

A

B

C

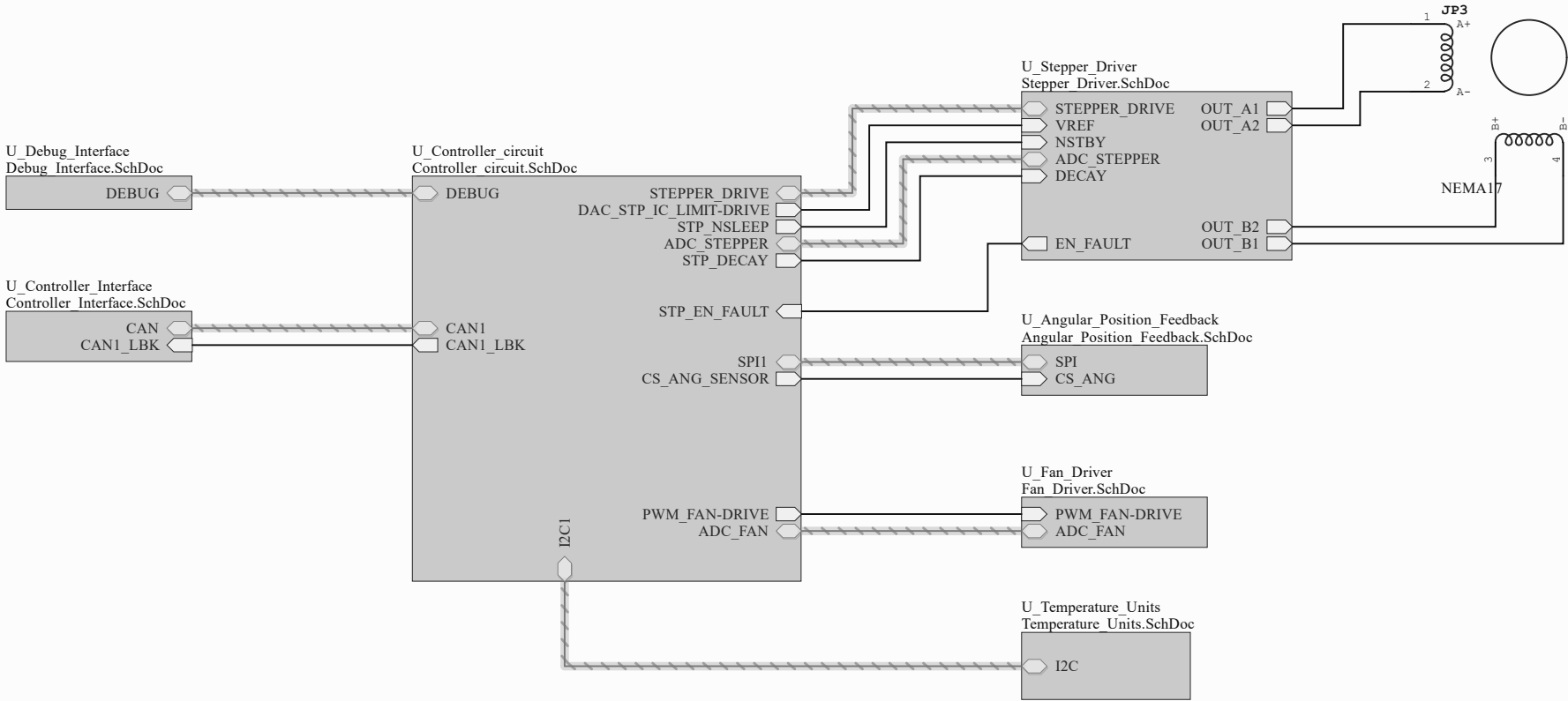
D

A

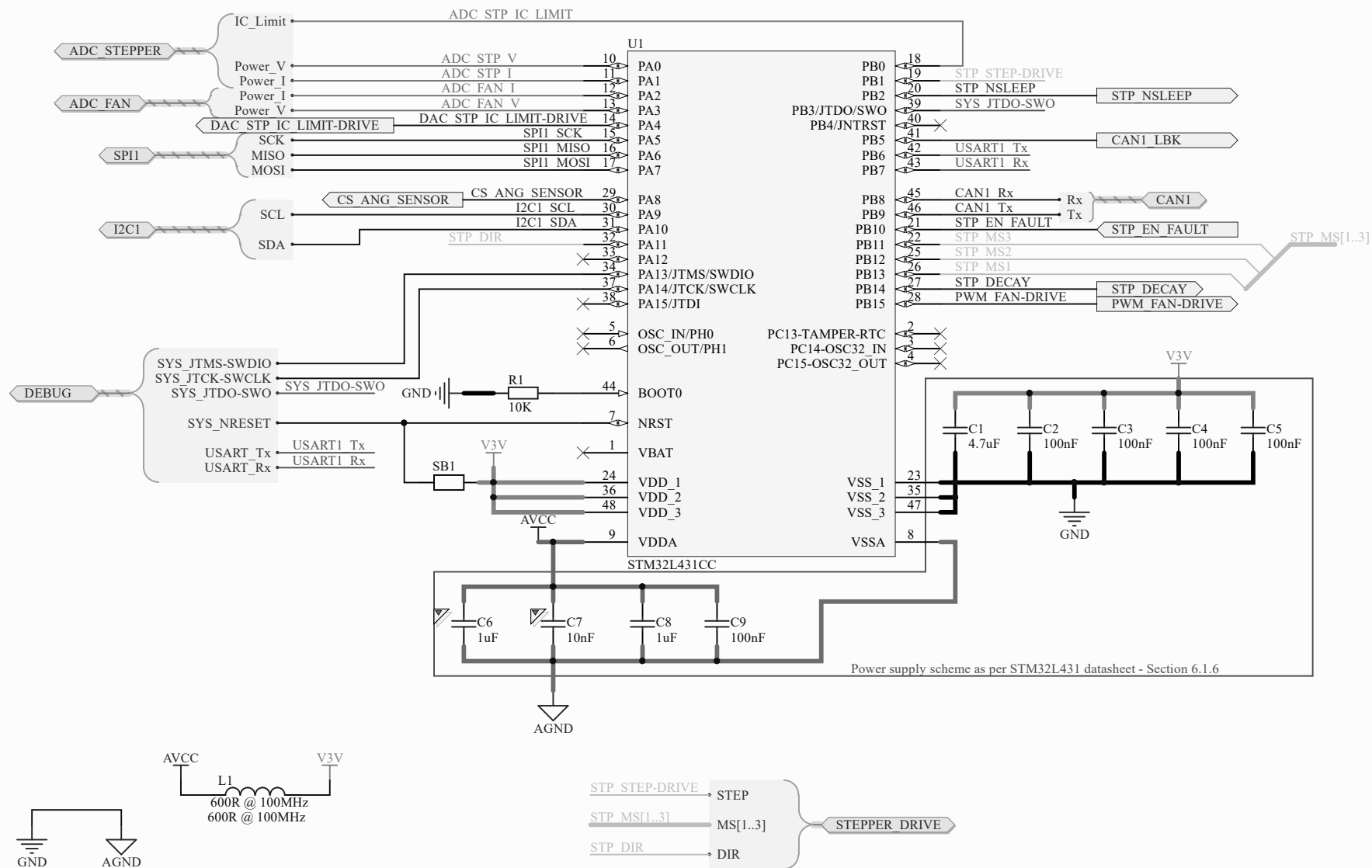
B

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D



Title <i>Top Level</i>				
Size: A4	Number:1	Revision:*		
Date: 09/10/2021	Time: 14:23:12	Sheet 1 of 8		
File: Top level.SchDoc				

