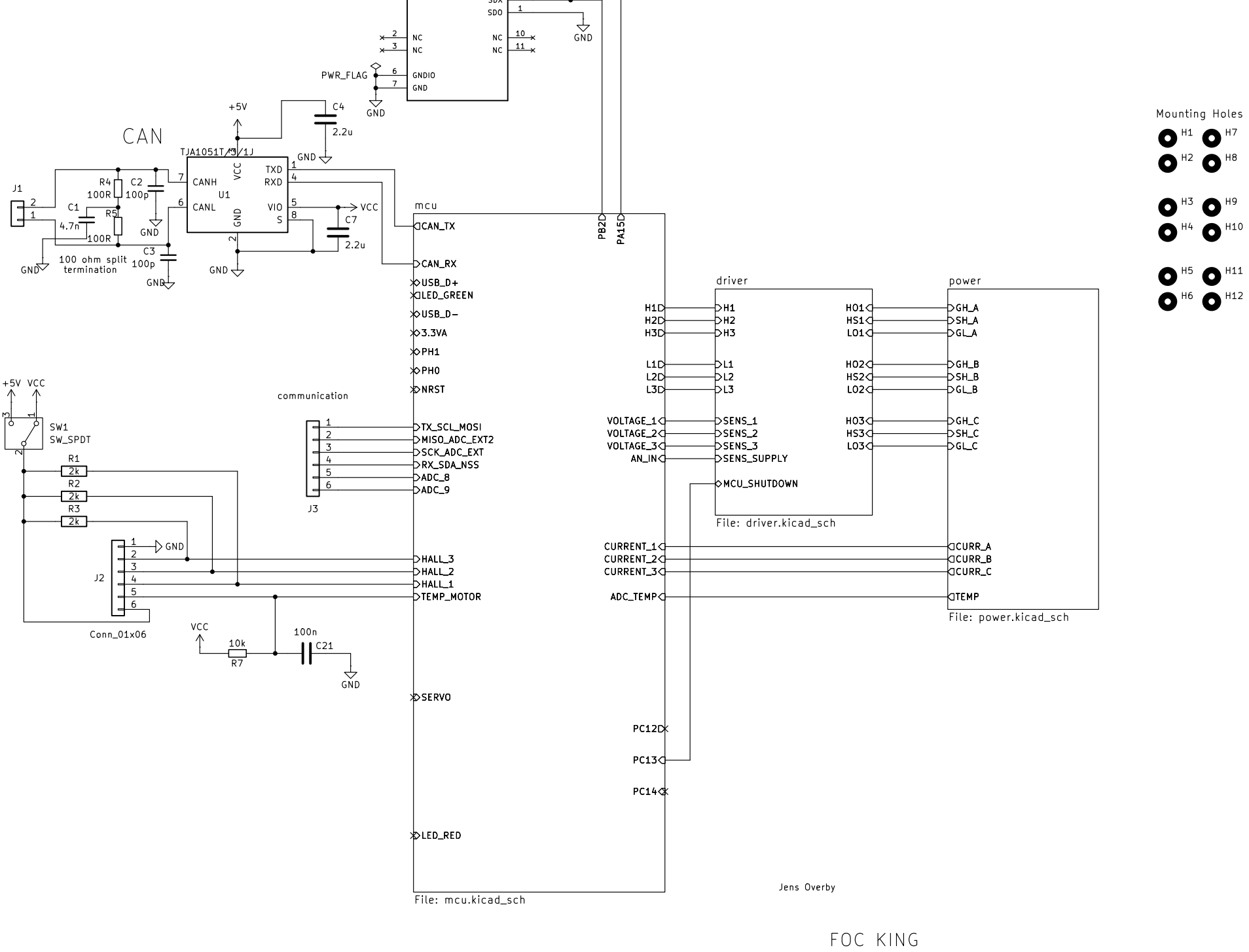
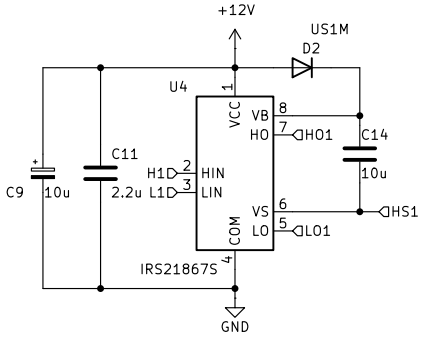
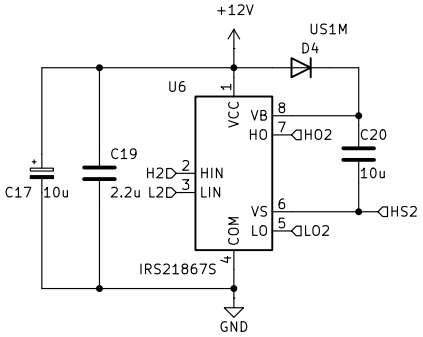
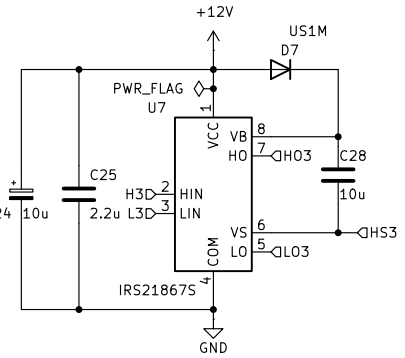
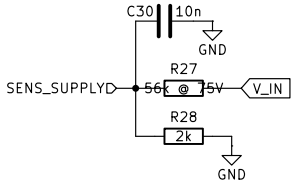
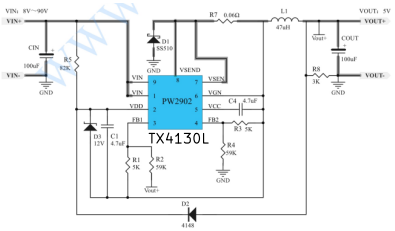

