Mini function generator circuit using ICL8038

This is a Mini function generator circuit using ICL8038 IC number.(Precision Waveform Generator/ Voltage Controlled Oscillator) generate the waveform out to us use it, up to 3 model. are Sine wave signal, the triangle, and square wave signals. The output of this circuit is quite realistic, in the waveform. And in this circuit will suggest a 2 model include (1.) the basic model (2.) Model is developed for improve quality. can customize even more. Then How would you like to see it. Starting at the base before.

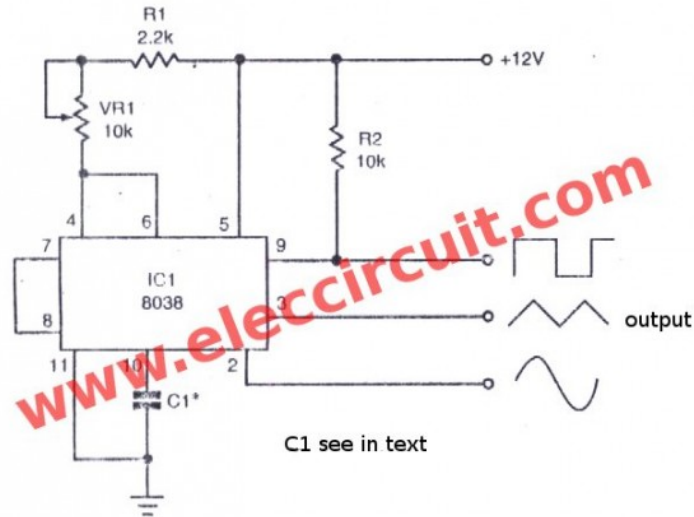**The Basic circuit diagram function generator by ICL8038**

Figure 1 The basic circuit of function generator using ICL8038

The Basic characteristics of the circuit with a few components. By have VR1-potentiometer, R1-resistors and C1-capacitors are determined frequency output. Which has formula to calculate the frequency output as follows.

The Frequency output (f)
= 0.15/(VR1+R1)C1…….(1)

The output of IC1 If the waveform is not symmetrical. Can be modified as follows. connects the resistors of 500 ohms first at pin 4 with VR1, and then second at pin 5 with VR1 Just done, the first circuit will be cheaper, but not gimmicky.

The components list
Resistors size 1/4W 5%
R1_____2.2K
R2_____10K
VR1____10K Single potentiometer
Capacitors
C1_____See in text
Semiconductor
IC1___ICL8038___Precision Waveform Generator/ Voltage Controlled Oscillator
Socket IC, The Universal PCB Board, and other etc.

How to builds
You can build this circuit on universal PCB board on Figure 2 the wiring, and various components can view carefully for the polarity of the electrolytic capacitors, potentiometer, resistors and Pin of the IC is not an error.
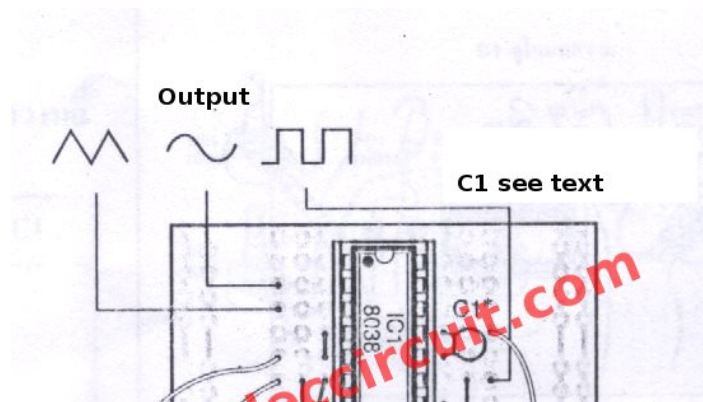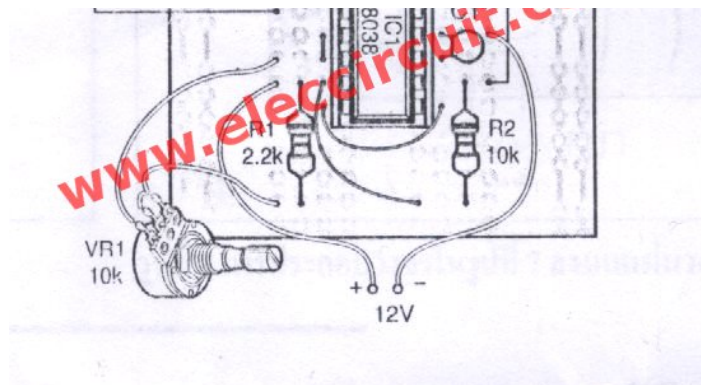
Figure 2 the components layout of the basic circuit.

