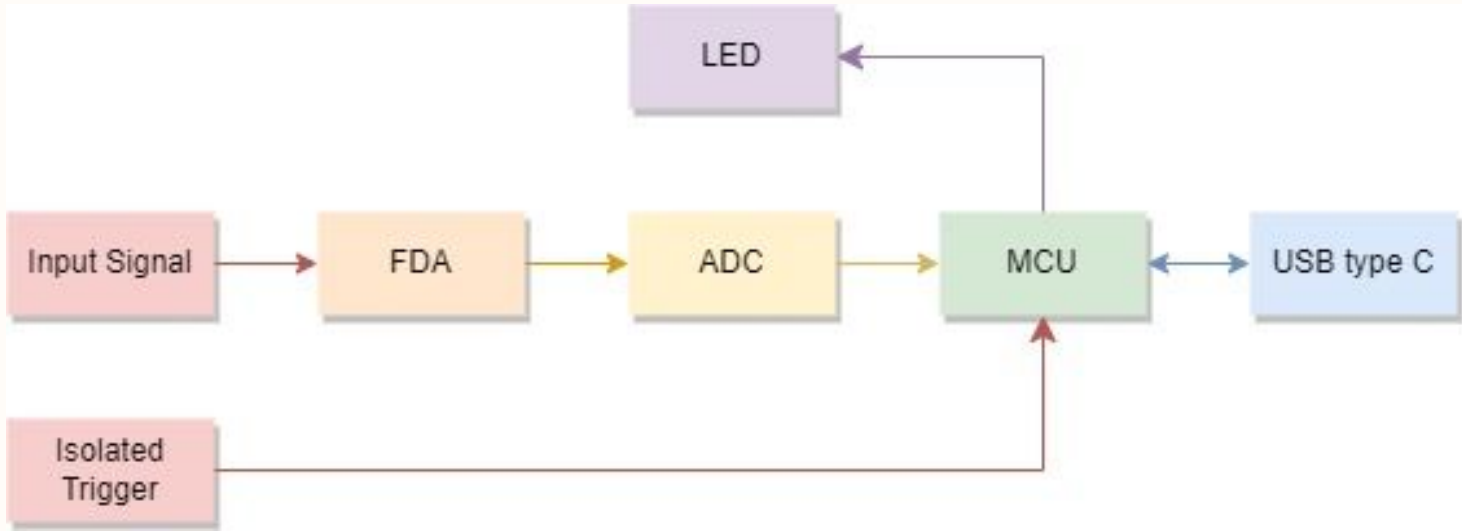
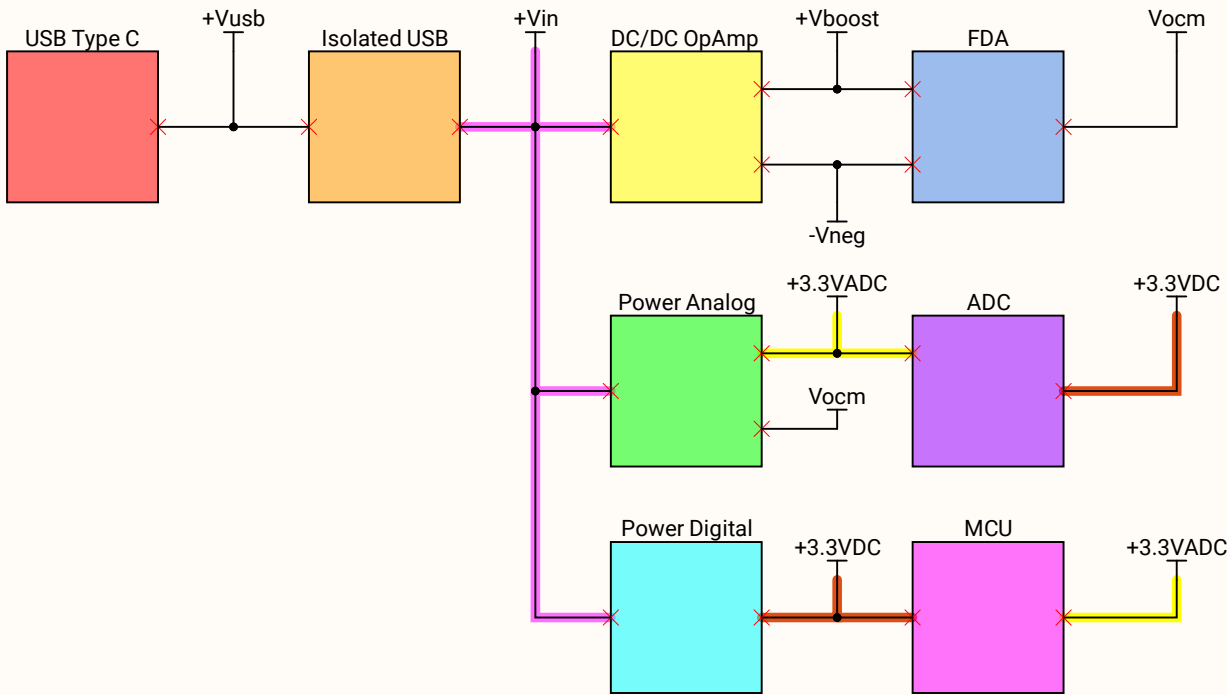


