Protect Power Components from Damage Caused by Thermal Events in Automotive and Industrial Applications.

Tyco Electronics introduces a breakthrough technology that allows manufacturers to include surface-mountable thermal protection in their standard RoHS-compliant reflow assembly process. Manufacturers can realize significant savings by moving from hand assembly to cost-efficient surface-mount device (SMD) processes.

The reflowable thermal protection (RTP) device can be quickly and easily installed using industry-standard pick-and-place and Pb-free reflow equipment. The RTP device is unique in that it can withstand multiple reflow passes with peak temperatures exceeding well over 200°C and yet, in the field, will open when it detects temperatures above 200°C.

The first device released in the RTP product family, the RTP200R120SA (RTP200), helps meet some of the most stringent AECQ-based specification requirements for automotive electronics. The RTP200 device can be used to replace redundant power FETs, relays and heavy heat sinks typically used in automotive designs while also offering a robust solution for IT server, telecom power supply and other industrial applications. The RTP device helps protect against thermal-runaway damage caused by capacitors, ICs, resistors and other power components that can crack and fail, or from the effects of any type of corrosion-induced heating.

The RTP200 device features a low 1.2mohm (typical) series resistance, as well as high-current DC-interrupt ratings of 200A at 16VDC and 100A at 32VDC. This thermal protection device is used to help meet the reliability requirements of automotive power electronics systems, including ABS, cooling fan and power steering applications.

The RTP200 device's 200°C open temperature helps prevent false activations and improves system reliability since it is a value above the normal operating window of most normally functioning electronics, but below the melt-point of typical lead-free solders. As a result, the RTP200 device will not open if surrounding components are operating in their target temperature range, but it will open before a component de-solders and creates the potential risk of additional short circuits.

The RTP200 device helps prevent damage caused by both dead short circuit and resistive short circuit conditions. The RTP200 device is resistant to shock, vibration, temperature cycling and humidity exposure. It is also tested to meet or exceed some of the strictest automotive AECQ environmental and life testing requirements.

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