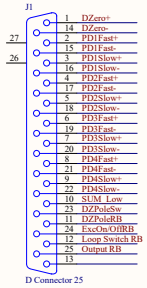
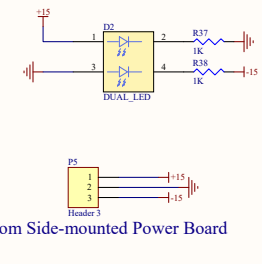
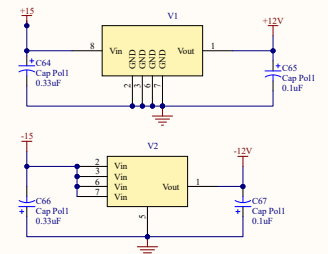
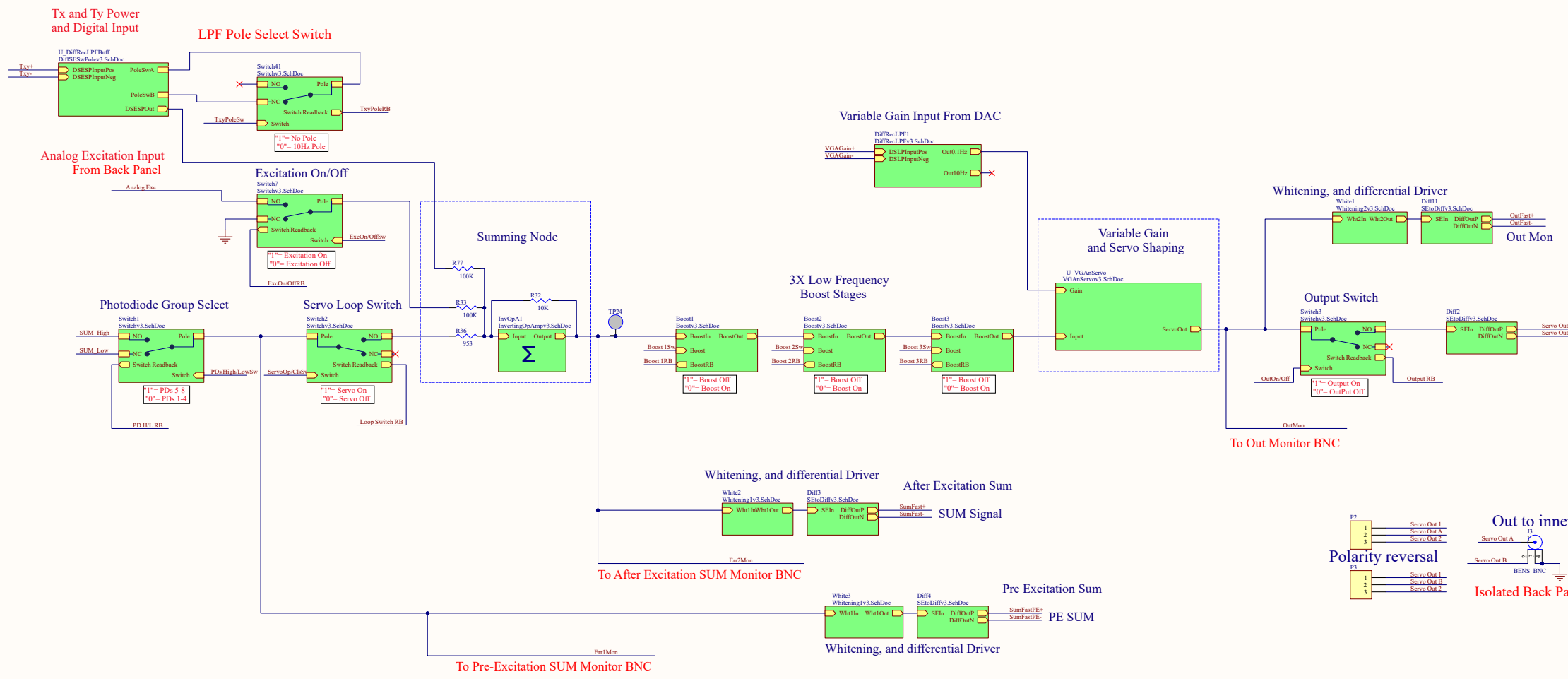
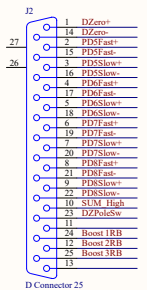


