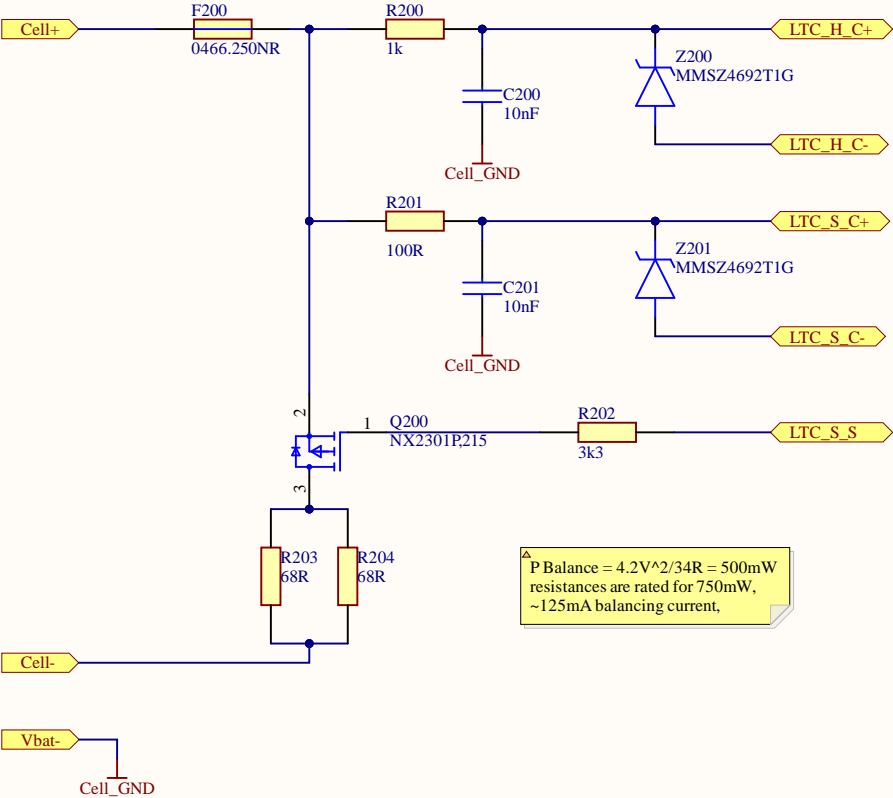


Title			cell_inputfilter.SchDoc
Size	Number	Revision	
A4	1	A0	
Date:	3/21/2025	Sheet 2 of 10	
File:	C:\Users\...cell_inputfilter.SchDoc	Drawn By: Otto Riha	



