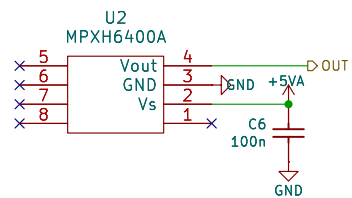
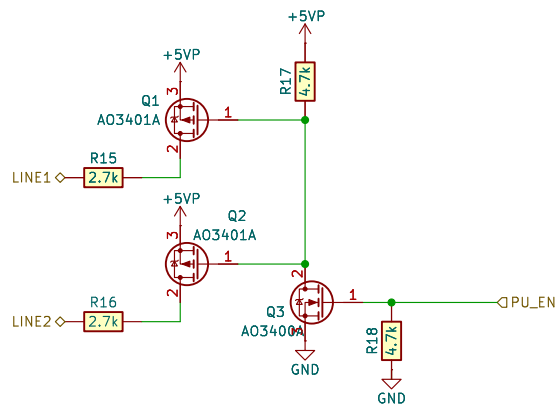


FOR OFF ROAD PURPOSES ONLY  
 This is not for applications with  
 emissions or safety regulations  
 (AKA not for street use). This is  
 for closed courses, track  
 and equipment.  
<http://www.alphaxpr.com/>

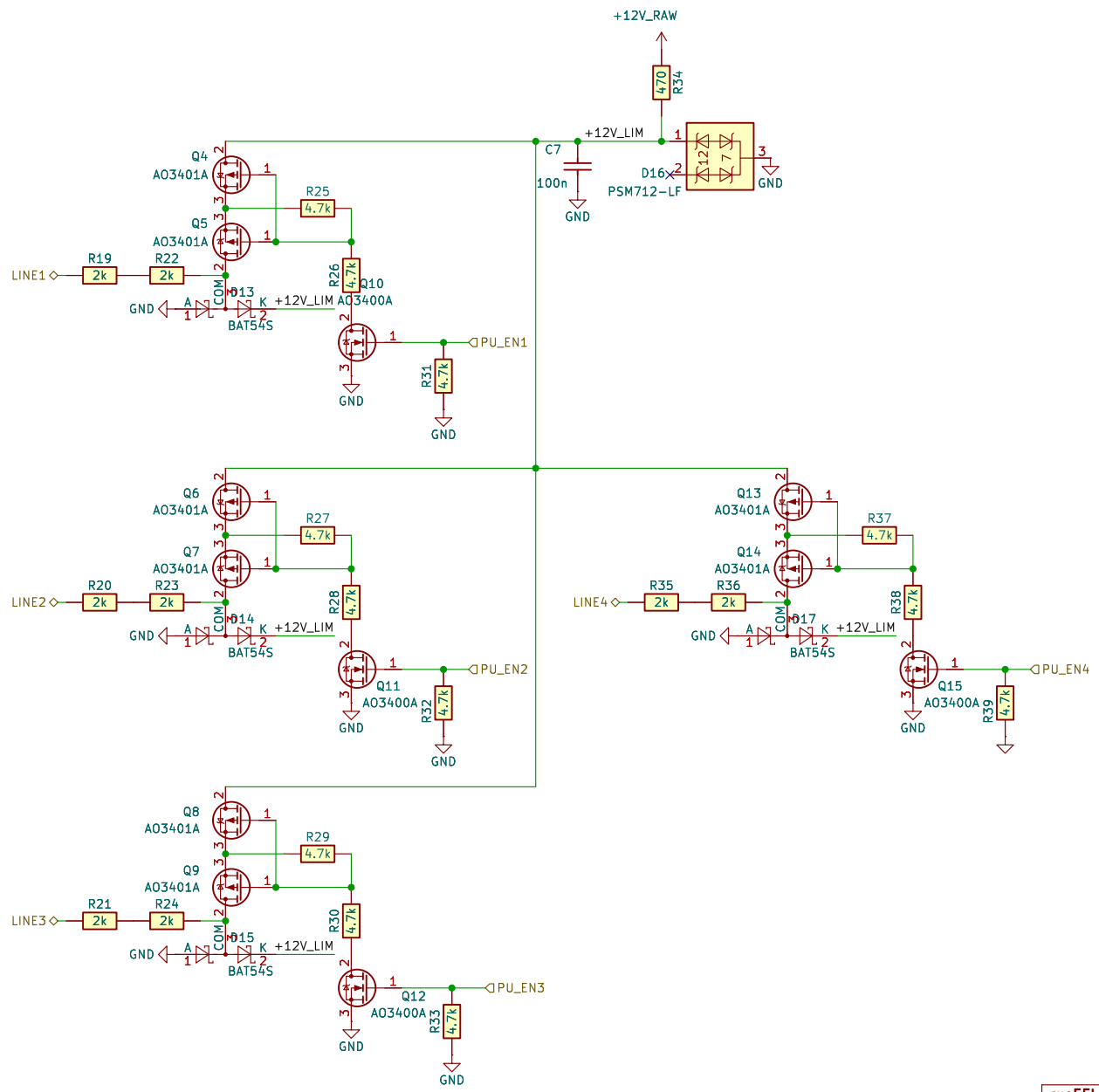
Board info  
**ALPHA ECU**  
 EFI  
 Helix-One-PCB-Logo



<b>rusEFI</b>		
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File: MAP.kicad_sch		
<b>Title: AlphaECU 4K GDI powered by rusEFI</b>		
Size: A4	Date: 2024-07-21	Rev: a
KiCad E.D.A. 8.0.4		Id: 8/6

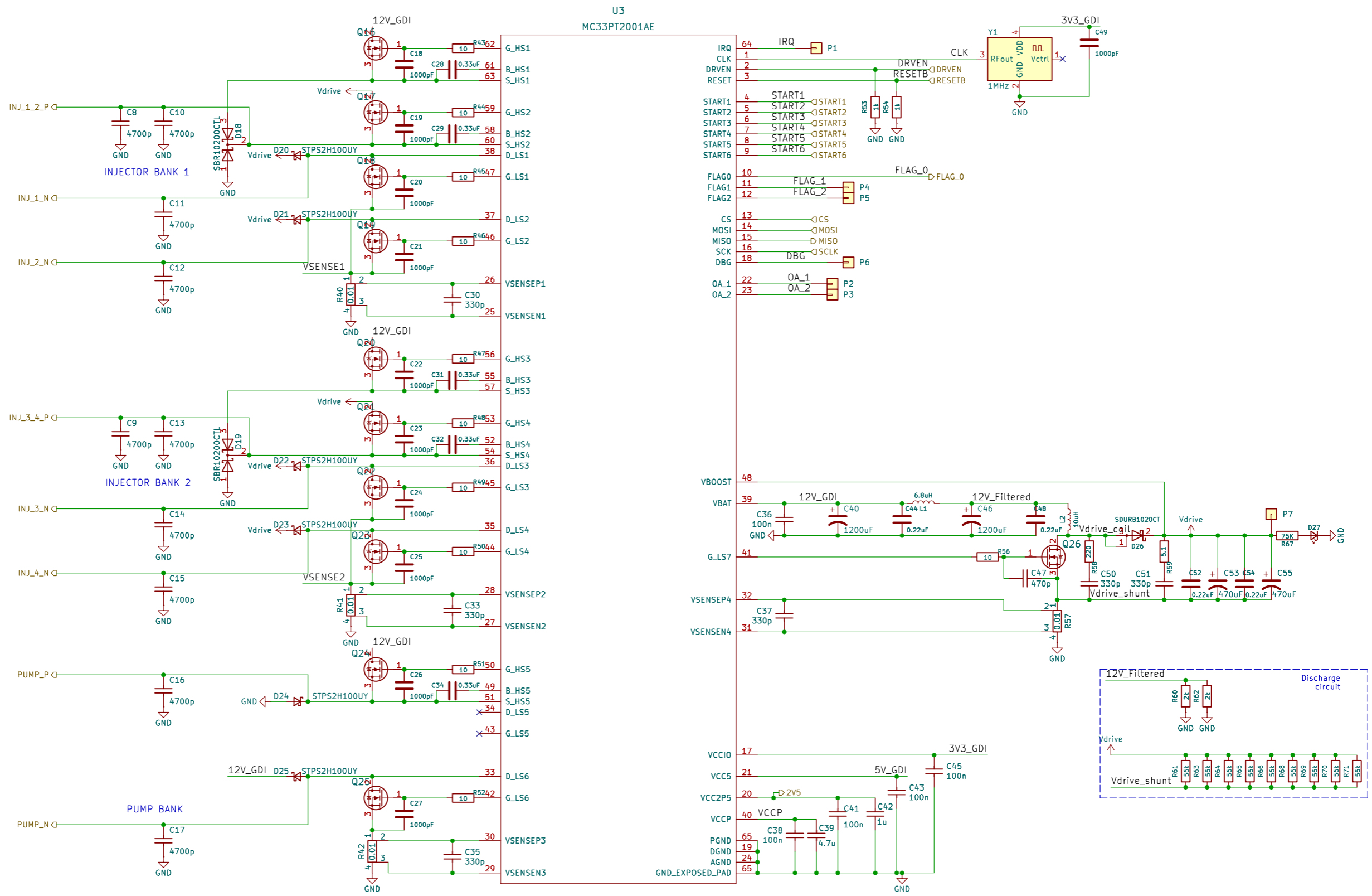


<b>rusEFI</b>		
Sheet: /OPT_PULLUPS/		
File: DOUBLE_PU.kicad_sch		
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Size: A4	Date: 2024-07-21	Rev: a
KiCad E.D.A. 8.0.4		Id: 11/6

