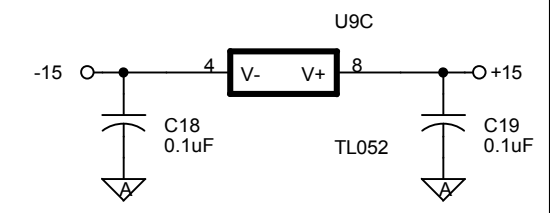
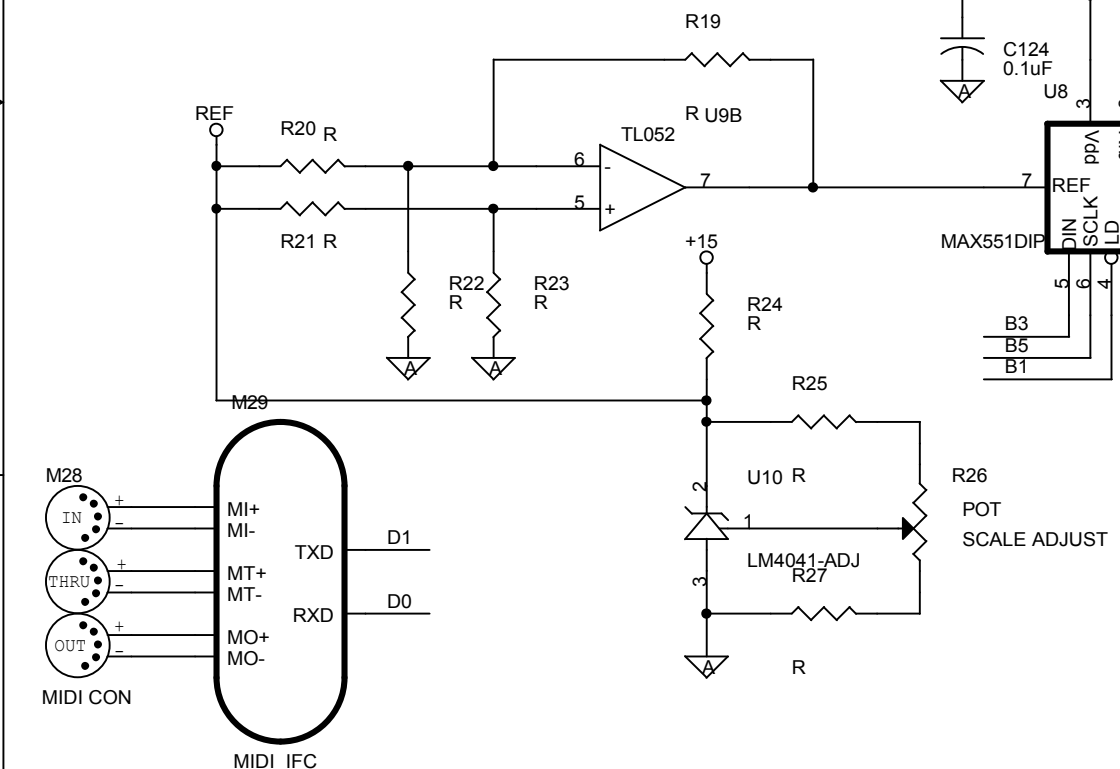
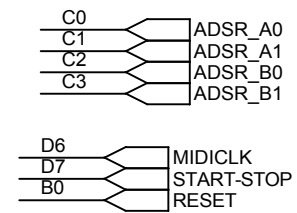
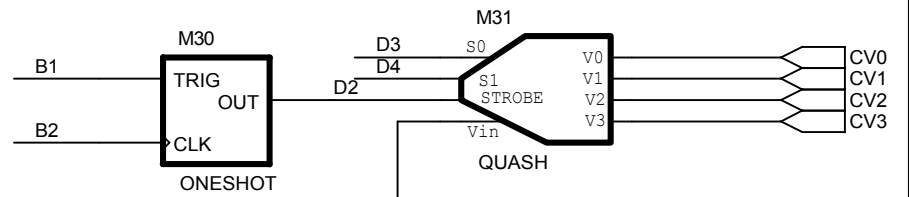
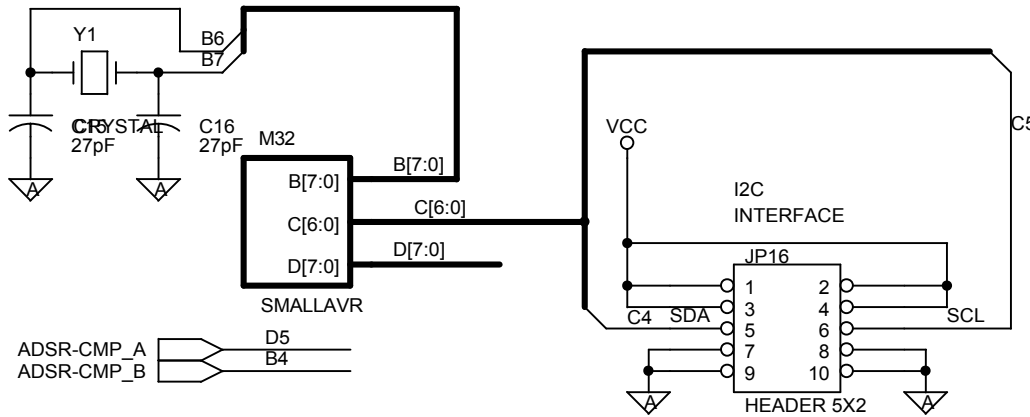
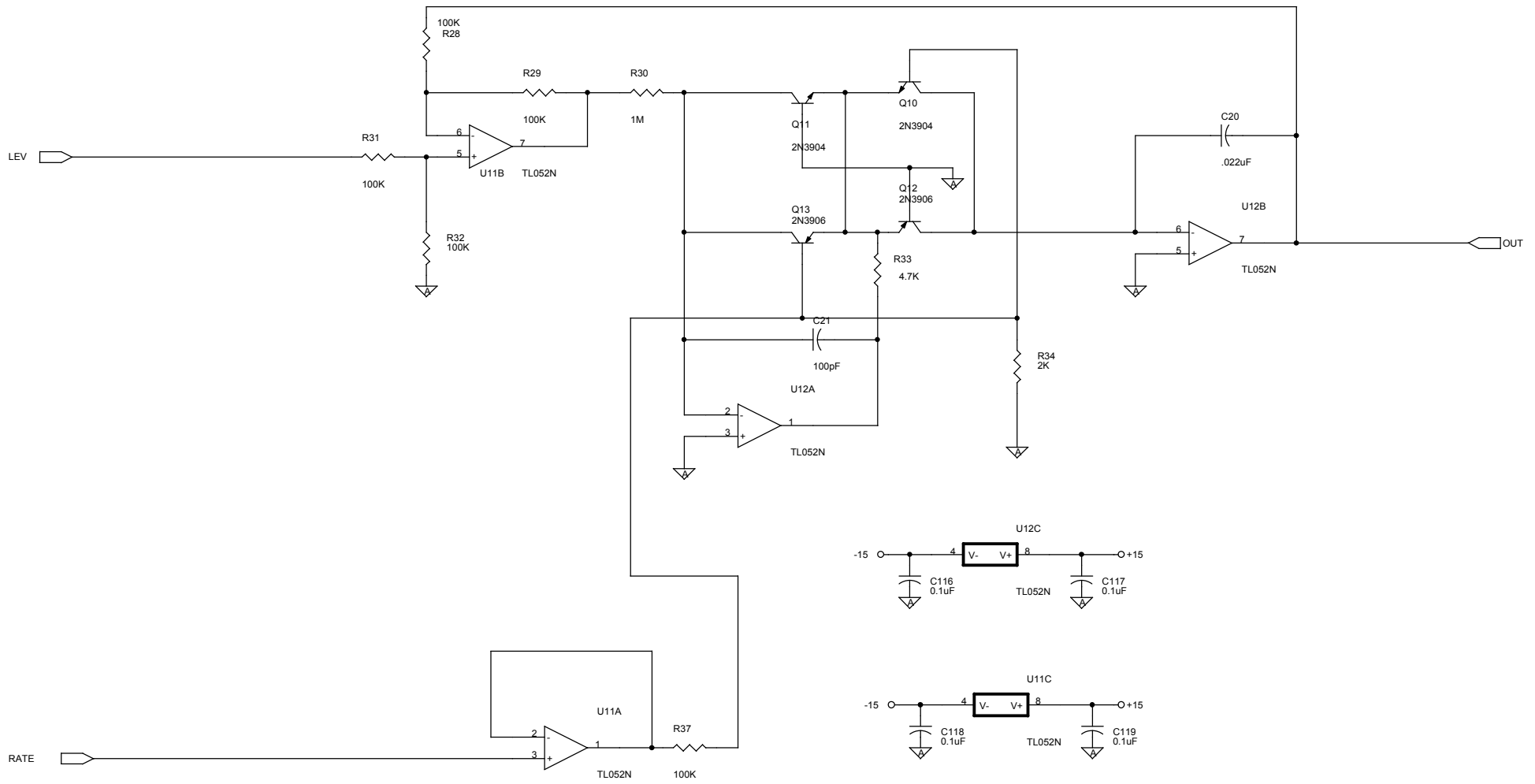


Title			<b>NOOTA - BLACKMER SYNTH BOARD</b>		
Size	Document Number		Rev		A
	<b>100-1069</b>				
Date:	Thursday, July 31, 2014		Sheet	1 of 40	

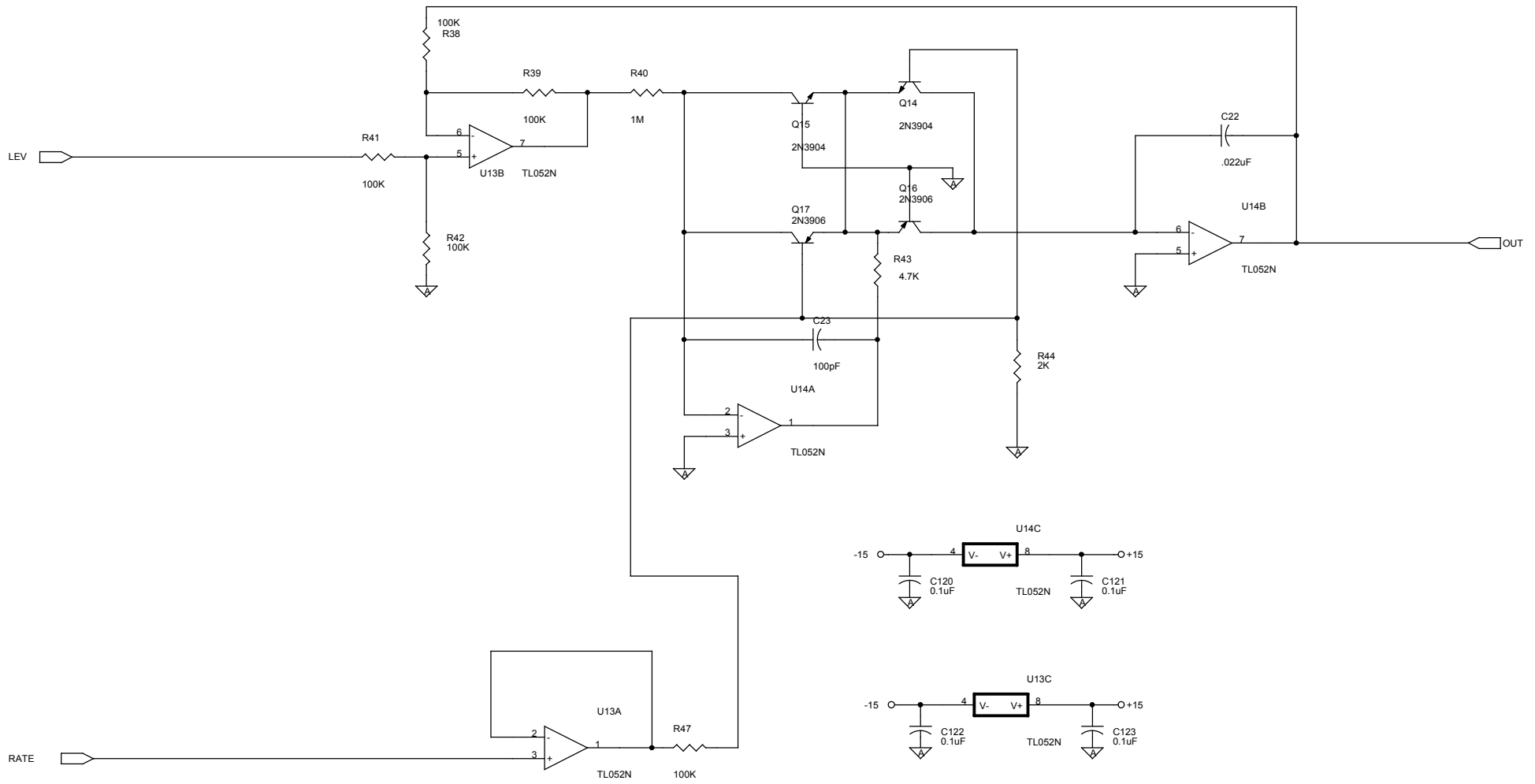
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Title		
<b>NOOTA-MIDI TO CV</b>		
Size	Document Number	Rev
A	<b>100-1069</b>	A
Date:	Thursday, July 31, 2014	Sheet 2 of 40



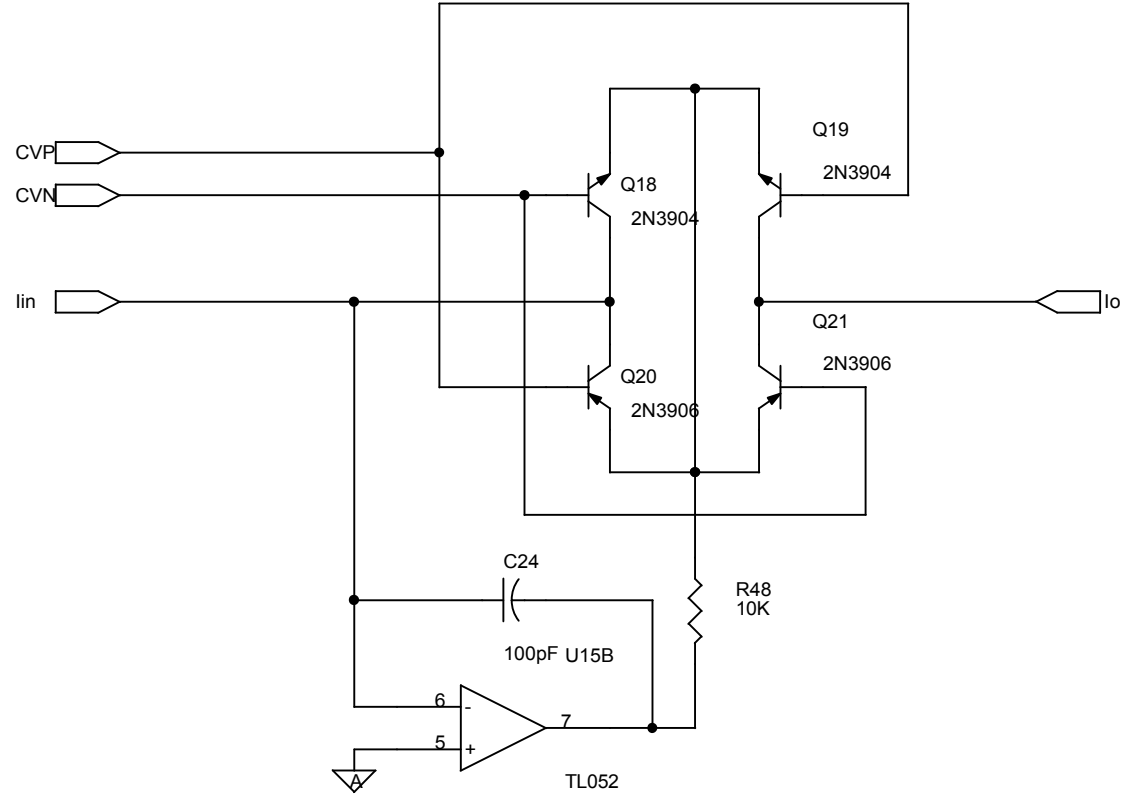
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Size	Document Number	Rev
		A
Date:	Saturday, July 26, 2014	Sheet 3 of 40



