

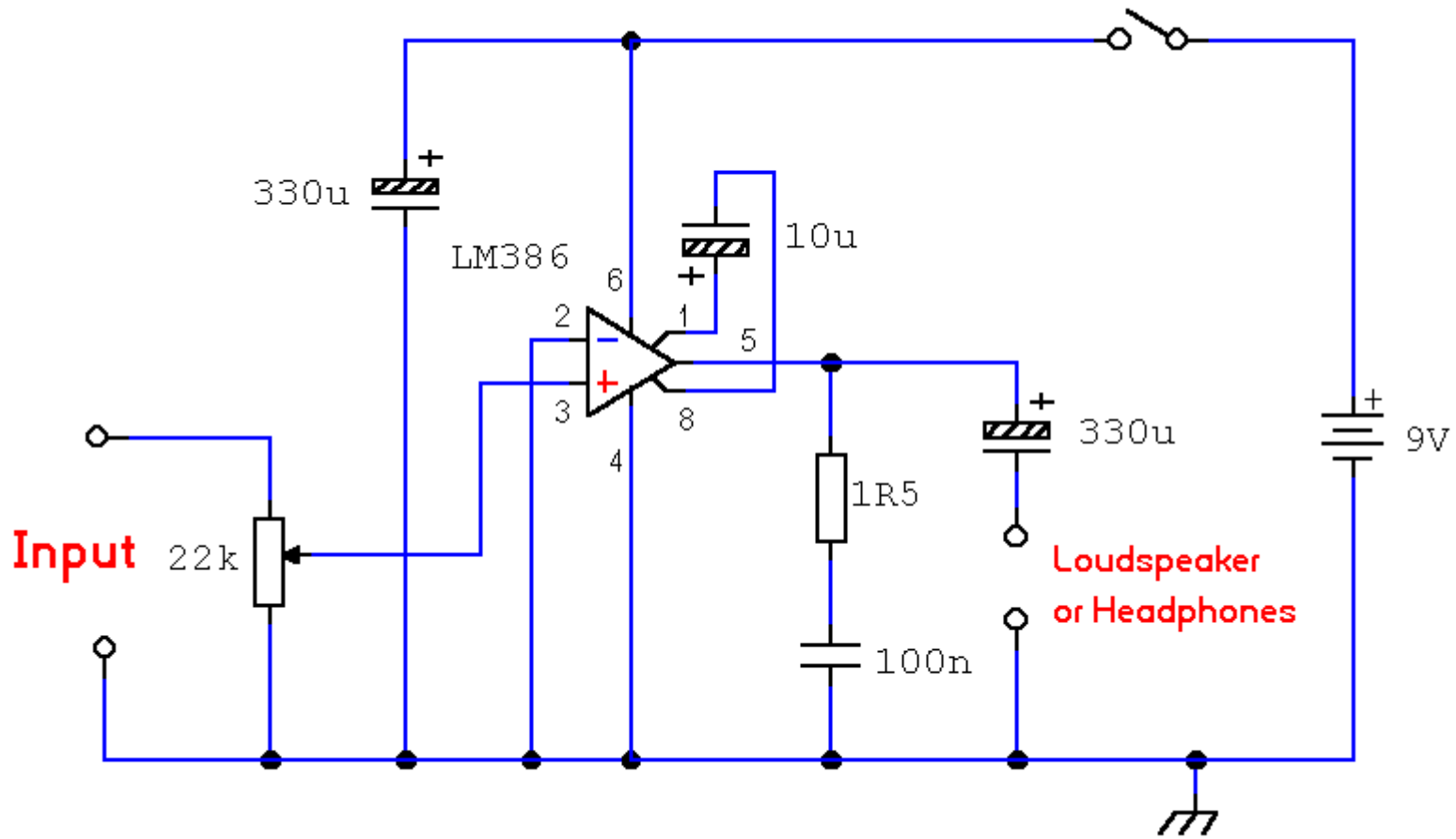
Bench Amplifier

Circuit : Andy Collinson

Email: anc@mitedu.freemove.co.uk

Description:

A small 325mW amplifier with a voltage gain of 200 that can be used as a bench amplifier, signal tracer or used to amplify the output from personal radios, etc.



Notes:

The circuit is based on the National Semiconductor LM386 amplifier. In the diagram above, the LM386 forms a complete non-inverting amplifier with voltage gain of x200.

A datasheet in PDF format can be downloaded from the [National Semiconductor website](#). The IC is available in an 8 pin DIL package and several versions are available; the LM386N-1 which has 325mW output into an 8 ohm load, the Lm386N-3 which has 700mW output and the LM386N-4 which offers 1000mW output. all versions work in this circuit.

The gain of the Lm386 can be controlled by the capacitor across pins 1 and 8. With the 10u cap shown above, voltage gain is 200, omitting this capacitor and the gain of the amplifier is 20.

The IC works from 4 to 12Volts DC, 12Volt being the maximum recommended value. The internal input impedance of the amplifier is 50K, this is shunted with a 22k log potentiometer so input impedance in this circuit will be lower at about 15k. The input is DC coupled so care must be taken not to amplify any DC from the preceeding circuit, otherwise the loudspeaker may be damaged. A coupling capacitor may included in series with the 22k control to prevent this from happening.