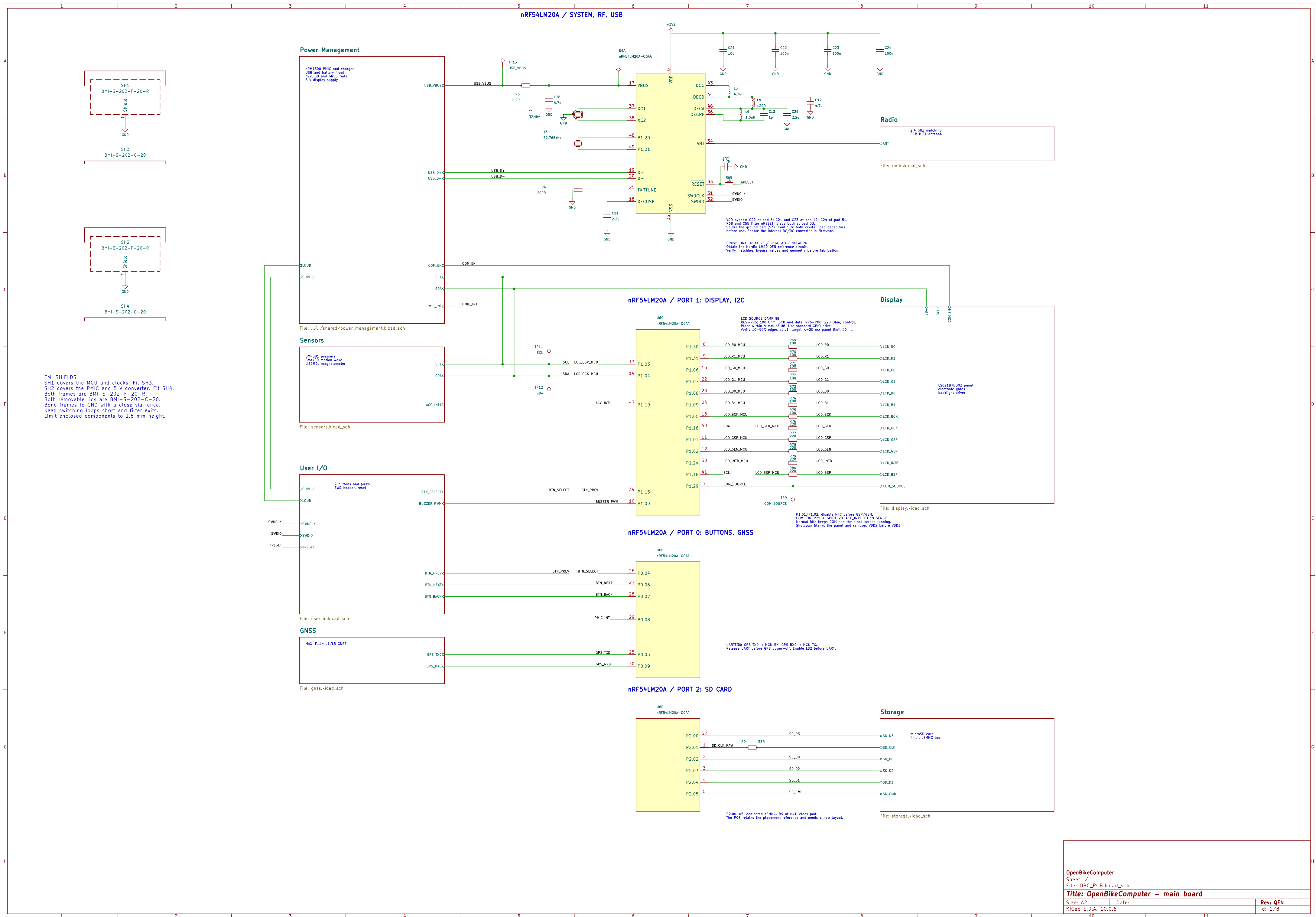