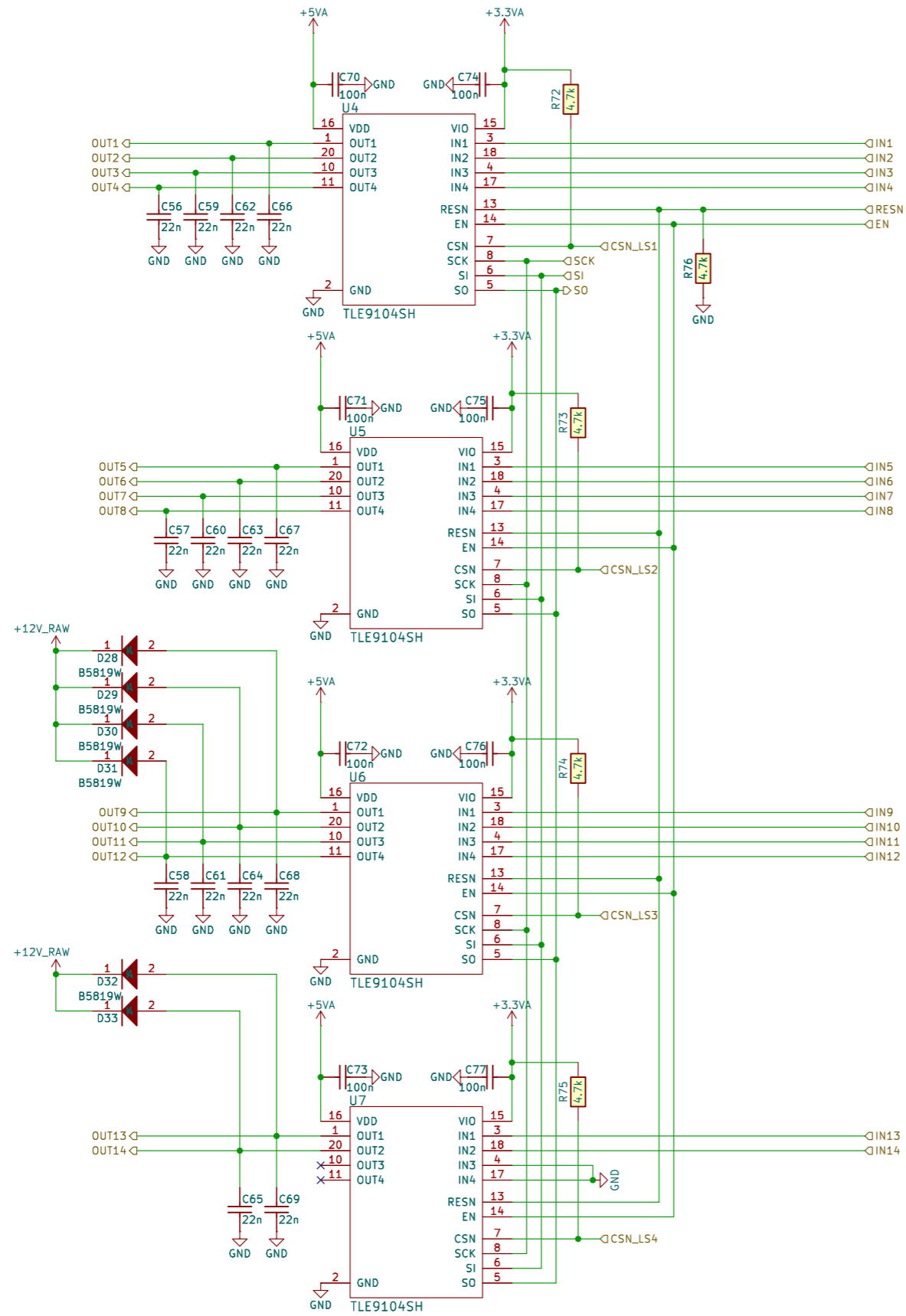


<b>rusEFI</b>		
Sheet: /HALL_OPT_PU/		
File: HALL_PU4.kicad_sch		
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Size: A4	Date: 2024-07-21	Rev: a
KiCad E.D.A. 8.0.4		Id: 13/6

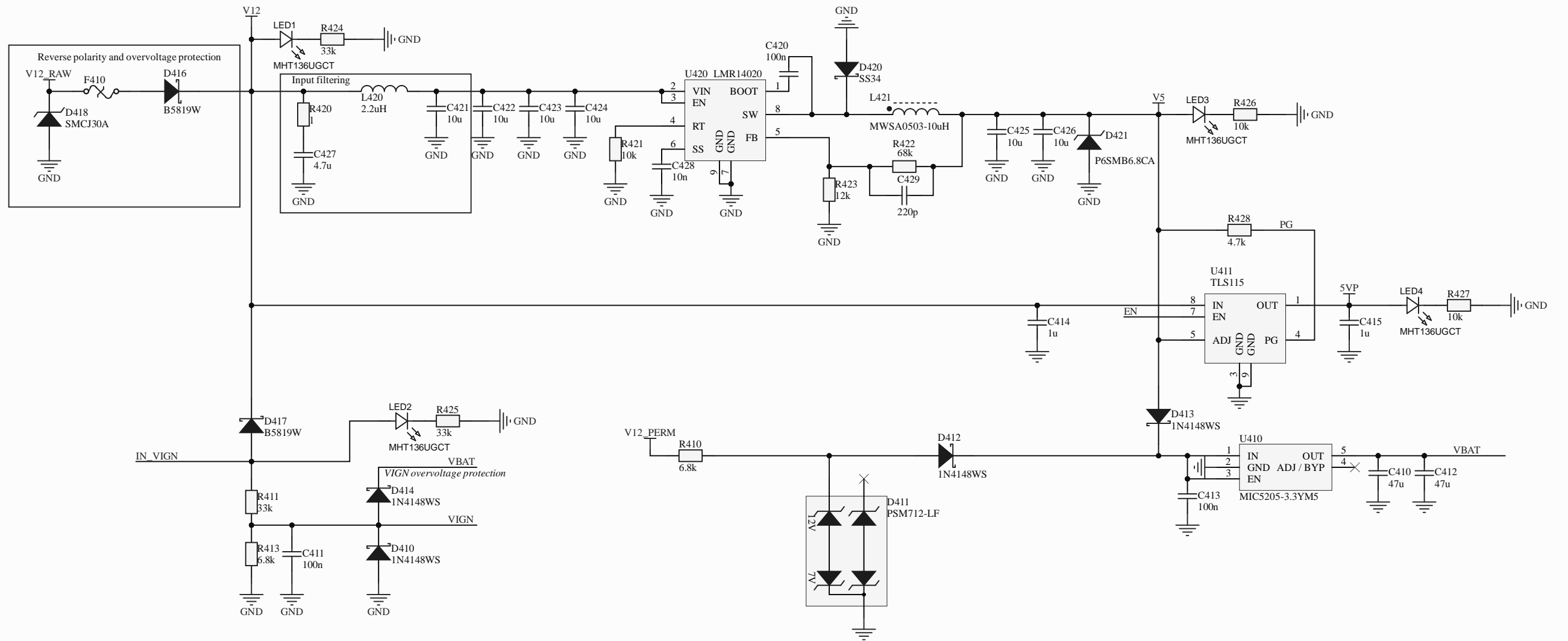
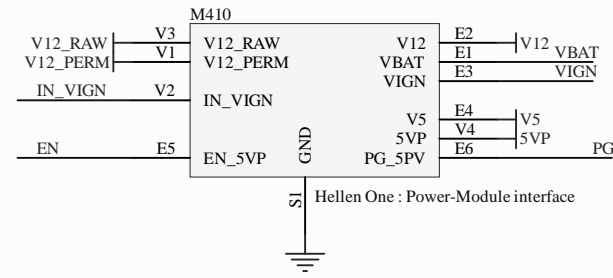
12V\_GDI  
5V\_GDI  
5V  
3V3\_GDI

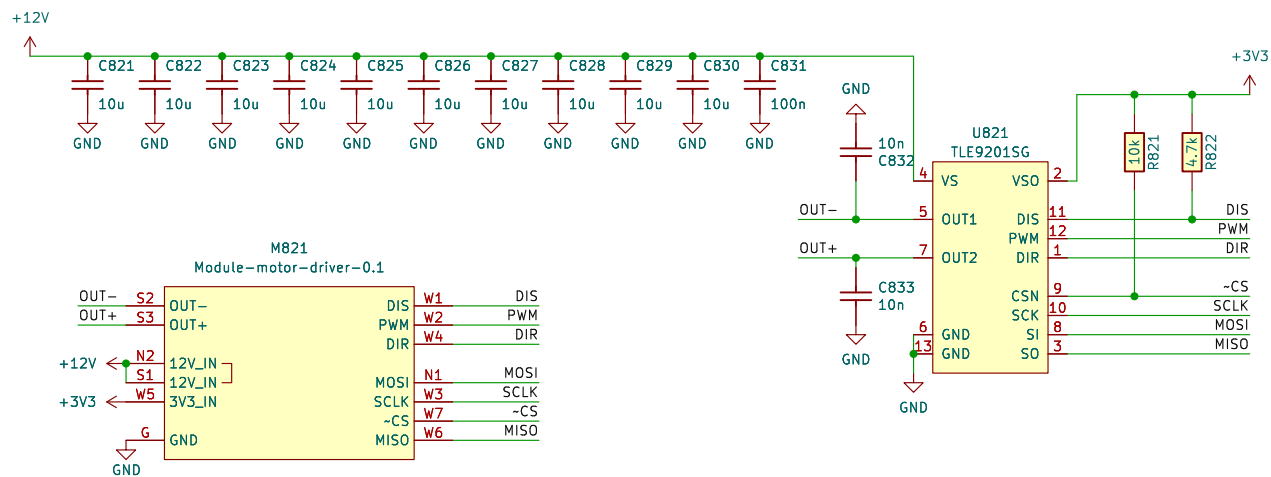


rusEFI		
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File: GDI4.kicad_sch		
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Size: A3	Date: 2024-07-21	Rev: a
KiCad E.D.A. 8.0.4		Id: 15/6



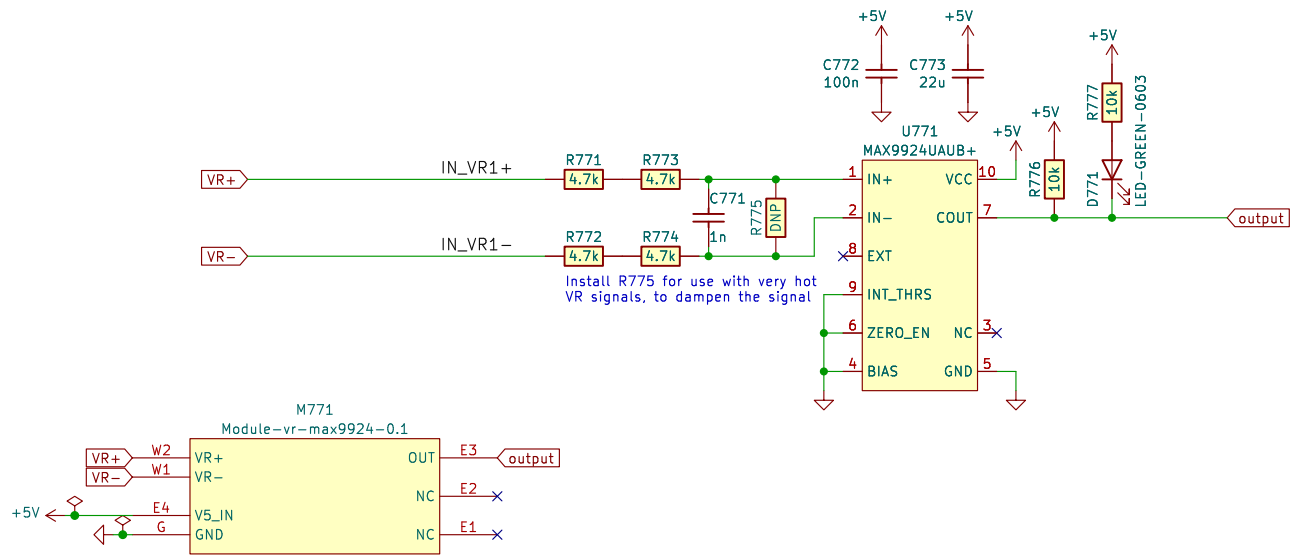
rusEFI		
Sheet: /LS14/		
File: LS14.kicad_sch		
<b>Title: AlphaECU 4K GDI powered by rusEFI</b>		
Size: A3	Date: 2024-07-21	Rev: a
KiCad E.D.A. 8.0.4		Id: 16/6





