NTC Thermistor – Temperature compensation & Temperature measurement

Application Instruction

Temperature measurement

NTC apply to the circuit of temperature measurement.
Use NTC thermistor in one side of Wheatstone bridge.
(see Fig.E)

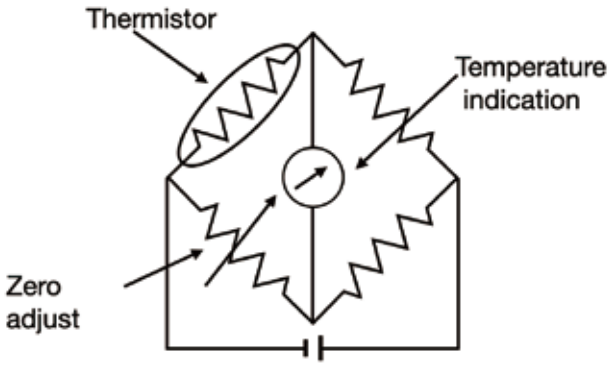

Fig A

Temperature control

The following figure (Fig.F) shows the basic temperature control loop combined with the Thermistor and voltage comparator. The circuit can output the Thermistor into a high and low voltage signal corresponding to its resistance value by connected with a fixed resistor (in series or in parallel) and comparator.

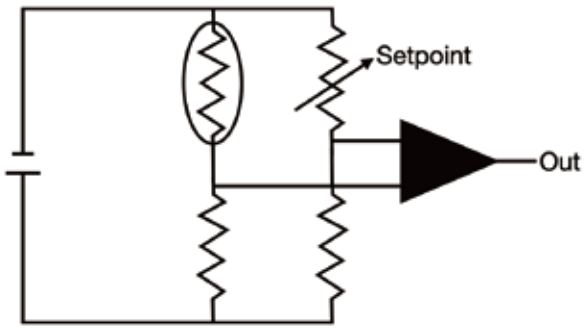

Fig B

Temperature compensation

Many semiconductor ICs and components have positive temperature characteristics, and their resistance rises as the ambient temperature rises. In the actual application, the circuit will cause signal distortion, speaker sound deviation and other issues. As the NTC Thermistors have a negative temperature characteristic, this feature can be used to temperature compensate for components with positive temperature characteristics, allowing these components to maintain stable temperature characteristics over a wide temperature range.

The Fig. G is an application example of NTC Thermistor applied for temperature compensation. The loop is composed of an NTC Thermistor (RT) and a matched linear resistor(RP) connected in parallel and then connected in series with a positive temperature characteristic resistor, and the total impedance keep stable over a wide temperature range.

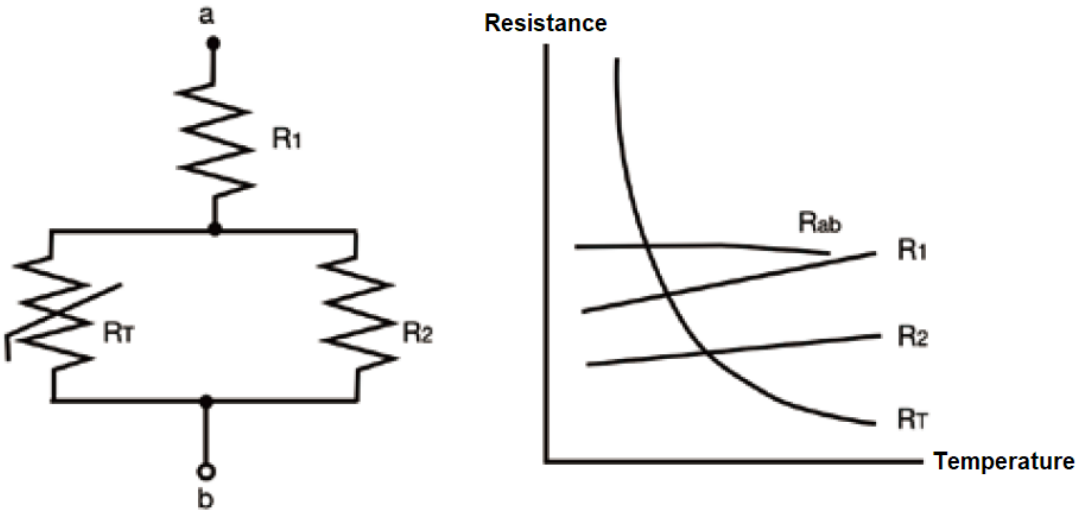

Fig C