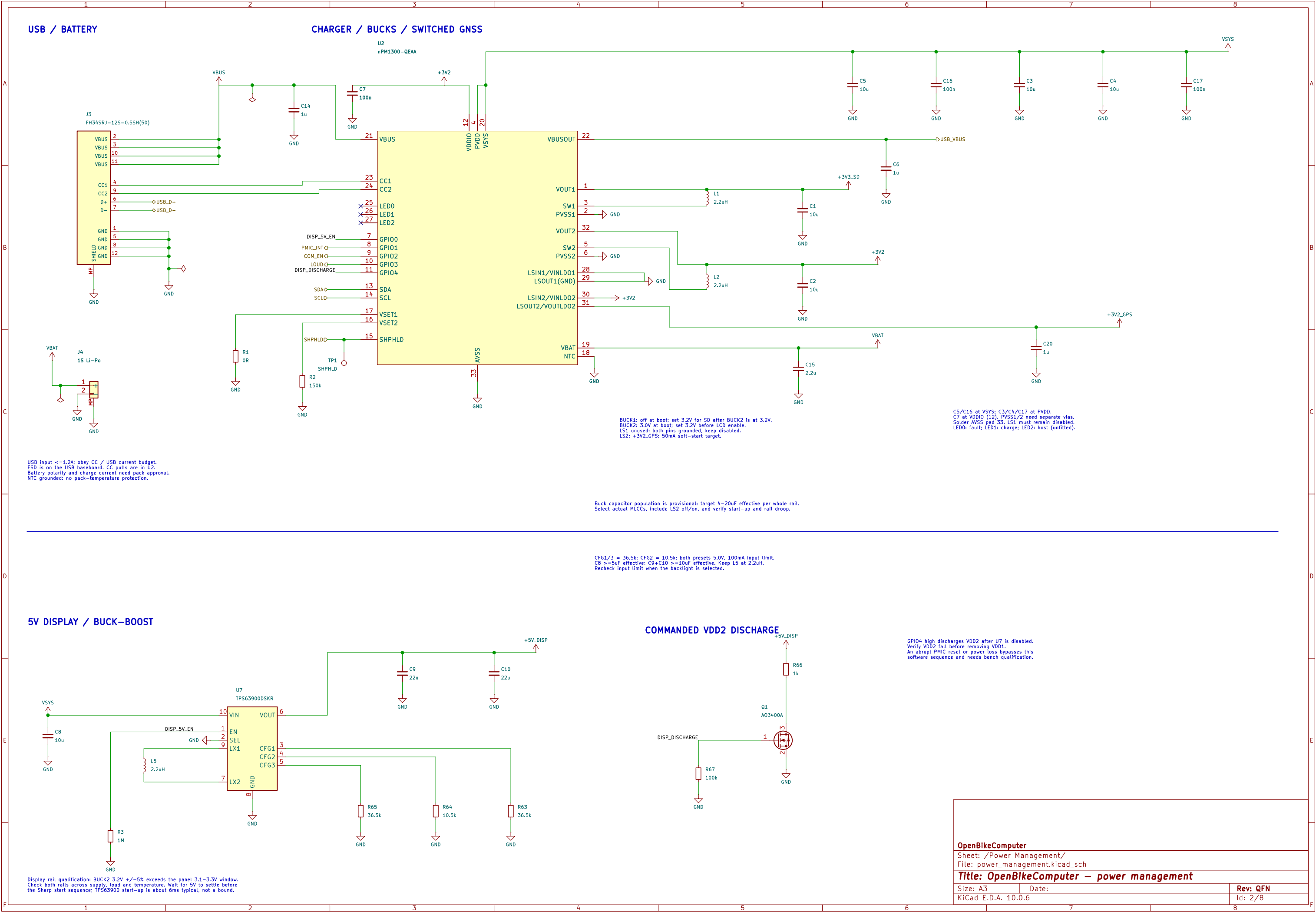






