



### **Toshiba Launches active-clamp MOSFET series for relay drivers**

*Small size, low on resistance and AEC-Q101 qualification*

**Düsseldorf, Germany, 07 June 2018** – Toshiba Electronics Europe has announced the launch of a new MOSFET series that incorporates an active-clamp structure with a built-in diode between the drain and gate terminals. With the requirement for a minimum of external components the single SSM3K357R and the dual SSM6N357R are suited to drive inductive loads, such as mechanical relays or solenoids.

The new 357 series protects drivers against possible damage from voltage surges, as caused by back EMF from the inductive load. It integrates a pull-down resistor, series resistor and Zener diode, all of which helps reduce the external part count and save PCB space.

The devices withstands a maximum drain-source voltage ( $V_{DSS}$ ) of 60V and a maximum drain current ( $I_D$ ) of 0.65A. The low drain-source on-resistance ( $R_{DS(ON)}$ ) of 800m $\Omega$  at  $V_{GS}=5.0V$  ensures efficient operation with minimal heat generation.

The single SSM3K357R is housed in a 2.9 x 2.4 x 0.8mm SOT-23F class package, and suitable for relay and solenoid control due to the low operating voltage of 3.0V. As the device is qualified according to AEC-Q101 it is suited for automotive as well as many industrial applications.

The dual SSM6N357R is housed in a 2.9mm x 2.8mm x 0.8mm TSOP6F class package, which enables usage of two devices on a board requiring 42% less mounting area than using two of the single devices.

The SSM3K357R and the SSM6N357R are already shipping in volume quantities.

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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, ASICs, 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. Akira Morinaga.

For more company information visit TEE's web site at [www.toshiba.semicon-storage.com](http://www.toshiba.semicon-storage.com).

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