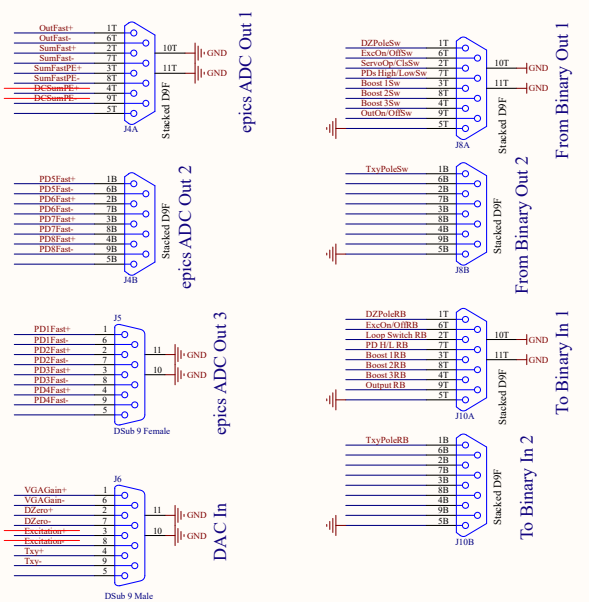
From PDs 1-4 "Low" Group



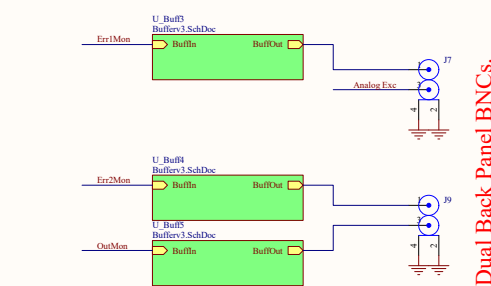
From PDs 5-8 "High" Group

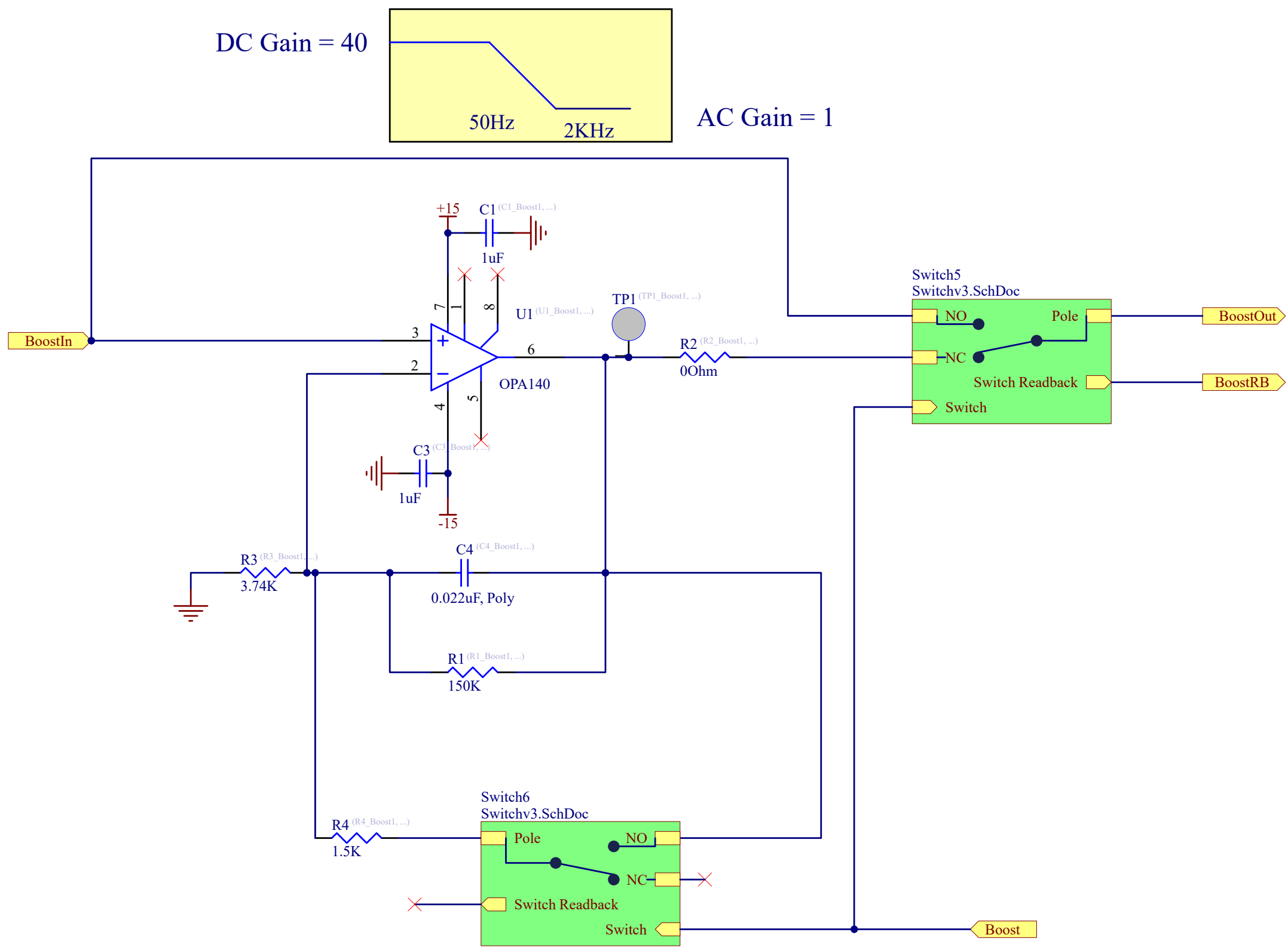


EPICS INTERFACES



Analog Monitors and Excitation





DC Gain = 40

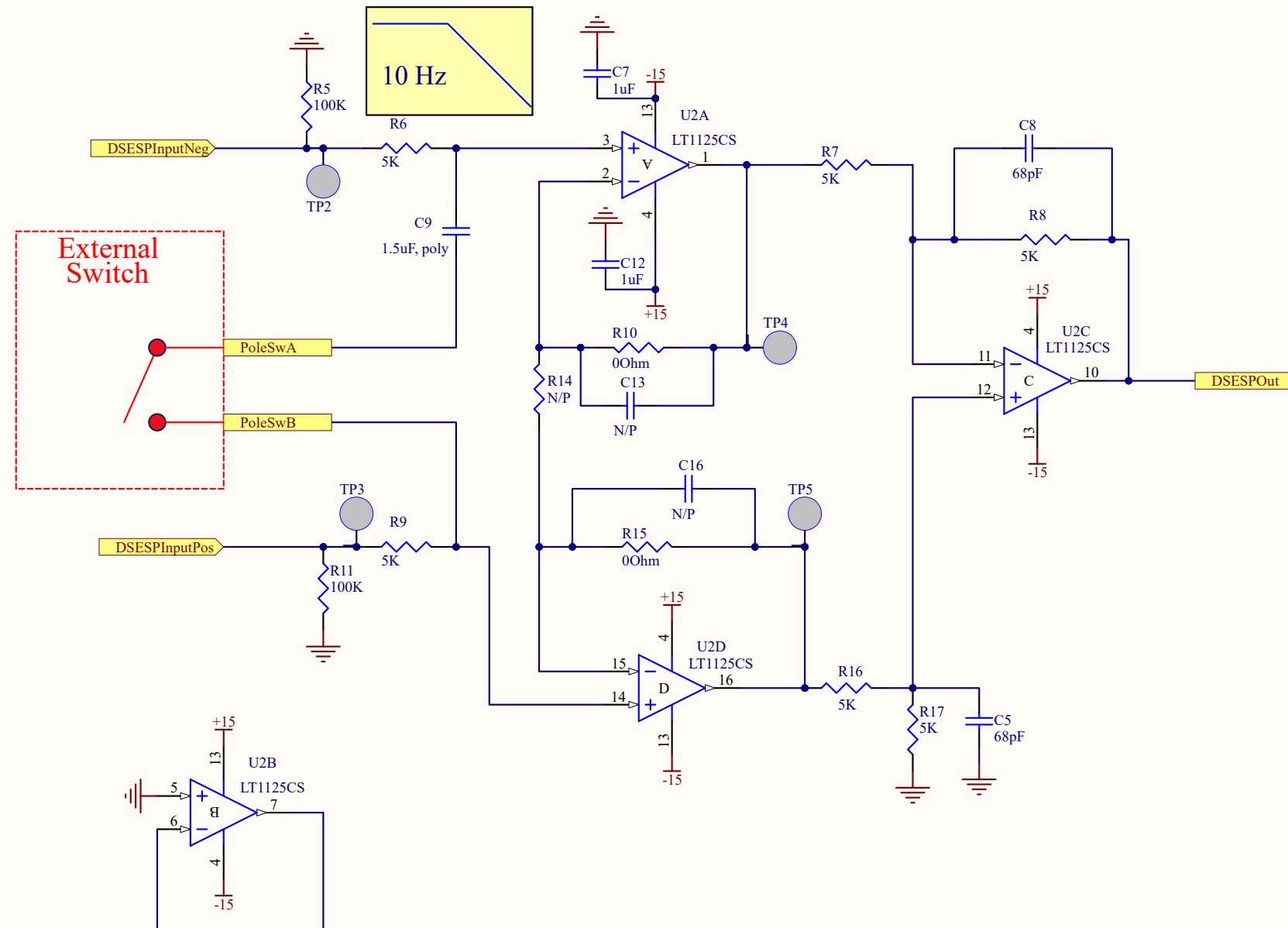


AC Gain = 1

Title Low Frequency Boost			
Size: A	DCC Number: D1600298		Ligo Project California Institute of Technology Massachusetts Institute of Technology
Drawn by: Ben Abbott	Date: 4/30/2021	Revision: v4	
File: C:\Users\Daniel\Documents\Protel\OuterLoopBackBdv3 (11-29-2017 Time 3:30:45 PM).SchDoc			Cannot open file C:\restored\Ben\libraries\schematic templates\ligologo tino File does

