

## PTC thermistors

### SMD series with AEC Q-200 qualification

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TDK-EPC, a group company of the TDK Corporation, presents the new Superior series of EPCOS SMD PTC thermistors for limit temperature measurement. They are available in case sizes 0805, 0603 and 0402. Compared to the standard series, these components employ a more homogenous ceramic material, which enables them to exhibit excellent performance in reliability tests and be reflow and wave-soldered at temperatures of up to 280 °C. Thanks to these properties, they have been qualified based on AEC-Q200 Rev-C and satisfy the rigorous requirements for use in automotive electronics applications involving frequent and rapid temperature changes.

The types of the B59721A\* series in case size 0805 have response temperatures from 70 to 130 °C in steps of 10 K. Their rated resistance is 680 Ω. The response temperatures of the B59641A\* (0603) and B59421A\* (0402) series are from 75 to 145 °C and from 75 to 135 °C respectively – also in steps of 10 K. The rated resistance of these components is 470 Ω. The maximum permissible operating voltage for all types is 32 V DC. UL approval is pending.

Possible applications for these temperature limit sensors are power supplies such as AC/DC and DC/DC converters, battery chargers and packs or lamp ballasts. The SMD PTC thermistors can be used in the fan controllers of notebooks in order to avoid critical temperatures. In automotive electronics, they are suitable for applications such as the temperature monitoring of LED-based lighting systems.

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#### Glossary

- PTC: Positive temperature coefficient is a term that describes thermistors whose resistance rises sharply with increasing temperature. In addition to their use as temperature limit sensors, PTCs are used as heaters, level sensors and for current limiting.
- AEC: The Automotive Electronics Council has defined test criteria for electronic components in automotive electronics since 1992. AEC-Q200 applies to passive components.
- UL: Underwriters Laboratories is an organization established in the USA in 1894 in order to evaluate and certify products and their safety.

#### Main applications

- Overtemperature protection in equipment for industrial, consumer and automotive electronics and IT applications.

**Main features and benefits**

- Wide range of temperatures between 70 and 145 °C in steps of 10 K
- Qualified to AEC-Q200 Rev-C
- Suitable for reflow and wave soldering to 280 °C

**Key data**

| Case size / Series         | 0402 / B59421A* | 0603 / B59641A* | 0805 / B59721A* |
|----------------------------|-----------------|-----------------|-----------------|
| Response temperature* [°C] | 75 to 135       | 75 to 145       | 70 to 130       |
| Rated resistance [Ω]       | 470             | 470             | 680             |
| Max. power [mW]            | 2               | 4               | 6               |

\* In steps of 10 K

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**About TDK-EPC Corporation**

TDK-EPC Corporation (TDK-EPC), a TDK group company, is a leading manufacturer of electronic components, modules and systems headquartered in Tokyo, Japan. TDK-EPC has emerged from the combination of the electronic components business of TDK and the EPCOS Group and markets its products under the product brands, TDK and EPCOS.

The product portfolio includes ceramic, aluminum electrolytic and film capacitors, ferrites and inductors, high-frequency components such as surface acoustic wave (SAW) filter products and modules, piezo and protection components, and sensors. With this product spectrum TDK-EPC offers a broad range of products and solutions of outstanding value from a single source and focuses on demanding markets in the areas of information and communication technology and automotive, industrial and consumer electronics. The company has design and manufacturing locations and sales offices in Asia, Europe, and in North and South America.

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