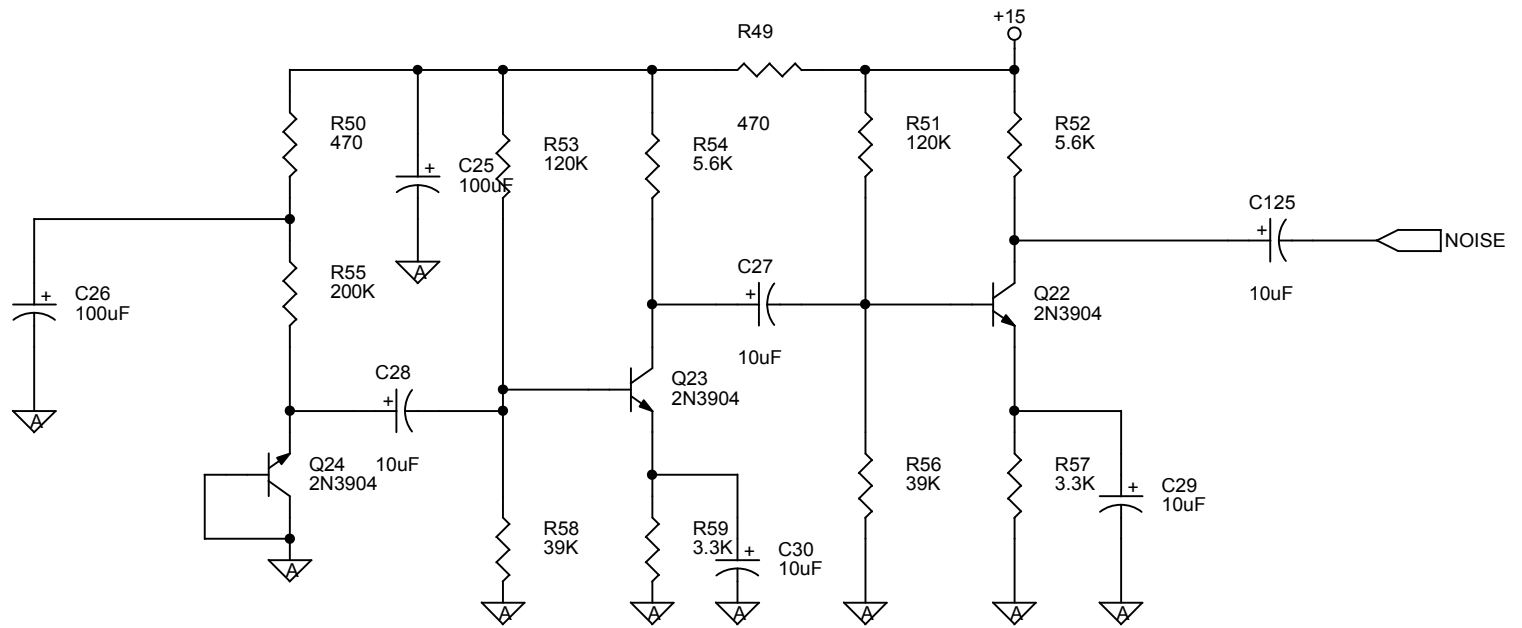
Title		
<b>SIMPLE EV GENERATOR M27</b>		
Size	Document Number	Rev
		A
Date:	Saturday, July 26, 2014	Sheet 4 of 40

This is basically a log-antilog multiplier. It was invented by a gentleman named David Blackmer back in the 1960's. This version of the thing is a little different. The emitters of the two log-antilog pairs have been connected together. The first I saw this particular configuration used was by Jürgen Haible. It is a very clever and useful version of the Blackmer Log-Antilog Multiplier.

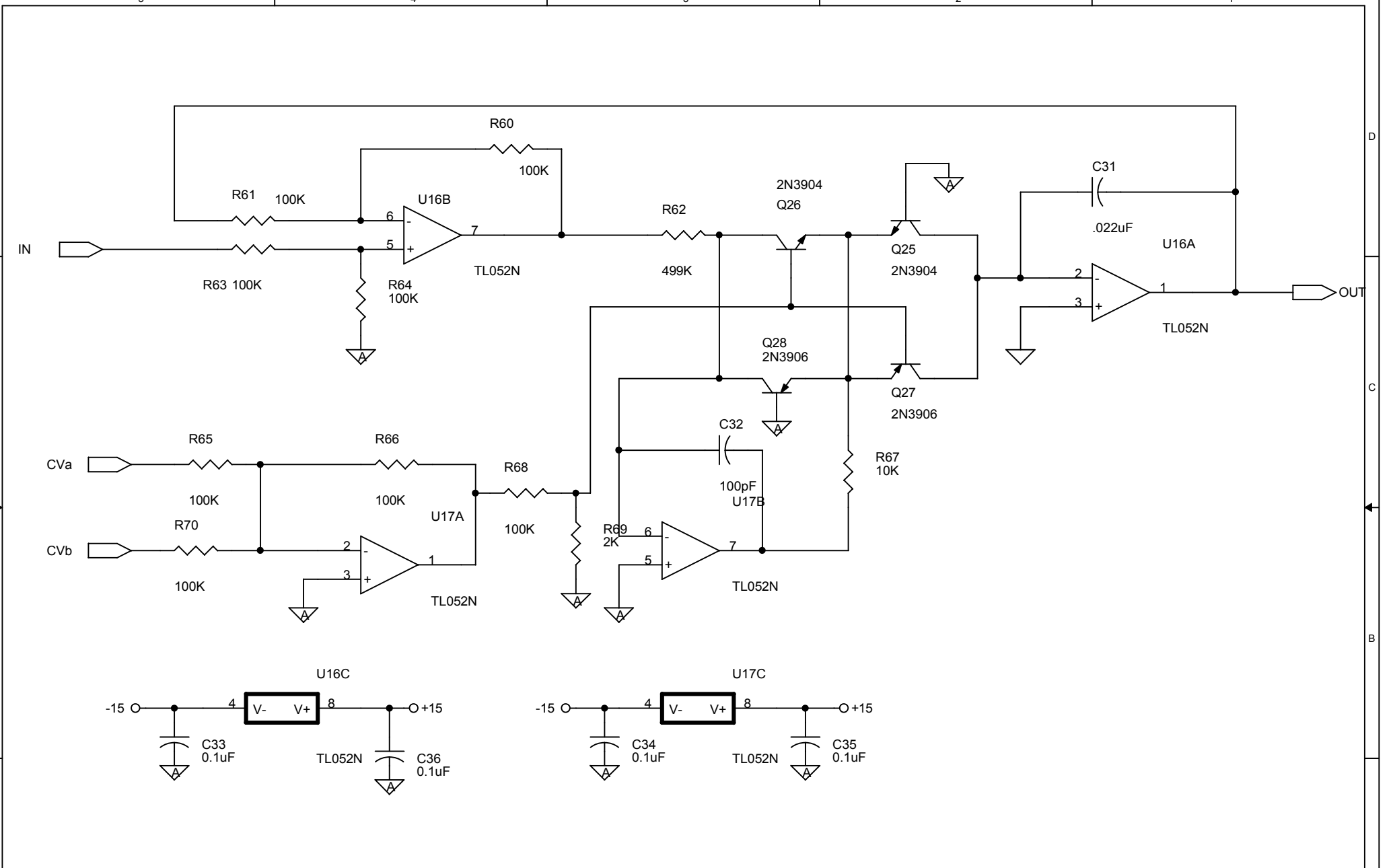
POSITIVE VOLTAGE ON CVP INCREASES GAIN  
 POSITIVE VOLTAGE ON CVN DECREASES GAIN  
 GAIN



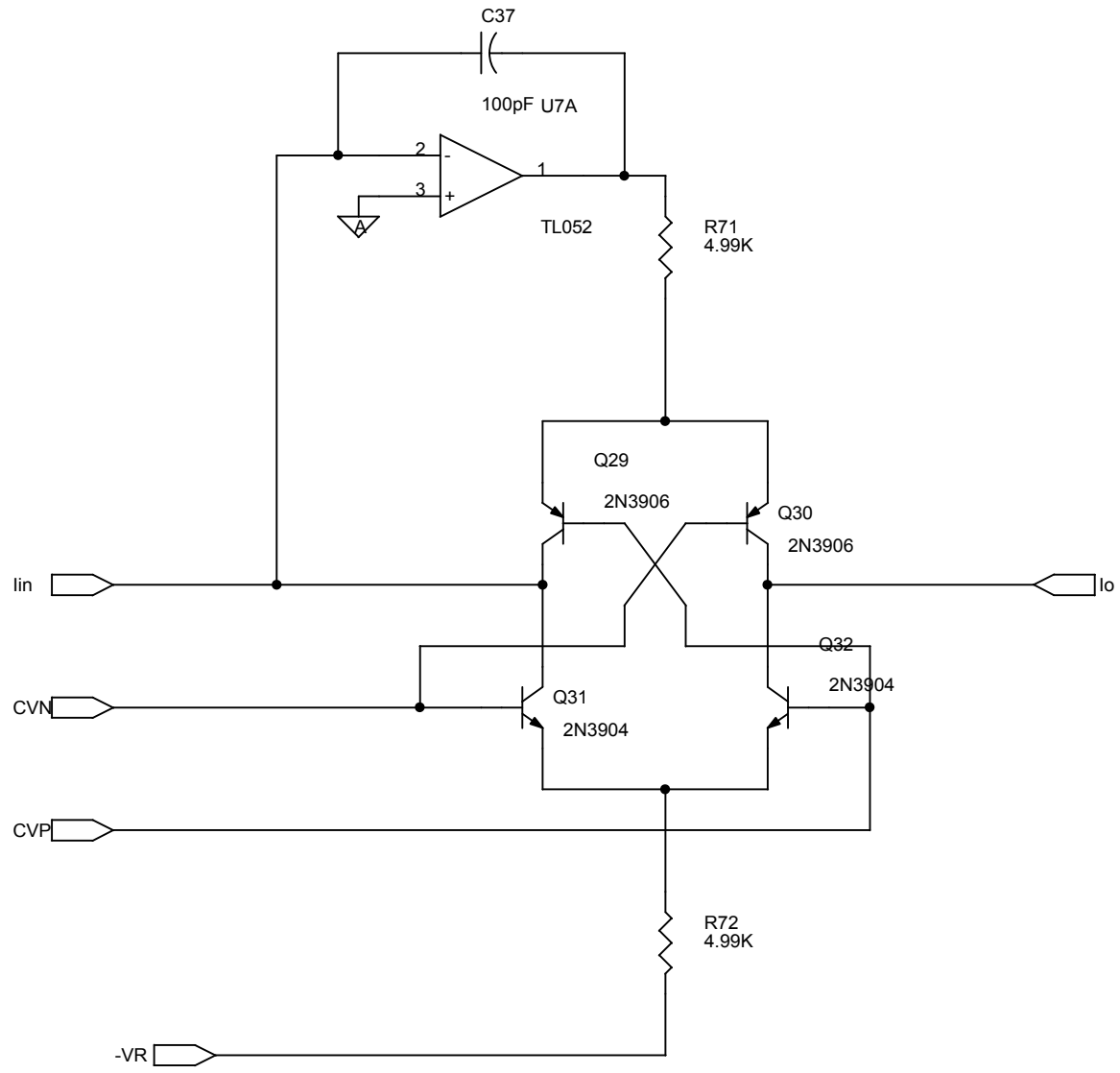
Title		
<b>BM ATTENUATOR</b>		
Size	Document Number	Rev
	<b>100-1069</b>	A
Date:	Friday, August 01, 2014	Sheet 5 of 40



Title		
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Size	Document Number	Rev
	<b>100-1069</b>	A
Date:	Thursday, July 31, 2014	Sheet 6 of 40

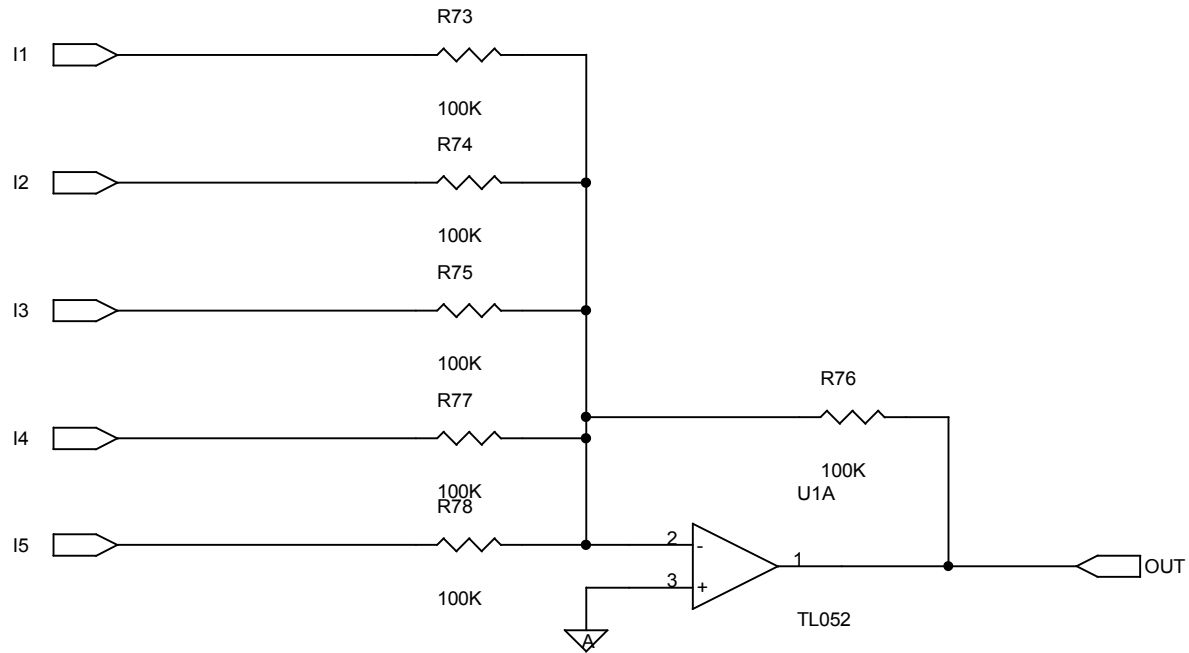


Title		
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Size	Document Number	Rev
	<b>100-1069</b>	A
Date:	Saturday, July 19, 2014	Sheet 7 of 40

