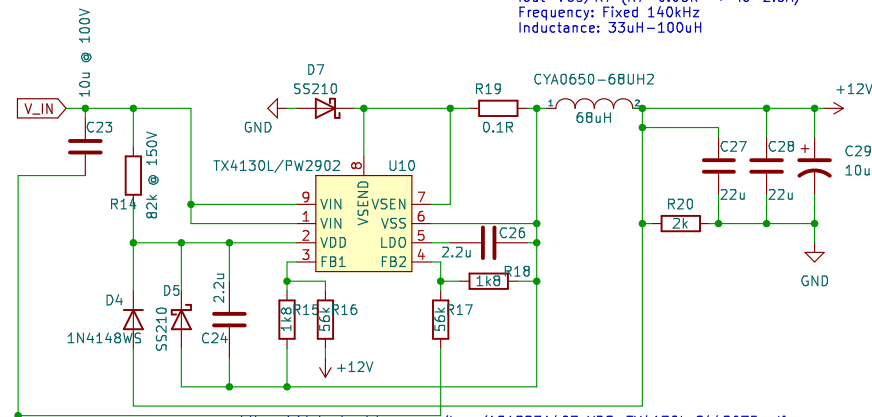
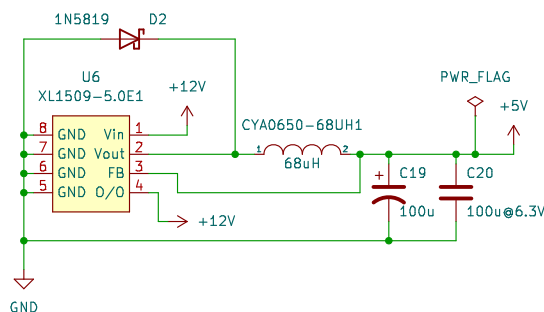
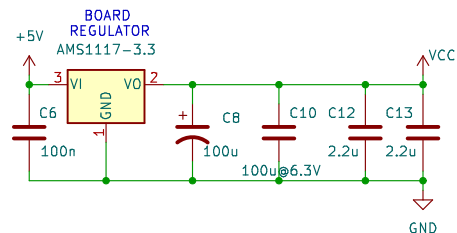
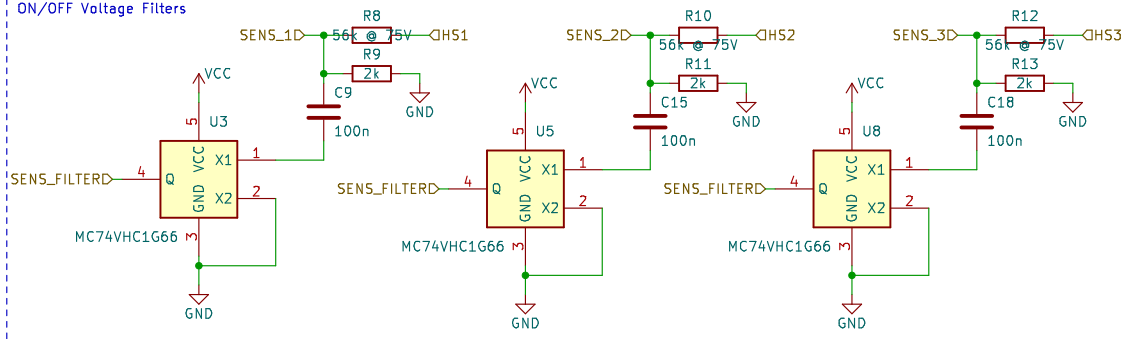


典型应用电路图: Vout= 5V/2A

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

R1 = R3
R2 = R4
 $V_{out} = V_{FB} \cdot (R2+R1)/R1$
 $I_{out} = V_{CS}/R7$ (R7=0.06R $\rightarrow I_{out}=2.6A$)
Frequency: Fixed 140kHz
Inductance: 33uH-100uH

ON/OFF Voltage Filters



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

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Sheet: /driver/
File: driver.kicad_sch

