Gallium nitride power semiconductor market to exceed $1 billion by 2021

Wellingborough, UK – 13th March 2012 – The emerging market for Gallium Nitride (GaN) power semiconductors is forecast to grow from almost zero in 2011 to over $1 billion in 2021, according to a new report from IMS Research. The research firm analyzed all of the key end markets for the products found that power supplies, PV inverters and industrial motor drives would be the three main drivers of growth.

While Silicon Carbide (SiC) power devices have been around for some years, GaN power semiconductors have only just appeared in the market. One of the key reasons for the promising outlook for GaN power devices is because GaN is a wide bandgap material which offers similar performance benefits to SiC but has greater cost reduction potential. "This is possible because GaN power devices will be grown on a larger, lower-cost Silicon substrate", stated Richard Eden, Senior Market Analyst and author of The World Market for Silicon Carbide and Gallium Nitride Power Semiconductors. "The key market driver is the speed at which GaN-on-Si devices can achieve price parity with Silicon MOSFETs, IGBTs or rectifiers with equivalent performance."

The speed of GaN transistor developments has accelerated in the last two years, possibly due to a realization that the market will be potentially huge. The launch of International Rectifiers "GaNpowIR" and EPCs "eGaN FET" devices started the low voltage market in 2010. The emergence of Transphorm and its 600V GaN transistors in 2011 created considerable interest in the prospects of GaN competing with high voltage MOSFETs and IGBTs. Six of the worlds top ten discrete power semiconductor suppliers are planning to launch GaN power devices in the near future, and some may already be making devices for in-house end equipment.

The report utilizes IMS Researchs extensive market research on technology markets to drill down into applications ranging from consumer electronics to industrial equipment and renewable energy. The first applications to adopt will be power supplies where the total system cost savings outweigh the unit price penalty of the device. These include PC & notebook adaptors, servers, etc., and domestic appliances like room air-conditioners, where efficiency improvements are being driven by Government initiatives or regulations. Once reliability and other potential problems are resolved, PV microinverters, electric vehicle battery charging and other new applications are likely to adopt GaN power devices in the future.

However, the market report found that there are some barriers to main-stream market acceptance of GaN power devices. The first is availability, as few GaN transistors are available in mass production. Competing manufacturers products are non-standard and there are no second-sources. Second, the technology lacks maturity so far. Overall device performance and GaN material defect rates need improvement. A third issue is design inertia; the need to educate customers about

both the potential benefits of GaN and how to use the devices.

The latest findings and analysis on this important emerging market can be found in IMS Researchs recently released report "The World Market for Silicon Carbide & Gallium Nitride Power Semiconductors - 2012 edition".

http://imsresearch.com [1]

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