

A

A

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D

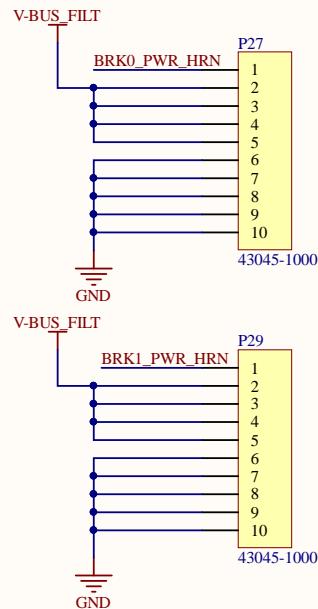
MAIN IO

POD 5

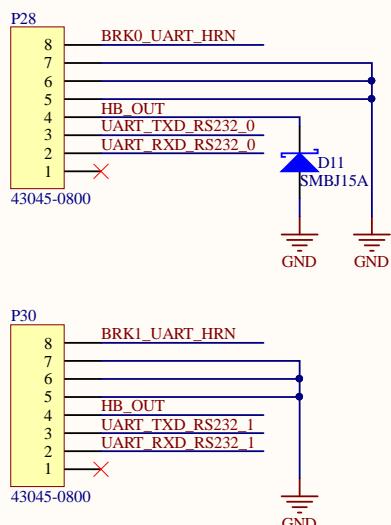
REV 1

Title Main IO		Badgerloop Electrical 133 Engineering Research Building 1500 Engineering Drive Madison, Wi 53706	BADGER LOOP
Engineer:	Revision:	Date: 3/6/2021 Time: 10:39:31 PM Sheet 1 of	

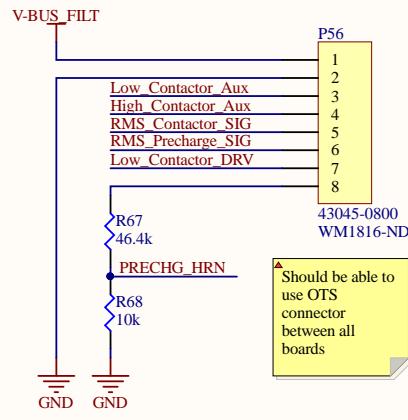
BrakingIO PWR



BrakingIO UART



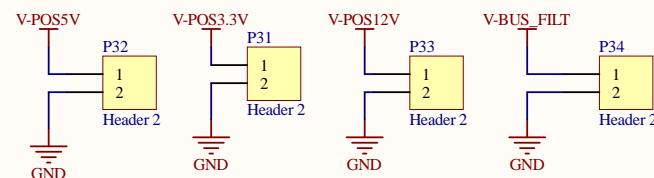
Precharge Board



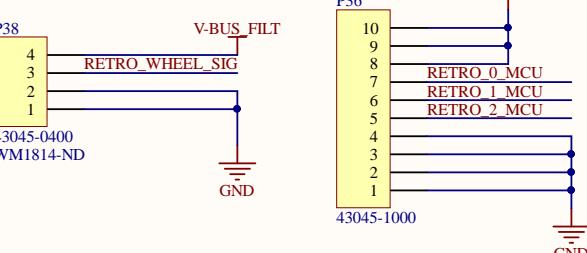
BMS & RMS

See respective schematics

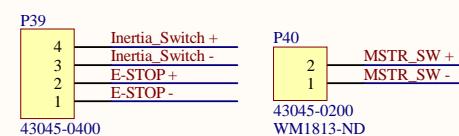
Debug



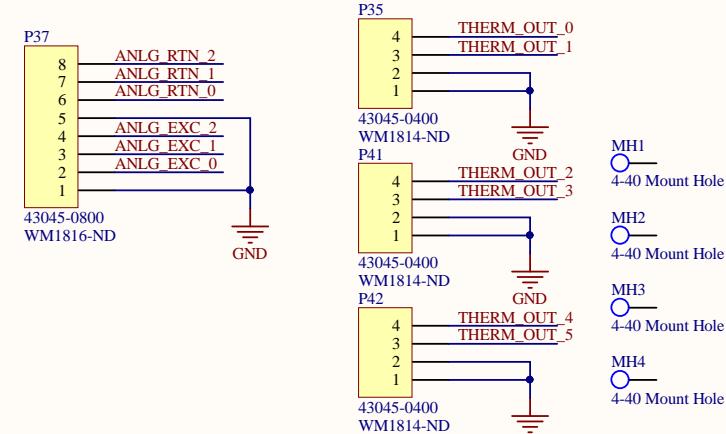
Retro Sensors



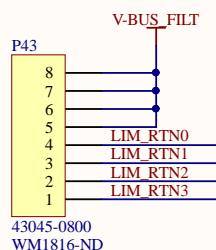
Shutdown Circuit Inputs



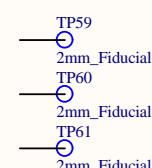
Analog Sensors



Limit Switches

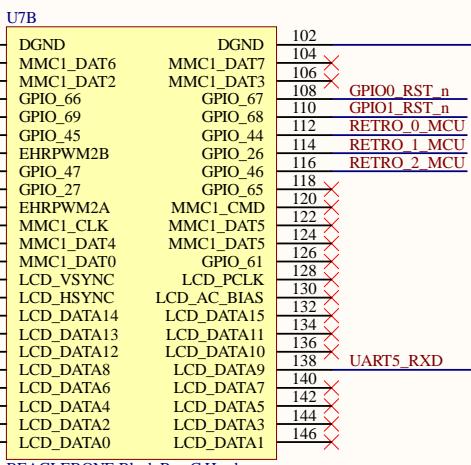
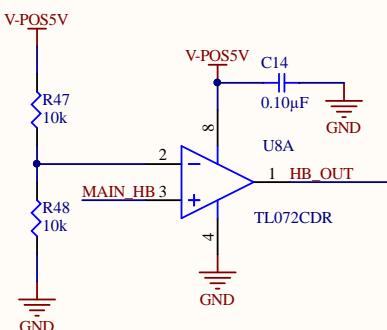
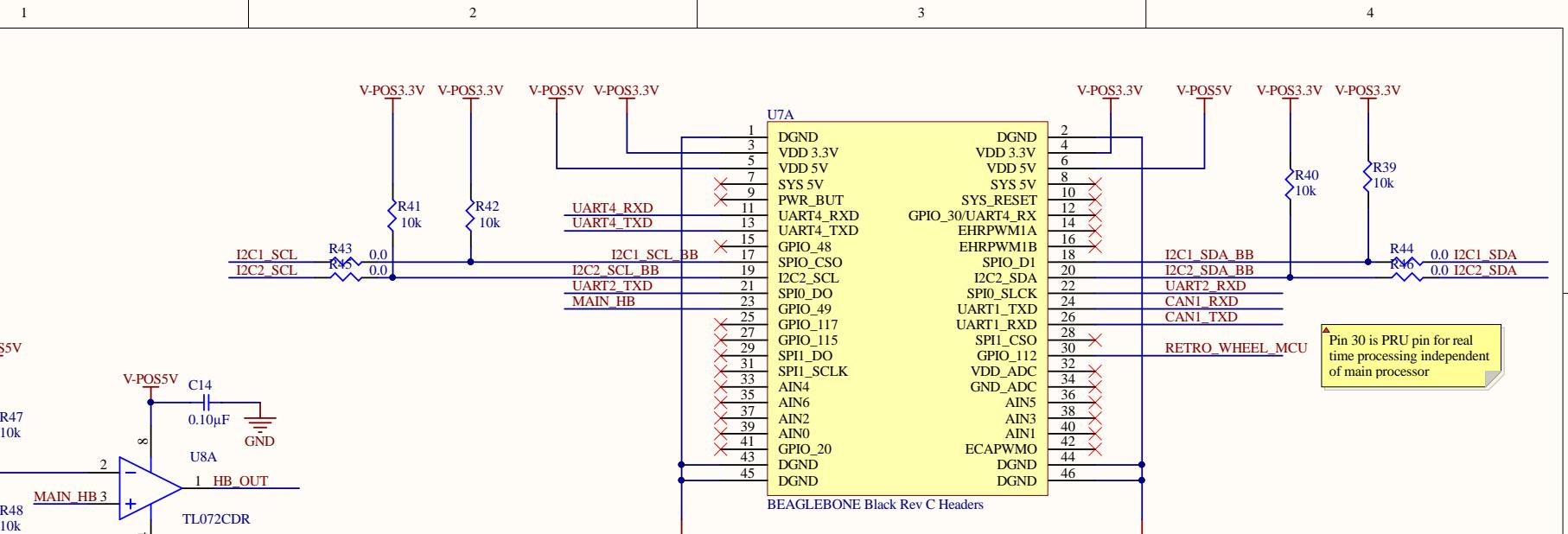


Fiducials



Connectors

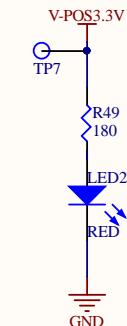
Engineer:	Revision:	Badgerloop Electrical 133 Engineering Research Building 1500 Engineering Drive Madison, Wi 53706
Date: 3/6/2021	Time: 10:39:31 PM	Sheet 2 of
File: connectors.SchDoc		BADGER LOOP

