

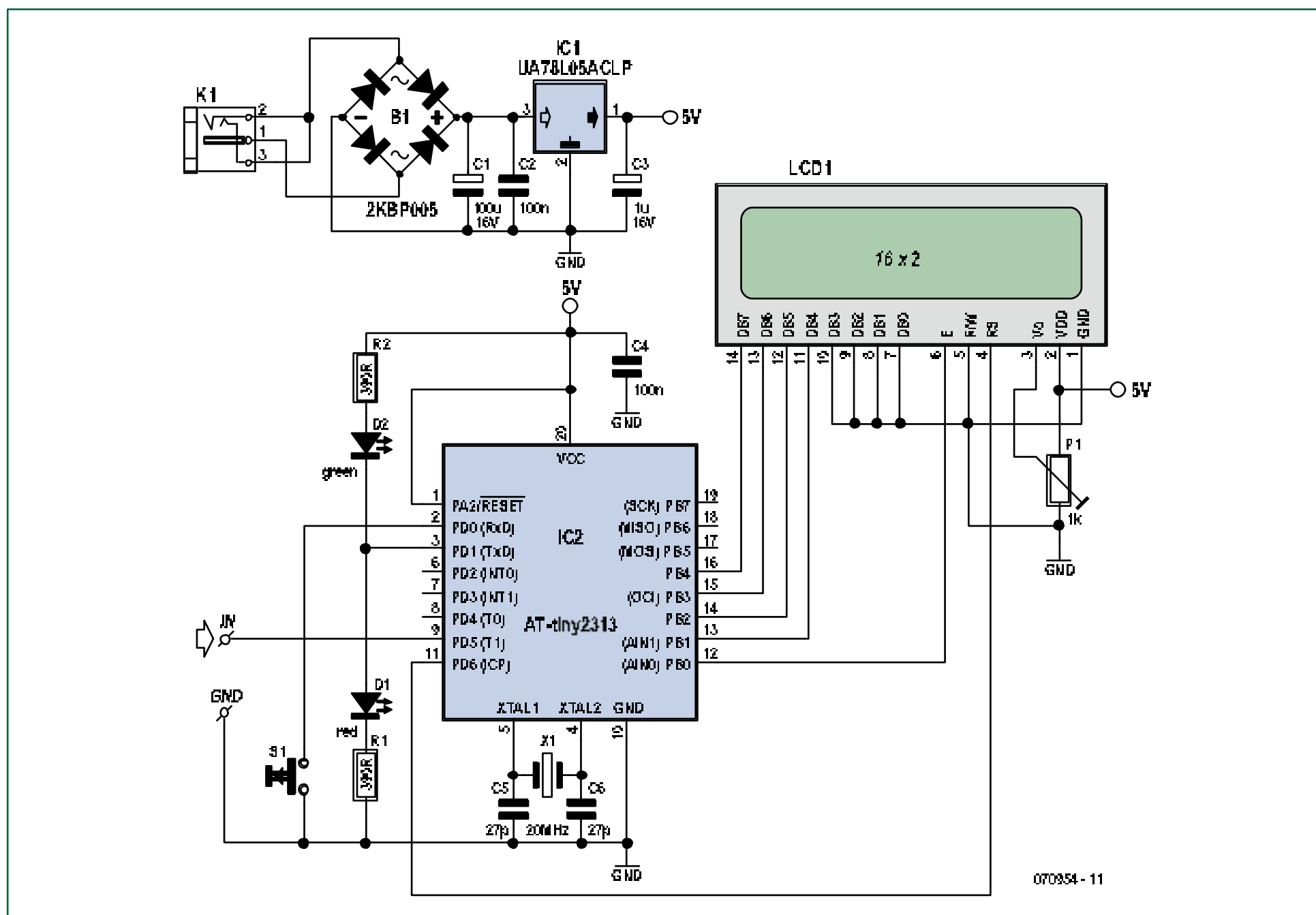


Figure 1. As can be seen from the circuit diagram, the frequency counter consists of just a microcontroller with accompanying voltage regulator and LCD panel.

priate, with the decimal point being shifted as needed. The display does not change to and fro rapidly when the unit switches between ranges.

The frequency value is deliberately shown as only five digits. In the highest range (MHz) the 10 Hz and 1 Hz digits are suppressed so that the display is steady and easy to read. If required, the software can easily be modified to show these digits. The hex file and source code for the software are naturally available as a free download from the *Elektor* website.

It is also possible to cause the suppressed digits to appear without modifying the software. The circuit diagram in **Figure 1** shows a button (S1) connected to pin 2 of the microcontroller. When the button is pressed and pin 2 is taken to ground, the counter will show the 10 Hz and 1 Hz digits when in the MHz range. A switch could be used instead of the button or, if this facility is not required, the button could simply be omitted altogether.

## Construction

As can be seen from the circuit diagram in **Figure 1**, there are no special components in the design and the unit

is very simple, consisting essentially of just the microcontroller, a voltage regulator IC and the LCD panel. Just a few components are required to support the operation of the microcon-

## Features

- Frequency range 0 Hz to 5 MHz
- Accuracy dependent on crystal, typically 50 ppm to 100 ppm
- Display in units of Hz, kHz or MHz with automatic selection
- Stable display even when range changes
- Selectable 5-digit or 7-digit display using pushbutton
- Indication of gate open and display update via red and green LEDs
- Power supply: 5 V DC regulated or 6 V to 9 V AC or 9 V to 12 V DC unregulated
- Current consumption approximately 40 mA (when display specified in ports list is used)
- Simple construction
- No SMDs, no special components
- Printed circuit board and ready-programmed microcontroller available
- Hex file, source code for software and printed circuit board layout available for free download from [www.elektor.com](http://www.elektor.com).