# Back-up Supply for Calculators

Many people use mains-adapters to drive their low wattage LCD calculators. But the problem they often face is due to sudden power failure, which 'clears' the calculator memory as well as the display digits.

Here's circuit to overcome the problem. If you take the calculator input from this circuit's output, the moment the power goes off, the battery (of 6V) will supply the power for a predetermined period. (In this circuit the period is set

approximately to 40 seconds.) One can increase or decrease the period with suitable modifications in the values of R2 and C2. After this period the circuit's output will be nil.

If you wish, by closing S3, you can use the calculator as long as you like. It's advisable to open the switch S2 after using the unit, to avoid unnecessary battery current drainage.
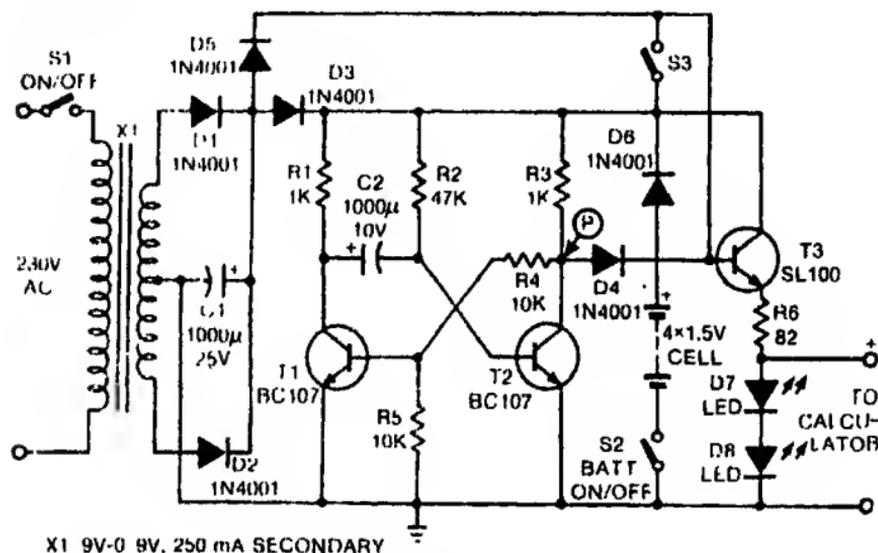
X1 9V-0 9V, 250 mA SECONDARY

Here the two LEDs, D7 and D8, do two important jobs. They stabilise the output at 3 volts, irrespective of any input voltage or load variations. Their combination acts just like a zener diode of 3V breakdown voltage. Moreover, D7 and D8 act like visual indicators. When the mains power goes off, the brightness of the glowing LEDs reduces which helps the user to perform his job quickly.

Transistors T1 and T2 form a monostable multivibrator which gets triggered automatically when the power goes off. Even after the power failure, voltage Vp at point P remains nearly 5 volts for a period of 30 seconds.

Diode D1 is used to suppress unnecessary battery consumption. Transistor T3 acts like a buffer at the output section.

It has been observed that the calculators (of 3 volts) having current consumption up to 5.5 mA can be freely driven by the unit. One can modify the output section to use the same circuit for home computer power supplies.

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