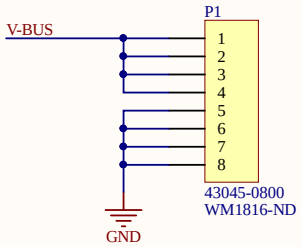
BRAKING IO

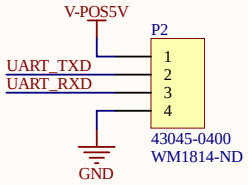
POD 5

REV 1

Title	***Braking IO PCB***	Badgerloop Electrical 133 Engineering Research Building 1500 Engineering Drive Madison, Wi 53706
Engineer:	Revision:	
Date: 9/3/2019 Time: 10:35:24 PM	Sheet of	
File: braking_io.SchDoc		

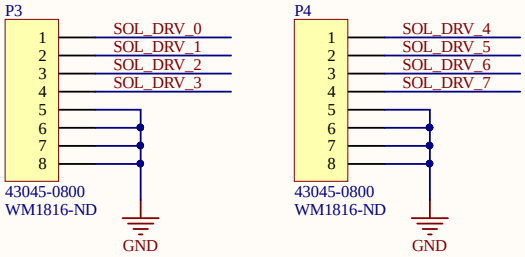


PWR INPUT



UART

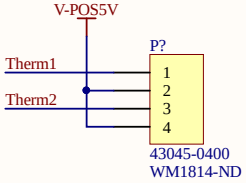
DEBUG



SOLENOIDS

TODO: Consolidate into single 16 pin connector?
Unlikely to use all 8 on a single tray