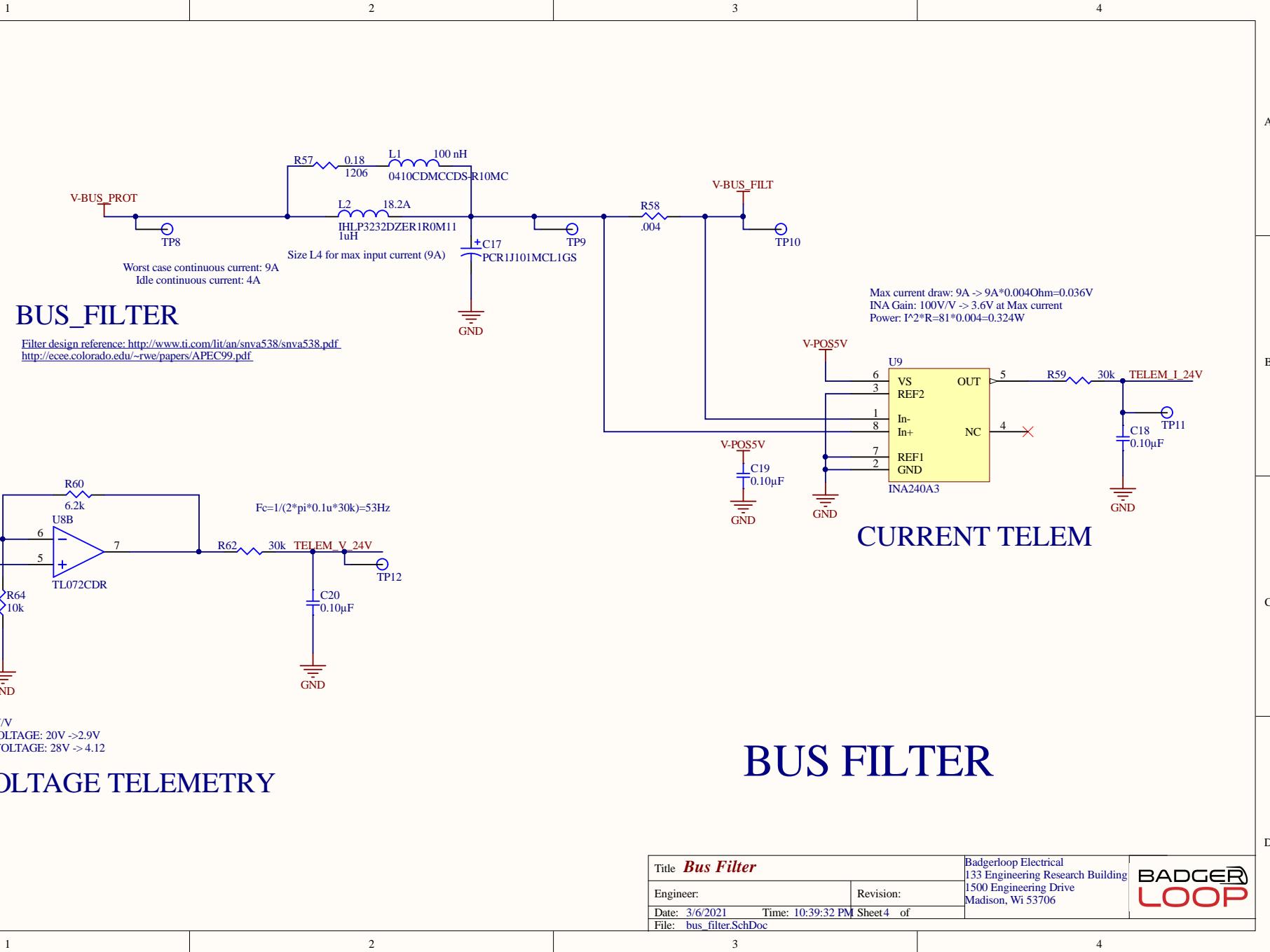


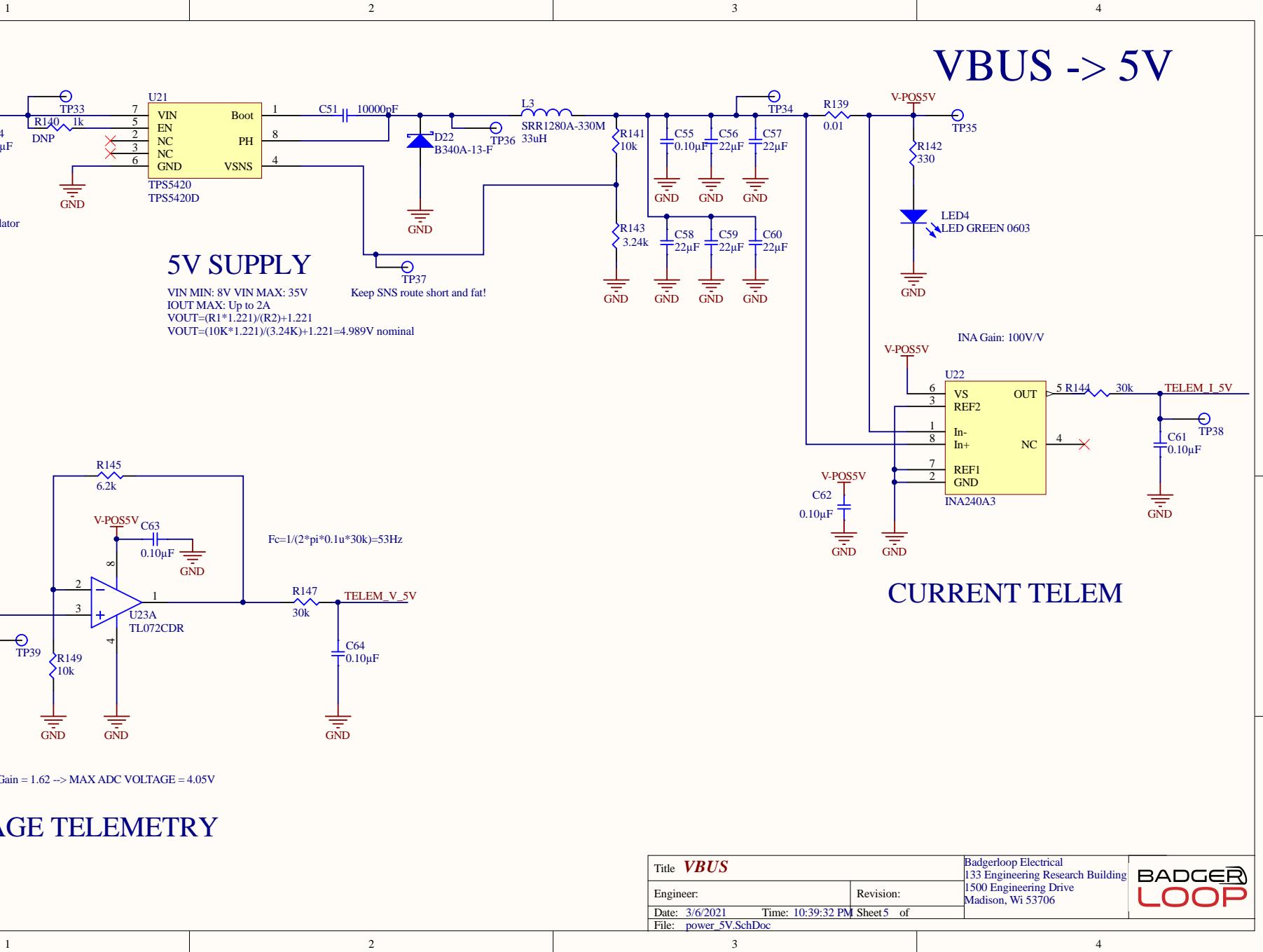
Beaglebone Headers

Title Beaglebone		Badgerloop Electrical 133 Engineering Research Building 1500 Engineering Drive Madison, Wi 53706
Engineer:	Revision:	
Date: 3/6/2021	Time: 10:39:31 PM	Sheet 3 of
File: beaglebone.SchDoc		BADGER LOOP