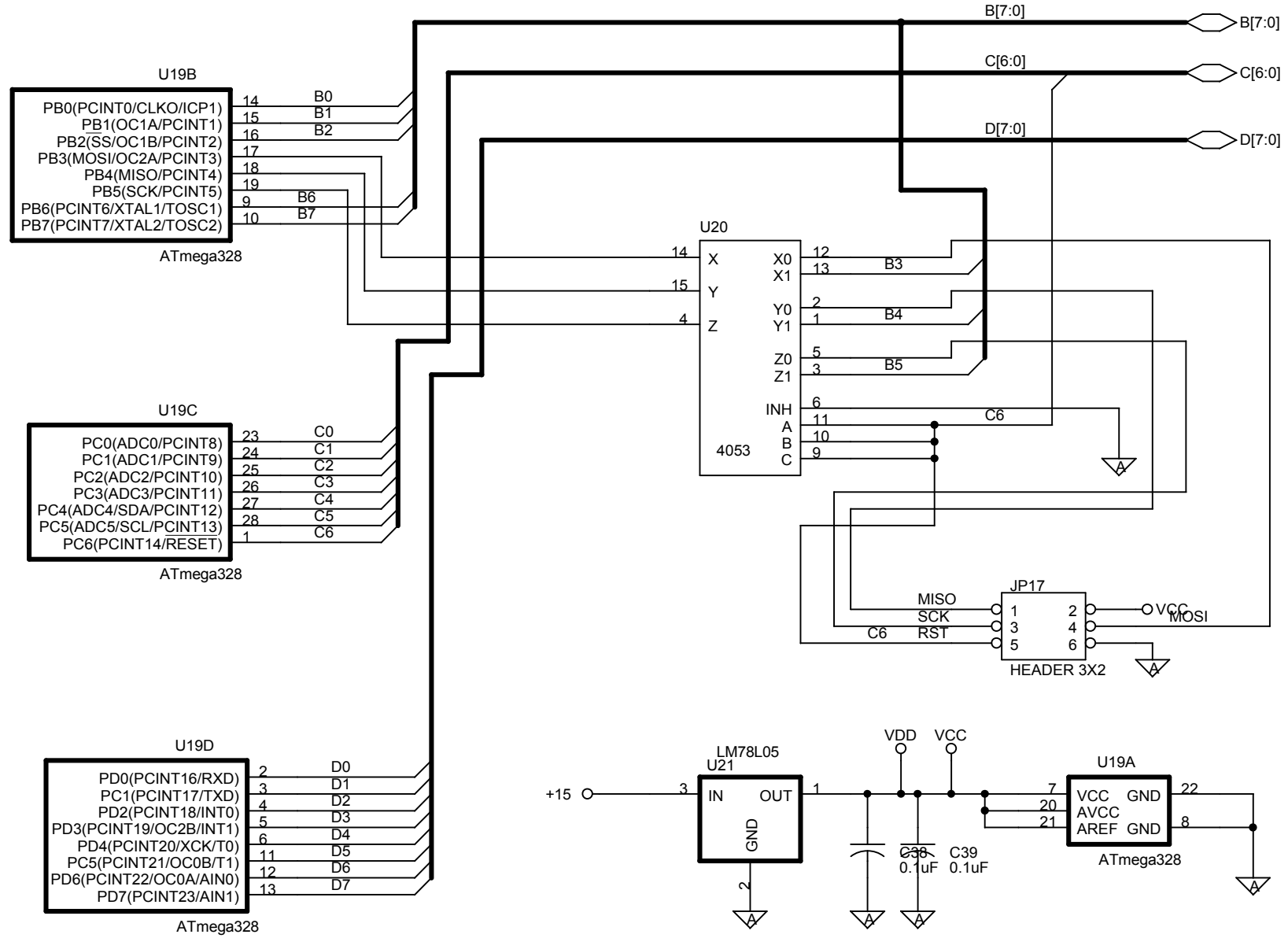


Title		
<b>NOOTA-BLACKMER VCA M15</b>		
Size	Document Number	Rev
	<b>100-1069</b>	<b>A</b>
Date:	Monday, July 21, 2014	Sheet 8 of 40

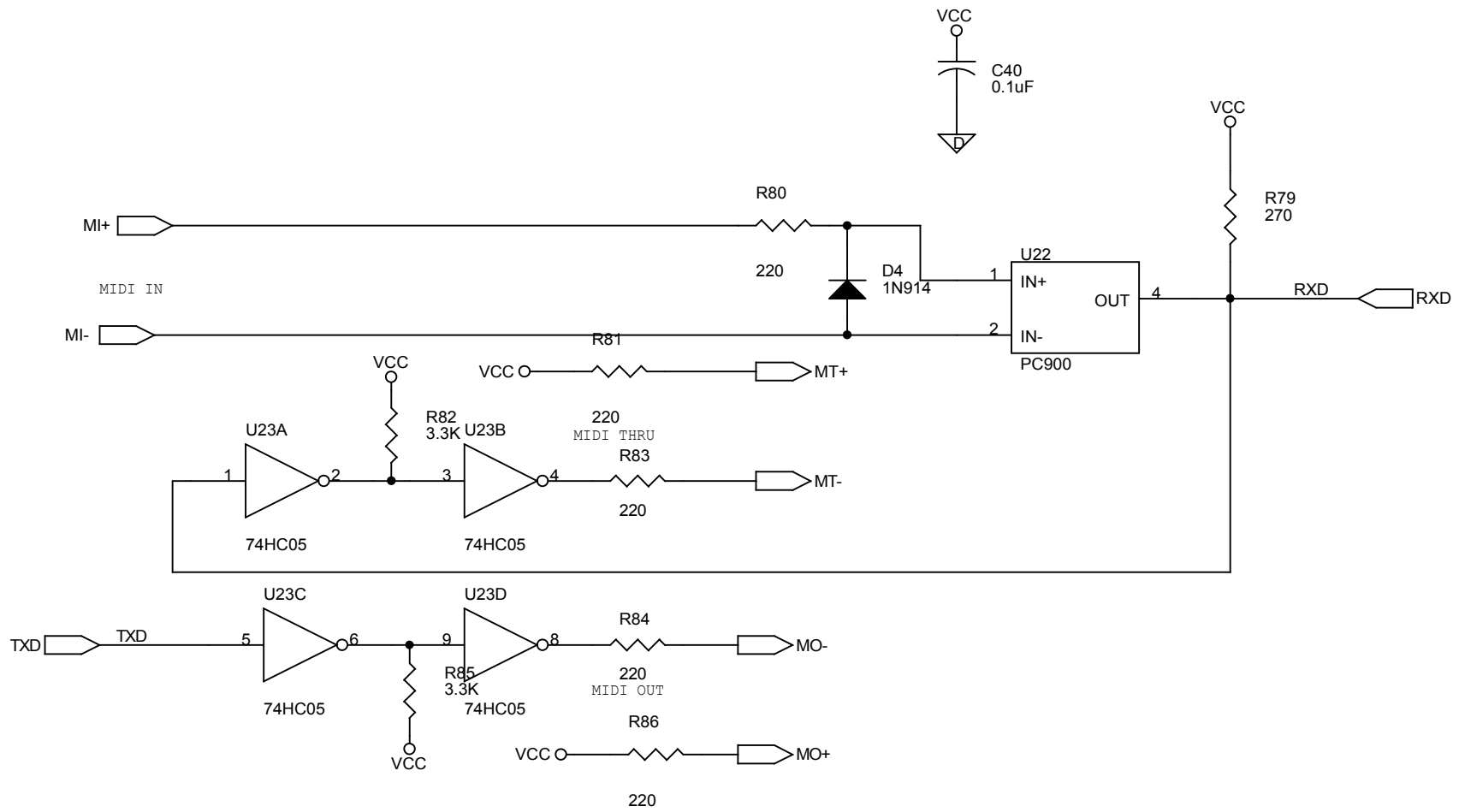




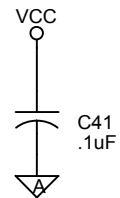
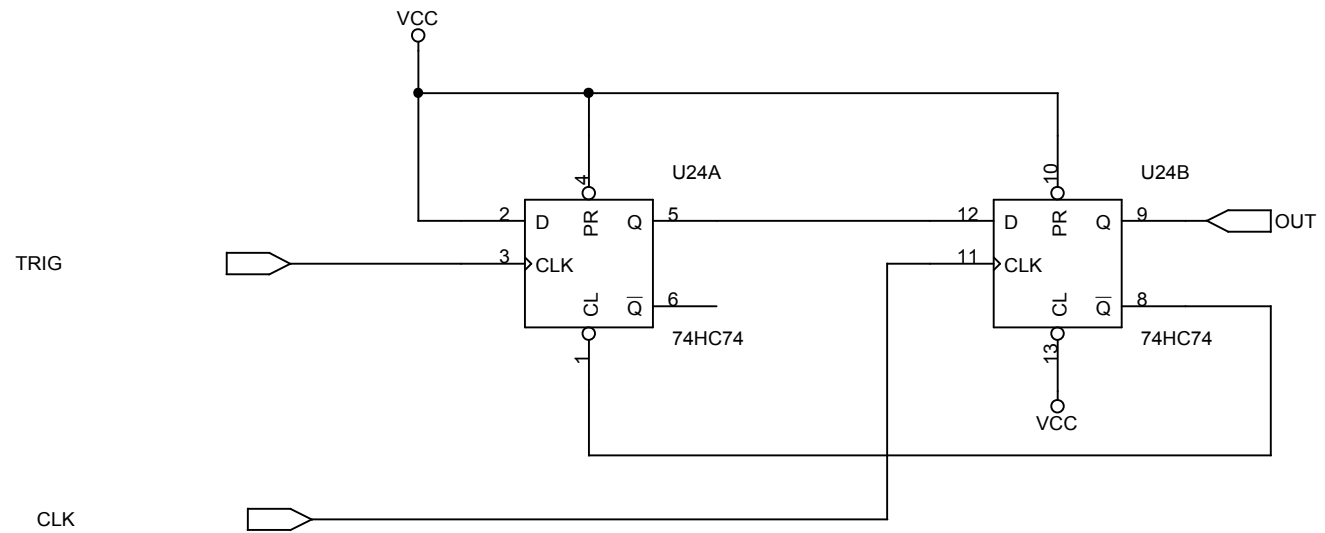
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Size	Document Number	Rev
	<b>100-1069</b>	<b>A</b>
Date:	Saturday, July 26, 2014	Sheet 9 of 40



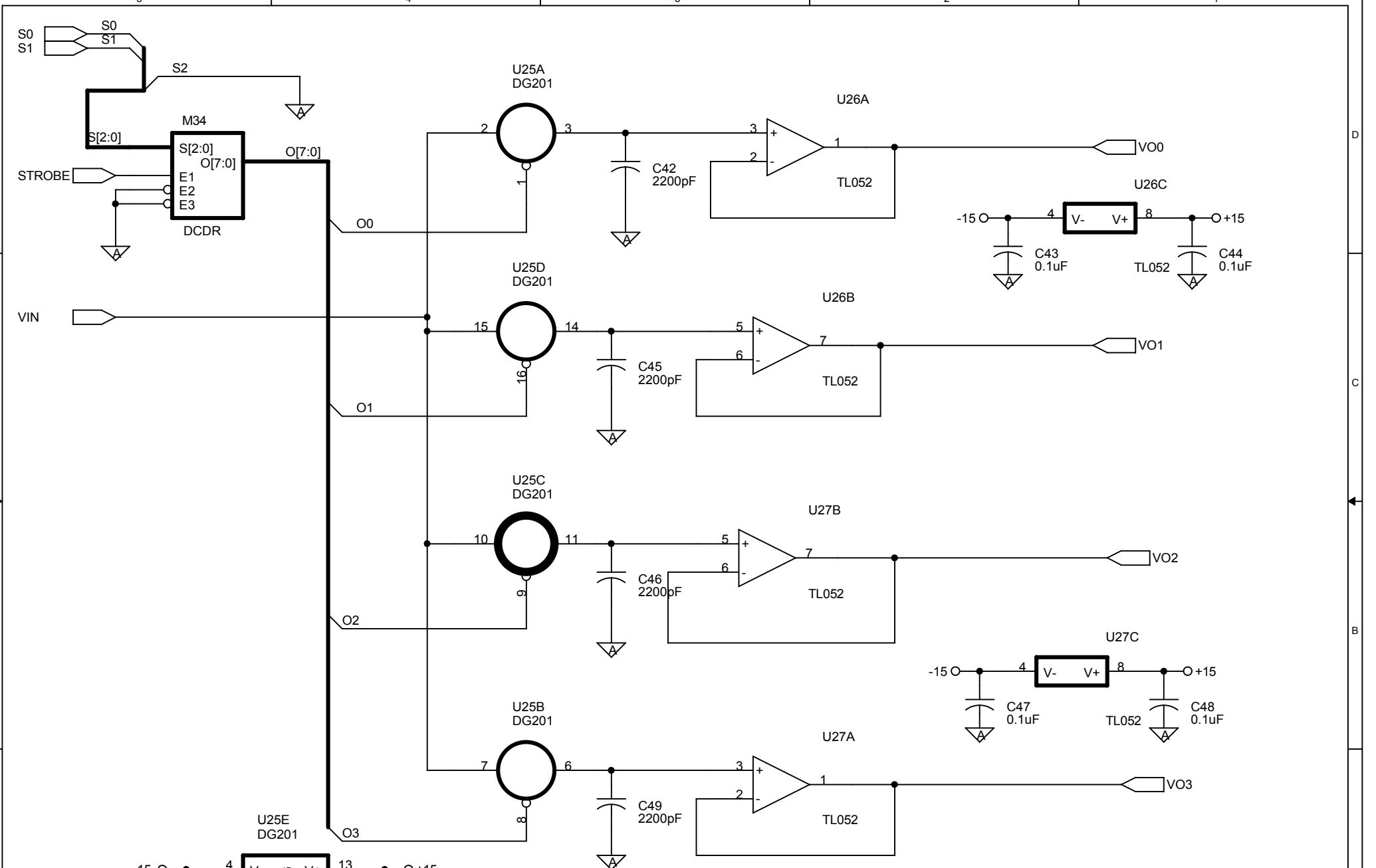
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Size	Document Number	Rev
A	<b>100-1069</b>	B
Date:	Saturday, July 19, 2014	Sheet 10 of 40



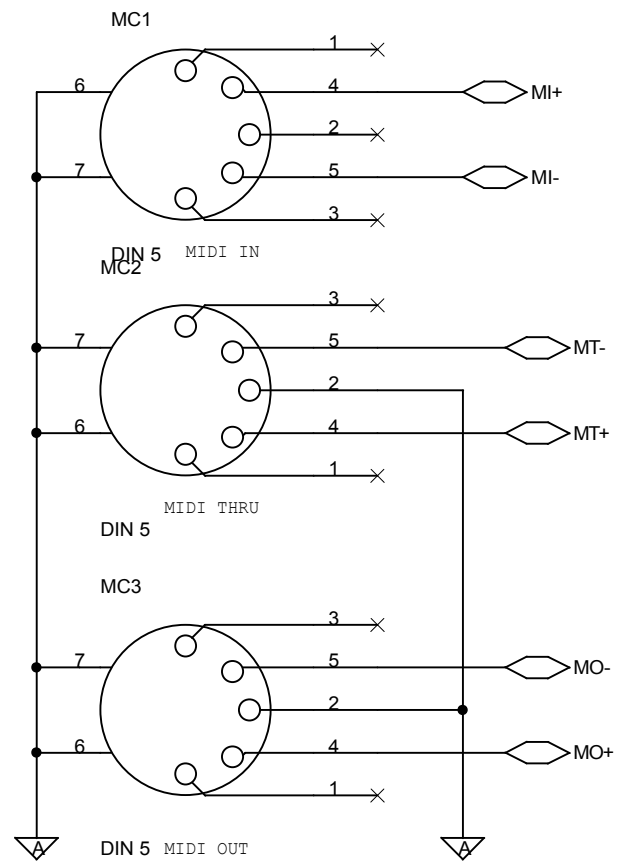
Title		
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Size	Document Number	Rev
	<b>100-1069</b>	<b>A</b>
Date:	Friday, July 18, 2014	Sheet 11 of 40



