

This transistor differential amplifier circuit implements the active filter requirements of our PCM1794 DAC in a discrete device.

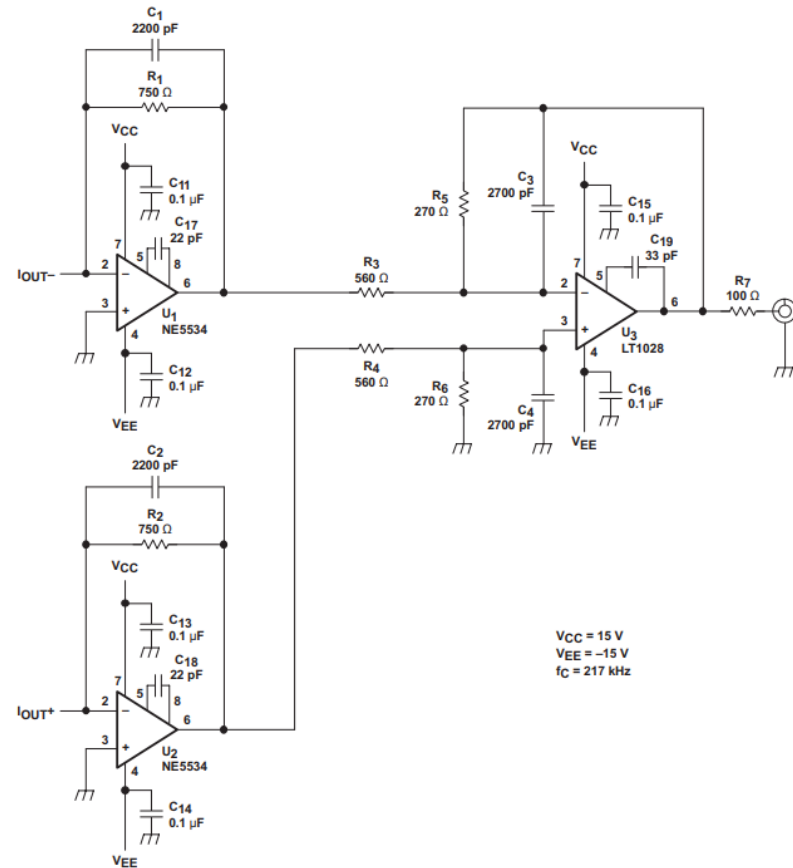


PCM1794A-Q1

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Application Information (continued)



