

1 2 3 4

A


BRAKING IO

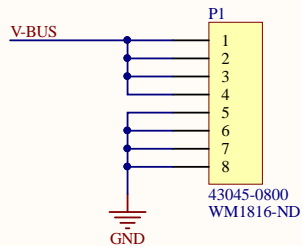
B

POD 5

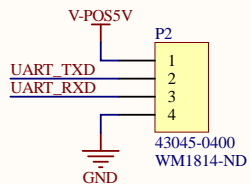
C

REV 1

Title <i>Braking IO PCB</i>			Badgerloop Electrical 133 Engineering Research Building 1500 Engineering Drive Madison, WI 53706	
Engineer:		Revision:		
Date: 9/5/2019	Time: 10:10:03 PM	Sheet of		
File: braking_io.SchDoc				



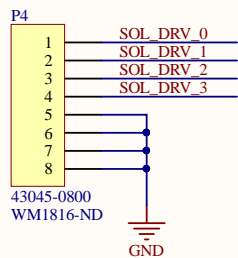
PWR INPUT



UART

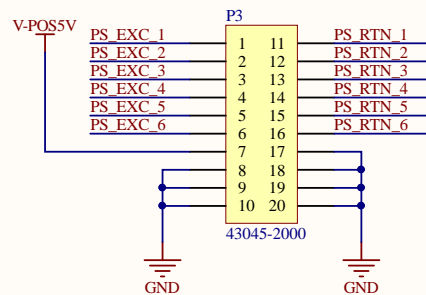
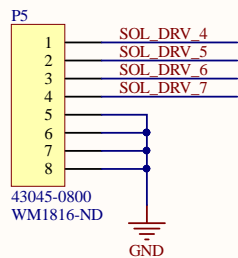
DEBUG

TODO ADD HARNESS IDENTIFICATION

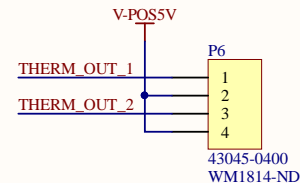


SOLENOIDS

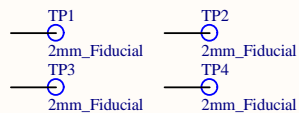
Split into 2 connectors as only 4 solenoids are likely to be used



PRESSURE SENSORS

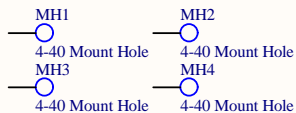


THERMISTORS



Fiducials

Place on four corners of board



Mount Holes

Avoid routing under screw head

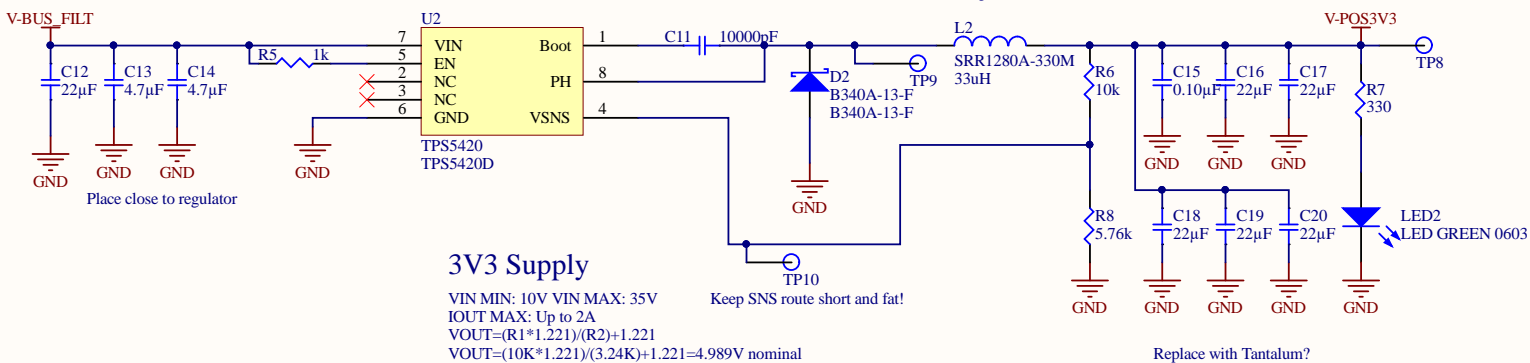
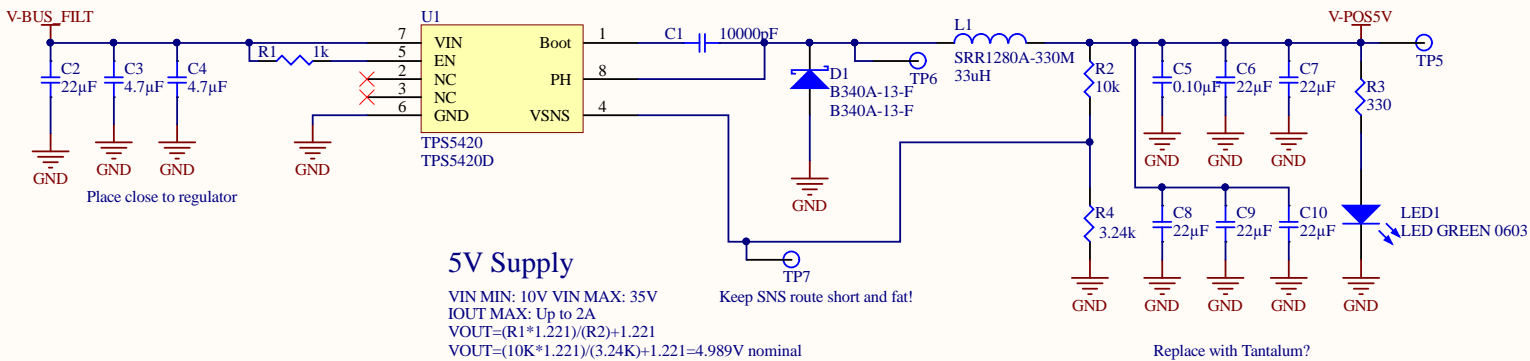
Title Connectors		Badgerloop Electrical 133 Engineering Research Building 1500 Engineering Drive Madison, WI 53706	
Engineer:	Revision:	BADGER LOOP	
Date: 9/5/2019	Time: 10:10:04 PM		
File: connectors.SchDoc		Sheet	of