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File: hellen1-motor-driver.kicad_sch	
<b>Title: MCZ33810 module</b>	
Size: A4	Date: 2024-03-07
KiCad E.D.A. kicad 7.0.9	Rev: 0.1
	Id: 1/1





Sheet: /  
File: hellen1-vr-max9924.kicad\_sch

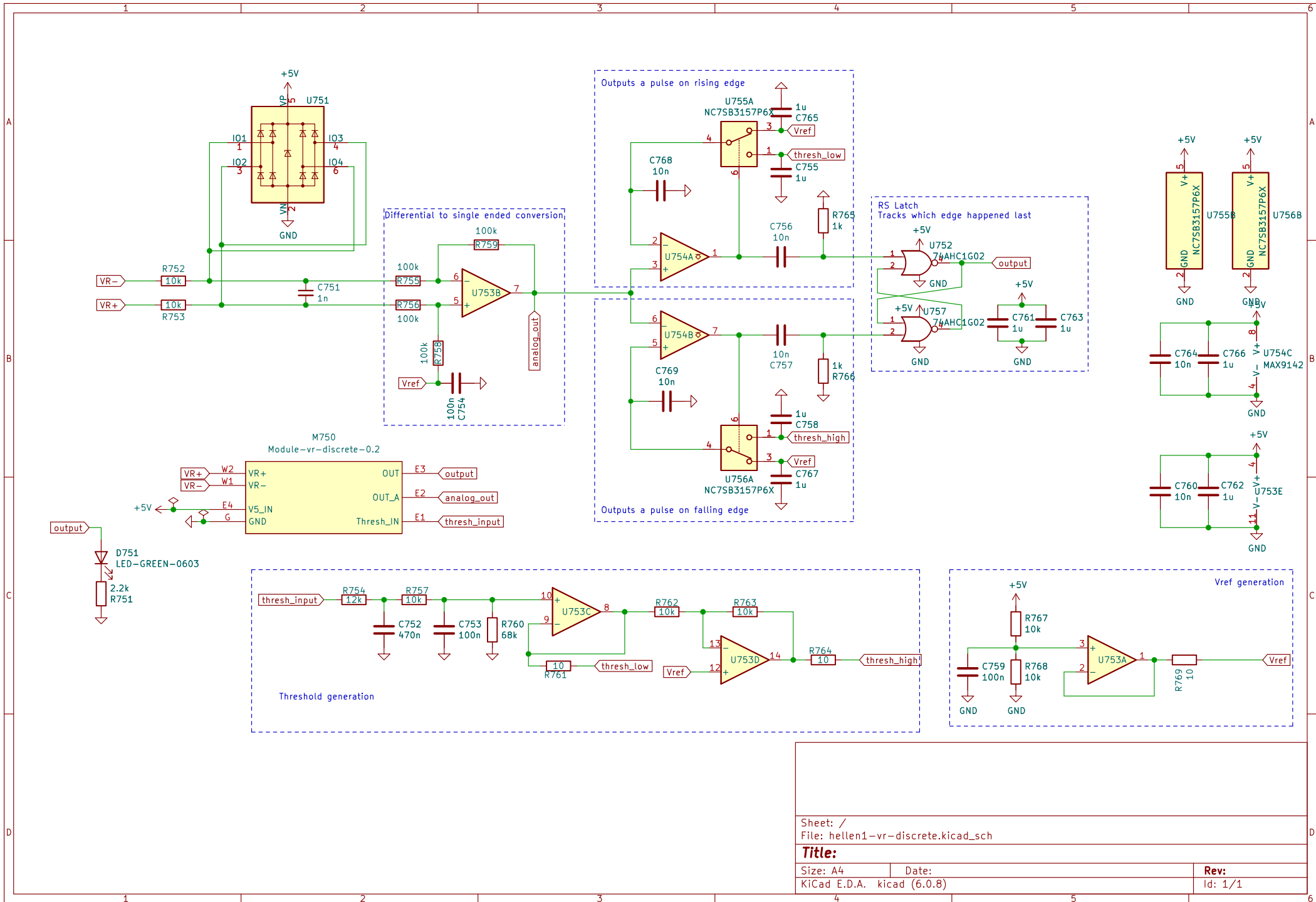
**Title: VR MAX9924 module**

Size: A4 Date: 2023-07-25

KiCad E.D.A. eeschema 7.0.9

Rev: 0.1

Id: 1/1

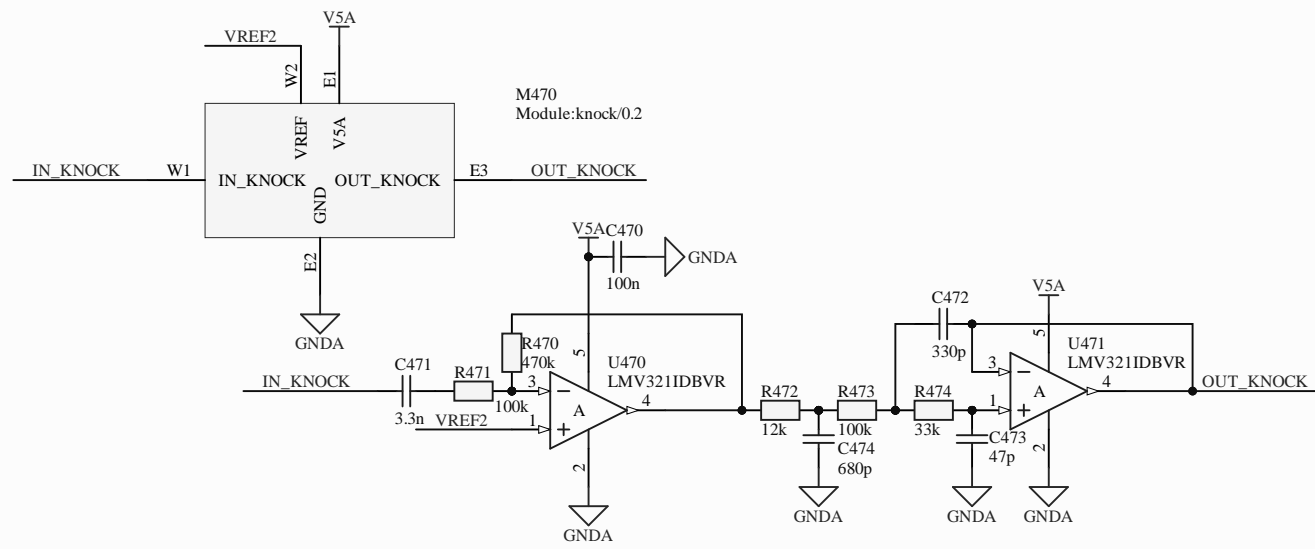


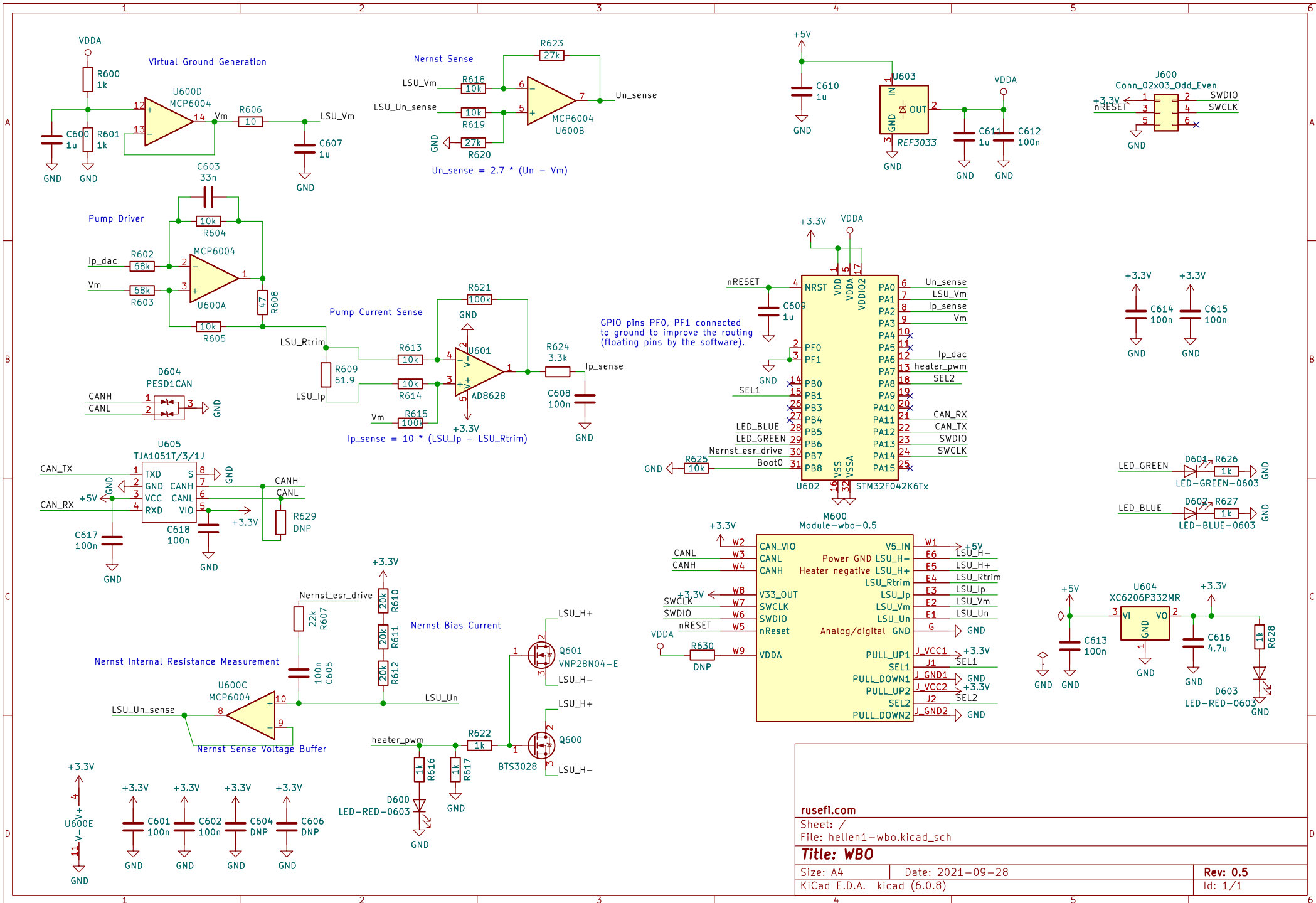
Sheet: /  
 File: hellen1-vr-discrete.kicad\_sch

