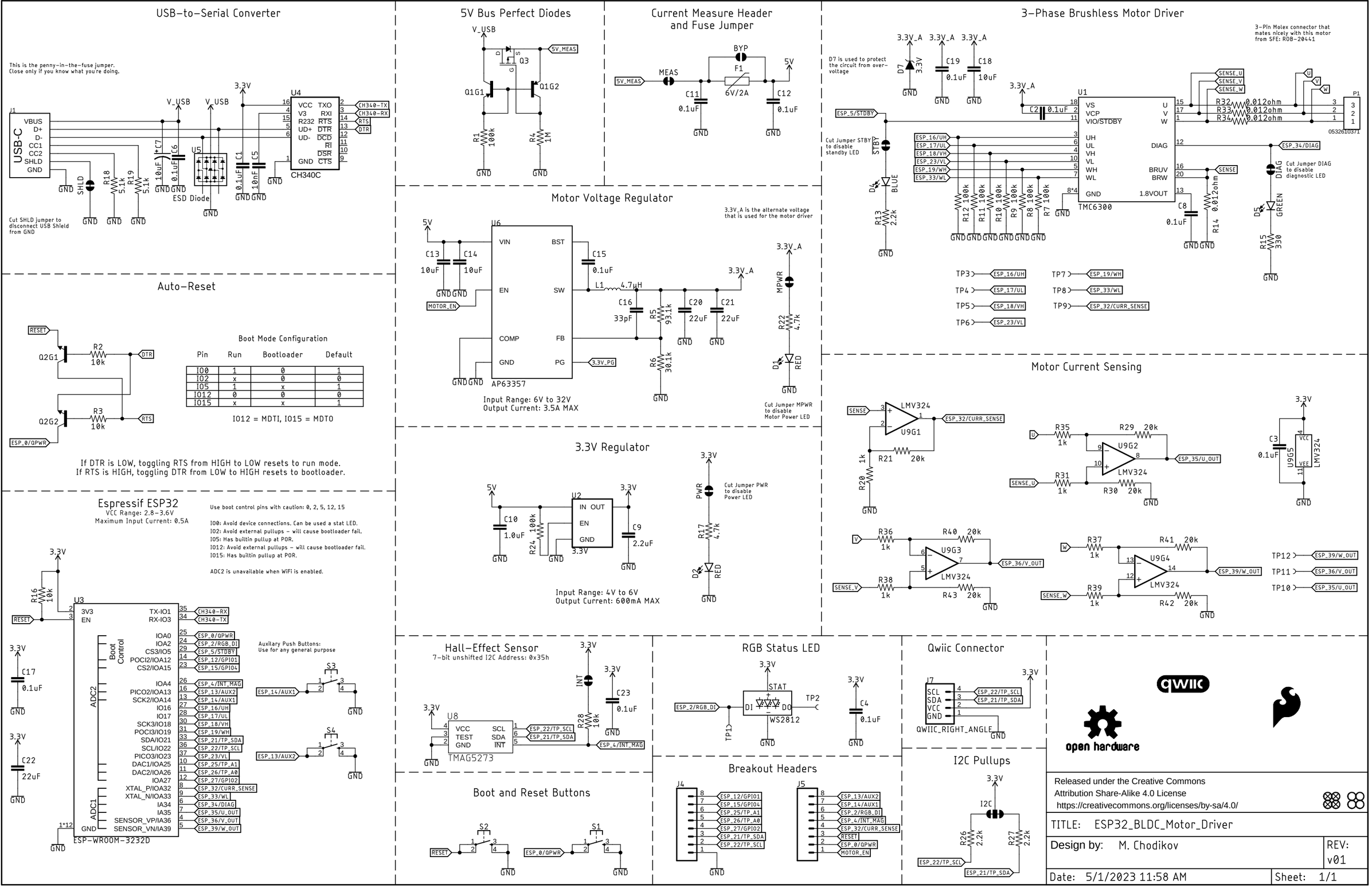
USB-to-Serial Converter
This is the penny-in-the-fuse jumper. Close only if you know what you're doing.
Cut SHLD jumper to disconnect USB Shield from GND
ESD Diode
U4
CH340C
5V Bus Perfect Diodes
Current Measure Header and Fuse Jumper
BYP
F1
6V/2A
MEAS
3-Phase Brushless Motor Driver
3-Pin Molex connector that mates nicely with this motor from SFE: ROB-20441
D7 is used to protect the circuit from over-voltage
Cut Jumper STBY to disable standby LED
Cut Jumper DIAG to disable diagnostic LED
U1
TMC6300
Motor Voltage Regulator
3.3V_A is the alternate voltage that is used for the motor driver
U6
AP63357
Input Range: 6V to 32V
Output Current: 3.5A MAX
Cut Jumper MPWR to disable Motor Power LED
Auto-Reset
Boot Mode Configuration
If DTR is LOW, toggling RTS from HIGH to LOW resets to run mode.
If RTS is HIGH, toggling DTR from LOW to HIGH resets to bootloader.
Motor Current Sensing
LMV324
3.3V Regulator
Cut Jumper PWR to disable Power LED
Input Range: 4V to 6V
Output Current: 600mA MAX
Espressif ESP32
VCC Range: 2.8-3.6V
Maximum Input Current: 0.5A
Use boot control pins with caution: 0, 2, 5, 12, 15
IO0: Avoid device connections. Can be used a stat LED.
IO2: Avoid external pullups - will cause bootloader fail.
IO5: Has builtin pullup at POR.
IO12: Avoid external pullups - will cause bootloader fail.
IO15: Has builtin pullup at POR.
ADC2 is unavailable when WiFi is enabled.
U3
ESP-WROOM-3232D
Auxilary Push Buttons: Use for any general purpose
Hall-Effect Sensor
7-bit unshifted I2C Address: 0x35h
U8
TMAG5273
RGB Status LED
WS2812
Qwiic Connector
QWIIC_RIGHT_ANGLE
Boot and Reset Buttons
Breakout Headers
I2C Pullups
open hardware
Released under the Creative Commons Attribution Share-Alike 4.0 License
https://creativecommons.org/licenses/by-sa/4.0/
TITLE: ESP32_BLDC_Motor_Driver
Design by: M. Chodikov
REV: v01
Date: 5/1/2023 11:58 AM
Sheet: 1/1