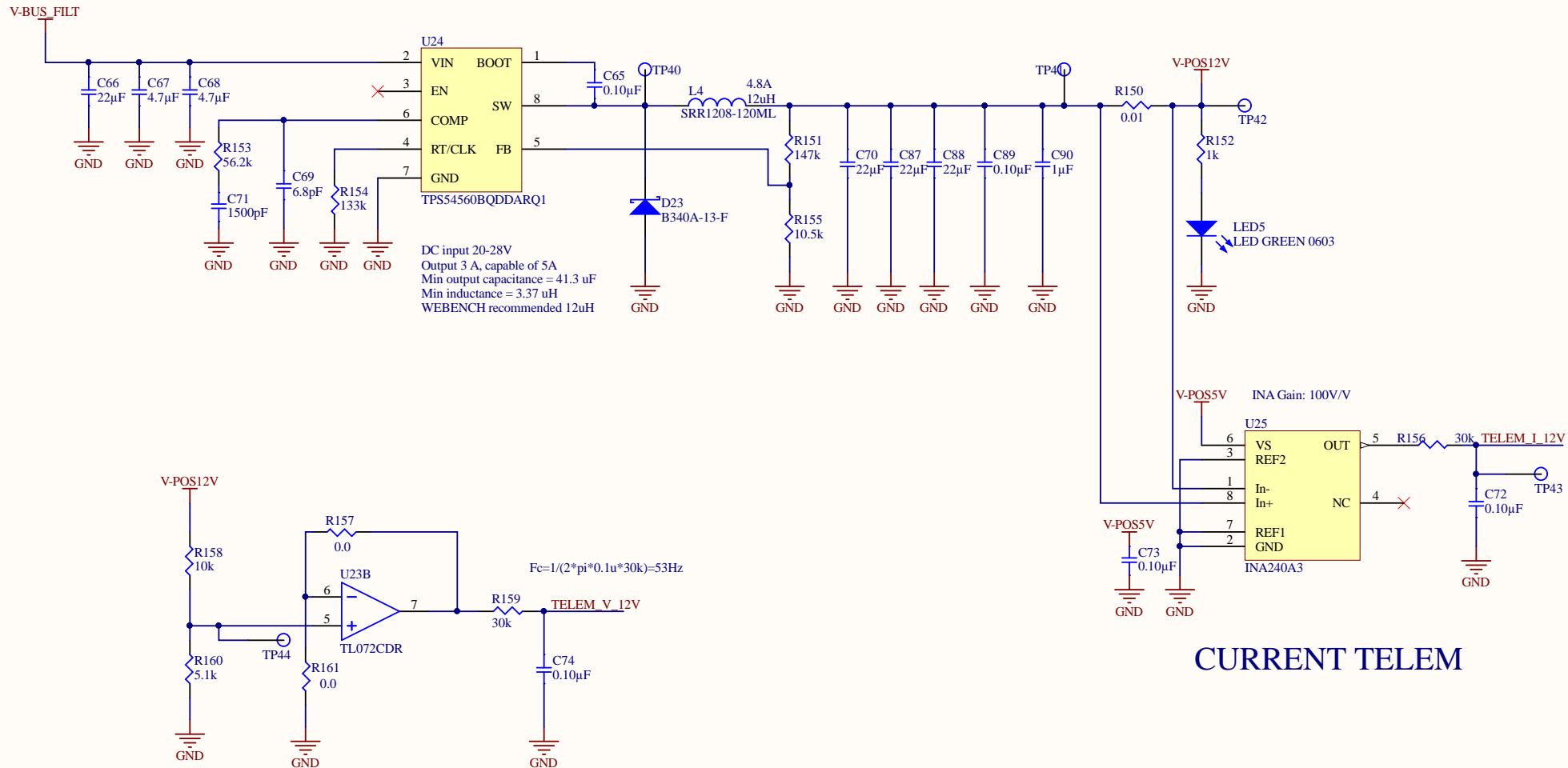
Debug Header







VBUS -> 12V



VOLTAGE TELEMETRY

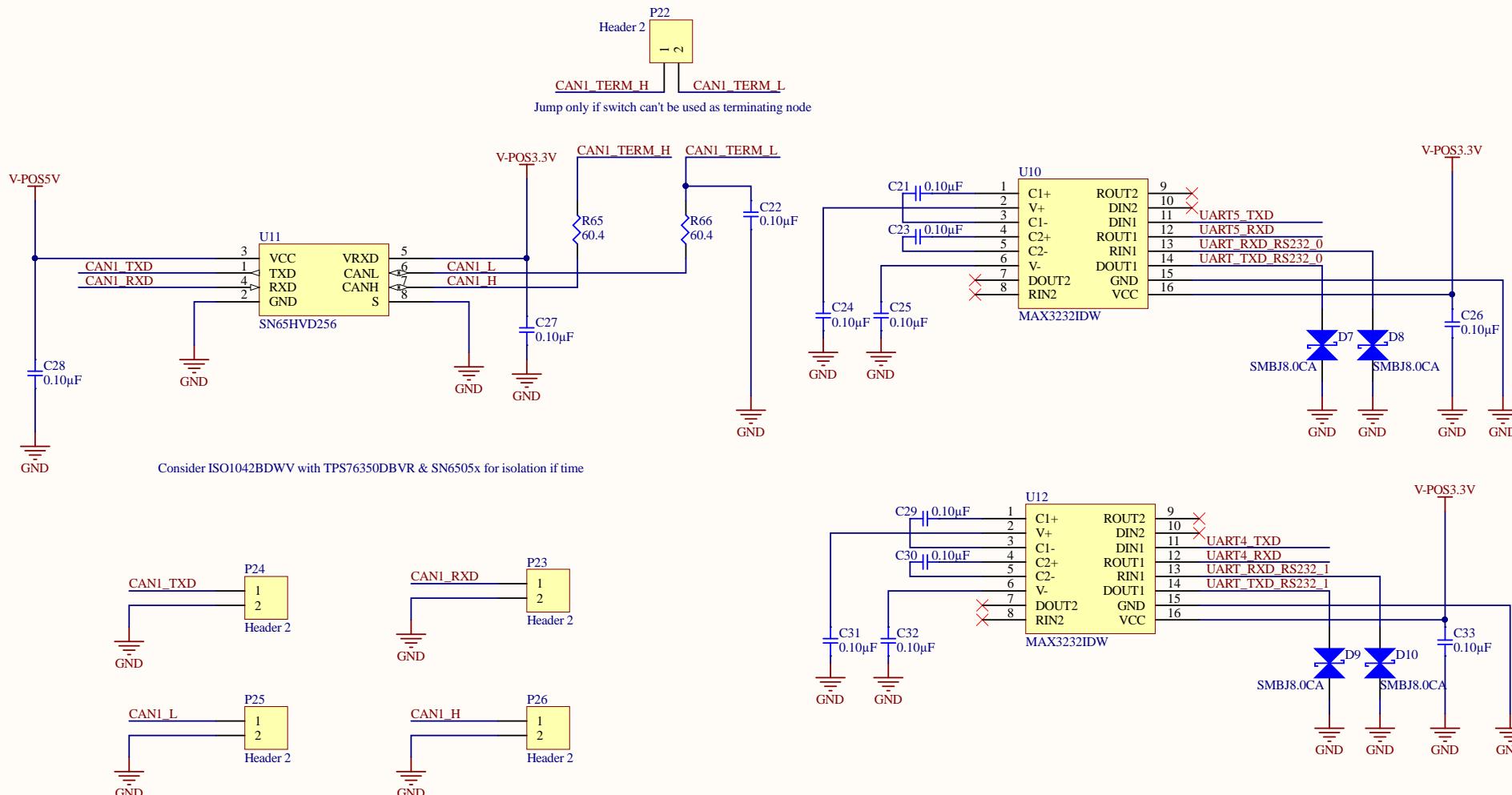
Title 12V PWR		Badgerloop Electrical 133 Engineering Research Building 1500 Engineering Drive Madison, Wi 53706
Engineer:	Revision:	
Date: 3/6/2021	Time: 10:39:32 PM	Sheet 6 of
File: power_12V.SchDoc		BADGER LOOP

1

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CAN**UART (x2)**Title **CAN and UART Interfaces**

Engineer: _____ Revision: _____

Date: 3/6/2021 Time: 10:39:32 PM Sheet 7 of

File: can_uart.SchDoc

 Badgerloop Electrical
 133 Engineering Research Building
 1500 Engineering Drive
 Madison, WI 53706

