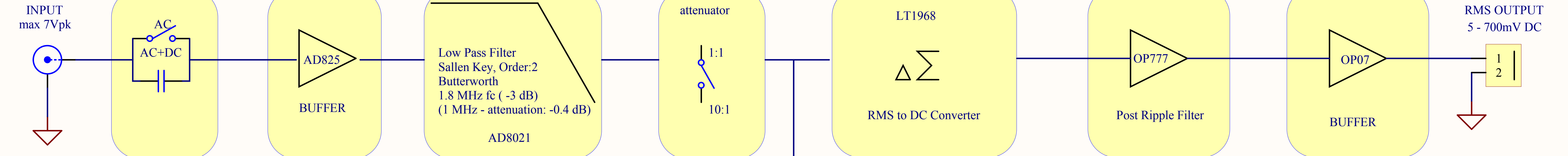
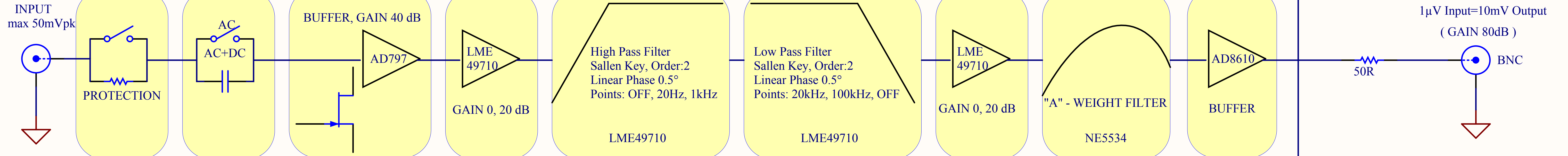


10Hz - 1MHz (-0.5dB)



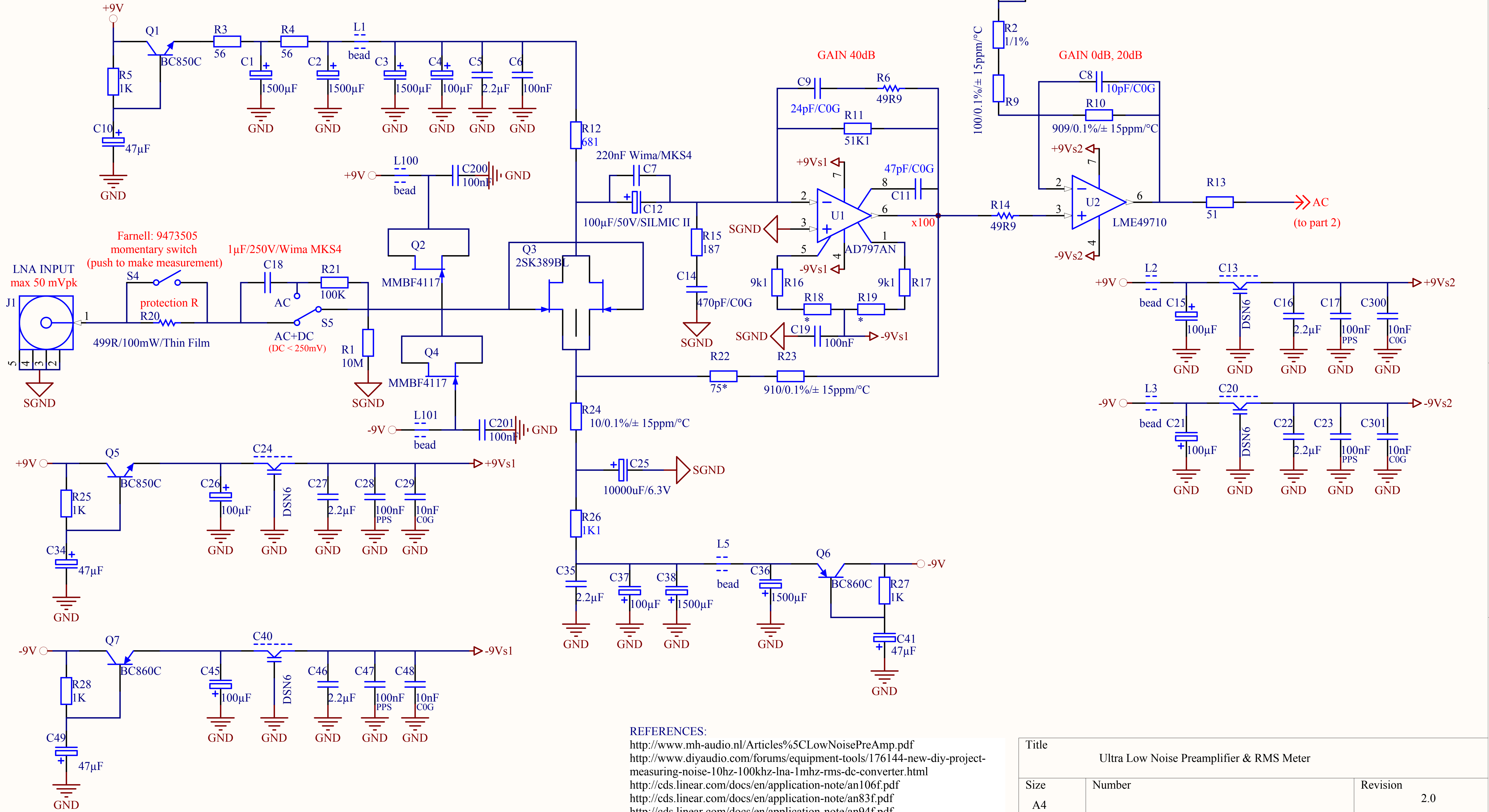
Title		
Ultra Low Noise Preamplifier & RMS Meter (block diagram)		
Size	Number	Revision
A4		2.0
Date:	08.3.2014 г.	Sheet 1 of 1
File:	E:\DIY\...\block diagrams.SchDoc	Drawn By: Ivan Mitev

