



2V fluorescent-lamp inverter

This circuit powers a Wotan PL9 9W lamp from a single lead/acid cell, giving up to five hours at full brightness from a 25Ah cell.

At 2V, $V_{CE(sat)}$ and $V_{BE(sat)}$ of bipolar transistors would make the circuit inefficient, the gain and low saturation of a fet being required. A low-power, self-oscillating bipolar converter provides 12V for

the output driver 555 — a better arrangement than the use of a self-oscillating output driver, since the magnetic components are now not critical and there is no need of a start-up circuit. The 10k potentiometer adjusts the duty cycle to allow one to achieve a compromise between current consumption and lamp brightness.

Use tantalum capacitors in parallel for

output decoupling and copper foil for the two-turn primary. Retain the starter, but remove the interference suppression capacitor by bending its aluminium tags and drilling through the pins. Using the less-common four-pin version avoids this problem.

Paul Bennett
Stoke Gifford

NiCd charger with timeout

Charging batteries at one tenth of the rating for twelve hours can be inconvenient in that one has to remember to switch off. This circuit provides an automatic switch-off at the correct time.

A simple divider chain, using two 4040

twelve-stage dividers, turns off the supply after twelve hours. The switch clears the registers and sets the output flip-flop, reset occurring when Q_{10} and Q_5 are both 1. Charging resistor R depends on the cell size, but 180 Ohms is suitable for IEC R6 (AA)

cells. Four such cells may be connected in series, providing all are at the same state of discharge.

Jens Langvad
Solrod Strand
Denmark

