

Audio Amplifiers for Small Speaker Applications

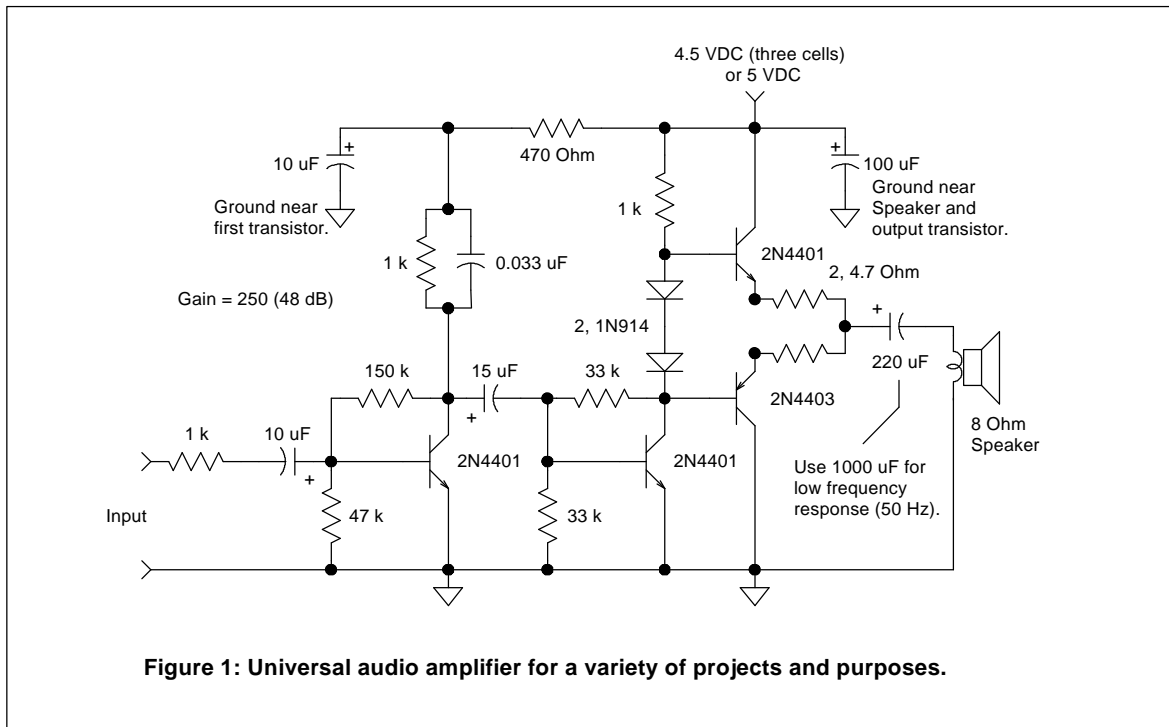


Fig.1 shows a 4-transistor utility amplifier suitable for a variety of projects including receivers, intercoms, microphones, telephone pick-up coils, and general audio monitoring. Three cell battery packs giving about 4.5 volts are recommended for most transformerless audio amplifiers driving small 8 ohm speakers. The battery life will be considerably longer than a 9 volt rectangular battery and the cell resistance will remain lower over the life of the battery resulting in less distortion and stability problems. The amplifier may be modified to work with a 9 volt battery if desired by moving the output transistors' bias point. Lowering the 33k resistor connected from the second transistor's base to ground to about 10k will move the voltage on the output electrolytic capacitor to about 1/2 the supply voltage. This bias change gives more signal swing before clipping occurs and this change is not necessary if the volume is adequate. The amplifier has a power isolation circuit and bandwidth limiting to reduce oscillations and "motorboating". The values are not particularly critical and modest deviations from the indicated values will not significantly degrade the performance.

