

Avionics



File: Avionics.kicad_sch

Connectors



File: Connectors.kicad_sch

Power



File: Power.kicad_sch

Burn Wires



File: Burn_Wires.kicad_sch

RF



File: RF.kicad_sch

Watchdog



File: watchdog.kicad_sch

PiCubed

Ethan Brinser
Stanford Student Space Initiative

Sheet: /
File: mainboard.kicad_sch

Title: **PiCubed Mainboard**

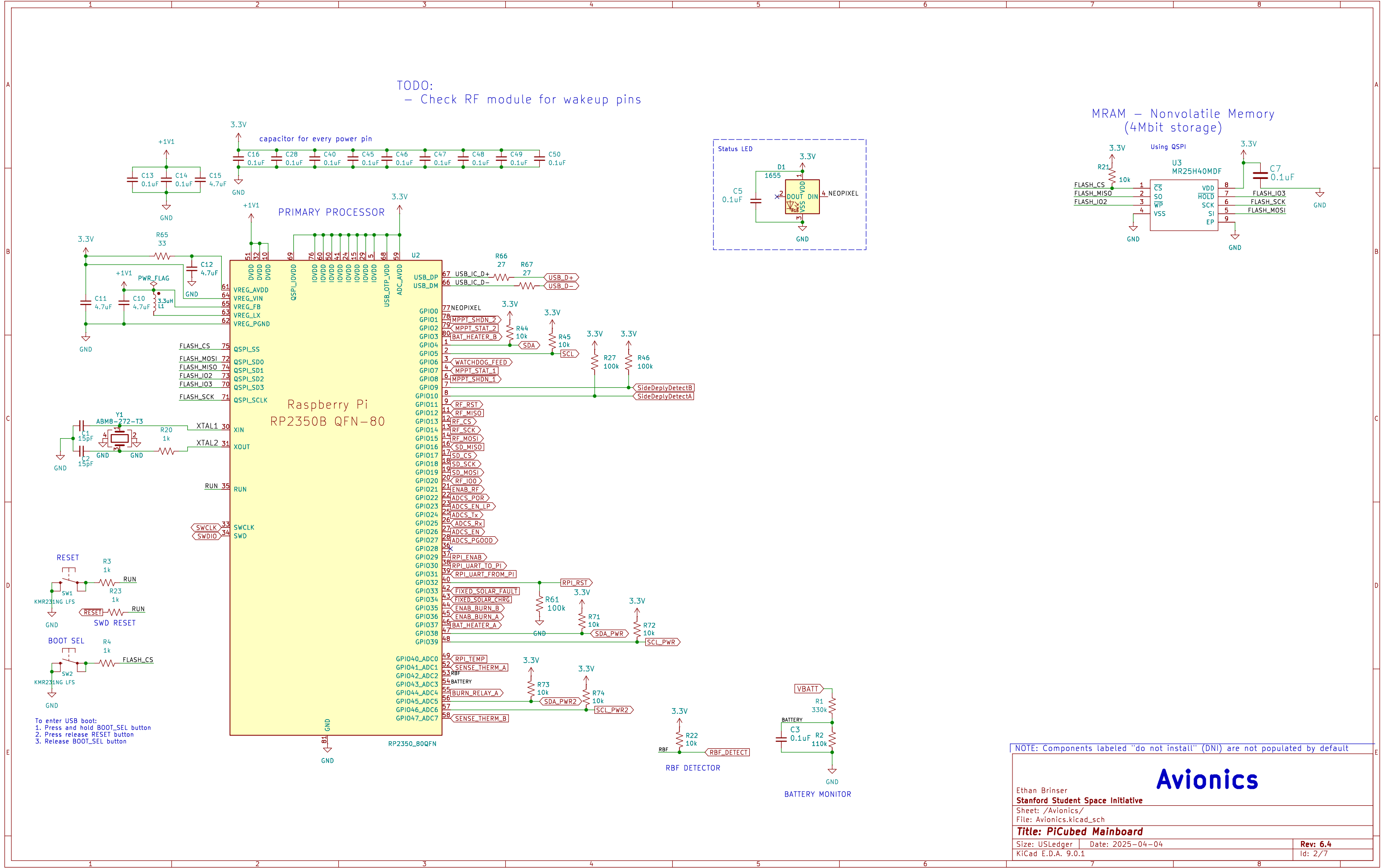
