

Simple Logic Probe

EFY has published quite a few logic probe circuits during the last few years. But here is a simple one providing four 'state' indications. It also has the advantage of reverse power supply polarity protection with a very low power consumption, say 40 mA only at +5V supply.

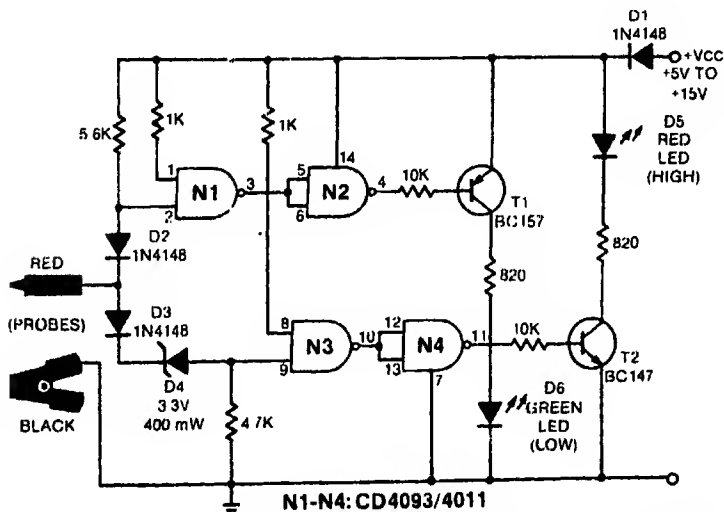
The four logic states indicated by the probe are:

1. **Floating.** When the probe is given supply (which may be derived from the circuit under test) and the probe is placed on the same point which is 'open' or 'floating' then both the LEDs remain off.

2. **Low.** Level '0' or 'ground' is indicated by the green LED which glows when the probe is either at the ground level or at logical '0' level.

3. **High.** This is indicated by glowing of the red LED when the probe is at a logical '1' level or at V_{cc} potential.

4. **Clock.** Clock pulses of any frequency can be indicated by glowing of both the LEDs simultaneously if the frequency is higher than 25 Hz, or glowing of one after the other at a lower frequency.



This circuit is protected against reverse supply by diode D1.

This versatile probe can be used for testing TTL or CMOS circuits since its voltage range is from 5V to 15V. The maximum current consumption of this circuit at 15 volts is 40 mA.

The circuit can be housed in the body of a wide pen or in a plastic tubing, with two wires coming out for supply, and tip of the pen serving as the tip of the probe itself.

The LEDs can be fitted either on top of the pen or on its cylindrical surface.

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