recommended filtering from LTC 6801 datasheet: 1kOhm 10nF to GND

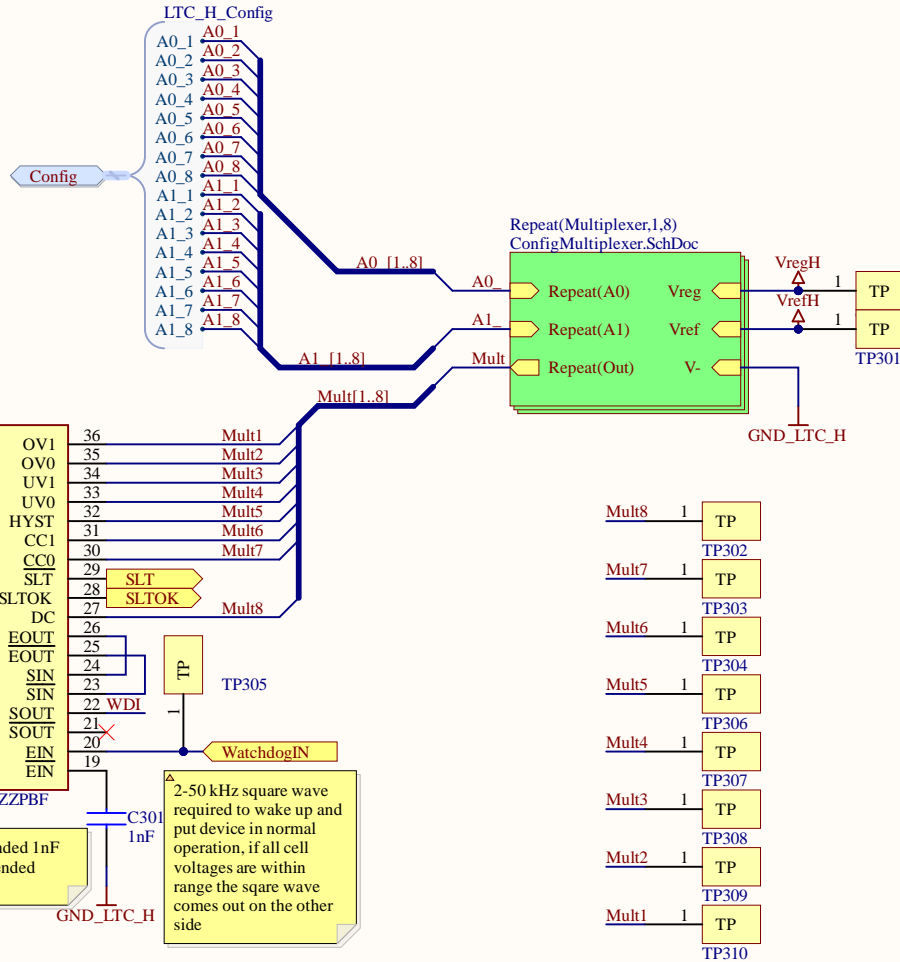
recommended filter components for maximum measurement accuracy from LTC 6811 datasheet: 100R 10nF, the zeners are there to reduce stress on internal protection circuit

P Balance = $4.2V^2/34R = 500mW$
resistances are rated for 750mW, ~125mA balancing current,

Title			singlefilter.SchDoc
Size	Number	Revision	A0
A4	1		
Date:	3/21/2025	Sheet 3 of 10	
File:	C:\Users\...\singlefilter.SchDoc	Drawn By:	Otto Riha

DC	NOMINAL CYCLE TIME*
V _{REG}	15.5ms
V _{REF}	Approximately 130ms
V ⁻	Approximately 500ms

HYST	UV HYSTERESIS*	OV HYSTERESIS
V _{REG}	500mV	200mV
V _{REF}	250mV	100mV
V ⁻	0mV	0mV



OV1	OV0	OVERVOLTAGE THRESHOLD (V)
V _{REG}	V _{REG}	4.498
V _{REG}	V _{REF}	4.403
V _{REG}	V ⁻	4.307
V _{REF}	V _{REG}	4.211
V _{REF}	V _{REF}	4.116
V _{REF}	V ⁻	4.020
V ⁻	V _{REG}	3.924
V ⁻	V _{REF}	3.828
V ⁻	V ⁻	3.733

UV1	UV0	UNDERVOLTAGE THRESHOLD (V)
V _{REG}	V _{REG}	2.871
V _{REG}	V _{REF}	2.680
V _{REG}	V ⁻	2.489
V _{REF}	V _{REG}	2.297
V _{REF}	V _{REF}	2.106
V _{REF}	V ⁻	1.914
V ⁻	V _{REG}	1.723
V ⁻	V _{REF}	1.531
V ⁻	V ⁻	0.766

CC1	CC0	CELL COUNT
V _{REG}	V _{REG}	12
V _{REG}	V _{REF}	11
V _{REG}	V ⁻	10
V _{REF}	V _{REG}	9
V _{REF}	V _{REF}	8
V _{REF}	V ⁻	7
V ⁻	V _{REG}	6
V ⁻	V _{REF}	5
V ⁻	V ⁻	4

Temperature measurement disabled as configuration would happen with different temperature sensors

