# LED flasher and triac pulser work off ac line

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A flashing LED is an excellent visual alarm. Unfortunately, the LED is a dc device and requires additional circuitry to operate from an ac source. Several circuits can perform the necessary function, but the circuit in **Figure 1a** is the most efficient. This circuit is also reliable, compact, and inexpensive.

The F336HD red-flashing LED (part no. 276-036 at Radio Shack) operates directly from 5V and produces a consistent pulse of light at approximately 1 Hz without a time-constant capacitor. This LED starts immediately when you apply power and is insensitive to temperature variations. The W04G full-wave bridge rectifier produces a full-wave dc waveform from the 120V-ac line. The 0.5-µF capacitor provides current limiting for operating the LED from the rectified 120V-ac line. The 100Ω resistor protects the circuit from surges when you first apply power. The 1N4733 5.1V zener diode protects the LED from high-voltage excursions.

Some applications require a more intense alarm. A simple triac pulser can pulse a 120V-ac lamp or other resistive load of as much as 8A (**Figure 1b**). This circuit is also reliable, compact, efficient, and inexpensive. The circuit is similar to the one in **Figure 1a**, but, in this case, the F336HD LED drives an MOC3010 opto-coupled triac driver. The 180Ω resistor provides current limiting for the 2N6343 triac gate. This configuration can pulse a load as high as 960W. You can increase the power rating by choosing a different triac. (DI #2143) EDN

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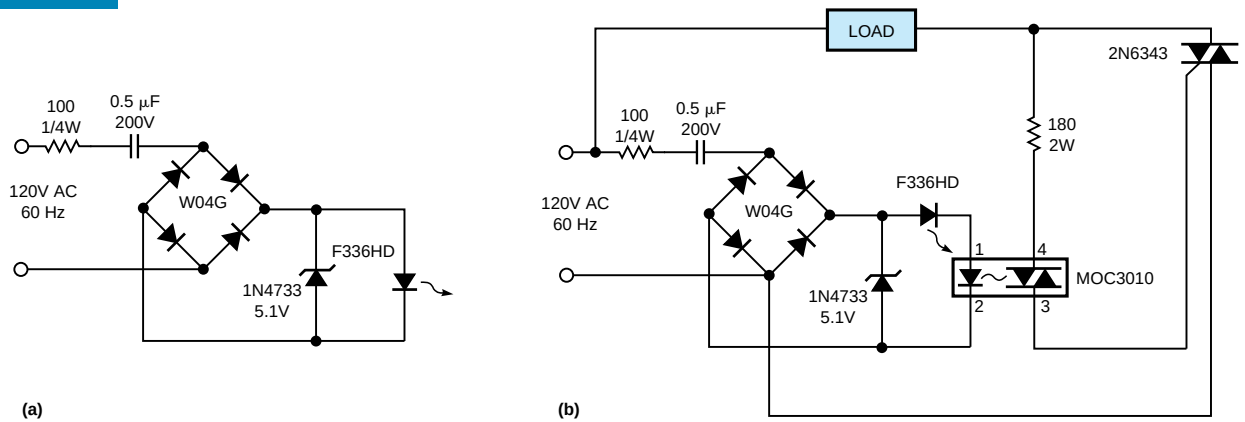
**FIGURE 1**




**A full-wave bridge rectifier provides a dc signal for the red-flashing LED (a). Adding a triac allows the circuit to pulse a 120V-ac lamp or other resistive load of as much as 8A (b).**