

This circuit is the chasing light circuit. After knocking the PC-board, this circuit shows at random chosen numbers between 1 to 6. This circuit is consist of 7 LED's of 3 mm. Idea as party etc.

Technical specifications:

- power supply: 9-12VDC.
- consumption: 24mA max. @ 12VDC.
- LED indication : 7 LED's, each 3 mm.
- sensitivity of shock sensor : adjustable
- dimensions of PCB : 1.89 x 1.67 inches per PCB

How to works:

When knock the circuit, the shock sensor will detects this quake, caused by the pulsating signal applied to it. This signal is fed to the base of TR1 (amplifier signal) through the trimmer potentiometer VR1. VR1 acts for gain adjustment. After that this signal will be amplified again by TR2. The signal at the collector of TR2 is fed to pin 14 of IC1 (CK). This output is used to clock a decade counter IC1. This counter has 10 outputs but we use to 6 outputs only. When IC1 is counting up to the output 6th, IC1 will be reset itself and count again. But if the shock sensor isn't detect the quake, at pin 14 of IC1 hasn't the signal, IC1 will be stop automatically.

PCB assembly:

In the assembled PCB that can be divided into 3 sections; assembly components to PC-board, installing the shock sensor and installing the both PC-board.

1. Assembly components to PC-board, shown in Figure 1, starting with the lowest height components first.

2. Installing the shock sensor, following in Figure 2, start from tightening screw M3x6mm. with the both nut and then take the pin of resistor to soldering with piezo transducer and nut. Installing the shock sensor to "PZ2-1" and "PZ+" point.

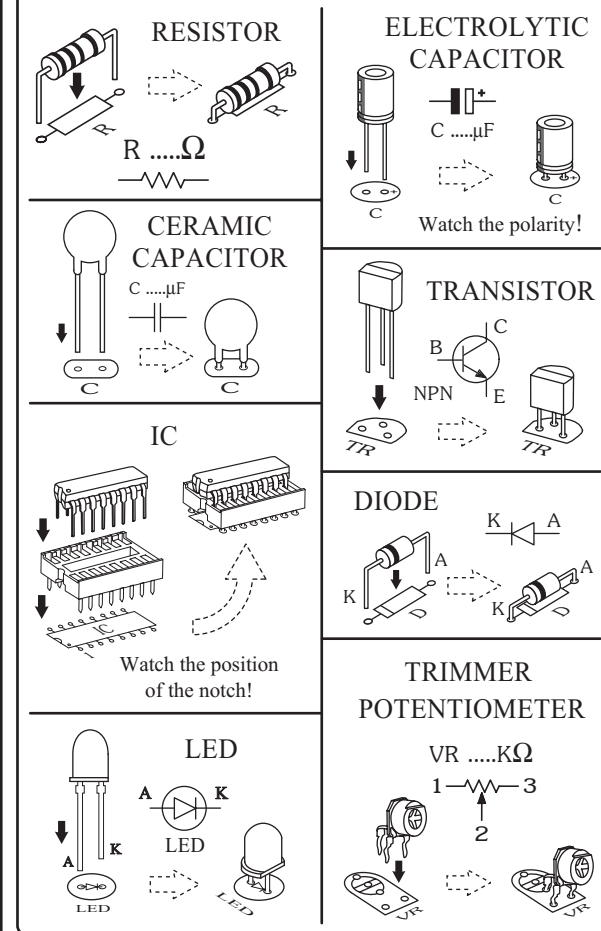
3. Installing the both PC-board, following in

Figure 5, tightening screws M3x25 mm., plastic spacers 15 cm. and nuts with both PC-board, and then soldering five metal pin with both PC-board.

Testing:

This kit has an operating voltage range of 9-12 VDC. Connect the power supply to the circuit. Some LEDs turns on same number of dice. After that knocking the PC-board, the circuit shows at randow chosen numbers between 1 to 6. VR is used to adjust the sensitivity of shock sensor.

