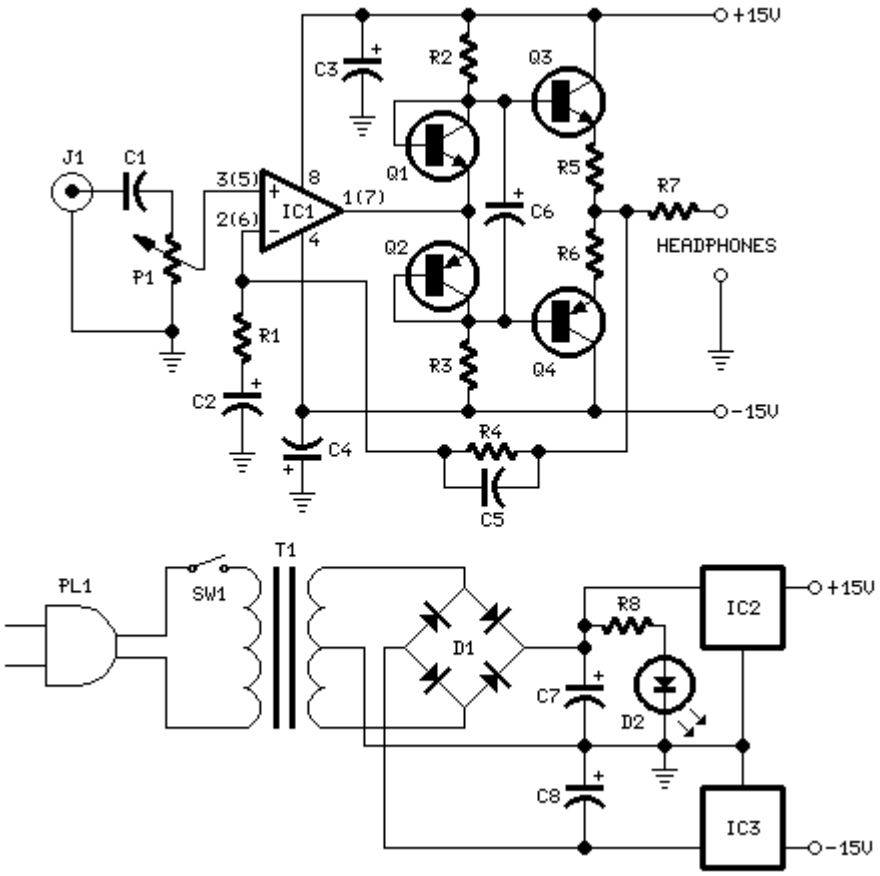
Headphone Amplifier

High Quality unit. No need for a preamplifier

Circuit diagram:



Amplifier parts:

P1_____22K Log.Potentiometer (Dual-gang for stereo)

R1_____560R 1/4W Resistor
R2,R3_____10K 1/4W Resistors
R4_____12K 1/4W Resistor
R5,R6_____2R2 1/4W Resistor
R7_____22R 1/2W Resistor

C1_____1µF 63V Polyester Capacitor
C2,C3,C4_____100µF 25V Electrolytic Capacitors
C5_____22pF 63V Polystyrene or Ceramic Capacitor
C6_____22µF 25V Electrolytic Capacitor

IC1_____LM833 or NE5532 Low noise Dual Op-amp

Q1,Q3_____BC337 45V 800mA NPN Transistors
Q2,Q4_____BC327 45V 800mA PNP Transistors

J1_____RCA audio input socket

Power supply parts:

R8_____2K2 1/4W Resistor

C7,C8_____2200µF 25V Electrolytic Capacitors

D1_____100V 1A Diode bridge
D2_____5mm. or 3mm. Red LED

IC2_____7815 15V 1A Positive voltage regulator IC
IC3_____7915 15V 1A Negative voltage regulator IC

T1_____220V Primary, 15 + 15V Secondary 5VA Mains transformer

PL1_____Male Mains plug

SW1_____SPST Mains switch

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.
- Can drive old 8 Ohms impedance headphones, but these obsolete devices are not recommended.
- Schematic shows left channel and power supply.
- Numbers in parentheses show IC1 right channel pin connections.
- A correct grounding is very important to eliminate hum and ground loops. Connect in the same point the ground sides of J1, P1, C2, C3 & C4. Then connect separately the input and output grounds at the power supply ground.

Technical data:

Output voltage: Well above 5V RMS on all loads

Sensitivity: 250mV input for 5V RMS output

Frequency response: Flat from 30Hz to 20KHz

Total harmonic distortion @ 1KHz & 10KHz: Below 0.005% on 32 Ohms load and up to 4V RMS output (typical 0.003%)
Total harmonic distortion @ 1KHz & 10KHz: Below 0.005% on 100 to 2000 Ohms load and up to 5V RMS output (typical 0.003%)

Unconditionally stable on capacitive loads