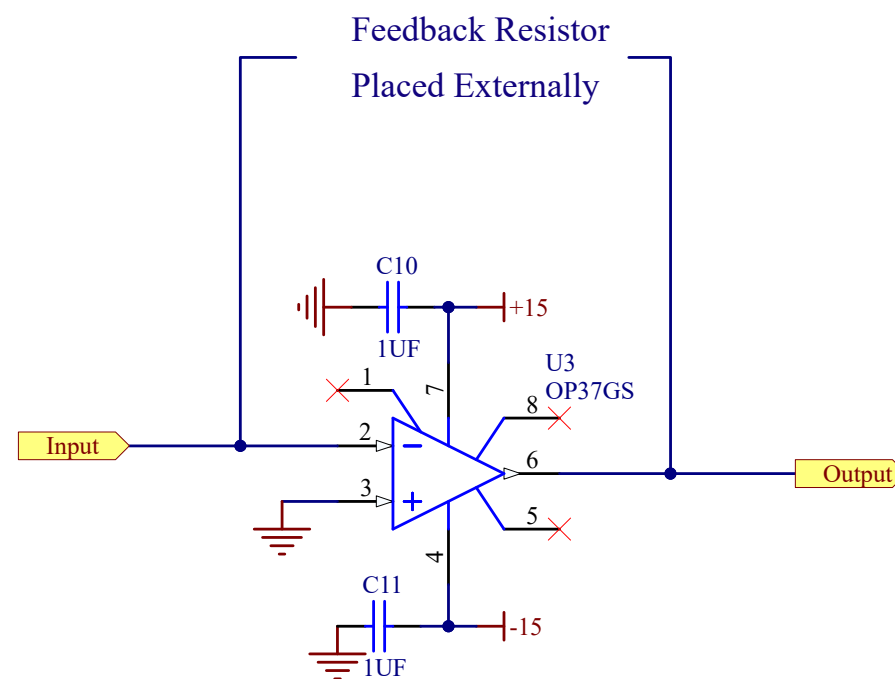
Diff-to-SE w/Switchable Pole

Lowpass Filter here for noise reduction



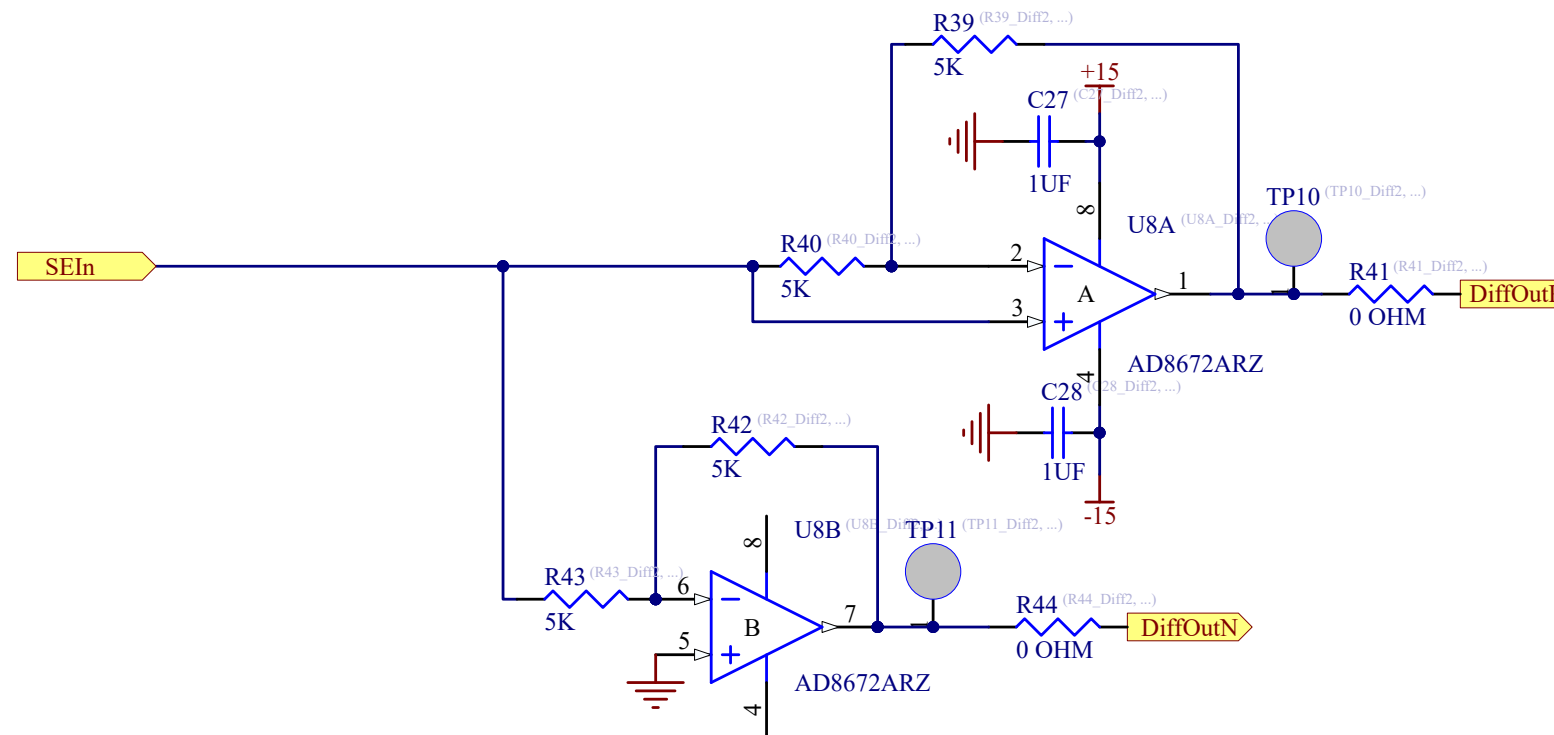
Title Diff. Receiver w/Sw Pole			
Size: B	DCC Number: D1600298		Ligo Project California Institute of Technology Massachusetts Institute of Technology
Drawn by: Ben Abbott	Date: 4/30/2021	Revision: v4	
File: C:\Users\Daniel\Documents\Protel\OuterLoopBackBdv3 (11-29-2017) Time 9:48:46 PM Sheet 33 of 100			