Vreg 5V 1mA output

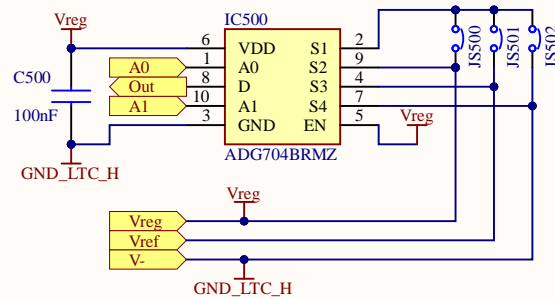
Recommended 1nF for single ended operation

2-50 kHz square wave required to wake up and put device in normal operation, if all cell voltages are within range the square wave comes out on the other side

the watchdog is there, to convert the square wave signal back into high/low signal, as side effect this also monitors MCU running correctly, consumption 22uA

LOGIC INPUTS			MAX6369/MAX6370
SET2	SET1	SET0	t _{DELAY, WVD}
0	0	0	1ms
0	0	1	10ms
0	1	0	30ms
0	1	1	Disabled
1	0	0	100ms
1	0	1	1s
1	1	0	10s
1	1	1	60s

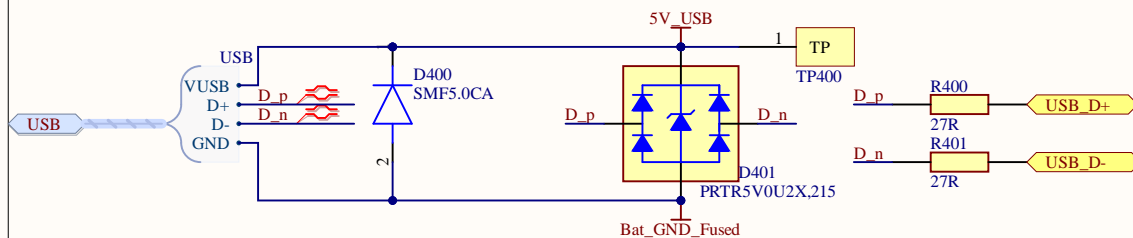
Title			LTC_Hardware.SchDoc		
Size	Number			Revision	
A4	1			A0	
Date:	3/21/2025		Sheet 4 of 10		
File:	C:\Users\...\LTC_Hardware.SchDoc		Drawn By: Otto Riha		



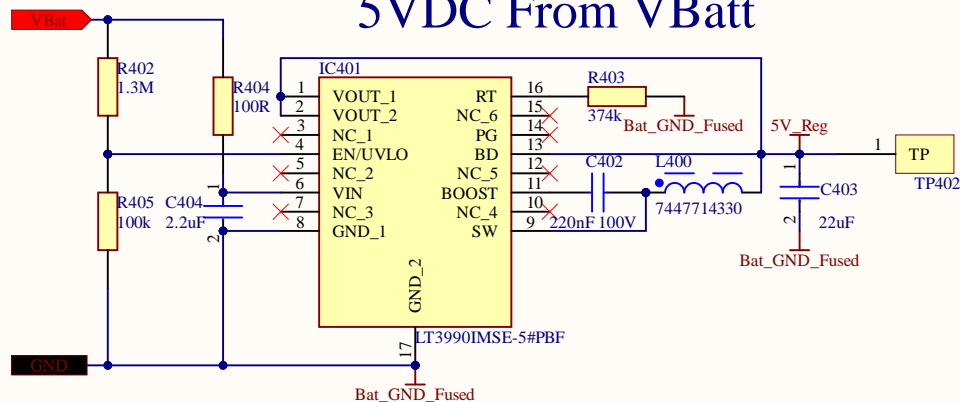
△
Jumper for default setting when
multiplexer in A0=A1=0
position, max consumption 1uA

Title			ConfigMultiplexer.SchDoc
Size	Number	Revision	
A4	1	A0	
Date:	3/21/2025	Sheet5 of 10	
File:	C:\Users\...\ConfigMultiplexer.SchDoc	Drawn By: Otto Riha	