**Title:**  
 Size: A4  
 KiCad E.D.A. kicad (6.0.8)

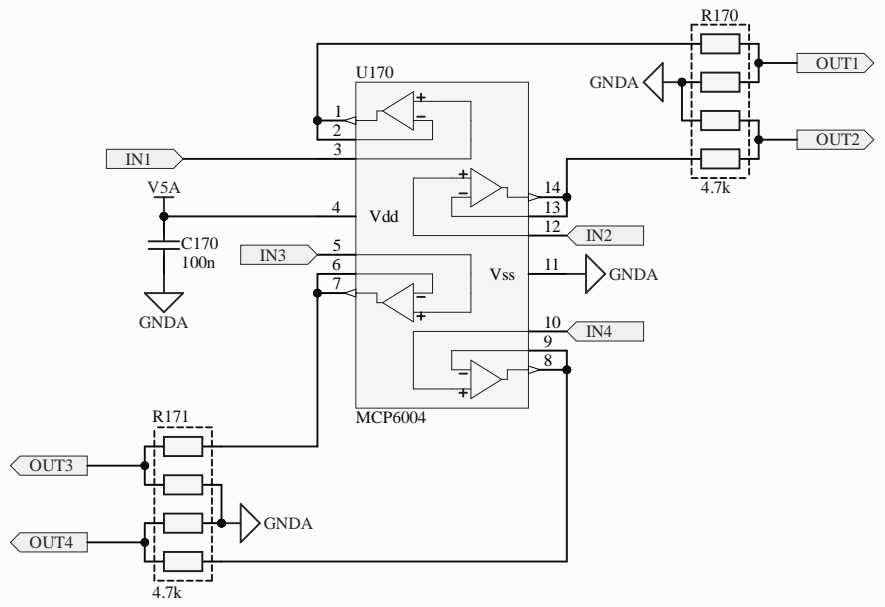
Date:

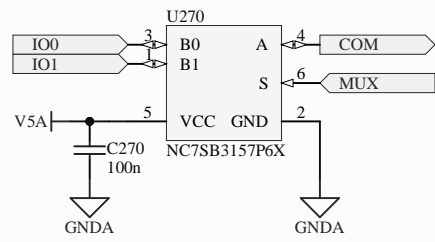
**Rev:**  
 Id: 1/1

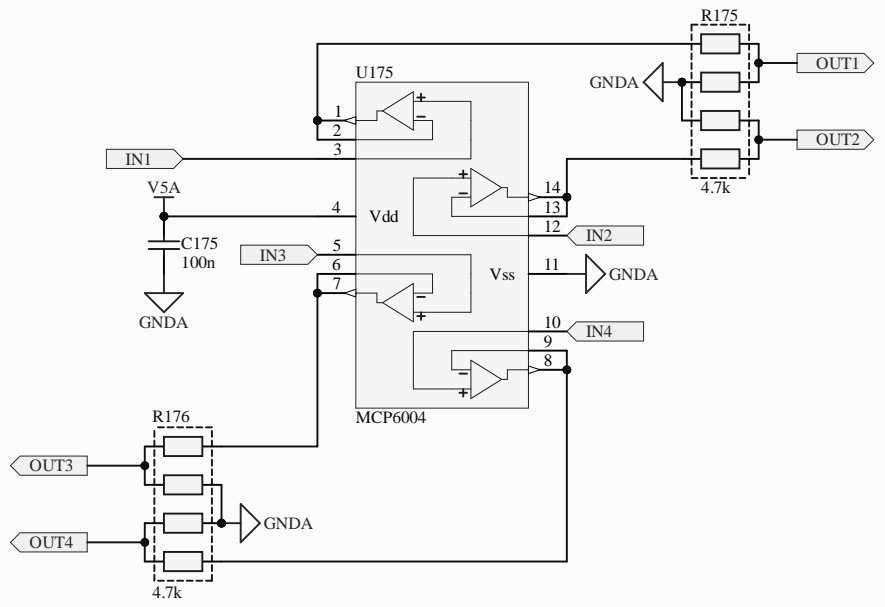


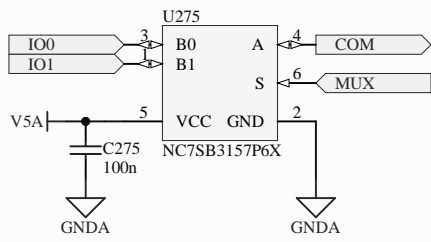


<b>rusefi.com</b>	
Sheet: /	
File: hellen1-wbo.kicad_sch	
<b>Title: WBO</b>	
Size: A4	Date: 2021-09-28
KiCad E.D.A. kicad (6.0.8)	Rev: 0.5
	Id: 1/1

