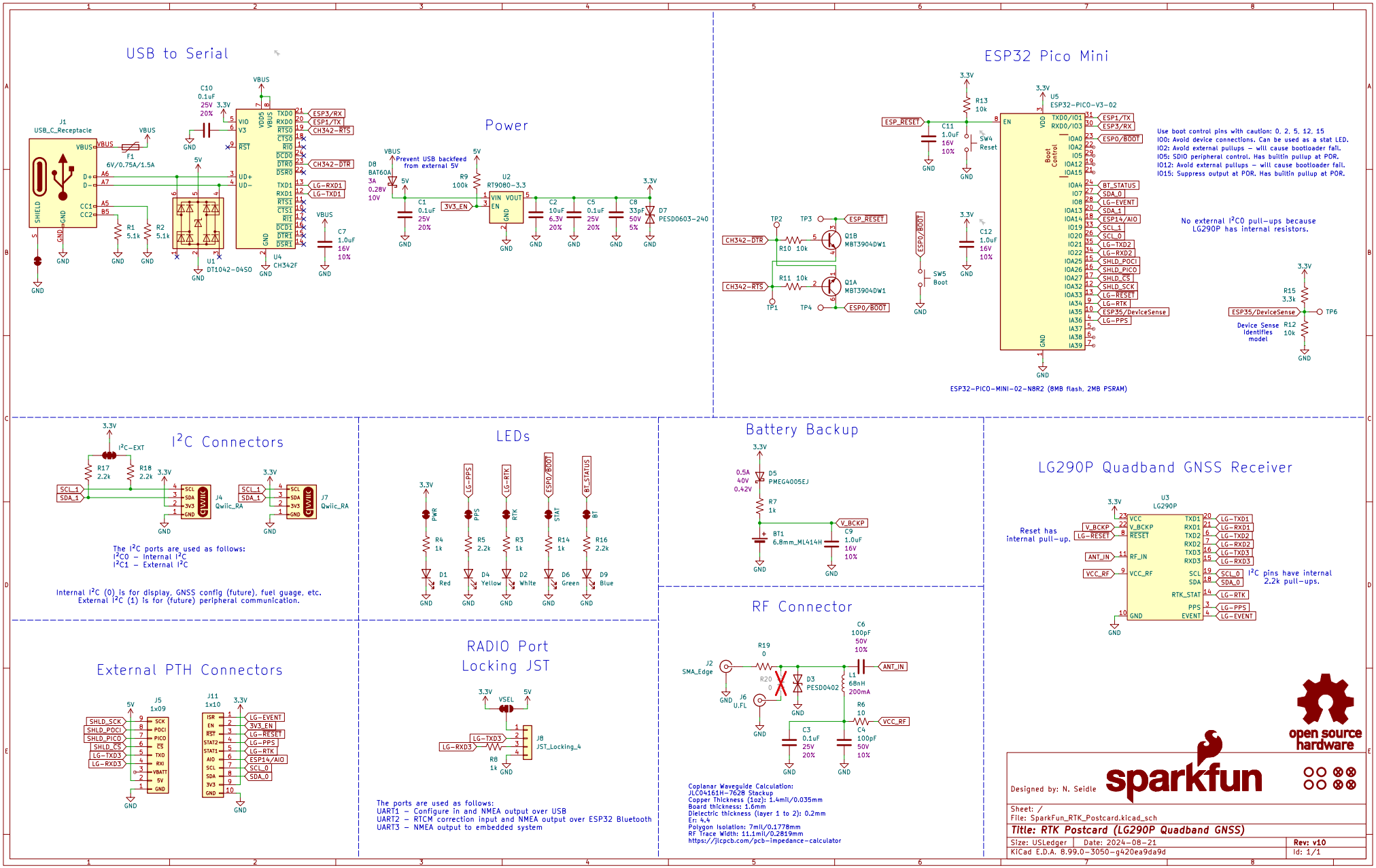
USB to Serial
Power
ESP32 Pico Mini
I²C Connectors
LEDs
Battery Backup
LG290P Quadband GNSS Receiver
External PTH Connectors
RADIO Port
Locking JST
RF Connector
Prevent USB backfeed from external 5V
Use boot control pins with caution: 0, 2, 5, 12, 15
IO0: Avoid device connections. Can be used as a stat LED.
IO2: Avoid external pullups – will cause bootloader fail.
IO5: SDIO peripheral control. Has builtin pullup at POR.
IO12: Avoid external pullups – will cause bootloader fail.
IO15: Suppress output at POR. Has builtin pullup at POR.
No external I²C0 pull-ups because LG290P has internal resistors.
ESP32-PICO-MINI-02-N8R2 (8MB flash, 2MB PSRAM)
The I²C ports are used as follows:
I²C0 – Internal I²C
I²C1 – External I²C
Internal I²C (0) is for display, GNSS config (future), fuel guage, etc.
External I²C (1) is for (future) peripheral communication.
Reset has internal pull-up.
I²C pins have internal 2.2k pull-ups.
The ports are used as follows:
UART1 – Configure in and NMEA output over USB
UART2 – RTCM correction input and NMEA output over ESP32 Bluetooth
UART3 – NMEA output to embedded system
Coplanar Waveguide Calculation:
JLC041613H-7628 Stackup
Copper Thickness (1oz): 1.4mil/0.035mm
Board thickness: 1.6mm
Dielectric thickness (layer 1 to 2): 0.2mm
Er: 4.4
Polygon Isolation: 7mil/0.1778mm
RF Trace Width: 11.1mil/0.2819mm
https://jlcpcb.com/pcb-impedance-calculator
open source hardware
sparkfun
Designed by: N. Seidle
Sheet: /
File: SparkFun_RTK_Postcard.kicad_sch
Title: RTK Postcard (LG290P Quadband GNSS)
Size: USLedger
Date: 2024-08-21
Rev: v10
KiCad E.D.A. 8.99.0-3050-g420ea9da9d
Id: 1/1