GNSS / MAX-F11N + L1/L5 CHIP ANTENNA

50R feed; place matching / FTE parts at ANT1.
Taoglas corner reference values: tune with enclosure fitted.

Reserve 15.3 x 9.8mm at long-edge corner; no display / metal.
Copy Taoglas Sec. 11 copper extensions and all-layer clearance.

Release both UART pins before LS2 is off; enable LS2 before UARTE30.
Set LS2 soft start to 50mA; measure V_I/O at 25-3500us/V.
V_BCKP ramp >=25us/V. Verify the production F11N power budget.

VNA: remove R40; keep C31 and antenna matching.
J8 center pad in feed; no stub. Calibrate at pads.

OpenBikeComputer
Sheet: /GNSS/
File: gnss.kicad_sch
Title: OpenBikeComputer – GNSS
Size: A4 Date: Rev: QFN
KiCad E.D.A. 10.0.6 Id: 3/8

Reserve 15.3 x 9.8mm at long-edge corner; no display / metal.
Copy Taoglas Sec. 11 copper extensions and all-layer clearance.

Release both UART pins before LS2 is off; enable LS2 before UARTE30.
Set LS2 soft start to 50mA; measure V_{I/O} at 25–3500us/V.
V_{BCKP} ramp >=25us/V. Verify the production F11N power budget.

VNA: remove R40; keep C31 and antenna matching.
J8 center pad in feed; no stub. Calibrate at pads.

