Feedback and its Applications

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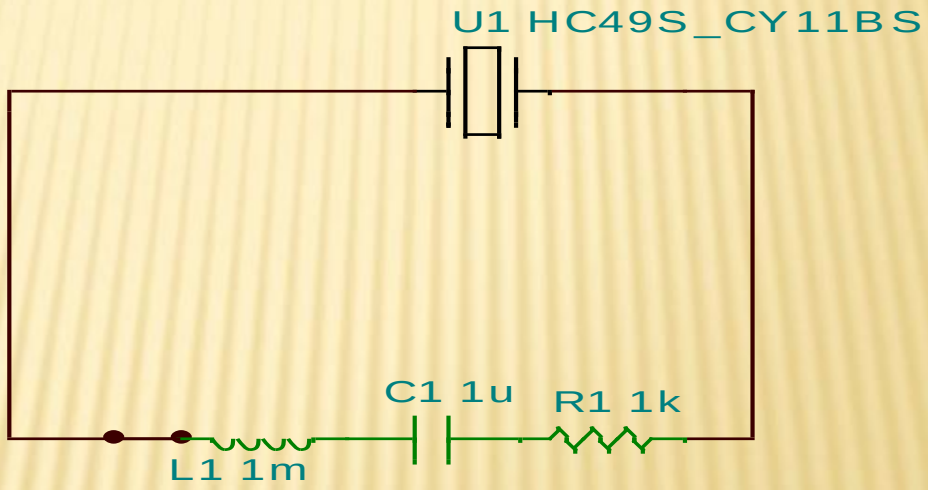
crystal oscillator

- A crystal oscillator is an electronic circuit that uses the mechanical resonance of a vibrating crystal of piezoelectric material (ex. –quartz,rochellesalt) to create an electrical signal with a very precise frequency.
- This frequency is commonly used to keep track of time (as in quartz wristwatches), to provide a stable clock signal for digital integrated circuits, and to stabilize frequencies for radio transmitters.

Basic circuit diagram for Crystal Oscillator



Relaxation Oscillator

- A **Relaxation Oscillator** is an oscillator in which a capacitor is charged gradually and then discharged rapidly. It's usually implemented with a resistor, a capacitor, and some sort of "threshold" device such as a neon lamp, diac, uni junction transistor, or Gunn diode .

MERITS OF OSCILLATOR

- Portable and cheap in cost.
- An oscillator is a non-rotating device. Consequently, there is no wear & tear & hence longer life.
- Frequency of oscillation may be conveniently varied.
- Frequency once set remain constant for a considerable period of time.
- It operates at a very high efficiency since there is no wastage of energy due to friction.