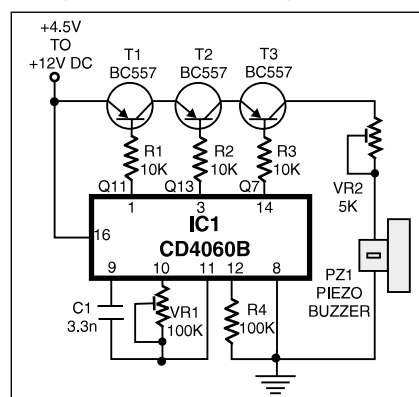


SIMPLE TELEPHONE RING TONE GENERATOR

K. UDHAYA KUMARAN, VU3GTH

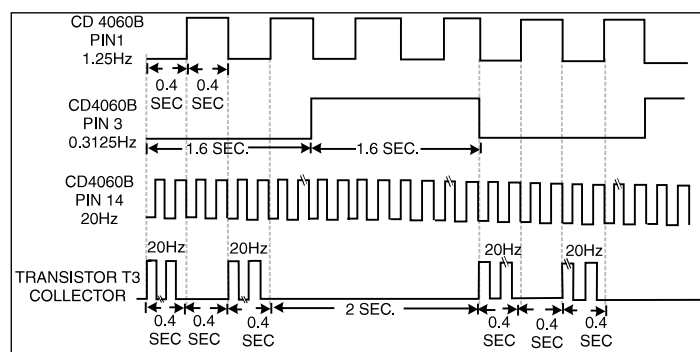
Here is a simple telephone ring tone generator circuit designed using only a few components. It produces simulated telephone ring tone and needs only DC voltage (4.5V DC to 12V DC). One may use this circuit in ordinary intercom or phone-type intercom.



The sound is quite loud when this circuit is operated on +12V DC power supply. However, the volume of ring sound is adjustable.

The commonly available 14-stage binary ripple counter with built-in oscilla-

tor (CMOS IC CD4060B) is used to generate three types of pulses, which are available from pin 1 (O_{11}), pin 3 (O_{13}), and pin 14 (O_7), respectively. Preset VR1 is adjusted to obtain 0.3125Hz pulses (1.6-second 'low' followed by 1.6-second 'high') at pin 3 of IC1. At the same time, pulses available from pin 1 will be of 1.25 Hz



(0.4-second 'low', 0.4-second 'high') and 20 Hz at pin 14. The three output pins of IC1 are connected to base terminals of transistors T1, T2, and T3 through resistors R1, R2, and R3, respectively.

Transistors T1 through T3 are cas-

caded in such a way that the positive voltage available at the emitter of transistor T1 is extended to the collector of transistor T3 when the outputs of all the three stages are low. As a result, transistors T1 through T3 are forward biased for 0.4, 1.6, and 0.025 seconds, respectively and reverse biased for similar durations.

Using a built-in oscillator-type piezo-buzzer produces around 1kHz tone. In this circuit, the piezo-buzzer is turned 'on' and 'off' at 20 Hz for ring tone sound by transistor T3. 20Hz pulses are available at the collector of transistor T3 for 0.4-second duration. After a time interval of 0.4 second, 20Hz pulses become again available for another 0.4-second duration. This is followed by two seconds of no-sound interval. Thereafter the pulse pattern re-

peats itself.

Refer the figure that indicates waveforms available at various points including the collector of transistor T3. Preset VR2 can be used for adjusting the amplitude of the ring tone. □