Sheet: /GNSS/
File: gnss.kicad_sch

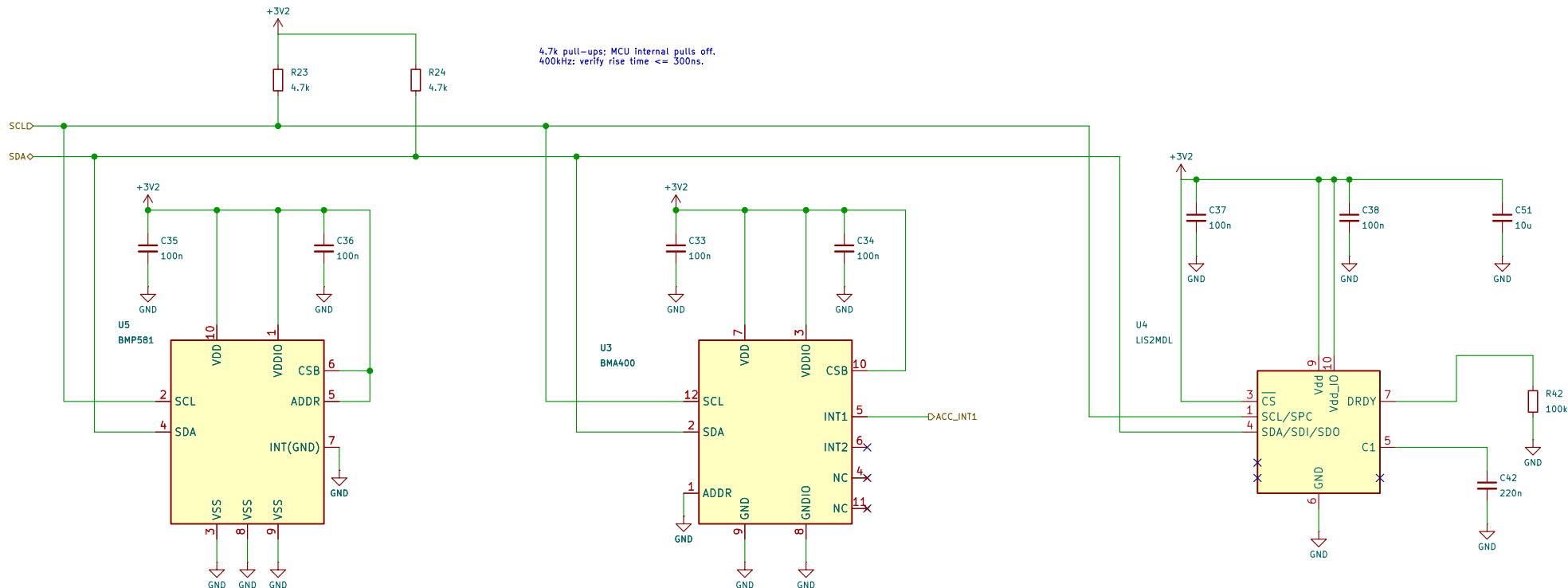
Title: OpenBikeComputer – GNSS

Size: A4	Date:
KiCad E.D.A. 10.0.6	

Rev: QFN
Id: 3/8

SENSORS / 3.2V I2C

BMP581: 0x47 BMA400: 0x14 LIS2MDL: 0x1E



0x47 / POLLED PRESSURE

INT tied low; keep $\text{IntLen} = 0$.
No traces, vias or mask under U5.
Keep the pressure port clear.

0x14 / MOTION WAKE

INT1: push-pull, active-high, latched.
Basic wake-up in 25Hz low-power mode.
MCU SENSE on P1.19.

0x1E / MAGNETOMETER

C37/C51 at Vdd; C38 at VddIO.
C42 at C1/GND. INT/DRDY is biased low.
Keep high-current paths and magnets away.
No top-layer traces or vias under U4.

OpenBikeComputer

Sheet: /Sensors/
File: sensors.kicad_sch

Title: OpenBikeComputer – motion and environment

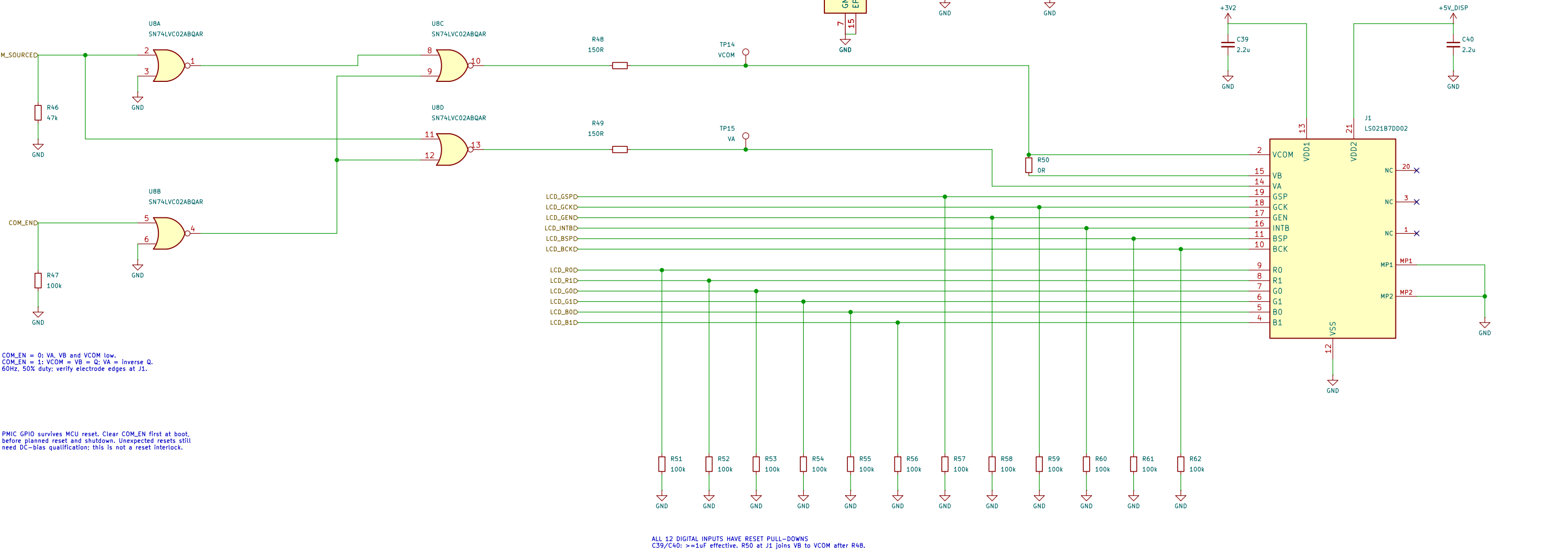
Size: A4
KiCad E.D.A. 10.0.6

Date:

Rev: QFN

Id: 4/8

LCD ELECTRODES / FAIL-LOW ENABLE

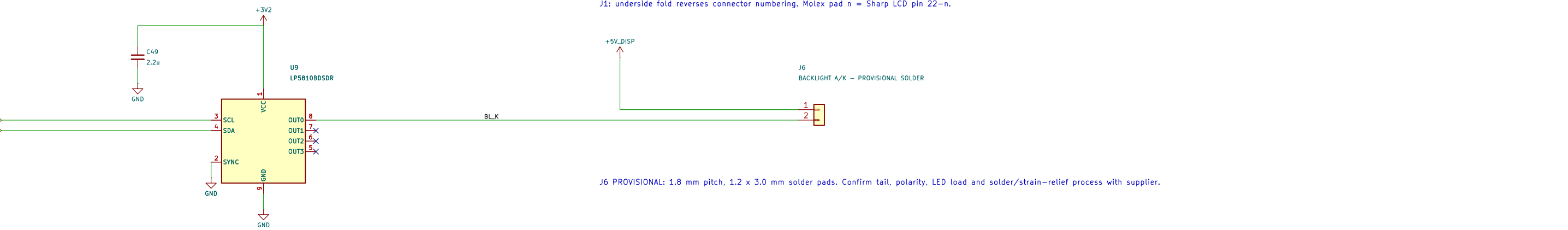


COM_EN = 0: VA, VB and VCOM low.
COM_EN = 1: VCOM = VB = Q; VA = inverse Q.
60Hz, 50% duty; verify electrode edges at J1.

PMIC GPIO survives MCU reset. Clear COM_EN first at boot,
before planned reset and shutdown. Unexpected resets still
need DC-bias qualification; this is not a reset interlock.

ALL 12 DIGITAL INPUTS HAVE RESET PULL-DOWNS
C39/C40: >=1uF effective. R50 at J1 joins VB to VCOM after R48.

