

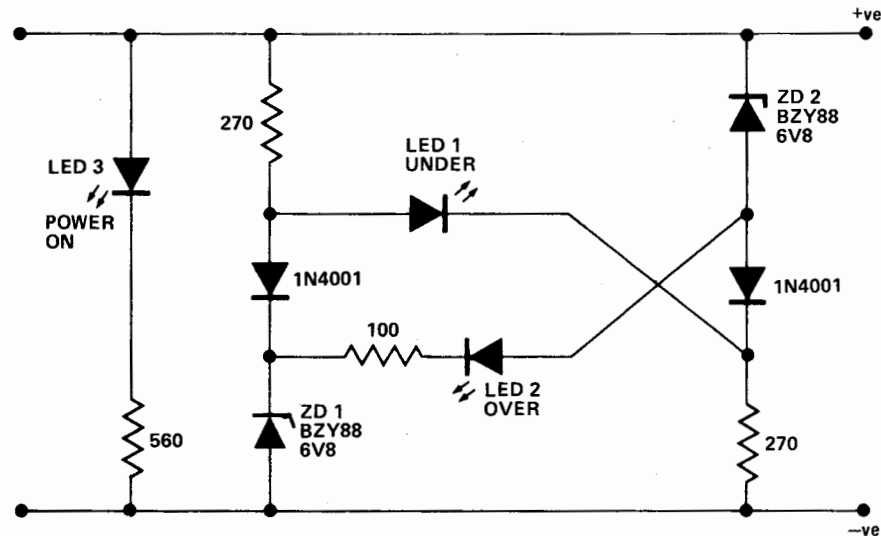
# tech tips

## Supply Telltale

D. Shorthouse

Here is an idea for supply voltage monitoring, in the form of a voltage monitor for 12V supplies, indicating both over or under tolerance voltages. Using three LED's the user can see at a glance whether power is on, over-voltage or under-voltage.

This is achieved by means of a balanced bridge that uses zener diodes ZD1 and ZD2 in the bridges opposite arms and back-to-back LED's between the mid-points of the bridge arms, if the input voltage does not exceed the two zener breakdown voltages ( $2 \times 6V8 = 13V6$ ), LED1 lights but above  $13V6$  LED1 becomes reverse biased and remains off when



the input voltage increases to the extent that at the junction of ZD2, it exceeds the zener voltage of ZD1, plus the LED voltage of 1.6V, then

LED2 is turned on, with resistor 100R limiting the current through the LED. Note total drain of unit is about 50 mA.