

# ONE-TOUCH DIODE TESTER

*Identifies good/bad diodes, and tells  
which end is anode/cathode.*

BY DAVID MARKEGARD

**M**OST electronics experimenters seem to have plenty of diodes in their junk boxes—either salvaged from old equipment or purchased at low bulk prices. The problem, usually, is to find out which ones are good, which are bad, and, in the case of the former, which end is which (cathode or anode). Of course, most diodes can be tested using a conventional ohmmeter. However, there are simpler ways, and one is to use the diode checker described here. Simply by touching a diode's leads to its binding posts (in either polarity), you can tell whether or not it is good and identify the anode and cathode.

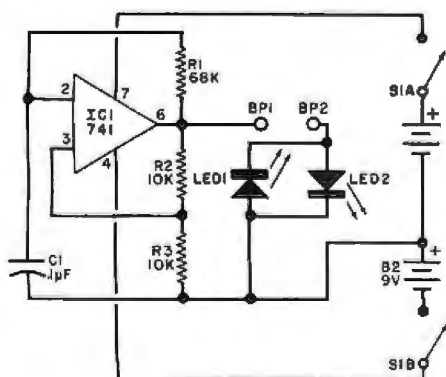
**How It Works.** Op amp IC1 forms a simple square-wave oscillator whose output swings from almost full positive to full negative levels with respect to ground.

unknown diode lead connected to BP1 is easily identified.

**Construction.** The circuit can be assembled on a small piece of perforated board and mounted in small enclosure along with the batteries in holders. The two binding posts and the power on/off switch should be mounted about an inch apart on top of the enclosure. Put the two LED's in rubber grommets near BP1 and identify them properly.

Before installing the LED's, be sure they are of equal brightness. The values of R1, R2, R3, and C1 can be varied if the specified values are not available—as long as the circuit oscillates.

**Use.** Connect a diode to be tested between the two binding posts. If only one LED glows, the diode is good and the glowing LED will identify the cathode. If



## PARTS LIST

- B1, B2—9-volt battery
- BP1, BP2—Five-way binding post
- C1—0.1- $\mu$ F capacitor
- IC1—741 op amp
- LED1, LED2—Red LED (about equal brightness)
- R1—68,000-ohm resistor
- R2, R3—10,000-ohm resistor
- S1—Dpst switch
- Misc.—Perforated board, socket for IC1, battery holder, suitable enclosure, grommets for LED's, mounting hardware, etc.

*IC1 is square-wave oscillator. Tested diode turns on either LED.*

If a good diode is connected between BP1 and BP2 with its cathode toward BP1, LED1 is forward biased and glows. LED2 remains dark because it is reverse biased. If the diode is reversed so that its anode is at BP1, LED2 glows and LED1 is dark. With the LED's properly identified and placed close to BP1, an

both LED's glow, the diode is shorted. If neither LED glows, the diode is open.

Transistor junctions can be tested by connecting the collector to BP1 and the base to BP2. If LED1 glows and is brighter than LED2, the transistor is npn. If LED2 glows, or is brighter than LED1, the transistor is pnp.  $\diamond$