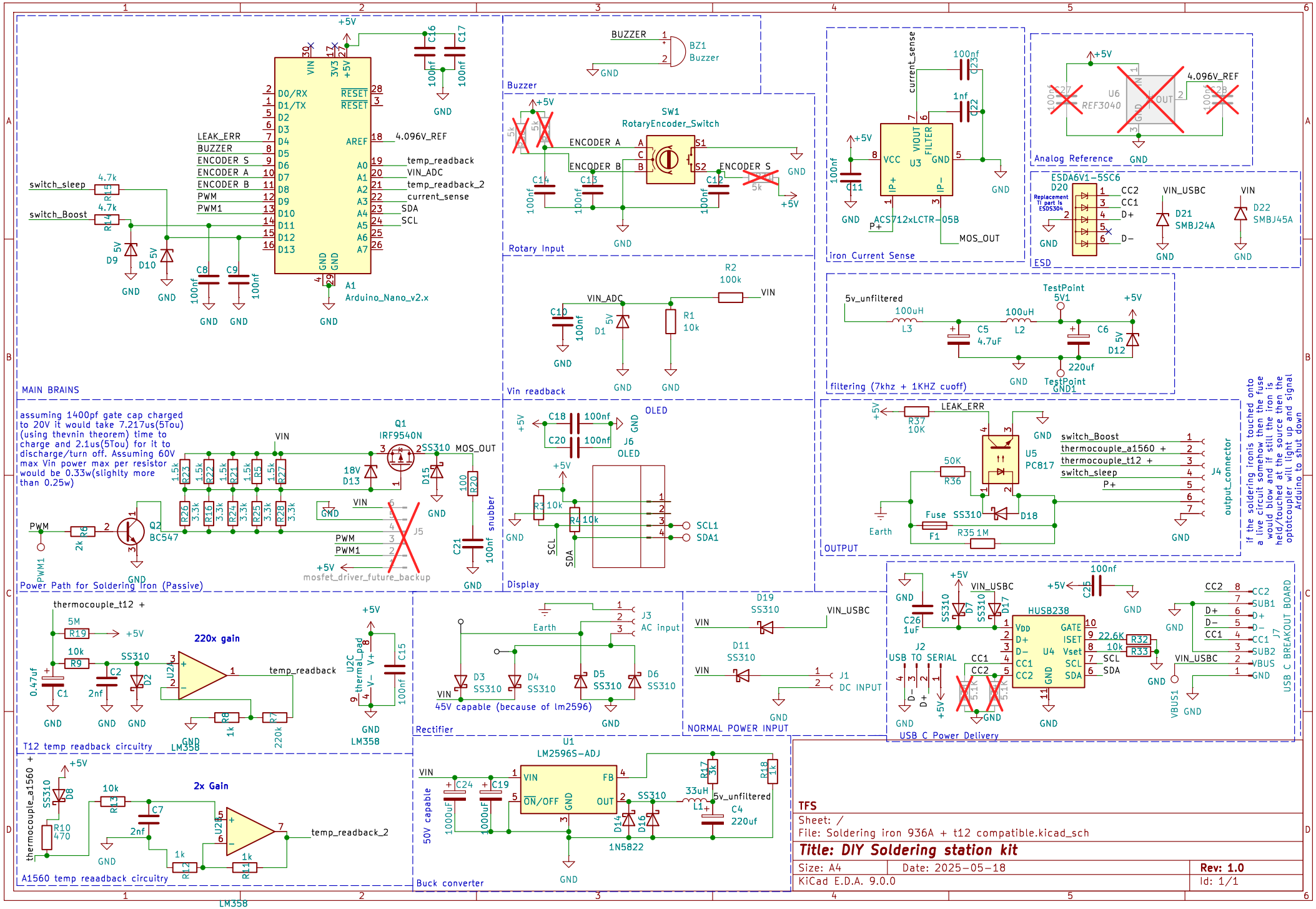
MAIN BRAINS
A1
Arduino_Nano_v2.x
LEAK_ERR
BUZZER
ENCODER S
ENCODER A
ENCODER B
PWM
PWM1
switch_sleep
switch_Boost
4.096V_REF
temp_readback
VIN_ADC
temp_readback_2
current_sense
SDA
SCL
Buzzer
BZ1
Buzzer
Rotary Input
SW1
RotaryEncoder_Switch
Vin readback
R2
100k
R1
10k
iron Current Sense
U3
ACS712xLCTR-05B
MOS_OUT
Analog Reference
U6
REF3040
ESD
ESDA6V1-5SC6
D20
D21
SMBJ24A
D22
SMBJ45A
VIN_USBC
filtering (7khz + 1KHZ cuoff)
5v_unfiltered
TestPoint
5V1
TestPoint
GND1
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
Q2
BC547
mosfet_driver_future_backup
snubber
Display
OLED
J6
OLED
SCL1
SDA1
OUTPUT
U5
PC817
output_connector
J4
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 readback circuitry
thermocouple_t12 +
220x gain
temp_readback
LM358
Rectifier
J3
AC input
45V capable (because of lm2596)
NORMAL POWER INPUT
J1
DC INPUT
USB C Power Delivery
HUSB238
USB TO SERIAL
J2
USB C BREAKOUT BOARD
J7
A1560 temp reaadback circuitry
thermocouple_a1560 +
2x Gain
temp_readback_2
Buck converter
U1
LM2596S-ADJ
50V capable
5v_unfiltered
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