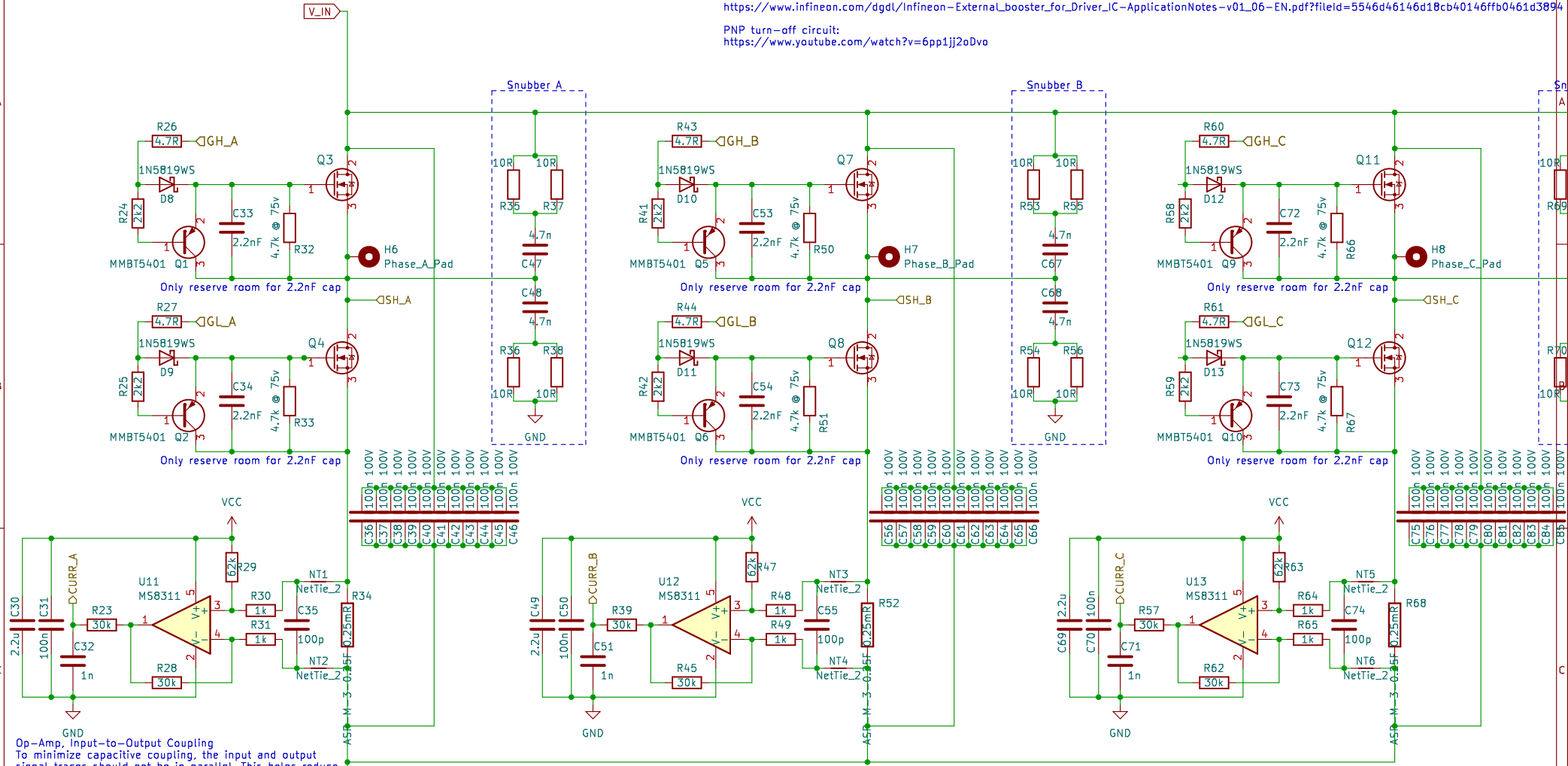
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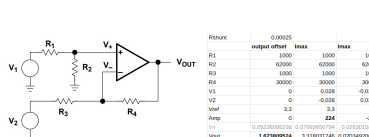
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External booster drive:
https://www.infineon.com/dgdl/Infineon-External_booster_for_Driver_IC-ApplicationNotes-v01_06-EN.pdf?fileId=5546d46146d18cb40146ffb0461d3894

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.

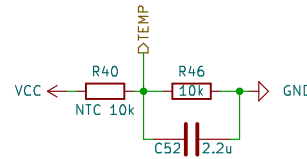


$$V_{plus} = (V_{ref} - V_1) * (R_2 / (R_1 + R_2)) + V_1$$

$$V_{out} = V_{plus} * (1 + (R_4 / R_3)) - V_2 * (R_4 / R_3)$$

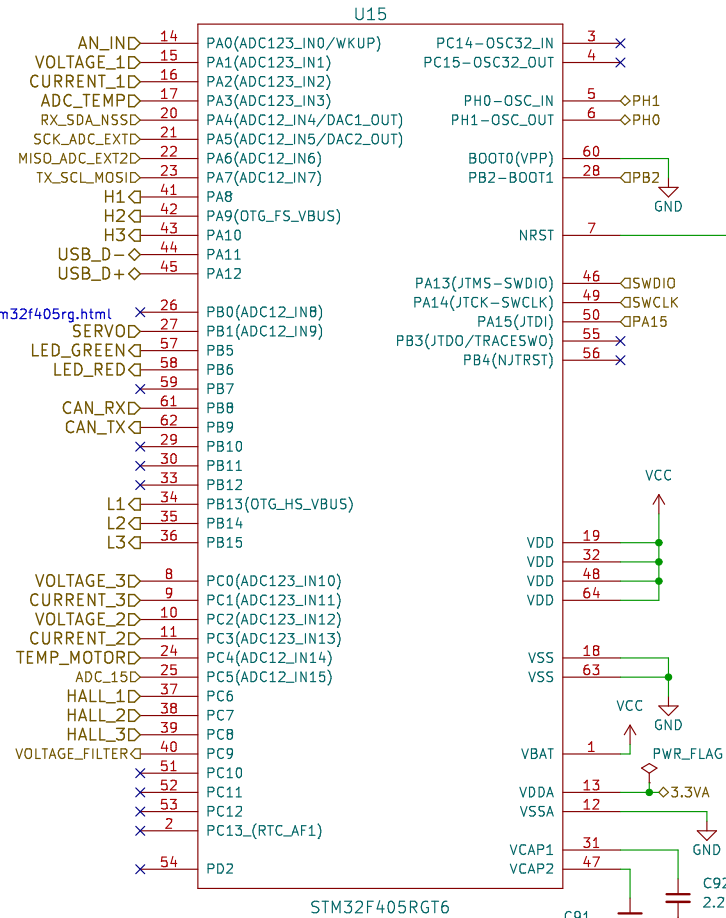
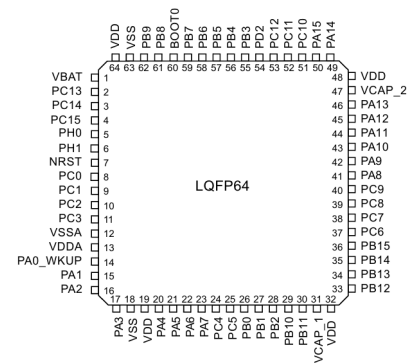
Calculate cut-off freq of low pass filter, pg 3:
https://www.st.com/resource/en/application_note/an4304-how-to-filter-the-input-of-a-highside-current-sensing-stmicroelectronics.pdf