Title **Controller circuit**

Size: A4

Number:2

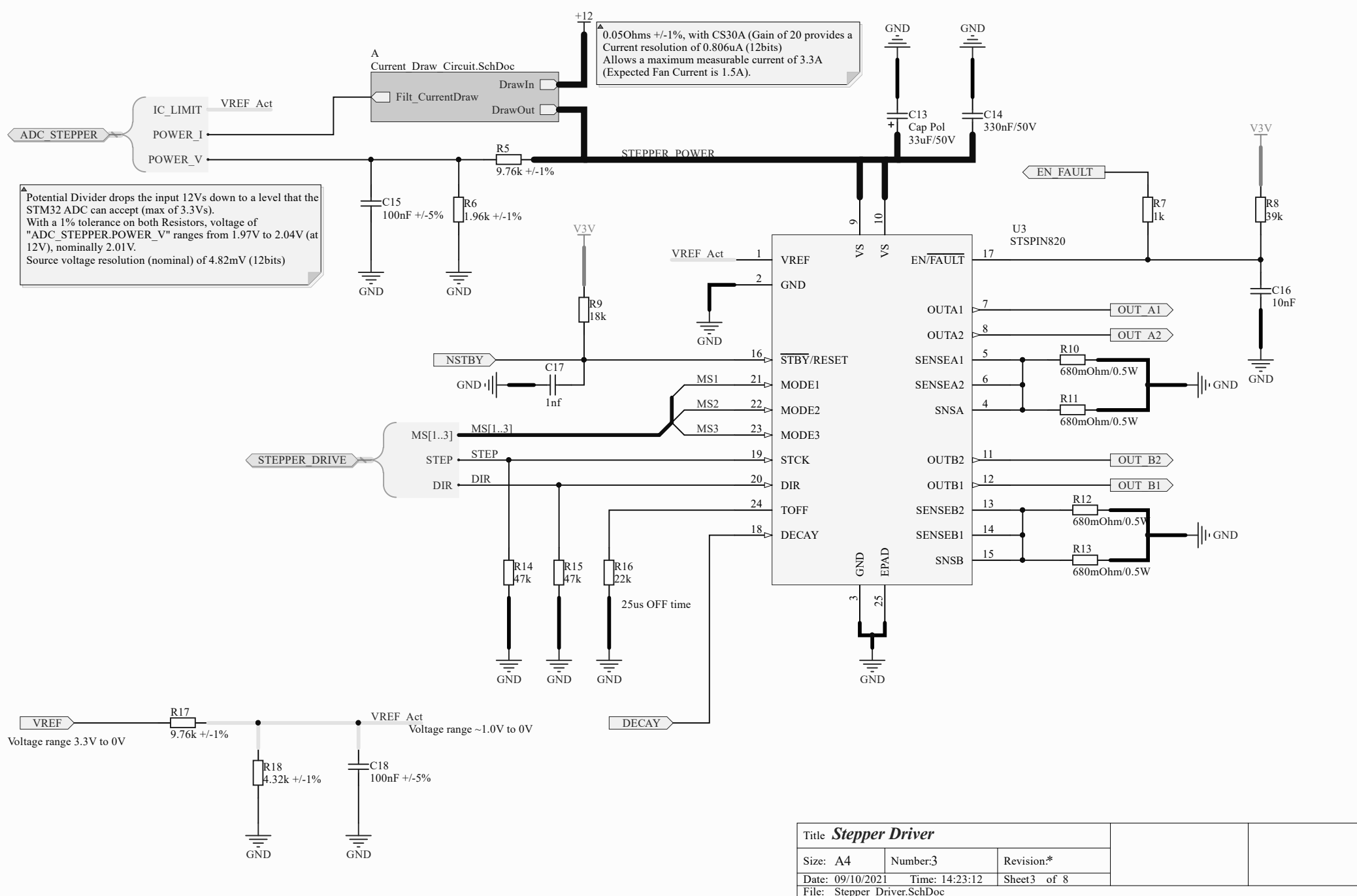
Revision:2.1

Date: 09/10/2021

Time: 14:23:12

Sheet2 of 8

File: Controller circuit.SchDoc



0.05Ohms +/-1%, with CS30A (Gain of 20 provides a Current resolution of 0.806uA (12bits)  
Allows a maximum measurable current of 3.3A  
(Expected Fan Current is 1.5A).

Potential Divider drops the input 12Vs down to a level that the STM32 ADC can accept (max of 3.3Vs).  
With a 1% tolerance on both Resistors, voltage of "ADC\_STEPPER.POWER\_V" ranges from 1.97V to 2.04V (at 12V), nominally 2.01V.  
Source voltage resolution (nominal) of 4.82mV (12bits)

