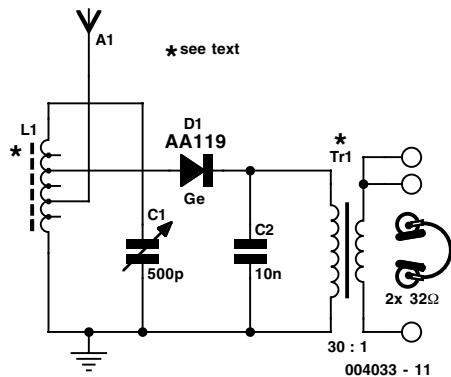


# Diode Radio for Low Impedance Headphones

## B. Kainka

If you ever look at construction notes for building old detector type radios the type of headphones specified always have an impedance of  $2 \times 2000 \Omega$ . Nowadays the most commonly available headphones have an impedance of  $2 \times 32 \Omega$ , this relatively low value makes them unsuitable for such a design. However, with a bit of crafty transformation these headphones can be used in just such a design. To adapt them, you will need a transformer taken from a mains adapter unit, the type that has a switchable output voltage (3/4.5/6/9/12 V) without the rectifying diodes and capacitor. Using the different taps of this type of transformer it is possible to optimise the impedance match.

For the diode radio (any germanium diode is suitable in this design) the key to success is correct impedance matching so that none of the received signal energy is lost. The antenna coil on the 10 mm diameter by 100 mm long ferrite rod is made up of 60 turns with a tap point at every 10 turns; this is suitable for medium wave reception. If a long external aerial is



used it should be connected to a lower tap point to reduce its damping effect on the circuit. You can experiment with all the available tapping points to find the best reception. With such a simple radio design, the external aerial will have a big influ-

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ence on its performance. Tip: If your house has metal guttering and rain water pipes, it will be possible to use these as an aerial, as long as they are not directly connected to earth. Those who live in the vicinity of a broadcast transmitter may be

able to connect a loudspeaker directly to the output or if the volume is too low, why not try connecting the active speaker system from your PC?

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