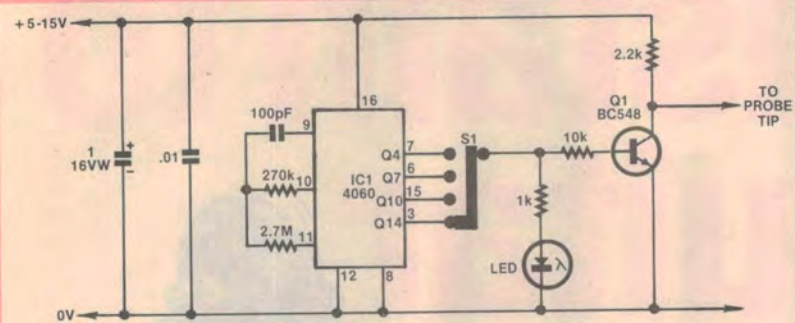
Circuit & Design Ideas



Logic pulser probe

This simple pulser probe makes it easy to troubleshoot digital logic circuitry. The heart of the circuit is a 4060 14-stage ripple carry binary counter IC1, which incorporates an on-chip oscillator and a multistage divider circuit.

The 100pF capacitor and the 2.7MΩ and 270kΩ resistors set the oscillator frequency to a nominal 16.8kHz. Switch S1 selects the Q4, Q7, Q10 and Q14 outputs of the 4060 to derive frequencies of 1.05kHz, 131Hz, 16.4Hz and 1.03Hz respectively. The selected output is then buffered by transistor Q1 which has its collector connected directly to the probe tip.

The selected Q output is also used to drive a red indicator LED. This LED will pulse at the two lower frequencies, and will appear continuously lit at the two higher frequencies.

The prototype was built on a small PC board and mounted inside a Jabel plastic probe case. The layout is not critical however, and other construction techniques (eg, stripboard) could also be used.

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