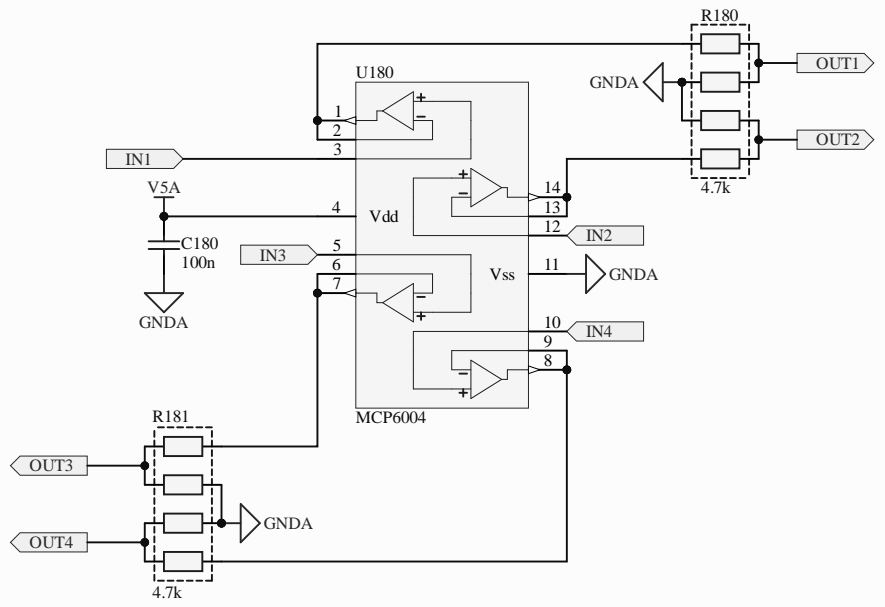


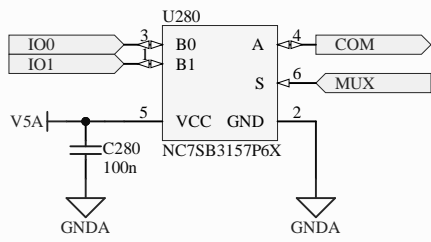


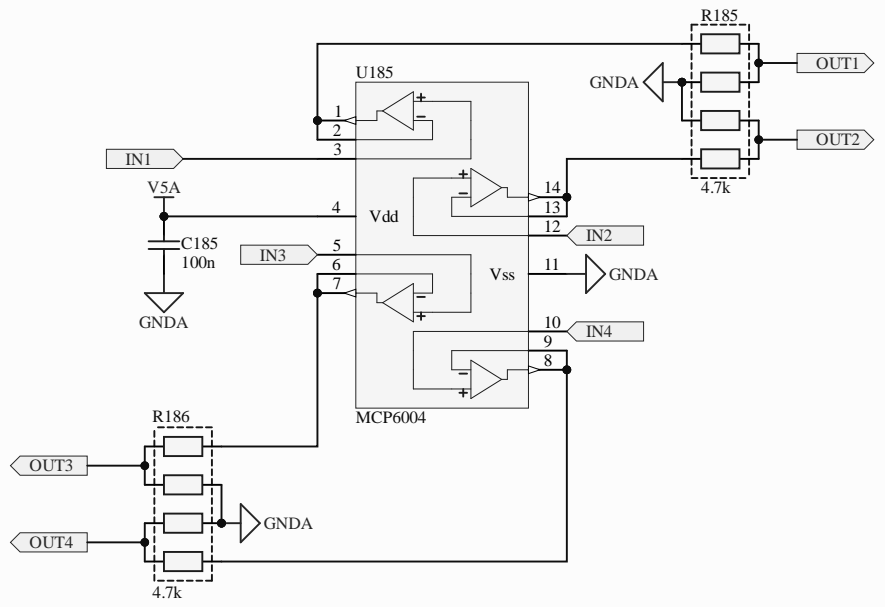


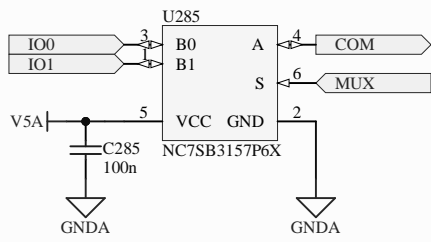


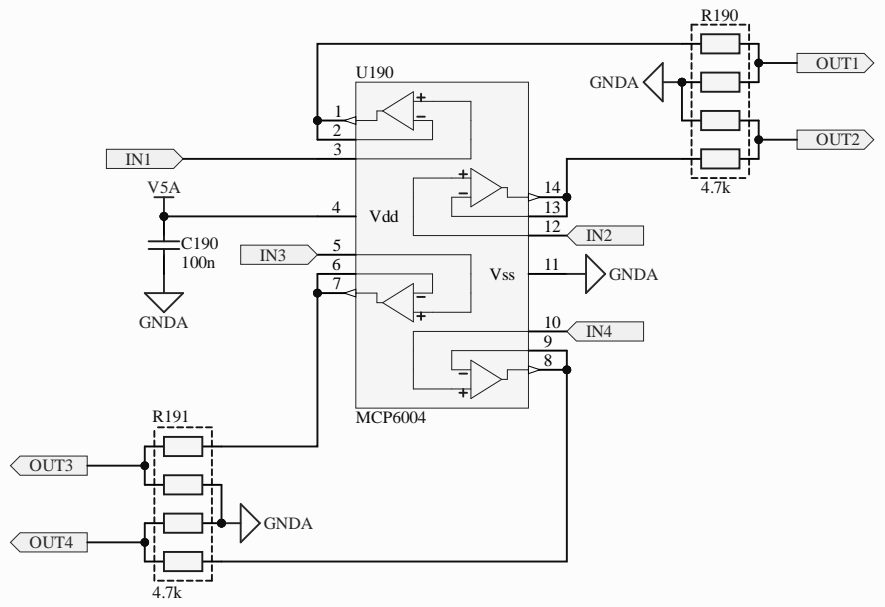


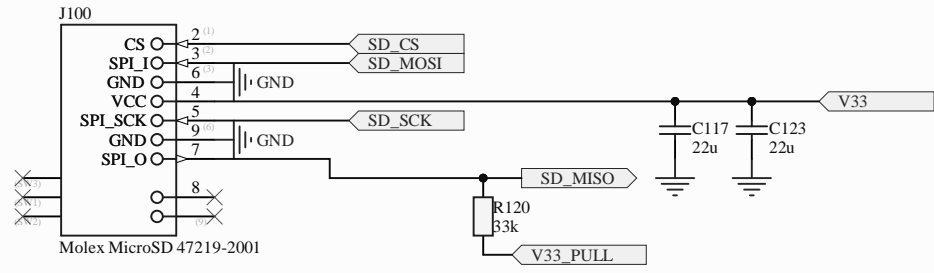


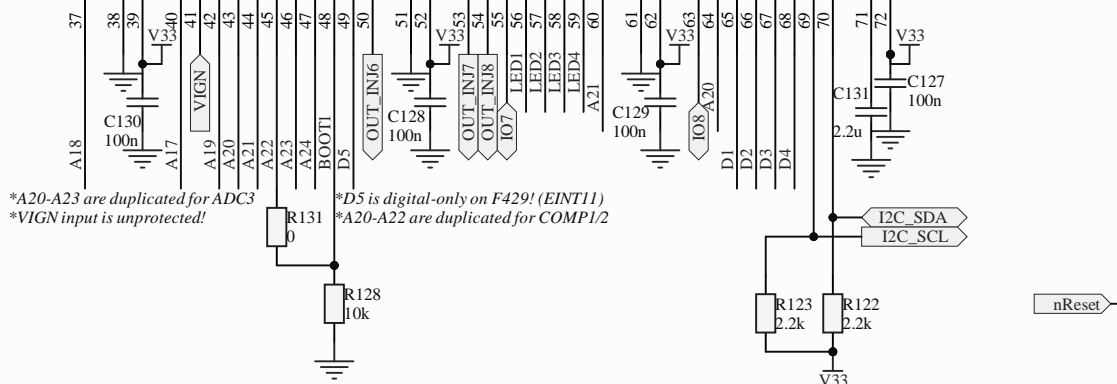
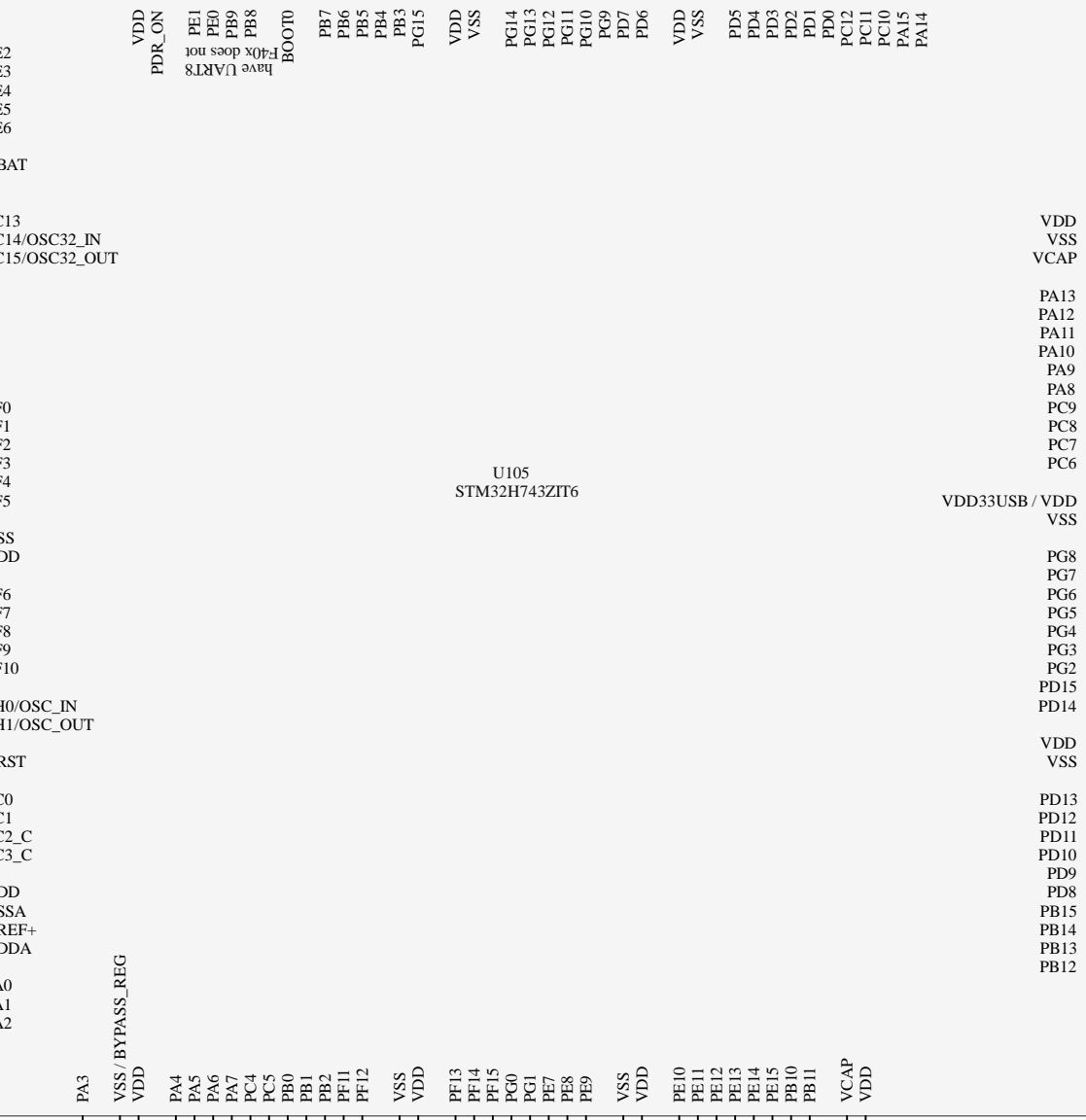
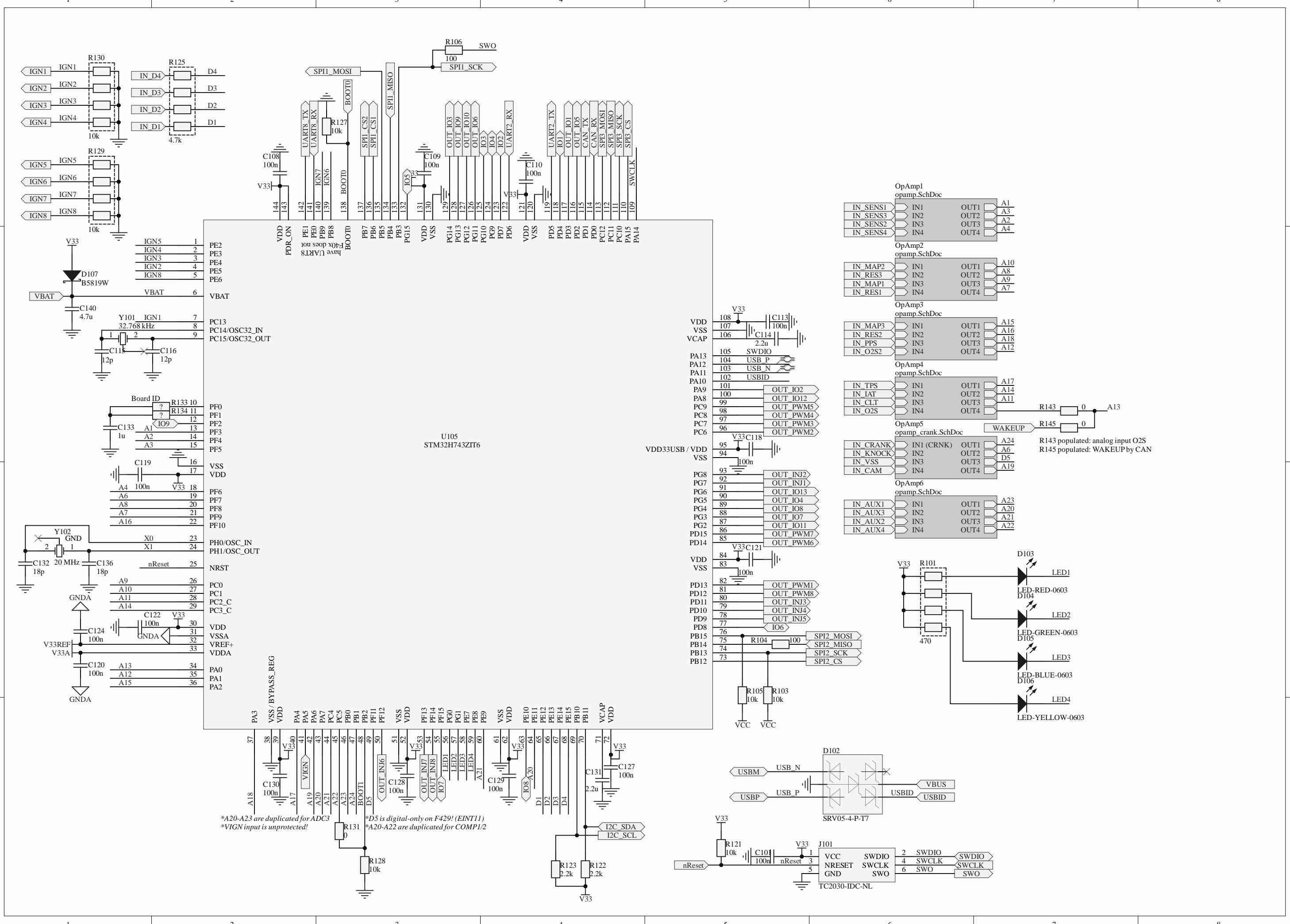




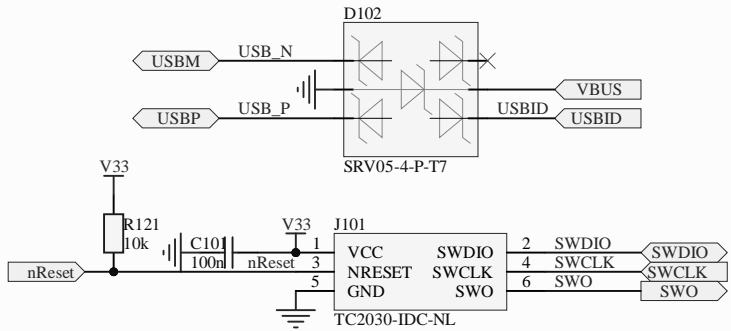
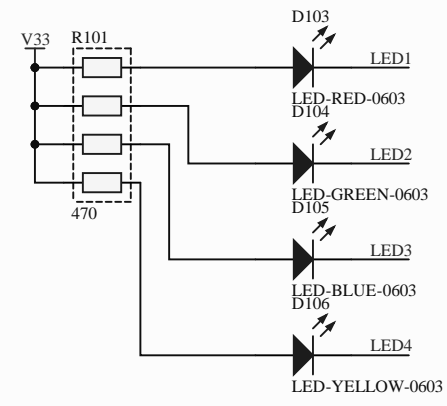
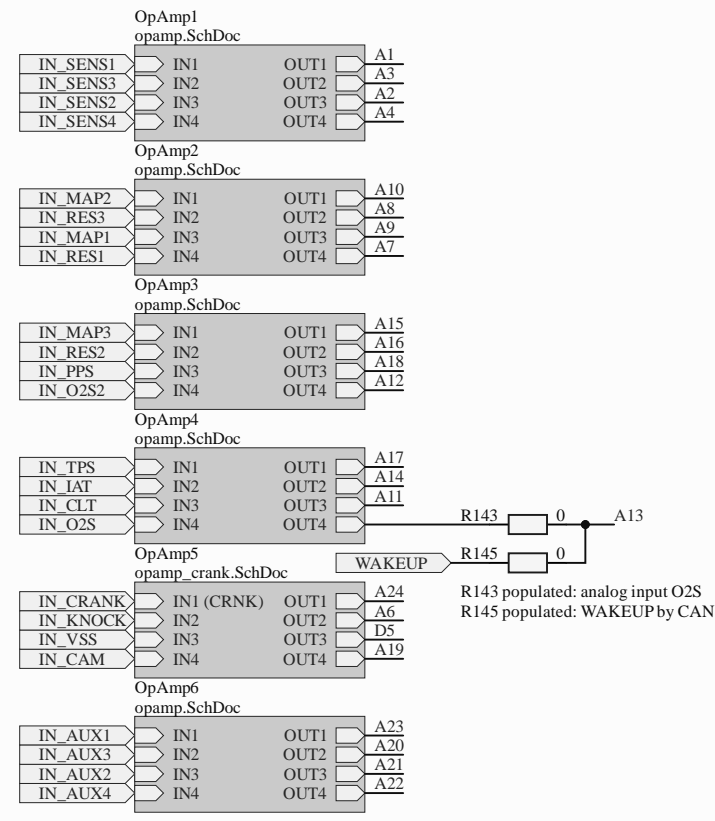