The Model is developed of function generator by ICL8038

But if the model is developed as in Figure 3. May have to invest a lot. Which device has the additional duty is different. But the important point is to make circuit more stablea and Adjustment to the desired waveform.
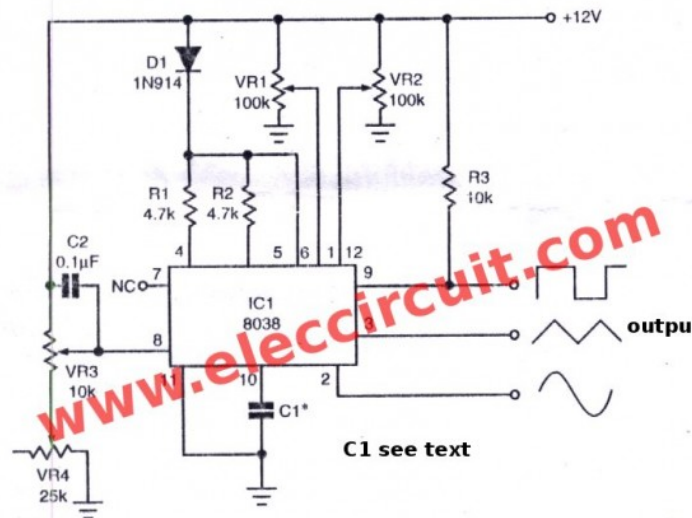

Figure 3 the circuit diagram of the model is developed.

After that We come to understand the equipment to do it. Started at D1, R1 and R2 is the control output of signal has a symmetric or duty cycle at 50%. The VR1 and VR2 to adjust the waveform at output is a distortion of the original signal. The VR3 is used to select the desired frequency at output, and Finally is VR4 is used to obtain the highest frequency there. For the C1 of both circuit Be used to determine the frequency of each district vary as Table 2.

Table 2 the value of capacitor-C1 that use in each frequency range of the function generators

Frequency range _____ C1 value
1Hz – 100Hz_____1uF
100Hz-1KHz_____0.1uF
1KHz-10KHz_____0.01uF
10KHz-100KHz____0.001uF

The all capacitors using to withstand voltage at 25 volts, And If you want this machine provides output from lowest to highest byWithout changing C1, It's not hard, just to pin 10 of IC1 with various values of C1 in to Slector switches. You are now a Mini function generator that has output of 3 model. Them to informally

How to builds this projects
We can builds this circuit as Figure 4 as the components layout on the universal PCB board. Which looks like building project by mins ago project.
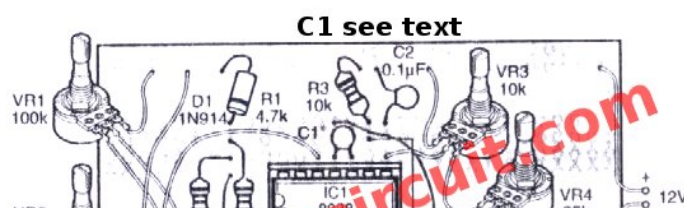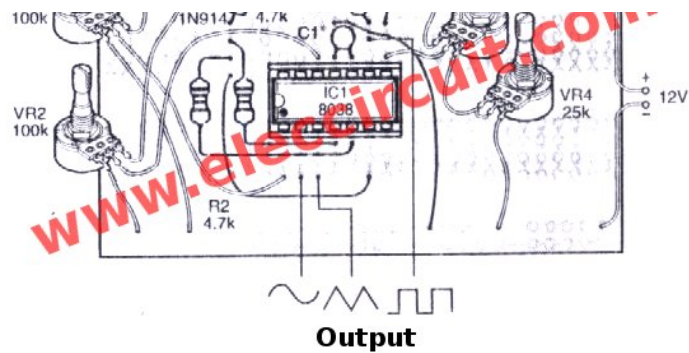
Figure 4 the components layouts of this projects.

The components list.
Resistors size 1/4W 5%
R1,R2_____4.7K
R3_____10K
VR1,VR2___100K(B) Dual potentiometer
VR3_____10K(B) Single potentiometer
Capacitors
C1_____See text
C2_____0.1uF(104) 50V Ceramic
Semiconductor
D1____ 1N914 or 1N4148__ 75V 150mA Diodes
IC1___ICL8038___Precision Waveform Generator/ Voltage Controlled Oscillator
Socket IC 14 pin, Universal PCB board.