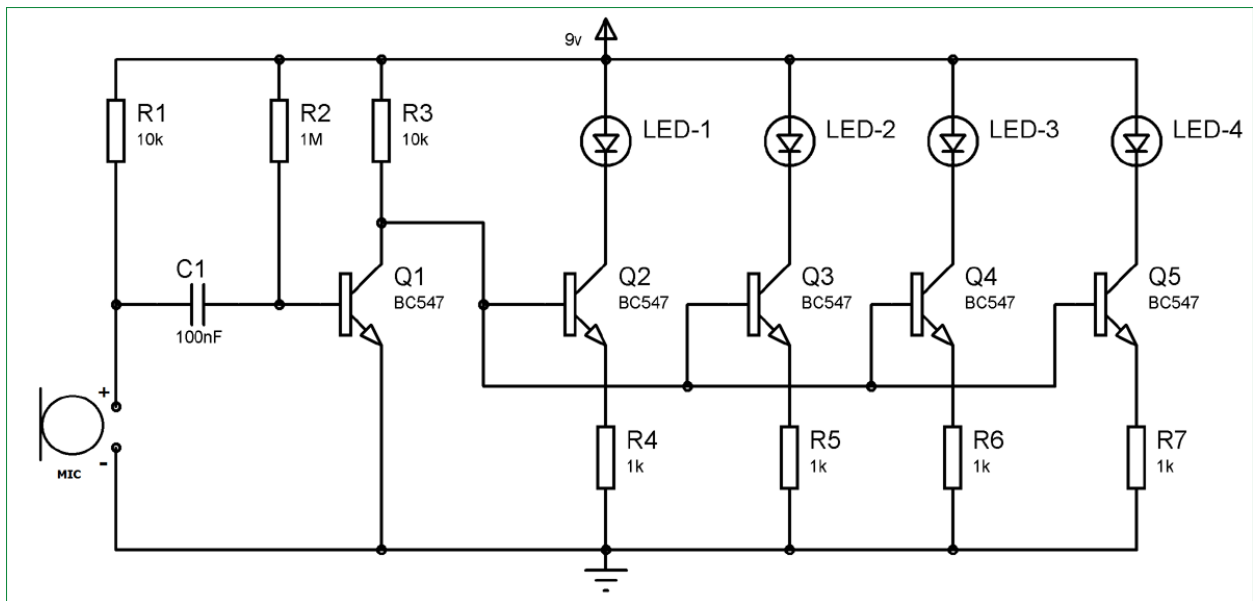


Music operated Dancing LED

You must have seen the **Disco Lights or DJ lights**, which Turn ON and OFF according to the beats of the music. These lights glow according to the length and pitch (volume) of music beats, basically these are designed to pick the high intensity sound like Bass sound. So these lights follow the high pitch beats in music like drum beats, and Turn ON and OFF according to music pattern. However the sensitivity of the circuit can be increased to pick the low notes too.

This **Musical LEDs circuit** is based on transistor BC548. This circuit is very simple and easy to build, it just requires few basic components and it looks very cool.

Circuit Diagram:



Components:

- Condenser Mic 
- 5- NPN Transistor BC548/BC548 
- Resistors- 10k (2), 1k (4), 1M (1) 
- Ceramic Capacitor 100nF 
- 4 – LEDs 
- 9v Battery 
- Battery Snapper 

Working:

In this **Simple LED Music Light Circuit**, condenser mic picks up the sound signals and converts them into voltage levels. These voltage signals are further fed into **R-C filter or HIGH PASS filter** (R2 and C1), to eliminate the noise from the sound. Further a NPN transistor (Q1- BC548) is used to amplify the signals, from the High Pass filter. Then finally these music signals are given to the array of four transistors. Transistor in this array works as amplifier, and glows the four LEDs according to the sound pattern. This generates a very interesting sequence of dancing LEDs which follows the beats as per their intensity or pitch. We can also add more LEDs with transistor to make it cooler.

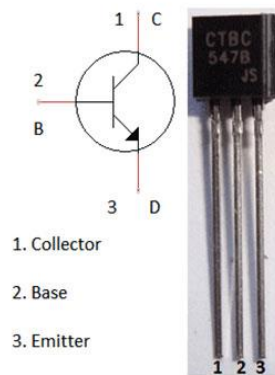
We can adjust the sensitivity of MIC by changing the value of R2 and C1, by using the formula for R-C filter: $F = 1 / (2\pi RC)$

F is the cut off frequency, means filter only allow frequency above than F. It can be easily deduced that more the value of RC, less the cut off frequency and higher the sensitivity of MIC. And higher the sensitive of circuit means MIC can pick low volume sounds; hence LEDs can

glow on low pitch music also. So by adjusting its sensitivity we can make it less sensitive to react only on high note beats or we can also make it more sensitive to react on every little beat in the music. Here we have set its sensitivity at moderate level.

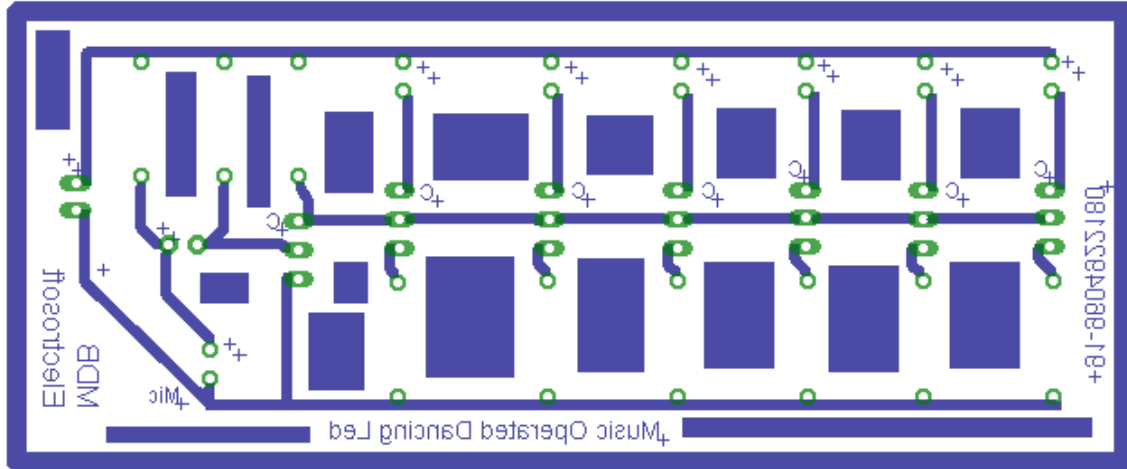
Condenser Mic should be connected properly in the circuit, according to its polarity. To determine the polarity of MIC one should look at mic terminals, the terminal which have three soldering lines, is the negative terminal.

Transistor BC547 is a NPN transistor, which is used as a Amplifier here. NPN transistor acts as a open switch when there is no voltage applied on its Base (B) and it acts as closed switch when these is some voltage at its base. Generally 0.7 volt is enough to get it fully conducted.



PCB LAYOUT:

Back Layout:



Front Layout:

