

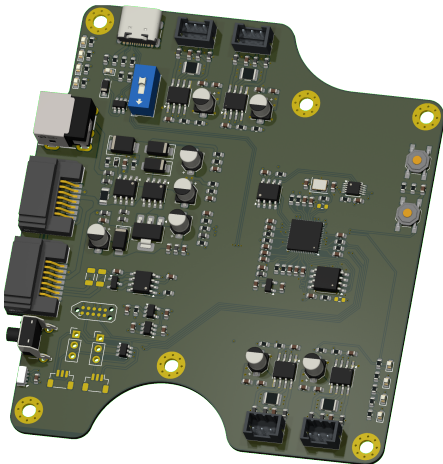
SMPBR / Pump\_board

Rev 1.0

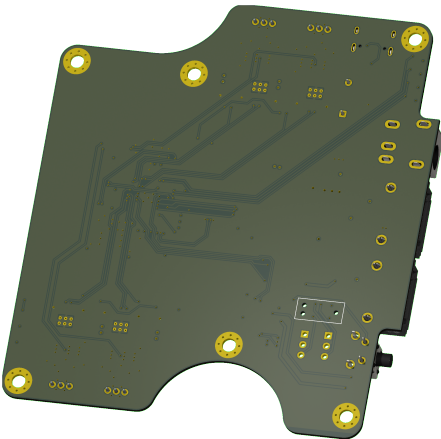
2025-08-01

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TOP VIEW



BOTTOM VIEW



NOTES


Not fitted components are marked as X

DESIGN CONSIDERATIONS

INFO NOTE:  
Example text for informational design notes.

DESIGN NOTE:  
Example text for critical design notes.

LAYOUT NOTE:  
Example text for critical layout notes.

Designed for: TrendBit Designed by: Petr_Malaník					
Sheet: / File: pump_board.kicad_sch				Project: SMPBR	
Title:				Board: Pump_board	
Size: A4		Date: 2024-12-03	GIT hash: a985fdb		Rev: 1.0
KiCad E.D.A. 9.0.1				Id: 1/13	