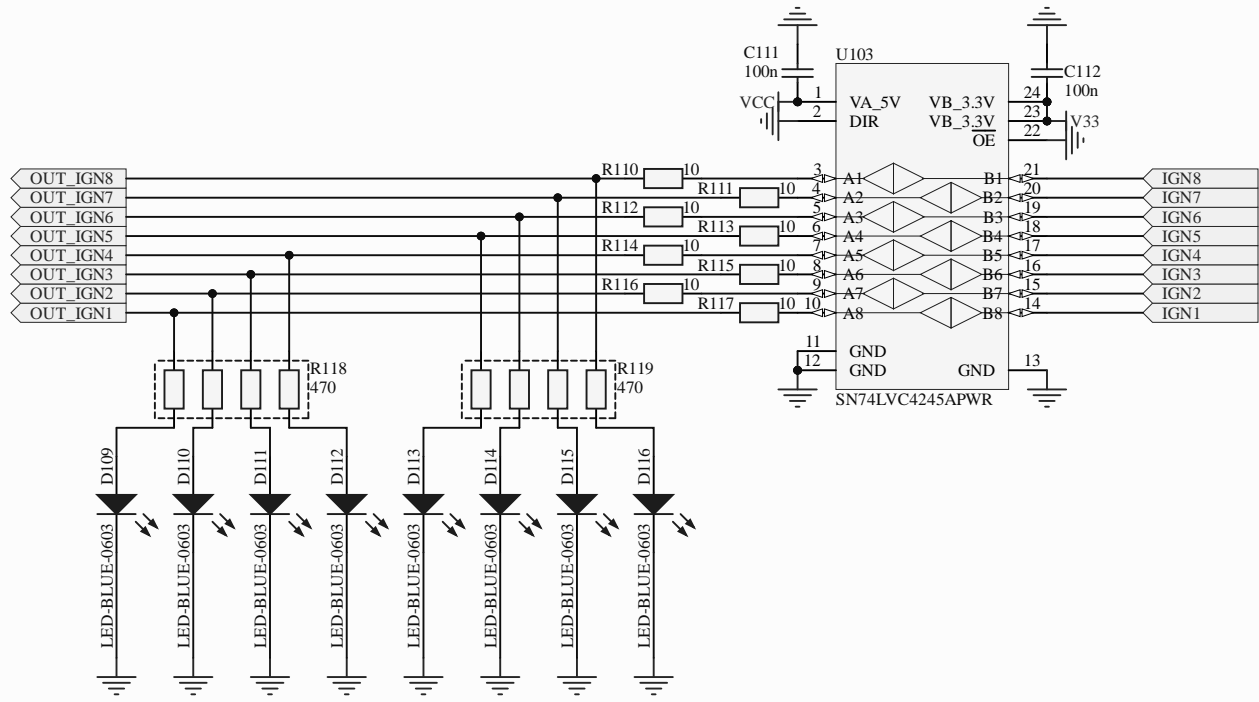
\*A20-A23 are duplicated for ADC3  
 \*VIGN input is unprotected!  
 \*D5 is digital-only on F429! (EINT11)  
 \*A20-A22 are duplicated for COMP1/2

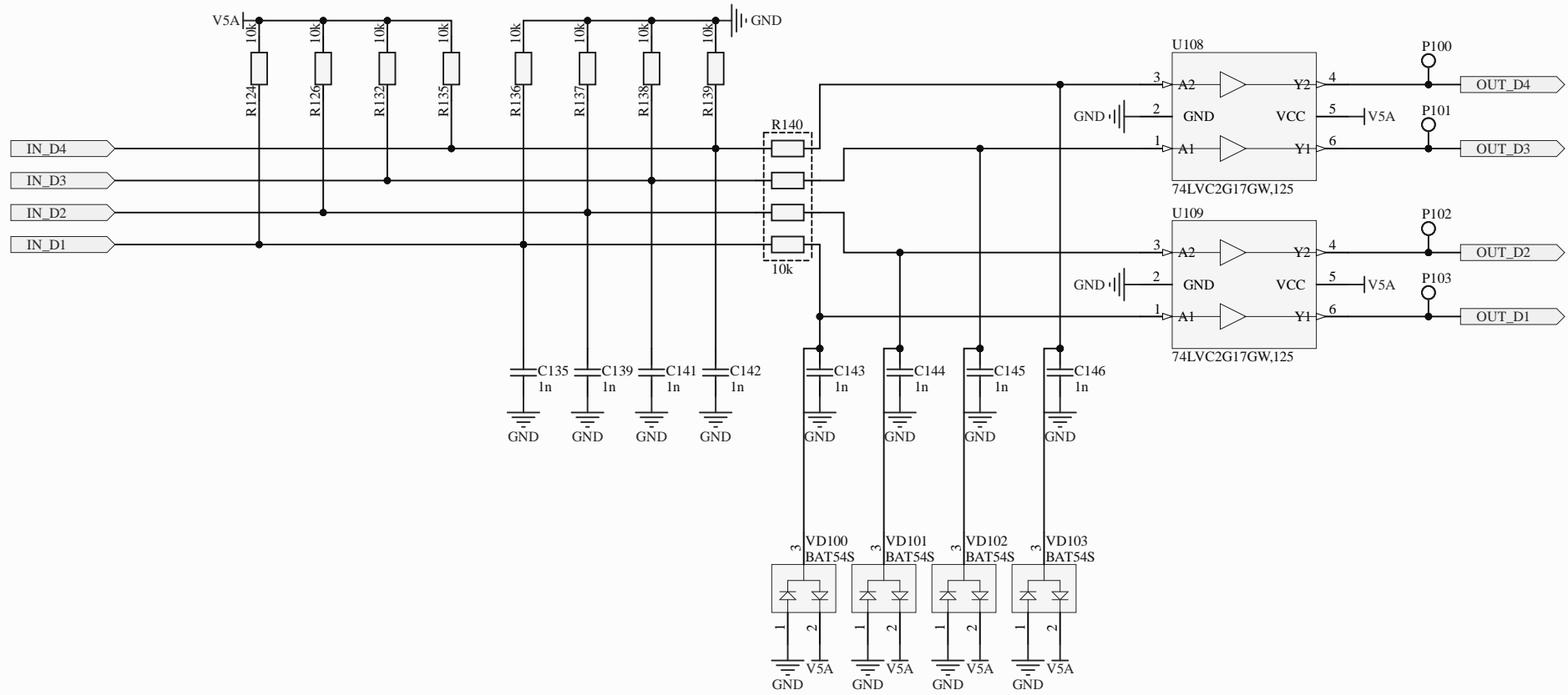


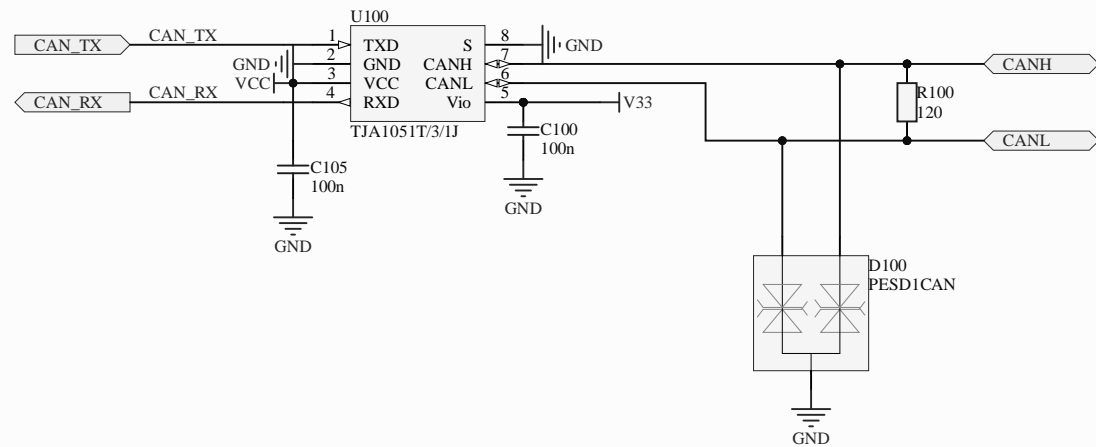
R143 populated: analog input O2S  
 R145 populated: WAKEUP by CAN