Block Diagram



Power Tree



Pins Function Table

#	Port	Pin	Function	Name	Comment
1	N/A	N/A	Power	Vdd	
2	C	13	NC	N/A	
3	C	14	NC	N/A	
4	C	15	NC	N/A	
5	F	0	OSC+	N/A	
6	F	1	OSC-	N/A	
7	G	0	NC	N/A	
8	A	0	NC	N/A	
9	A	1	TIM2_2	ADC_CLK	Up to 20 MHz
10	A	2	Input	OTR	From ADC
11	A	3	Output	PDWN	ADC on/off
12	A	4	Output	Mode_1	Twos Complement
13	A	5	Output	Mode_2	Offset Binary
14	A	6	Output	Sense	Need to be open drain
15	A	7	TIM17_1	PWM_LED	For WS2812
16	C	4	NC	N/A	
17	B	0	Input	D0	From ADC data line
18	B	1	Input	D1	From ADC data line
19	B	2	Input	D2	From ADC data line
20	N/A	N/A	Power	Vdda	
21	N/A	N/A	Power	Vdda	
22	B	10	Input	D10	From ADC data line
23	N/A	N/A	Power	Vdd	
24	B	11	Input	D11	From ADC data line
25	B	12	Input	D12	From ADC data line
26	B	13	Input	D13	From ADC data line
27	B	14	NC	N/A	
28	B	15	NC	N/A	
29	C	6	NC	N/A	
30	A	8	NC	N/A	
31	A	9	Output	Output	
32	A	10	Output	USB_Pin	Reboot USB isolator
33	A	11	USB	USB_N	
34	A	12	USB	USB_P	
35	N/A	N/A	Power	Vdd	
36	A	13	SWDIO	SWDIO	
37	A	14	SWCLK	SWCLK	
38	A	15	EXTI15	Trigger	
39	C	10	NC	N/A	
40	C	11	NC	N/A	
41	B	3	Input	D3	From ADC data line
42	B	4	Input	D4	From ADC data line
43	B	5	Input	D5	From ADC data line
44	B	6	Input	D6	From ADC data line
45	B	7	Input	D7	From ADC data line
46	B	8	Input	D8	From ADC data line
47	B	9	Input	D9	From ADC data line
48	N/A	N/A	Power	Vdd	
49	N/A	N/A	Vss	GND	