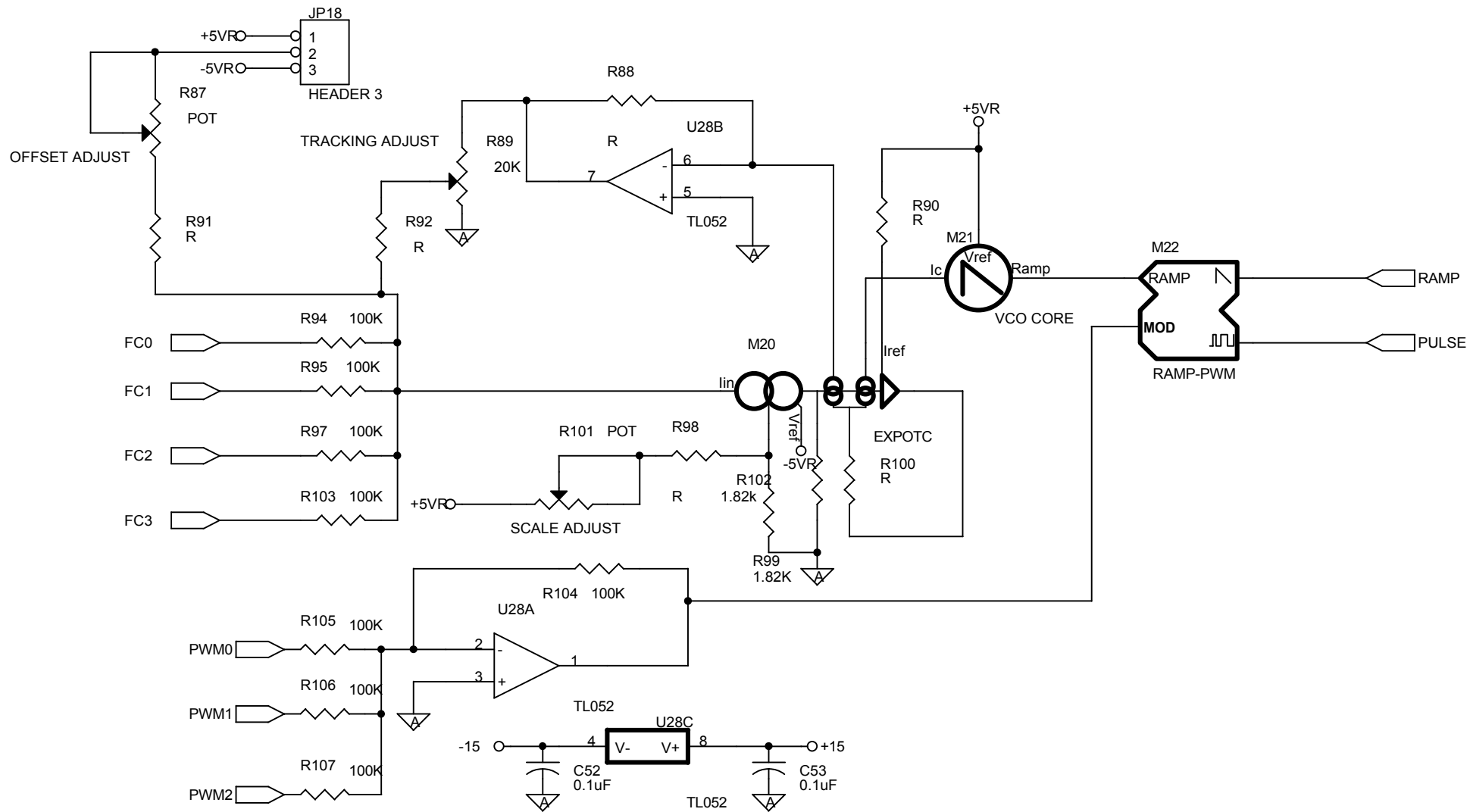
Title		
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Size	Document Number	Rev
A	<b>100-1069</b>	<RevCode>
Date:	Saturday, July 19, 2014	Sheet 12 of 40



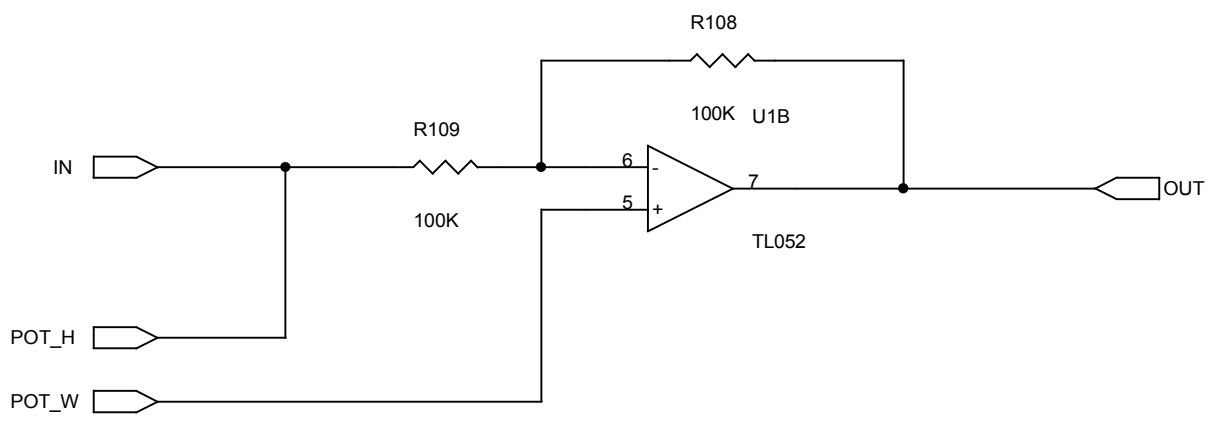
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Size	Document Number	Rev
A	<b>100-1069</b>	A
Date:	Saturday, July 19, 2014	Sheet 13 of 40



Title		
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Size A	Document Number <Doc>	Rev <RevCode>
Date:	Saturday, July 19, 2014	Sheet 14 of 40

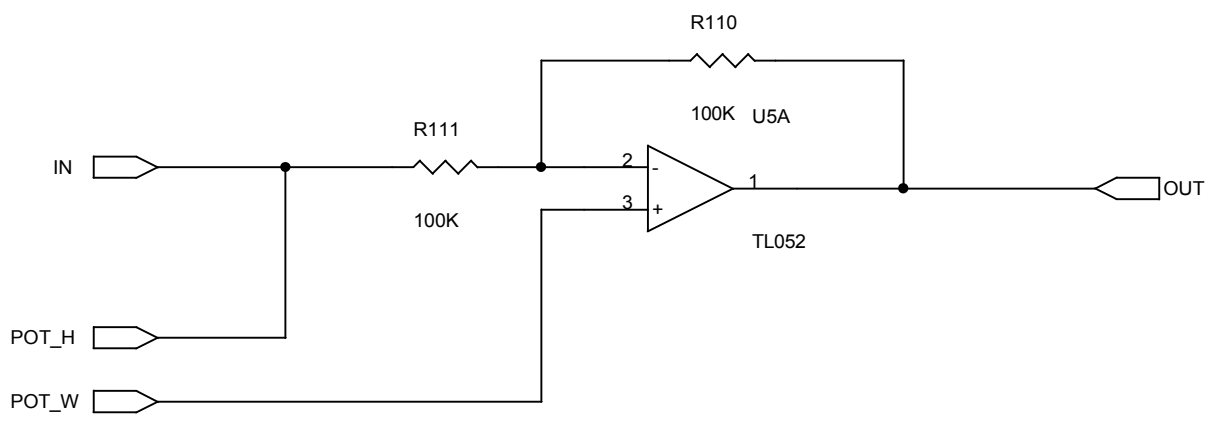


Title		
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Size	Document Number	Rev
A	<b>100-1069</b>	<RevCode>
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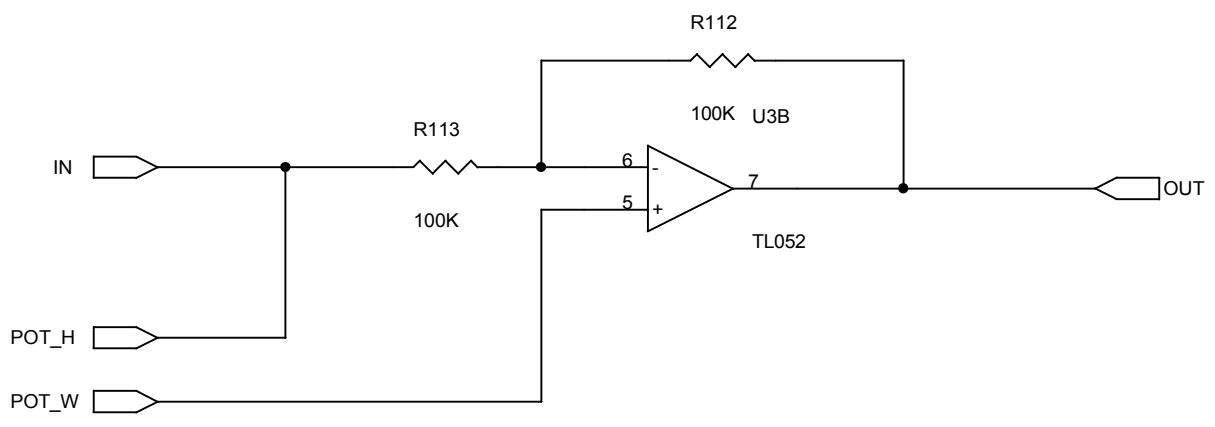


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Size A	Document Number <b>100-1069</b>	Rev A
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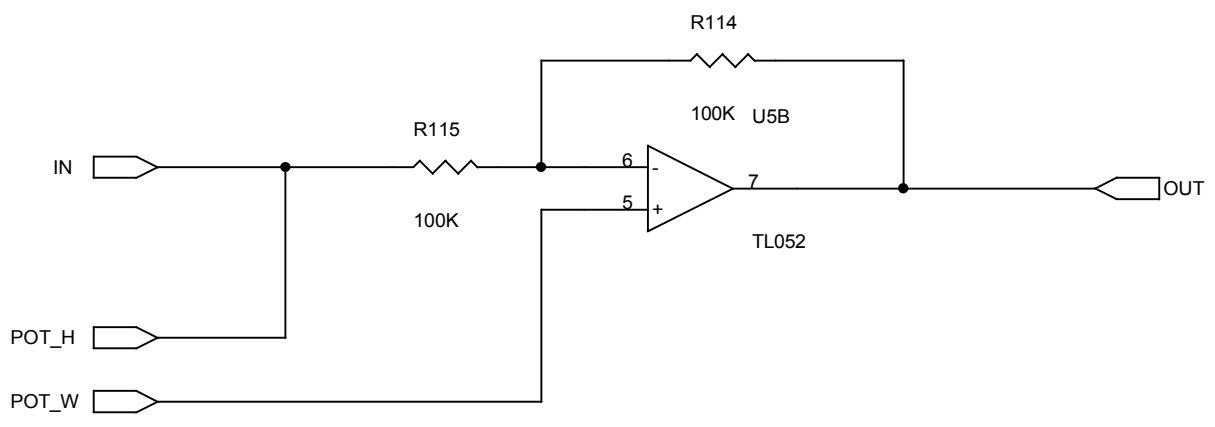