# ULTRA LOW NOISE PREAMPLIFIER

GAIN: 40, 60, 80 dB

5 Hz - 1.5 MHz (-3dB, GAIN 80 dB)

10 Hz - 1 MHz (- 0.5dB, GAIN 80 dB)

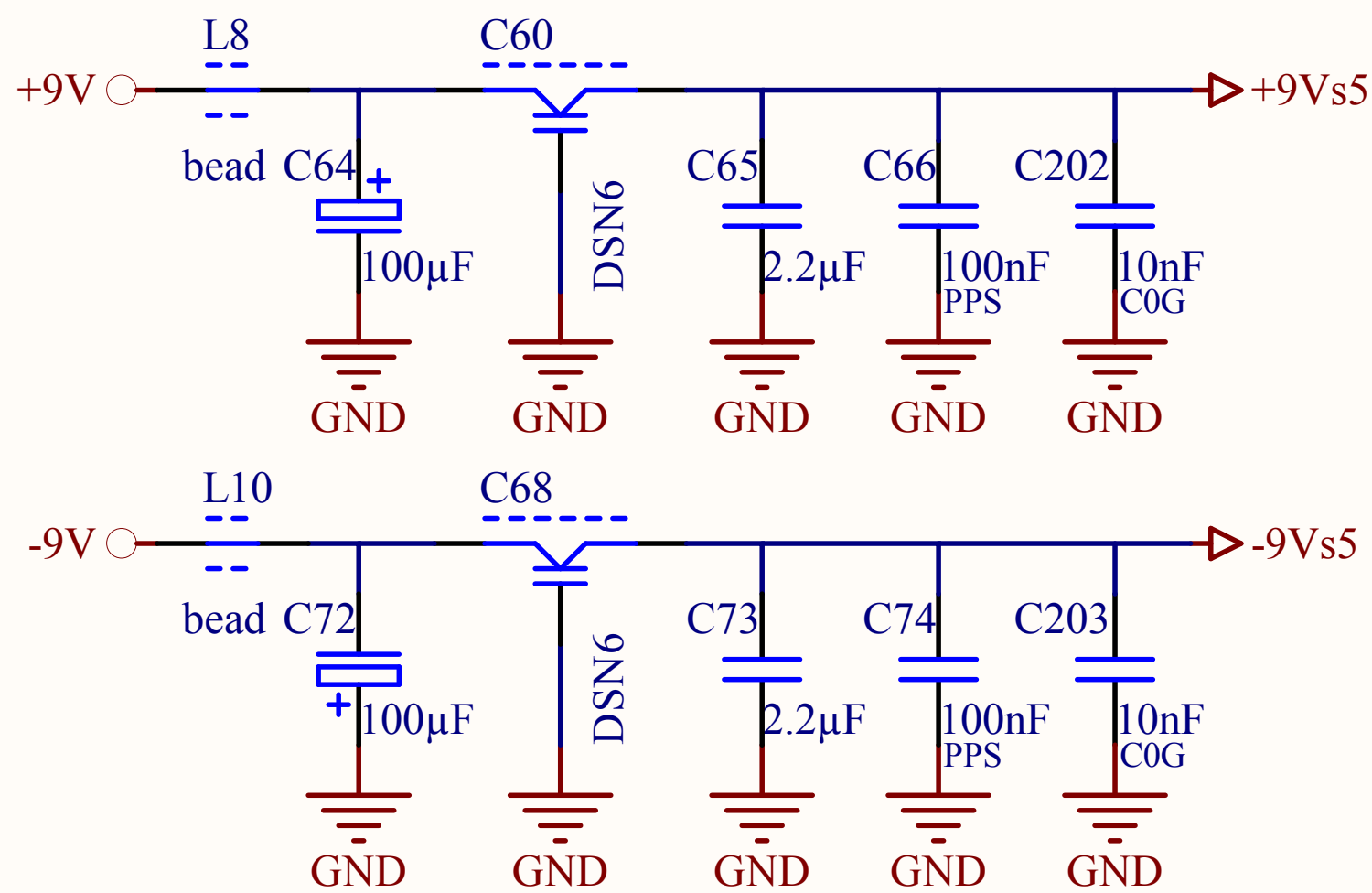
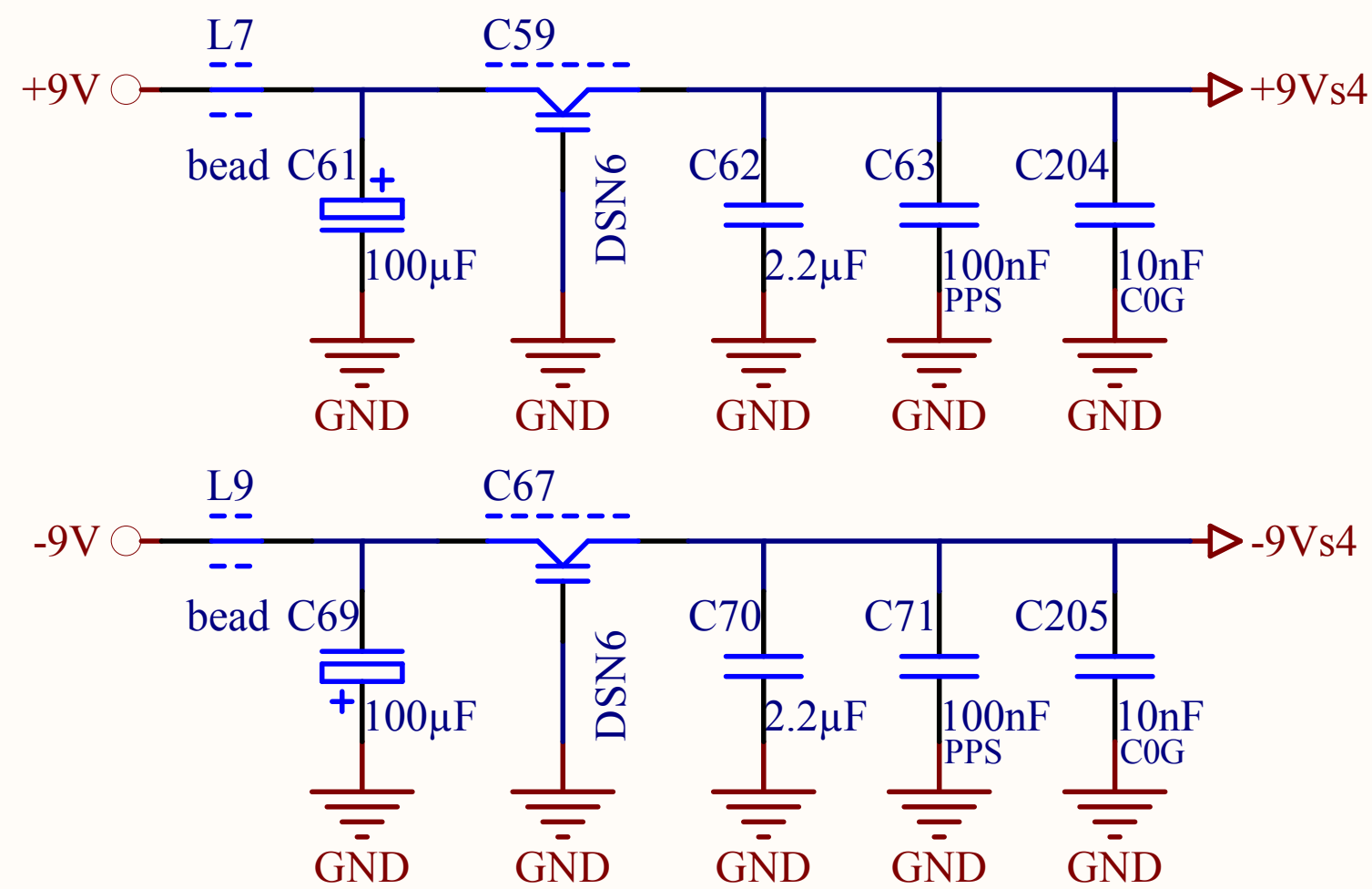
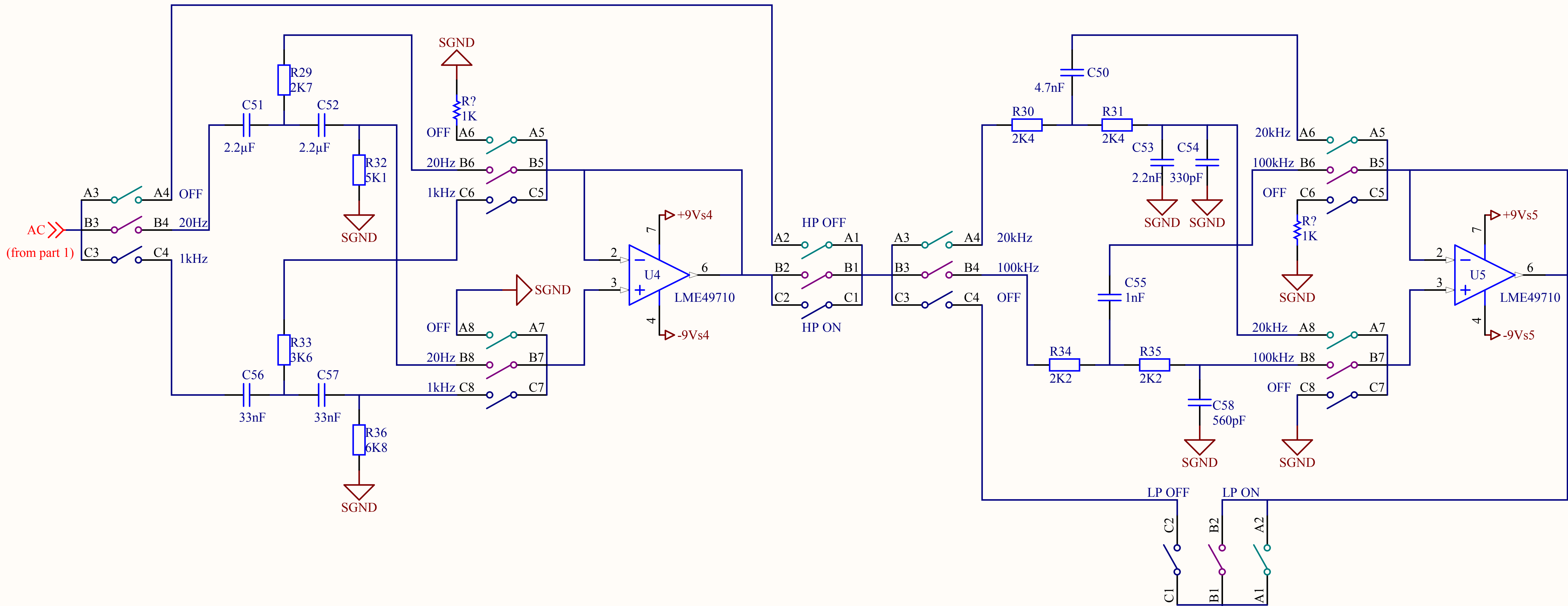