Voltage range 3.3V to 0V

Voltage range ~1.0V to 0V

DECAY

Title **Stepper Driver**

Size: A4

Number:3

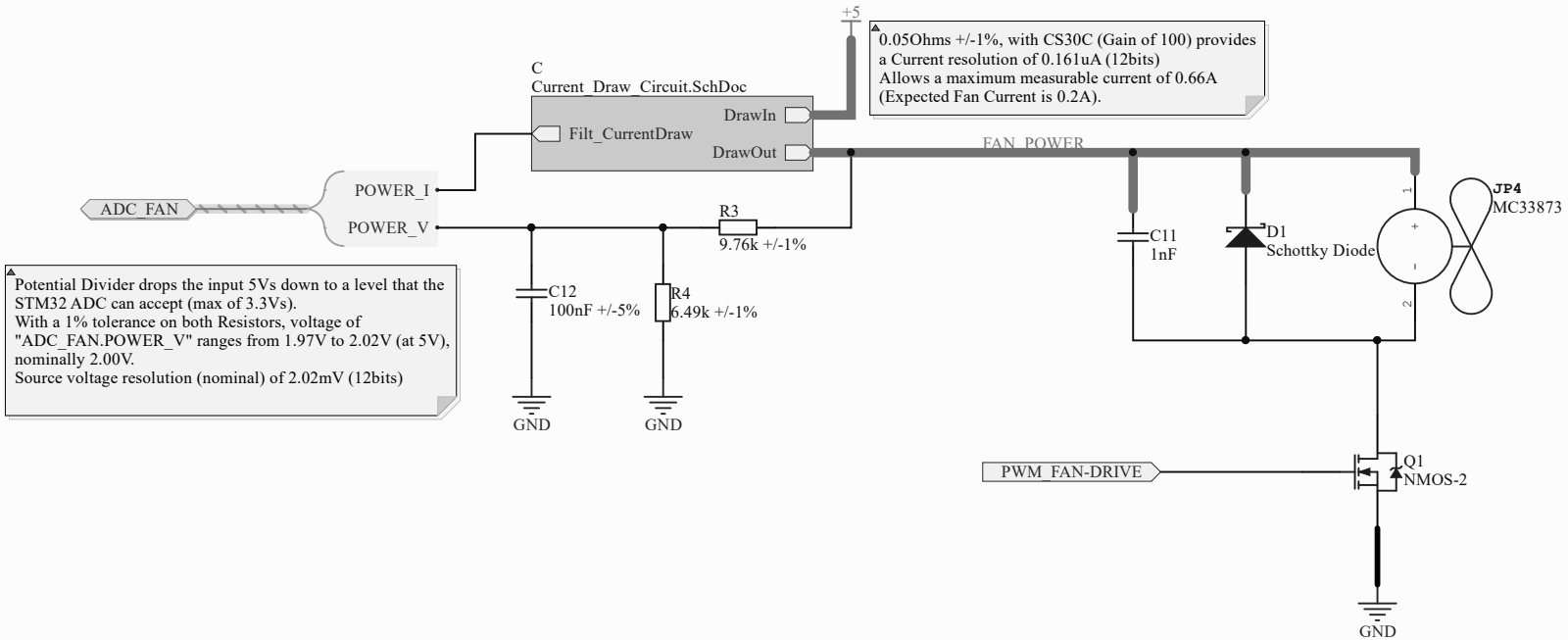
Revision.\*

Date: 09/10/2021

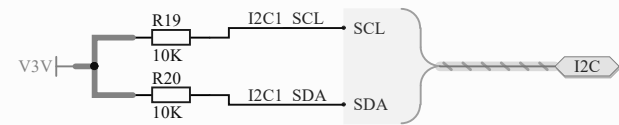
Time: 14:23:12

Sheet3 of 8

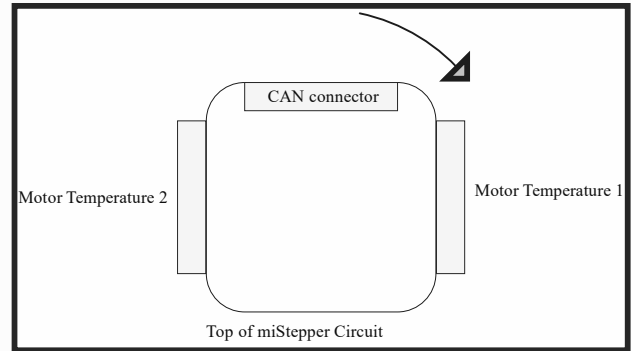
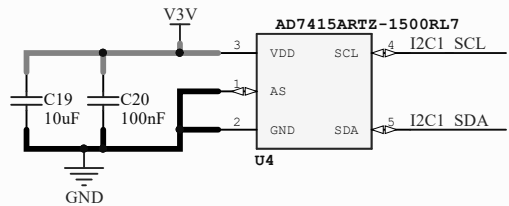
File: Stepper Driver.SchDoc