CAN
TJA1051T/3/1J
U1
CANH
CANL
VCC
GND
TXD
RXD
VIO
S
J1
100 ohm split termination
mcu
CAN_TX
CAN_RX
USB_D+
LED_GREEN
USB_D-
3.3VA
PH1
PH0
NRST
communication
TX_SCL_MOSI
MISO_ADC_EXT2
SCK_ADC_EXT
RX_SDA_NSS
ADC_8
ADC_9
J3
SW1
SW_SPDT
+5V
VCC
R1
R2
R3
2k
J2
Conn_01x06
HALL_3
HALL_2
HALL_1
TEMP_MOTOR
10k
R7
100n
C21
SERVO
LED_RED
PB2
PA15
PC12
PC13
PC14
driver
H1
H2
H3
L1
L2
L3
VOLTAGE_1
VOLTAGE_2
VOLTAGE_3
AN_IN
SENS_1
SENS_2
SENS_3
SENS_SUPPLY
MCU_SHUTDOWN
HO1
HS1
LO1
HO2
HS2
LO2
HO3
HS3
LO3
File: driver.kicad_sch
power
GH_A
SH_A
GL_A
GH_B
SH_B
GL_B
GH_C
SH_C
GL_C
CURRENT_1
CURRENT_2
CURRENT_3
ADC_TEMP
CURR_A
CURR_B
CURR_C
TEMP
File: power.kicad_sch
File: mcu.kicad_sch
Mounting Holes
H1
H2
H3
H4
H5
H6
H7
H8
H9
H10
H11
H12
Jens Overby
FOC KING







