

TELEPHONE EXTENSION RINGING CODE 304 (LEVEL 1

Telephone extension ringing circuit. Can be applied for homes or offices that require all telephone sets to ring.

- **Technical specifications:**
- power supply: 6 to 9VDC.
- consumption: 36mA max. @ 9VDC.
- adjustable tone level by trimmer potentiometer.
- PCB dimensions : 2.13 x 1.87 inches.

How to works:

Under normal condition without ringing signal, TR1 and TR2 do not work yet due for there is only 48-50 volts in telephone line. When TR2 does not work, IC1 has no voltage to all IC1s so that there is no sound at dynamic buzzer. When there is ringing signal, there will be 100 volts, so TR1 and TR2 are working now. When TR2 working, IC1 will has voltage to the circuit, and will transferred to all IC4s. IC1/1 and IC1/2 act as low frequency generators, which will be transferred to the base of TR3 and will be combined with high frequency, that IC1/3 and IC1/4 generated. Mixed both frequency will be transferred next to pin 4 of IC1 to TR4 for signal amplification and send out to dynamic buzzer.

PCB assembly:

Shown in Figure 3 is the assembled PCB. Starting with the lowest height components first, taking care not to short any tracks or touch the edge connector with solder. Some tracks run under components, and care should be taken not to short out these tracks. If the pins will not enter the holes with ease, use a small drill to slightly enlarge the opening. All components with axial leads should be carefully bent to fit the position on the PCB and then soldered into place. Make sure that the electrolytic capacitors are inserted the correct way around. Some components are particularly sensitive to heat (ie: Transistors, IC's, diodes etc.) extra care must be taken to only apply the iron for as little time as possible, using a pair of pliers to grip the leads will help conduct heat away. Trim components leads with wire

cutters to prevent excess lengths causing a short circuit. Now check that you really did mount them all the right way round!

<u>Testing:</u>

Install all component following figure 3. Apply the power supply 6 to 9VDC to circuit. With the positive pole is connected to "+" point and the negative pole is connected to "-" point. Calling in, when have the ringing signal, there will be ringing sound at dynamic buzzer. Adjusting the trimmer potentiometer 100K max. clockwise. Covering pipe to dynamic buzzer can create louder sound.



Troubleshooting:

The most problem like the fault soldering. Check all the soldering joint suspicious. If you discover the short track or the short soldering joint, re-solder at that point and check other the soldering joint. Check the position of all component on the PCB. See that there are no components missing or inserted in the wrong places. Make sure that all the polarised components have been soldered the right way round.

