Some graphs of an NTC resistor

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Abstract

This document shows some interesting graph of the parameters of the Betatherm 10K3A542I NTC thermistor. See `http://www.farnell.com/datasheets/69441.pdf?\_ga=1.32882430.1374476496.1461826737`

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The graph in Figure 1 shows the resistance of the NTC versus the temperature. Note that the temperature is in degrees Celsius. Also note that the resistance is heavy non-linear.

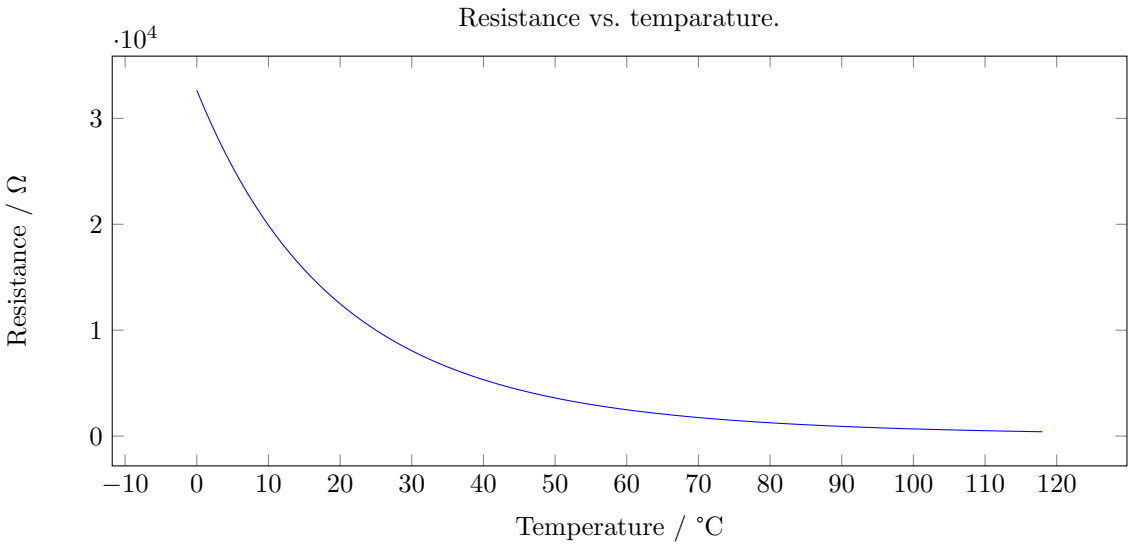

Figure 1: Resistance versus temperature of an NTC resistor.

The graph in Figure 2 shows the *natural logarithm* of the resistance versus the *inverted* temperature (in K^{-1}), so the following formula applies: $\ln R = f(1/T)$. Note that this graph shows an *almost* straight line

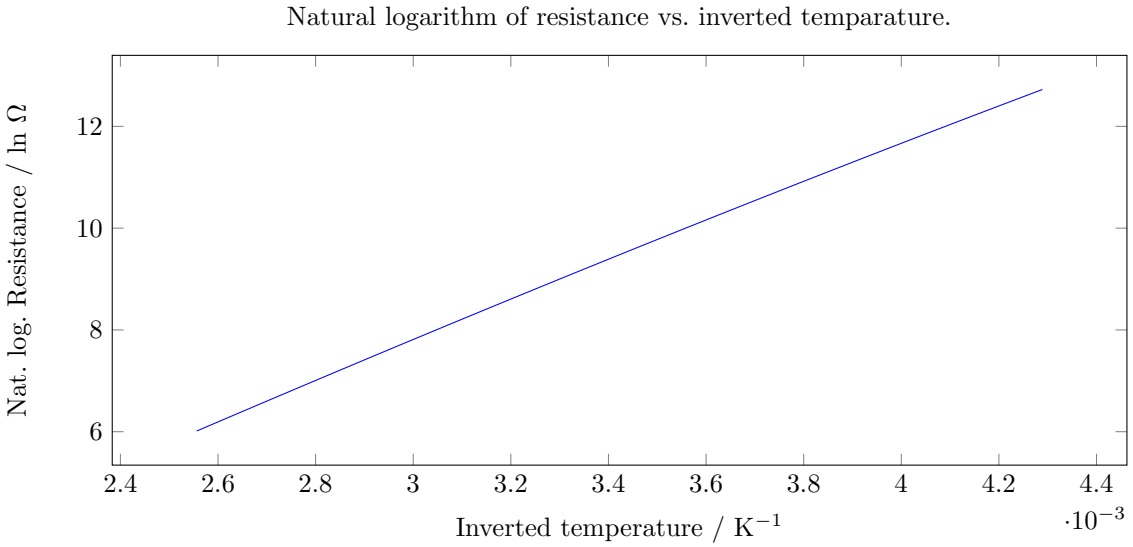

Figure 2: Natural logarithm of the resistance versus the inverted temperature of an NTC resistor.

An important parameter of an NTC resistor is the beta coefficient. One takes this coefficient as a constant, but the graph in Figure 3 clearly shows that this is *not* the case.

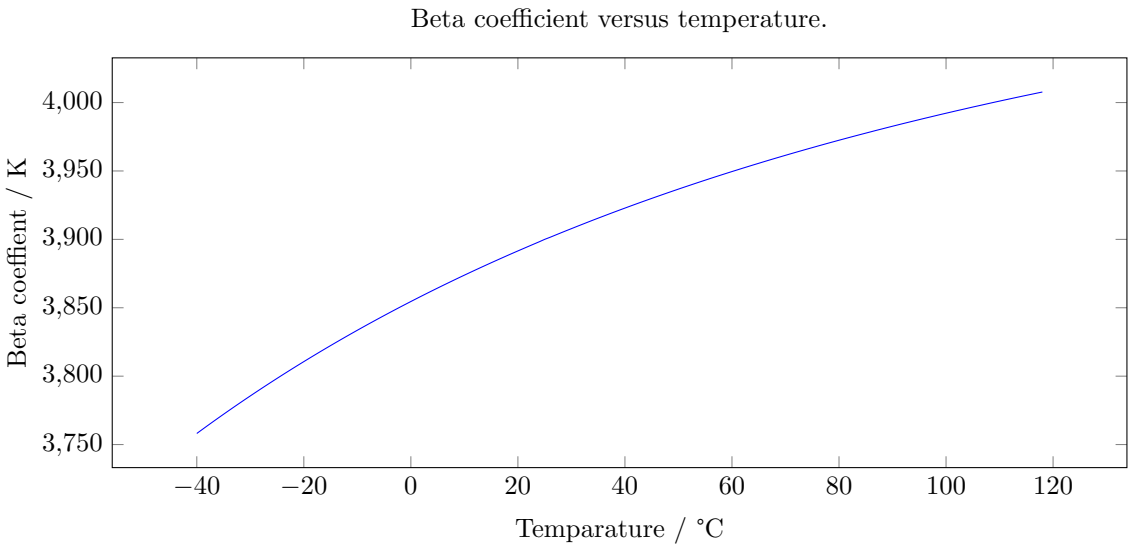

Figure 3: Beta coefficient versus the temperature of an NTC resistor.