U2
LTC4425EMSE#PBF

VIN   VOUT
PFI   VMID
PFI_RET   FB
SEL   PFO
EN   PROG
GND

5.0

U1
PTN04050C
VI   VO
GND   ADJ

VMOT

C7 2.2uF
R2 1.5M
R4 1.2M
R9 10k
R10 10k
C4 3F
C10 3F
R7 10k
R11 500
C5 100uF
C2 22uF
R3 1.33k
C3 22uF
C6 100uF

VMID_SEL
MOT_POW_EN
PFO
CHRG_CURR

GND

S1 CW
S5 MODE
V_BM
IS31_SHDN
S2
S4

R12 4.7k 3.3
R13 4.7k 3.3

SDA
SCL

U5
TEENSY~3.2

0/RX1/T
1/TX1/T
2
3/PWM
4/PWM
5
6/CS1/PWM
7/RX3
8/TX3
9/RX2/PWM
10/TX2/CS0/PWM
11/MOSI
12/MISO
13/SCK0/LED
14/A0
15/A1/T
16/A2/T/PWM
17/A3/T/PWM
18/A4/SDA0/T
19/A5/SCL0/T
20/A6/SCK1/PWM
21/A7
22/A8/SCL1/T/PWM
23/A9/SDA1/T/PWM

VIN
3.3V0
GND

PROGRAM

TMC_EN
CFG-3/TMC_CS
CFG-1/MOSI
CFG-0/MISO
CFG-2/SCLK
DIR
CCW
STEP
STOP
VMID_SEL
CHRG_CURR
MOT_POW_EN
PFO

S3 EVQP7J
3.3

D1
R
G
B
XZMDKCBDDG45S-9
C1 1uF

U3
IS31FL3193
VCC
OUT1
SCL
OUT2
SDA
V_BM
OUT3
SHDN
AD
GND

3.3
R1 4.7k
C8 10nF
C9 1uF
SCL
SDA
V_BM
IS31_SHDN
R8 10k
GND   GND

U4
TMC2130
DIR   VM
STEP   VIO
MISO/GFG0
CS/CFG3   M1B
SCLK/CFG2   M1A
MOSI/GFG1   M2A
EN/CFG6   M2B
GND

J1
VMOT
3.3
DIR
STEP
CFG-0/MISO
CFG-3/TMC_CS
CFG-2/SCLK
CFG-1/MOSI
TMC_EN

GND

GND1 GND2 GND +5V1 +5V +3.3V
5.0   3.3

DESIGNED BY:
Jon Newman, Jakob Voigts
TITLE: Commutator Control Board
License:
CERN OHL v1.2
REV: 1.1
Date: not saved!
Sheet: 1/1

9/13/19 7:59 AM f=0.65 /home/jon/private/oepcie-rf-commutator/control-board/commutator-controller.sch (Sheet: 1/1)