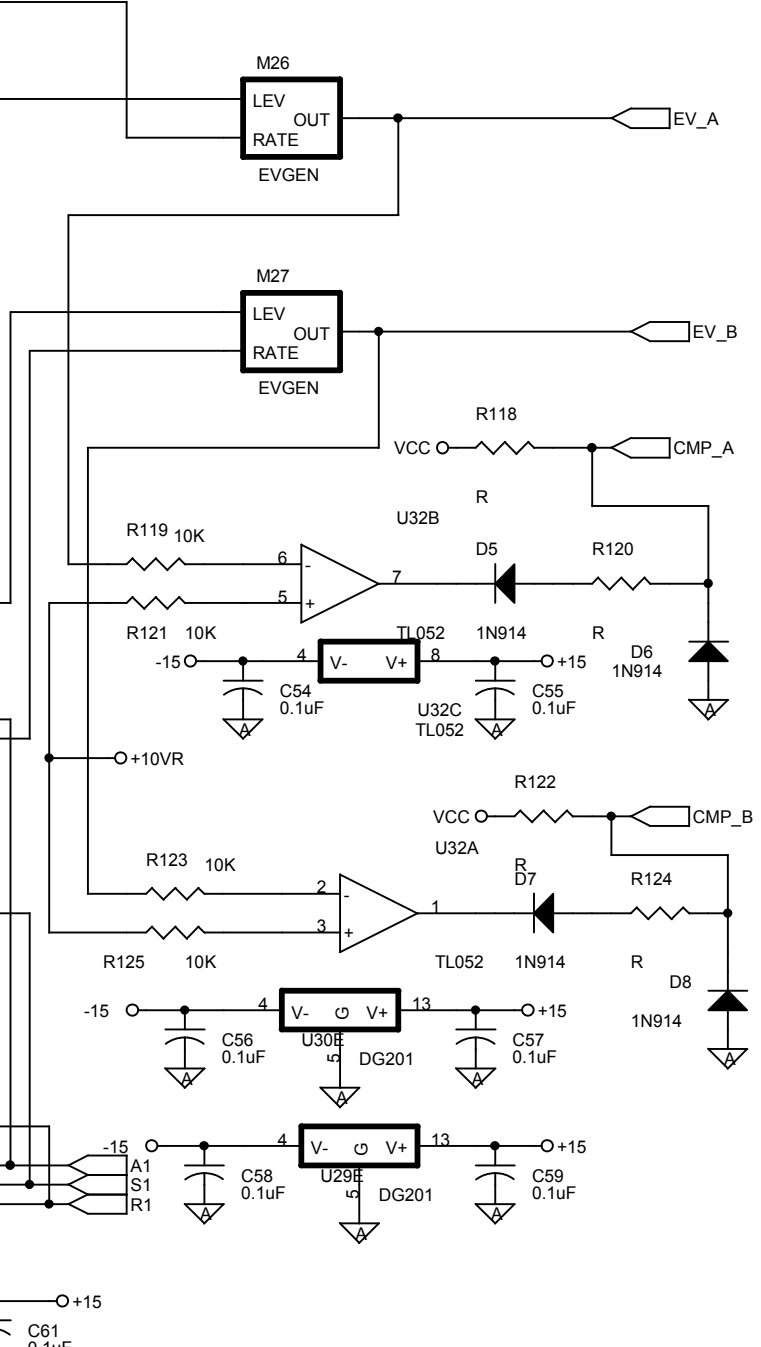
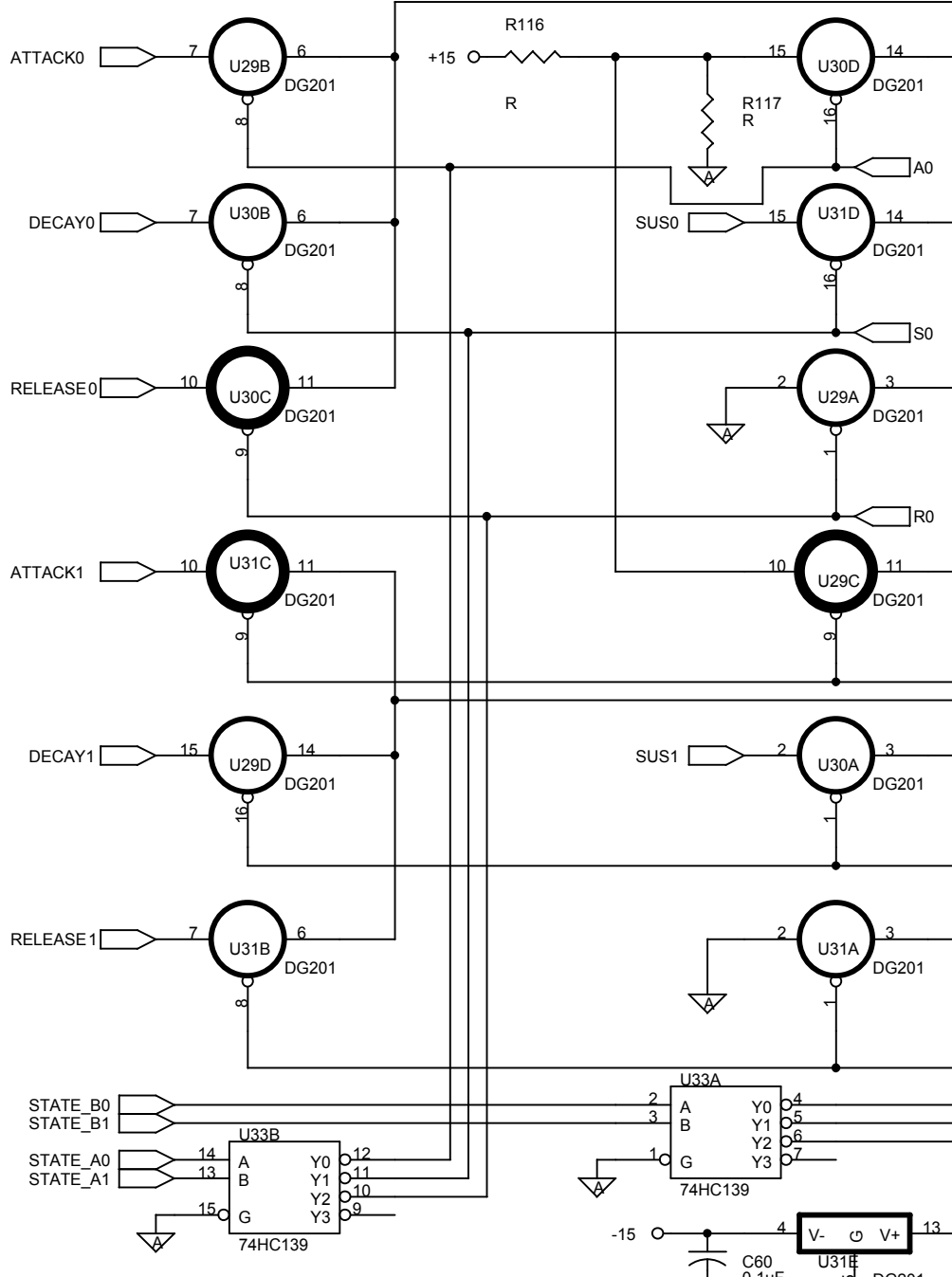
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Size A	Document Number <b>100-1069</b>	Rev A
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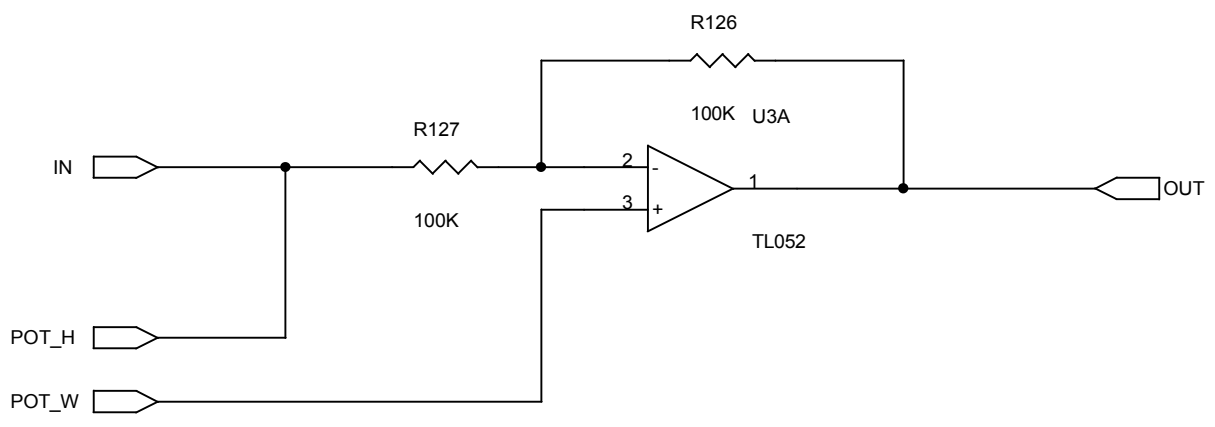
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Size A	Document Number <b>100-1069</b>	Rev A
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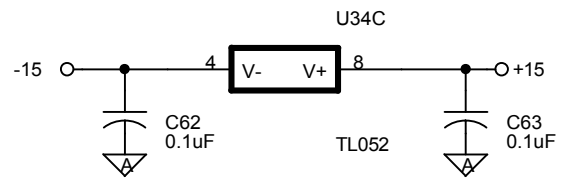
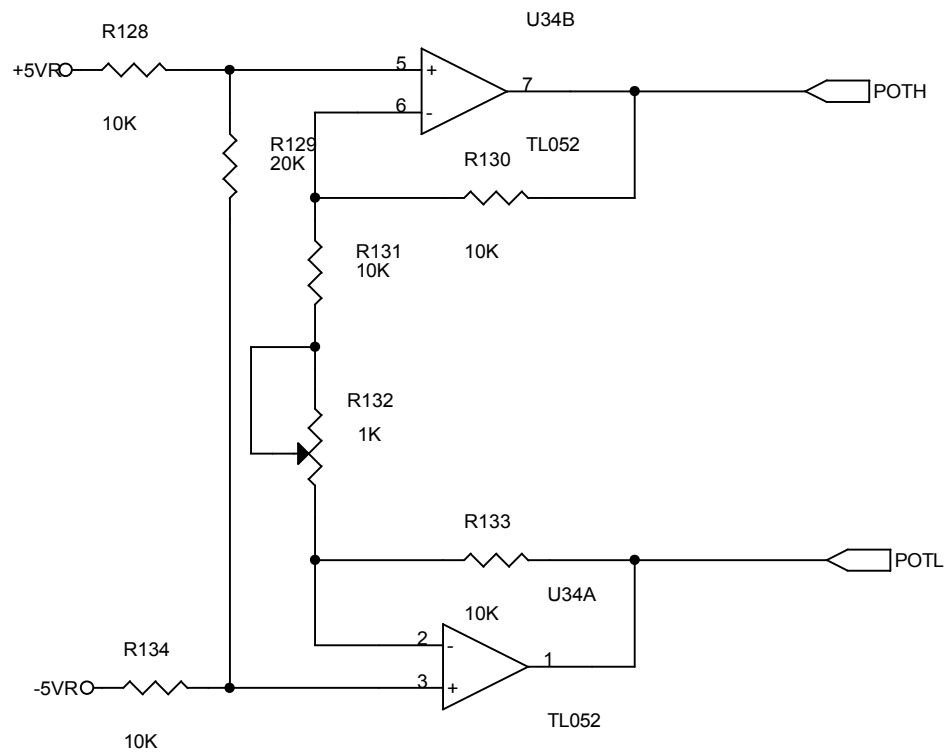
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Size A	Document Number <b>100-1069</b>	Rev A
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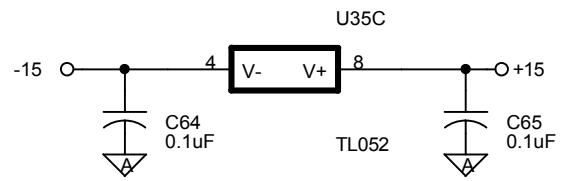
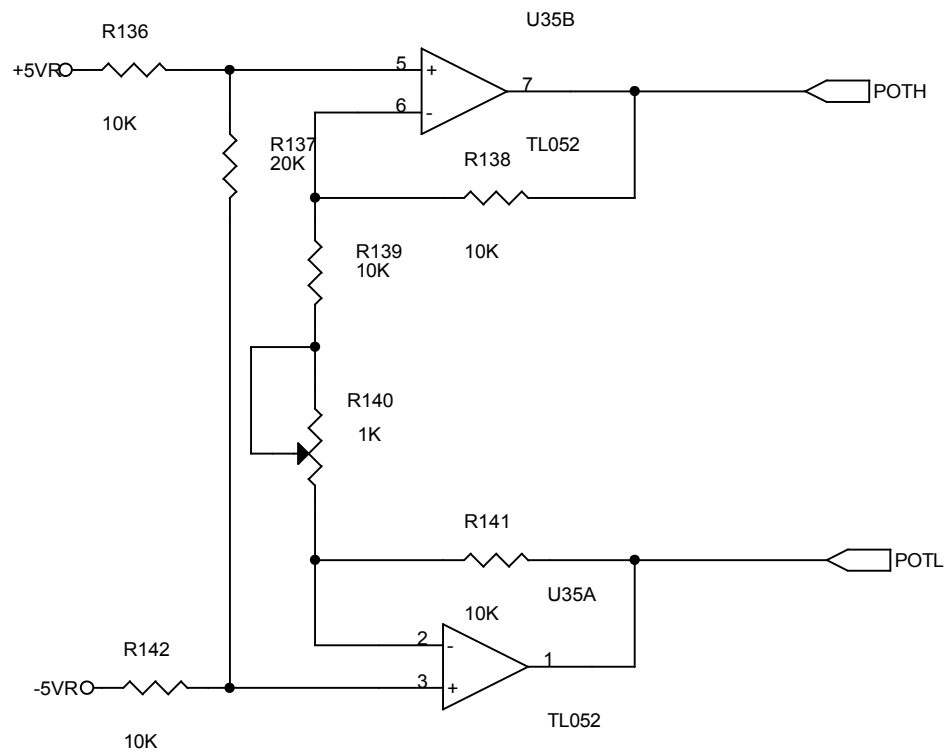
Title		
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Size	Document Number	Rev
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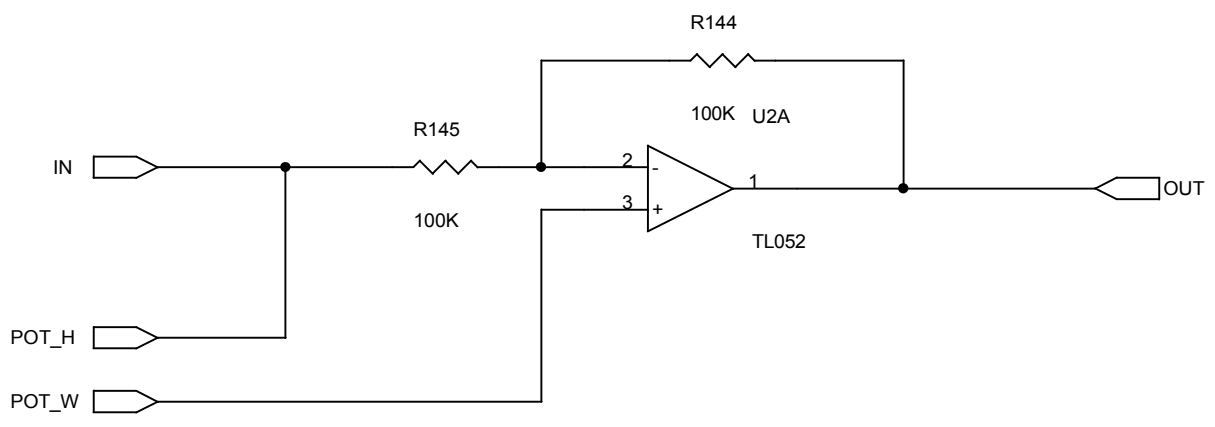
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Size A	Document Number <b>100-1069</b>	Rev A
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Title		
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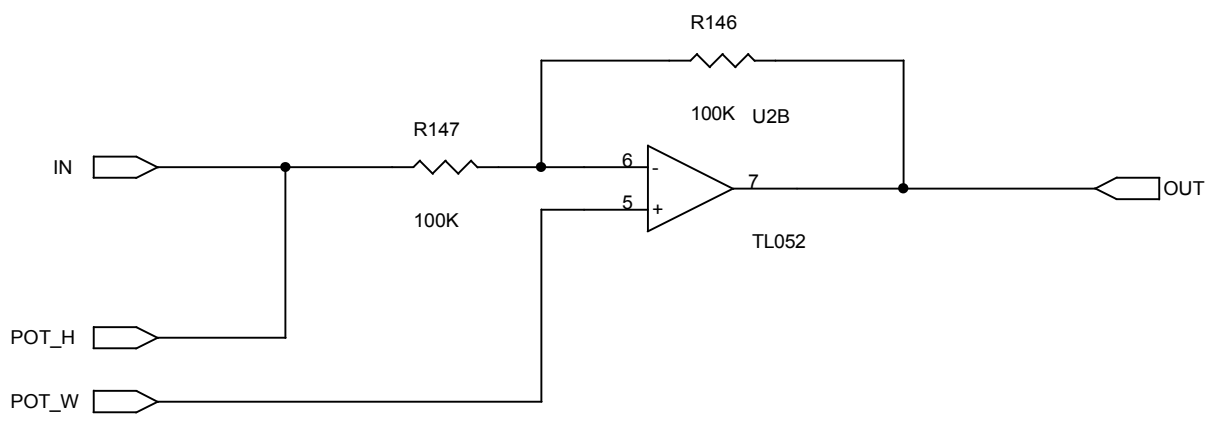


Title		
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Size A	Document Number <b>100-1069</b>	Rev A
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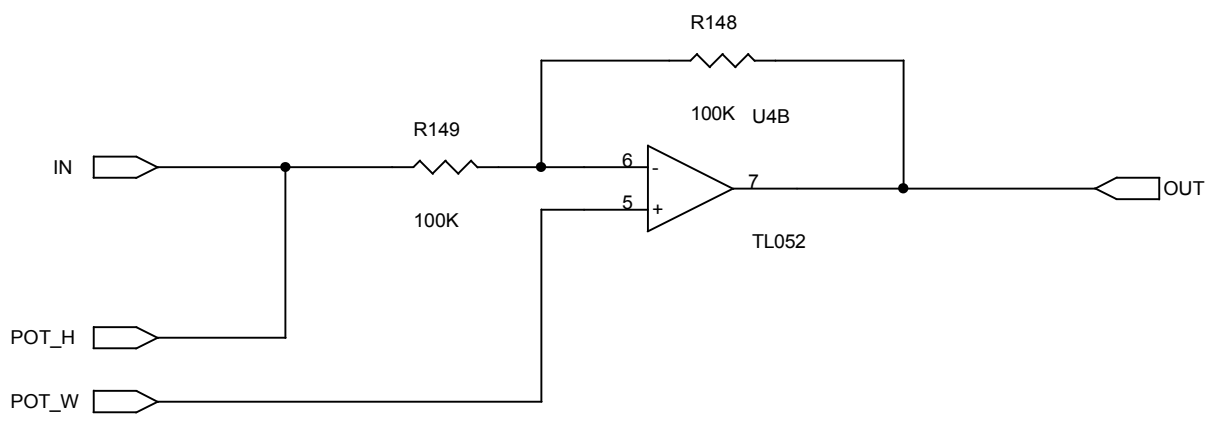


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Size A	Document Number <b>100-1069</b>	Rev A
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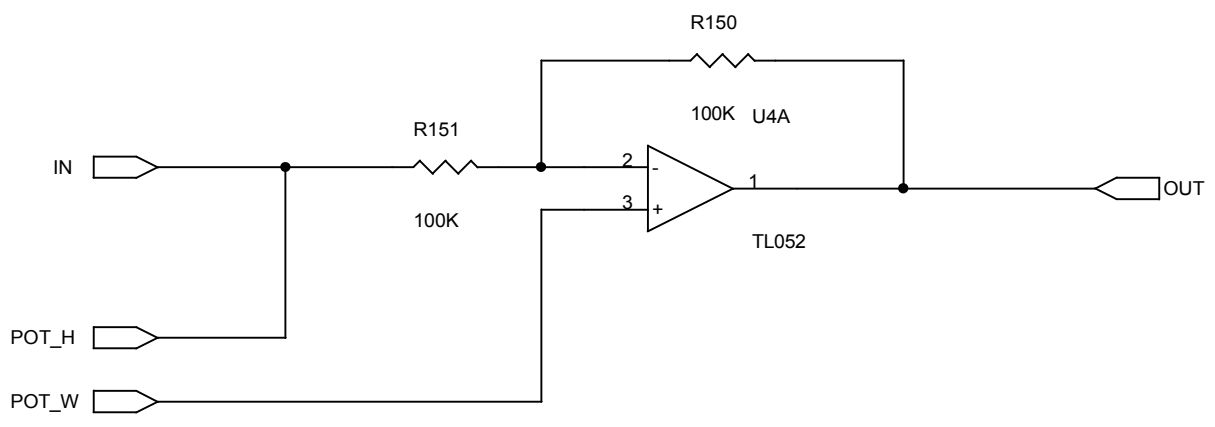