USB INPUT Protection

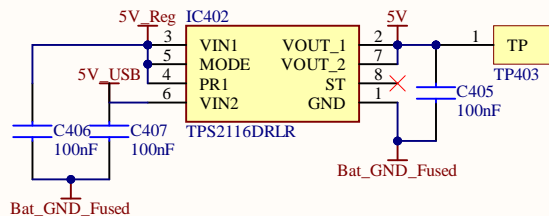


5VDC From VBatt



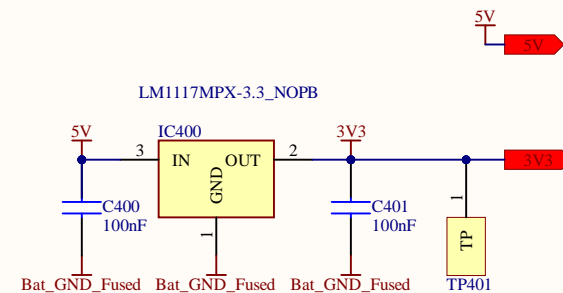
Undervoltage Lockup configured for 16.7V which corresponds to 2.4V/ cell on 7s and is an additional measure against deep discharge

5V Selector

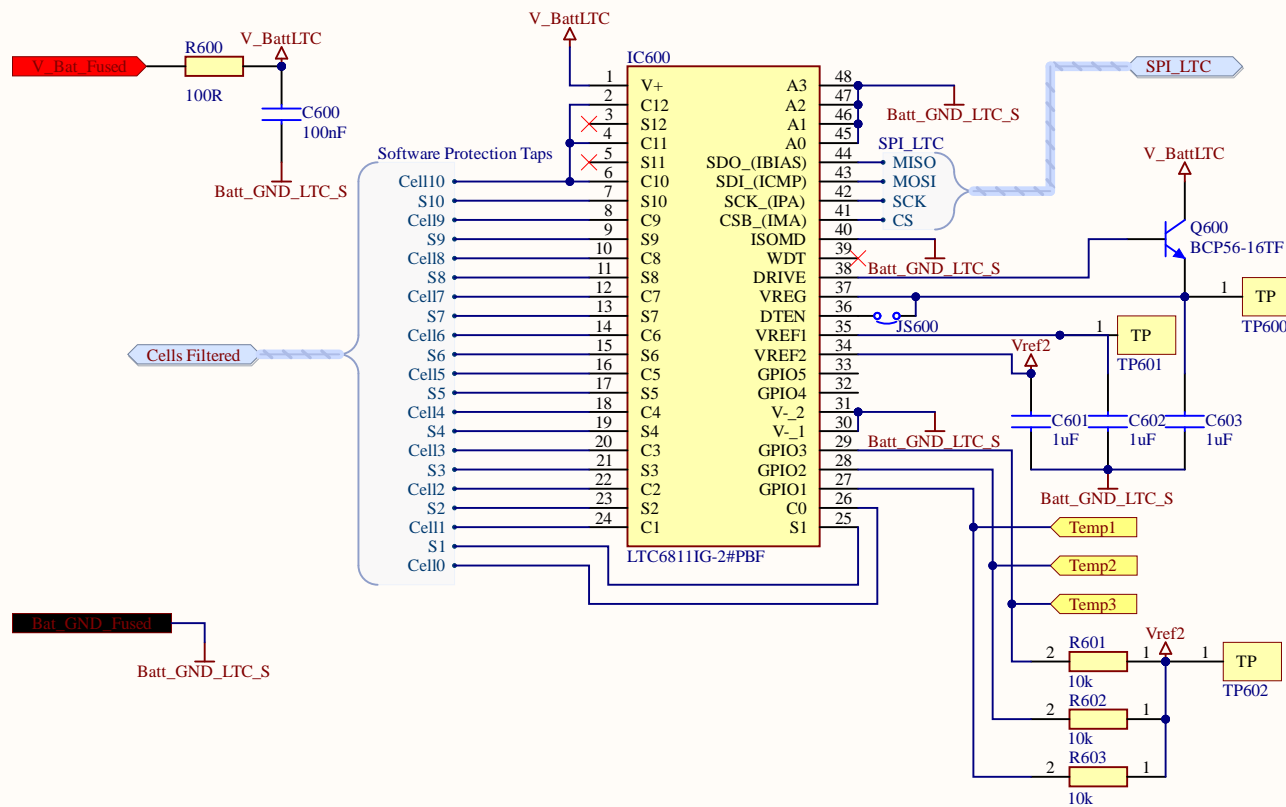


Defaults to battery supply, USB is only a fallback option to program/read out data without connected battery

3,3V LDO

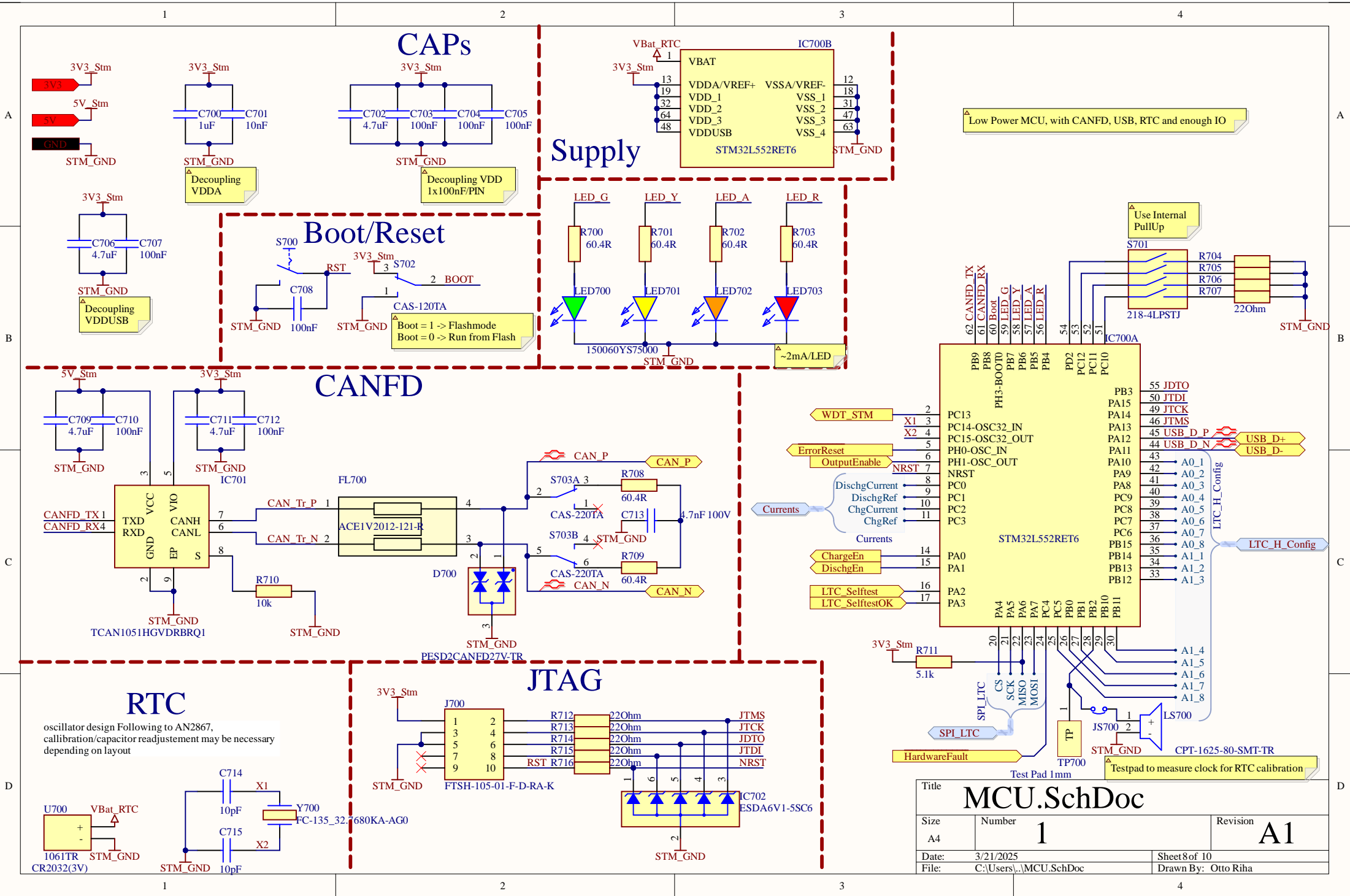


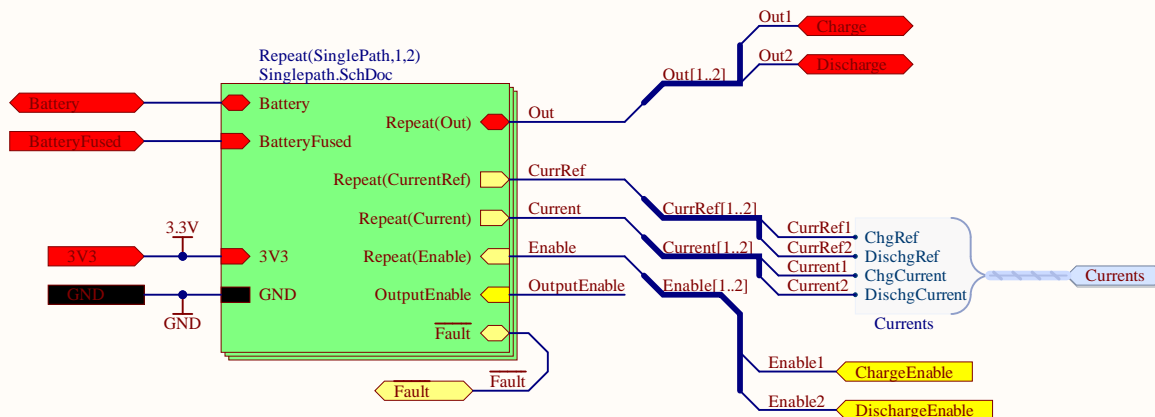
Title			AuxSupply_USB.SchDoc	
Size	Number	Revision		
A4	1	A0		
Date:	3/21/2025	Sheet 6 of 10		
File:	C:\Users\...\AuxSupply_USB.SchDoc	Drawn By: Otto Riha		



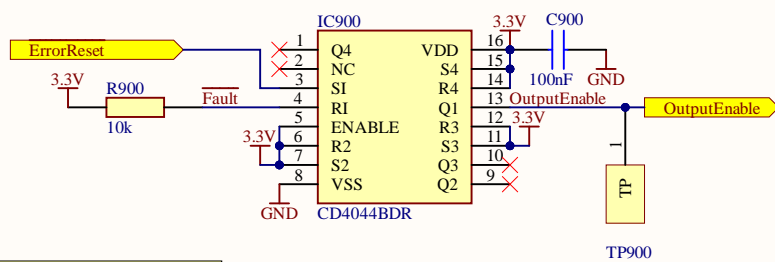
Transistor can handle 1W which is 28mA at 42V input, enough for the LTC6811-2 consuming 12.3mA in worstcase

Title			LTC_Soft.SchDoc	
Size	Number	Revision		
A4	1	A0		
Date:	3/21/2025	Sheet 7 of 10		
File:	C:\Users\...\LTC_Soft.SchDoc	Drawn By: Otto Riha		





Error latch



S	R	E	Q
X	X	0	OC*
1	1	1	NC+
0	1	1	1
1	0	1	0
0	0	1	Δ Δ

* OPEN CIRCUIT
+ NO CHANGE
Δ Δ DOMINATED BY R=0 INPUT

CD4044B

▲ Pullup needed as current sensor and WDT outputs are all open drain

Title			PowerPath.SchDoc
Size	Number	Revision	
A4	1	A0	
Date:	3/21/2025	Sheet 9 of 10	
File:	C:\Users\...\PowerPath.SchDoc	Drawn By: Otto Riha	

