

Unique continuity tester

Checking an electronic circuit for continuity would appear to be a very simple job—just use a VOM, VTVM, or any other

type of resistance measuring instrument. Unfortunately, the use of such instruments in a solid-state circuit is not

a good idea since the current they put out for resistance measurements can damage semiconductor junctions.

CIRCUIT & DESIGN IDEAS

The easy to build continuity tester described here has only 50 micro-amperes between the test probes in a short-circuit condition. This permits its use on most common ICs and discrete semiconductors, including MOS devices.

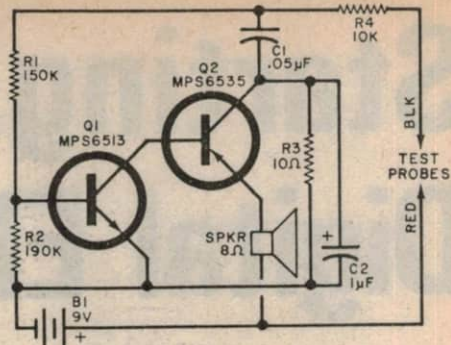
The "readout" on the continuity tester is audible so that there is no need to keep one eye on a meter when probing around in a circuit. Many a semiconductor junction has been damaged when a probe slipped from a certain point as the operator looked up to read a meter. With this tester, a good diode junction will "sound" good when forward biased.

Transistors Q1 and Q2 form a simple voltage-controlled audio oscillator, using

a speaker as the output. The oscillation frequency is determined by R1, C1, R4, and the resistance between the test probes. Resistor R3 provides the collector load for Q2 and capacitor C2 is used for audio bypass. With the test probes open (unshorted), battery life is approximately the same as shelf life since no power is consumed where there is no continuity between the probes.

The continuity tester may be assembled on a small piece of perforated board and mounted, with battery, in an appropriate enclosure. A small speaker may be cemented to the top cover of the enclosure with holes drilled in the cover for the sound to escape.

Bring the test leads out through grom-



meted holes and terminate them with conventional metal tips with plastic sleeves. Colour code the probes with red for the positive side of the battery and black for the other side.

(By J. von Muecke, Motorola Applications Lab.)