BACKLIGHT / I2C CURRENT SINK

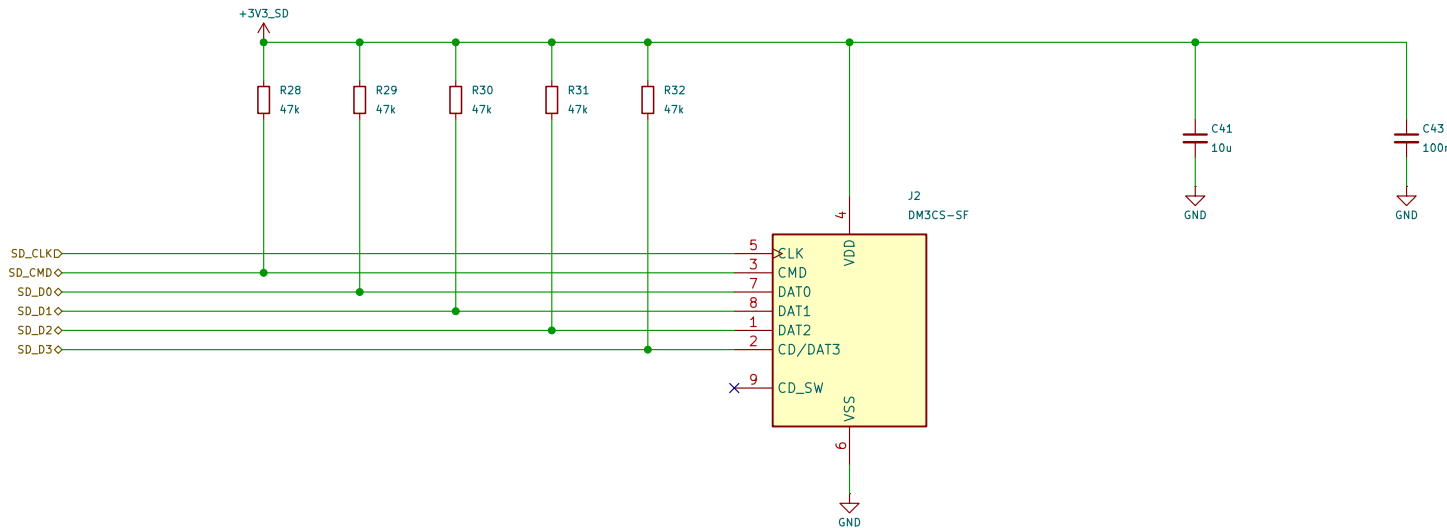


J1: underside fold reverses connector numbering. Molex pad n = Sharp LCD pin 22-n.

J6 PROVISIONAL: 1.8 mm pitch, 1.2 x 3.0 mm solder pads. Confirm tail, polarity, LED load and solder/strain-relief process with supplier.

0x54-0x57: SYNC low, PWM = 255; use DC brightness.
Keep lsd_action = 0 on 3.2V (possible false short flags).
OUT1-3 spare. LED load and J6 footprint remain unresolved.

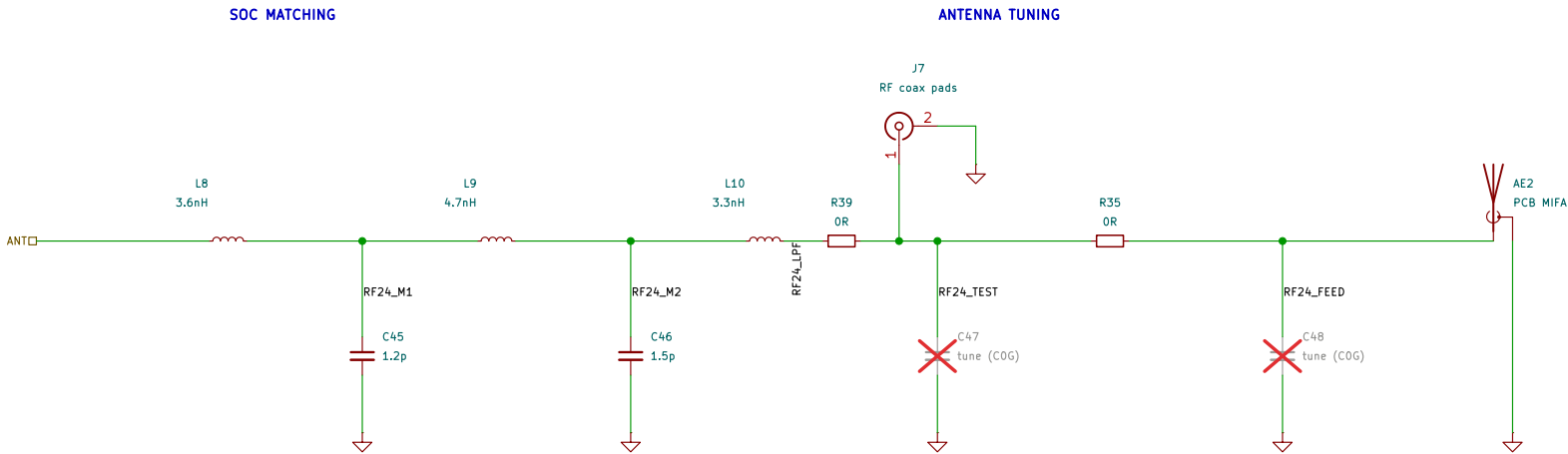
microSD / DEDICATED sEMMC BUS



47k pull-ups to the switched card rail. No CLK pull-up.
C41/C43 at J2: verify card start-up and write bursts within BUCK1 200mA.
Release all six MCU pins before switching the card rail off.
Card-detect contacts are unused.