History

Revision  
ver 0.1

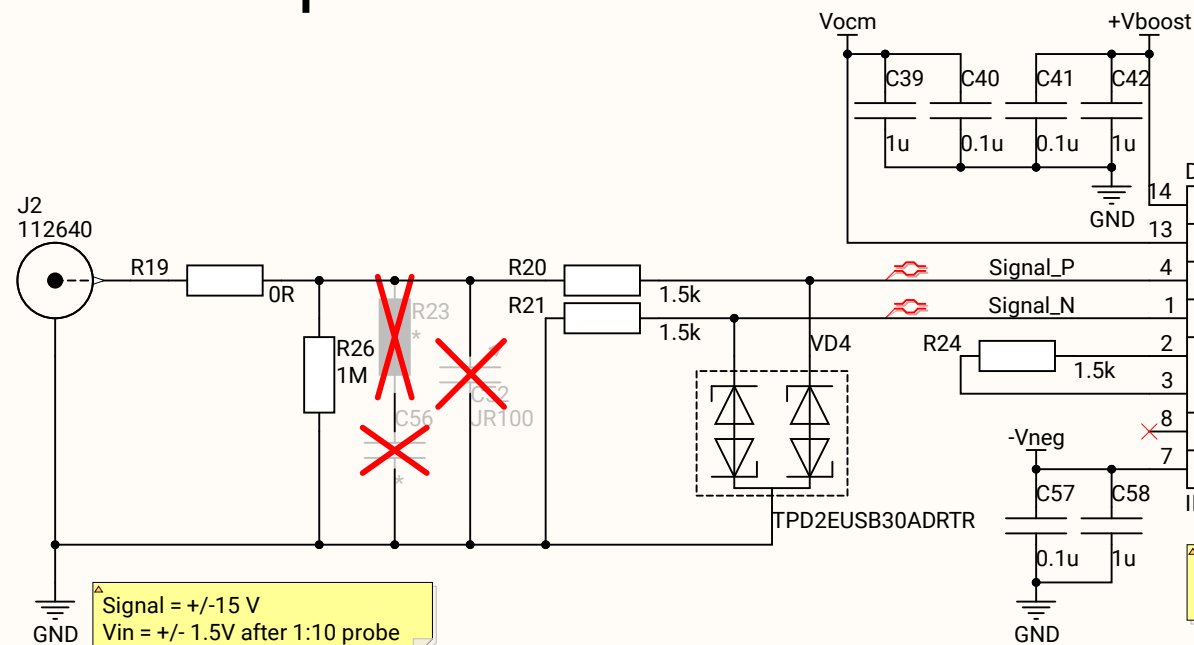
Date  
24.02.2024

Description  
Initial draft

To Do:  
Check MCU pinout with R  
Check USB prog with R  
shield S02-25200300  
place P/N

Part Number		Rev.			Germany, Berlin	
Material			Name UScope Project			
Units			Format A3	Document		Revision
Reviewer		Date				
*			Scale:	Weight:	Page № 1	Pages: 3

