

RANDOM NUMBER GAME 1 DIGIT
CODE 160 **LEVEL 1**

This circuit is a board game provide an excellent source of pleasant and healthy entertainment. It is ideal to use for funny party. They include a 1 digit (0.5 inch high).

Technical specifications:

- power supply : 9-12VDC.
- consumption : 42mA max. @ 9VDC.
- display : 1 digit (0.5 inch 7-segment LED)
- PCB dimensions : 2.22 x 2.63 inches.

How to works:

Multi-vibrator (TR2 and TR3) is configured as frequency generator. When push and hold switch SW, TR2 and TR3 will alternately one by one with frequency is depending on R1 to R6, C1 and C3 from an oscillator that controls the speed of the random number. The output of this oscillator is used to clock a binary counter IC1. This counter has four output and therefore counts from 0-9 depending on the logic state. The outputs of this counter are connected to the inputs of the decoder IC2. Each of these 7 outputs is connected to a 7-segment. A 7-segment will be random a number. When release switch SW, a 7-segment will slowly random and stop.

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!

How to check the common of 7-segment LED

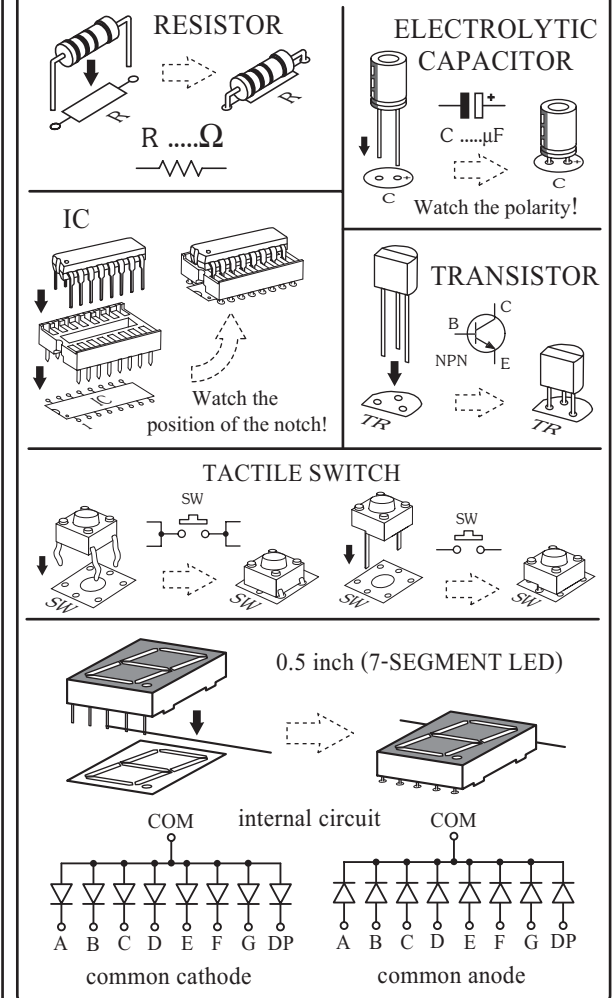
Set the analog ohmmeter to a range x10. Connect the position terminal (red) to pin 3 of 7-segment LED and touch the

negative terminal (black) to the rest of pin. Each segment will be light on following touch. That is meaning 7-segment LED to be common cathode (K). But if each segment is not light on, meaning that 7-segment LED is common anode (A). When you know the common of 7-segment LED, jumping the jumper JP to the same 7-segment LED.

Testing:

Apply the power supply 9 to 12 VDC to circuit. Push and hold SW, a 7-segment will be random a number until release SW, a 7-segment will slowly random a number and stop.

Figure 1. Installing the components



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.