Size: A4 Date: 2025-04-04

KiCad E.D.A. 9.0.1

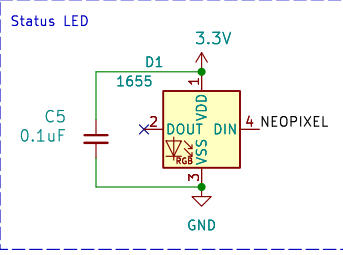
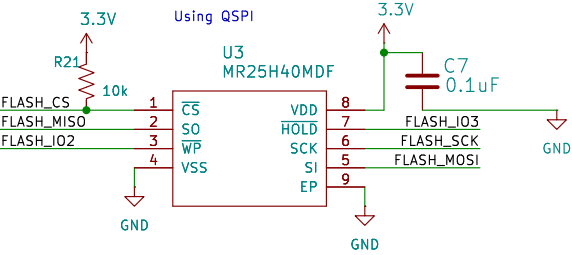
Rev: **6.4**

Id: 1/7

TODO:
– Check RF module for wakeup pins



MRAM – Nonvolatile Memory
(4Mbit storage)

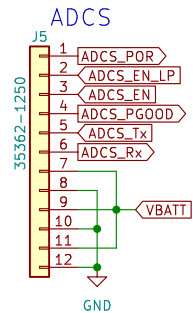
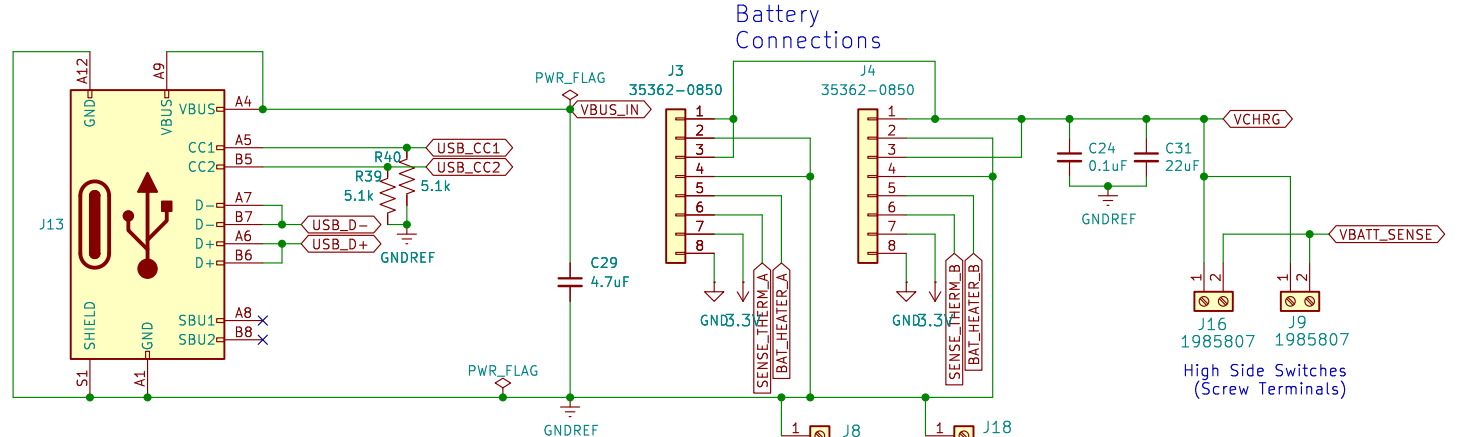
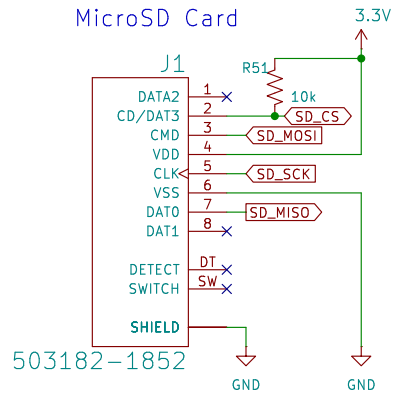