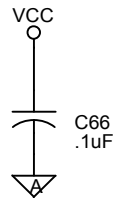
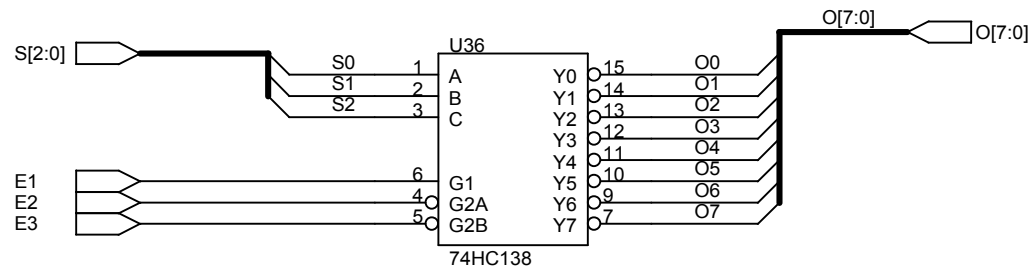
Title		
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Size A	Document Number <b>100-1069</b>	Rev A
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Title		
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Size A	Document Number <b>100-1069</b>	Rev A
Date:	Thursday, July 31, 2014	Sheet 26 of 40

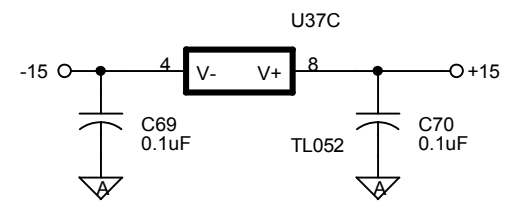
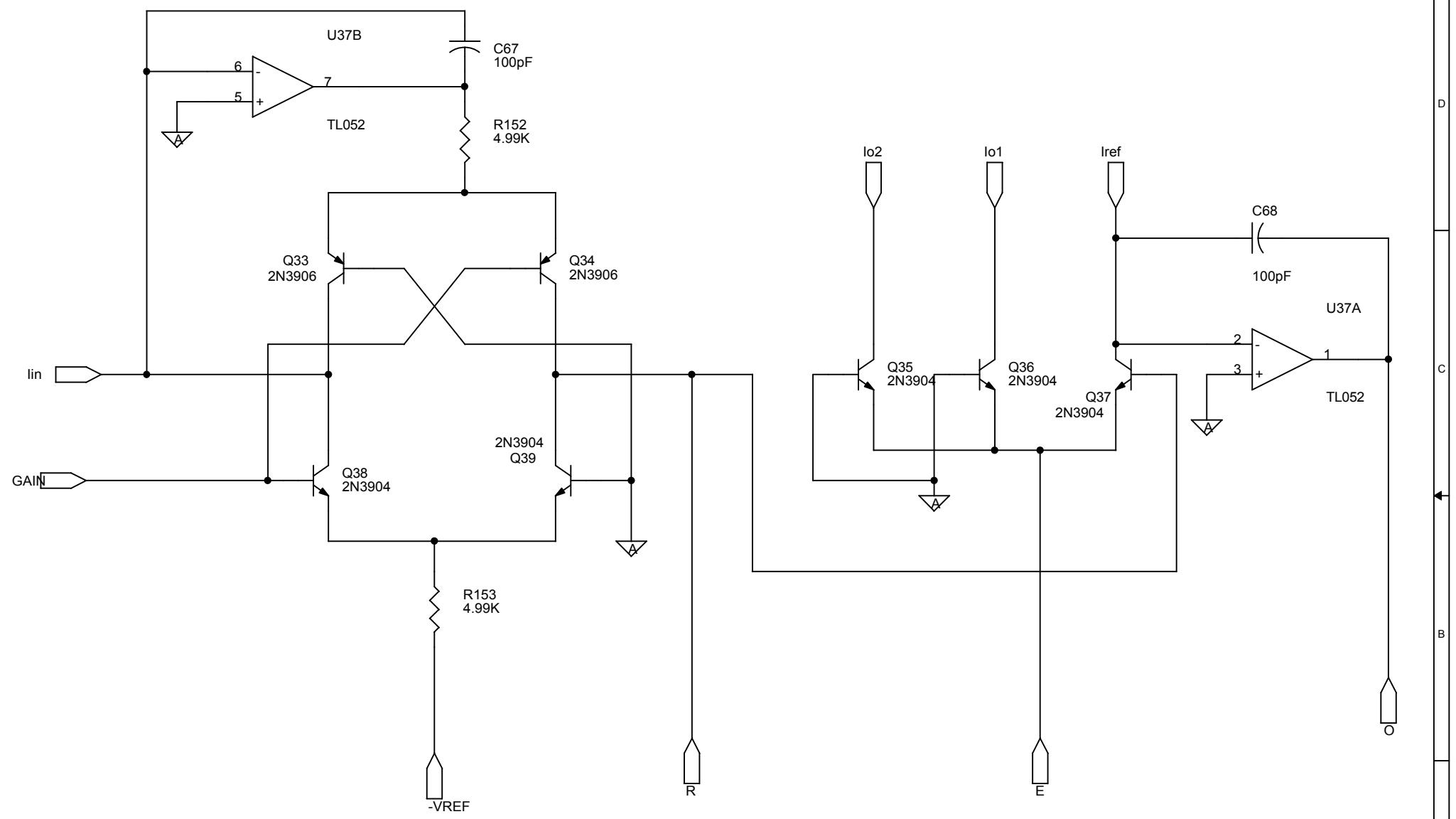


Title		
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Size A	Document Number <b>100-1069</b>	Rev A
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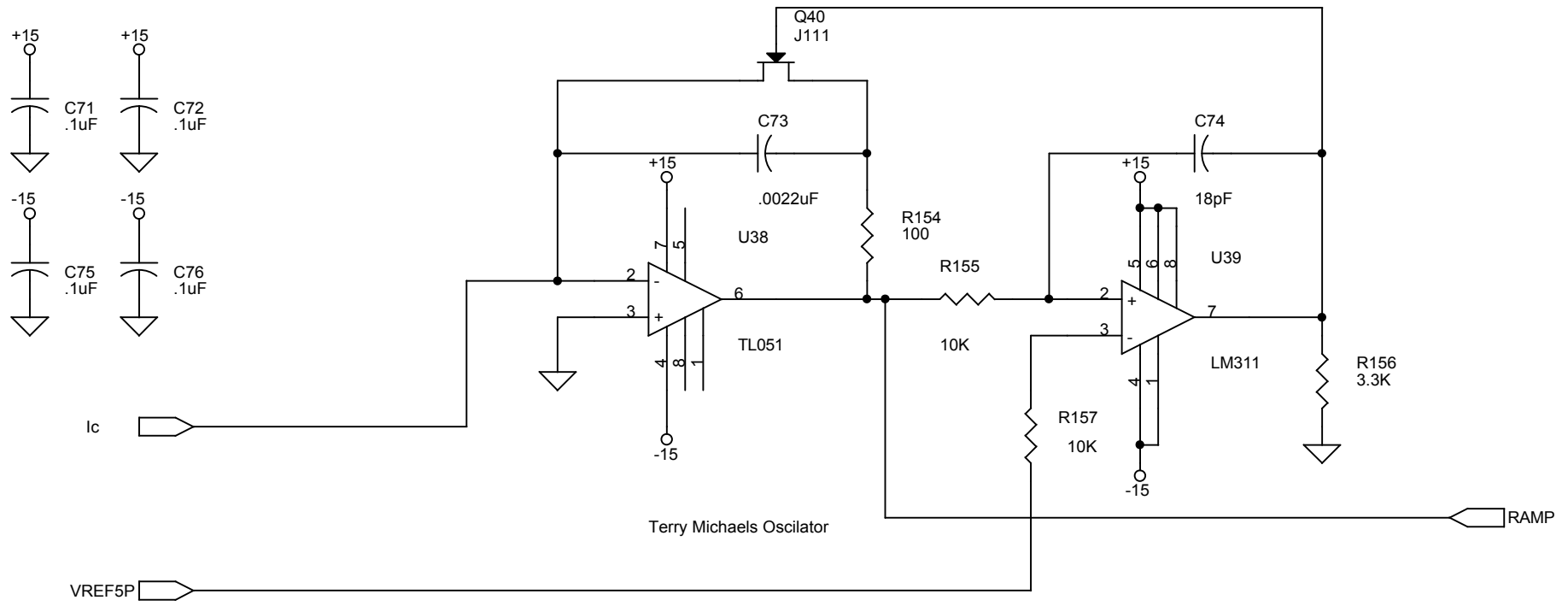


Title		
<b>NOOTA-DECODER</b>		
Size A	Document Number <b>100-1069</b>	Rev A
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NOTE: ALL TRANSISTORS ARE THERMALLY CONNECTED.

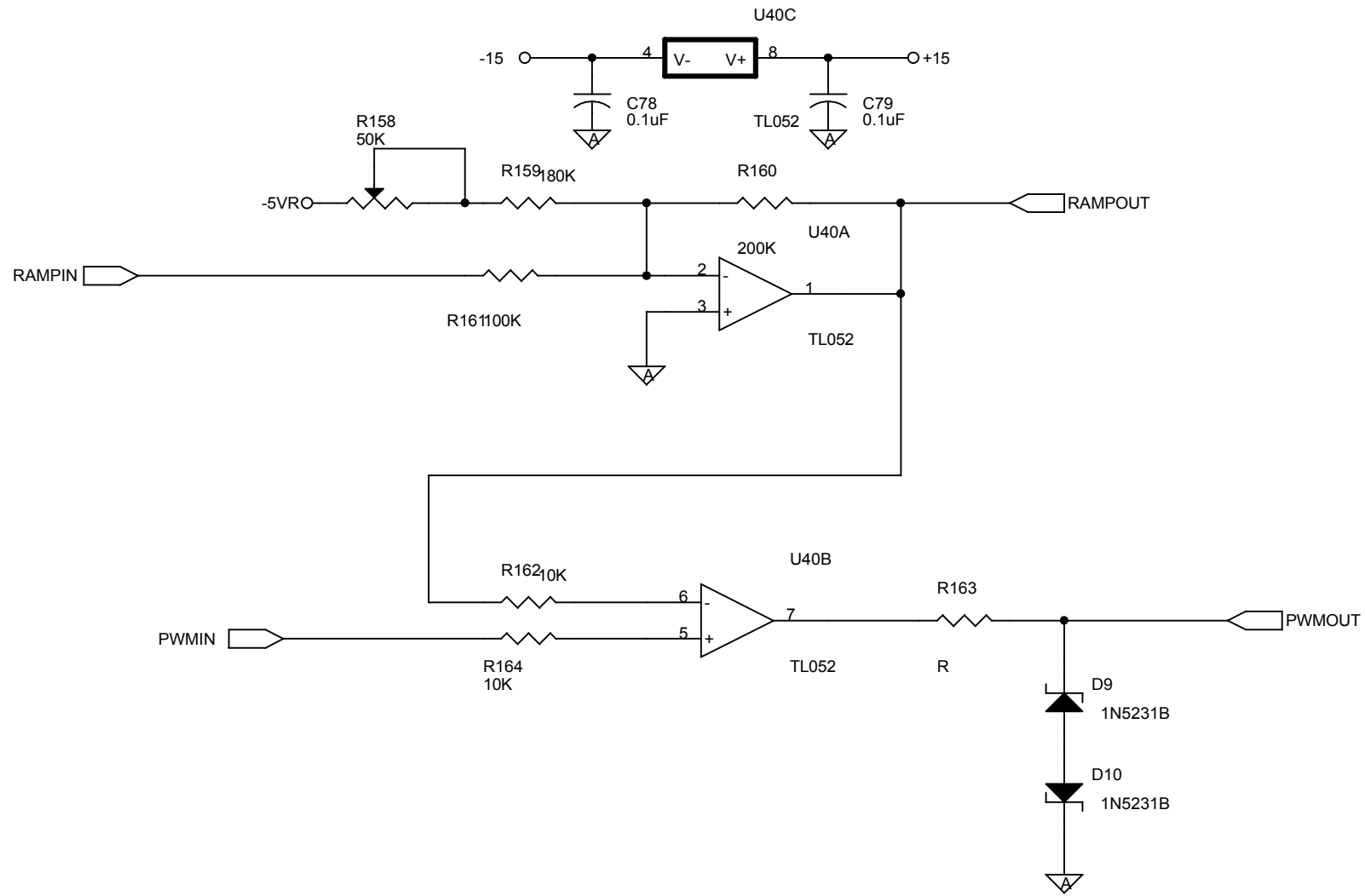


Title		
<b>NOOTA-BM COMPENSATED EXPO CONV</b>		
Size	Document Number	Rev
A	<b>100-1069</b>	A
Date:	Thursday, July 31, 2014	Sheet 29 of 40

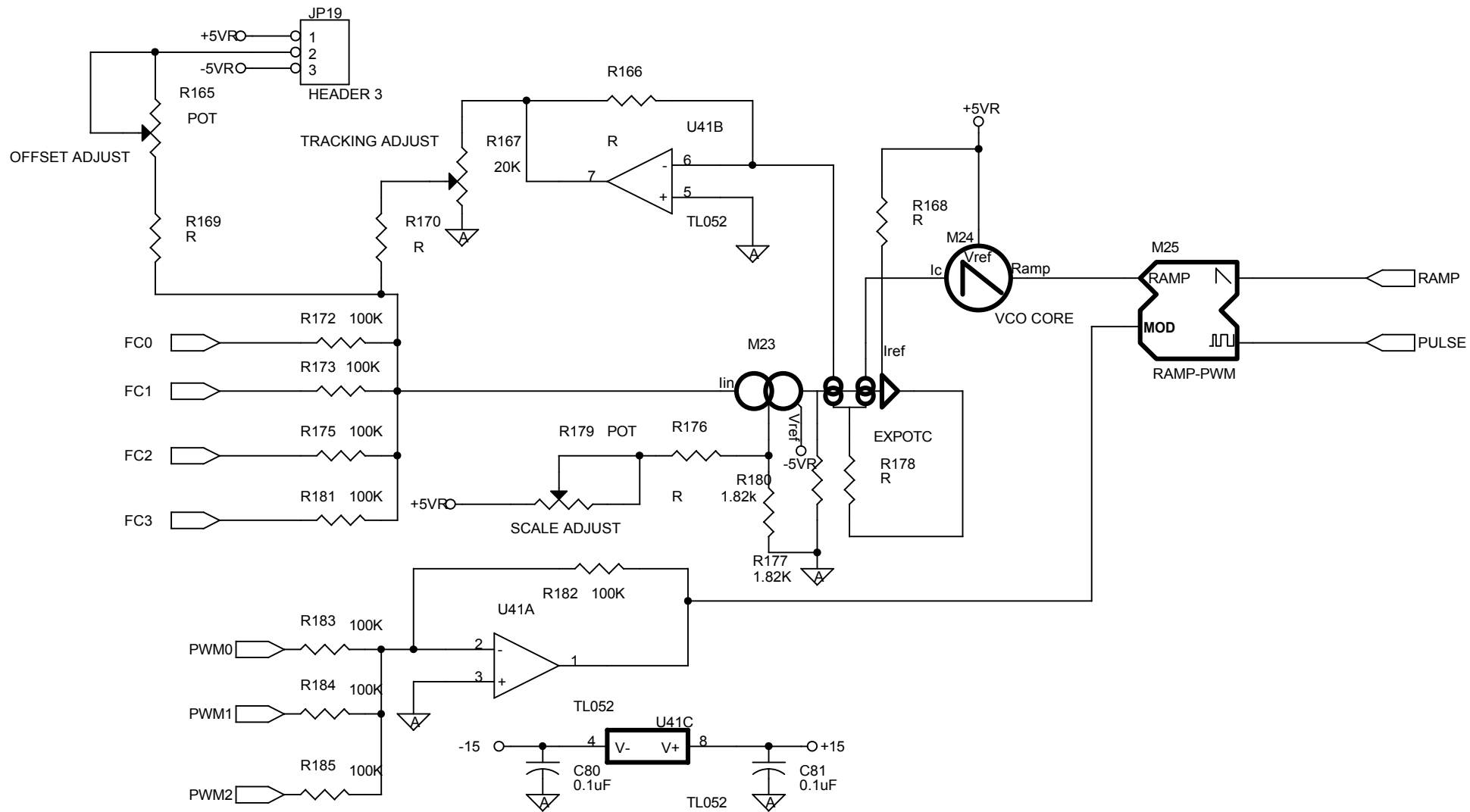


Terry Michaels Oscillator

Title		
<b>NOOTA-TERRY MICHAELS VCO CORE</b>		
Size	Document Number	Rev
	<b>100-1069</b>	<b>A</b>
Date:	Tuesday, July 29, 2014	Sheet 30 of 40