VCC = 15 V
VEE = -15 V
f_C = 217 kHz

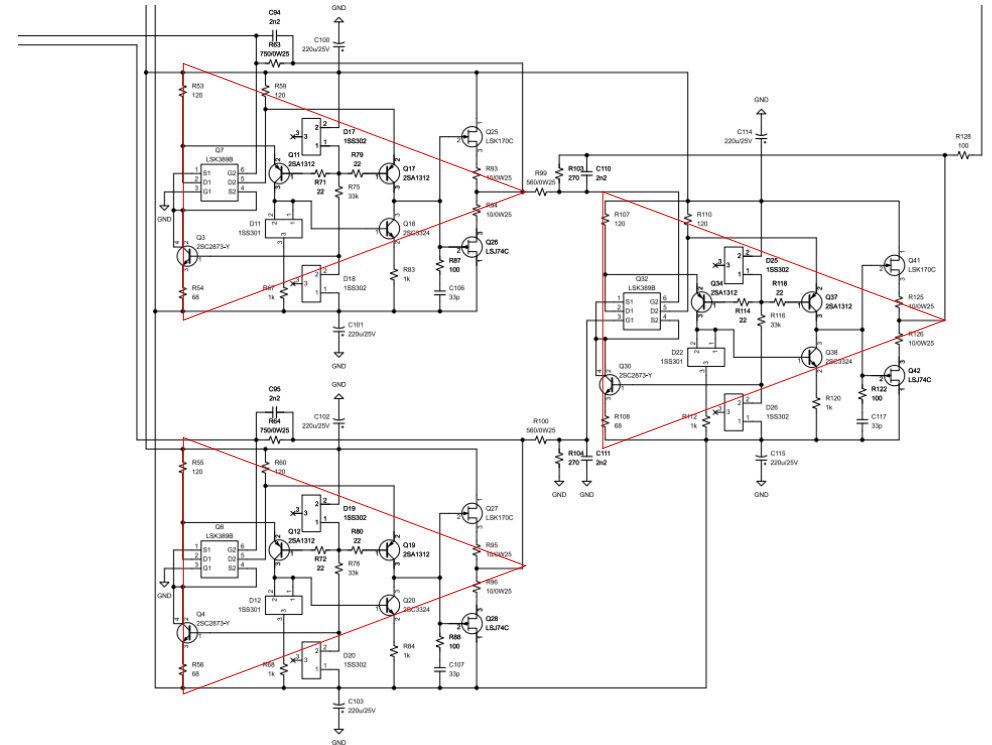
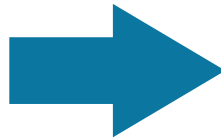
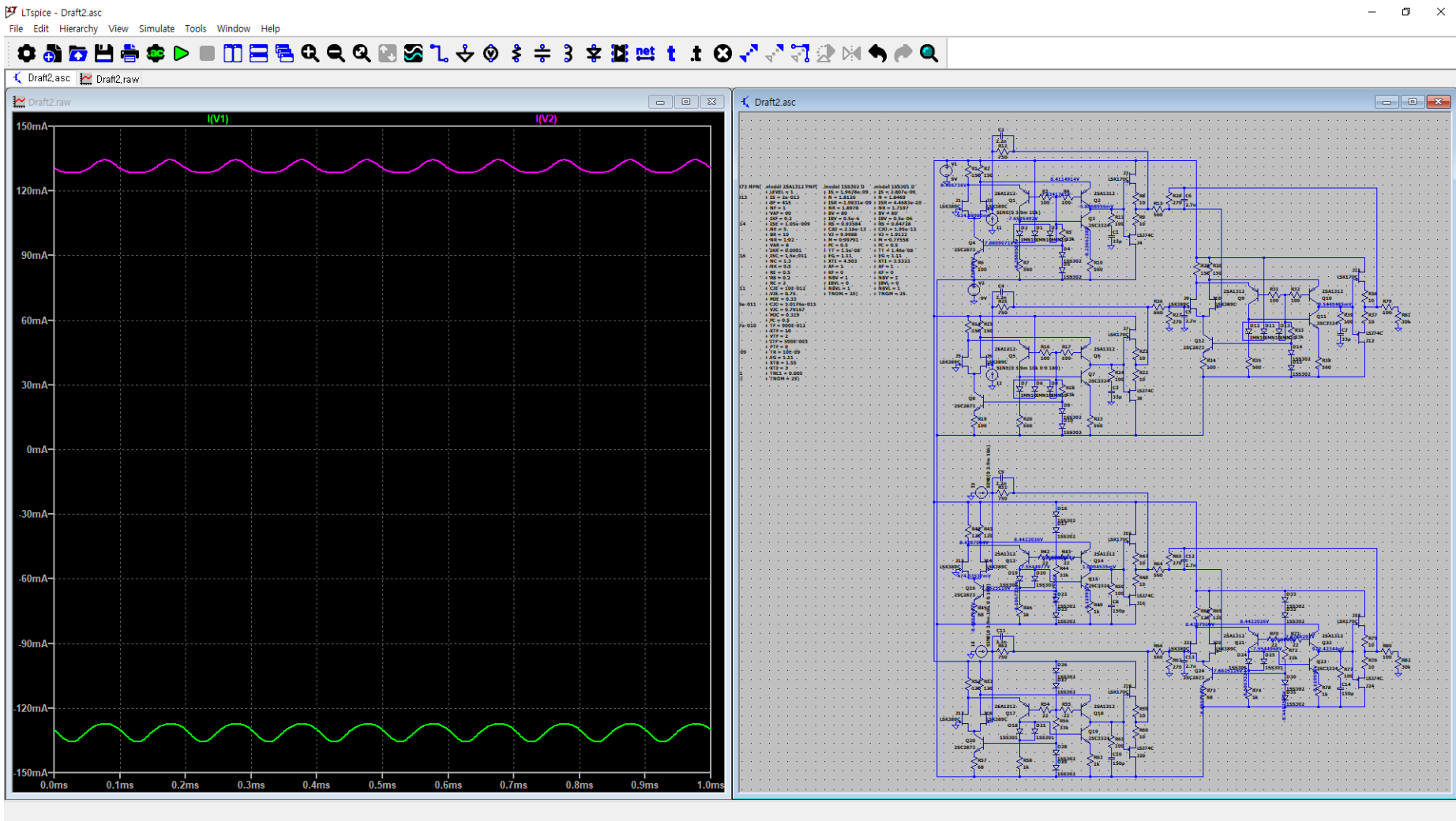


