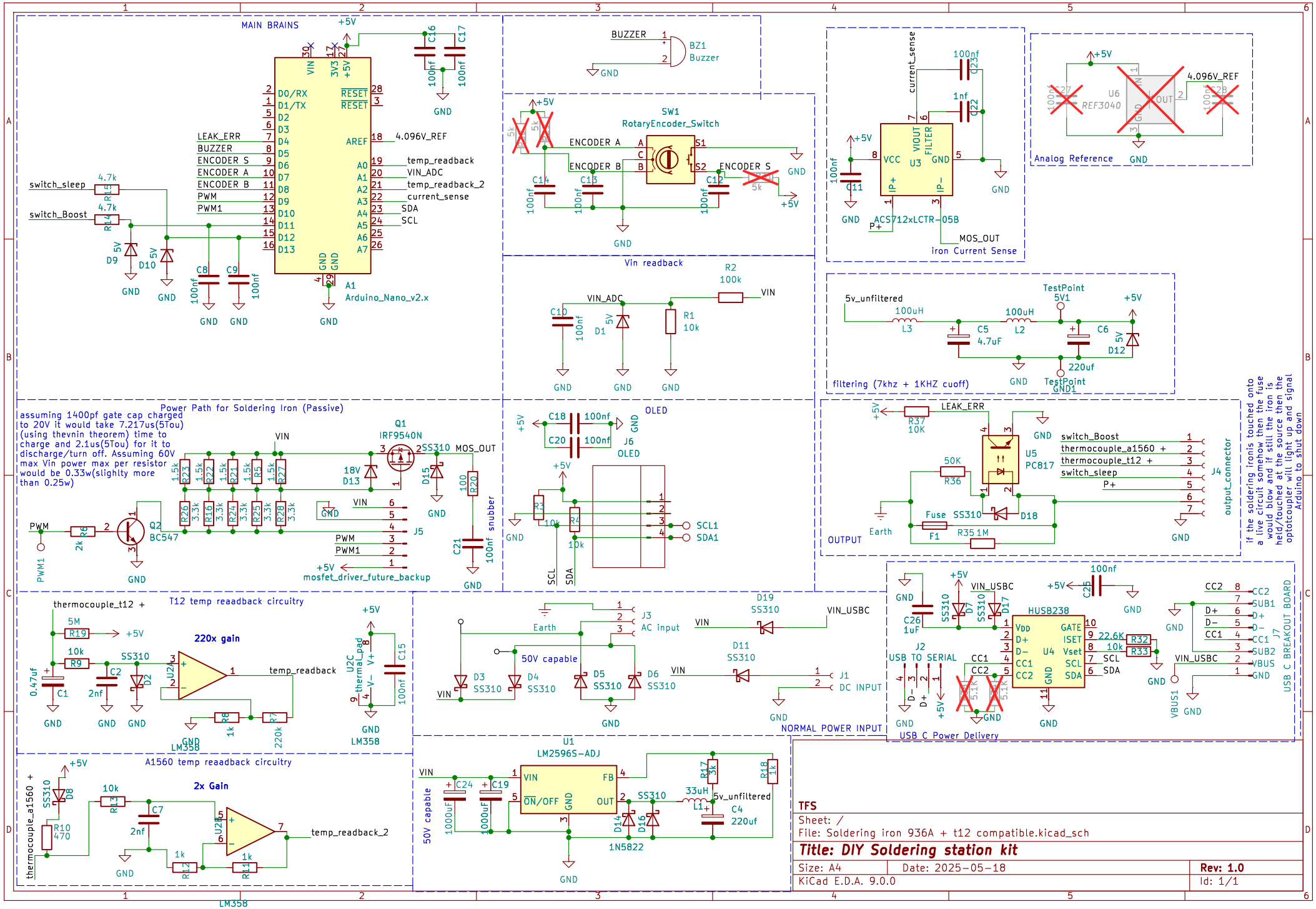
MAIN BRAINS
A1
Arduino_Nano_v2.x
D0/RX
D1/TX
D2
D3
D4
D5
D6
D7
D8
D9
D10
D11
D12
D13
RESET
RESET
AREF
4.096V_REF
A0
A1
A2
A3
A4
A5
A6
A7
temp_readback
VIN_ADC
temp_readback_2
current_sense
SDA
SCL
LEAK_ERR
BUZZER
ENCODER S
ENCODER A
ENCODER B
PWM
PWM1
switch_sleep
switch_Boost
BUZZER
BZ1
Buzzer
SW1
RotaryEncoder_Switch
ENCODER A
ENCODER B
ENCODER S
Vin readback
VIN_ADC
VIN
R2
100k
R1
10k
current_sense
U3
ACS712xLCTR-05B
MOS_OUT
iron Current Sense
U6
REF3040
4.096V_REF
Analog Reference
5v_unfiltered
TestPoint
5V1
L3
100uH
L2
100uH
C5
4.7uF
C6
220uf
TestPoint
GND1
filtering (7khz + 1KHZ cuoff)
Power Path for Soldering Iron (Passive)
assuming 1400pf gate cap charged to 20V it would take 7.217us(5Tou) (using thevnin theorem) time to charge and 2.1us(5Tou) for it to discharge/turn off. Assuming 60V max Vin power max per resistor would be 0.33w(slighlty more than 0.25w)
Q1
IRF9540N
MOS_OUT
snubber
Q2
BC547
J5
mosfet_driver_future_backup
OLED
J6
OLED
SCL1
SDA1
LEAK_ERR
U5
PC817
J4
output_connector
switch_Boost
thermocouple_a1560 +
thermocouple_t12 +
switch_sleep
P+
OUTPUT
Earth
if the soldering ironis touched onto a live circuit somehow then the fuse would blow and if still the iron is held/touched at the source then the optotcoupler will light up and signal Arduino to shut down
T12 temp reaadback circuitry
thermocouple_t12 +
220x gain
temp_readback
LM358
A1560 temp reaadback circuitry
thermocouple_a1560 +
2x Gain
temp_readback_2
LM358
J3
AC input
Earth
50V capable
D3
D4
D5
D6
SS310
VIN
D19
D11
J1
DC INPUT
NORMAL POWER INPUT
VIN_USBC
HUSB238
U4
USB TO SERIAL
J2
USB C Power Delivery
USB C BREAKOUT BOARD
J7
U1
LM2596S-ADJ
VIN
FB
ON/OFF
OUT
GND
50V capable
1000uF
33uH
L1
5v_unfiltered
C4
220uf
1N5822
TFS
Sheet: /
File: Soldering iron 936A + t12 compatible.kicad_sch
Title: DIY Soldering station kit
Size: A4
Date: 2025-05-18
Rev: 1.0
KiCad E.D.A. 9.0.0
Id: 1/1