[NOTE: Components labeled "do not install" (DNI) are not populated by default

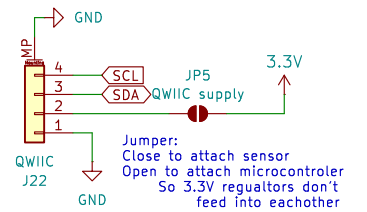
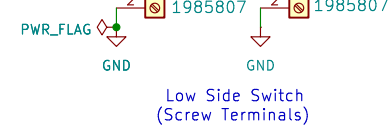
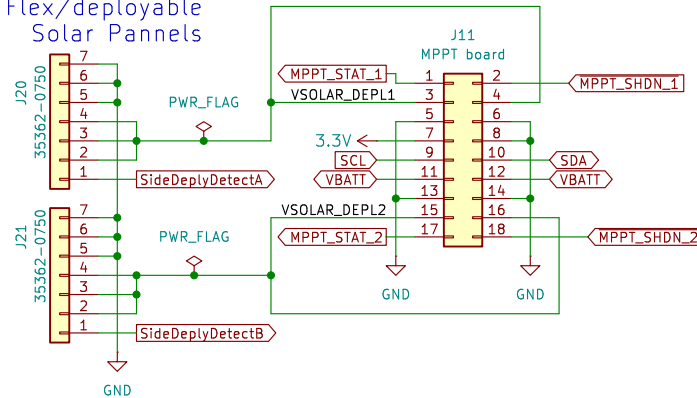
Avionics

Ethan Brinser Stanford Student Space Initiative Sheet: /Avionics/ File: Avionics.kicad_sch		
Title: PIcubed Mainboard		
Size: USLedge	Date: 2025-04-04	Rev: 6.4
KiCad E.D.A. 9.0.1		Id: 2/7

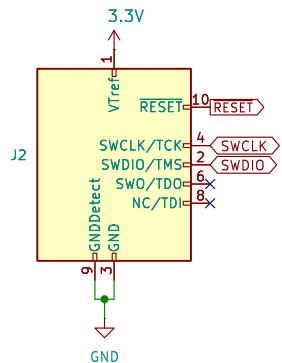
Power Connectors: USB-C Power Delivery to 2S Li-ion Battery



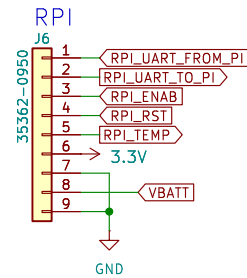
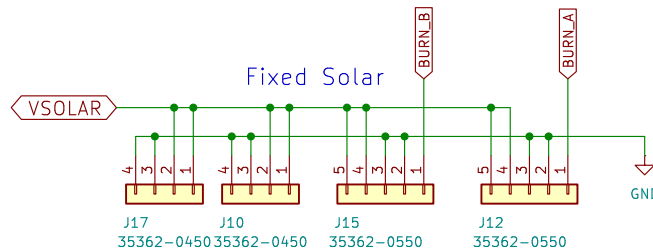
Flex/deployable Solar Panels



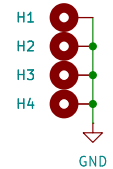
SWD



Fixed Solar



Mounting Holes



NOTE: Components labeled "do not install" (DNI) are not populated by default

Connectors

Ethan Brinser

Stanford Student Space Initiative

Sheet: /Connectors/

File: Connectors.kicad_sch

Title: PiCubed Mainboard

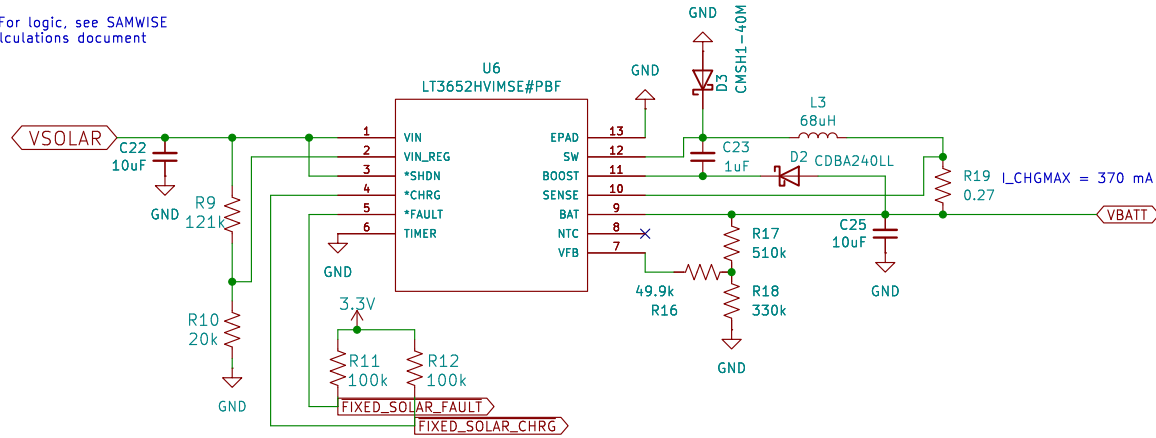
Size: A4 Date: 2025-04-04

KiCad E.D.A. 9.0.1

Rev: 6.4

Id: 4/7

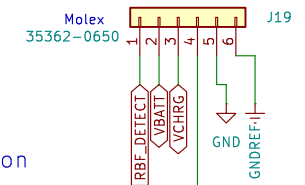
V_FPPT = 19.035. For logic, see SAMWISE
X panel LT3652 Calculations document
in Google Drive