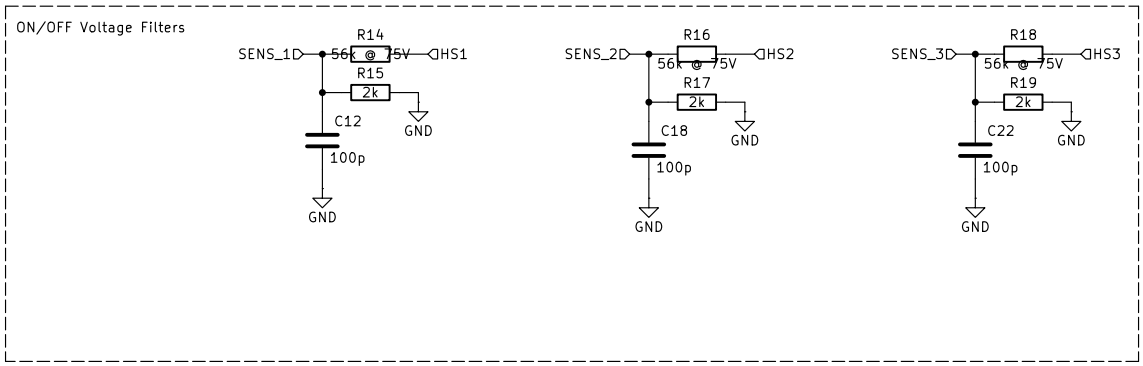


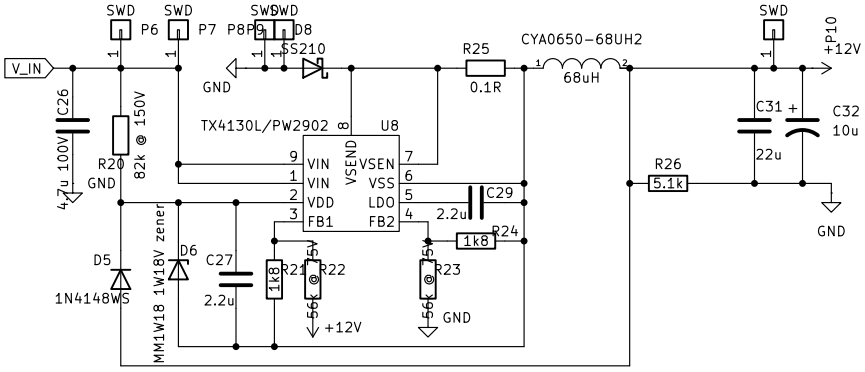


典型应用电路图：Vout: 5V/2A

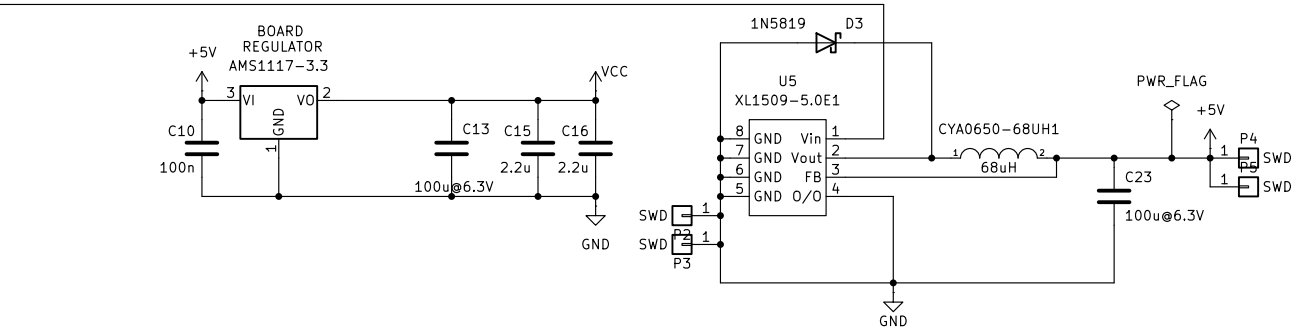
TX4130L:
VFB: min=369 typ=380 max=391 mV
VCS: min=145 typ=150 max=155 mV

R1 = R3
R2 = R4
Vout= VFB * (R2+R1)/R1
Iout=VCS/R7 (R7=0.06R -> Io=2.6A)
Frequency: Fixed 140kHz
Inductance: 33uH-100uH





https://datasheet.lcsc.com/lcsc/1912231403_XDS-TX4130L_C448635.pdf
https://www.pwchip.com/en/product/PW2902-174.html

