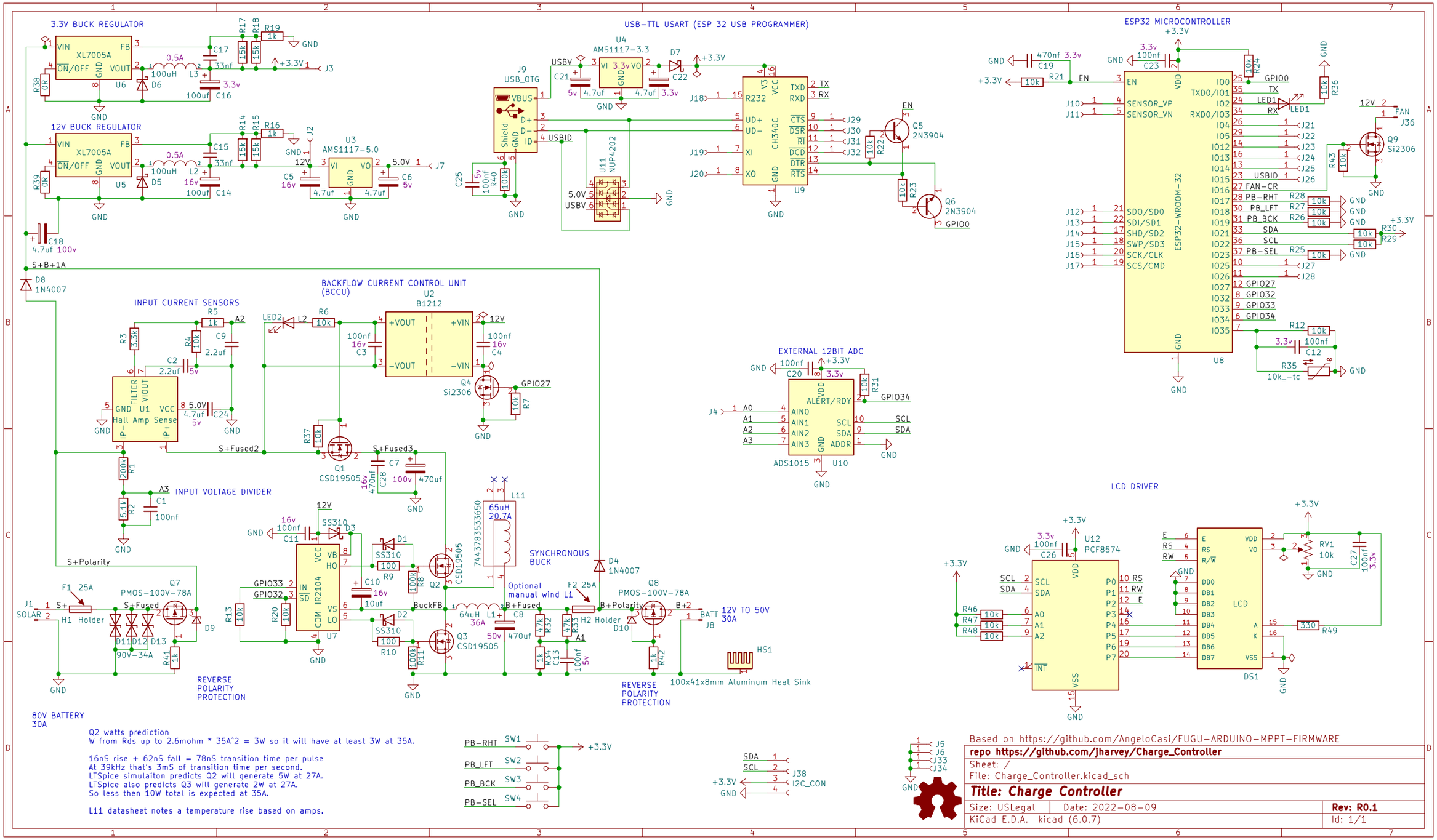
3.3V BUCK REGULATOR
12V BUCK REGULATOR
USB-TTL USART (ESP 32 USB PROGRAMMER)
ESP32 MICROCONTROLLER
BACKFLOW CURRENT CONTROL UNIT (BCCU)
INPUT CURRENT SENSORS
INPUT VOLTAGE DIVIDER
SYNCHRONOUS BUCK
EXTERNAL 12BIT ADC
LCD DRIVER
REVERSE POLARITY PROTECTION
80V BATTERY 30A
12V TO 50V 30A
100x41x8mm Aluminum Heat Sink
Q2 watts prediction
W from Rds up to 2.6mohm * 35A^2 = 3W so it will have at least 3W at 35A.
16nS rise + 62nS fall = 78nS transition time per pulse
At 39kHz that's 3mS of transition time per second.
LTSpice simulaiton predicts Q2 will generate 5W at 27A.
LTSpice also predicts Q3 will generate 2W at 27A.
So less then 10W total is expected at 35A.
L11 datasheet notes a temperature rise based on amps.
Based on https://github.com/AngeloCasi/FUGU-ARDUINO-MPPT-FIRMWARE
repo https://github.com/jharvey/Charge_Controller
Sheet: /
File: Charge_Controller.kicad_sch
Title: Charge Controller
Size: USLegal
Date: 2022-08-09
Rev: R0.1
KiCad E.D.A. kicad (6.0.7)
Id: 1/1