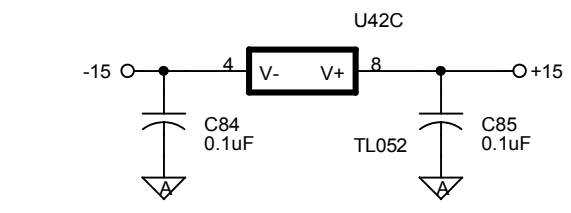
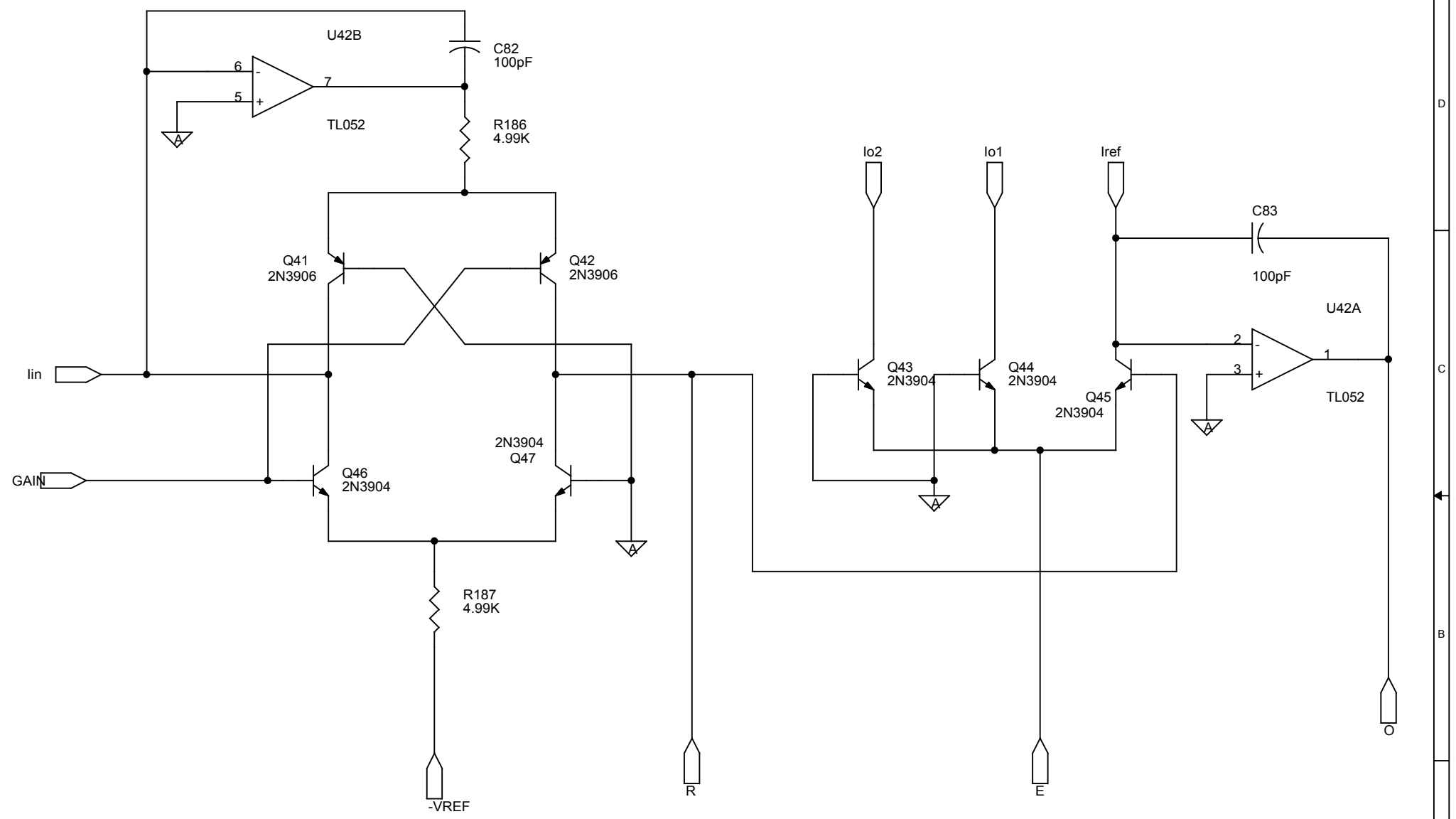
Title		
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Size A	Document Number <b>100-1069</b>	Rev <RevCode>
Date:	Friday, July 18, 2014	Sheet 31 of 40