BADGER
LOOP

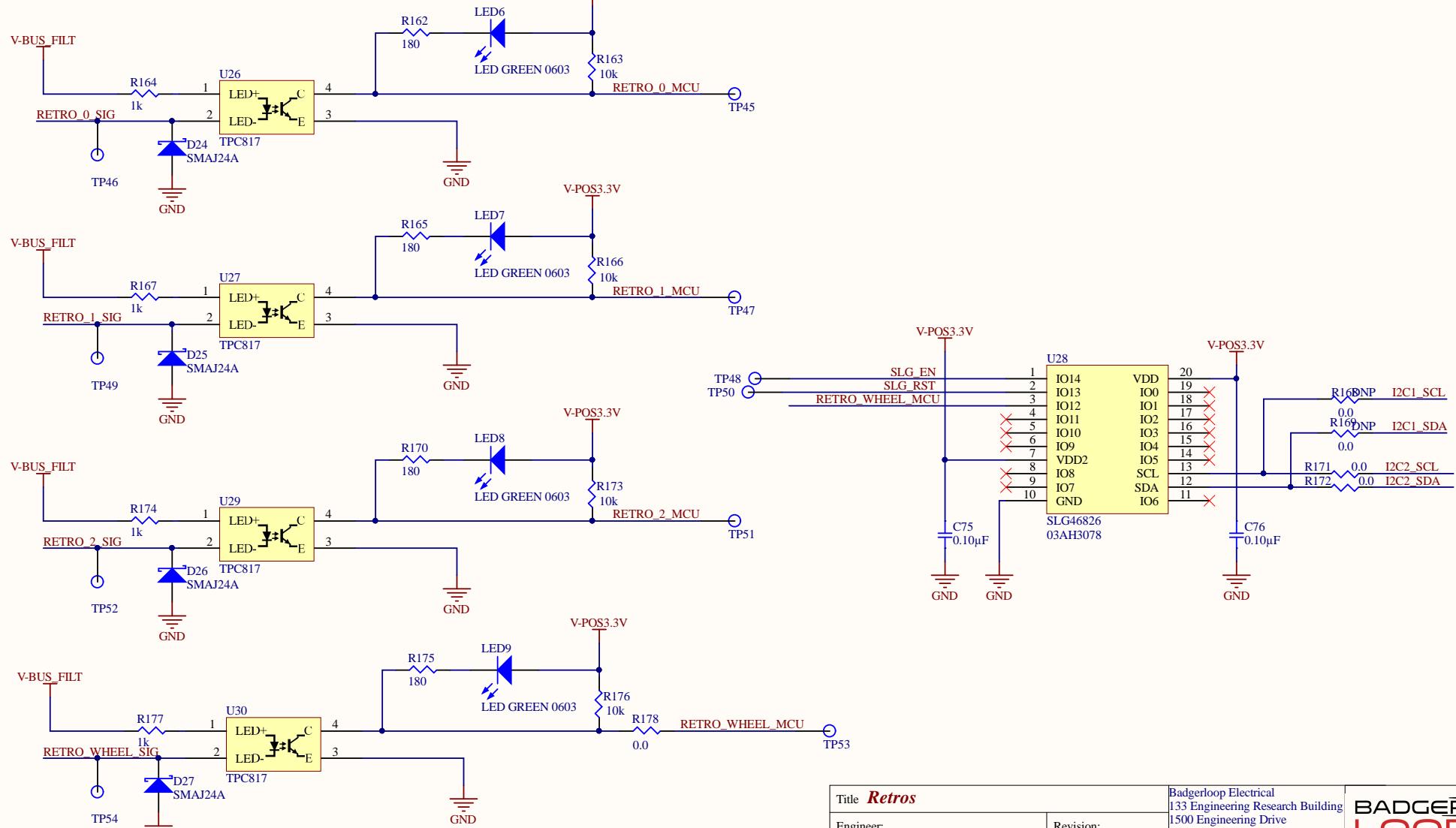
1

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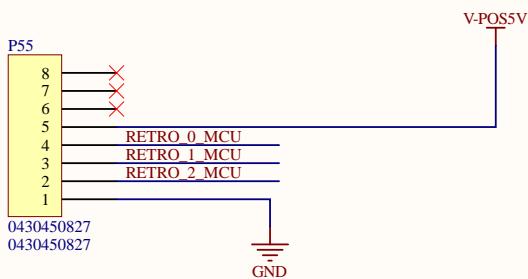
Retros & Non-driven Wheel Sensor



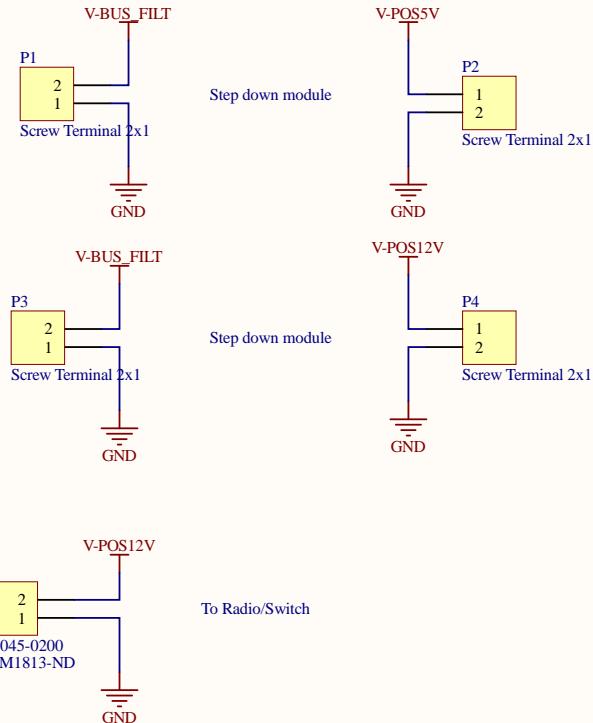
Title <i>Retros</i>		Badgerloop Electrical 133 Engineering Research Building 1500 Engineering Drive Madison, Wi 53706	BADGER LOOP
Engineer:	Revision:		
Date: 3/6/2021	Time: 10:39:32 PM	Sheet 8 of	
File: retros.SchDoc			

Arduino Interface

Only if SX still requires this

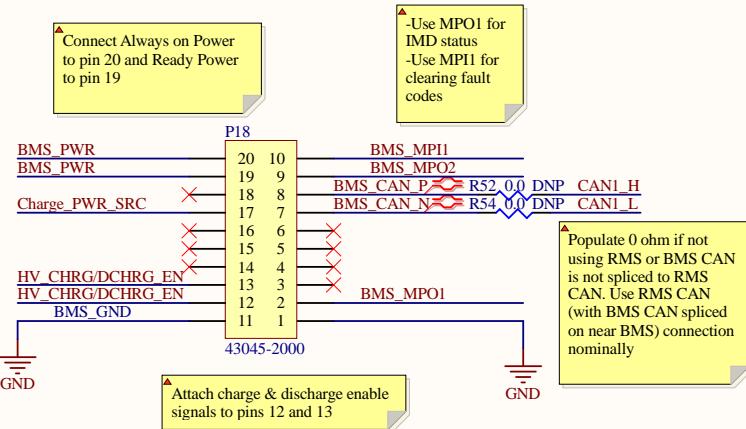


OTS Device Connections

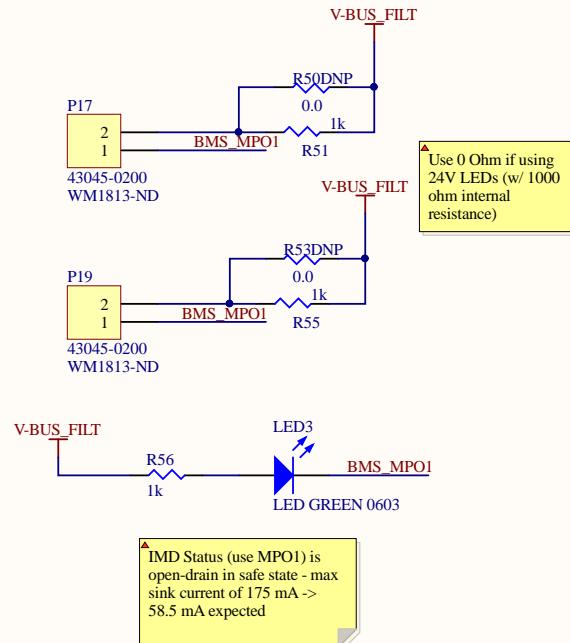


BMS Interface

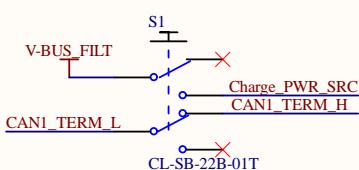
BMS/Therm Main Connectors



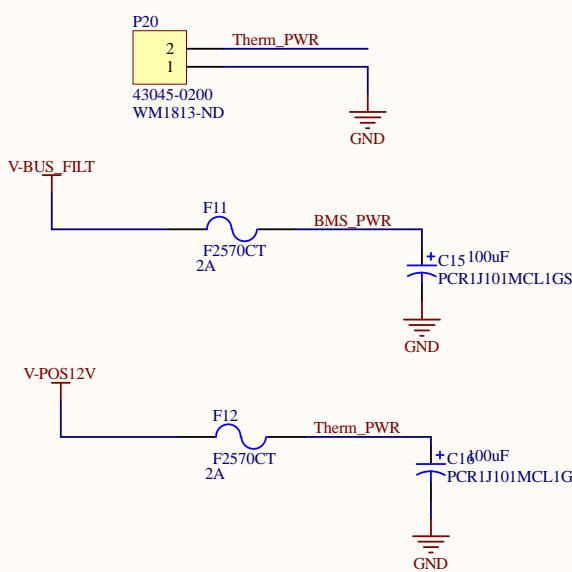
IMD Light circuit



Charge Enable & Termination Resistors



- Turn on in defined charging/balancing state
 - When not in charging state, board is end node and has term. res.
 - When in charging state, charger is end node and should house term. res.



