

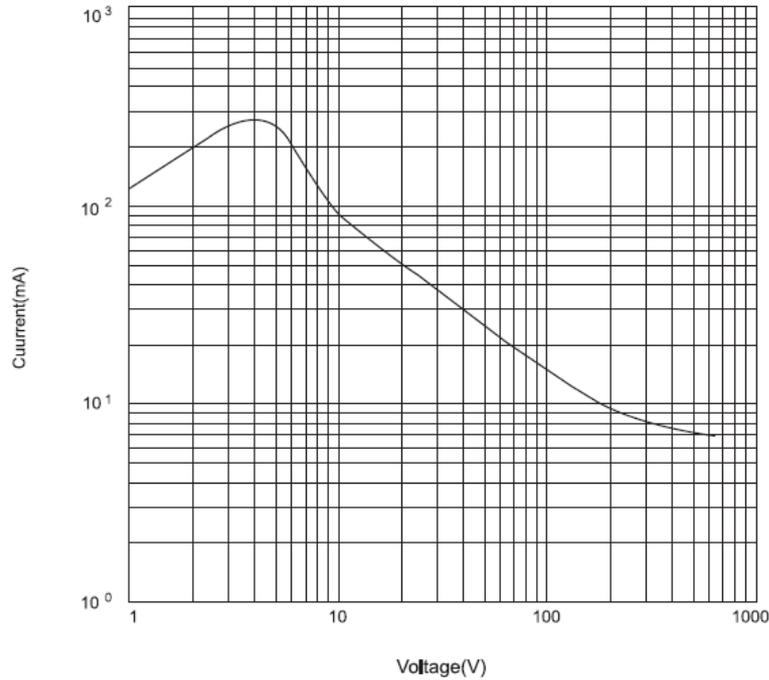
# Ceramic PTC Thermistor: Introduction



## ◆ Voltage-current characteristic (V-I curve, see Fig. 2)

V-I curve is relationship of voltage and current in thermally steady state and in still air at 25°C.

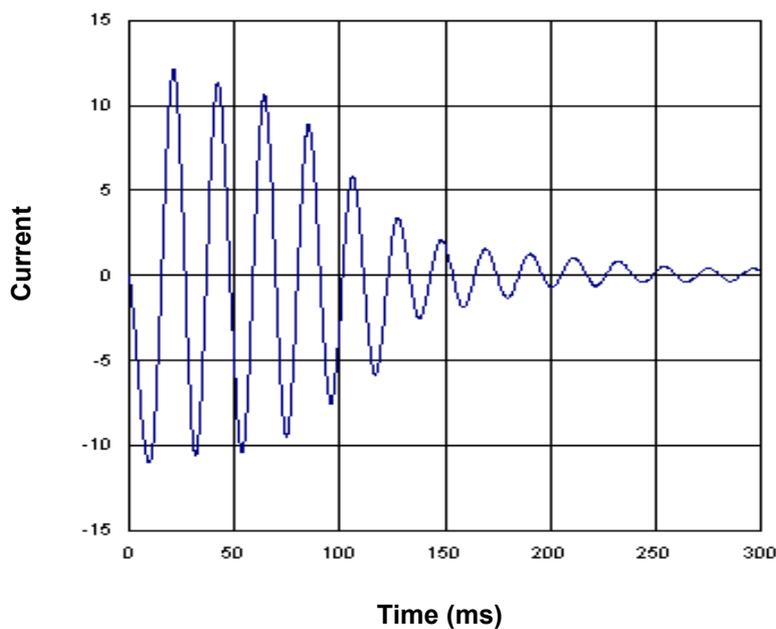
Fig 2 V-I Curve



## ◆ Current-time characteristic (I-T curve, see Fig. 3)

I-T curve is relationship of current and time in specified voltage and current in still air at 25°C.

Fig 3 I - T Curve



# Ceramic PTC Thermistor: Glossary



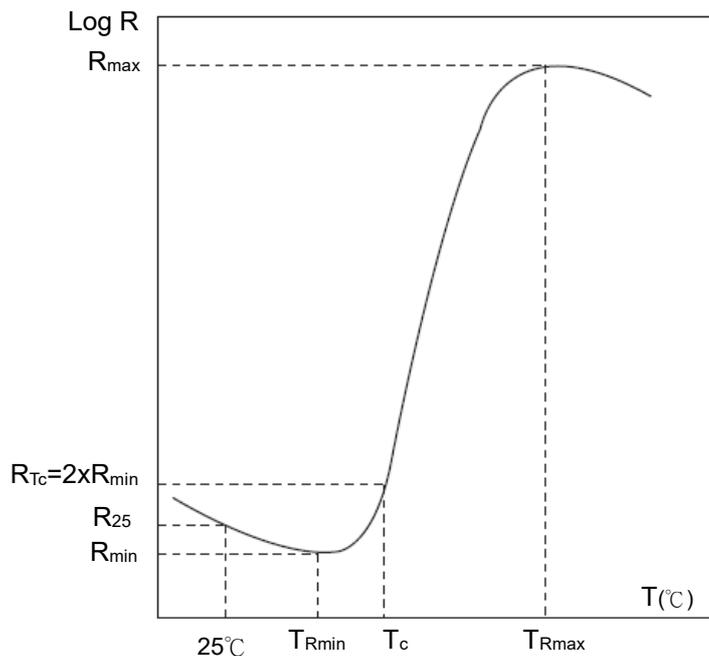
- **Zero-power resistance ( $R_T$ )**

The zero-power resistance is the resistance value measured under specified temperature conditions, and the self-heating during measurement can be negligible.

- **Resistance-temperature characteristic (R-T curve, see Fig. 4)**

R-T curve is relationship of zero-power resistance and temperature of CPTC thermistor at specified direct voltage. It is a curve drawn on a semi-logarithmic coordinate graph (Temperature (T) is on X-axis and resistance (R) is on Y axis).

Fig.4 R-T Curve



$R_{25}$ : Zero power resistance at 25°C

$R_{min}$ : Minimum resistance

$T_{Rmin}$ : Temperature corresponding to minimum resistance

$T_c$ : Curie temperature or switch temperature

$R_{Tc}$ : Switch resistance ( $R_{Tc}=2 \times R_{min}$ )

$R_{max}$ : Maximum resistance

$T_{Rmax}$ : Temperature corresponding to maximum resistance

- **Minimum resistance ( $R_{min}$ )**

Minimum resistance is the lowest resistance on R-T curve and corresponds to  $T_{Rmin}$ , temperature of minimum resistance. (see Fig. 4)

- **Temperature of minimum resistance ( $T_{Rmin}$ )**

$T_{Rmin}$  is temperature that corresponds to  $R_{min}$  on R-T curve.

- **Curie temperature or switch temperature ( $T_c$ )**

Curie temperature is temperature that corresponds to  $R_{Tc} = 2 \times R_{min}$ . When the temperature is reached, a step-like increase of CPTC thermistor resistance is started.