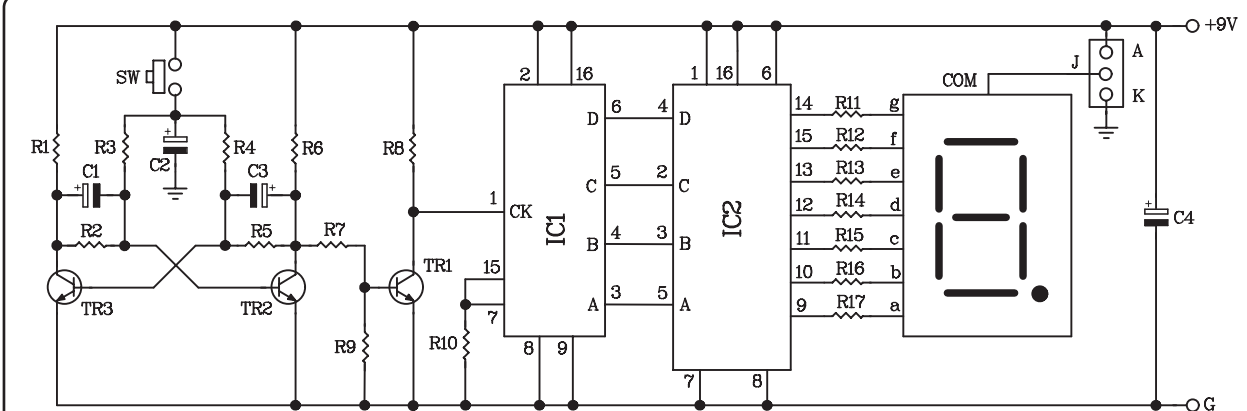
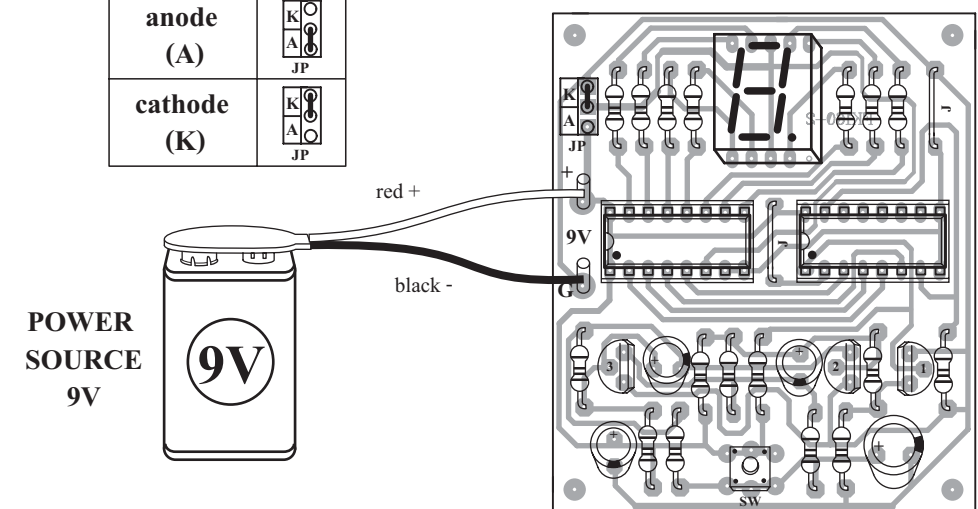


Figure 2. The random number game 1 digit circuit

Select jumper

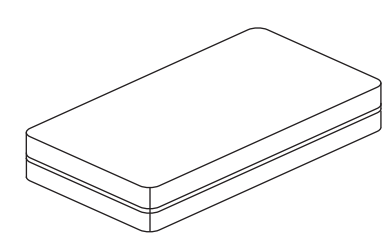
common	JP
anode (A)	
cathode (K)	

Figure 3. Connections



FK160-2

POWER SOURCE 9V



NOTE:

FUTURE BOX FB17 is suitable for this kit.

NEW KIT SET

CODE FK	DESCRIPTION	POWER
511	TWO FUNCTION INFRARED SENSOR	12VDC
674	POWER AMP. 2W MONO WITH SPEAKER	9-12VDC
675	POWER AMP. 2+2W STEREO WITH SPEAKER	9-12VDC