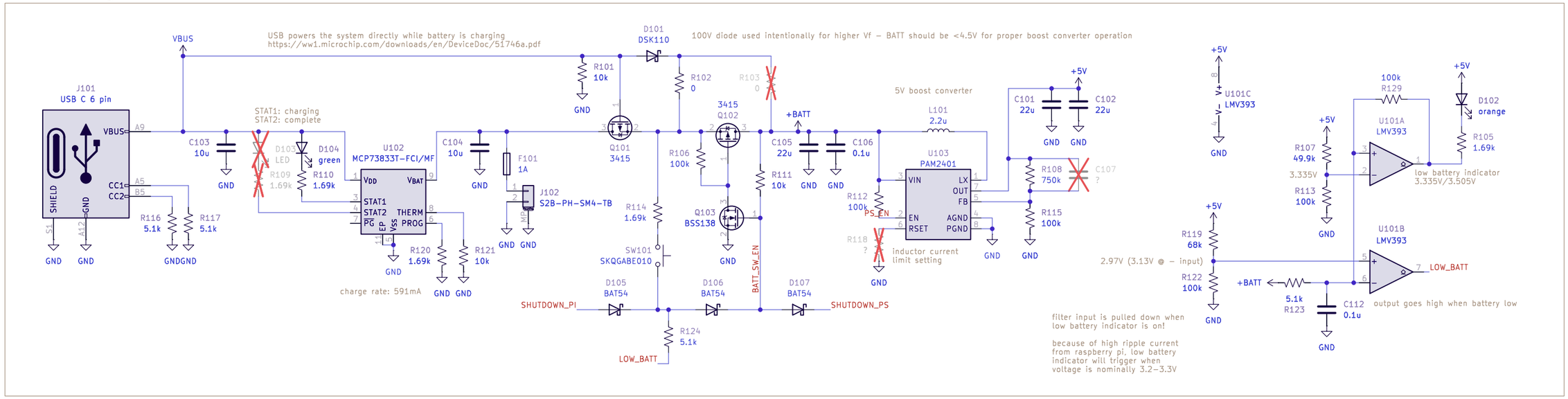
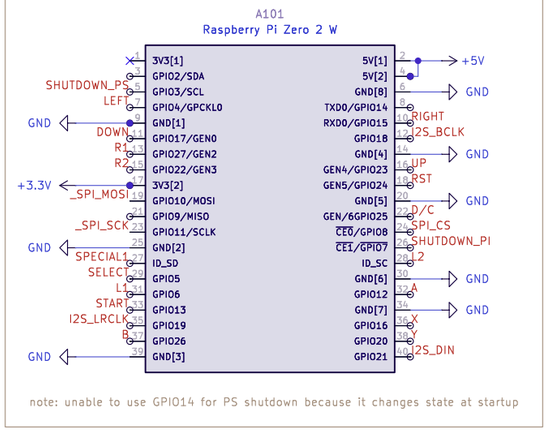
power management

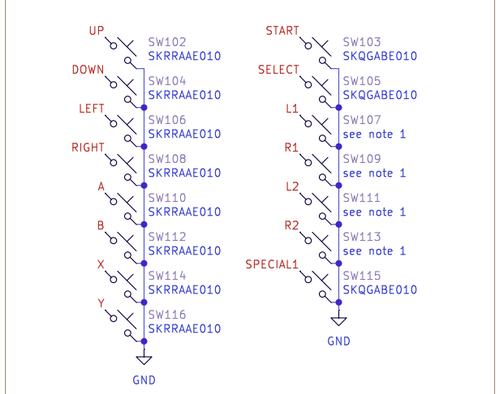


pi zero

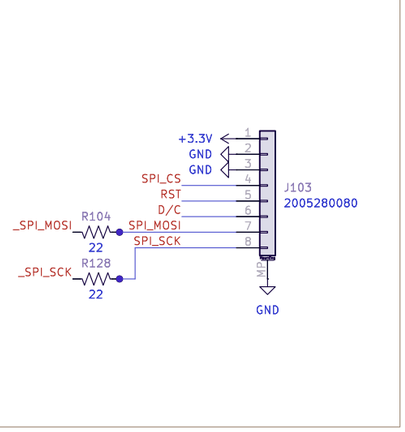


note: unable to use GPIO14 for PS shutdown because it changes state at startup

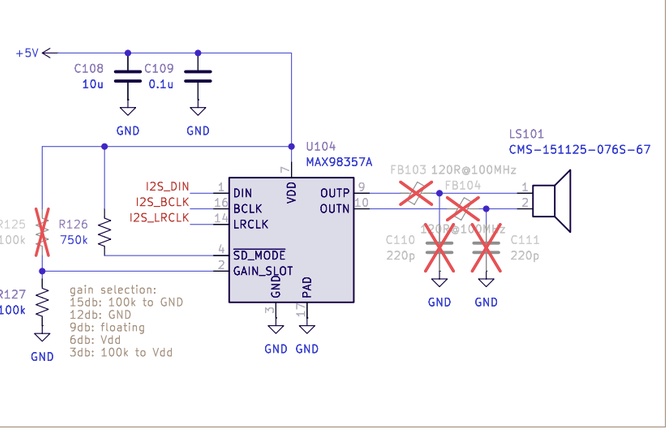
buttons



display



i2s audio



note 1:
for mint tin case use PTS645SM43SMTR92 LFS (6mm x 4.3mm SMT vertical tactile)
for 3d printed case use TL3336AF160Q (6mm x 4mm SMD right angle tactile)

power sequencing:
- startup:
  - SW101 turns BATT switch Q102 on through Q103 (BATT_SW_EN)
  - R111 latches Q102 on through Q103
- normal operation:
  - SHUTDOWN_PI (active high) is pulled up by ~50K internal pullup
  - LOW_BATT is LOW, causing SHUTDOWN_PI to be pulled low through D105
  - D105 protects GPIO7 from voltages >3.3V
  - D106 prevents LOW_BATT from turning off Q103/Q102
- shutdown:
  - SW101 overrides LOW_BATT pulldown, causing SHUTDOWN_PI to go high
  - OR, LOW_BATT signal goes high–Z due to low battery condition
  - Shutdown script on Pi triggers safe shutdown when GPIO7 is high for >1 second
  - SHUTDOWN_PS (active low) turns off Q103/Q102 when Pi has safely shut down
  - D107 prevents I2C pullups from turning on Q103/Q102 after Pi stops actively pulling down GPIO

```
dtoverlay=gpio-shutdown,gpio_pin=7,active_low=0,gpio_pull=up
dtoverlay=gpio-poweroff,gpio_pin=3,active_low=1
```

H101 MountingHole
H102
H103 MountingHole
H104
H105 MountingHole
H106 MountingHole
FID101
FID102
FID103
FID104
FID105
FID106

drawn by jackw01
alley cat engineering

Sheet: /		
File: mintypcb.kicad_sch		
Title: pi tin main pcb		
Size: A3	Date: 2025–03–08	**Rev: 2**
KiCad E.D.A. 8.0.4		Id: 1/1