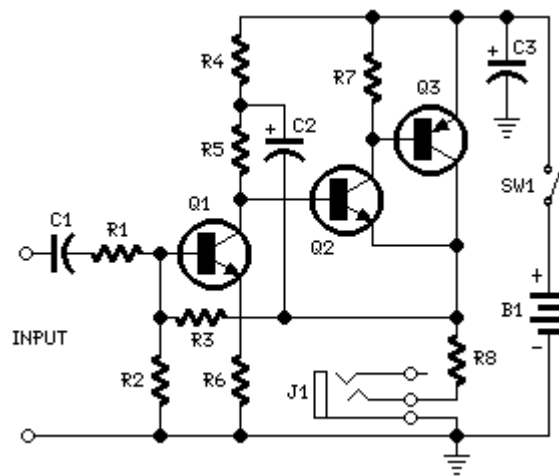


Portable Headphone Amplifier

3V Battery powered High Performance unit

Circuit diagram:



Parts:

R1 _____ 10K 1/4W Resistor
R2 _____ 100K 1/4W Resistor
R3 _____ 68K 1/4W Resistor (see notes)
R4 _____ 1K5 1/4W Resistor
R5 _____ 3K3 1/4W Resistor
R6 _____ 330R 1/4W Resistor
R7 _____ 4K7 1/4W Resistor
R8 _____ 2R2 1/4W Resistor

C1 _____ 1µF 63V Polyester Capacitor
C2 _____ 100µF 25V Electrolytic Capacitor
C3 _____ 470µF 25V Electrolytic Capacitor

Q1 _____ BC239C 25V 100mA NPN High-gain Low-noise Transistor
Q2 _____ BC337 45V 800mA NPN Transistor
Q3 _____ BC327 45V 800mA PNP Transistor

J1 _____ Stereo 3mm. Jack socket

SW1 _____ SPST Switch

B1 _____ 3V Battery (two 1.5V AA or C cells in series)

Notes:

- Can be directly connected to CD players, tuners and tape recorders.
 - Tested with several headphone models of different impedance: 32, 100, 245, 300, 600 & 2000 Ohms.
 - Schematic shows left channel only.
 - B1, SW1, J1 & C3 are common to both channels.
 - R3 value was calculated for headphone impedance up to 300 Ohms. Using 600 Ohms loads or higher, change R3 value to 100K.
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Technical data:

Current drain: 35mA per channel with 32 Ohms impedance headphones. Much less with higher impedance loads

Output voltage: Above 2V peak-to-peak on all loads

Sensitivity: 90mV RMS input for 2V peak-to-peak output

Frequency response: Flat from 30Hz to 20KHz

Total harmonic distortion @ 1KHz & 10KHz: Below 0.05% on 32 to 600 Ohms load and up to 1.5V peak-to-peak output. Below 0.1% at maximum output

Unconditionally stable on capacitive loads