# Input



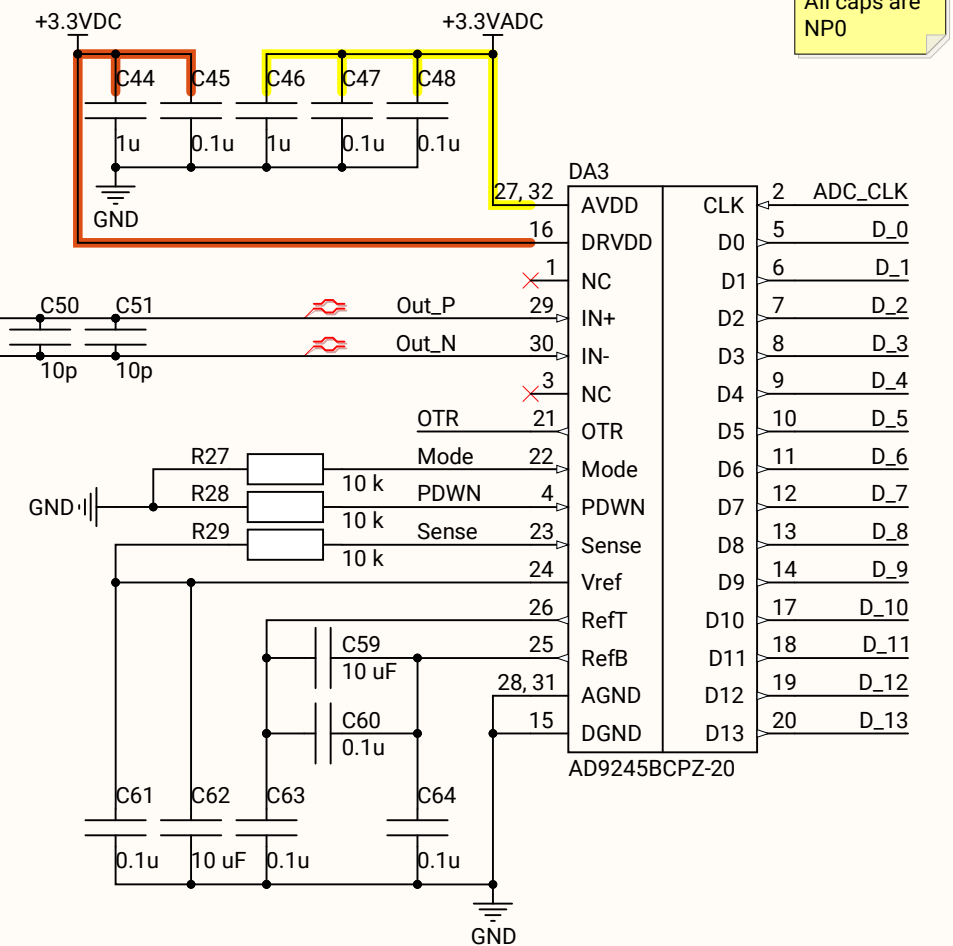
# FDA

Pin	Signal
14	Vs+
13	Vclamp+
4	Vocm
1	FDA_IN-
2	IN+
3	IN-
10	OUT+
11	OUT-
9	G02+
6	G02-
5	FDA_IN+
7	Vclamp-
8	Vs-