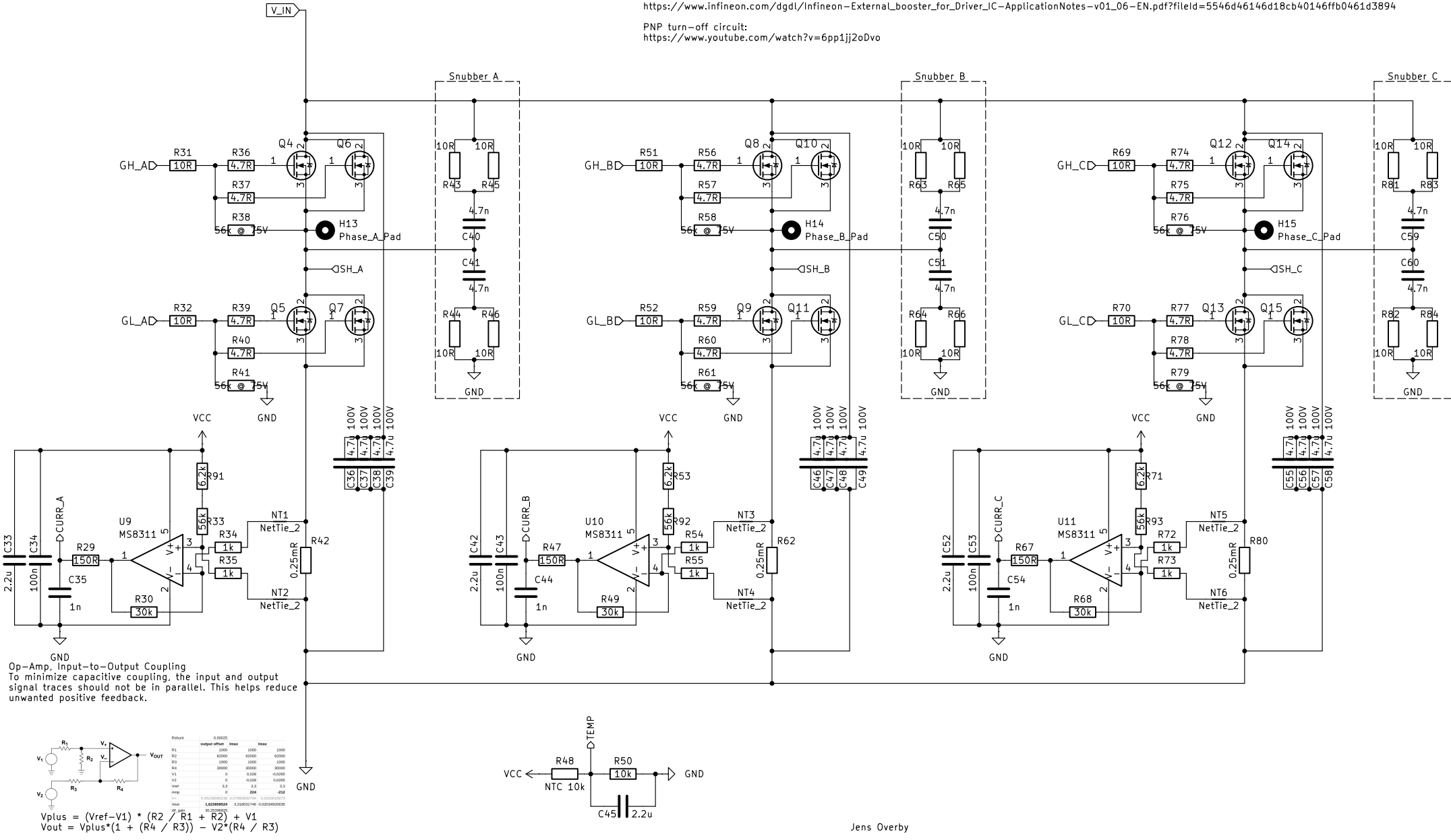


Jens Overby

FOC KING

External booster drive:
https://www.infineon.com/dgdl/Infineon-External_booster_for_Driver_IC-ApplicationNotes-v01_06-EN.pdf?fileId=5546d46146d18cb40146ffb0461d3894

PNP turn-off circuit:
https://www.youtube.com/watch?v=6pp1jj2oDvo



Op-Amp, Input-to-Output Coupling
To minimize capacitive coupling, the input and output signal traces should not be in parallel. This helps reduce unwanted positive feedback.

