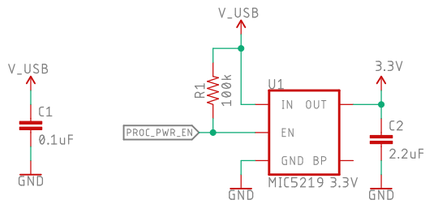
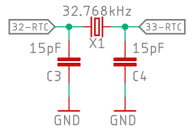
Voltage Regulation



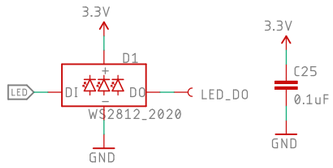
MIC5219-3.3V

Iout (max): 500mA
Vin (max): 12V
Vdrop (typ @ 500mA): 350mV
Vdrop (max @ 500mA): 500mV
Iq (typ): 80uA
Output discharge: None

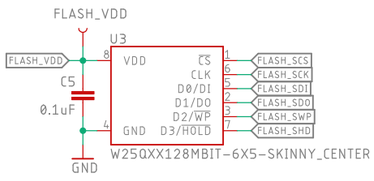
32.768kHz RTC Crystal



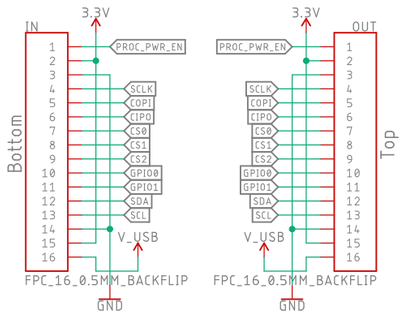
RGB LED



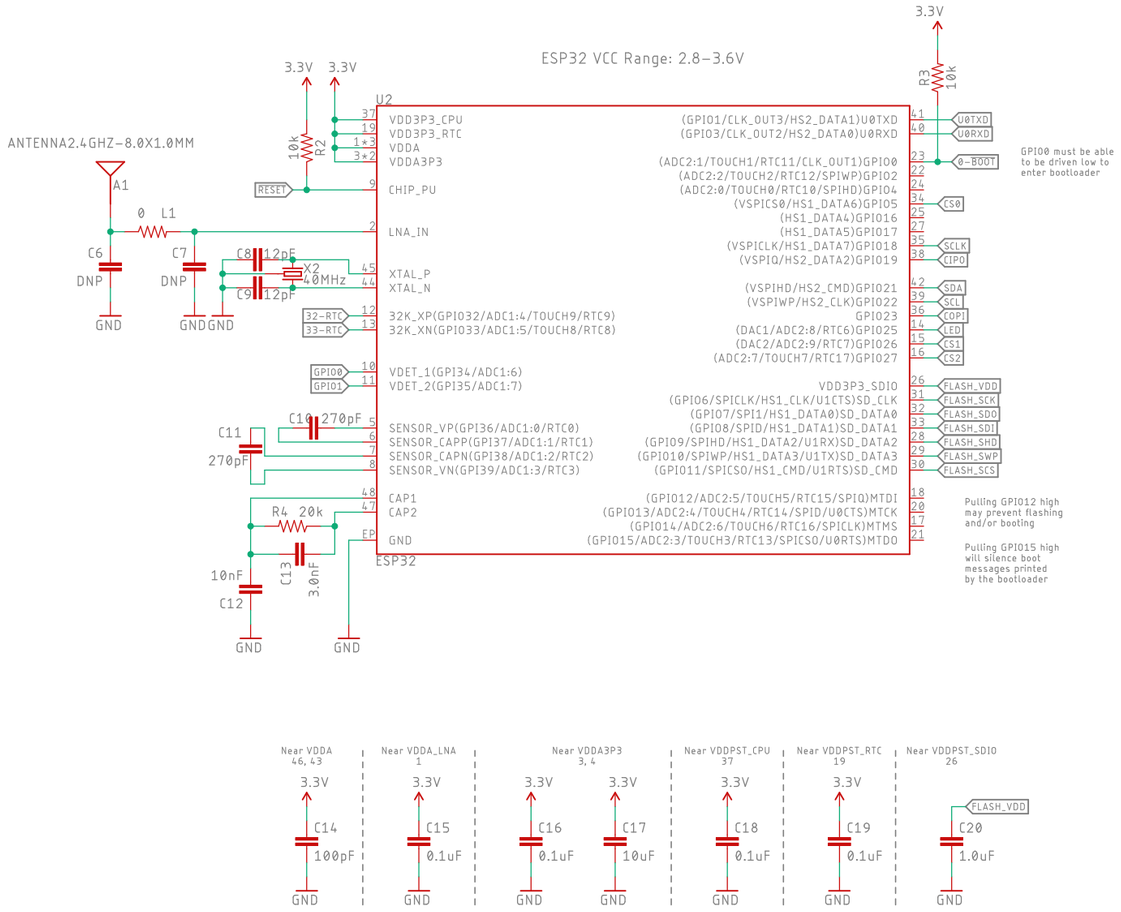
128Mb Flash



EZ Connectors



Espressif ESP32



Near VDDA 46, 43: C14 100pF
Near VDDA_LNA 1: C15 0.1uF
Near VDDA3P3 3, 4: C16 0.1uF, C17 10uF
Near VDDPST_CPU 37: C18 0.1uF
Near VDDPST_RTC 19: C19 0.1uF
Near VDDPST_SDIO 26: C20 1.0uF

RF Track Impedance: Coplanar Waveguide with Ground Calculations
https://chemandy.com/calculators/coplanar-waveguide-with-ground-calculator.htm
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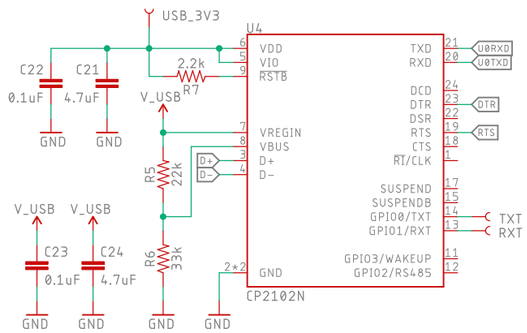
JLCPCB JLC7628 4-Layer 1.2mm Impedance Control Stackup (Er = 4.6)

Ground is on layer 2.
Prepreg thickness: 0.2mm
12 mil track with 4 mil gap = 49.5 Ohms

CP2102N (USB-to-Serial Converter)

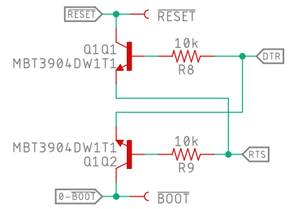


Auto-Reset

Boot Mode Configuration

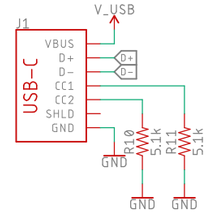
Pin	Default	Boot	Download
GPIO0	1	1	0
U0TXD	1	1	x
GPIO2	0	x	0
GPIO4	0	x	x
MTDO	1	x	x
GPIO5	1	1	x

If U0TXD, GPIO2, GPIO5 are floating, GPIO0 determines boot mode



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



open hardware

SPARK X

Special Instructions

TITLE: SparkX_EZ_ESP32

Design by: Paul Clark

REV: X01

Date: 13/05/2021 12:03

Sheet: 1/1