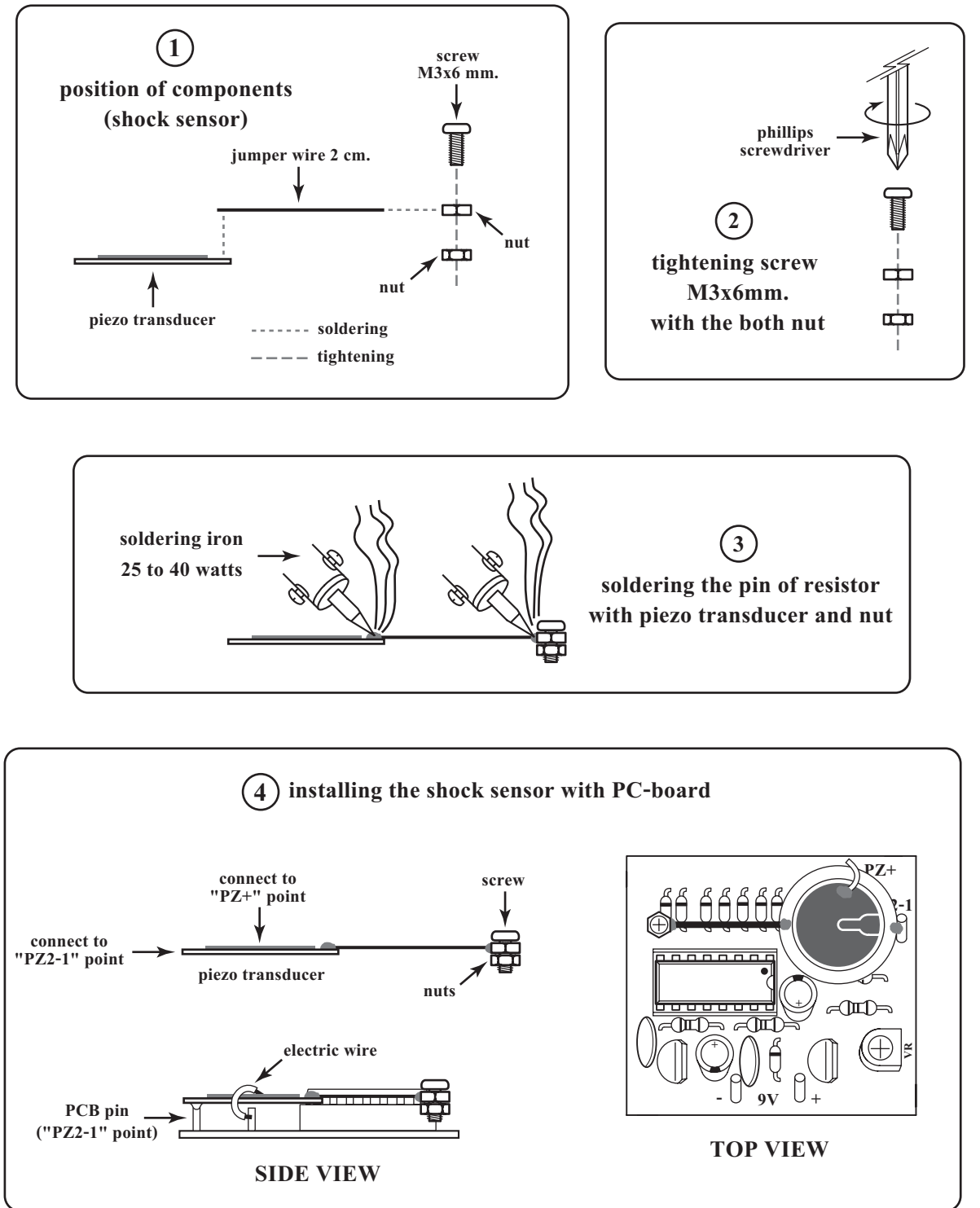
Figure 1. Installing the componants



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.