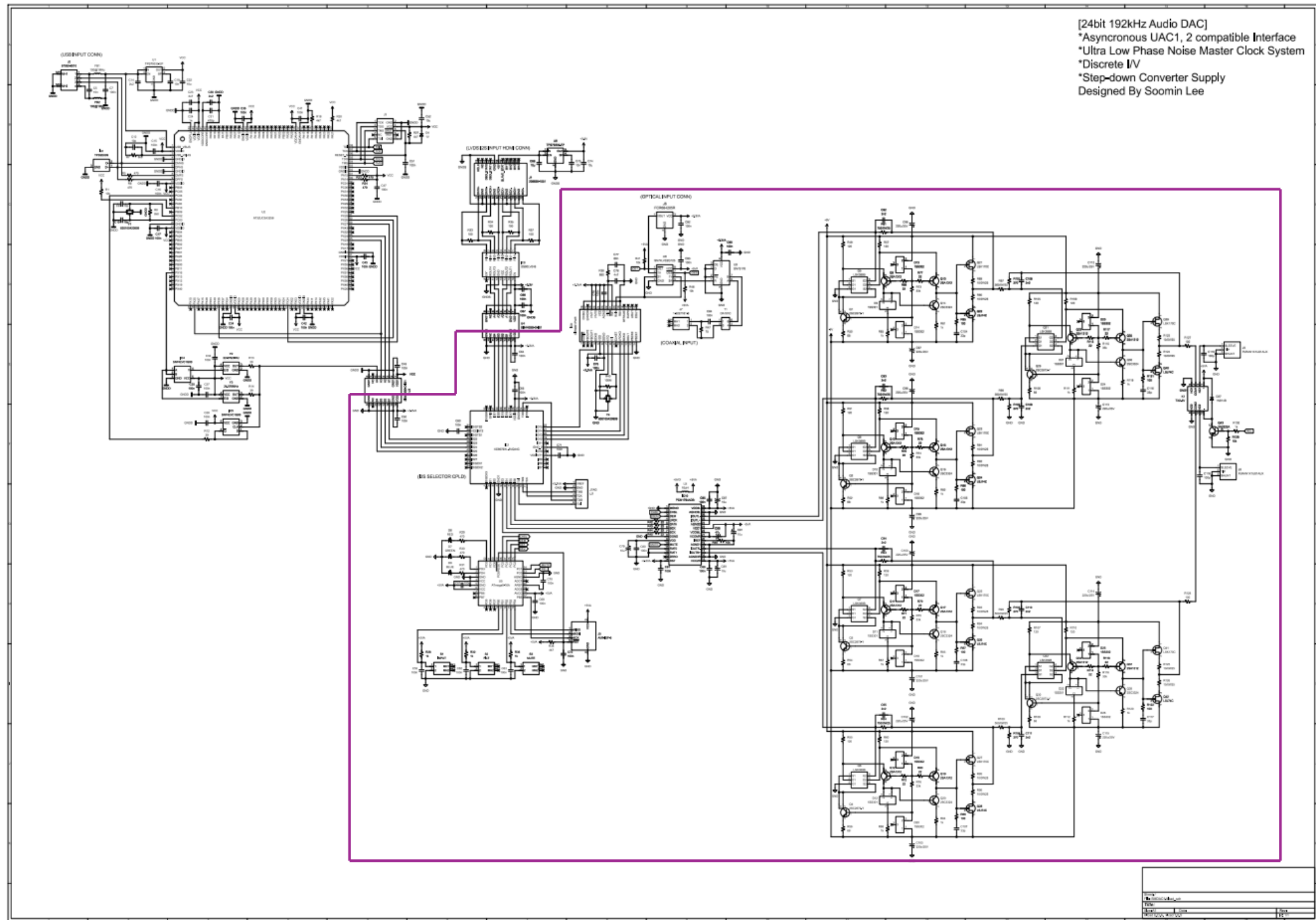
Figure 25. Measurement Circuit, V_{OUT} = 2·V_{RMS}



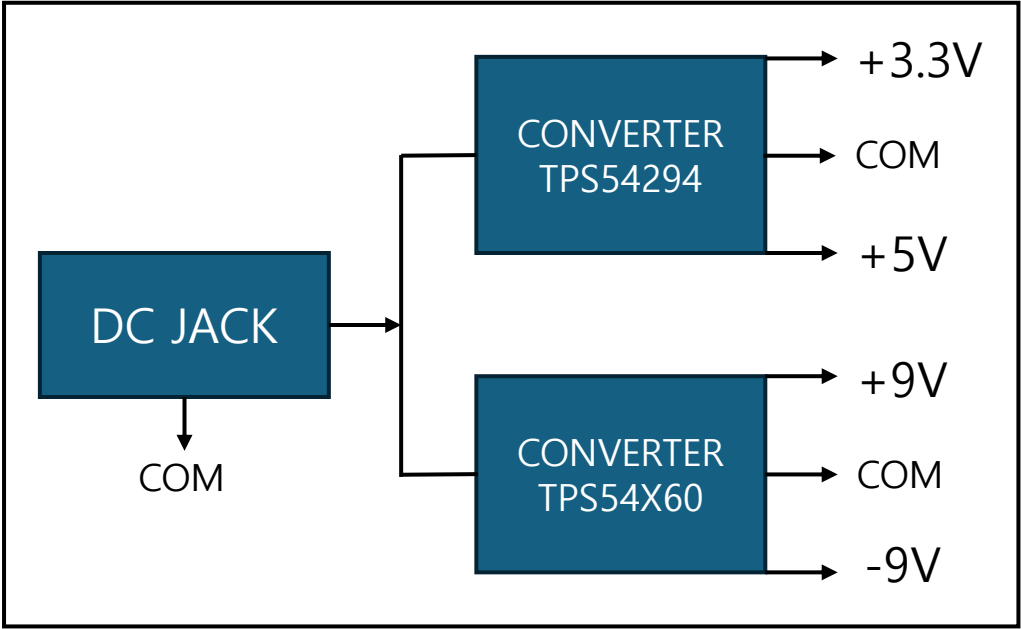
Now, to figure out the total current consumption of the OPAMP, combine the two channels in LTspice and install V1 (+9V) and V2 (-9V) to act as split rails.

Under the condition of inputting the PCM1794's maximum current output of 3.9mA, less than 150mA was found to be consumed.

Additionally, some are isolated using digital isolators, so the actual consumption areas are:



So, as a result, need the following supply block diagram:



Audio DAC

12	Main Board					
13	Discrete op-amp VCC	+9V, 150mA				
14	Discrete op-amp VEE	-9V, 150mA				
15	PCM1794 VD	+3.3V, 37mA				
16	PCM1794 VA	+5V, 45mA				
17	ATmega8-16A	+5V, 30mA				
18	LED RGB	3.3V, 40mA				
19	DIR9001	+3.3V, 20.7mA				
20	TX2-5V	+5V, 28.1mA				
21	FCR684205R	+3.3V, 10mA				
22	12MHZ OSC	3.3V, 12mA				
23	XC9572XL-5VQ44C	+3.3V, 20mA				
24	SI8440BB-D-IS1*2	+3.3V, 11.2mA				
25	SN75176	+3.3V, 80mA				
26				Total		
27			+3.3V	+5V	+9V	-9V
28			231mA	103.1mA	150mA	150mA

It is shown to determine the minimum guaranteed supply current.

The converter must be able to supply three times or more for stable operation and for functions and circuits that can be added. (e.g. headphone amplifier)