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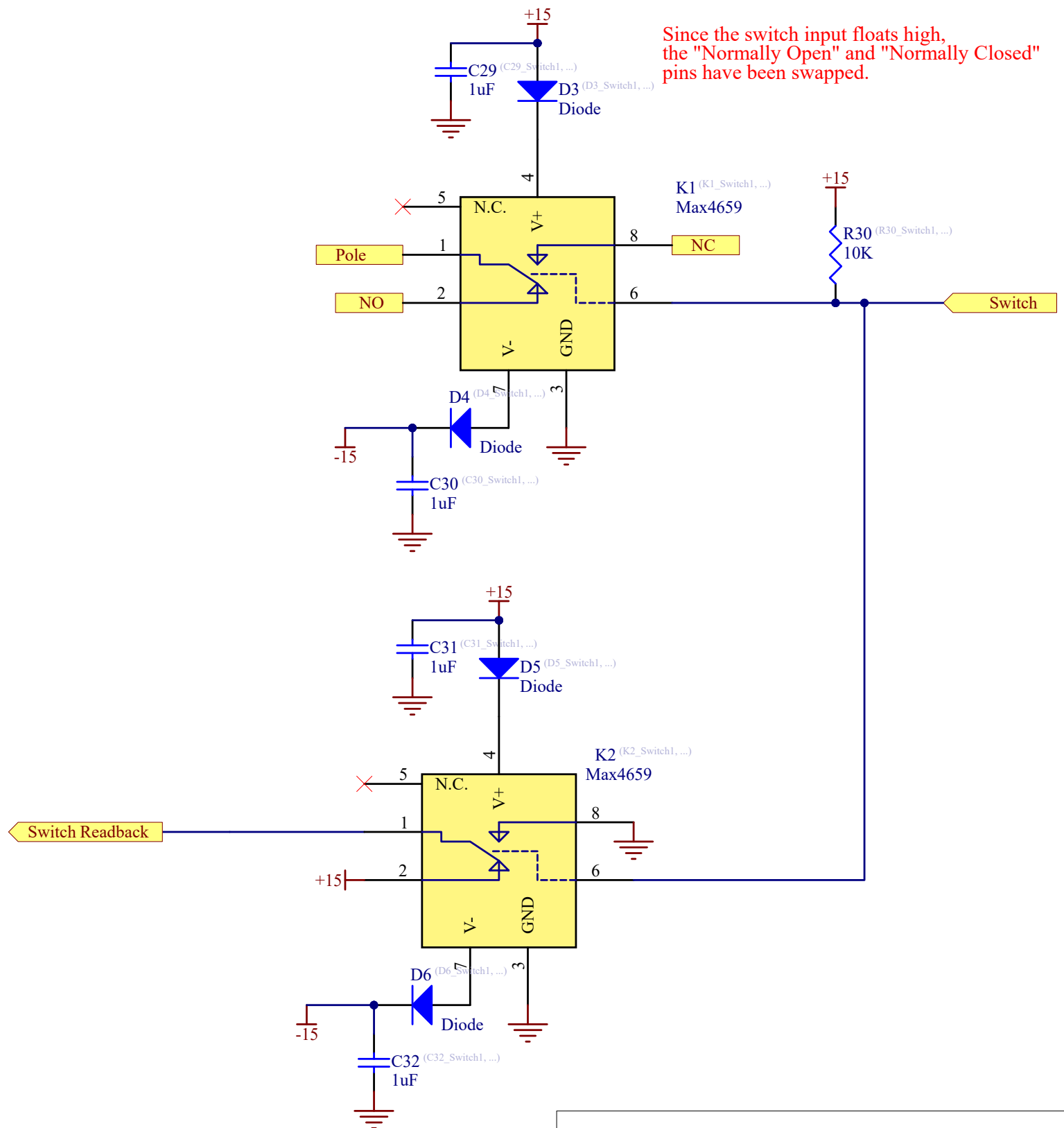


Title <i>Inverting OpAmp</i>			
Size: A	DCC Number: D1600298		<i>Ligo Project</i> <i>California Institute of Technology</i> <i>Massachusetts Institute of Technology</i>
Drawn by: Ben Abbott	Date: 4/30/2021	Revision: v4	
File: C:\Users\Daniel\Documents\Protel\OuterLoopBackBdv3 (11-29-2017 Time: 4:30:45 PM) Sheet: 4 of 10			

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tino File does

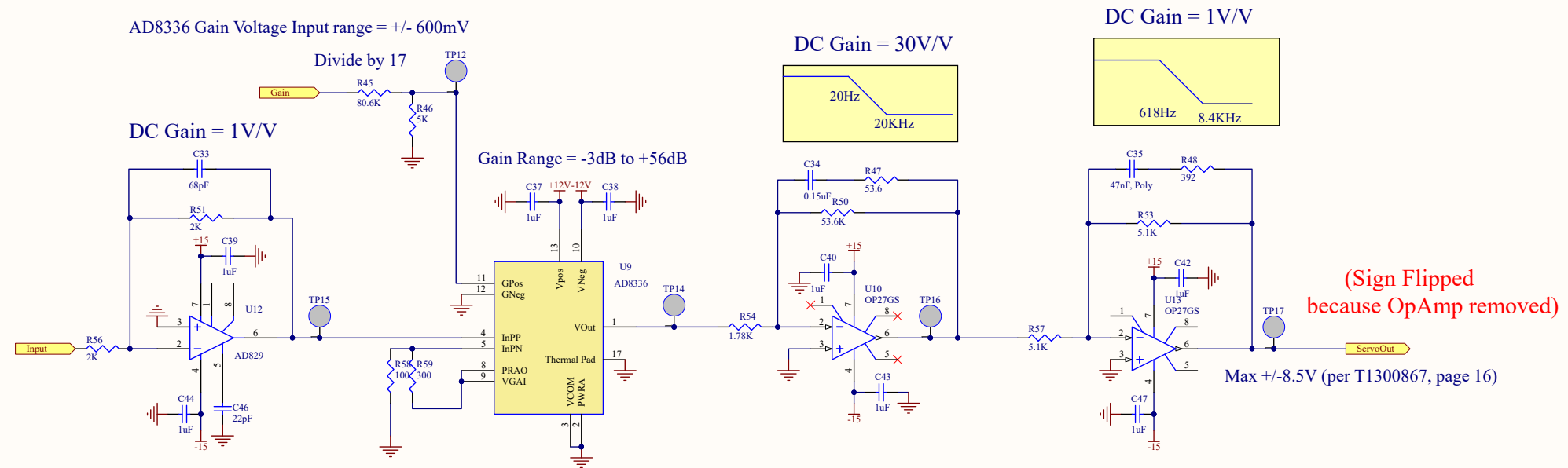


Title Single-Ended to Differential			
Size: A	DCC Number: D1600298		Ligo Project California Institute of Technology Massachusetts Institute of Technology
Drawn by: Ben Abbott	Date: 4/30/2021	Revision: v4	
File: C:\Users\Daniel\Documents\Protel\OuterLoopBackBdv3 (11-29-2017 Time 3:42:45 PM) Schematic1			Cannot open file C:\restored\Ben\libraries\schematic templates\ligologo .tin File does



