

# Piezo device generates buzz, beep, or chime

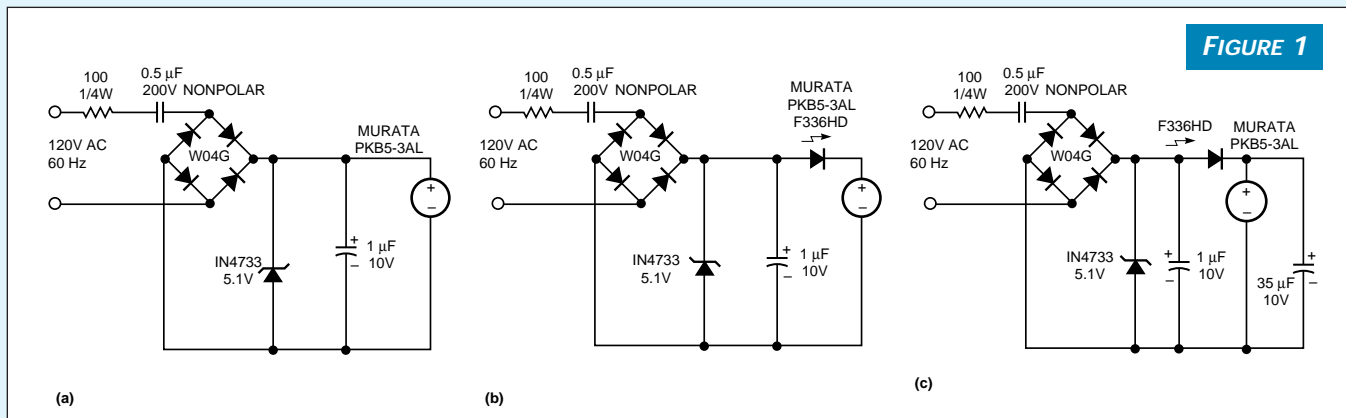
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Piezoelectric buzzers, such as the Murata (Smyrna, GA) PKB5-3A in **Figure 1**, make excellent alarms. They're compact, lightweight, efficient, and reliable. However, a piezo alarm is a dc device; it requires additional circuitry to operate from an ac source. The circuits in **Figure 1** provide a simple and inexpensive way to obtain the dc drive. The W04G full-wave bridge rectifier produces a full-wave dc waveform from the 120V ac line. The 100 $\Omega$  resistor protects the circuit from surges when you first apply power. The 5.5V 1N4733 zener diode protects the buzzer against high-voltage excursions. The 1- $\mu$ F capacitor provides filtering for the buzzer.

The circuit in **Figure 1a** produces a true buzzer sound. The addition of an F336HD flashing LED (part number 276-036

at Radio Shack) in **Figure 1b** changes the alarm to a beeper, and it also provides a visual alarm. The LED produces a constant pulse of light at approximately 1 Hz without the addition of a time-constant capacitor. The LED starts immediately when you apply power, and it's insensitive to temperature variations. The addition of a 35- $\mu$ F capacitor in parallel with the buzzer (**Figure 1c**) changes the audible alarm to a pleasing chime. The value of the capacitor is not critical; you can obtain various sound effects by varying it. (DI #2194) EDN

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A handful of inexpensive components configures a piezo alarm device as a buzzer (a), a beeper (b), or a chime (c).