Charger Connector

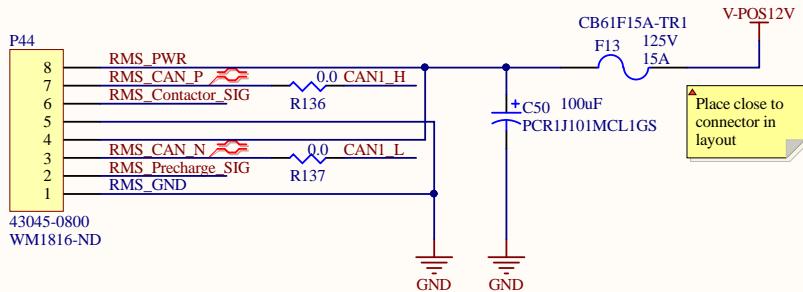
Title BMS Interface		Badgerloop Electrical
Engineer: Shelby Riggelman	Revision:A	133 Engineering Research Building
Date: 3/6/2021	Time: 10:39:33 PM	1500 Engineering Drive
File: bms_interface.SchDoc		Madison, Wi 53706



A

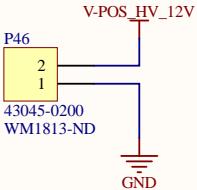
A

Motor Controller Interface



B

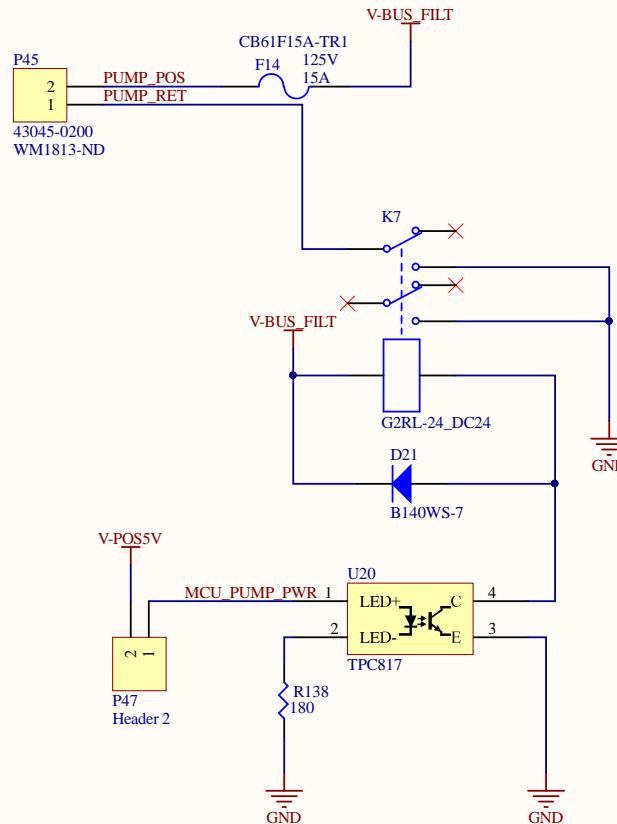
B



C

C

Pump Power



D

D

Title **RMS & Precharge Interface**

Engineer: Shelby Riggleman

Date: 3/6/2021 Time: 10:39:33 PM

File: motor_controller_interface.SchDoc

Badgerloop Electrical
133 Engineering Research Building
1500 Engineering Drive
Madison, Wi 53706

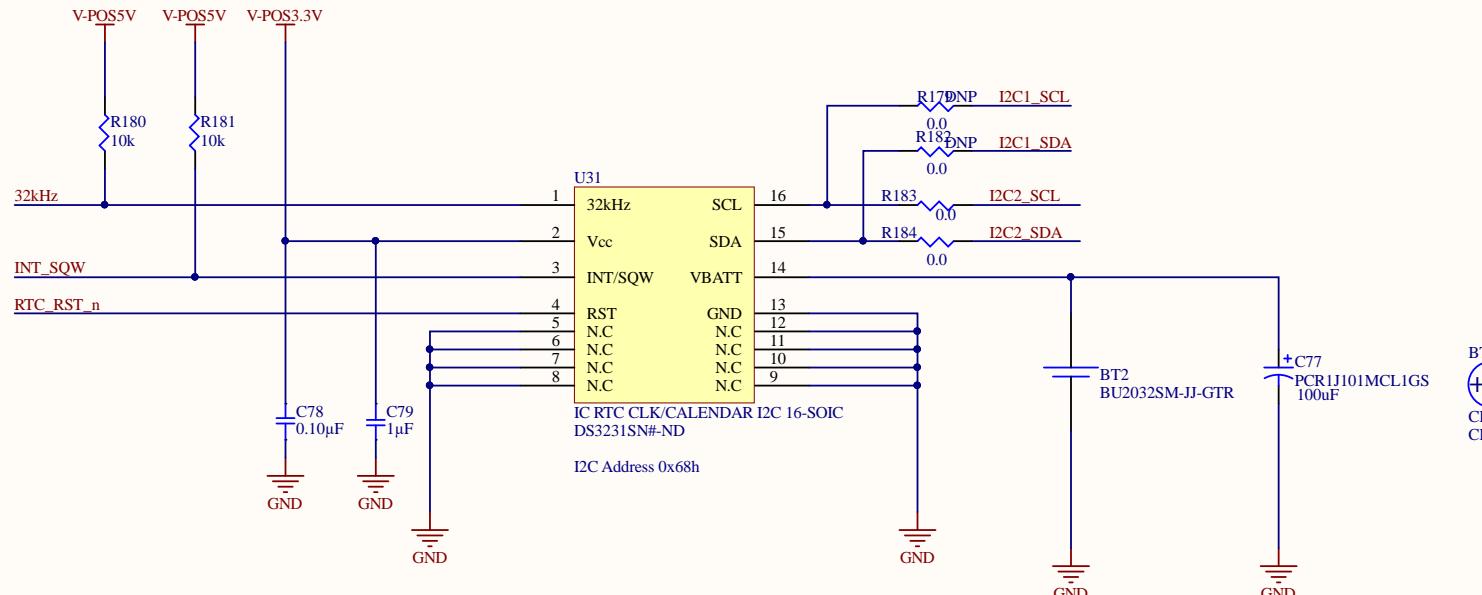


Real Time Clock & Coin Cell

A

A

Function determined by INTCN bit in OEh - SQW if 0, Active low interrupt if 1 and alarm enabled
Default = interrupt, but alarm is disabled