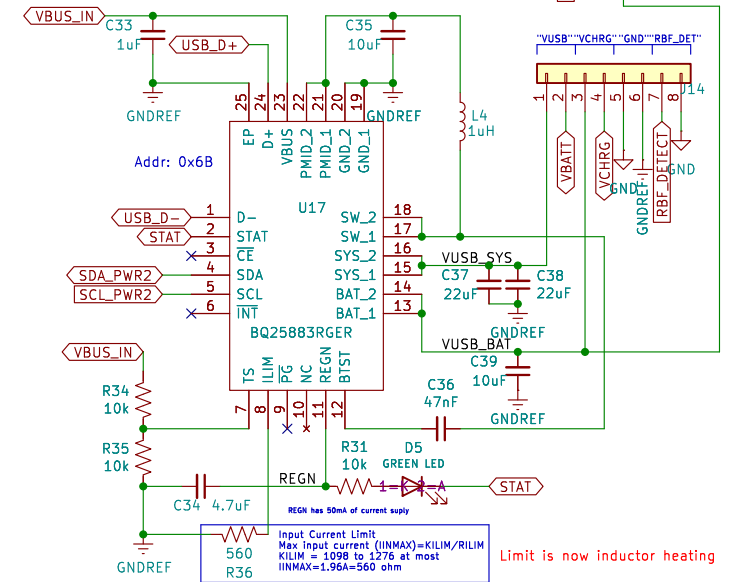
RBF Jumpers

RBF jumpers features:

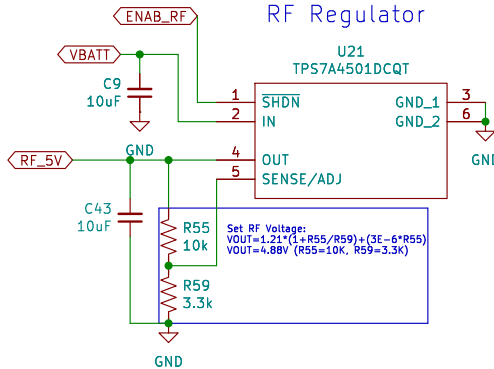
- Turn on system:
 - "GND" bypasses ground switch. On J19 short 5 & 6. On J14 short 5 & 6
 - "VCC" bypasses power switch. On J19 short 2 & 3. On J14 short 4 & 5 or (3 & 4 and 5 & 6)
 - "VUSB" enables USB charging. On J19 short 3 & 4. On J14 short 5 & 6
 - "RFB_DET" tells RP2350 status of RBF connector. On J19 short 1 & 5. On J14 short 1 & 2
- RBF_DET should only be removed once in launch pod
- All jumpers should be removed prior to flight