Current sensing:
https://www.ti.com/lit/eb/slyy154a/slyy154a.pdf?ts=1678787132262&ref_url=https%253A%252F%252Fwww.startpage.com%252Fpg%204%2Cpg%2015

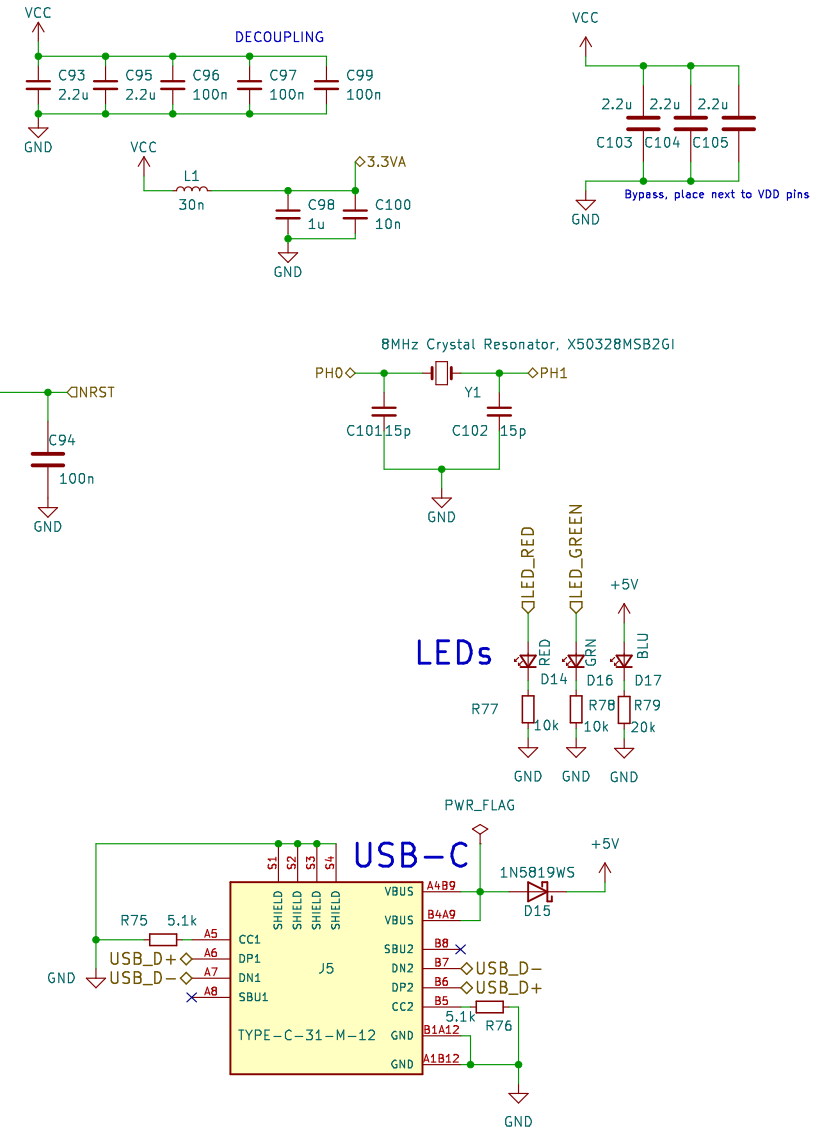


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Title: FOC KING	
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Rev:	
Id: 7/4	

TIM3_CH4 is configured for pin PB1 pin 27
according to stm32f405 datasheet
<https://www.st.com/en/microcontrollers-microprocessors/stm32f405rg.html>



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



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Sheet: /mcu/

File: mcu.kicad_sch

Title: FOC KING

Size: A4

Date:

KiCad E.D.A. kicad 6.0.2+dfsg-1

Rev:

Id: 9/4