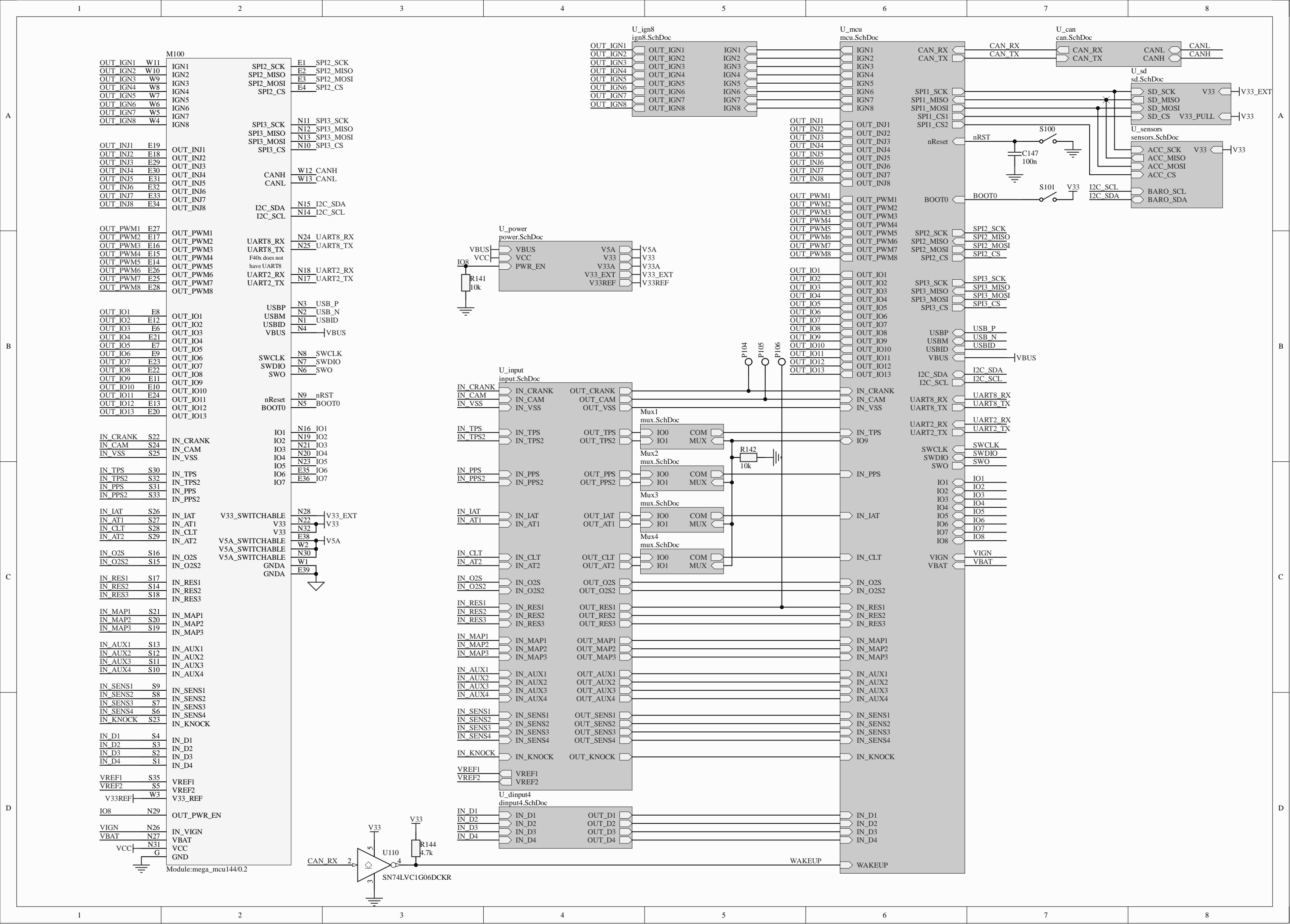




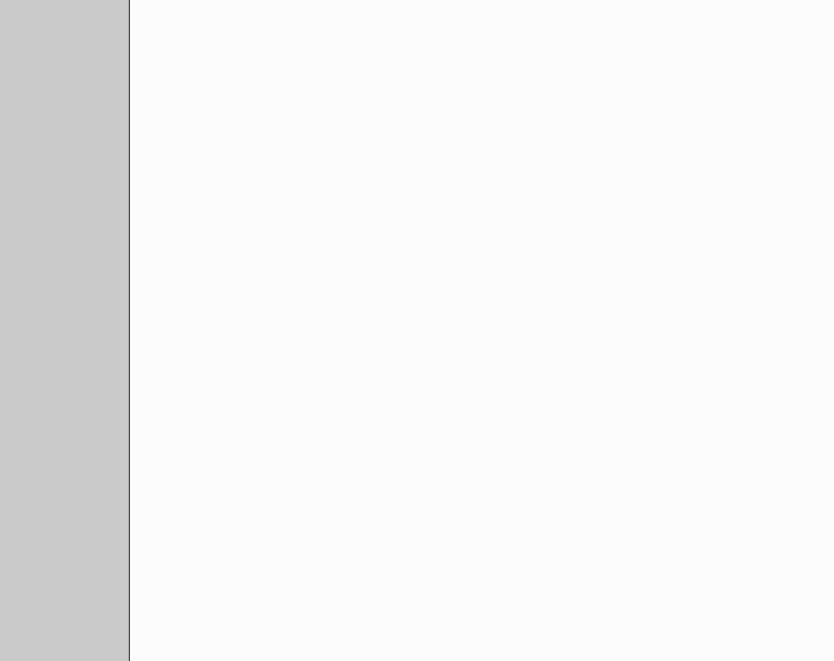
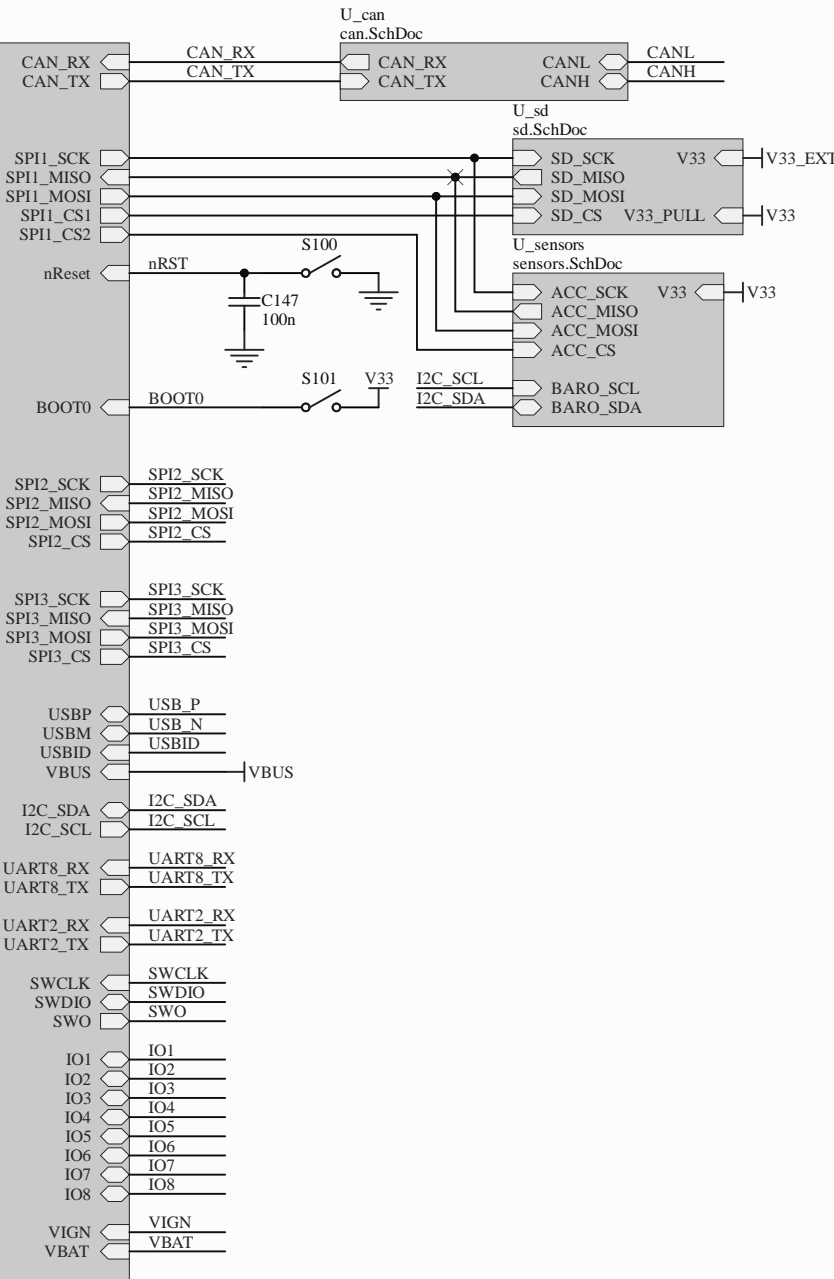
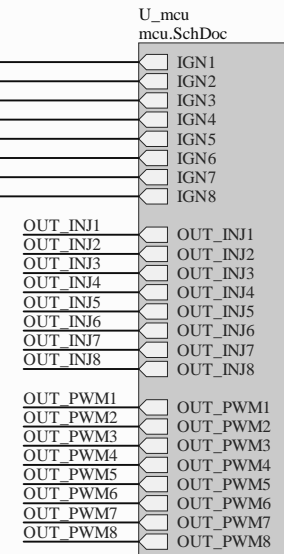
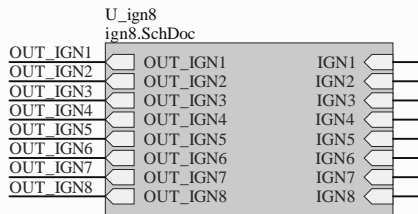
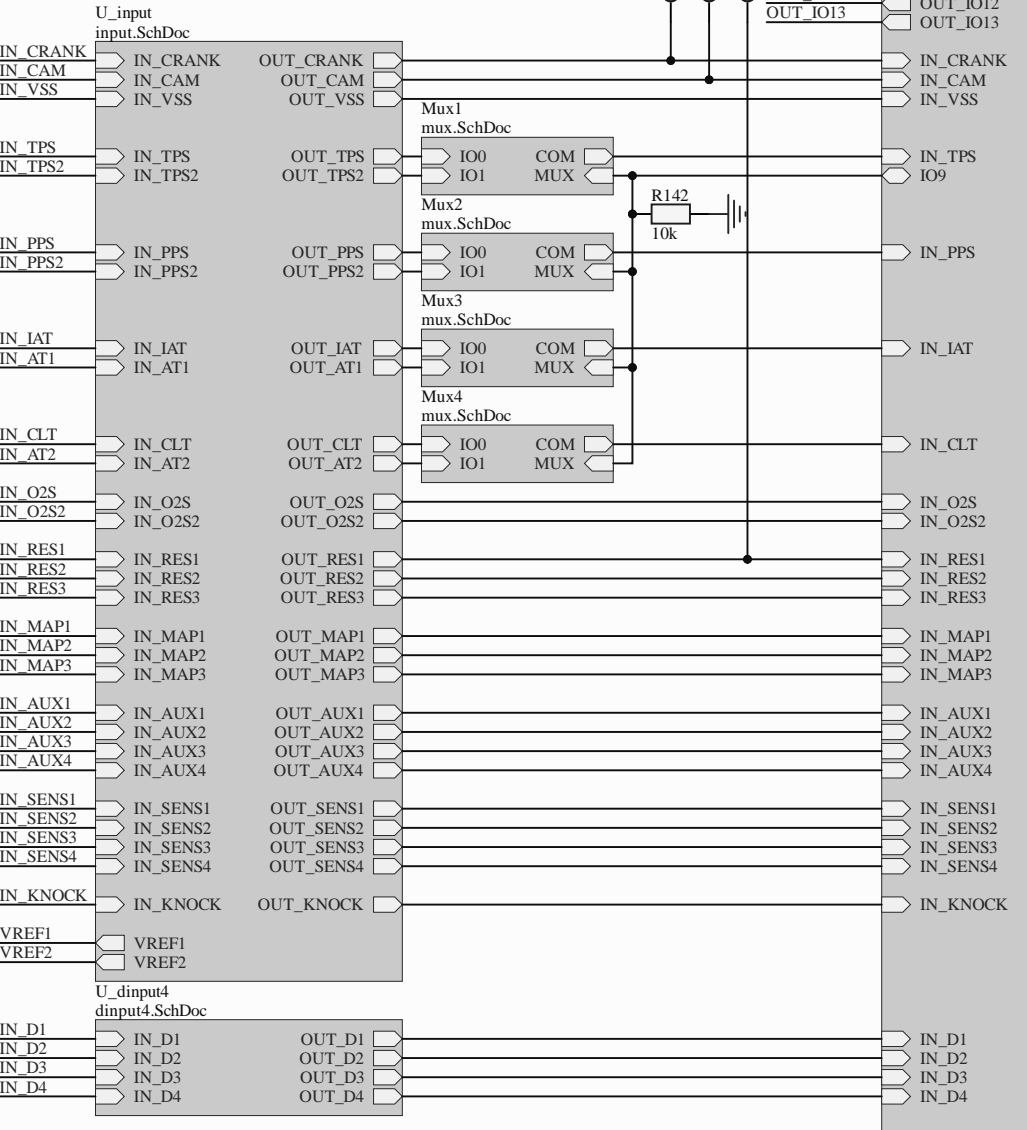
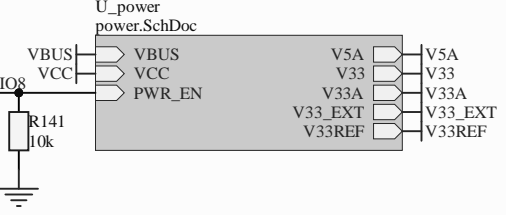
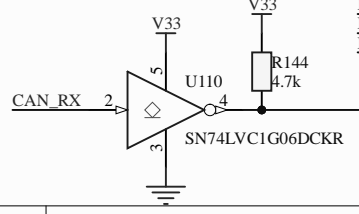