B

B

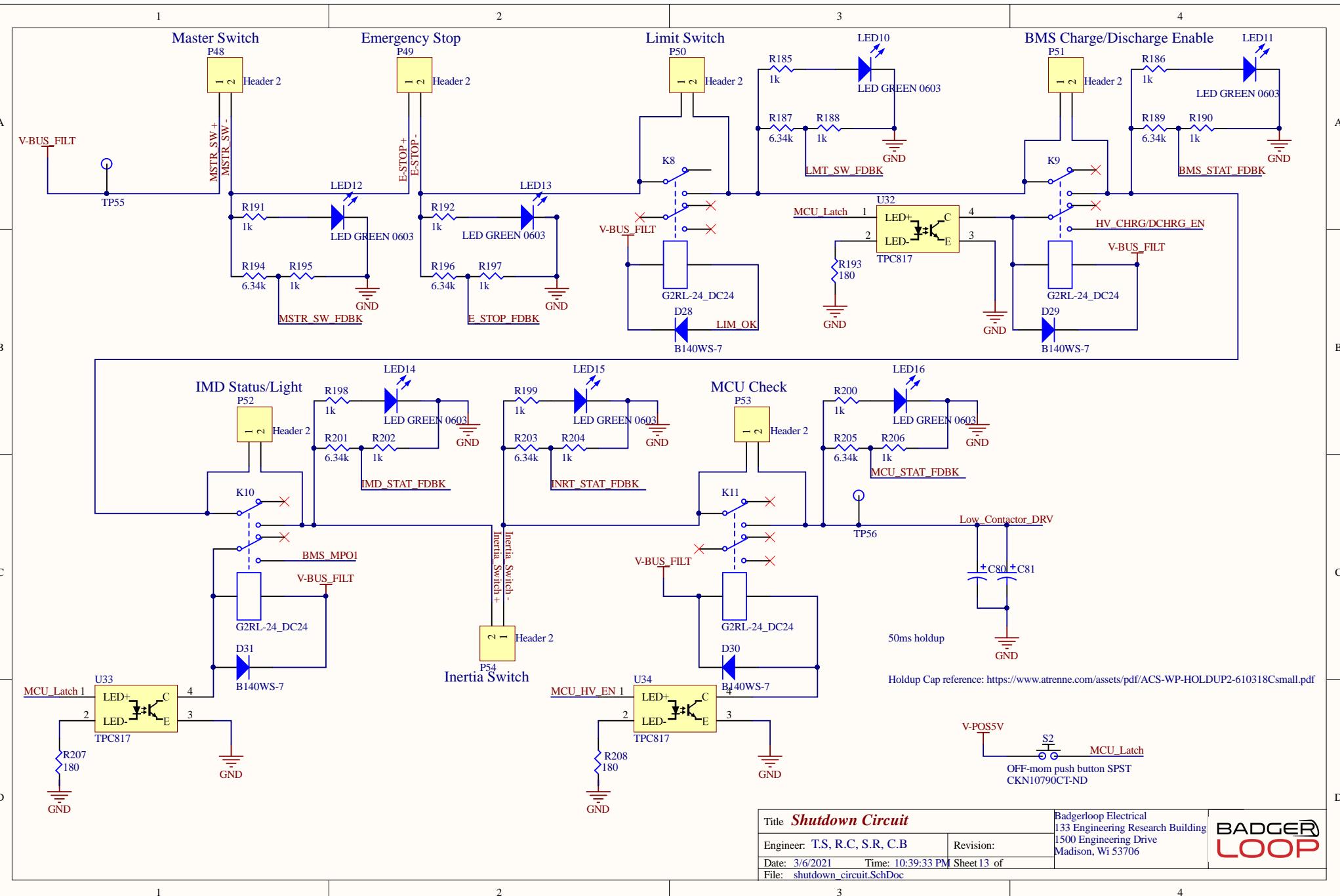
C

C

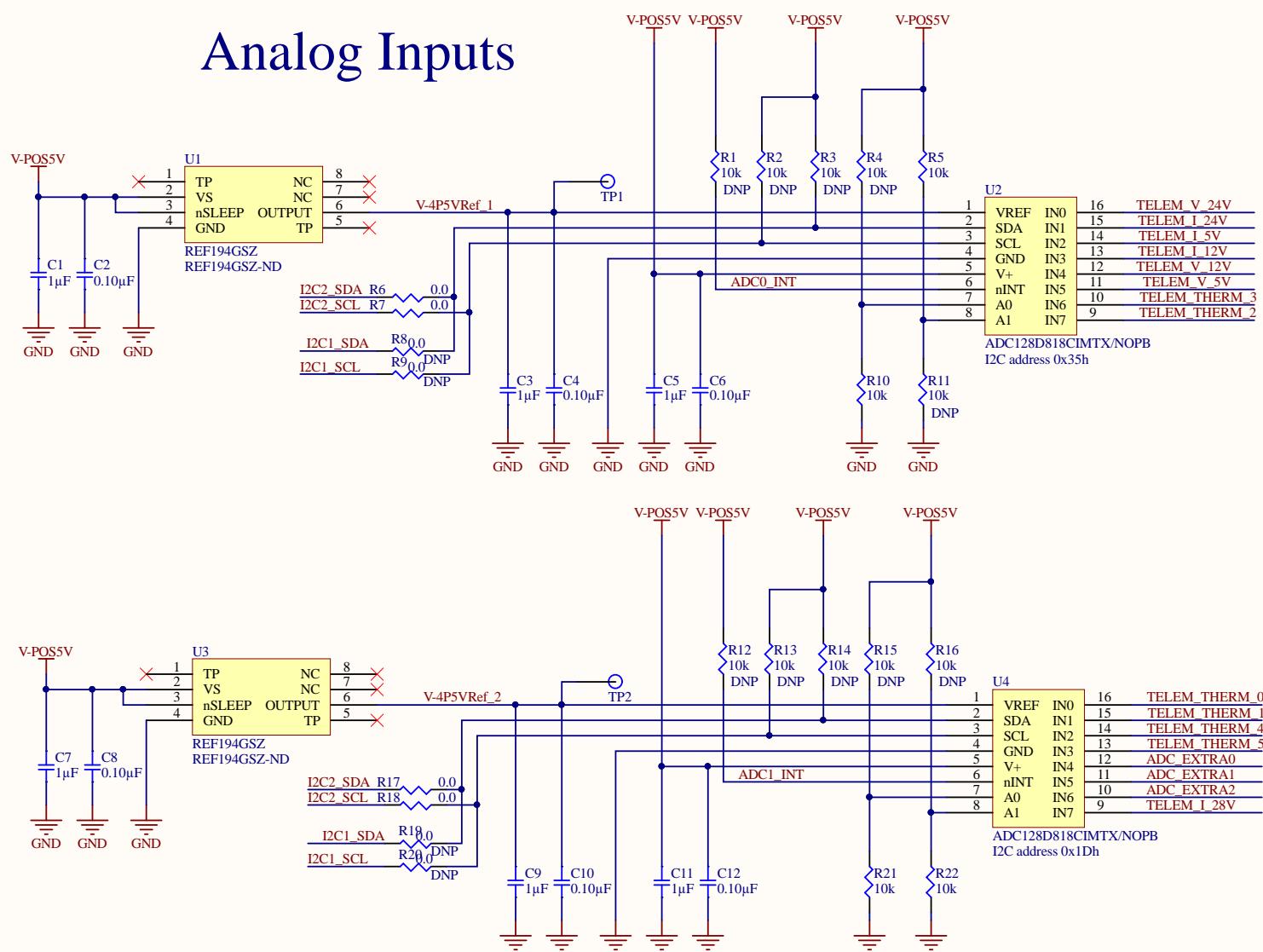
D

D

Title RTC			<i>Badgerloop 133 Engineering Research Building Madison, WI 53715</i>
Size: A4	Number:	Revision:	BADGER LOOP
Date: 3/6/2021	Time: 10:39:33 PM	Sheet 12 of	
File: C:\Users\Windows PC\Desktop\Badgerloop\git_repos\hardware\main_io\RTC.SchDoc			

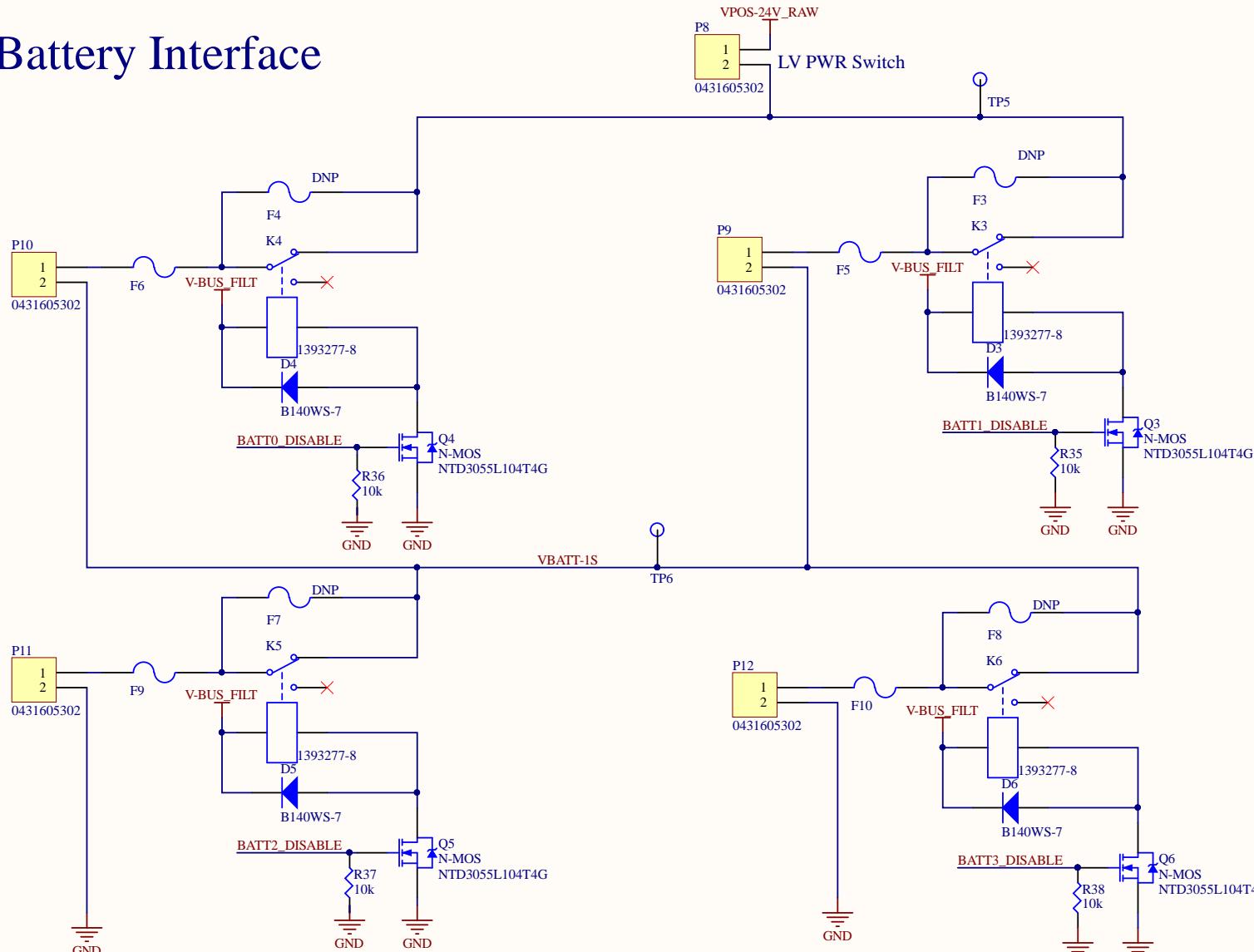


Analog Inputs



Title ADC			<i>Badgerloop 133 Engineering Research Building Madison, WI 53715</i>
Size: A4	Number:	Revision:	
Date: 3/6/2021	Time: 10:39:34 PM	Sheet 14 of	
File: C:\Users\Windows PC\Desktop\Badgerloop\git_repos\hardware\main_io\adc.SchDoc			

LV Battery Interface



Title LV Battery Interface			Badgerloop 133 Engineering Research Building Madison, WI 53715	BADGER LOOP
Size: A4	Number:	Revision:		
Date: 3/6/2021	Time: 10:39:34 PM	Sheet 15 of		
File: C:\Users\Windows PC\Desktop\Badgerloop\git_repos\hardware\main_io\battery_interface.SchDoc				

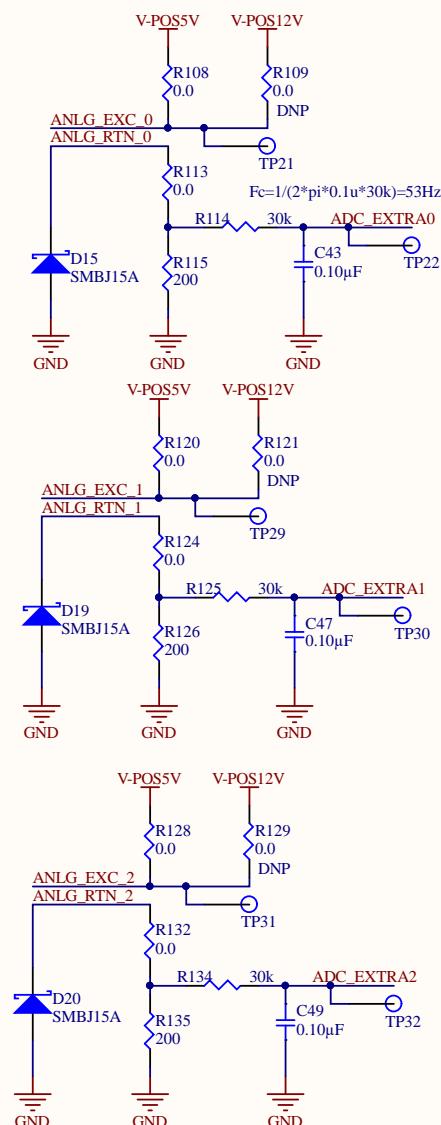
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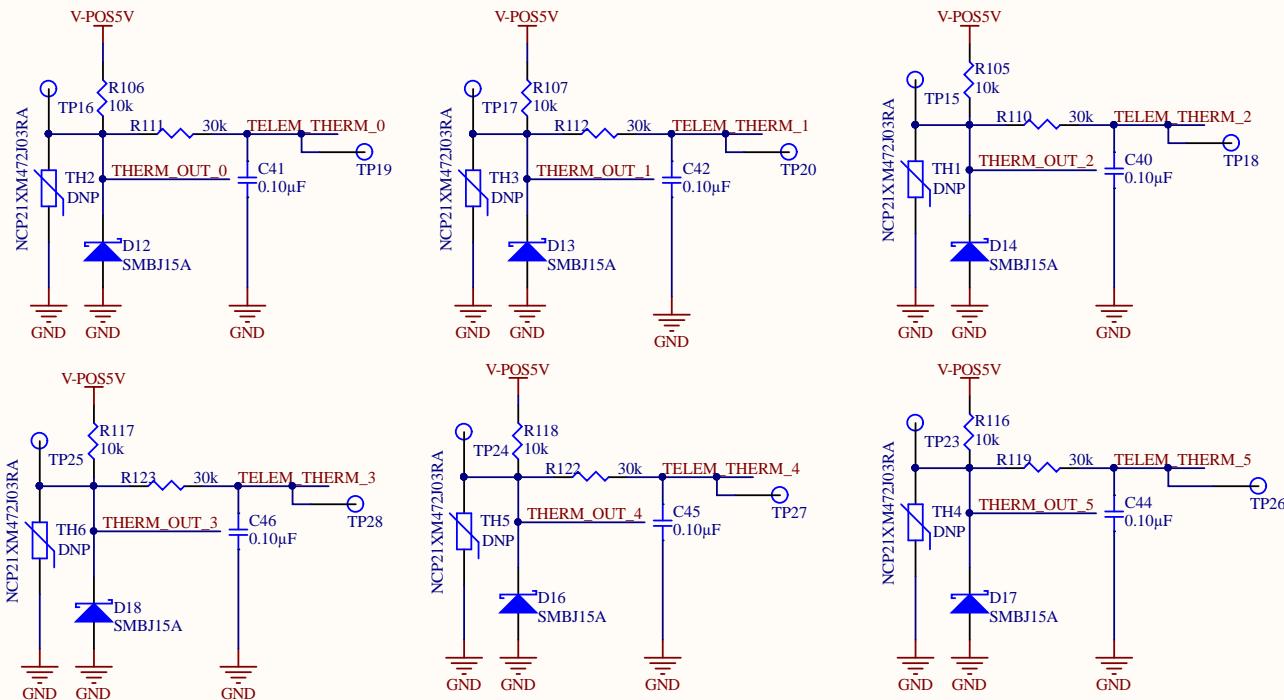
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4

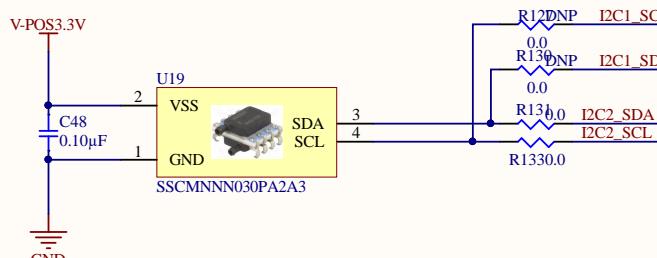
Extra Analog Sensors



Thermistors



Ambient Pressure Sensor



Title: Sensors	Badgerloop 133 Engineering Research Building Madison, WI 53715
Size: A4	Number:
Date: 3/6/2021	Revision:
Time: 10:39:34 PM	Sheet 16 of
File: C:\Users\Windows PC\Desktop\Badgerloop\git_repos\hardware\main_io\misc_sensors.SchDoc	

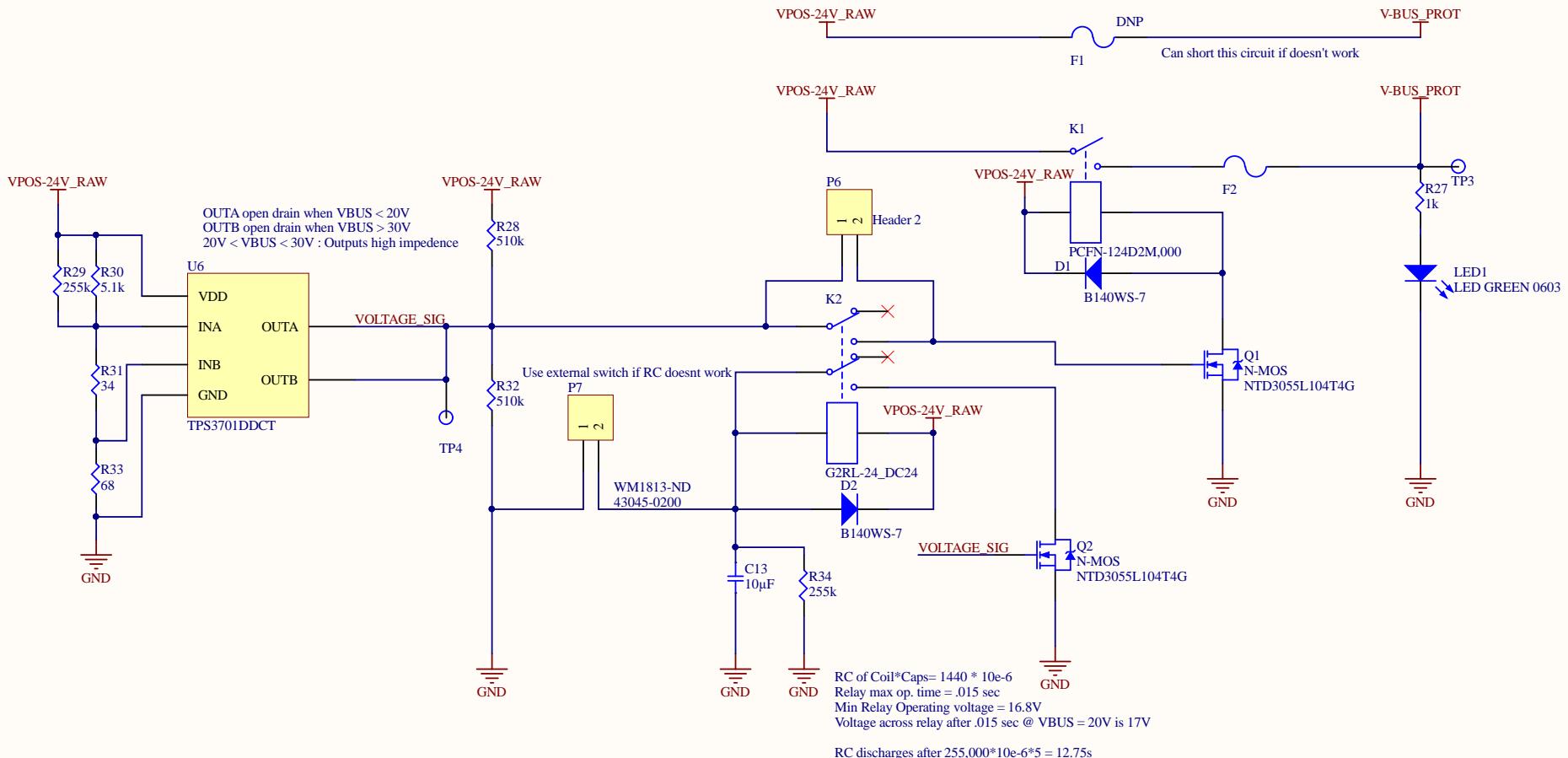
1

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BATTERY PROTECTION



Title Battery Protection			Badgerloop 133 Engineering Research Building Madison, WI 53715	BADGER LOOP
Size: A4	Number:	Revision:		
Date: 3/6/2021	Time: 10:39:34 PM	Sheet 17 of		
File: C:\Users\Windows PC\Desktop\Badgerloop\git_repos\hardware\main_io\batt_protection.SchDoc				

1

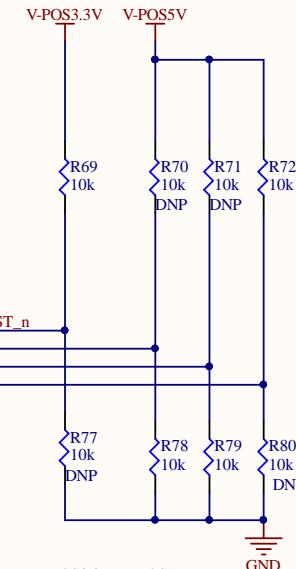
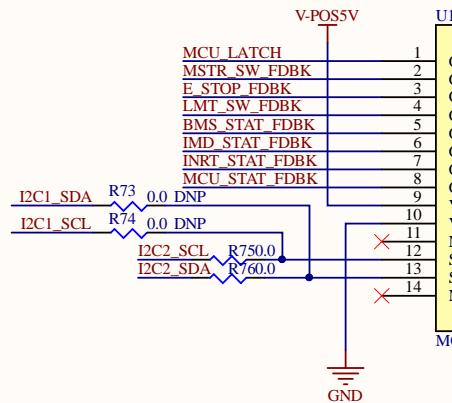
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3

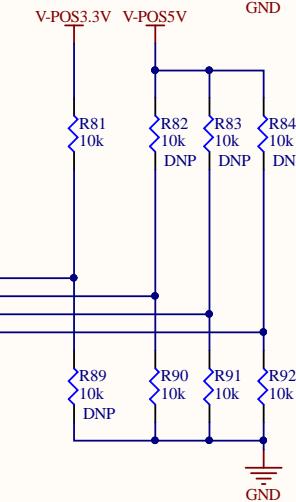
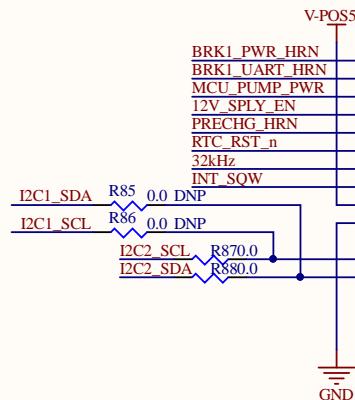
4

GPIO

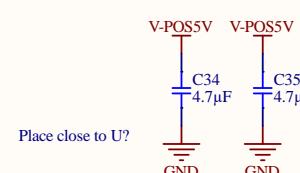
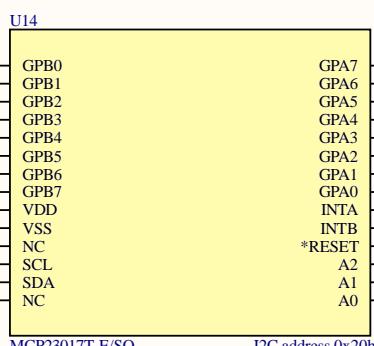
A



B



C



D

Title: GPIO	Badgerloop 133 Engineering Research Building Madison, WI 53715	BADGER LOOP
Size: A4	Number:	Revision:
Date: 3/6/2021	Time: 10:39:35 PM	Sheet 18 of
File: C:\Users\Windows PC\Desktop\Badgerloop\git_repos\hardware\main_io\gpio.SchDoc		

1

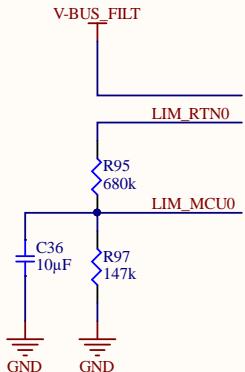
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3

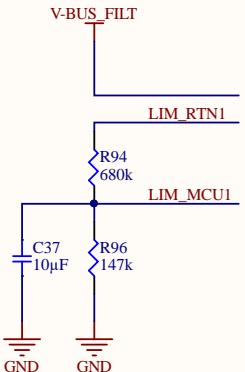
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Limit Switch Feedback

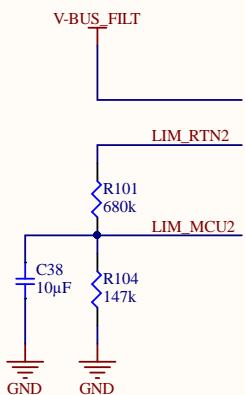
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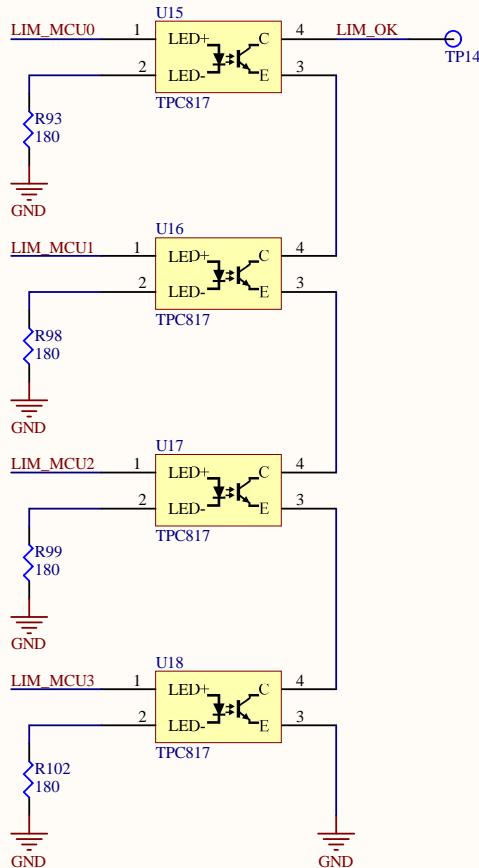
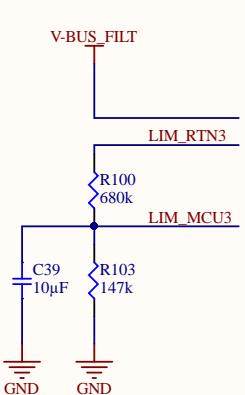
B



C

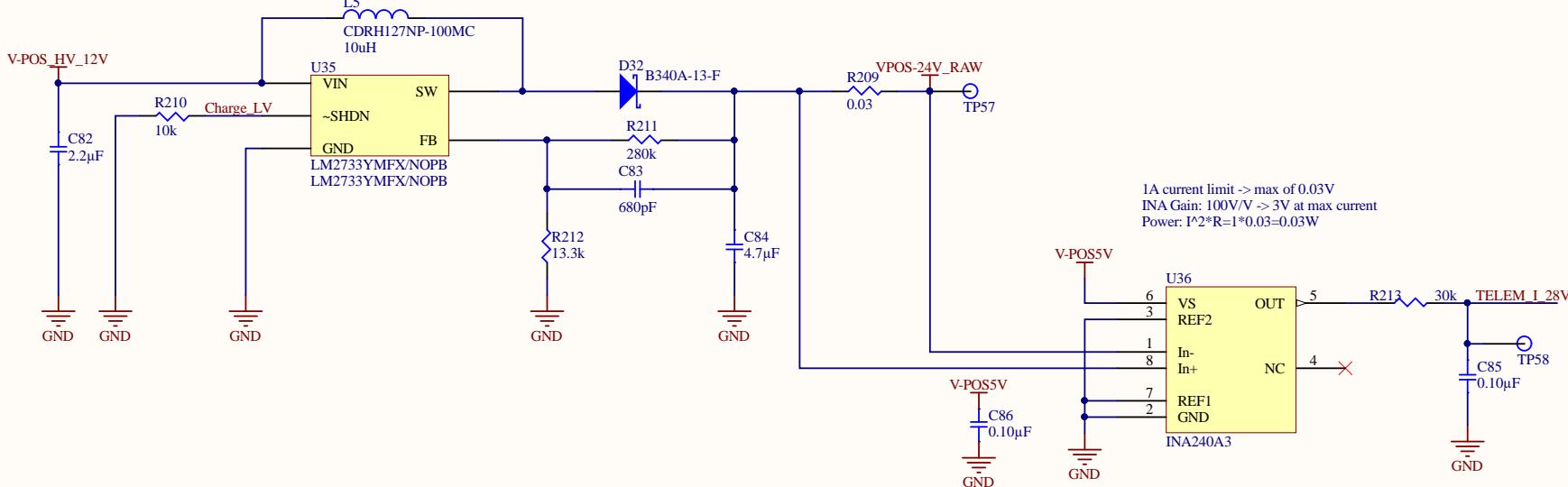


D



Title: Limit Switches	Badgerloop 133 Engineering Research Building Madison, WI 53715	BADGERLOOP
Size: A4	Number:	Revision:
Date: 3/6/2021	Time: 10:39:35 PM	Sheet 19 of
File: C:\Users\Windows PC\Desktop\Badgerloop\git_repos\hardware\main_io\limit_switches.SchDoc		

HV Batt 12V -> 28V



CURRENT TELEM

Title: 28V Boost	Badgerloop 133 Engineering Research Building Madison, WI 53715
Size: A4	Number: _____
Date: 3/6/2021	Revision: _____
Time: 10:39:35 PM	Sheet 20 of _____
File: C:\Users\Windows PC\Desktop\Badgerloop\git_repos\hardware\main_io\power_28V.SchDoc	

