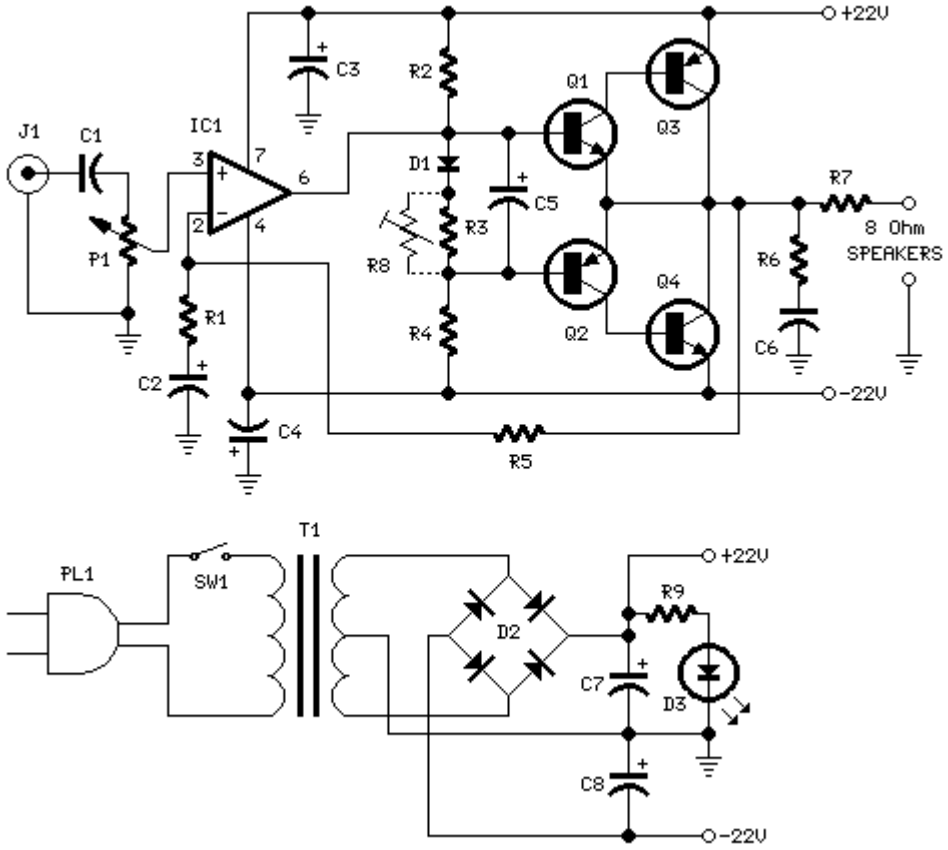
18W Audio Amplifier

High Quality very simple unit. No need for a preamplifier

Circuit diagram:



Amplifier parts:

P1_____22K Log.Potentiometer (Dual-gang for stereo)

R1_____1K 1/4W Resistor
R2_____4K7 1/4W Resistor
R3_____100R 1/4W Resistor
R4_____4K7 1/4W Resistor
R5_____82K 1/4W Resistor
R6_____10R 1/2W Resistor
R7_____R22 4W Resistor (wirewound)
R8_____1K 1/2W Trimmer Cermet (optional)

C1_____470nF 63V Polyester Capacitor
C2,C5_____100µF 3V Tantalum bead Capacitors
C3,C4_____470µF 25V Electrolytic Capacitors
C6_____100nF 63V Polyester Capacitor

D1_____1N4148 75V 150mA Diode

IC1_____TLE2141C Low noise,high voltage,high slew-rate Op-amp

Q1_____BC182 50V 100mA NPN Transistor
Q2_____BC212 50V 100mA PNP Transistor
Q3_____TIP42A 60V 6A PNP Transistor
Q4_____TIP41A 60V 6A NPN Transistor

J1_____RCA audio input socket

Power supply parts:

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R9_______________2K2 1/4W Resistor

C7,C8_________4700µF 25V Electrolytic Capacitors

D2_______________100V 4A Diode bridge
D3_______________5mm. Red LED

T1_______________220V Primary, 15 + 15V Secondary 50VA Mains transformer

PL1_____________Male Mains plug

SW1_____________SPST Mains switch
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Notes:

- Can be directly connected to CD players, tuners and tape recorders.
- Don't exceed 23 + 23V supply.
- Q3 and Q4 must be mounted on heatsink.
- D1 must be in thermal contact with Q1.
- Quiescent current (best measured with an Avo-meter in series with Q3 Emitter) is not critical.
- Adjust R3 to read a current between 20 to 30 mA with no input signal.
- To facilitate current setting add R8 (optional).
- 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. Connect C6 at the output ground.
- Then connect separately the input and output grounds at the power supply ground.

Technical data:

Output power: 18 Watt RMS @ 8 Ohm (1KHz sinewave)

Sensitivity: 150mV input for 18W output

Frequency response: 30Hz to 20KHz -1dB

Total harmonic distortion @ 1KHz: 0.1W 0.02% 1W 0.01% 5W 0.01% 10W 0.03%
Total harmonic distortion @10KHz: 0.1W 0.04% 1W 0.05% 5W 0.06% 10W 0.15%

Unconditionally stable on capacitive loads