Figure 2. How to installing the shock sensor and the shock sensor with PC-board



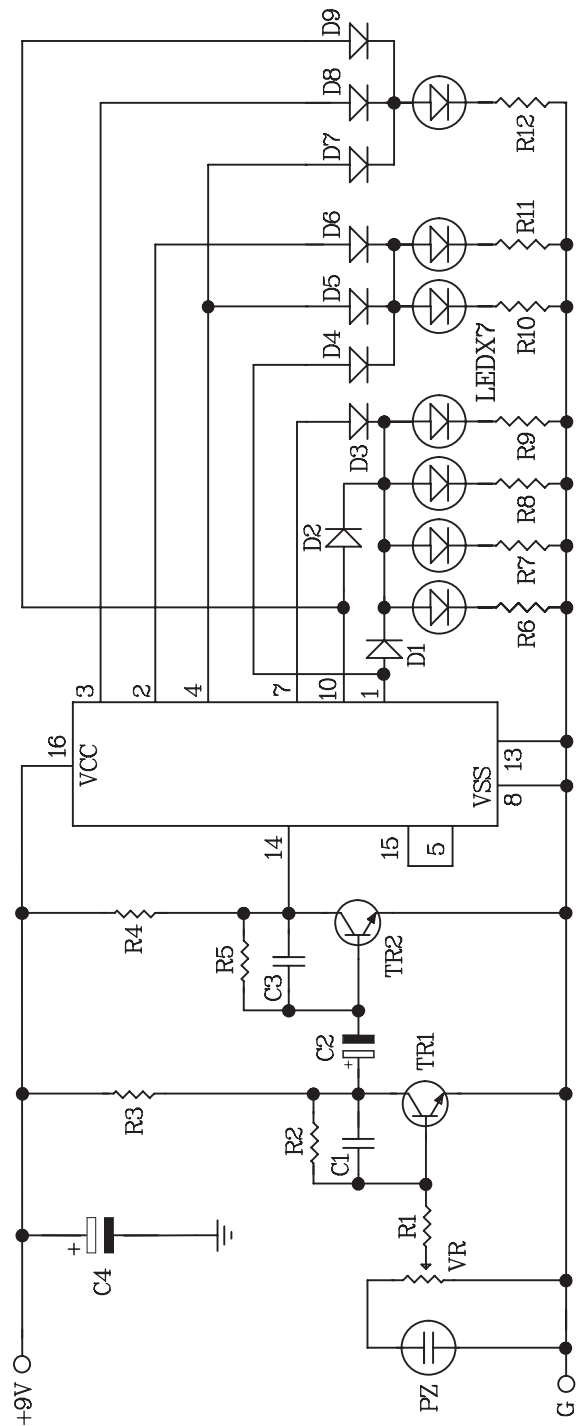


Figure 3.
The shaking dice circuit

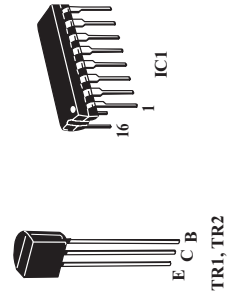
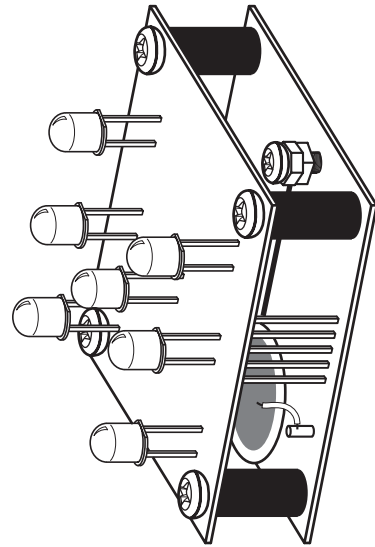


Figure 4. connection

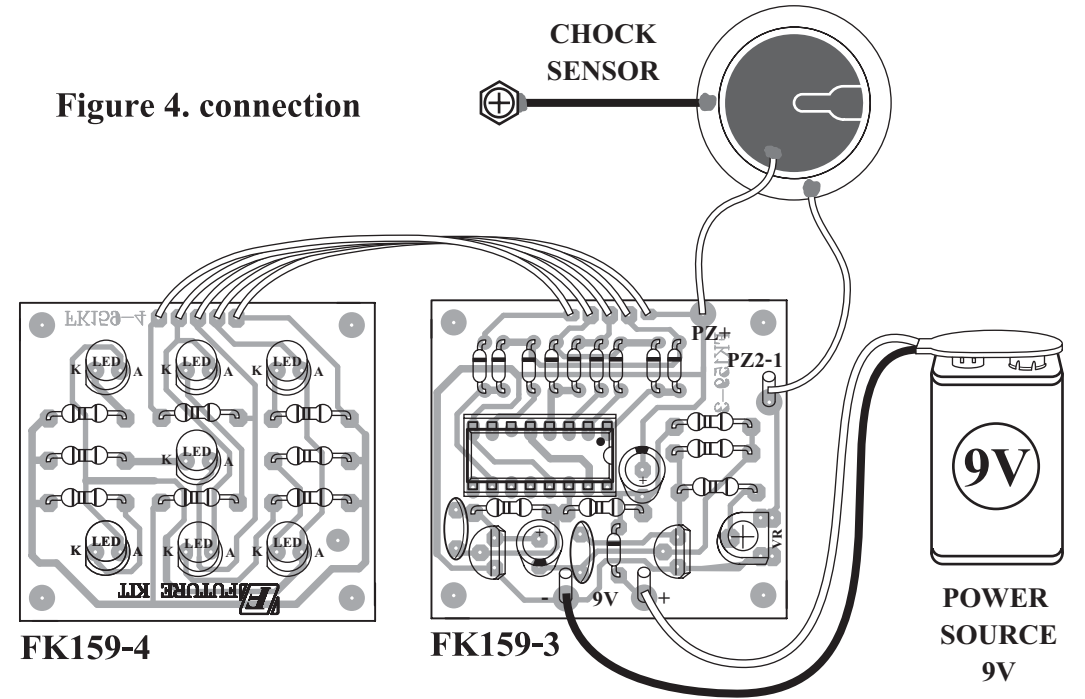


Figure 5. installing the both PCB together

