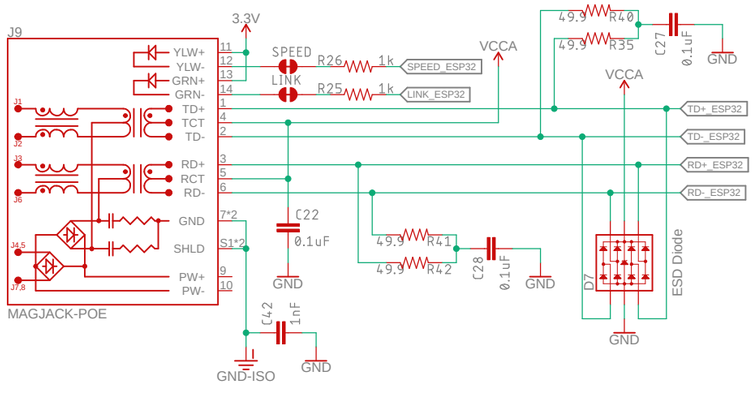
5V is isolated but noisy
Vin Min: 36V
Vin Max: 57V
Vout: 5.0V
Iout Max: 1.8A

Dummy Load: 100mA

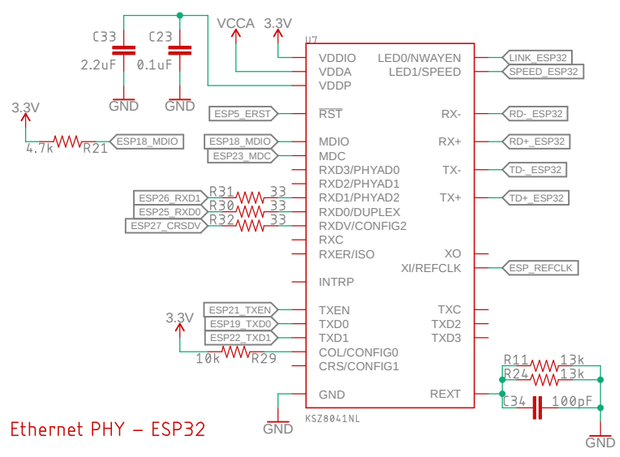
I/O Connector

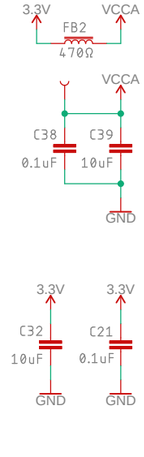


Mag Jack – ESP32

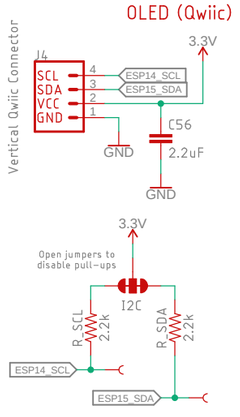


Ethernet PHY – ESP32

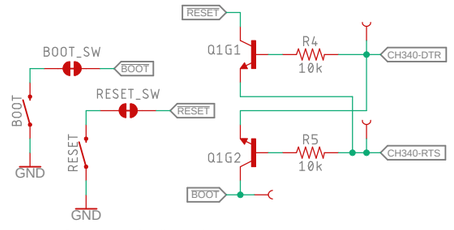




OLED (Qwiic)



Reset and Boot



Boot Mode Configuration

Pin	Run	Bootloader	Default
I00	1	0	1
I02	x	0	0
I05	1	x	1
I012	0	0	0
I015	x	x	1

I012 = MDTI, I015 = MDTO

If DTR is LOW, toggling RTS from HIGH to LOW resets to run mode.

If RTS is HIGH, toggling DTR from LOW to HIGH resets to bootloader.

USB Track Impedance: Differential Pair
https://saturnpcb.com/saturn-pcb-toolkit/
Prepreg thickness: 0.2mm (7.87 mil). Er = 4.6
10.5 mil track with 9.5 mil gap (20 mil center to center) = 90 Ohms

RF Track Impedance: Coplanar Waveguide with Ground Calculations
Ground is on layer 2. Prepreg thickness: 0.2mm. Er = 4.6
12.5 mil track with 5 mil gap = 50 Ohms
https://chemandy.com/calculators/coplanar-waveguide-with-ground-calculator.htm