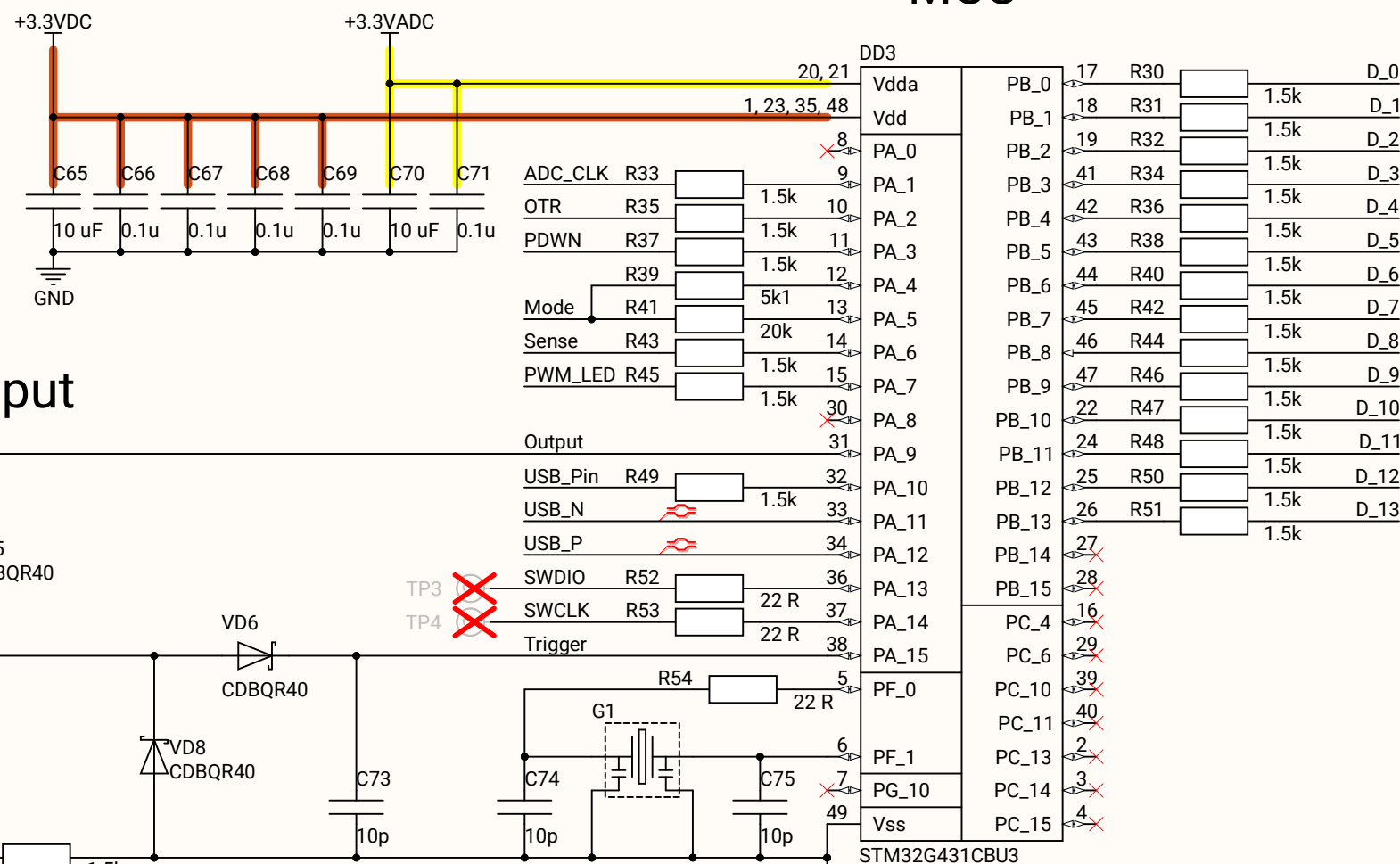
Gain =  $G_{in} \times G_{out}$   
Gain =  $5 \times 0.2 = 1 \text{ V/V}$