REFERENCES:  
<http://www.mh-audio.nl/Articles%5CLowNoisePreAmp.pdf>  
<http://www.diyaudio.com/forums/equipment-tools/176144-new-diy-project-measuring-noise-10hz-100khz-lna-1mhz-rms-dc-converter.html>  
<http://cds.linear.com/docs/en/application-note/an106f.pdf>  
<http://cds.linear.com/docs/en/application-note/an83f.pdf>  
<http://cds.linear.com/docs/en/application-note/an94f.pdf>

Title			Ultra Low Noise Preamplifier & RMS Meter	
Size	Number		Revision	
A4			2.0	
Date:	08.3.2014 r.		Sheet 1 of 6	
File:	E:\DIY\..LNA_part1.SchDoc		Drawn By:	Ivan Mitev

FILTERS

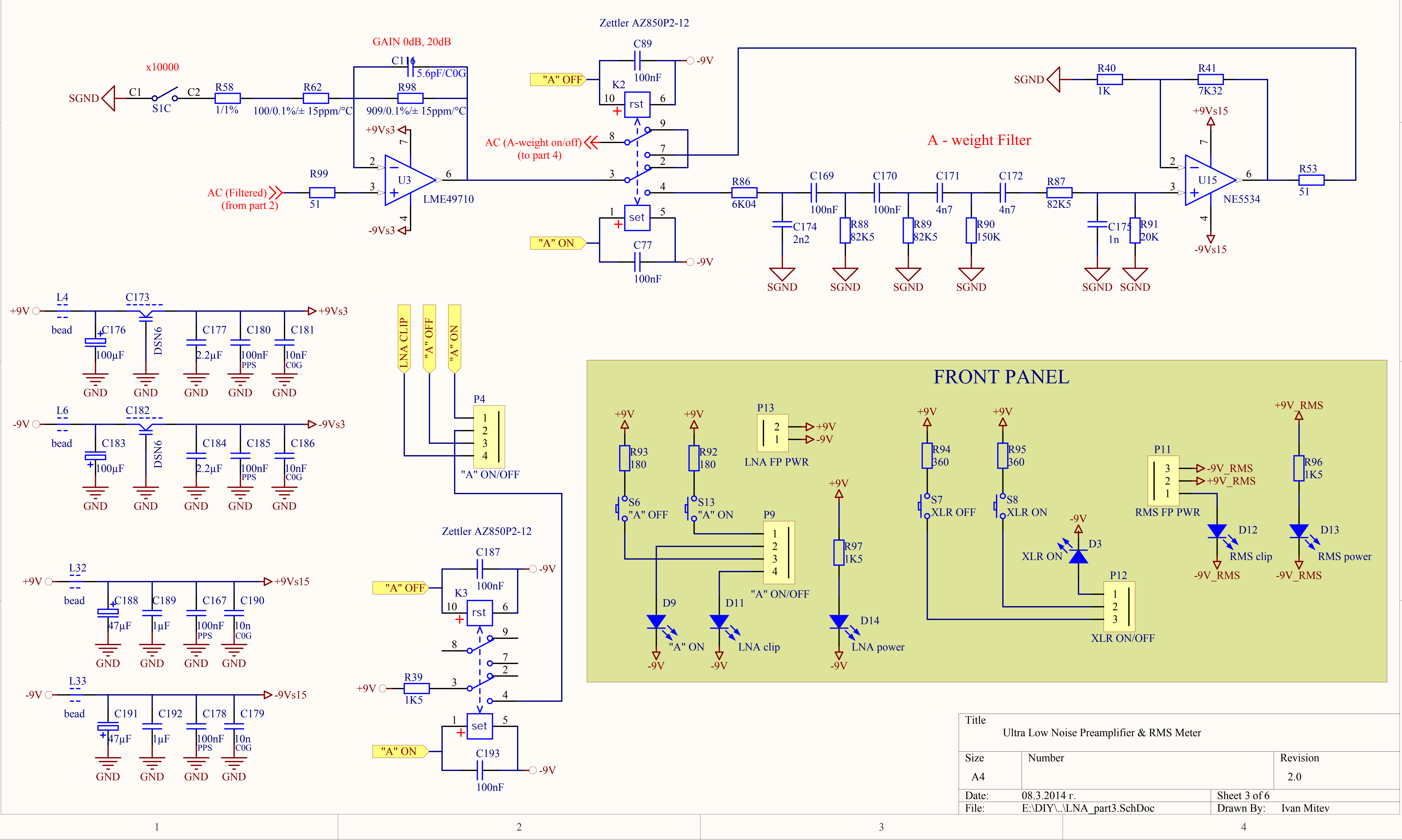
HIGH PASS POINTS - OFF, 20Hz, 1kHz  
LOW PASS POINTS - 20kHz, 100kHz, OFF



