

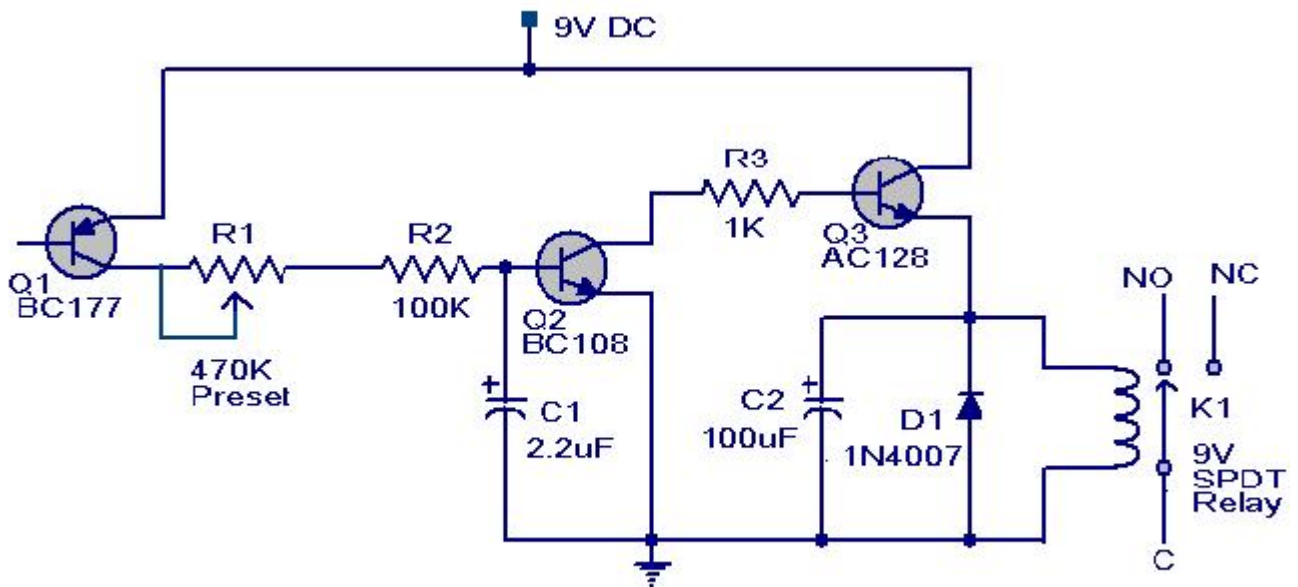
# LOW COST FIRE ALARM CIRCUIT

## Description.

When there is a fire breakout in the room the temperature increases. This ultra compact and low cost fire alarm senses fire breakout based on this fact.

Transistor BC177 (Q1) is used as the fire sensor here. When the temperature increases the leakage current of this transistor also increases. The circuit is designed so that when there is an increase in the leakage current of Q1, transistor Q2 will get biased. As a result when there is a fire breakout the transistor Q2 will be on. The emitter of Q2 (BC 108) is connected to the base of Q3(AC 128). So when Q2 is ON Q3 will be also ON. The transistor Q3 drives the relay which is used to drive the load ie,light,bell,horn etc as an indication of the fire. The diode D1 is used as a free wheeling diode to protect it from back EMF generated when relay is switched.

## Circuit diagram with Parts list.



Low cost fire alarm circuit

[www.circuitstoday.com](http://www.circuitstoday.com)

**Notes.**

- ▣ The Preset R1 can be used to desired temperature level for setting the alarm ON.
- ▣ This is not a latching alarm,that is;when the temperature in the vicinity of the sensor decreases below the set point the alarm stops.
- ▣ The circuit can be powered using a 9V battery or a 9V battery eliminator.
- ▣ All capacitors are electrolytic and must be rated at least 10V.
- ▣ The load can be connected through the C,NC,NO points of the relay according to your need.
- ▣ The calibration can be done using a soldering iron, and a thermo meter. Switch ON the power supply.Keep the tip of soldering iron near to the Q1. Same time also keep the thermometer close to it. When the temperature reaches your desired value adjust R1 so that relay gets ON.Done!

Source : <http://www.circuitstoday.com/low-cost-fire-alarm-circuit>