# ADC

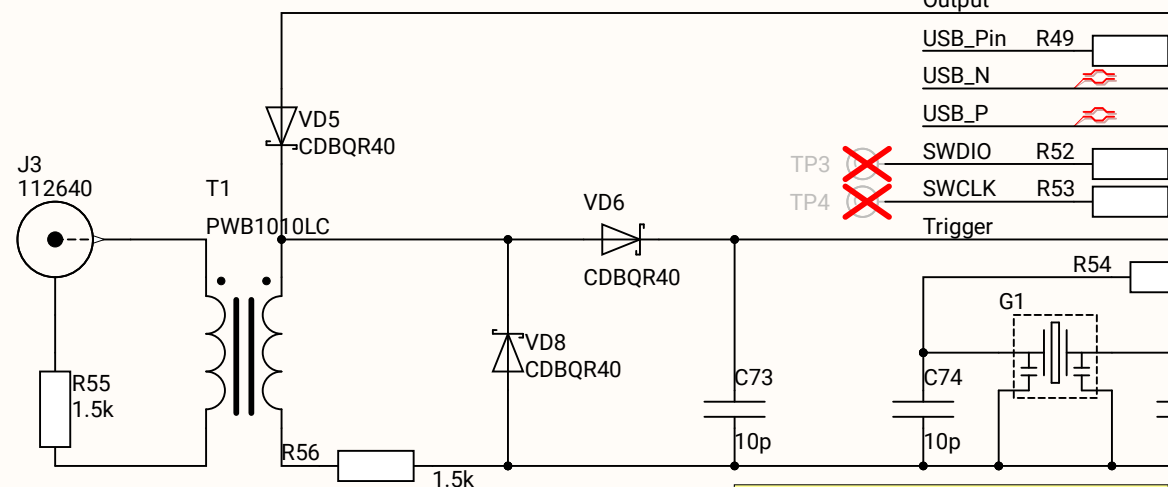
All caps are NPO



# MCU

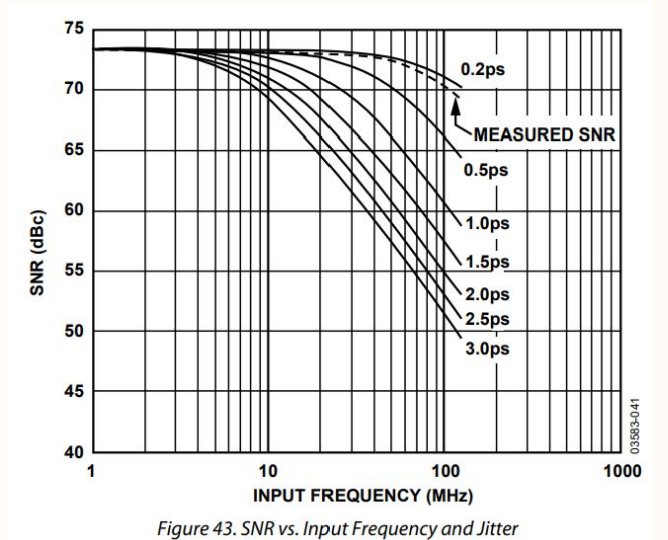


# Input - Output

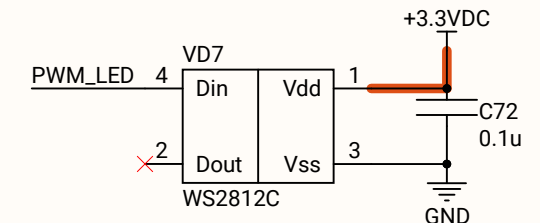


$$CL = \frac{(CX1 \times CX2)}{(CX1 + CX2)} + C_{stray}$$