Title		
Ultra Low Noise Preamplifier & RMS Meter		
Size	Number	Revision
A4		2.0
Date:	08.3.2014 r.	Sheet 2 of 6
File:	E:\DIY\...\LNA_part2.SchDoc	Drawn By: Ivan Mitev



GAIN 20dB, A-WEIGHT FILTER, FRONT PANEL



CLIP INDICATORS, BUFFER, OUTPUTS

A

A

B

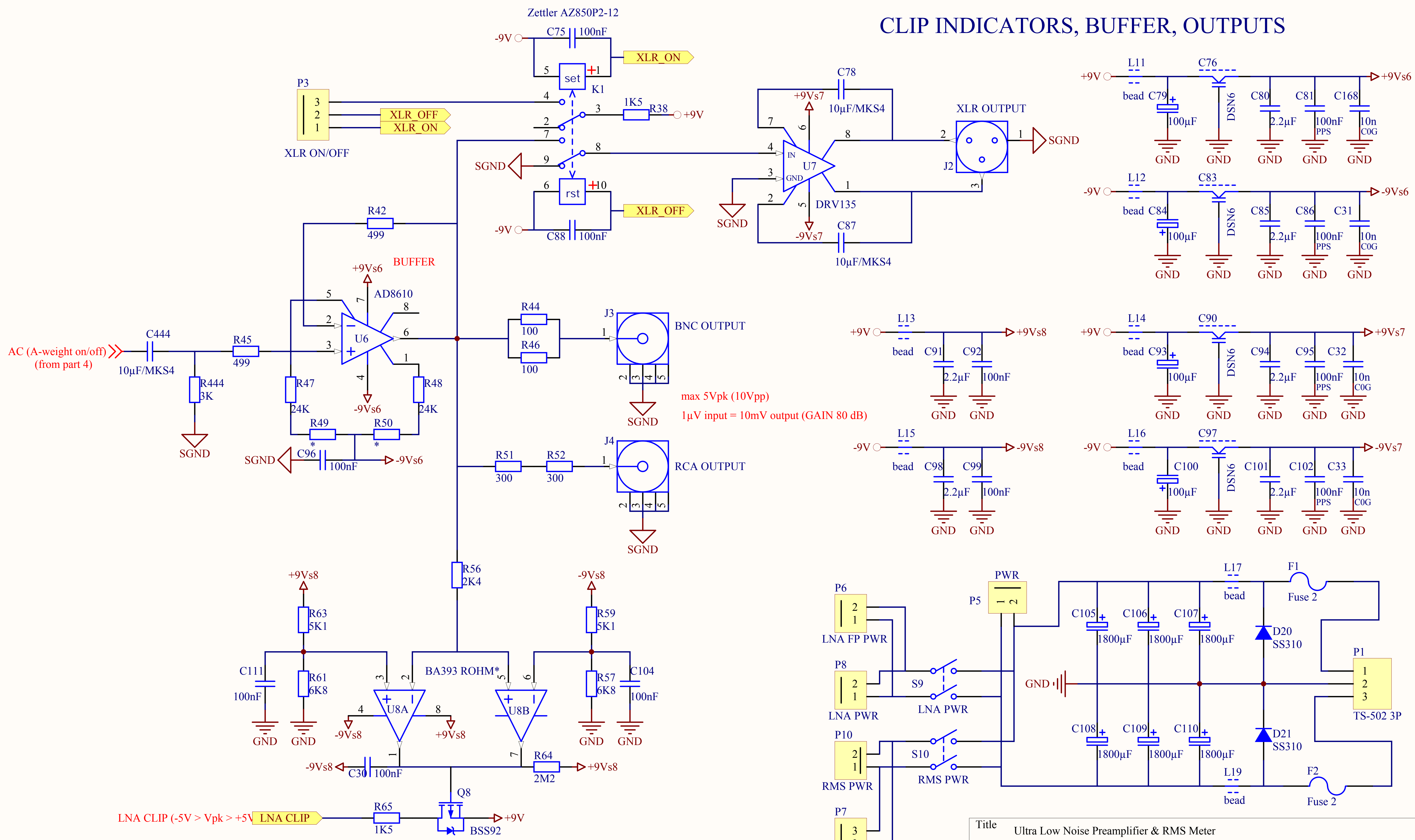
B

C

C

D

D

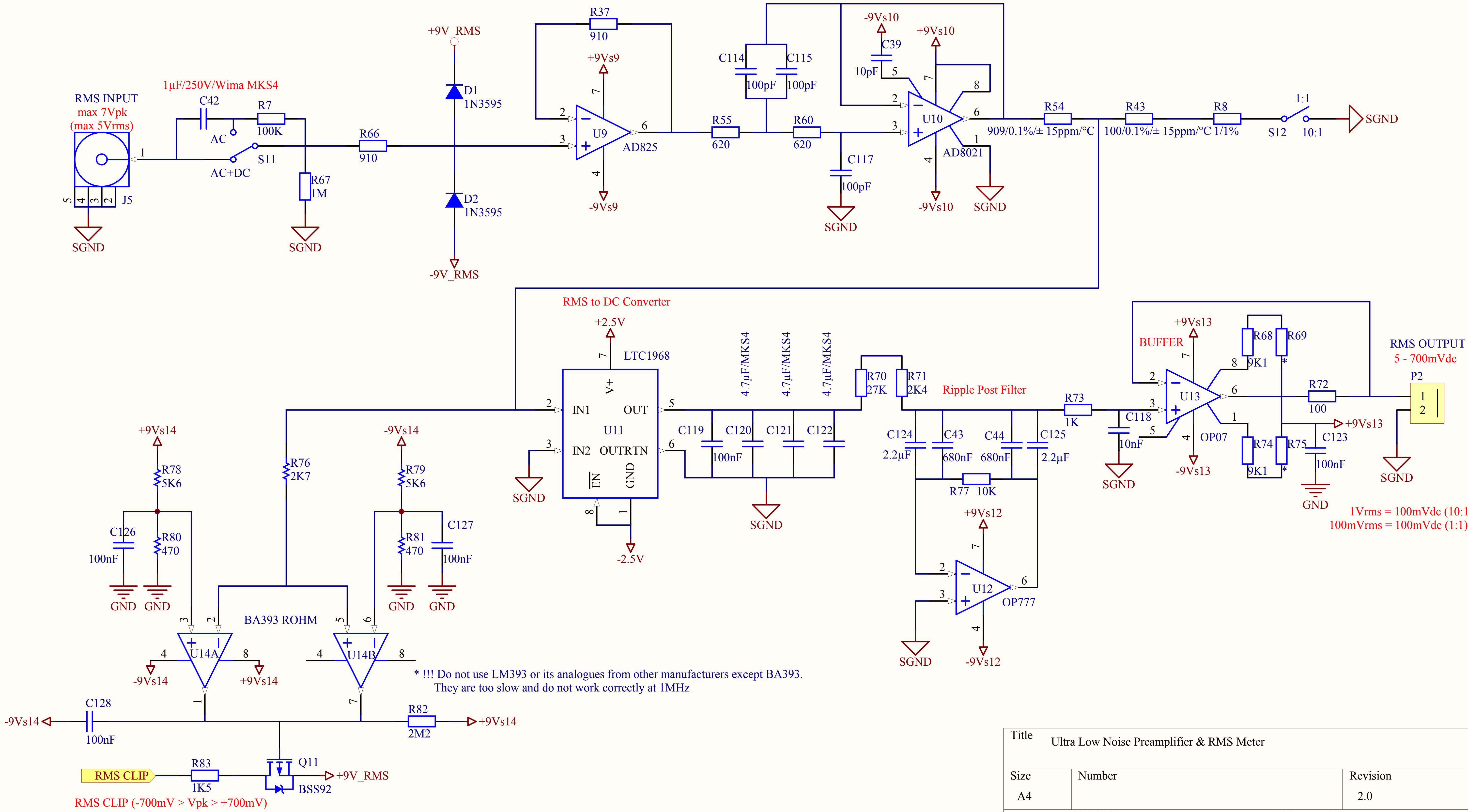


\* !!! Do not use LM393 or its analogues from other manufacturers except BA393.  
They are too slow and do not work correctly at 1MHz

Title Ultra Low Noise Preamplifier & RMS Meter		
Size A4	Number	Revision 2.0
Date: 08.3.2014 r.	Sheet 4 of 6	
File: E:\DIY\..LNA_part4.SchDoc	Drawn By: Ivan Mitev	

RMS METER, CLIP INDICATOR, OUTPUT BUFFER

Lowpass, Sallen Key, Butterworth  
1.8 MHz Corner Frequency Attenuation: -3 dB  
(1 MHz - Frequency Attenuation: -0.4 dB)



Title Ultra Low Noise Preamplifier & RMS Meter		
Size A4	Number	Revision 2.0
Date: 08.3.2014 r.	Sheet 5 of 6	
File: E:\DIY\.\RMS_part1.SchDoc	Drawn By: Ivan Mitev	