PRESSURE SENSORS



THERMISTORS

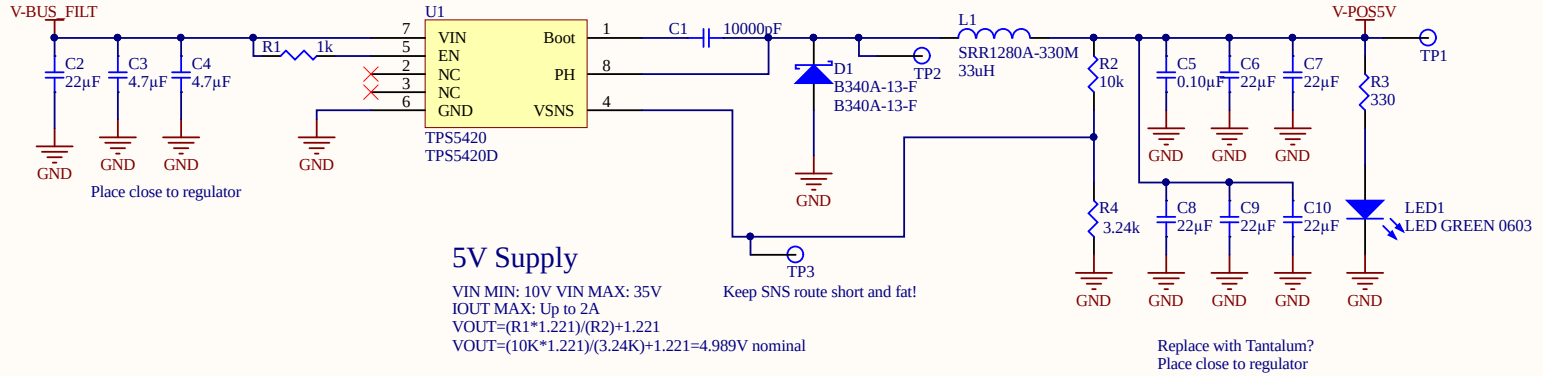
Fiducals

Place on four corners of board

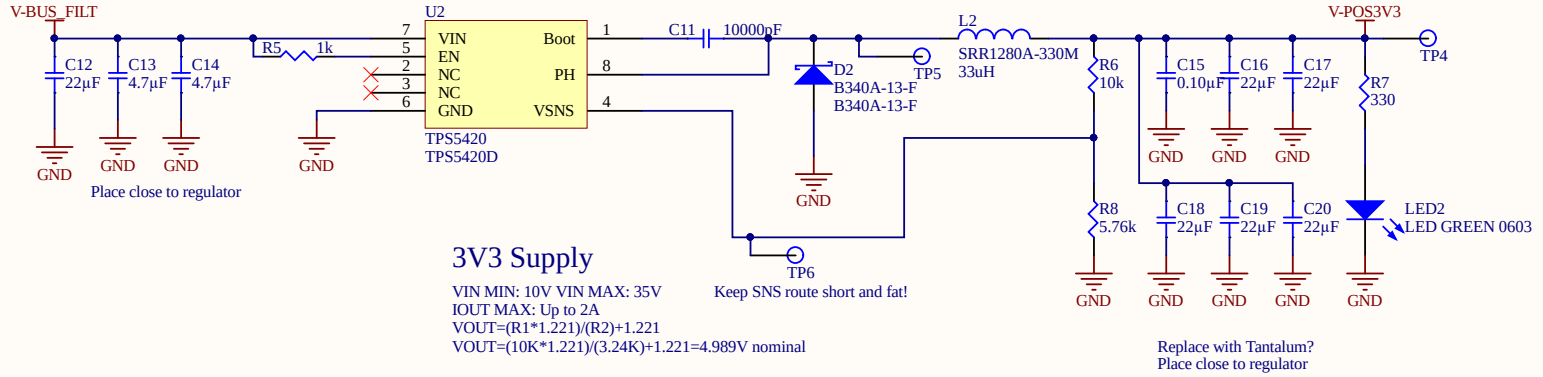
Mount Holes

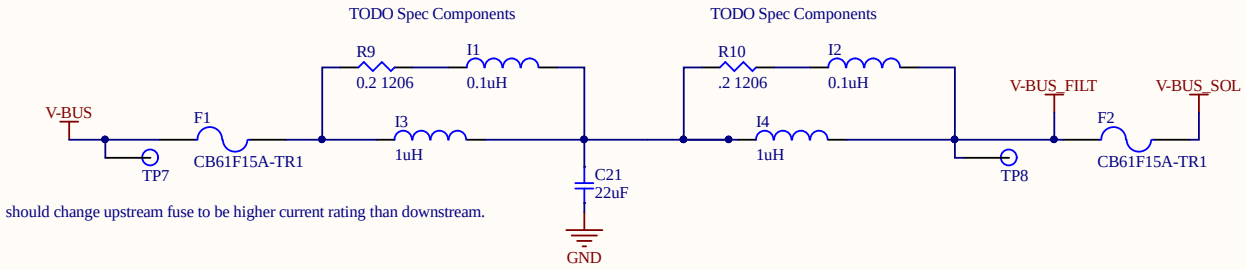
Avoid routing under screw head

Title	***Connectors***	Badgerloop Electrical 133 Engineering Research Building 1500 Engineering Drive Madison, Wi 53706
Engineer:	Revision:	
Date: 9/3/2019 Time: 10:35:25 PM	Sheet of	
File: connectors.SchDoc		