$$CX1 = CX2 = 2 \times (10 - 5) = 10 \text{ pF}$$



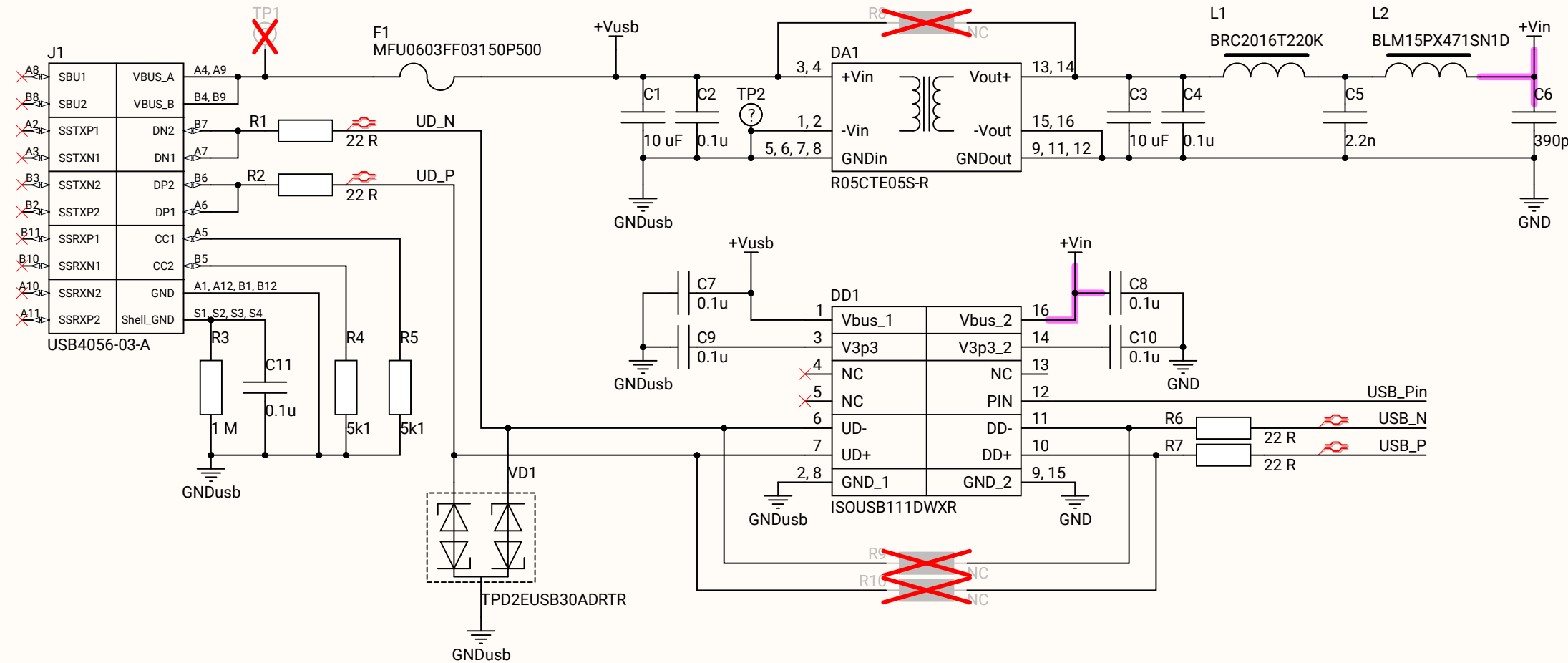
# LED



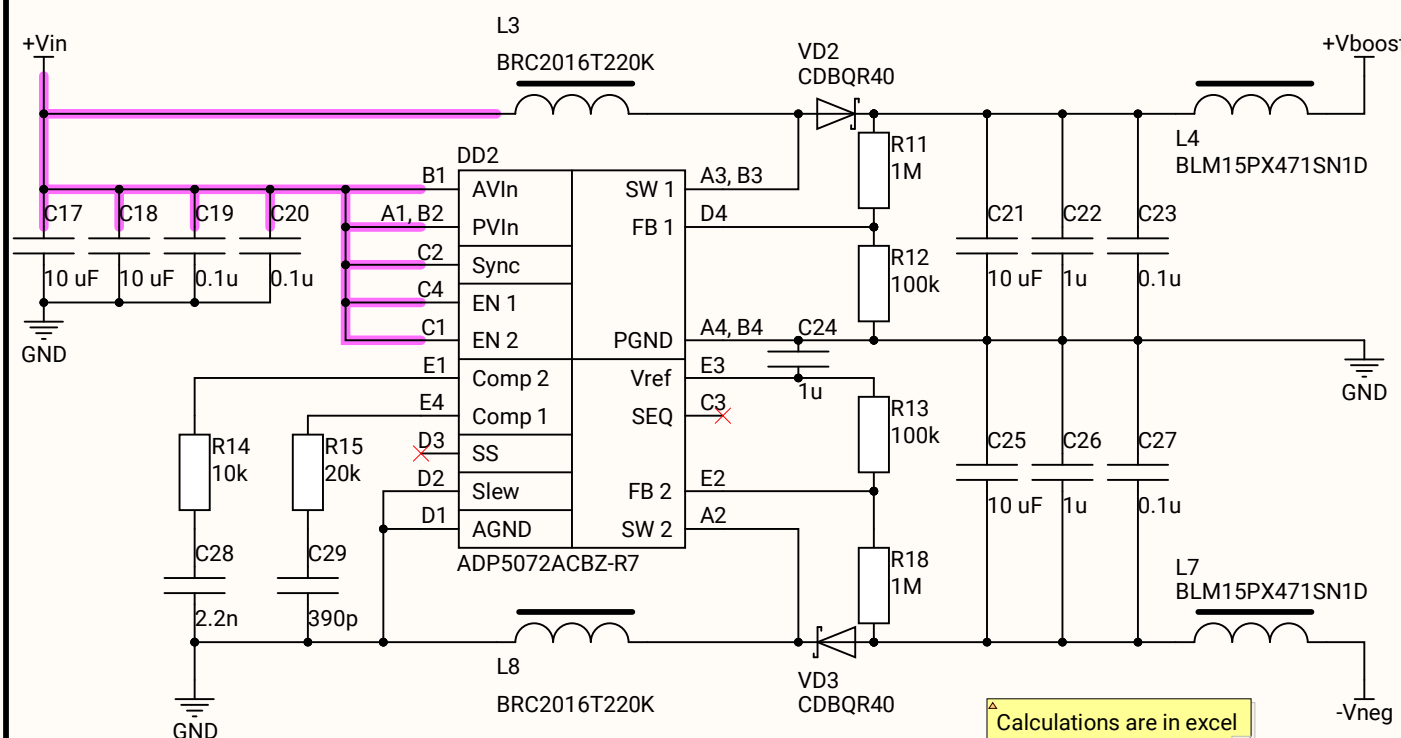
# USB

# Isolation of USB

All caps are X7R

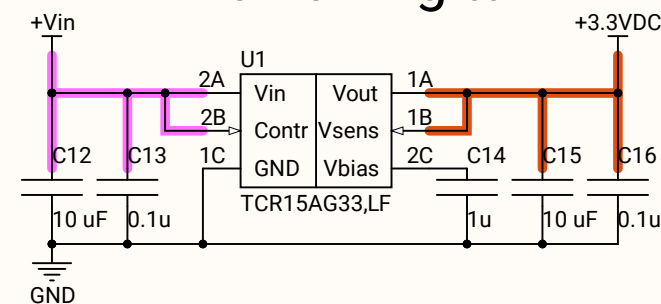


