VERSATILE EMERGENCY LIGHT USING FLUORESCENT TUBES



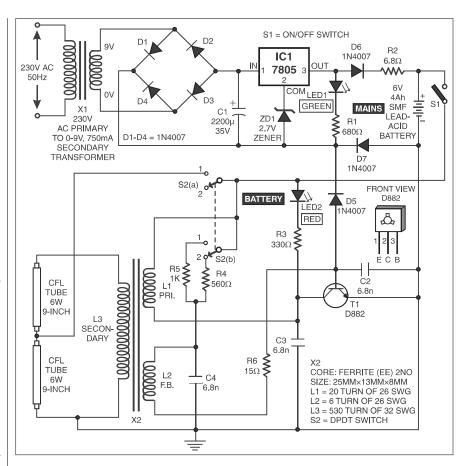
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mergency lights using incandescent bulbs are inherently inefficient compared to those using fluorescent tubes. Here's a versatile emergency light using fluorescent tubes. You can operate it using readymade SUNCA or similar other inverter transformers, which are readily available in the market for around Rs 25. With this circuit you can drive two 6W, 22.8cm (9-inch) fluorescent tubes, with the option to use a single tube or a pair of tubes with the help of DPDT switch S2.

Step-down transformer X1, diodes D1-D4, capacitor C1, and 5V regulator IC1 (7805) form a regulated power supply. A 2.7V zener (ZD1) in common terminal of the regulator props up the output voltage to 7.7 volts. The regulated voltage is applied to the battery through diodes D6 and D7, which cause a drop of about 1.4V across them. Thus the effective charging voltage is about 6.3V, which prevents overcharging of the battery as the terminal voltage of the battery cannot exceed 6.3V.

When AC mains supply is present, the battery starts charging and green LED1 glows to indicate the same. Diode D5 reverse biases transistor T1 forming part of the inverter oscillator and thus the tubes don't glow.

When mains supply fails, transistor T1 starts oscillating and supplies power to inverter transformer X2 and the tubes glow.



An on/off switch (S1) is used to switch off the light when it is not required.

D882 (actually, 2SD882) is an npn power transistor in TO-126 package. It is mounted on a suitable heat-sink to prevent it from thermal runaway. For good illumination, use Toshiba's FL6D fluorescent tubes.

The circuit (excluding the cabinet) costs around Rs 350.