TODO: Spec new inductor

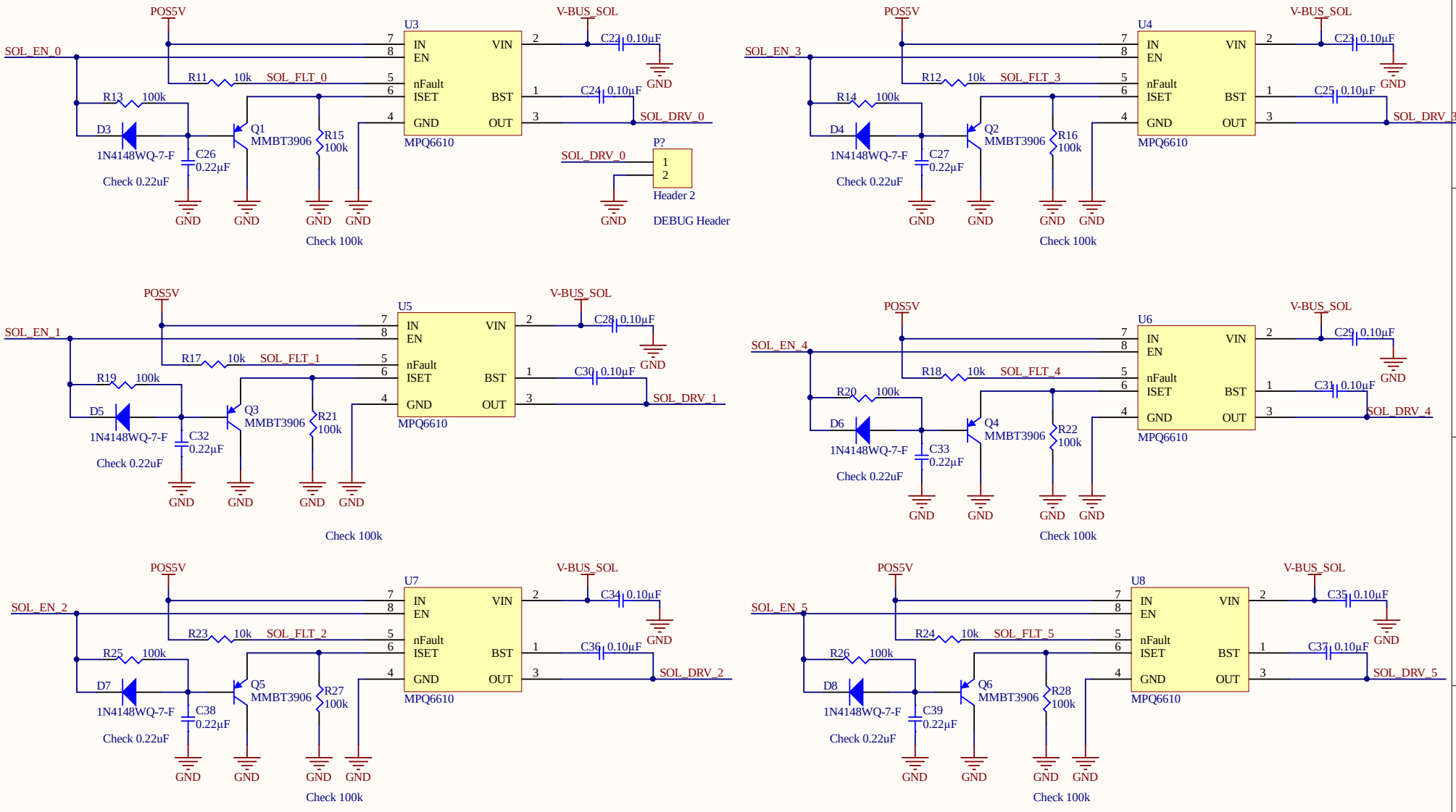




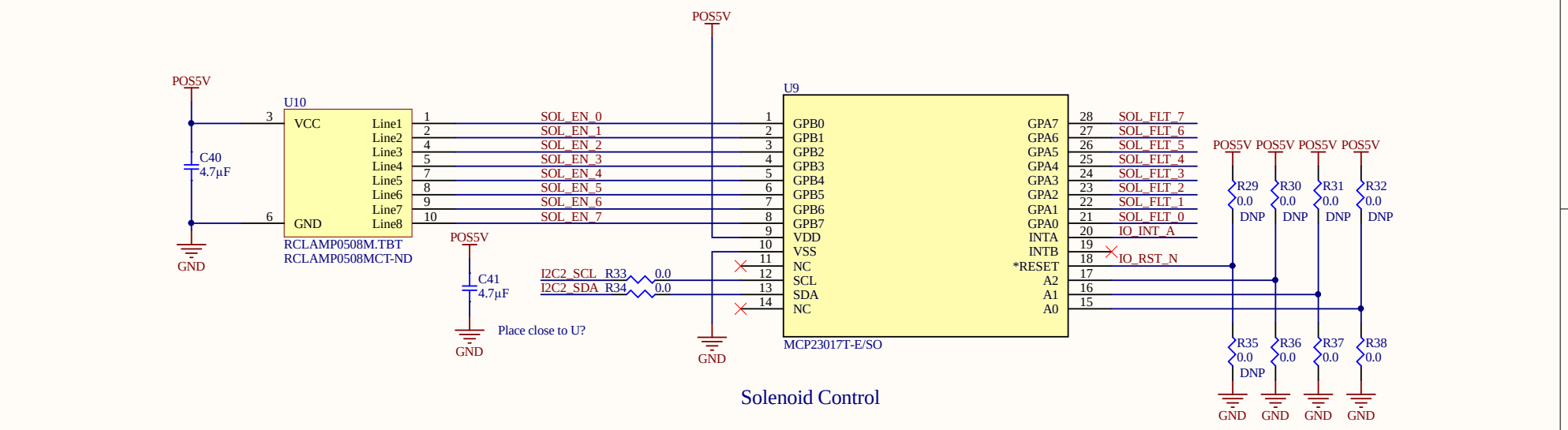
Notes:
Follow layout reference design
Place bypass caps close to regulator
Keep hot loops as short as possible
See Mathcad file for filter design considerations
Possible to replace ceramic bulk cap with a tantalum.

