



Toshiba launches compact resettable eFuse IC providing safety for low voltage applications

Electronic fuse solution provides multiple protection options for power supply lines

Düsseldorf, Germany, 20th November 2019 – Toshiba Electronics Europe (“Toshiba”) today announced their first ever range of eFuse IC products. The range consists of six products in the TCKE8xx series that support various protection functions for power supply lines.

Whereas conventional fuses perform a sacrificial function, physically breaking the electrical link to the circuit they are protecting, eFuses offer a resettable solution that additionally provide further protection features that a typical fuse cannot. This includes functions such as a highly accurate over-current limit, overvoltage protection, and over-temperature protection in addition to short-circuit protection. Compared to polymeric positive temperature coefficient (PPTC) devices that are also resettable, they react significantly faster, can be reset directly via an external logic signal, and retain their low on-resistance even after multiple trip events.

The TCKE8xx series is provided in three categories: no overvoltage protection, 5 V ($V_{OVC} = 6.04$ V), and 12 V ($V_{OVC} = 15.1$ V). Each overvoltage category is also offered in auto-retry or latched options as the response after a fault event. The status of the latch type is recovered by the application of an external signal, while the auto-retry is capable of

re-enabling its output automatically. This provides developers with a choice of options to best suit their application's needs.

The integrated fast-trip comparator can switch off the output typically within 150 ns. Furthermore, an external capacitor can be included to reduce inrush current by setting a turn-on slew-rate at the output as required. Provision is also made to support an external N-channel MOSFET for reverse-current blocking protection. Typical applications include the supply lines to cameras, cordless cleaner and power tools, cleaning robots, server, smart speaker, thermostats and wireless chargers.

Offered in a 3.00 x 3.00 mm, 0.75 mm thin WSON10B package, the devices offer a typical R_{ON} of just 28 m Ω and an over-current limit accuracy of $\pm 11\%$. Input voltages of 4.4 to 18.0 V are supported and output currents can lie at up to 5.0 A. Certified to IEC 62368-1, this provides developers utilizing the TCKE8xx series in their design a simplified path to certification testing of their end product.

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About Toshiba Electronics Europe

[Toshiba Electronics Europe GmbH](#) (TEE) is the European electronic components business of [Toshiba Electronic Devices and Storage Corporation](#). TEE offers European consumers and businesses a wide variety of innovative hard disk drive (HDD) products plus semiconductor solutions for automotive, industrial, IoT, motion control, telecoms, networking, consumer and white goods applications. The company's broad portfolio encompasses integrated wireless ICs, power semiconductors, microcontrollers, optical semiconductors, ASSPs and discrete devices ranging from diodes to logic ICs.

TEE has headquarters in Düsseldorf, Germany, with branch offices in France, Italy, Spain, Sweden and the United Kingdom providing design, manufacturing, marketing and sales. Company president is Mr. Tomoaki Kumagai

For more company information visit TEE's web site at www.toshiba.semicon-storage.com.

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