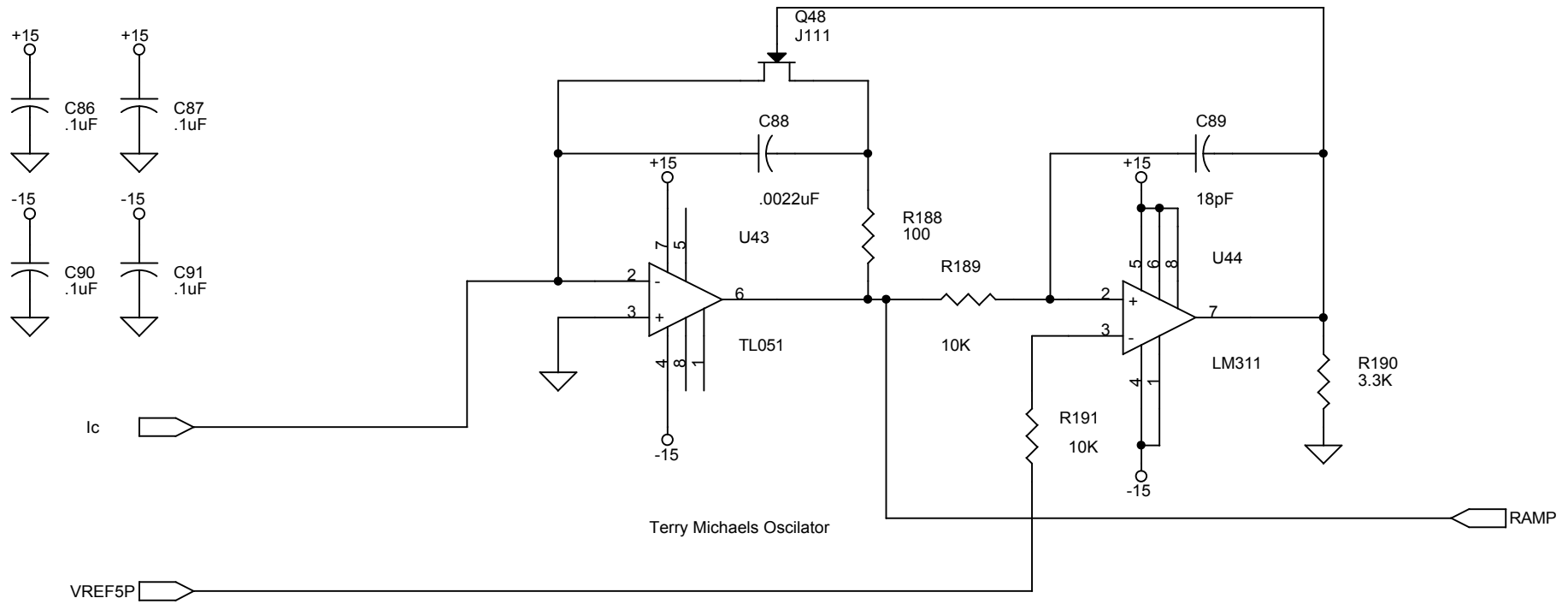
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Size	Document Number	Rev
A	<b>100-1069</b>	<RevCode>
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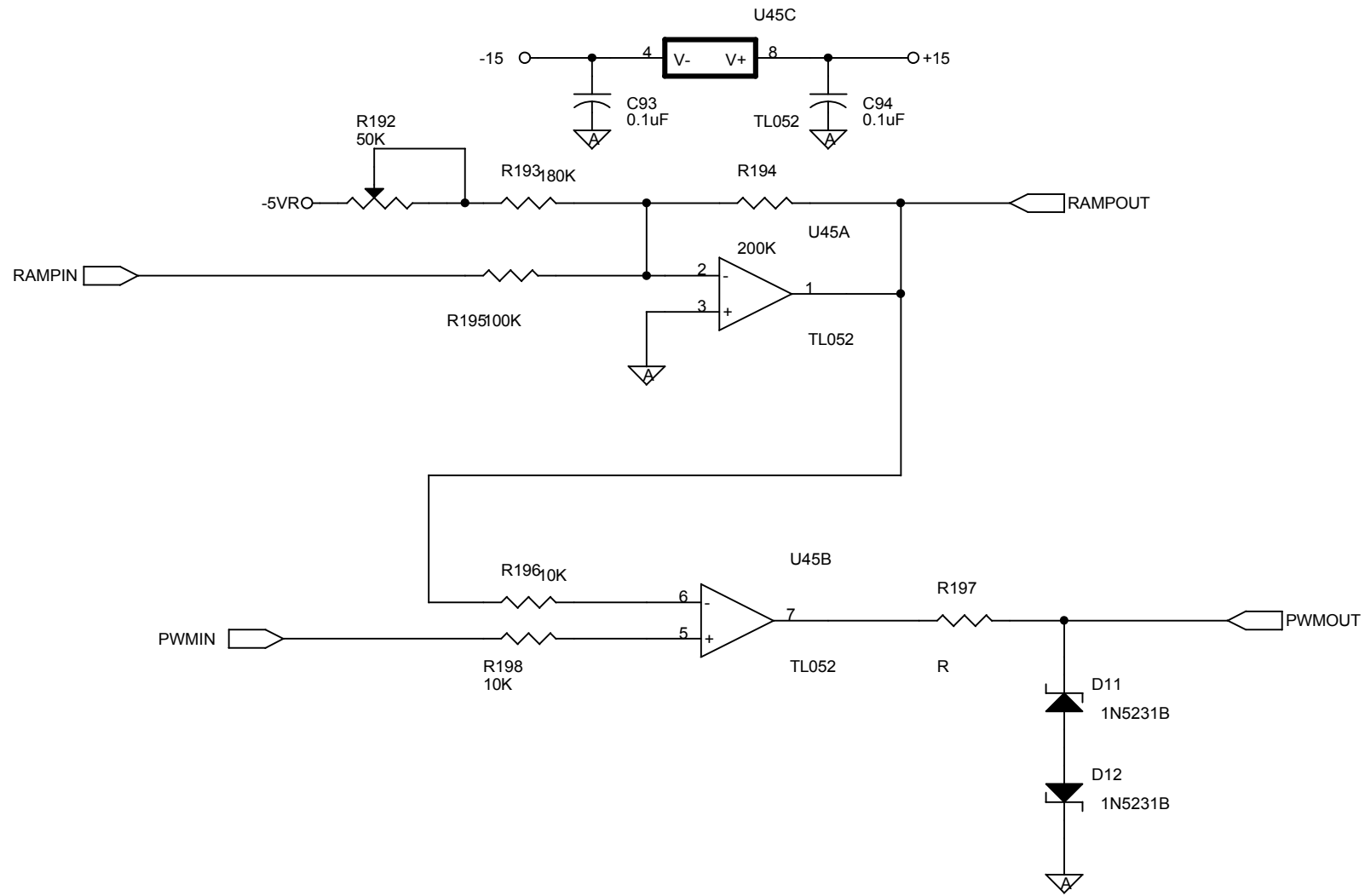
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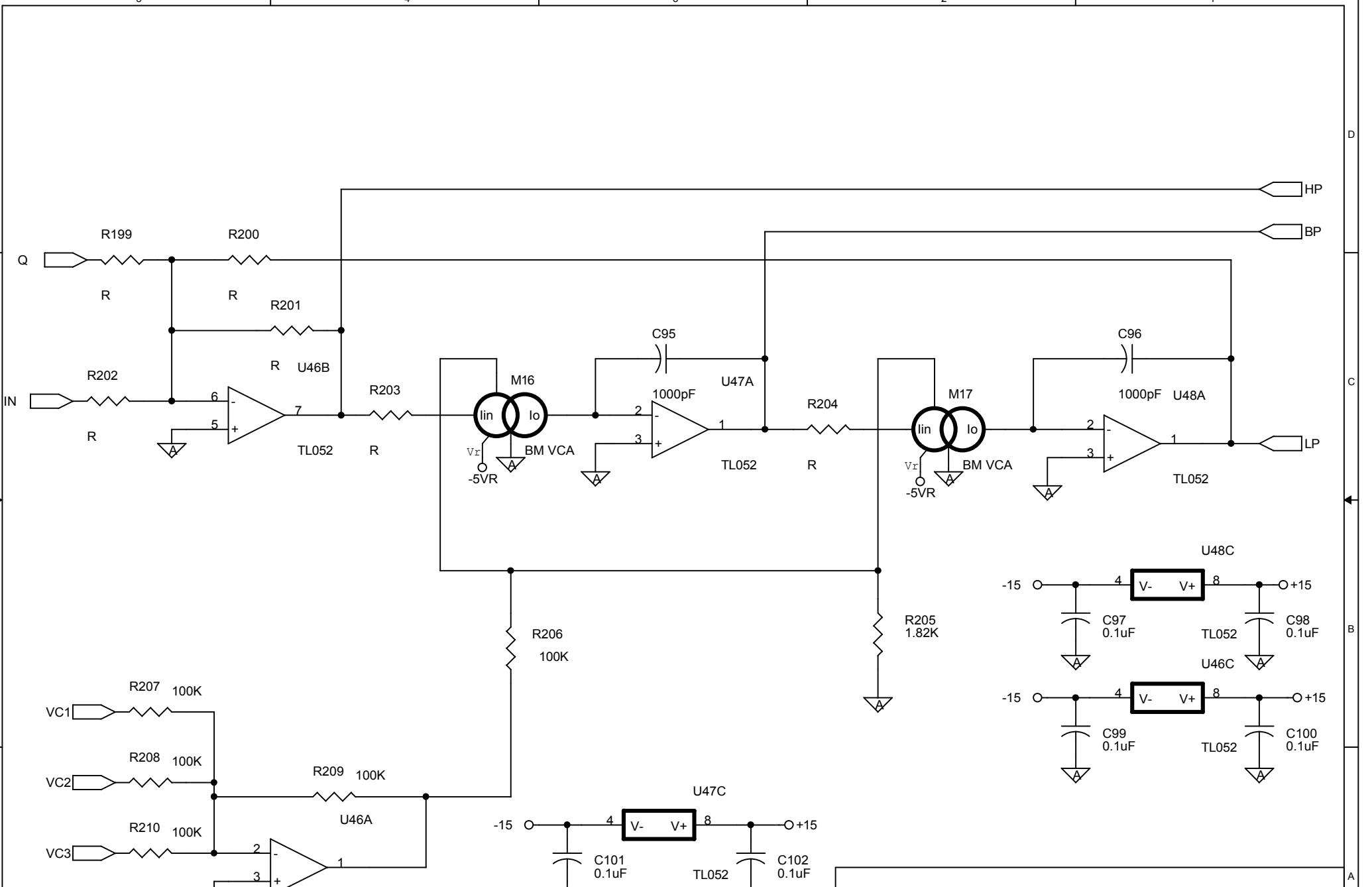
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Size	Document Number	Rev
A	<b>100-1069</b>	A
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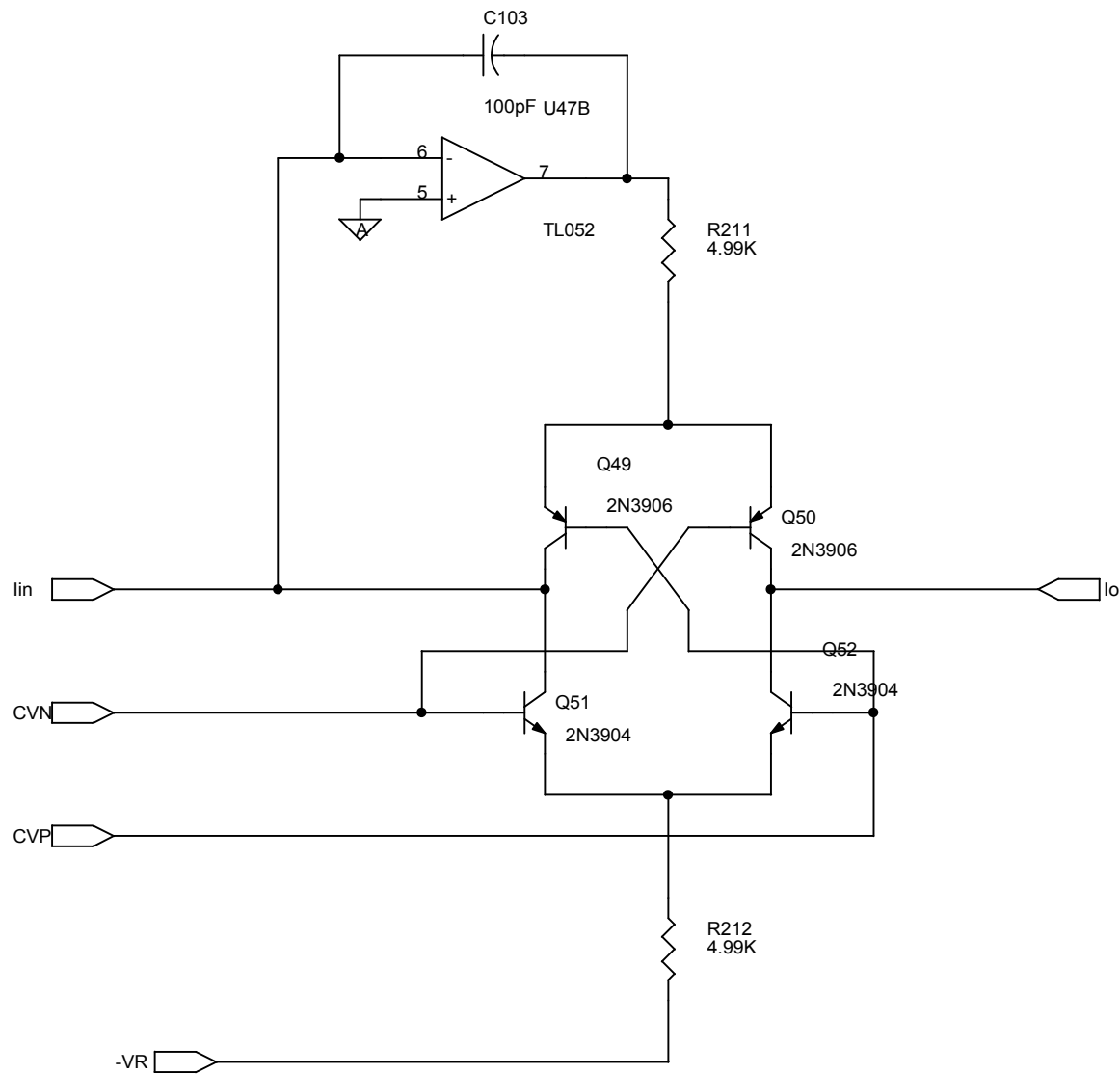
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Size	Document Number	Rev
	<b>100-1069</b>	<b>A</b>
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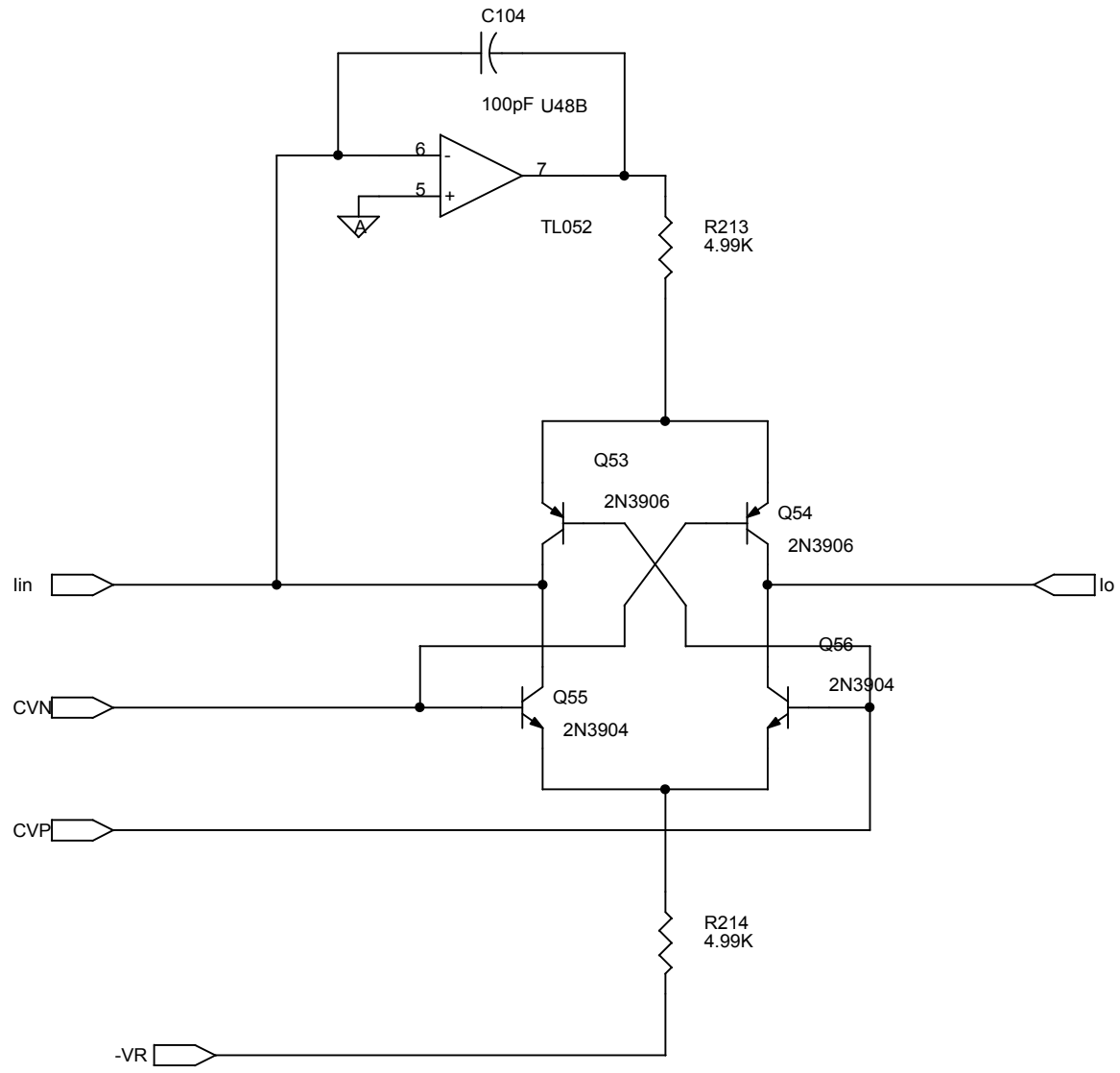
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Size A	Document Number <b>100-1069</b>	Rev <RevCode>
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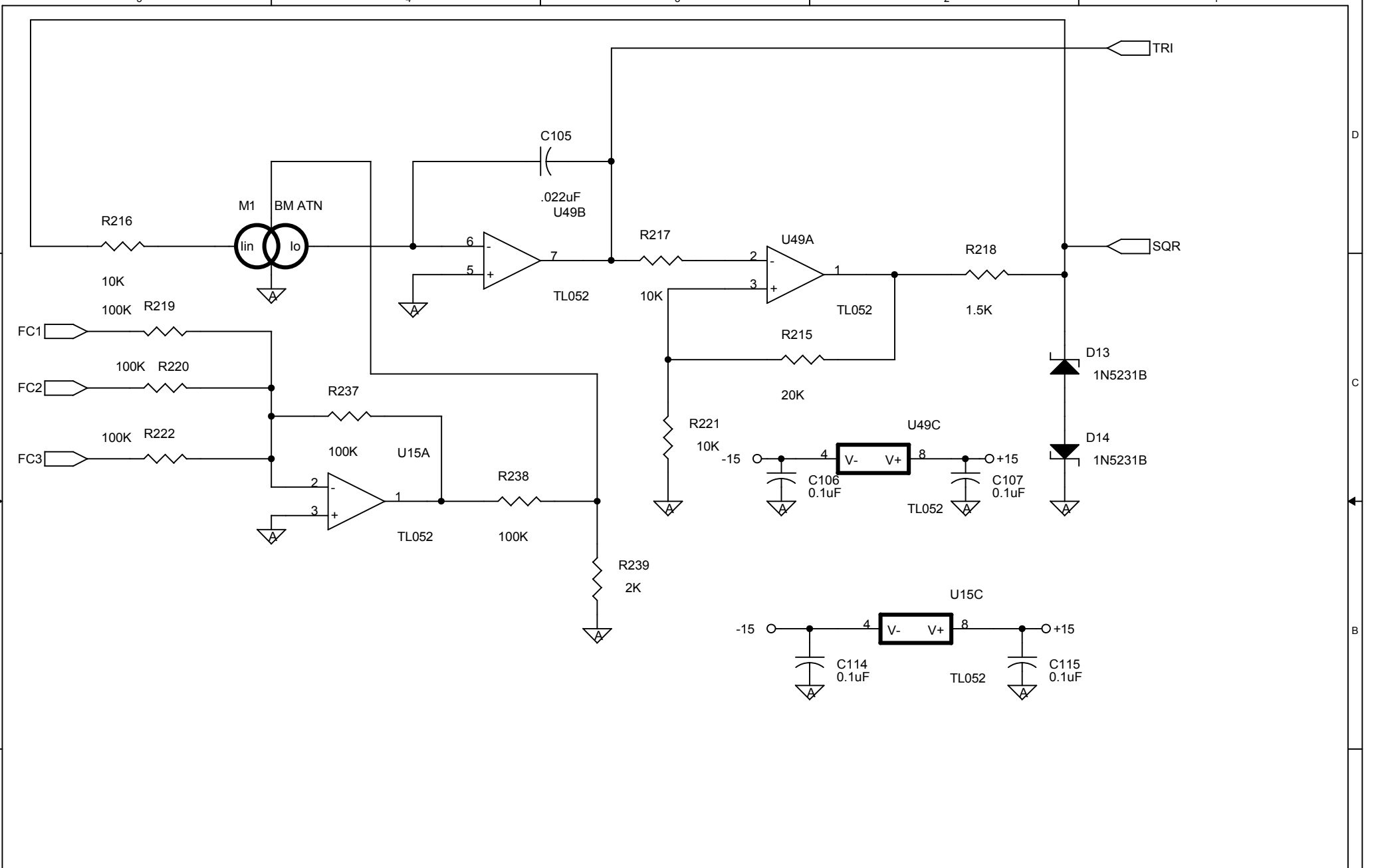
Title		
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Size	Document Number	Rev
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Title		
<b>NOOTA-BLACKMER VCA-VCF M16</b>		
Size	Document Number	Rev
	<b>100-1069</b>	<b>A</b>
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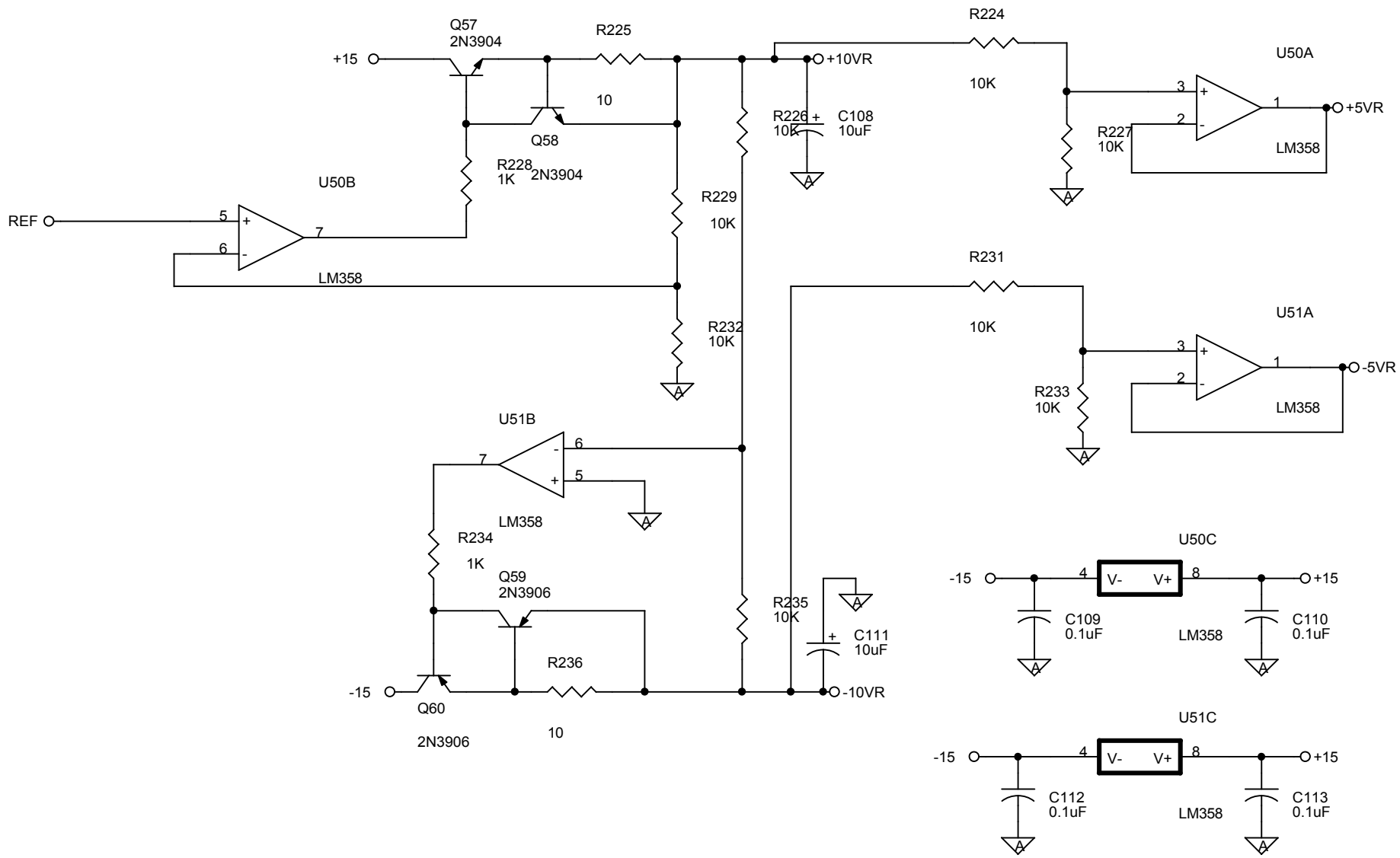


Title		
<b>NOOTA-BLACKMER VCA-VCF M17</b>		
Size	Document Number	Rev
	<b>100-1069</b>	<b>A</b>
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REV B: COMPARATOR  
POLARITY CHANGED  
FROM NON  
INVERTING TO  
INVERTING. 7-31-2014

Title		
<b>NOOTA-LFO</b>		
Size	Document Number	Rev
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Title		
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Size	Document Number	Rev
A	<Doc>	<RevCode>
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