Filter design reference: http://www.ti.com/lit/an/snva538/snva538.pdf
http://ecee.colorado.edu/~rwe/papers/APEC99.pdf

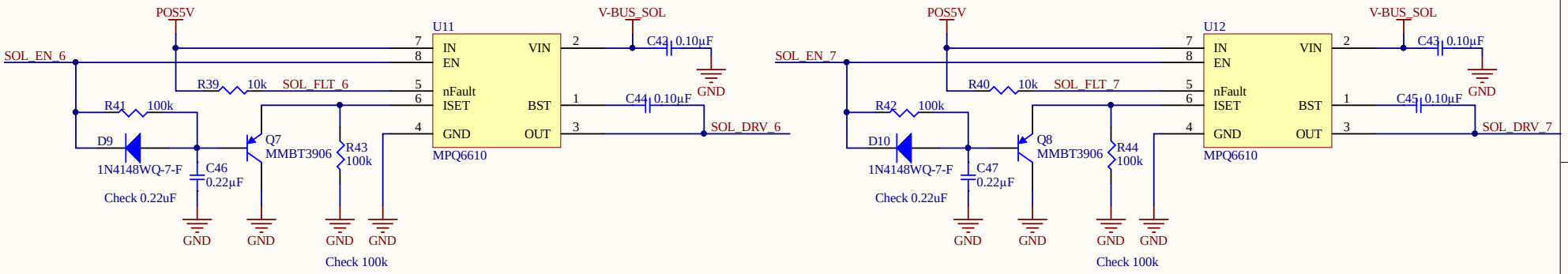
Title	***Power***	Badgerloop Electrical 133 Engineering Research Building 1500 Engineering Drive Madison, Wi 53706
Engineer:	Revision:	
Date: 9/3/2019	Time: 10:35:27 PM Sheet of	
File: power.SchDoc		



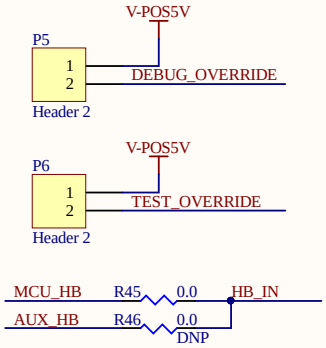
Title	***Solenoids***	Badgerloop Electrical 133 Engineering Research Building 1500 Engineering Drive Madison, Wi 53706
Engineer:	Revision:	
Date: 9/3/2019 Time: 10:35:28 PM	Sheet of	
File: solenoid.SchDoc		



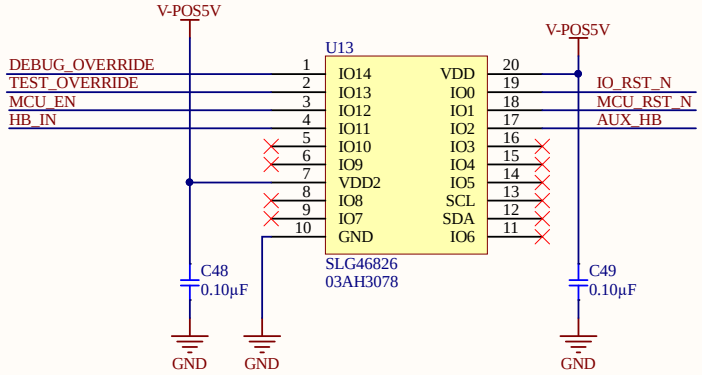
Solenoid Control



Title	***Solenoid Control***	Badgerloop Electrical 133 Engineering Research Building 1500 Engineering Drive Madison, Wi 53706
Engineer:	Revision:	
Date: 9/3/2019 Time: 10:35:30 PM	Sheet of	
File: solenoid_drv.SchDoc		



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 recircuilated 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

Title *Watchdog*		Badgerloop Electrical 133 Engineering Research Building 1500 Engineering Drive Madison, Wi 53706
Engineer:	Revision:	
Date: 9/3/2019 Time: 10:35:31 PM	Sheet of	
File: watchdog.SchDoc		