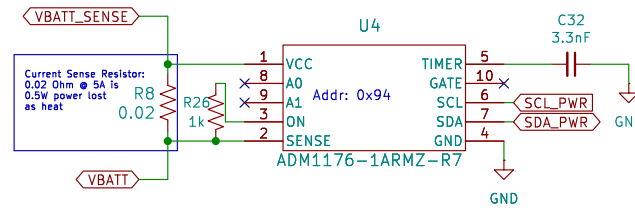
USB (Boost) Charging for 2-cell Li-Ion



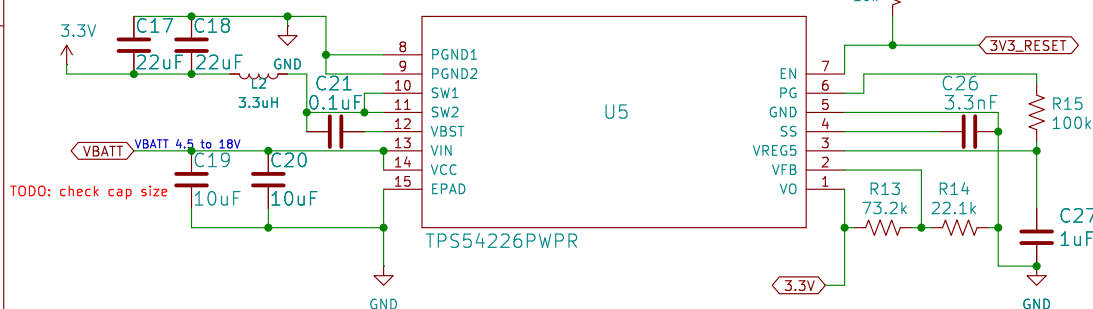
RF Regulator



Battery Power Monitor



Regulator – 3.3V OUT



NOTE: Components labeled "do not install" (DNI) are not populated by default

Power

Ethan Brinser

Stanford Student Space Initiative

Sheet: /Power/

File: Power.kicad_sch

Title: PiCubed Mainboard

Size: A4

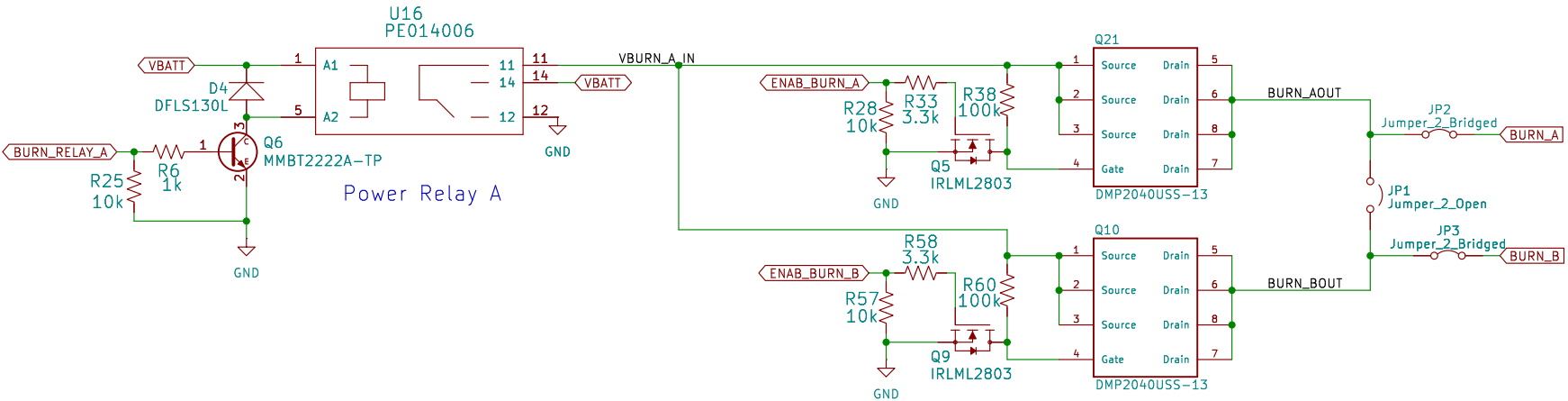
Date: 2025-04-04

KiCad E.D.A. 9.0.1

Rev: 6.4

Id: 5/7

Burn Wire Control (Antenna and Flex Solar Deployment)



NOTE: Components labeled "do not install" (DNI) are not populated by default

Burn Wires

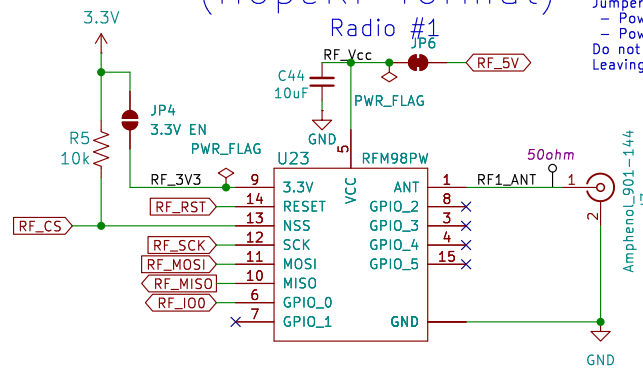
Ethan Brinser
Stanford Student Space Initiative

Sheet: /Burn Wires/
File: Burn_Wires.kicad_sch

Title: PiCubed Mainboard

Size: A4	Date: 2025-04-04	Rev: 6.4
KiCad E.D.A. 9.0.1		Id: 6/7

Modular Radio (HopeRF format)



Jumpers for power select:

- Power from 5V LDO (default), short JP6, open JP4, lower power supply noise and power control
- Power from 3.3V switcher, open JP6, short JP4, higher efficiency but always on

Do not short both JP4 and JP6 at the same time

Leaving both JP4 and JP6 leaves the radio unpowered

NOTE: Components labeled "do not install" (DNI) are not populated by default

Radio, GPS, Payloads

Ethan Brinser

Stanford Student Space Initiative

Sheet: /RF/

File: RF.kicad_sch

Title: PiCubed Mainboard

Size: A4

Date: 2025-04-04

Rev: 6.4

KiCad E.D.A. 9.0.1

Id: 7/7