1

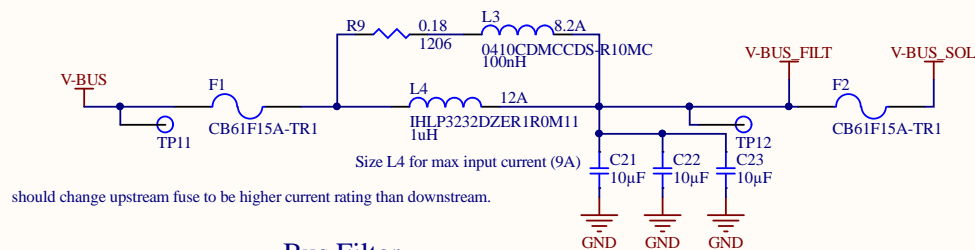
2

3

4



Notes:
 Follow layout reference design
 Place bypass caps close to regulator
 Keep hot loops as short as possible
 See Mathcad file for filter design considerations
 Possible to replace ceramic bulk cap with a tantalum.



Title Power		Badgerloop Electrical 133 Engineering Research Building 1500 Engineering Drive Madison, WI 53706	
Engineer:		Revision:	
Date: 9/5/2019	Time: 10:10:06 PM	Sheet	of
File: power.SchDoc			

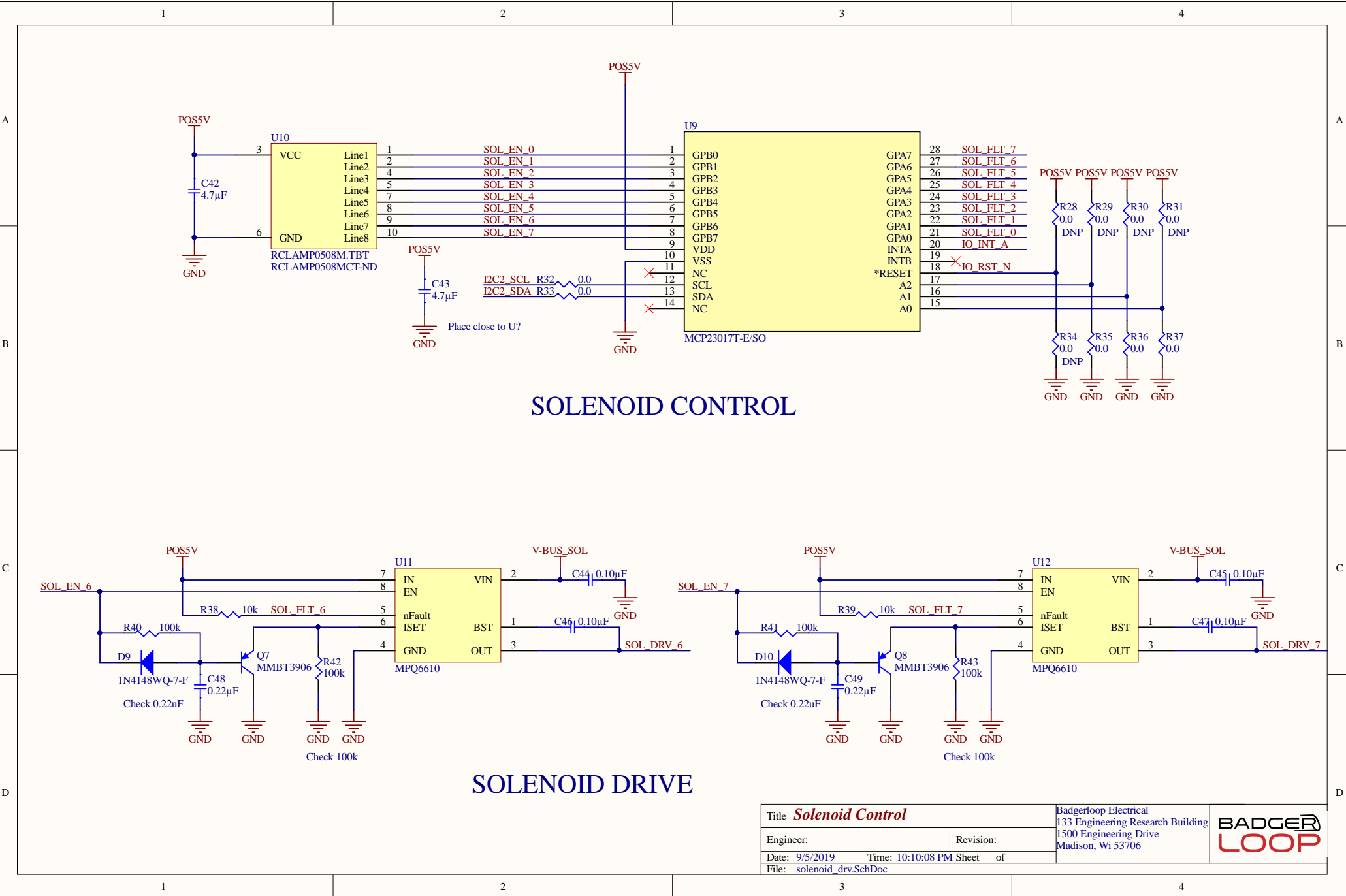
**BADGER
LOOP**

1

2

3

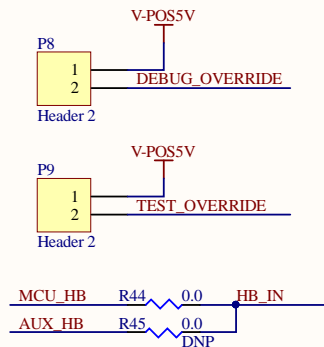
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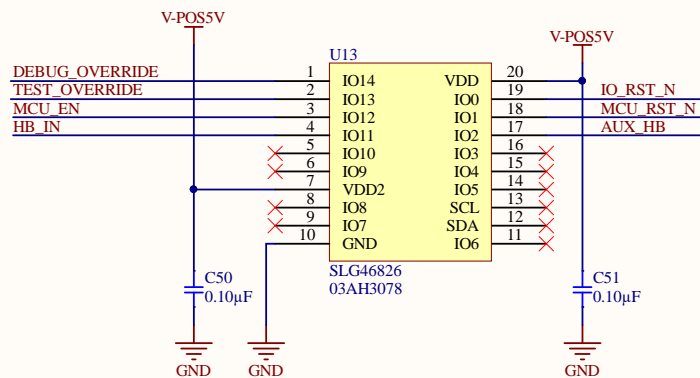
SOLENOID CONTROL

SOLENOID DRIVE

Title Solenoid Control		Badgerloop Electrical 133 Engineering Research Building 1500 Engineering Drive Madison, WI 53706	
Engineer:	Revision:	BADGER LOOP	
Date: 9/5/2019	Time: 10:10:08 PM		
File: solenoid_drv.SchDoc		Sheet	of



DEBUG



WATCHDOG AND RESET CONTROLLER

IO pin selection is arbitrary. Can be adjusted internally for better layout
Currently- Inputs on Left, outputs on right

Modes of operation:

Debug: EN signal is always on when SLG has power

Populate Jumper 1

Test: 10Hz signal internal signal is recirculated to mimic heartbeat

Populate Jumper 2


Operation: U? expects 10Hz heartbeat. If no heartbeat for 1s after 20s Power on reset

MCP RST_N will fall and MCU RST_N will pulse for 200ms

Silego Image here:

<https://github.com/badgerloop-software/hardware/blob/master/silego/watchdog.gp6>

Silego Image PDF Outputs:

Title Watchdog		Badgerloop Electrical 133 Engineering Research Building 1500 Engineering Drive Madison, WI 53706	
Engineer:	Revision:		
Date: 9/5/2019	Time: 10:10:09 PM		
File: watchdog_SchDoc	Sheet of		