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Press release

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STMicroelectronics Reveals Advanced Power MOSFET Family to Tackle Emerging Eco-Design Standards and Green-Energy Opportunities

First 900V and 950V SuperMESH™ 5 Power MOSFETs deliver industry's best efficiency at 900V and highest voltage rating at 950V for enhanced application reliability

Geneva, September 6, 2012 – A new family of rugged, high-efficiency power products from STMicroelectronics (NYSE: STM), a global semiconductor leader serving customers across the spectrum of electronics applications, enables technology companies to satisfy stricter power and efficiency targets set by eco-design standards and to target green-energy applications such as solar micro-inverters, photovoltaic string inverters and electric vehicles.

The new devices include the industry's first super-junction transistors (MOSFETs) capable of withstanding peak voltages up to 950V, as well as 900V devices offering best-in-class energy efficiency and the world's only 850V devices to be offered in the ultra thin and space-saving PowerFLAT 8x8 HV package. Super-junction technology enables MOSFETs to achieve higher operating voltages with very low electrical on-resistance in relation to device size, enabling power supplies to deliver increased system reliability and energy efficiency within compact overall dimensions.

ST is a major supplier of super-junction MOSFETs, and now offers the highest voltage rating in the market as well as the industry's only second source of 900V super-junction devices. In addition, the family will soon be extended to include new 800V devices.

Super-junction technology for a greener world:

Demonstrating the efficiency of the SuperMESH 5 devices, ST also revealed details of the first successful customer application for its ultra high-voltage MOSFETs. TCI (www.tcisaronno.net), an Italian solid-state lighting innovator, has chosen the 950V STU6N95K5 in IPAK package as the main power switch in its latest LED drivers for advanced and feature-rich LED lamps offering benchmark energy efficiency in a physically compact and cost-effective form factor. "ST's latest-generation SuperMESH 5 technology enabled TCI to establish the best efficiency and safety

margin in the marketplace, creating a compelling value proposition for its customers," said Maurizio Giudice, Power Transistor Division Marketing Director for ST.

Other popular high-volume applications for ST's new super-junction MOSFETs include flat-panel televisions, PC power supplies, LED lighting drivers, and electronic ballasts for High-Intensity Discharge (HID) lamps. The MOSFETs will enable designers to meet increasingly strict limits on maximum power and minimum energy efficiency specified by eco-design standards such as Energy Star and the EU's Energy-related Products (ErP) Directive.

An example of tougher eco-design regulation can be seen in the latest Energy Star Program Requirements for Televisions, version 5.3, which specifies an absolute maximum power limit of 108.0 Watts for 50-in. or larger flat-screen televisions. Another can be found in the ErP lighting regulations, which demand increases in the minimum efficacy of various types of HID lamps between 2012 and 2017.

The high voltage rating of ST's new super-junction MOSFETs increases system safety and reliability. This is an important benefit in HID lamp ballasts and other systems operating at AC line voltages and higher, such as solar micro-inverters and charging points for electric vehicles. Charging points require very high power-conversion efficiency both to minimize charge time and vehicle running costs. In dc-to-ac inverters for solar micro-generators, high-efficiency, high-voltage MOSFETs enable designers to use higher switching frequencies and so generate high-quality ac power while reducing energy losses and solution size.

Key features of SuperMESH™ 5 MOSFETs:

The new MOSFETs are the first in ST's SuperMESH™ 5 fifth-generation super-junction family. They include the 900V STx21N90K5, 950V STx20N95K5 and 950V STx6N95K5 in various package options. The STL23N85K5 850V variant in the PowerFLAT 8x8 HV high-voltage surface-mount package has a footprint of 64mm^2, which is 56% smaller than the industry-standard D^{2}PAK package. In addition, its mounted height of 1mm is 77% lower than D^{2}PAK allowing use in ultra-slim designs.

For the 900V STP21N90K5, the Figure of Merit (FOM), which indicates the device's overall energy efficiency when turned on as well as when switching on or off, is 62.5% better than the only comparable alternative device in the market. This enables designers to achieve an appreciable efficiency increase simply by using the STP21N90K5 rather than the competing device.

Part number	Voltage rating	$R_{DS(ON)}$	Package options	Notes
STx23N85K5	850V	0.275Ω	TO-247, PowerFLAT 8x8 HV	PowerFLAT 1mm-thick surface-mount package Lowest FOM ($R_{DS(ON)}$ x Qg) Ultra-low gate charge 100% avalanche tested G-S Zener protected
STx21N90K5	900V	0.299Ω	TO-220, TO-220FP, TO-247, D^2PAK	Lowest $R_{DS(ON)}$ among 900V-950V in TO-220 Lowest FOM ($R_{DS(ON)}$ x Qg) Ultra-low gate charge 100% avalanche tested G-S Zener protected
STx20N95K5	950V	0.330Ω	TO-220, TO-220FP, TO-247, D^2PAK	
STx6N95K5	950V	1.25Ω	TO-220, TO-220FP, TO-247, DPAK, IPAK	Lowest FOM ($R_{DS(ON)}$ x Qg) Ultra-low gate charge 100% avalanche tested G-S Zener protected

The new SuperMESH 5 devices are available immediately for sample or production orders, priced from $3.50 to $10.00 in quantities of 1,000 units depending on voltage/current rating and package type. Alternative pricing options for larger orders are available on request. For further information please visit www.st.com/pmos.

About STMicroelectronics

ST is a global leader in the semiconductor market serving customers across the spectrum of sense and power technologies and multimedia convergence applications. From energy management and savings to trust and data security, from healthcare and wellness to smart consumer devices, in the home, car and office, at work and at play, ST is found everywhere microelectronics make a positive and innovative contribution to people's life. By getting more from technology to get more from life, ST stands for life.augmented.

In 2011, the Company's net revenues were $9.73 billion. Further information on ST can be found at www.st.com.

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