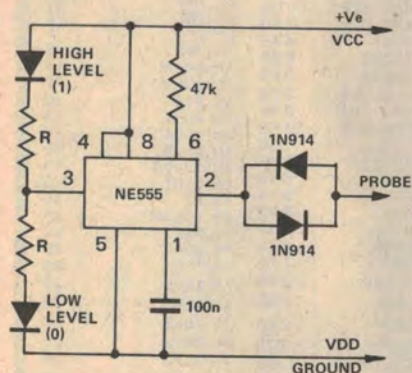


Ideas for Experimenters



Simple logic probe uses 555 chip

Alan Reek, of Woolwich in Sydney, devised this simple logic probe around a 555 timer IC. This circuit has the advantage that it places very little load on the circuit under test. As shown, the circuit can be used with TTL (R=120 ohms). For CMOS circuitry using a supply rail above 5V, the LED current limiting resistors should be increased.

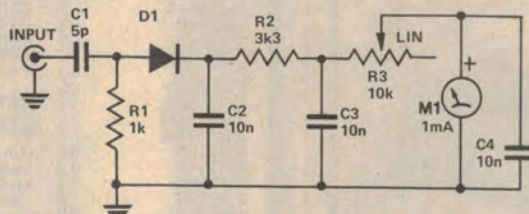
Power for the probe is taken from the device under test. Because of the few components it can be housed in a small pill container (plastic) or a commercial probe container can be used.

Square wave inputs will cause both LEDs to light equally and the duty cycle of the input can be estimated by the relative brightness of each led. A small silicon diode could also be connected in series with the Vcc line so as to prevent damage to the probe if the wrong polarity is applied to the circuit.

RF monitor meter

A simple RF and modulation monitor is always a handy instrument to have around the shack. This one should cost less than \$10 — half that if you use a 'surplus' bargain meter movement. The input could be taken from two coax connectors mounted in a small box with their centre conductors connected together — providing a through connection so that the unit may be slipped in series with the transmission line to the antenna.

Just about any small signal silicon or germanium diode may be used for D1 — like 1N914, 1N4148, OA200, OA202, AA119, OA90, OA91, OA95 etc.



Capacitor C2 should have very short leads for best effectiveness. At VHF its value could be reduced to 470 pF or 1 n. The pot, R3, is a sensitivity control. The value of C1 should be varied so that full scale deflection is obtained with the usual RF power used with R3 at maximum resistance.

Alternatively, the 'free' end of R3 could be connected to ground to provide a greater range of control.

When using the monitor on SSB transmissions, C3 may be increased to say 100 n or as much as 1 uF to provide some 'hand' for the meter indication.

LED indicator's many uses

This circuit, from T. Threlfall of Nedlands WA, was originally designed as a peak audio detector to supplement inaccurate moving-coil VU meters in a recording preamplifier susceptible to

clipping. In this application it has limitations as the LED brightness varies with the variable conductance of the transistor: an improved circuit may use a UJT or FET with better results.

An alternative use is as a low cost visual display — a "musicolor" on a

very small scale with low-level input requirement; while level displays using several LEDs may be better, the cost is high.

The gain of the 741 can be adjusted down if desired, by reducing the 320 k resistance.

The "rectifier" used was from a damaged moving coil meter; connecting the negative output to ground gave a higher output than leaving it floating. This type of rectifier has a lower voltage drop than silicon diodes, and may be useful if extreme sensitivity is needed. Otherwise, a single diode suffices.

The voltage regulator output current was made high for brighter illumination and can be reduced by increasing R from 68 ohms.

The transistor type is unimportant if current rating is not exceeded. A PNP type could be used if the positive output terminal of the rectifier is grounded and the negative terminal is used as output.

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