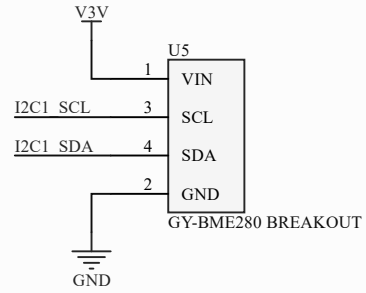
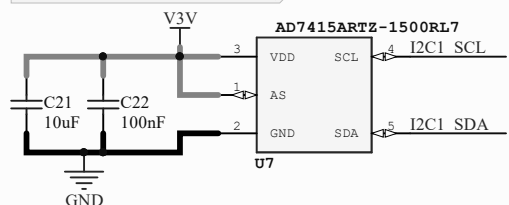
Title <i>Fan_Driver</i>				
Size: A4	Number:4	Revision:2.1		
Date: 09/10/2021	Time: 14:23:13	Sheet4 of 8		
File: Fan_Driver.SchDoc				



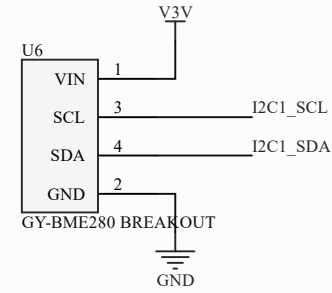
▲ AD7415A Temperature Sensor  
With AS pulled to Ground, the address is -  
"1001 101 (R/W)"



▲ AD7415A Temperature Sensor  
With AS pulled to Vdd, the address is -  
"1001 110 (R/W)"  
## OPTIONAL ##

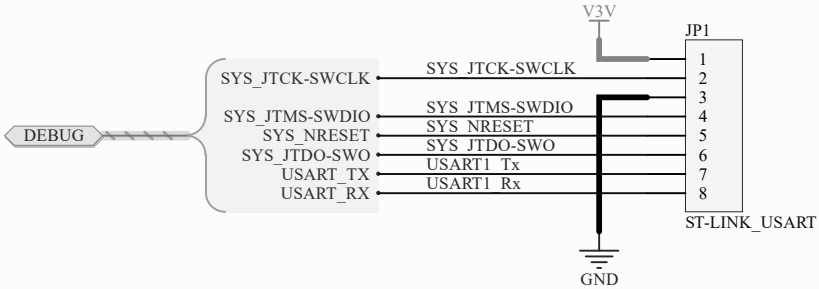


▲ GY-BME280 Breakout, for Motor Temperature 2 (see diagram) needs to have the SDO shorted to VDD.  
Address -  
"1110 111 (R/W)"

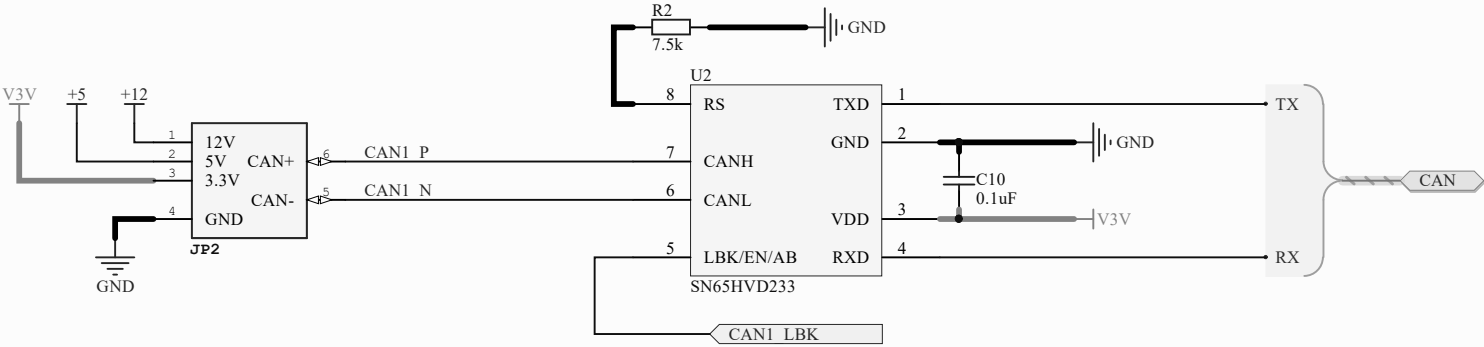


▲ GY-BME280 Breakout, for Motor Temperature 1 (see diagram) needs to have the SDO shorted to GND.  
Address -  
"1110 110 (R/W)"

