



Fig. 3. A low-battery detector circuit built around Motorola's MC14578 micro-power comparator.

sor. A low-battery detector circuit is shown in Fig. 3.

The MC14578 is priced at \$1.34 when purchased in quantities of 500 to 999.

Digital-Analog Integrated Circuits Division, Austin, TX 78762) is an analog building block consisting of a very high input impedance comparator and a voltage follower used to monitor the noninverting input of the comparator without causing circuit loading.

The MC14578 can function with voltage inputs ranging from 3.4 to 14 volts. The quiescent current is rated at 10 microamperes at room temperature, which allows an extended battery life for applications using batteries as either the main source or as back-up power.

Included on the chip are four enhancement-mode MOS field-effect transistors (MOSFETs). These FETs can be externally configured as either open-drain or totem-pole outputs. For safety, the drains have static-protecting diodes on the chip. Another feature is the electrostatic discharge (ESD) protection circuitry present on all input pins.

In a system design application, only one additional component is required for proper comparator operation. A 3.9-megohm resistor rated at $\pm 10\%$ must be installed between the reference bias pin and V+.

Typical applications for the MC14578 are: signal pulse shaper, threshold detector, low-battery detector, line-powered smoke detector, and liquid/moisture sen-

Micro-Power Comparator

The MC14578 from Motorola (MOS