# Revision History



Designed for: TrendBit  
Designed by: Petr\_Malaník

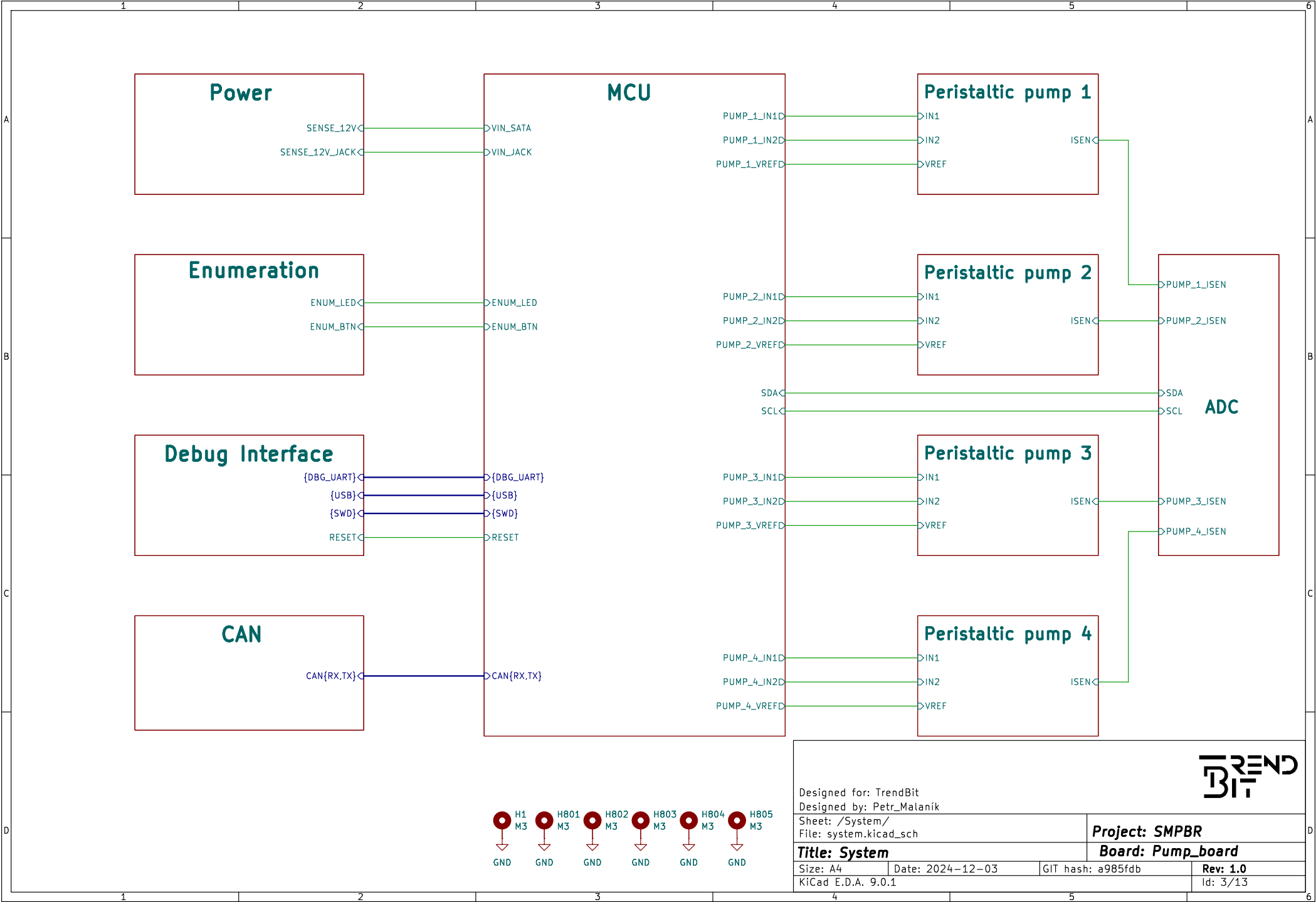
Sheet: /Revision History/  
File: revision\_history.kicad\_sch

**Project: SMPBR**

**Title: Revision History**

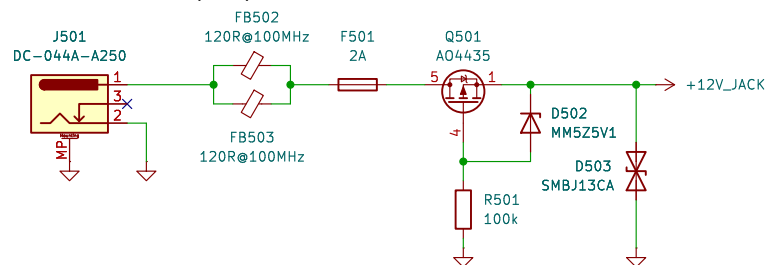
**Board: Pump\_board**

Size: A4	Date: 2024-12-03	GIT hash: a985fdb	Rev: 1.0
KiCad E.D.A. 9.0.1			Id: 2/13

