



Audio Aid: Build a One Transistor MC Step-up

By Rickard Berglund

With modern low-noise transistors, you can build an MC step-up with only one transistor. The MC step-up is powered by a 12V lead-acid battery. The value of R4 depends on the hfe of the transistor used.

Transistor	R4	hfe	Relative Noise for transistor
BC 639 Philips	180k	150	126
BC 487 Motorola	360k	320	85
BC 489A Motorola	180k	165	72
BC 637 Siemens	150k	130	80
BC 639 Motorola	150k	125	68
MPSA 06 Fairchild	220k	200	118
MPSA 42 Motorola	180k	160	74
2N4401 Motorola	220k	200	136
MPSA 42 Philips	180k	150	250

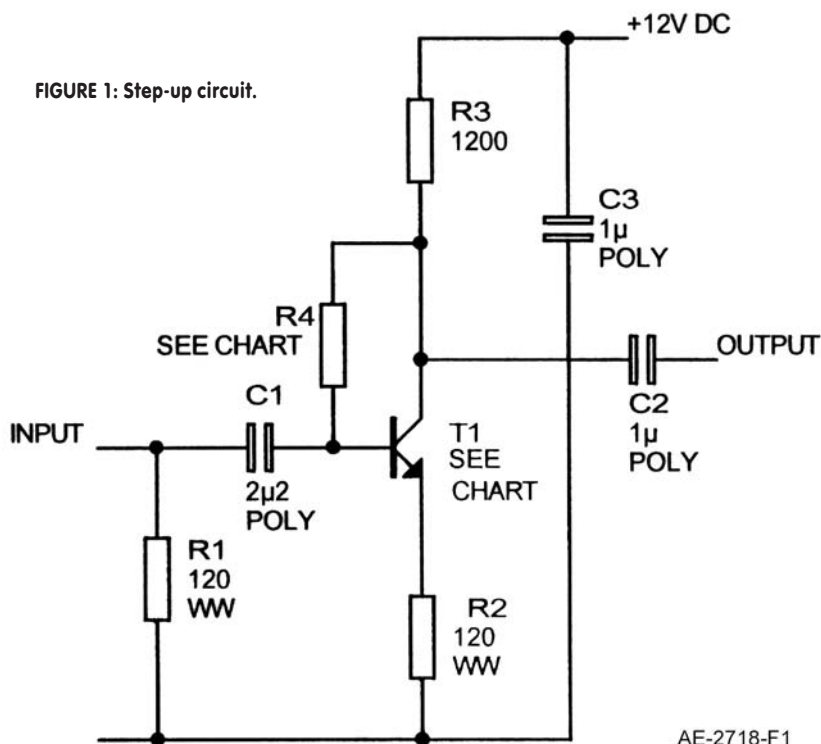
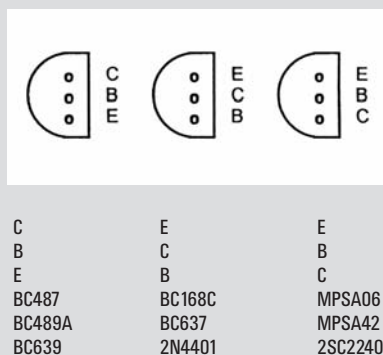
The brand of the transistor is very important. I found that Philips MPSA 42 and Philips BC 639 are 5-10dB more noisy than Motorola. Distortion of the amplifier is low due to local feedback. The gain of the amplifier is 19-20dB. If you have a problem with radio frequency

interference, place a 22nH inductance in series with C1 and a 22pF capacitor in parallel with R4. *ax*

COMPONENTS

C1 2.2μF polypropylene
C2, C3 1μF polypropylene
R1, R2 120Ω wirewound
R3 1200Ω

FIGURE 2: Pinouts for different transistors. Bottom view.



CONTRIBUTORS

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Charles Hansen ("A Phase Meter Calibrator," p. 22) holds five patents in his field of engineering and enjoys modifying guitar amplifiers and effects to reduce noise and distortion. With hundreds of articles to his name, he is a frequent contributor to the magazines of Audio Amateur Publications.

Joseph Norwood Still ("Two SE Power Amps: Triode or Ultralinear," p. 27), retired from the electronics industry, designs affordable high-quality audio amplifiers for the dedicated audiophile. He has written many articles for Audio Amateur throughout the years.

Daisuke Koya ("Build a Flat Panel Speaker," p. 34) is currently on leave from his Ph.D. in audio engineering due to Chronic Fatigue Syndrome, which has severely affected his health since 2000. When his health allows, he works at HSU Research, a speaker company located in California. This is his first article for *audioXpress*.

Craig Kendrick Sellen ("Improving The Cross-Coupled Inverter," p. 40) was trained in solid-state, but has a side interest in vacuum tube circuits of all types. He has written dozens of articles on the field of electronics, in both American and foreign periodicals, and on the Internet.

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