(and the converter thus only supplying its own losses) it can run as fast as 600 kHz.

Our version

Now that we have analysed this handful of components in minute detail, we will naturally want to build a similar converter ourselves. **Figure 11** shows a simple design for a converter from 24 V to 5 V at 500 mA. If we were to use a 7805 for such a task, it would dissipate 9.5 W. Even if the switching converter has an efficiency of only 65 percent, it still performs much better than the series regulator. In this circuit we can dispense with the snubber network: if the three windings are made with a trifilar construction the BD237 can handle the voltage spikes comfortably.

(050352-1)

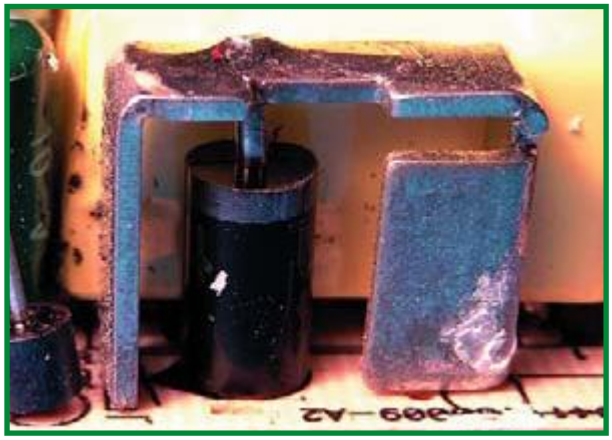

Figure 10.
Diode with thermally and electrically conducting heatsink.

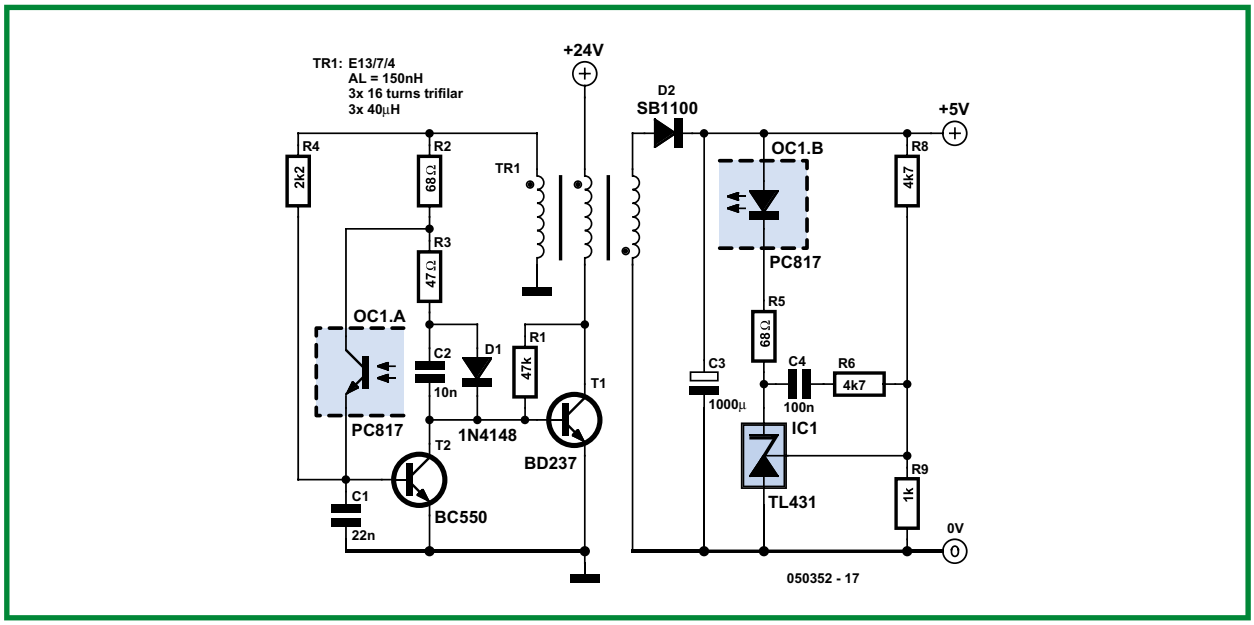

Figure 11.
Step-down converter from 24 V to 5 V.

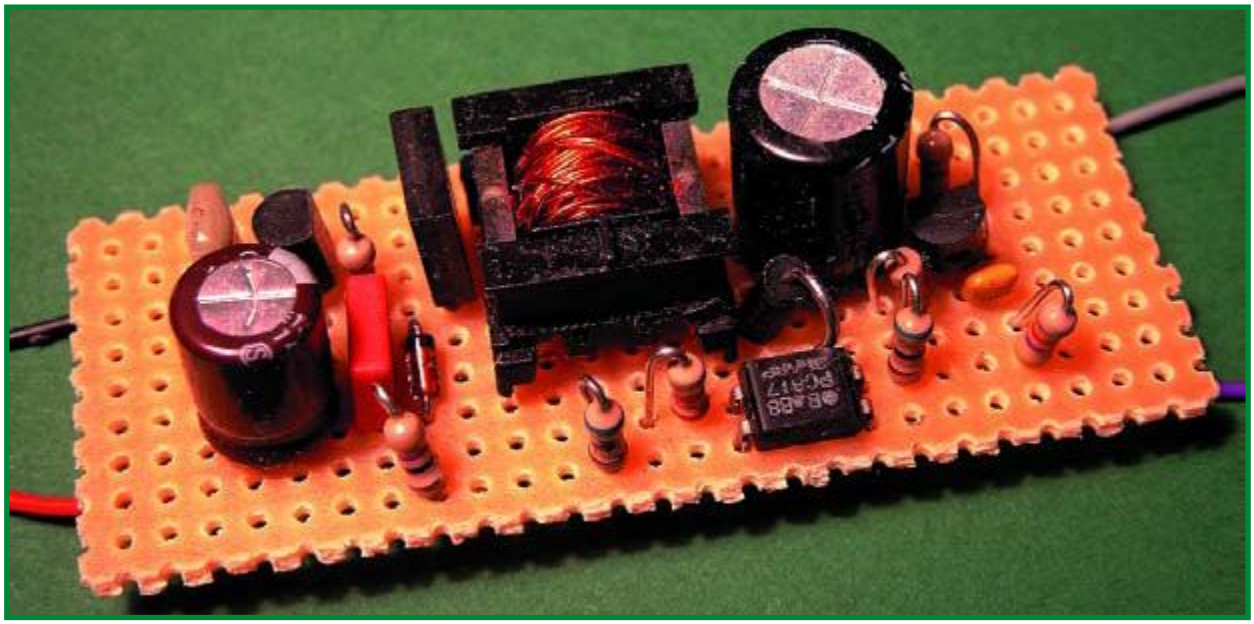

Figure 12.
Prototype of the small converter.