OpenBikeComputer		
Sheet: /Storage/		
File: storage.kicad_sch		
Title: OpenBikeComputer – microSD		
Size: A4	Date:	Rev: QFN
KiCad E.D.A. 10.0.6	Id: 6/8	

2.4GHz RADIO / TOP-EDGE PCB ANTENNA



QGAA matching is provisional. Obtain the Nordic LM20 QFN reference circuit.
Verify L8/C45/L9/C46/L10 values and geometry before fabrication.

AE2: TI AN043 starting geometry; copper keepout on all layers below radiator.
Keep display metal / battery clear. Tune C47/R35/C48 in the final enclosure.

VNA: remove R39; keep C47/R35/C48 fitted as tuned.
J7 center pad in feed; no stub. Calibrate at pads.

OpenBikeComputer

Sheet: /Radio/
File: radio.kicad_sch

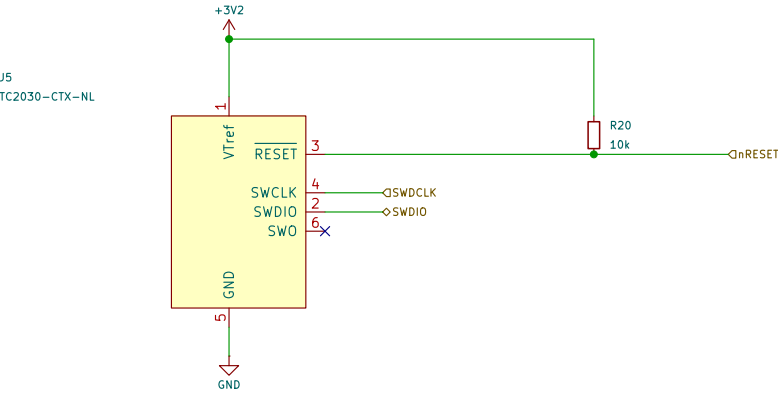
Title: OpenBikeComputer – 2.4GHz radio

Size: A4
KiCad E.D.A. 10.0.6

Date:

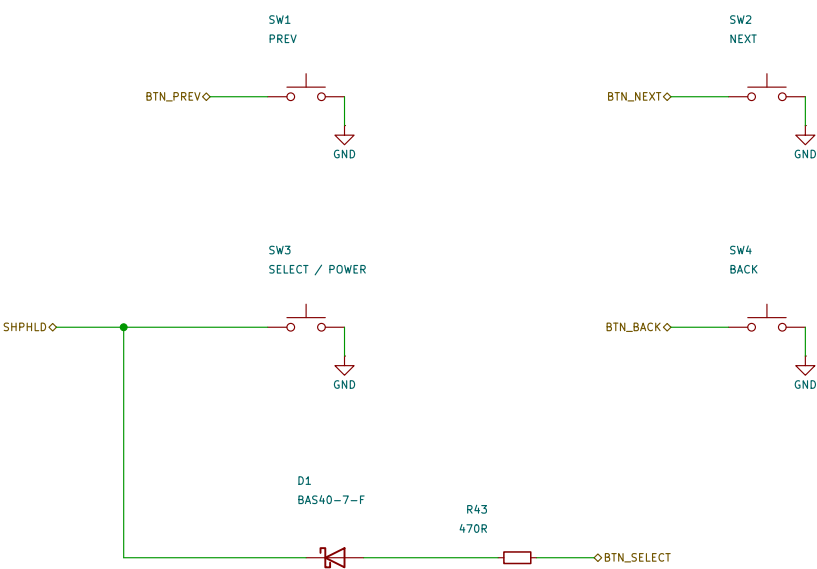
Rev: QFN
Id: 7/8

DEBUG / SWD



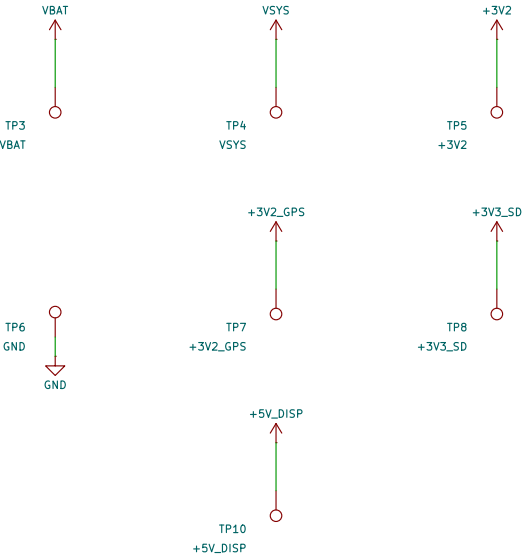
Vtref is 3.2V: probe must sense target voltage.
SWO is unavailable on QFN52.
Keep SWD access clear of enclosure features.

BUTTONS / ACTIVE LOW

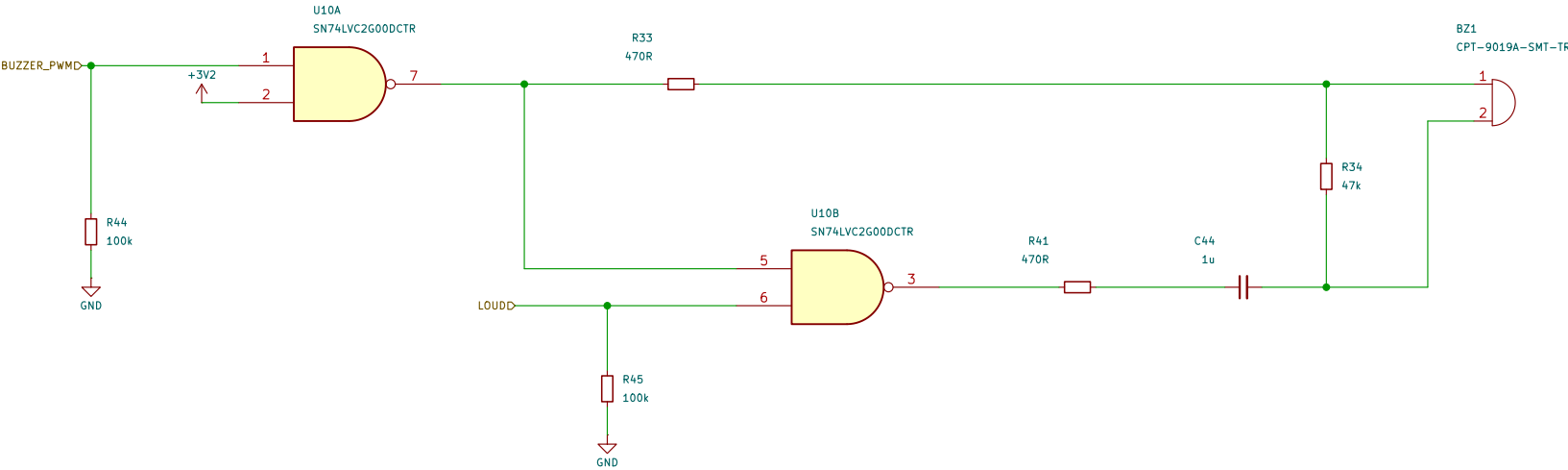


MCU Internal pull-ups on all four buttons.
D1 blocks SHPHLD voltage when the MCU is off.
Enter ship mode only after SELECT is released.
Qualify D1 leakage at hot temperature.

PROBE PADS



PIEZO / QUIET AND LOUD



PWM low at rest. LOUD low: single-ended; high: complementary drive.
C44 blocks DC; R34 discharges the piezo. Measure sound in the enclosure.
Set LOUD when the level changes, not for every note.