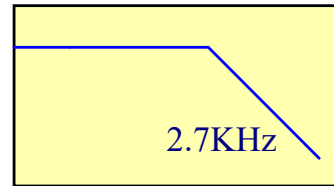
Since the switch input floats high, the "Normally Open" and "Normally Closed" pins have been swapped.

Title Switches			
Size: A	DCC Number: D1600298		<i>Ligo Project</i> <i>California Institute of Technology</i> <i>Massachusetts Institute of Technology</i>
Drawn by: Ben Abbott	Date: 4/30/2021	Revision: v4	
File: C:\Users\Daniel\Documents\Protel\OuterLoopBackBdv3 (11-29-2017 Time 3:30:45 PM) SubDoc6 of 11			Cannot open file C:\restored\Ben\libraries\schematic templates\ligologo.tino File does

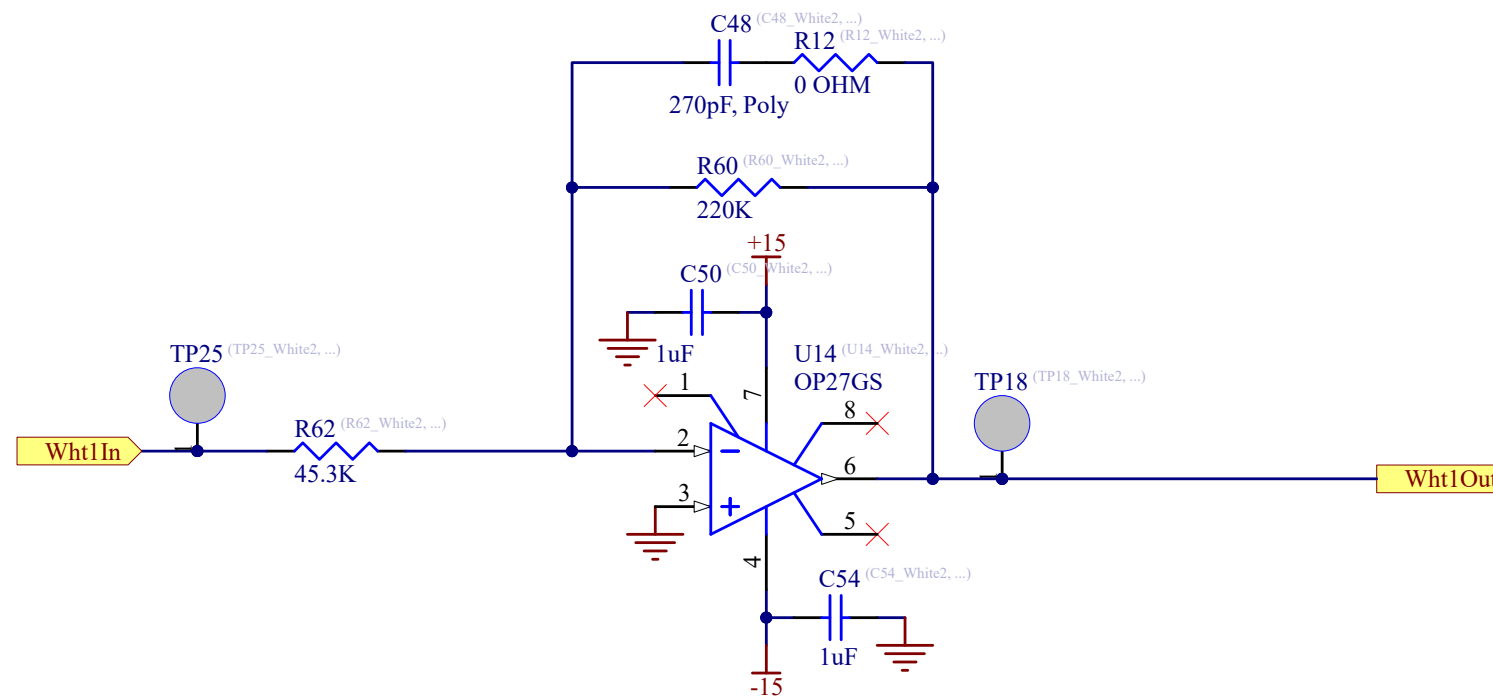


Title Variable Gain and Servo shaping			
Size: C	DCC Number: D1600298	Ligo Project California Institute of Technology Massachusetts Institute of Technology	
Drawn by: Ben Abbott	Date: 4/30/2021	Revision: v4	Cannot open file C:\restored\Ben\li braries\schematic templates\ligologo t.mw File does
File: C:\Users\Daniel\Documents\Protel\OuterLoopBackBdv3 (11-29-2011) 20m9 #1246131 Sheet 5 of 11			

