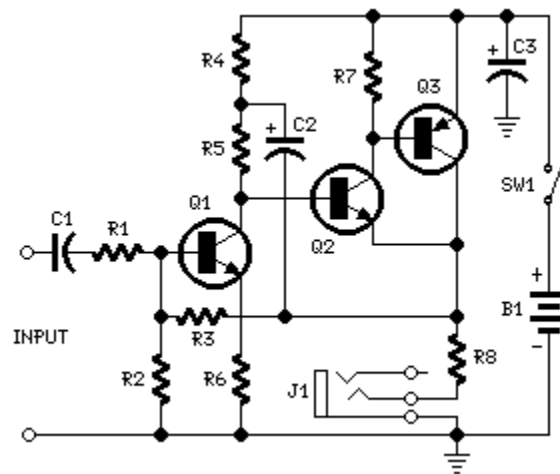


Portable Headphone Amplifier

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	1 μ F	63V Polyester Capacitor
C2	100 μ F	25V Electrolytic Capacitor
C3	470 μ F	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.

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