A

B

C

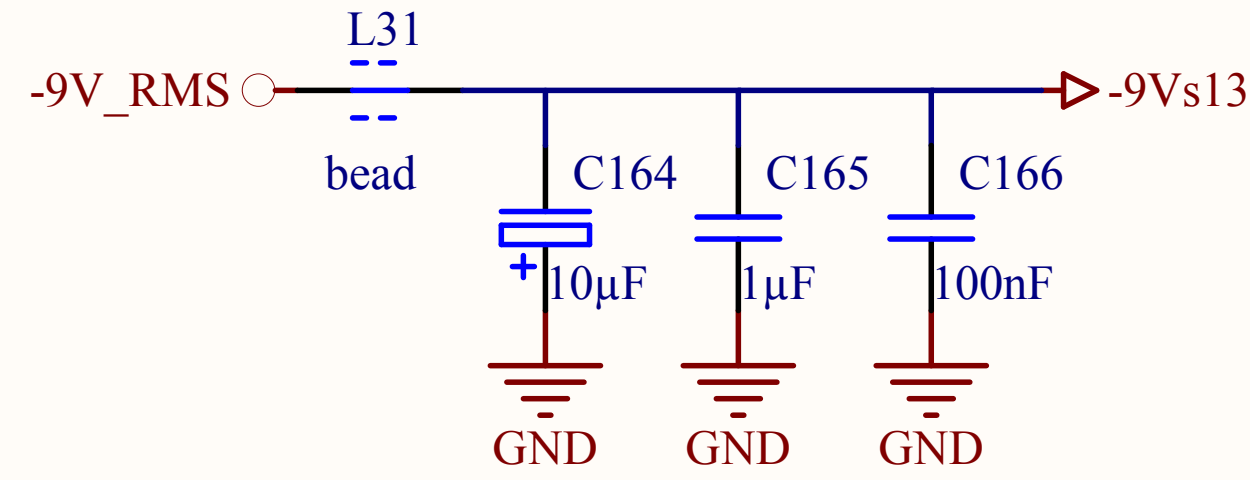
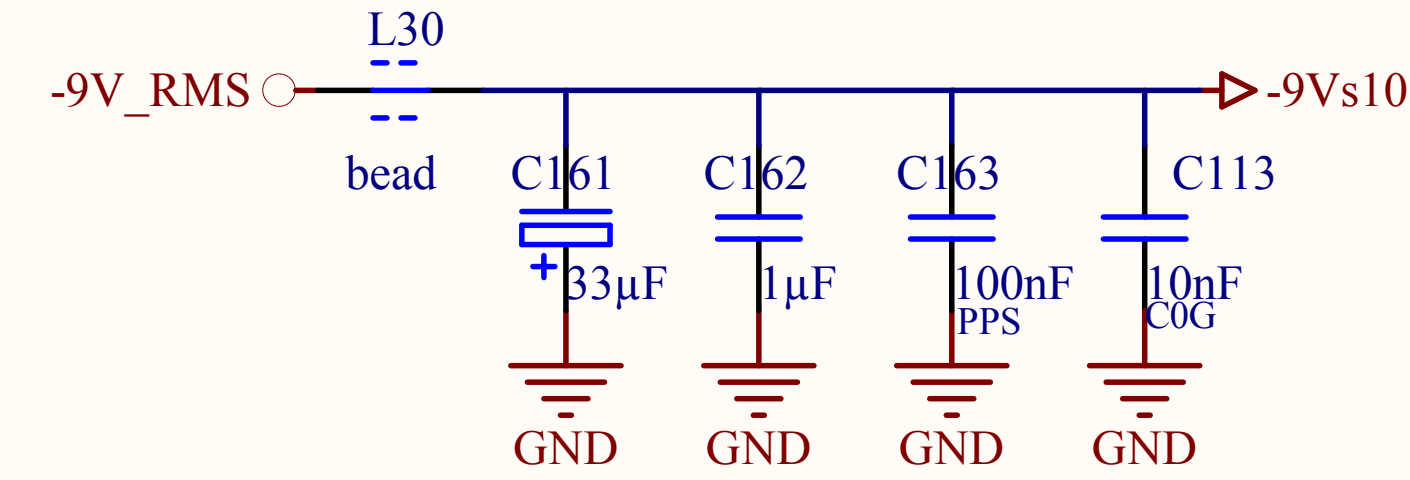
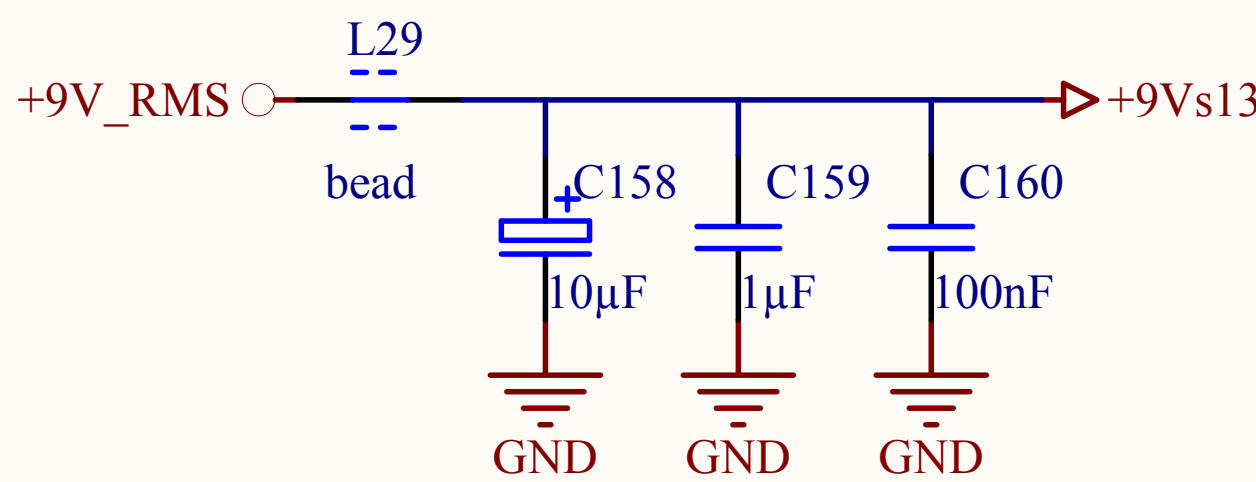
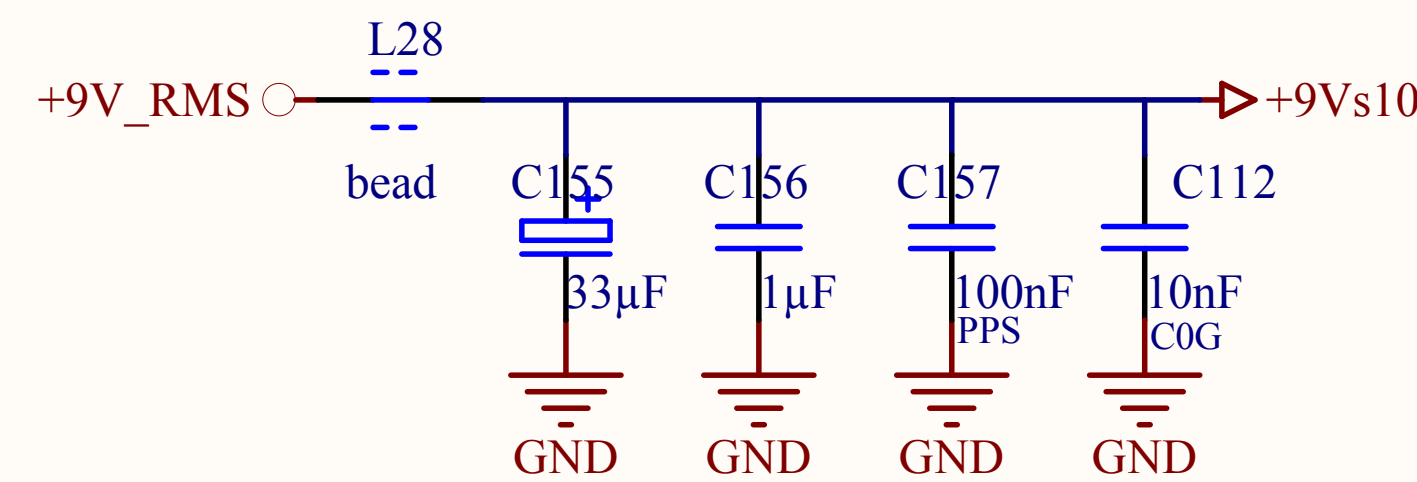
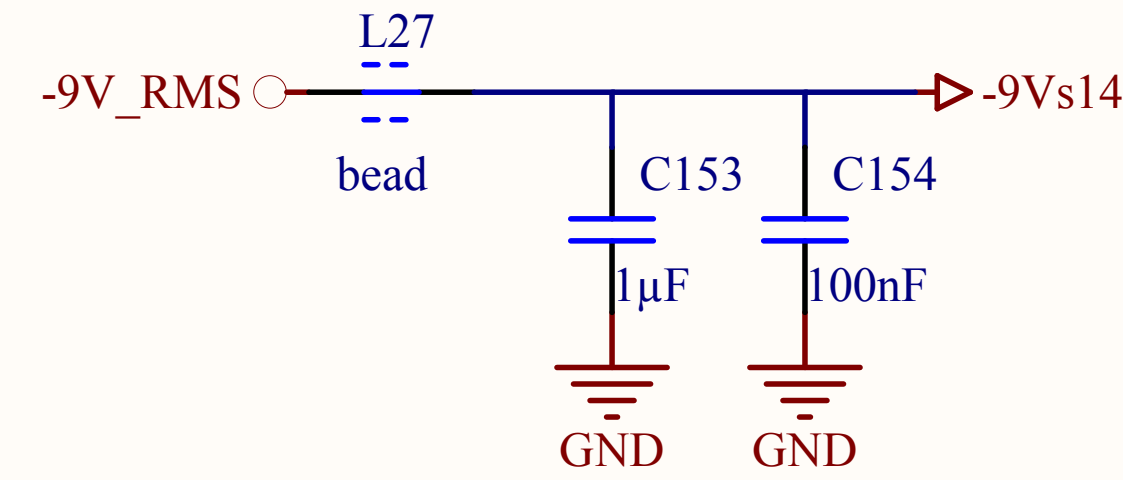
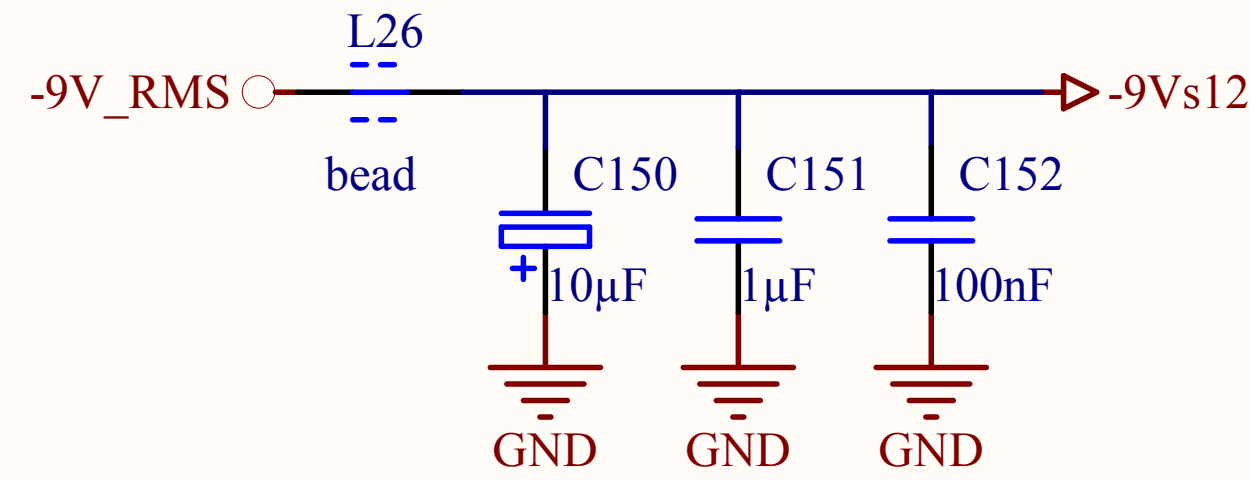
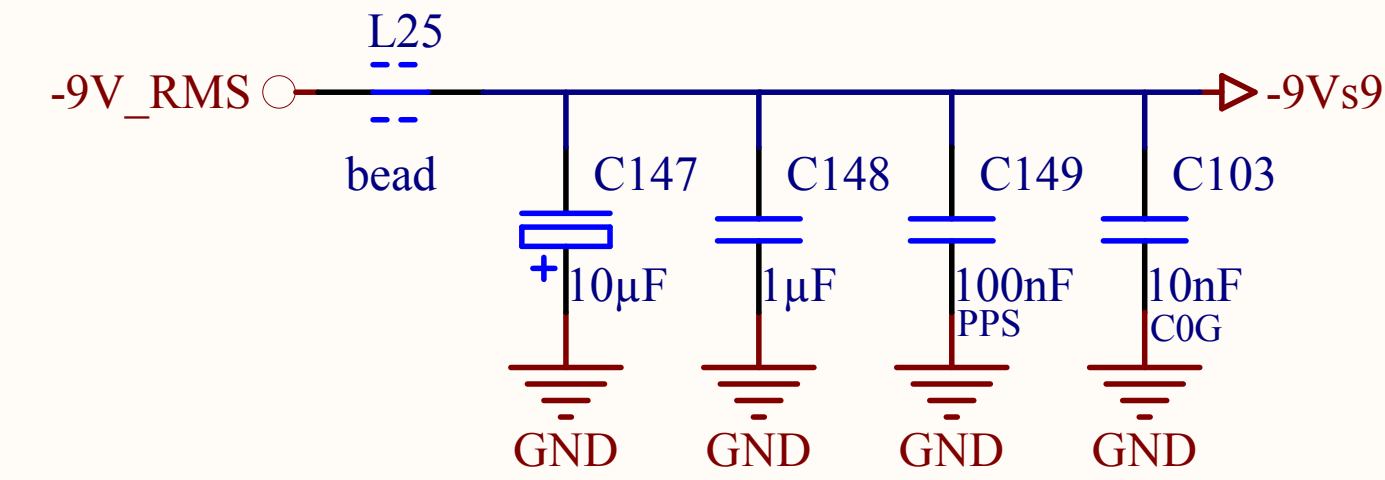
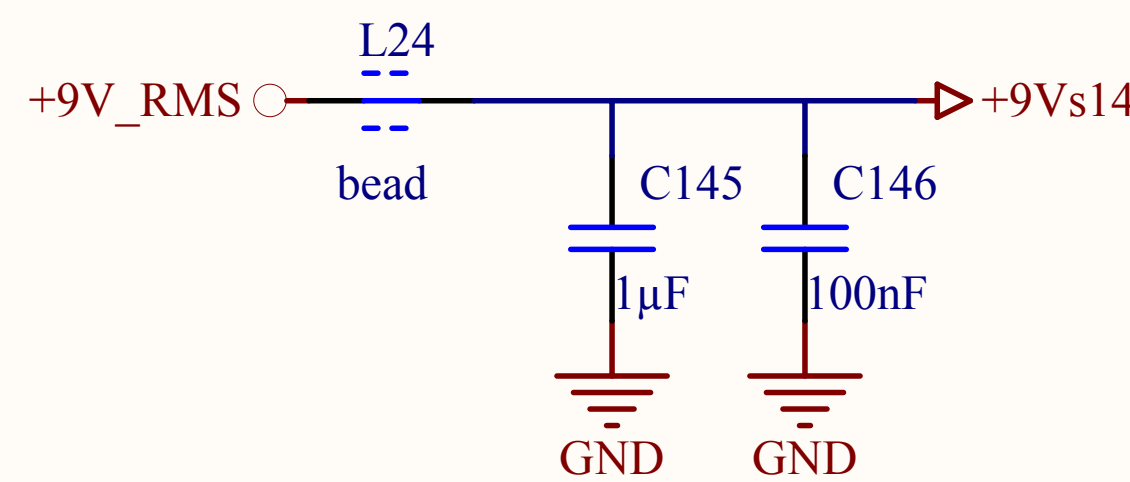
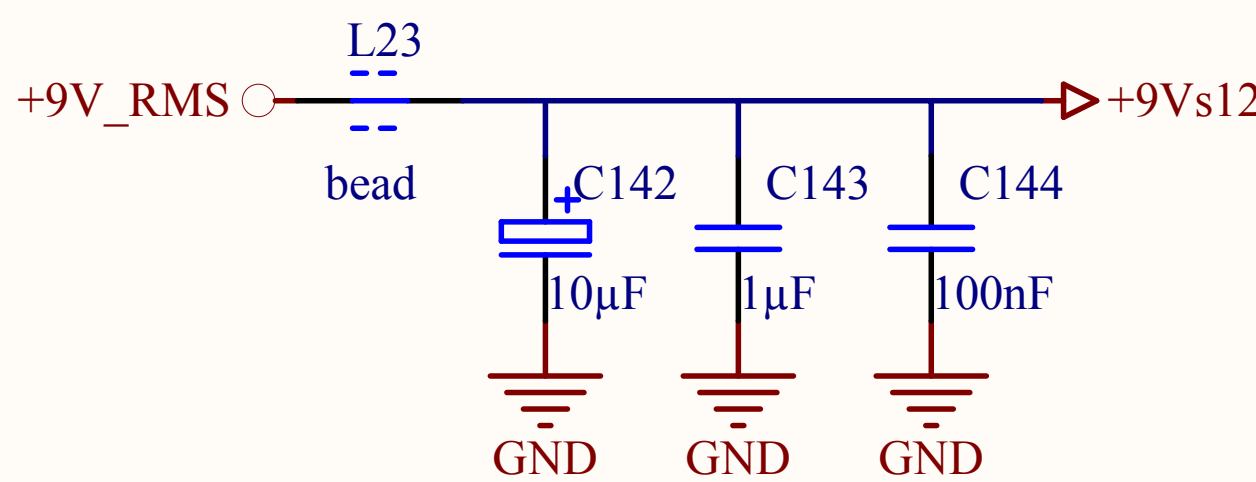
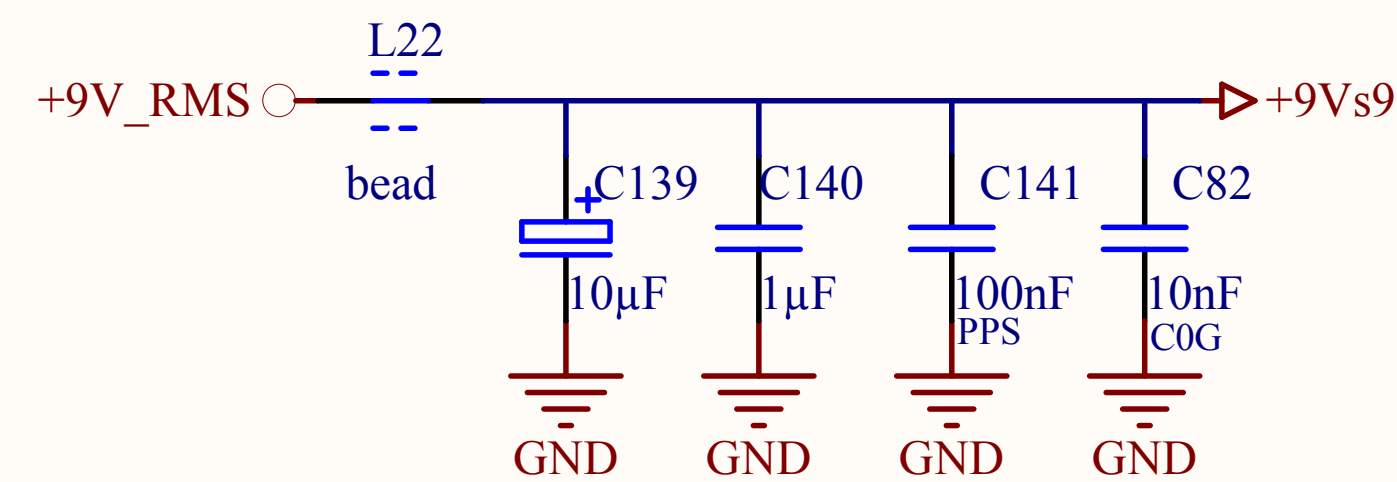
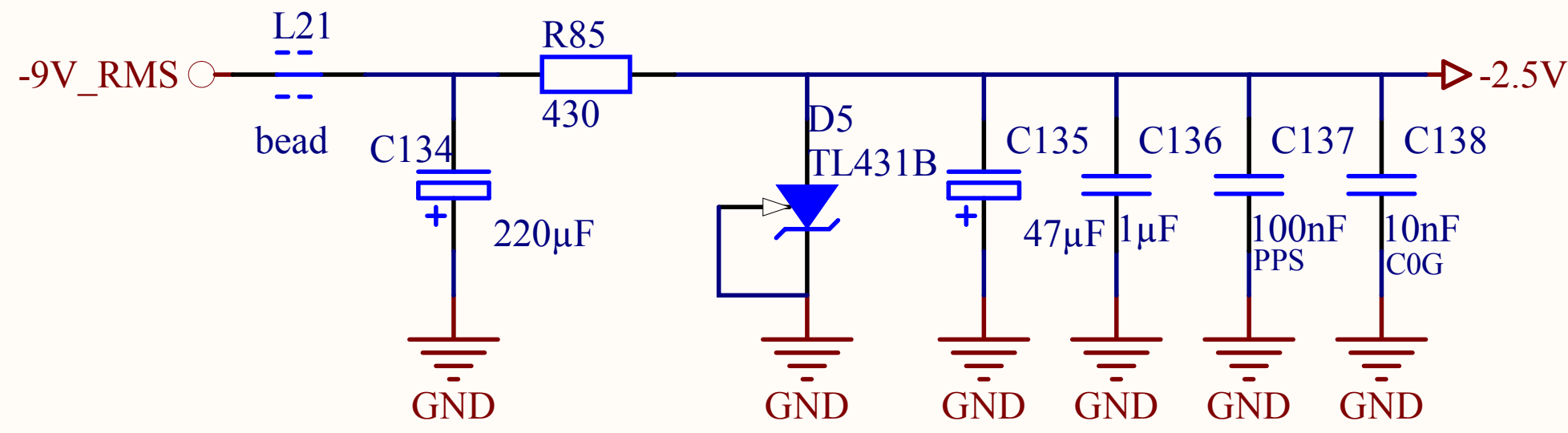
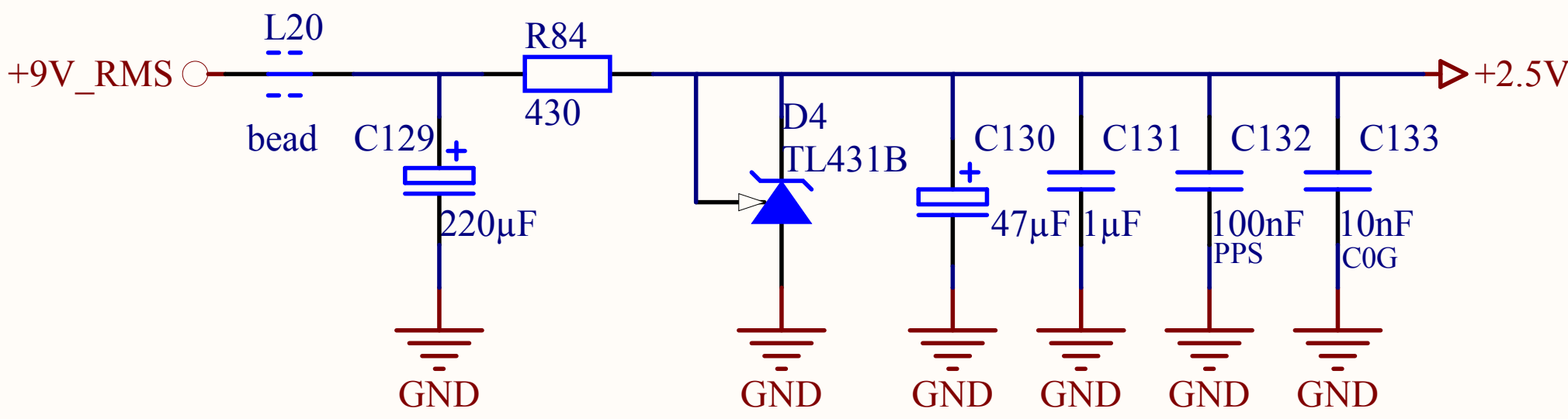
D

A

B

C

D



Title Ultra Low Noise Preamplifier & RMS Meter			
Size A4	Number		Revision 2.0
Date: 08.3.2014 r.	Sheet 6 of 6		
File: E:\DIY\...\RMS_part2.SchDoc	Drawn By:	Ivan Mitev	

