Press Release

Moving Forward on Energy Efficiency: Fujitsu Semiconductor Aims to Start Production of GaN Power Devices

Achieves high output power of 2.5kW in power supply units for servers

Yokohama, Japan, November 8, 2012 – Fujitsu Semiconductor Limited today announced that it successfully achieved high output power of 2.5kW in server power supply units equipped with gallium-nitride (GaN) power devices built on a silicon substrate. Fujitsu Semiconductor aims to start volume production of the GaN power devices in the second half of 2013. These devices will enable Fujitsu Semiconductor to propose their use in a wide variety of value-enhancing power supply applications, significantly contributing to the realization of a low-carbon society. Fujitsu Semiconductor is aiming to achieve approximately 10 billion yen in sales of GaN power devices in fiscal 2015.

Compared to conventional silicon-based power devices, GaN-based power devices feature characteristics such as lower on-resistance and the ability to perform high-frequency operations. These characteristics are expected to contribute to improvements in the conversion efficiency of power supply units and make them more compact. Fujitsu Semiconductor is aiming to commercialize GaN power devices on a silicon substrate, which, with increases in the diameters of silicon wafers, enables low-cost production. Towards that aim, Fujitsu Semiconductor has been developing technology for volume production since 2009. In addition, Fujitsu Semiconductor has provided specific power supply-related partners with sample GaN power devices since 2011 and has worked on optimizing them for use in power supply units.

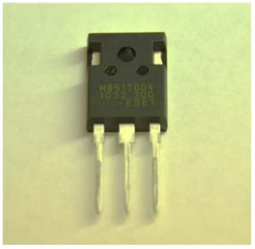

Figure 1. GaN Power Device Prototype (TO247 Package)

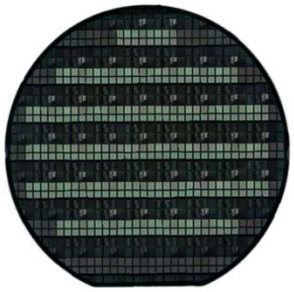

Figure 2. GaN Power Devices Built on 6-inch Si Wafer

Recently, in a collaborative effort together with Fujitsu Laboratories Limited, Fujitsu Semiconductor has been engaging in technical development initiatives, such as developing a process technology for growing high quality GaN crystals on a silicon substrate, developing device technologies, such as optimizing the design of electrodes to control the rise of on-resistance during switching, and devising a circuit layout for power supply units that can support the high-speed switching of GaN-based devices. These results have enabled Fujitsu Semiconductor, in a test circuit using a GaN power device, to succeed in achieving conversion efficiency that exceeds the performance of conventional silicon devices. Fujitsu Semiconductor also prototyped a power supply unit for servers equipped with a GaN power device for the power factor correction circuit and successfully achieved output power of 2.5kW.

Fujitsu Semiconductor views its success in these results as opening a path to high-voltage, large-current applications for its GaN power devices.

Fujitsu Semiconductor has recently completed setting up a mass-production line for 6-inch wafers at its Aizu-Wakamatsu plant, and will begin full-scale production of GaN power devices in second half of 2013. Moving forward, by offering GaN power devices optimized for customer applications and technology support for circuit designs, Fujitsu Semiconductor will support the development of low-loss, highly-compact power supply units suited to a wide range of uses. Fujitsu Semiconductor is aiming to achieve approximately 10 billion yen in sales of GaN power devices in fiscal 2015.

Fujitsu Semiconductor will exhibit its GaN power device at Embedded Technology 2012, which will be held at the Pacifico Yokohama convention center November 14-16, 2012.

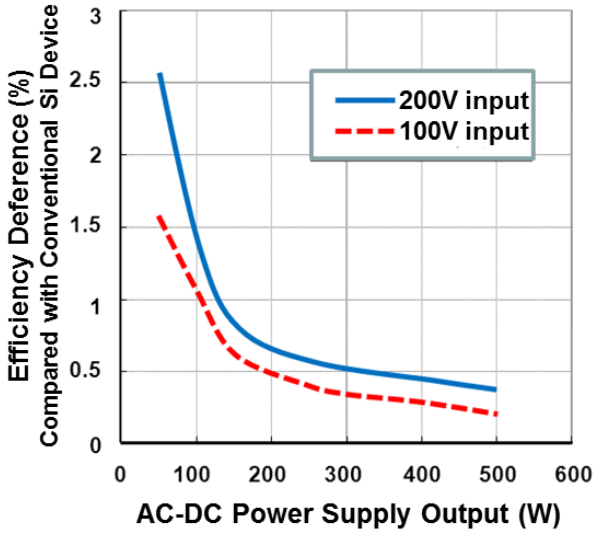

Figure 3. Efficiency comparison between Fujitsu Semiconductor's GaN power device and conventional Si-based power device

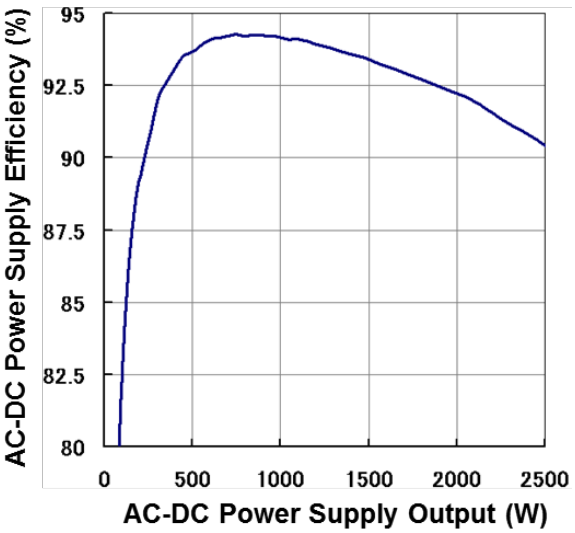

Figure 4. Output of power supply unit for servers with Fujitsu Semiconductor's GaN power device

About Fujitsu Semiconductor

Fujitsu Semiconductor Limited designs, manufactures, and sells semiconductors, providing highly reliable, optimal solutions and support to meet the varying needs of its customers. Products and services include microcontrollers, ASICs, ASSPs, and power management ICs, with wide-ranging expertise focusing on mobile, ecological, automotive, imaging, security, and high-performance applications. Fujitsu Semiconductor also drives power efficiency and environmental initiatives. Headquartered in Yokohama, Fujitsu Semiconductor Limited (formerly named Fujitsu Microelectronics Limited) was established as a subsidiary of Fujitsu Limited on March 21, 2008. Through its global sales and development network, with sites in Japan and throughout Asia, Europe, and the Americas, Fujitsu Semiconductor offers semiconductor solutions to the global marketplace.

For more information, please see: http://jp.fujitsu.com/fsl/en/

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