

## What happens if the current exceeds $I_H$ but does not reach $I_T$ ?

Depending on a variety of factors, such as:

- The rise time of the current
- The length of time the PPTC device is exposed to this current
- The ambient temperature
- The initial resistance of PPTC

The PPTC device may exhibit a variety of behaviors. It may:

- Stay in the low resistance state
- Switch to the high resistance state quickly
- Transition to the high resistance state after a long time

## PPTC Hold/Trip Current & Thermal Derating Curve

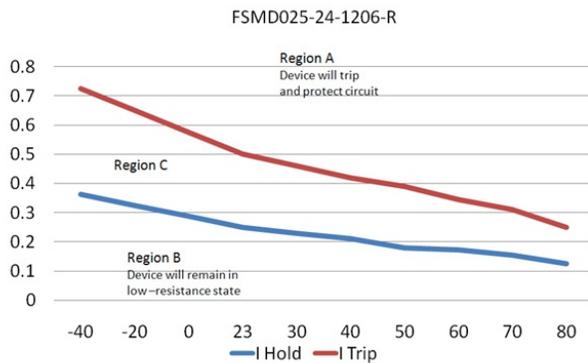


Figure 1

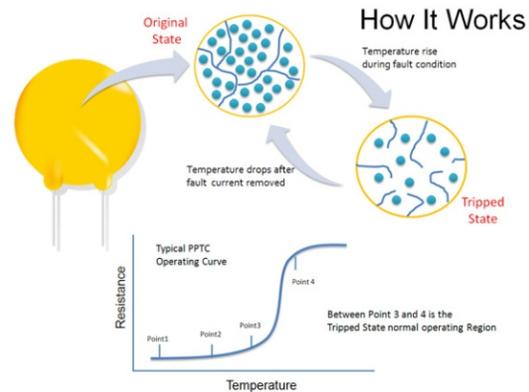


Figure 2

$I_H$  ( $I_{Hold}$ ) defined as the maximum current the device will hold at rated temperature ( $23^{\circ}\text{C}$ ) without tripping. The probability that the PPTC will trip increases as the current approaches  $I_T$  ( $I_{Trip}$ ), defined as the minimum current required to cause the PPTC device to trip at rated temperature.

The range of current values between  $I_H$  and  $I_T$  represent a zone where performance of the device with respect to tripping can not be predicted with certainty (Fig.1, Region C). Depending on the initial resistance of the PPTC device, ambient temperature and mounting conditions, the device could either maintain a low resistance state and hold this current or it may be a sufficient current to cause the device to switch to the high resistance state.

If the device is operated above  $I_H$ , but under  $I_T$  at rated temperature, depends on the initial resistance, the heat could still accumulated inside PPTC and reach trip temperature after a longer period of time.