

# Guitar Sounds

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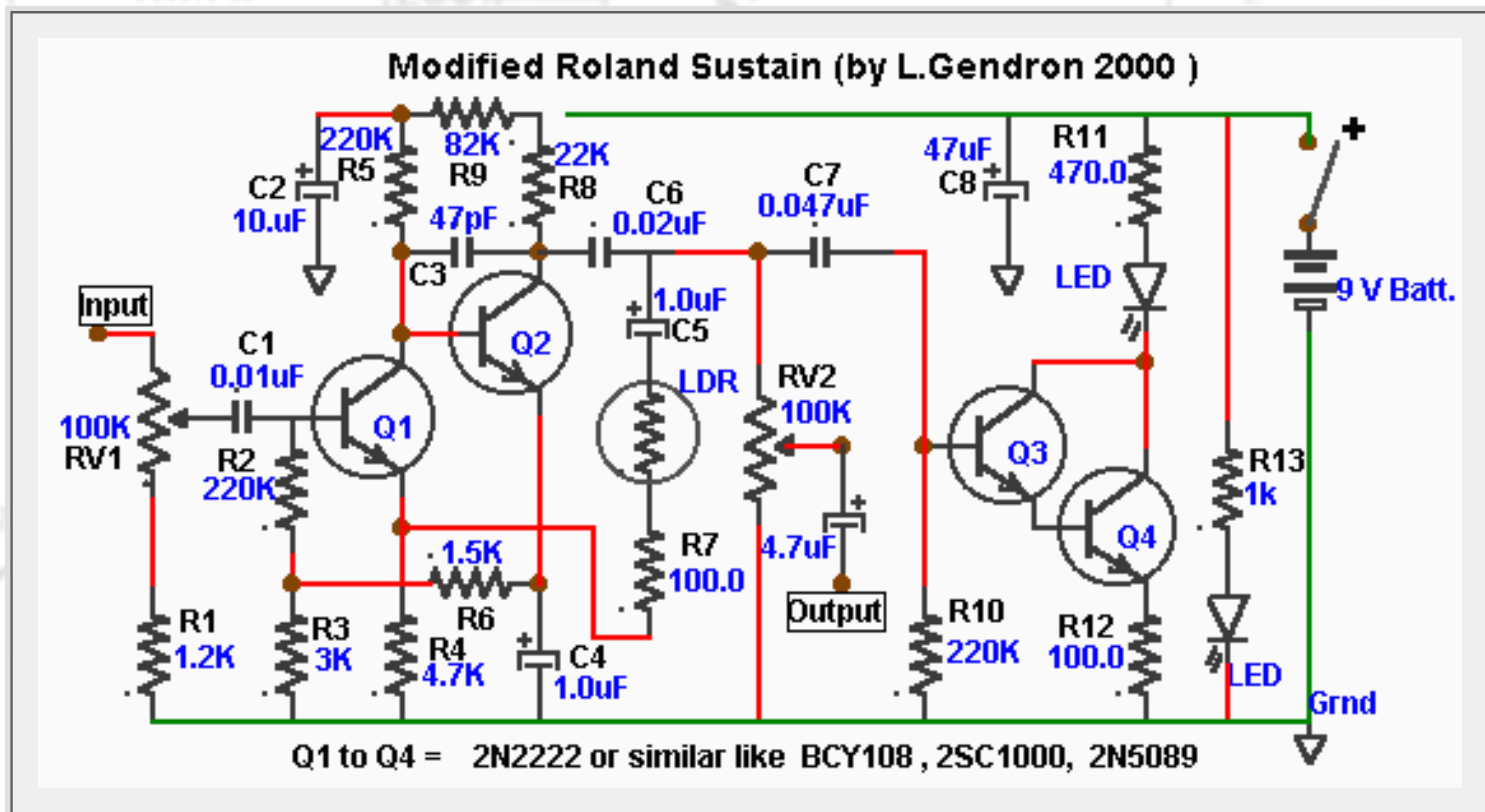
[Download the Sustain project in PDF](#)

## Introduction

### ● Infinite Sustain Module

There are not many sustain circuits available on which to base some kind of experimentation, of the few I have come across the newer system are build using op-amp ICs and are very difficult to tame into a pure sustain that will not go wild into a distorted signal .

I have come across the Roland Sustain circuit and found it be a predictable and easy to control system without distortion until you really crank the Sustain control RV1 to its maximum and increase the guitar signal output . I have found that the sustain could be maintained with a guitar signal output as low as 10mV or less depending on the transistor gain in use .



### ● How does it work

The signal is introduced to the very high gain amplifiers of Q1 and Q2 the amplified signal is taken from Q2 output collector through C7 and fed to the base of Q3 which turns on and allows current to flow through the LED which turns on and illuminate the LDR . As the LED increases in brightness the LDR lowers its resistance shunting its feed back to Q1 emitter decreasing its gain . As the signal is reduced the LED respond in kind allowing the LDR to increase its resistance allowing Q1 and Q2 to increase their gain thus maintaining a sustained amplification as the signal decreases .