Whitening Mod 1



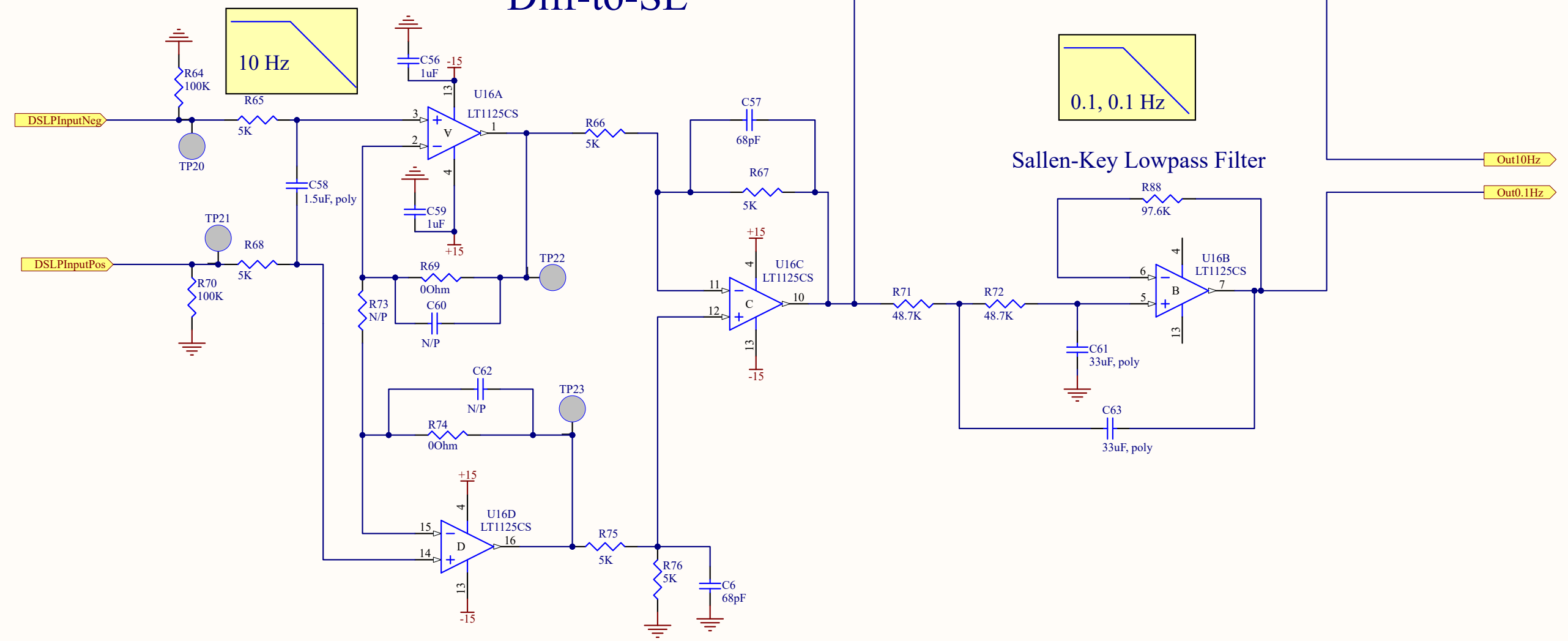
Gain = 50V/V



Title Whitening 1			
Size: A	DCC Number: D1600298		Ligo Project California Institute of Technology Massachusetts Institute of Technology
Drawn by: Ben Abbott	Date: 4/30/2021	Revision: v4	
File: C:\Users\Daniel\Documents\Protel\OuterLoopBackBdv3 (11-29-2017 Time 4:30:45 PM) Sheet 8 of 11			Cannot open file C:\restored\Ben\libraries\schematic templates\ligologo tino File does