Title <i>Temperature Unit</i>				
Size: A4	Number:5	Revision:1,1		
Date: 09/10/2021	Time: 14:23:13	Sheet5 of 8		
File: Temperature Units.SchDoc				



Title <i>Debug Interface</i>				
Size: A4	Number:6	Revision:1.1		
Date: 09/10/2021	Time: 14:23:13	Sheet6 of 8		
File: Debug Interface.SchDoc				



Title <b>Board Interfaces</b>				
Size: A4	Number:7	Revision:*		
Date: 09/10/2021	Time: 14:23:13	Sheet7 of 8		
File: Controller Interface.SchDoc				

A

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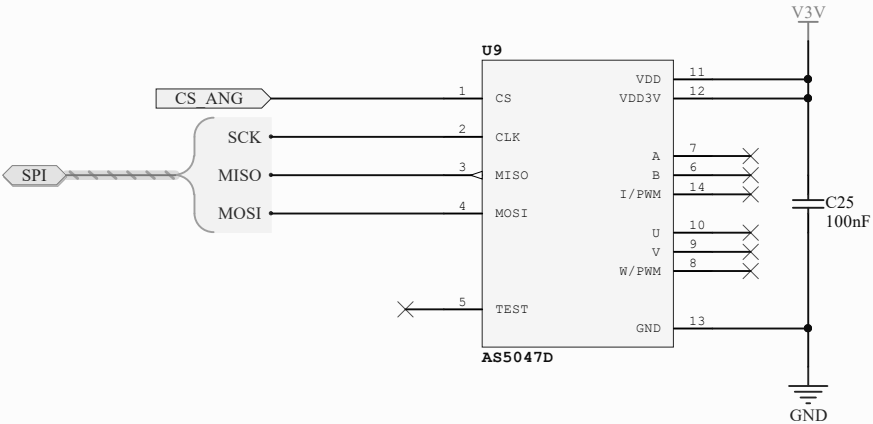
D

A

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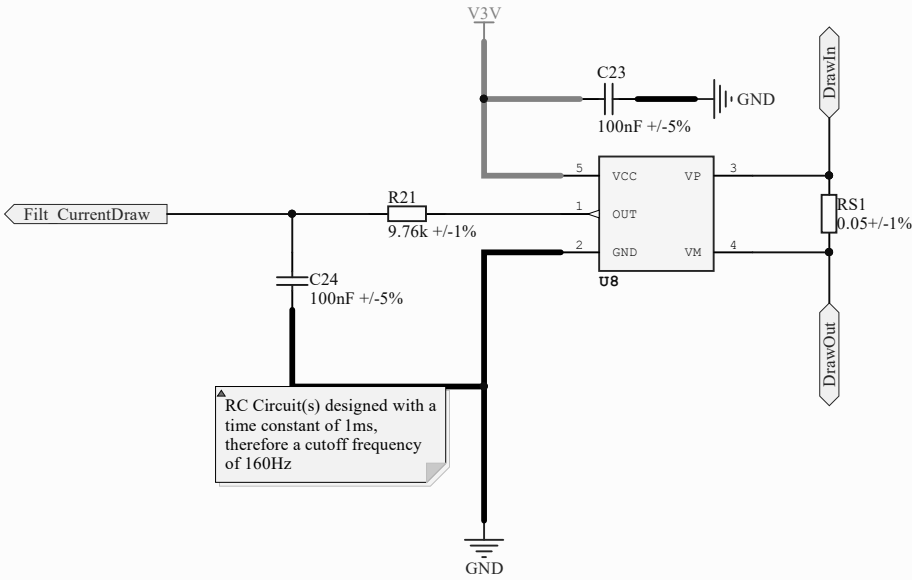
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Title <i>Angular Position Feedback</i>				
Size: A4	Number:*	Revision:*		
Date: 09/10/2021	Time: 14:23:13	Sheet* of *		
File: Angular Position Feedback.SchDoc				





Title <i>Current Draw Sensor</i>				
Size: A4	Number:*	Revision:*		
Date: 09/10/2021	Time: 14:23:13	Sheet* of *		
File: Current Draw Circuit.SchDoc				