## Construction

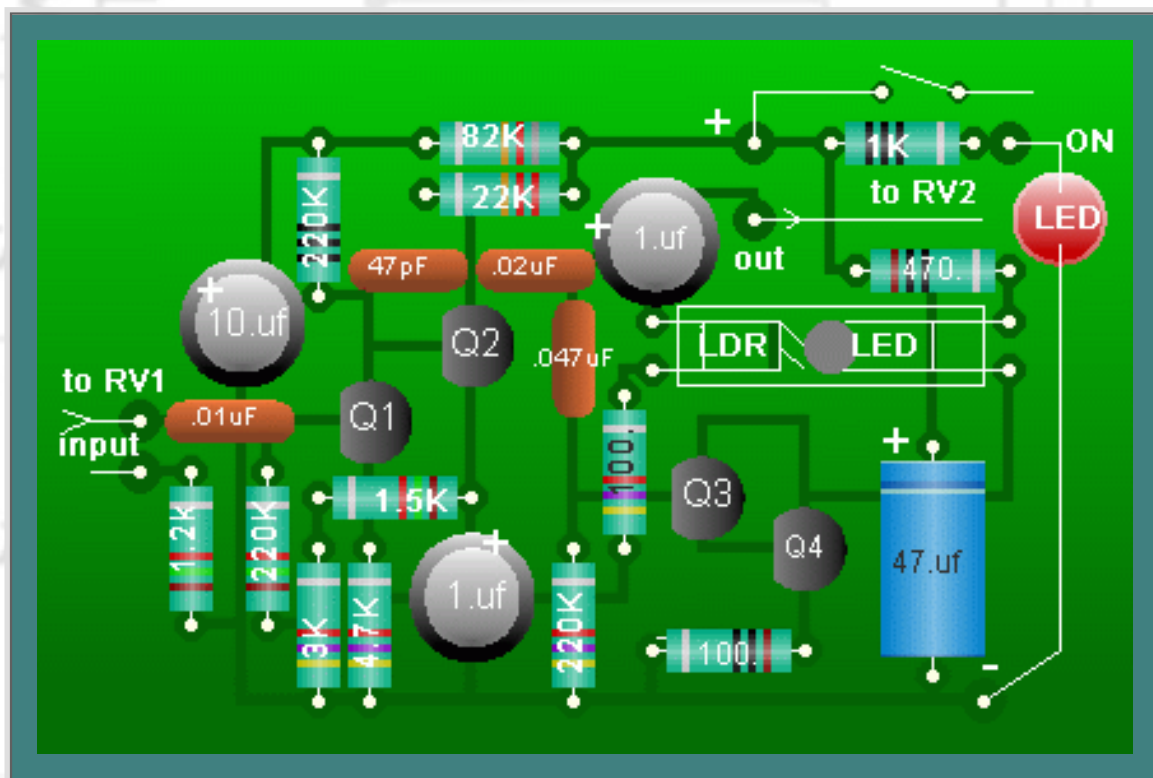
Below is the suggested PC board layout of the circuit which can be easily hand wired on a perforated board .

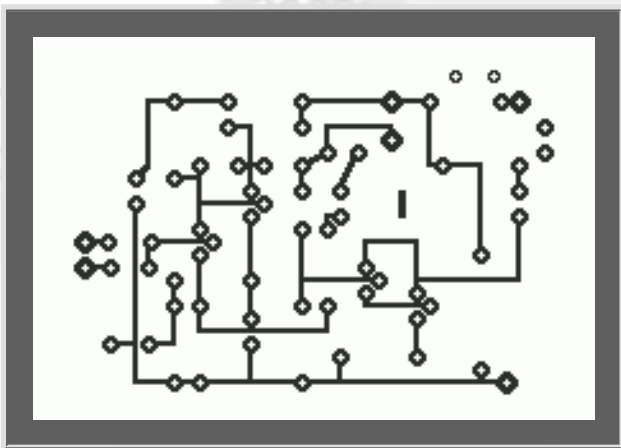
The construction of the [LDR/LED capsule](#) is the same as in use in the Wah circuit .

Sustain control flexibility would be better using a foot control for RV1, if an old or available foot controlled resistance unit is available I would recommend using it otherwise RV1 Sustain control should be mounted on top of the box along with RV2 Volume Control as well as the switch which is a SPST miniature wired between the +9V battery and the positive bus of the circuit .

The LED power on indicator is mounted on top of the box and the series resistor can be reduced for more brightness but keep in mind that the lower the resistance used ( minimum 1K ) the more current is consumed from the battery .

Input and output jacks to accomodate your cable connector plugs are required . Female input/output jacks with an open circuit can be used to connect the negative side of the battery to the circuit instead of the power switch. See [Input Jack connections](#)





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