## DC/DC OpAmp

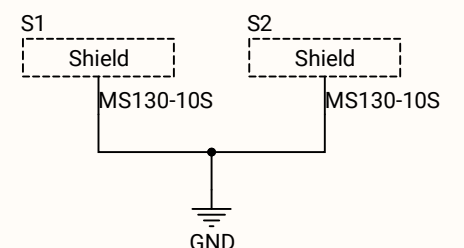


Calculations are in excel

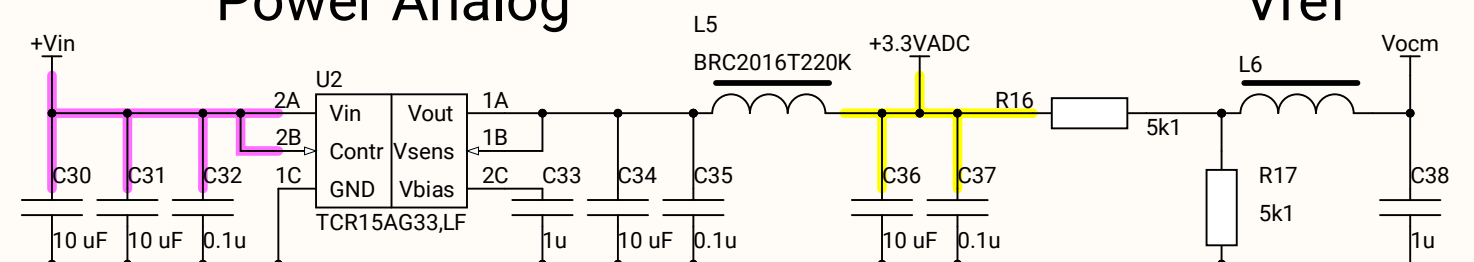
## Power Digital



## Shields



## Power Analog



Document

Rev.

Format

Page

A3

3