open hardware

sparkfun

Special Instructions
No clean process

TITLE: RTK_mosaic-X5

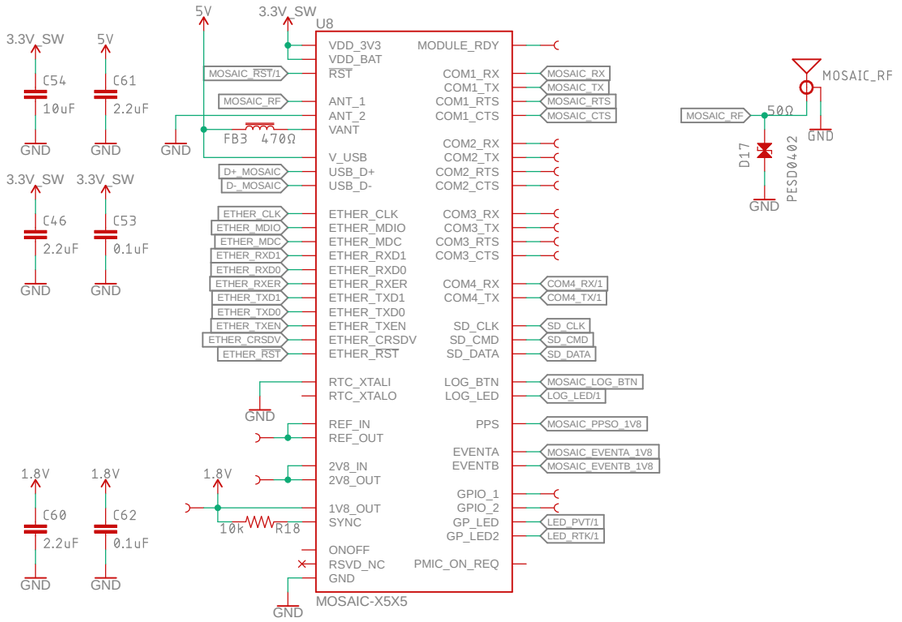
Design by: Paul Clark

REV: v01

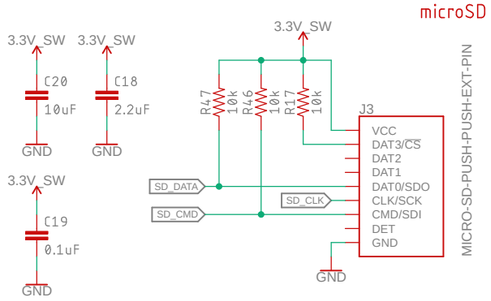
Date: 20/07/2023 10:07

Sheet: 1/2

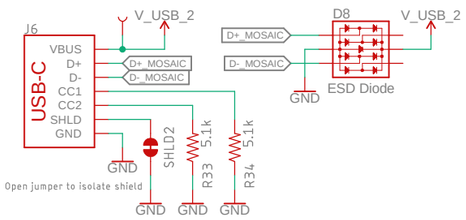
Mosaic X5



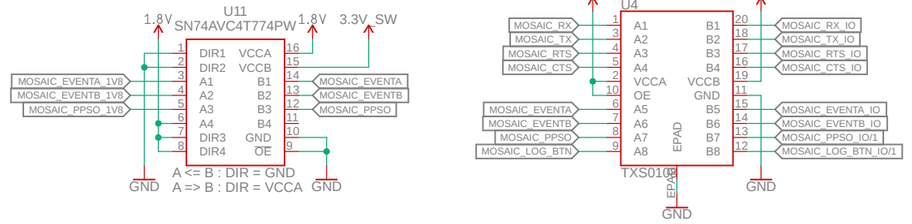
microSD



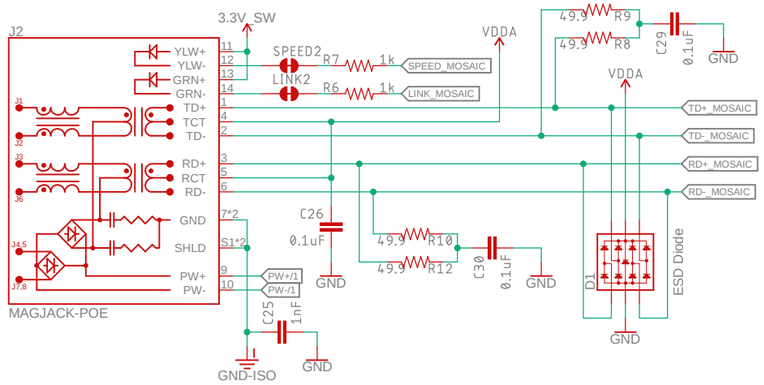
Mosaic USB-C



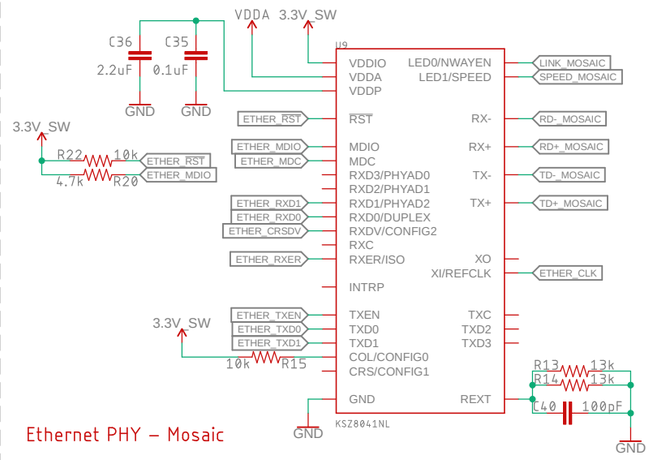
IO Level Shifting



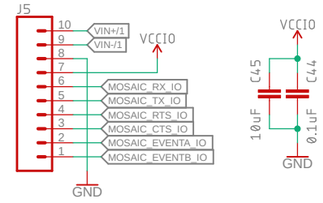
Mag Jack – Mosaic



Ethernet PHY – Mosaic



I/O Connector



TITLE: RTK_mosaic-X5

Design by: Paul Clark

REV: v01

Date: 20/07/2023 10:07

Sheet: 2/2