Automatic cooler fan for amplifiers

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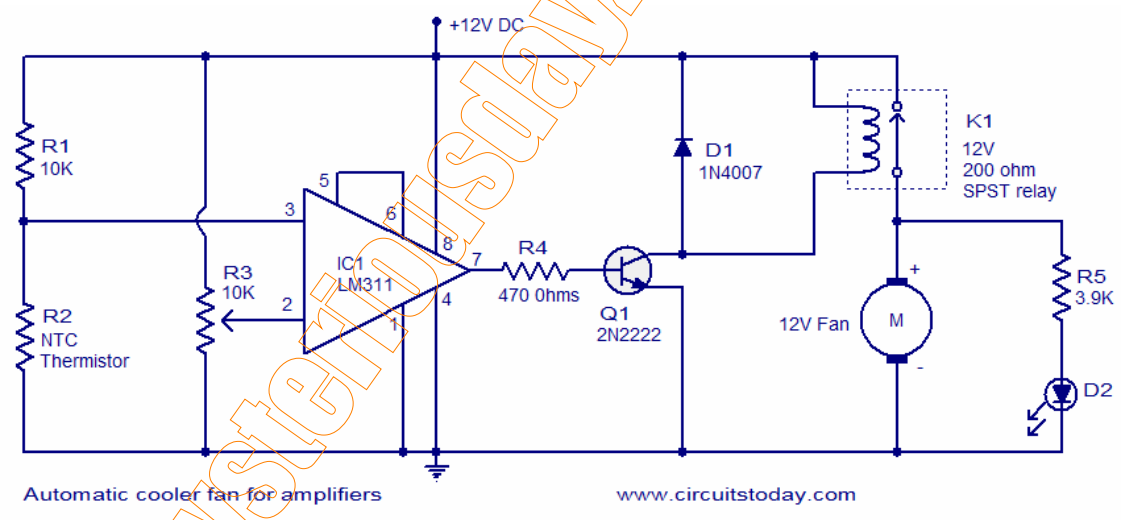
The schematic of an automatic cooler fan for audio amplifiers is given here. The circuit automatically switch ON the cooler fan whenever the temperature of the heat sink exceeds a preset level. This circuit will save a lot of energy because the cooler fan will be OFF when the amplifier is running on low volume. At low volume less heat will be dissipated and it will not trigger the cooler fan ON.

The temperature is sensed using an NTC (negative temperature coefficient) thermistor R2. Junction of thermistor r2 and resistor R1 is connected to the inverting input (pin3) of IC1 which is wired as a comparator. The non-inverting input (pin2) is given with a reference voltage using the preset R3. As temperature increases the resistance of NTC thermistor will drop and so do the voltage across it. When the voltage at the inverting input becomes less than that of the reference voltage (set for a particular threshold temperature) the output of the comparator goes high and switches the transistor Q1 ON. This will activate the relay and the cooler fan will be switched ON. When the temperature decreases the reverse happens. LED D2 will glow when the fan is ON. Diode D1 is a freewheeling diode.

Circuit diagram.



Notes.

- The circuit can be assembled on a Vero board.
- Use 12V DC for powering the circuit.
- The circuit can be calibrated by adjusting the preset R3.
- K1 can be a 12V, 200 ohm, SPST relay.
- LM311 must be mounted on a holder.