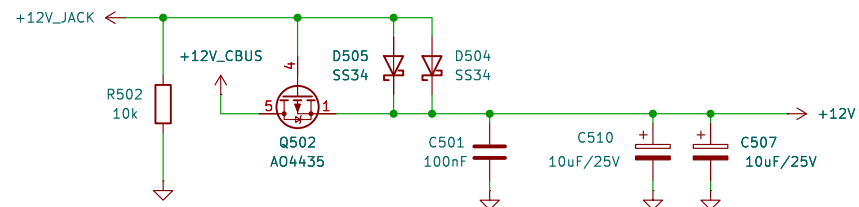




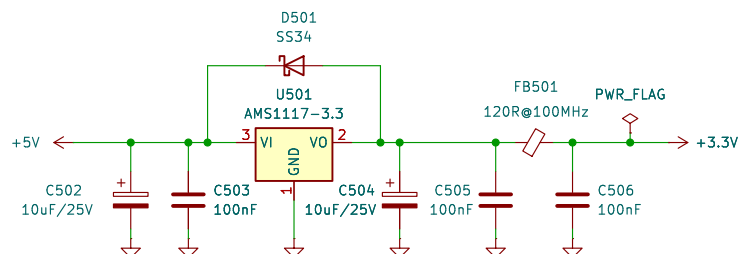
### Input protection



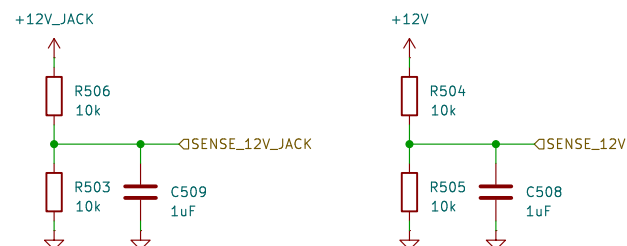
### Supply switching



### Supply - 3.3V



### 12V reading



Designed for:  
Designed by: Petr\_Malaník

Sheet: /System/Power/  
File: power.kicad\_sch

**Title: Power**

Size: A4

Date:

GIT hash: a985fdb

**Rev:**

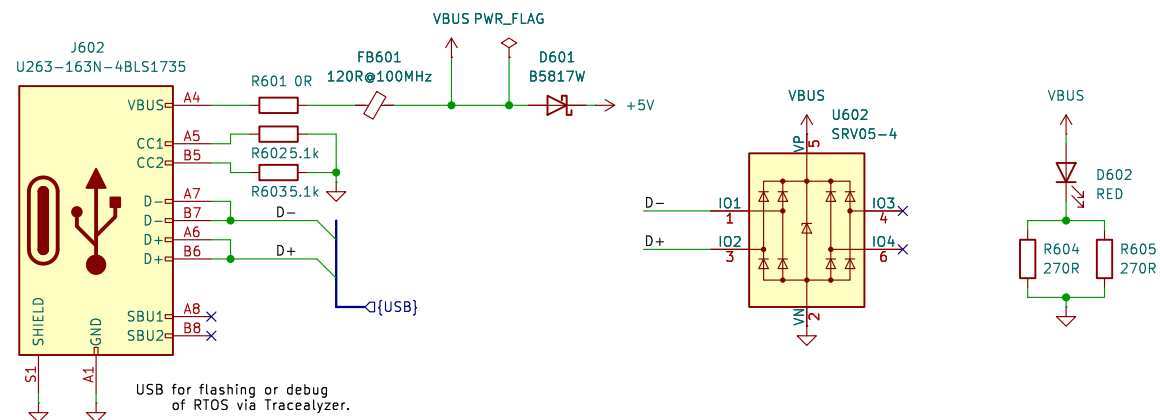
KiCad E.D.A. 9.0.1

Id: 5/13

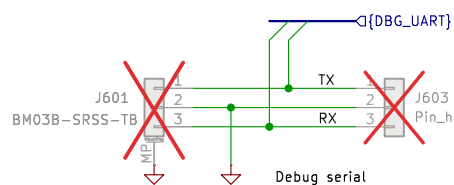
**Project: SMPBR**

**Board: Pump\_board**

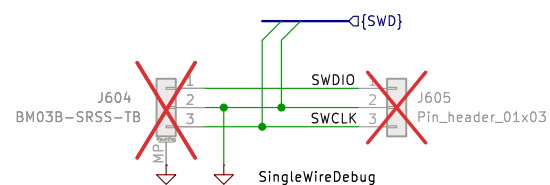
## USB – Update & Debug



## Serial Debug

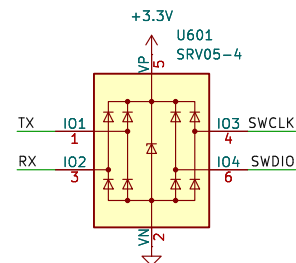


## SWD Debug

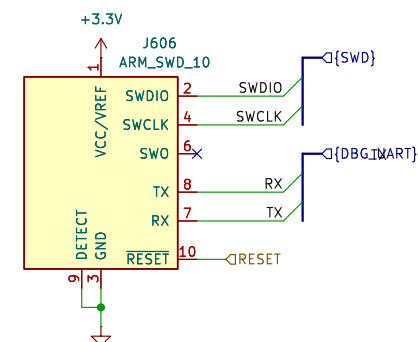


Pinout of these connectors is intended to be used with RPi debug Probe

## DBG ESD Protection



### Tag-connector



Designed for:  
Designed by: Petr\_Malaník

Sheet: /System/Debug Interface/  
File: debug.kicad\_sch

<b>Title:</b> <i>Debug Interface</i>
--------------------------------------

Size: A4

Date:

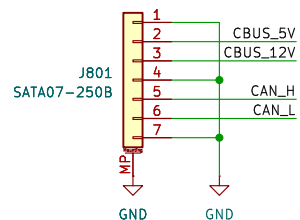
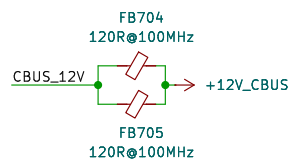
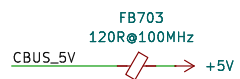
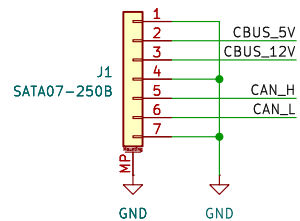
GIT hash: a985fdb
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Rev:
Id: 6/13

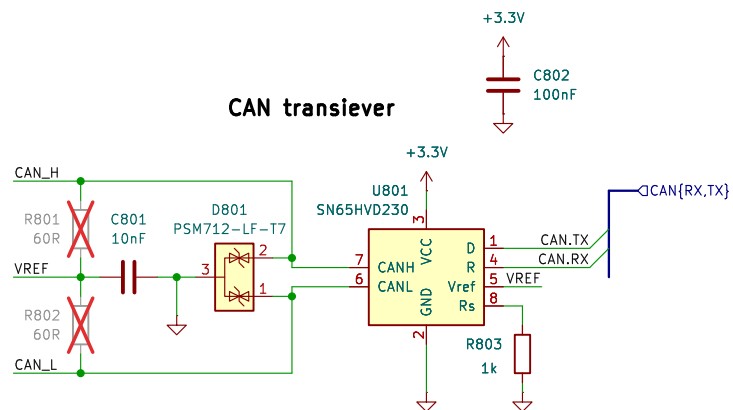
TREND  
BIT

**Project: SMPBR**

Board:	Pump_board
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## CAN transiever



Designed for:  
Designed by: Petr\_Malaník

Sheet: /System/CAN/  
File: can\_interface.kicad\_sch

**Title: CAN**

Size: A4  
KiCad E.D.A. 9.0.1

Date:

GIT hash: a985fdb

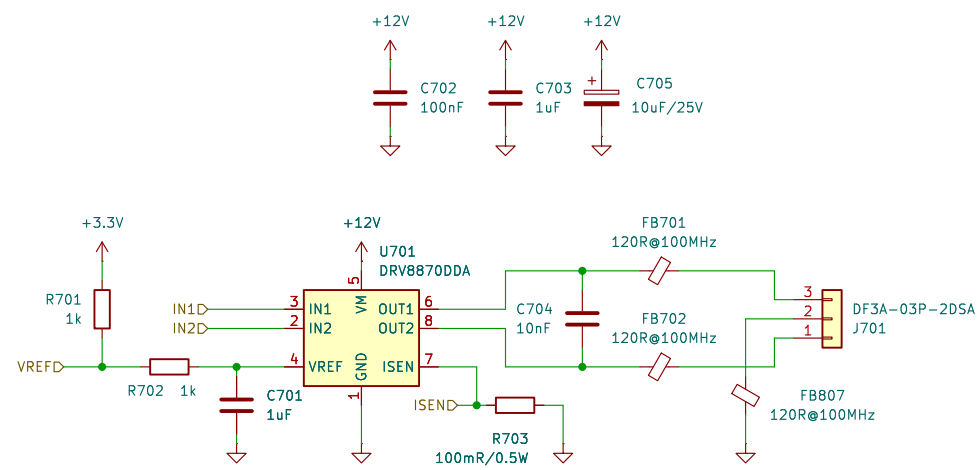
Rev:

Id: 7/13

**Project: SMPBR**

**Board: Pump\_board**

**TREND  
BIT**



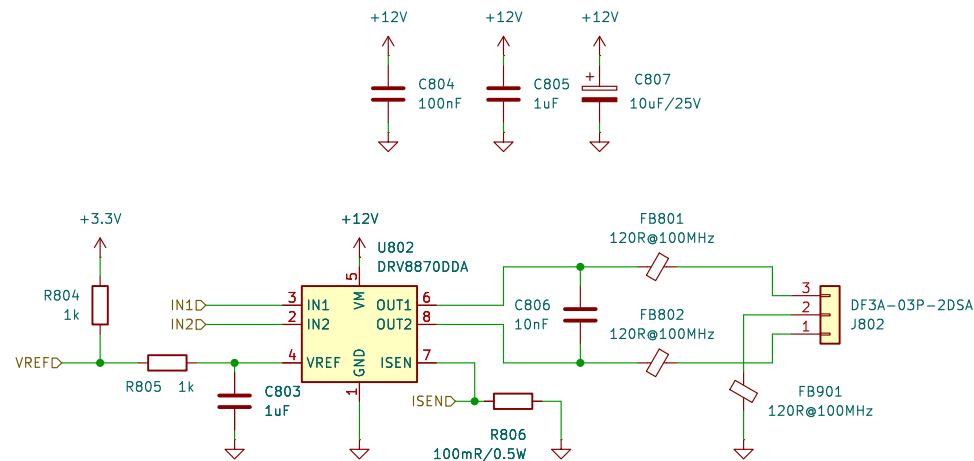
Input filter:  
CTRL PWM frequency = 10 kHz  
Settling time (10->90%) = ~4 ms  
Peak to peak (Duty = 50%) = 0.07 V  
Default max current = 3.3 A (with 0.1R Sense resistor)

$$R_{SEN} = V_{REF} / (10 \times I_{TRIP})$$
$$\text{Current limit} = 3.30 \text{ A}$$



Designed for:			<b>317</b>
Designed by: Petr_Malaník			
Sheet: /System/Peristaltic pump 1/ File: motor.kicad_sch		<b>Project: SMPBR</b>	
<b>Title: Peristaltic pump 1</b>			
<b>Board: Pump_board</b>			
Size: A4	Date:	GIT hash: a985fdb	<b>Rev:</b>
KiCad E.D.A. 9.0.1			Id: 8/13





Input filter:  
CTRL PWM frequency = 10 kHz  
Settling time (10->90%) = ~4 ms  
Peak to peak (Duty = 50%) = 0.07 V  
Default max current = 3.3 A (with 0.1R Sense resistor)

$$R_{SEN} = V_{REF} / (10 \times I_{TRIP})$$

Current limit = 3.30 A



Designed for:  
Designed by: Petr\_Malaník

Sheet: /System/Peristaltic pump 2/  
File: motor.kicad\_sch

**Title: Peristaltic pump 2**

**Project: SMPBR**

**Board: Pump\_board**

Size: A4

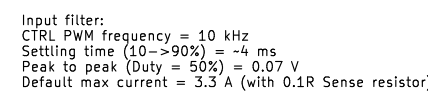
Date:

GIT hash: a985fdb

Rev:

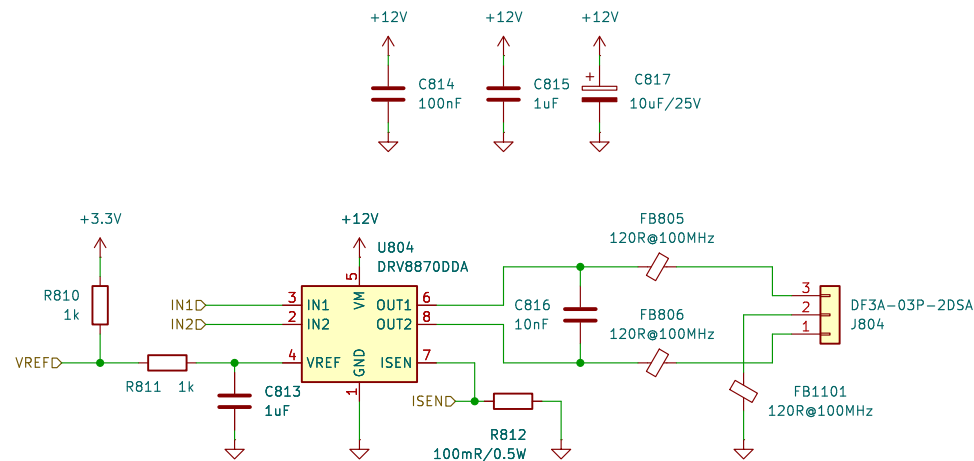
KiCad E.D.A. 9.0.1

Id: 9/13



**TREND  
BIT**

Board:	Pump_board
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Input filter:  
CTRL PWM frequency = 10 kHz  
Settling time (10->90%) = ~4 ms  
Peak to peak (Duty = 50%) = 0.07 V  
Default max current = 3.3 A (with 0.1R Sense resistor)

$$R_{SEN} = V_{REF} / (10 \times I_{TRIP})$$

Current limit = 3.30 A



Designed for:  
Designed by: Petr.Malaník

Sheet: /System/Peristaltic pump 4/  
File: motor.kicad\_sch

**Title: Peristaltic pump 4**

**Project: SMPBR**

**Board: Pump\_board**

Size: A4

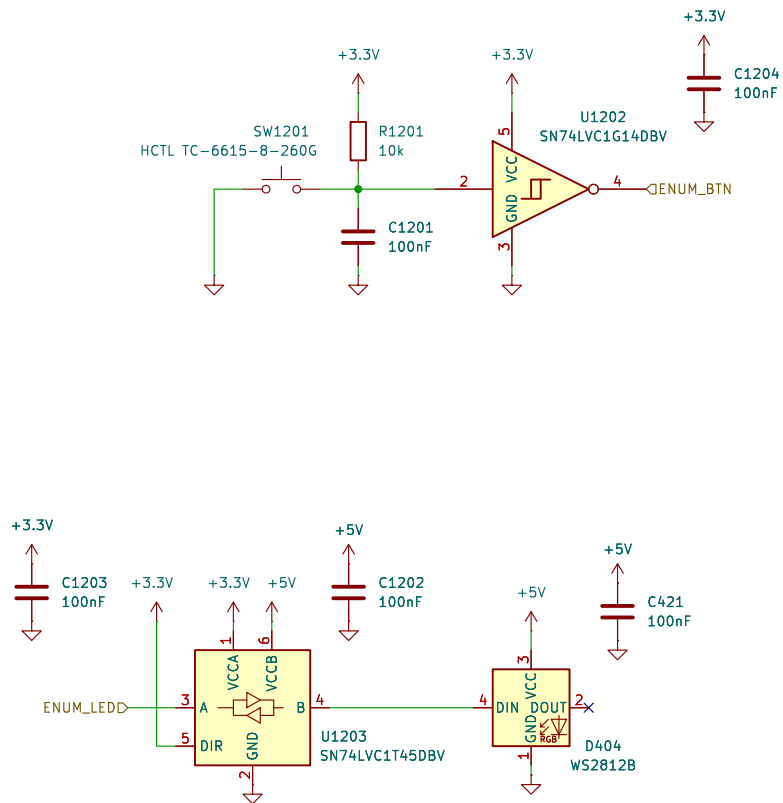
Date:

GIT hash: a985fdb

Rev:

KiCad E.D.A. 9.0.1

Id: 11/13



Designed for: TrendBit  
Designed by: Petr\_Malaník

Sheet: /System/Enumeration/  
File: enumeration.kicad\_sch

**Title: Enumeration**

Size: A4

Date: 2024-12-03

GIT hash: a985fdb

KiCad E.D.A. 9.0.1

**Project: SMPBR**

**Board: Pump\_board**

**TREND  
BIT**

**Rev: 1.0**

Id: 12/13