Lowpass Filter here for noise reduction

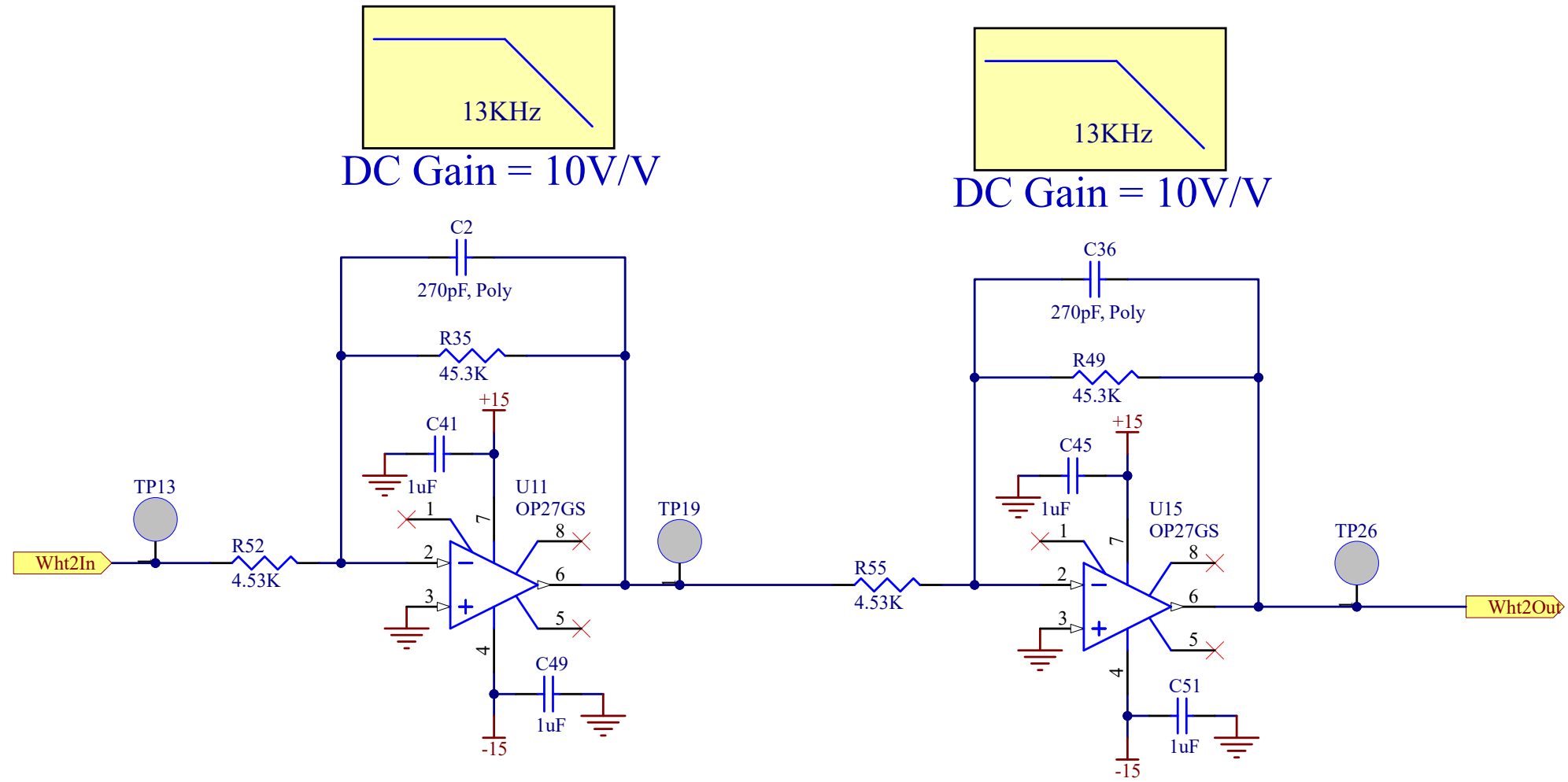
Diff-to-SE



Title Diff. Receiver w/LPF			
Size: B	DCC Number: D1600298		Ligo Project California Institute of Technology Massachusetts Institute of Technology
Drawn by: Ben Abbott	Date: 4/30/2021	Revision: v4	
File: C:\Users\Daniel\Documents\Protel\OuterLoopBackBdv3 (11-29-2017 Time 9:48:46 PM) Sheet 3 of 6			

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Whitening Mod 2



Title Whitening 1			
Size: A	DCC Number: D1600298		<i>Ligo Project</i> California Institute of Technology Massachusetts Institute of Technology
Drawn by: Ben Abbott	Date: 4/30/2021	Revision: v4	
File: C:\Users\Daniel\Documents\Protel\OuterLoopBackBdv3 (11-29-2017 Time: 4:30:46 PM) Sheet 10 of 11			

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A

A

B

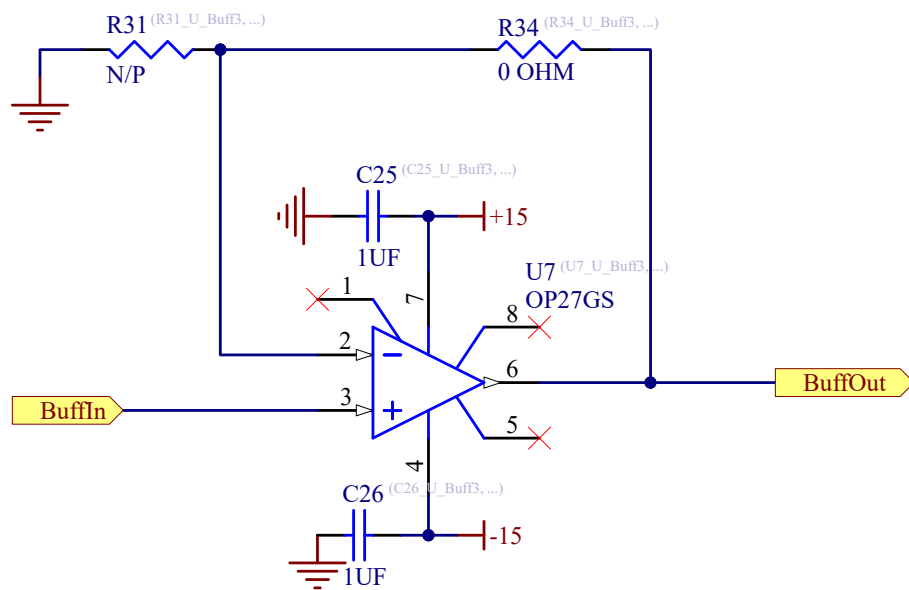
B

C

C

D

D



Title Buffer			
Size: A	DCC Number: D1600298		<i>Ligo Project</i> <i>California Institute of Technology</i> <i>Massachusetts Institute of Technology</i> Cannot open file C:\restored\Ben\li braries\schematic templates\ligologo tino File does
Drawn by: Ben Abbott	Date: 4/30/2021	Revision: v4	
File: C:\Users\Daniel\Documents\Protel\OuterLoopBackBdv3 (11-29-2017 Time: 4:30:46 PM).SchDoc1 of 11			

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