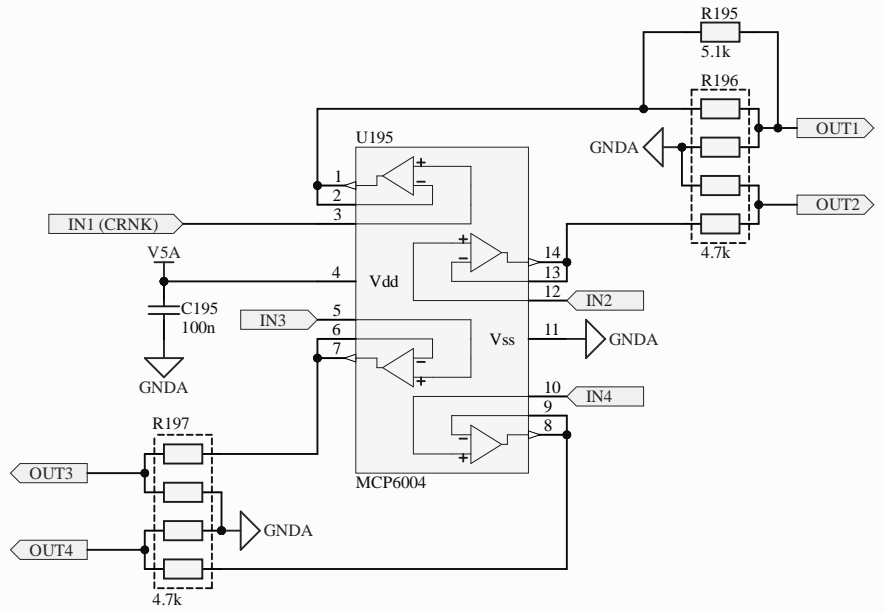


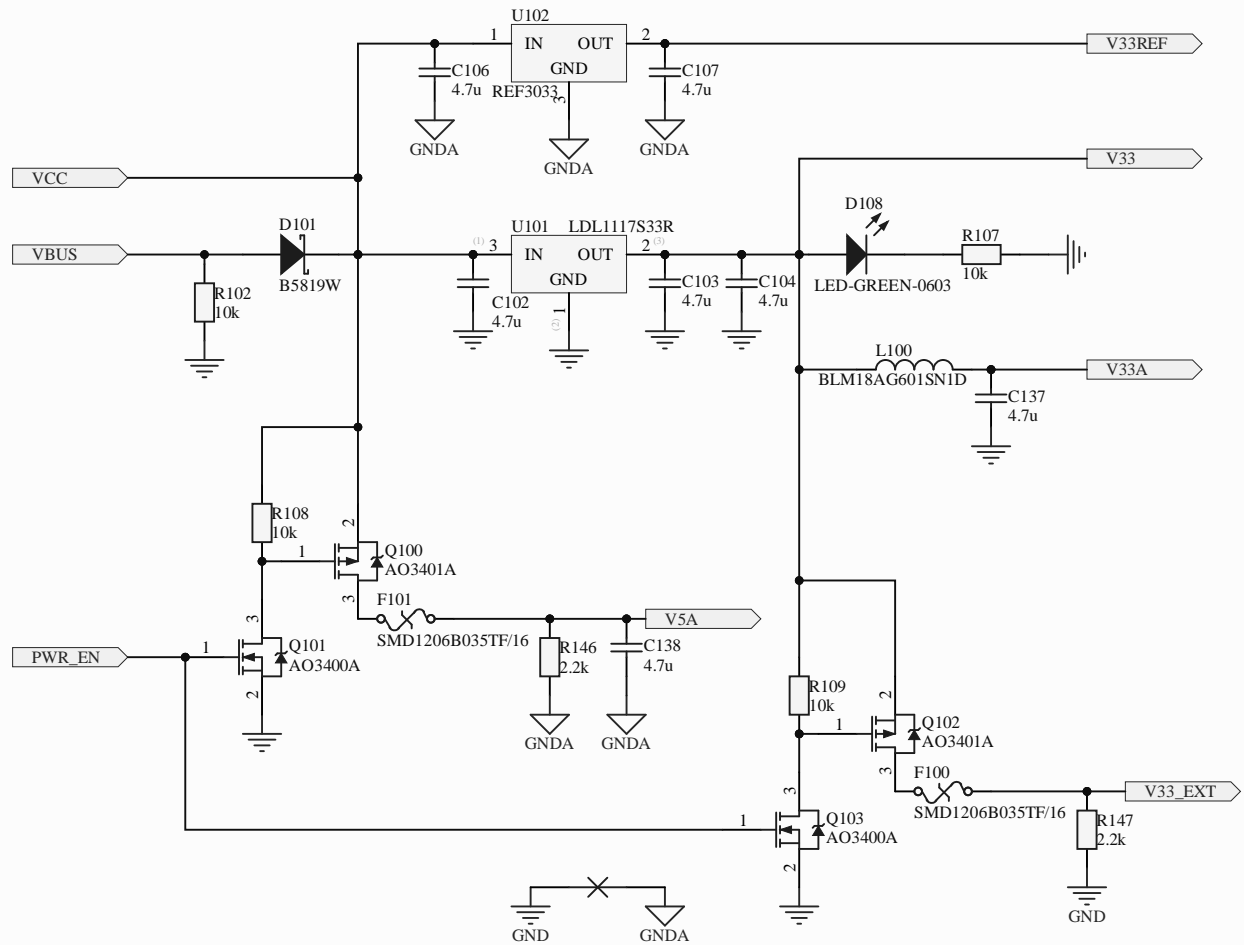
Pin	Signal	Module	Pin	Signal	Module
W11	IGN1	M100	E1	SPI2_SCK	SPI2_SCK
W10	IGN2	M100	E2	SPI2_MISO	SPI2_MISO
W9	IGN3	M100	E3	SPI2_MOSI	SPI2_MOSI
W8	IGN4	M100	E4	SPI2_CS	SPI2_CS
W7	IGN5	M100			
W6	IGN6	M100			
W5	IGN7	M100			
W4	IGN8	M100			
E19	OUT_INJ1	M100	N11	SPI3_SCK	SPI3_SCK
E18	OUT_INJ2	M100	N12	SPI3_MISO	SPI3_MISO
E29	OUT_INJ3	M100	N13	SPI3_MOSI	SPI3_MOSI
E30	OUT_INJ4	M100	N10	SPI3_CS	SPI3_CS
E31	OUT_INJ5	M100			
E32	OUT_INJ6	M100			
E33	OUT_INJ7	M100			
E34	OUT_INJ8	M100			
E27	OUT_PWM1	M100	N24	UART8_RX	UART8_RX
E17	OUT_PWM2	M100	N25	UART8_TX	UART8_TX
E16	OUT_PWM3	M100			
E15	OUT_PWM4	M100			
E14	OUT_PWM5	M100			
E26	OUT_PWM6	M100			
E25	OUT_PWM7	M100			
E28	OUT_PWM8	M100			
E8	OUT_IO1	M100	N3	USB_P	USB_P
E12	OUT_IO2	M100	N2	USB_N	USB_N
E6	OUT_IO3	M100	N1	USBID	USBID
E21	OUT_IO4	M100	N4	VBUS	VBUS
E7	OUT_IO5	M100			
E9	OUT_IO6	M100			
E23	OUT_IO7	M100	N8	SWCLK	SWCLK
E22	OUT_IO8	M100	N7	SWDIO	SWDIO
E11	OUT_IO9	M100	N6	SWO	SWO
E10	OUT_IO10	M100			
E24	OUT_IO11	M100	N9	nRST	nRST
E13	OUT_IO12	M100	N5	BOOT0	BOOT0
E20	OUT_IO13	M100			
S22	IN_CRANK	M100	N16	IO1	IO1
S24	IN_CAM	M100	N19	IO2	IO2
S25	IN_VSS	M100	N21	IO3	IO3
			N20	IO4	IO4
S30	IN_TPS	M100	N23	IO5	IO5
S32	IN_TPS2	M100	E35	IO6	IO6
S31	IN_PPS	M100	E36	IO7	IO7
S33	IN_PPS2	M100			
S26	IN_IAT	M100	N28	IO1	IO1
S27	IN_AT1	M100	N22	IO2	IO2
S28	IN_CLT	M100	N32	IO3	IO3
S29	IN_AT2	M100	E38	IO4	IO4
S16	IN_O2S	M100	W2	IO5	IO5
S15	IN_O2S2	M100	N30	IO6	IO6
S17	IN_RES1	M100	W1	IO7	IO7
S14	IN_RES2	M100	E39	IO8	IO8
S18	IN_RES3	M100			
S21	IN_MAP1	M100			
S20	IN_MAP2	M100			
S19	IN_MAP3	M100			
S13	IN_AUX1	M100			
S12	IN_AUX2	M100			
S11	IN_AUX3	M100			
S10	IN_AUX4	M100			
S9	IN_SENS1	M100			
S8	IN_SENS2	M100			
S7	IN_SENS3	M100			
S6	IN_SENS4	M100			
S23	IN_KNOCK	M100			
S4	IN_D1	M100			
S3	IN_D2	M100			
S2	IN_D3	M100			
S1	IN_D4	M100			
S35	VREF1	M100			
S5	VREF2	M100			
W3	V33_REF	M100			
N29	OUT_PWR_EN	M100			
N26	IN_VIGN	M100			
N27	VBAT	M100			
N31	VCC	M100			
G	GND	M100			



Module: mega\_mcu144.0.2

More accurate threshold for "raw" connection of VR sensors





Title		
Size	Number	Revision
A4		
Date:	1.02.2024	Sheet of
File:	C:\Work\...\power.SchDoc	Drawn By:

