Transistor Boosters For Op-Amps (2)

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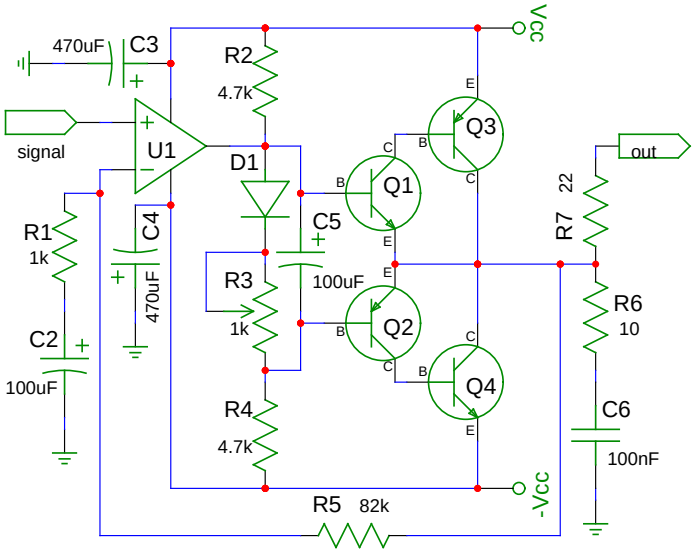

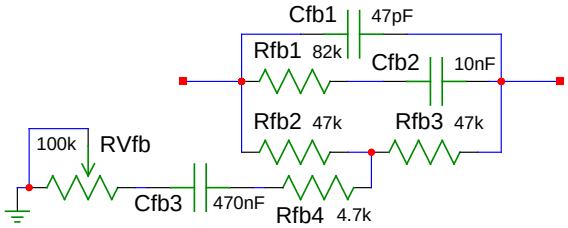

18 Watt Audio Amplifier (+/-22v Rails, Drives an 8ohm Speaker, 30-20kHz -1db)
Unconditionally stable on capacitive loads.
Lower voltage could be used for lower output wattage.
D1 is a 1n4148 and should be in thermal contact with Q1.
R7 is 4 watts to handle the output.
The op-amp can be any signal level with high voltage output and high slew rate (opa2134).
Signal: Q1= bc182 (NPN 50v 100mA), Q2=bc212 (PNP 50v 100mA).
or lower voltage Q1=bc547b (NPN 45v 100mA), Q2=bc557b (PNP 45v 100mA).
or lower voltage Q1=bc550c (NPN 45v 100mA), Q2=bc560c (PNP 45v 100mA).
Power: Q3=tip42a (PNP 60v 6A), Q4=tip41a (NPN 60v 6A).
R3 is used for fine bias trim for the transistors. Adjust it so that 20-30mA between V+ and Q3's emitter with no input signal.
Q3 and Q4 must have a heat sink.
R5+R1 sets the op-amp gain. The transistors are inside the feedback loop.
Ground star points: c2, c3, c4. c6 and output ground.

Changes:
Add small emitter resistors to transistors for feedback and thermal stability.
Use smaller gain resistors for less noise. Use less gain for less distortion.

Why are Q1+Q2 in buffer mode and Q3+Q4 in gain mode? (Sziklai pairs?)

Bass Boost Option.
Replace the R5 feedback resistor with this sub-circuit.
Max boost referred to 1kHz: 400Hz +5db, 200Hz +7.3db, 100Hz + 12db, 50Hz +16.4db, 30Hz +13.3db