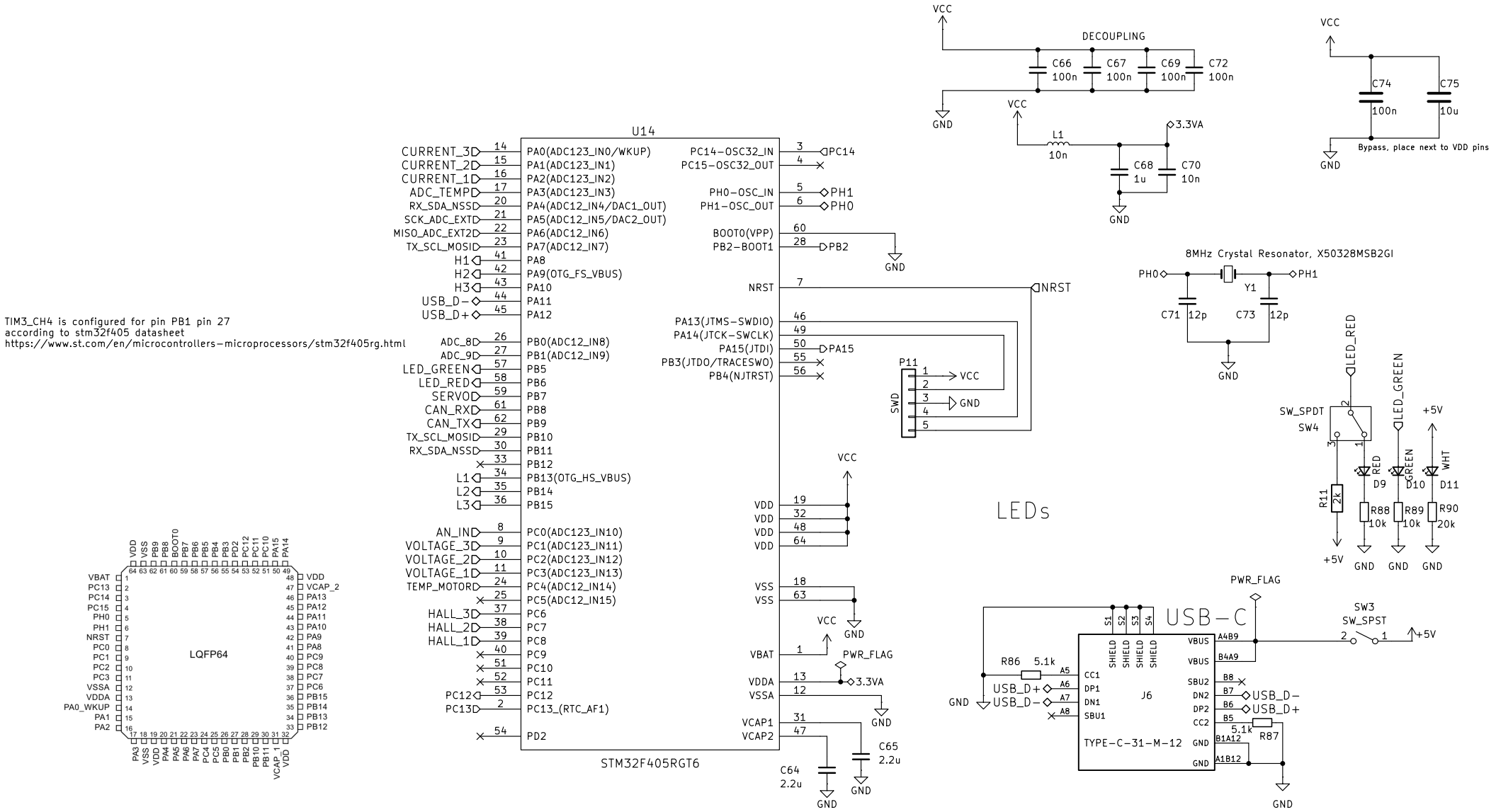
Vplus = (Vref-V1) * (R2 / R1 + R2) + V1
Vout = Vplus*(1 + (R4 / R3)) - V2*(R4 / R3)

Jens Overby

Calculate cut-off freq of low pass filter, pg 3:
https://www.st.com/resource/en/application_note/an4304-how-to-filter-the-input-of-a-highside-current-sensing-stmicroelectronics.pdf

Current sensing:
https://www.ti.com/lit/eb/slyy154a/slyy154a.pdf?ts=1678787132262&ref_url=https%253A%252F%252Fwww.startpage.com%252F
pg 4, pg 15

FOC KING



Changes:
Xtal caps from 18pF to 12pF
Separate the two LEDs from the single resistor
CAN spike protection
RC between GND and pb12 to stop false trips
PC12->PA15 to drive LED
Increased functionality of several header pins

Jens Overby

FOC KING