

**MOSQUITO REPELLER**  
CODE 918

LEVEL 1

Mosquito repeller circuit is an electronic circuit that can produce up to 10-30KHz frequency. This sound signal is in the sonic zone and is distributed on air by a piezo board. Normally, the speed of a mosquito's wings during flight is according to this frequency, a mosquito would feel like flying into an air trap and then try to escape from this signal zone. However, each mosquito has a different speed of flying, so it should not be over-trusted.

Technical specifications:

- power supply : 3VDC.
- consumption : 20mA max.
- PCB dimensions : 1.60 x 1.39 inches.

How to work:

Connecting TR1, TR2 as a low frequency generator. This frequency will control TR3, TR4 to generate high frequency. While TR1 conducts current, TR2 does not conduct current. The collector of TR2 will have high voltage which will then pass through diode D1 and charge C3, through VR1 to the base of TR3 and TR4 which pass through R4. TR3 and TR4 will generate 30KHz frequency. On the second part, TR1 will stop conducting current, TR2 will instead conduct current and make the collector of TR2 no voltage, so C3 is not charged and voltage will be discharged through VR1, R6, R7 to the base of TR3 and TR4, generating a lower frequency according to C3 voltage. The lowest frequency is 10KHz. On the third part, TR2 will stop conducting current, the collector of TR2 will charge the left current to C3 again. Frequency now turns to 30KHz piezo sound to adjust the frequency.

PCB assembly:

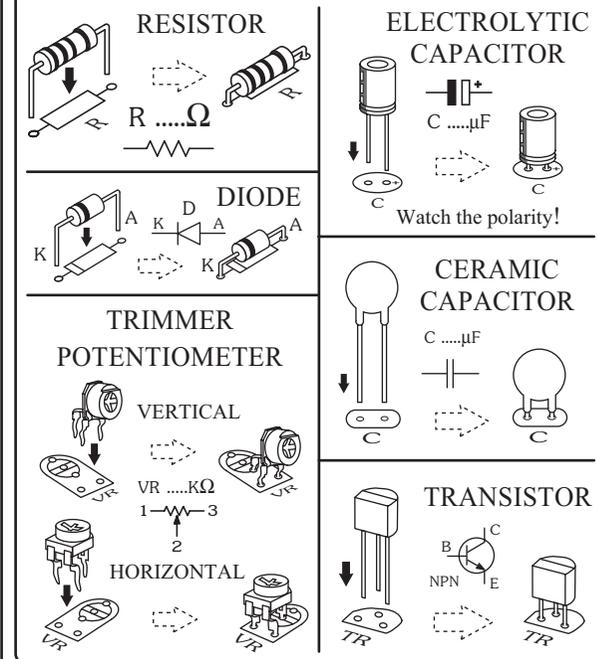
Shown in Figure 3 is the assembled PCB. Starting with the lowest height components first, taking care not to short any tracks or touch the edge connector with solder. Some tracks run under components, and care should be taken not to short out these tracks. If the pins will not enter the holes with ease, 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 component 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!

Testing:

Connect piezo board to "PZ" point. Giving 2 units of 1.5 volt battery. Turning trimmer potentiometer VR10K, it should be sharp sound from piezo.

**Figure 1. Installing the components**



Troubleshooting:

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

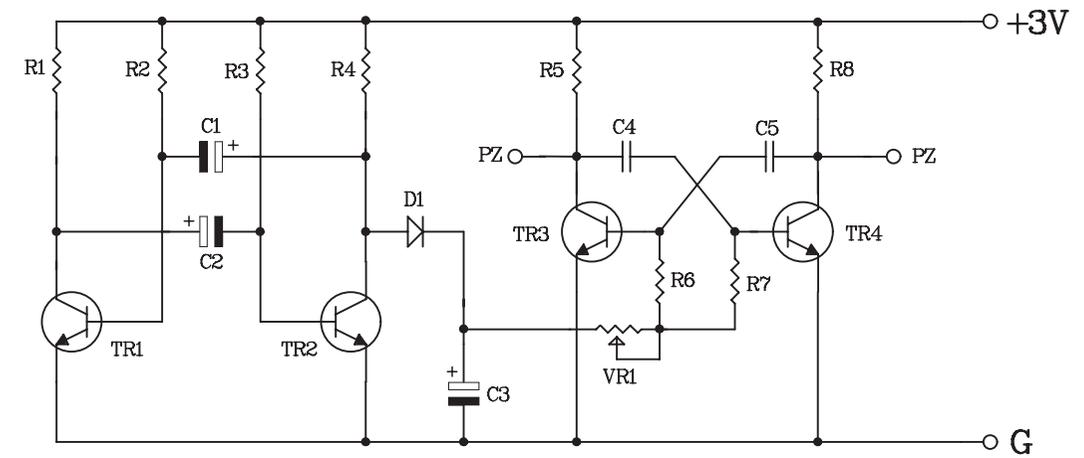
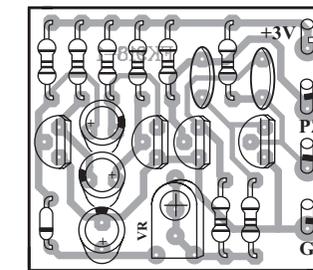


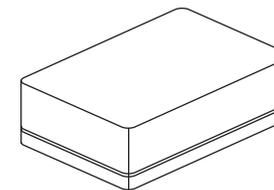
Figure 2. The mosquito repeller circuit

FK918-1



POWER SOURCE  
1.5Vx2 SIDE AA

Figure 3. Connections



NOTE:

FUTURE BOX FB03 is suitable for this kit.

NEW KIT SET

CODE FK	DESCRIPTION	POWER
168	NO SMOKING FLASHER 46 LED	9-12VDC.
169	DANCING ROBOT FLASHER 33 LED	9-12VDC.
170	DANGER FLASHER 42 LED	9-12VDC.
171	TWO LAMP FLASHER	3VDC.
172	THREE STEP FLASHER 19 LED	9-12VDC.
173	HALLOWEEN PUMPKIN FLASHER 23 LED	9-12VDC.
174	5x7 ANIMATED LED SIGNBOARD	3-5VDC.
816	VARIABLE REGULATOR 0-50V. 3A.	50VDC.
817	TRANSFORMERLESS POWER SUPPLY 6-9-12V 50mA	220-240VAC.