LYON, France – October 24, 2017: “The GaN market promises an imminent growth”, announces Dr. Ana Villamor, Technology & Market Analyst from Yole Développement (Yole). “2015 and 2016 have been undoubtedly exciting years for the GaN power business. we project the explosion of the market with 79% CAGR\(^2\) between 2017 and 2022. The market value will so reach US$ 460 million at the end of the period”. What make the power GaN technology so promising?

The “More than Moore” market research and strategy consulting company Yole pursued its investigations based on numerous exchanges with power GaN companies and thanks to its participation to leading conferences. Yole announces this month the Power GaN 2017: Epitaxy, Devices, Applications, and Technology Trends report.

Things are going on the right way: the power GaN supply chain prepares for production and 2017 has been showing significant investments that confirm the added-value of power GaN technology and its strong potential in numerous applications. The new Power GaN analysis conveys Yole’s understanding of GaN implementation and details the different market segments, the related drivers, metrics and technical roadmaps. How did the power GaN industry evolve since the latest Yole’s report? What are the key facts & figures related to power GaN activities? Who is leading the market? What will be the tomorrow’s changes? Yole’s analysts invite you to learn more about this industry and the current challenges.

In 2016 the power GaN market reached US$ 14 million: it is still a small market compared to the impressive US$ 30 billion silicon power semiconductor market. However its expected growth in the short

\(^1\) GaN : Gallium Nitride  
\(^2\) CAGR : Compound Annual Growth Rate
term is showing the enormous potential of the power GaN technology based on its suitability for high performance and high frequency solutions.

“LiDAR, wireless power and envelope tracking are high-end low/medium voltage applications, and GaN is the only existing technology able to meet their requirements,” explains Ana Villamor from Yole. “Beginning of the year, Velodyne Lidar opened a ‘megafactory’ to ramp up the latest 3D sensor for LiDAR manufacturing and this October they already announced a fourfold production increase.”

Other major companies, like Apple and Starbucks, started offering wireless charging solutions. Moreover, since 2016, EPC has been working with Taiwan’s JJPlus Corporation to accelerate the wireless charging market’s growth.

The power supply segment is still the biggest application for GaN, driving a 114% CAGR for power supplies through to 2022. The data center market is adopting GaN solutions with a phenomenal speed. Existing solutions from Texas Instruments and EPC for data centers, consisting of a DC/DC converter and point of load supply that steps down the voltage from 48 V to 1.2 V in a single chip, will propel the market. AC/DC power adapters for laptops or smartphones can be also implemented with GaN power IC solutions, which further reduces the size and cost of the system.

Therefore the consumer market is expected to grow during coming years and Yole’s analysts envisage two different scenarios, depending on the acceptance in key markets like AC/DC adapters for laptops and cellphones. GaN needs to hurry to gain adoption in the EV/HEV market because SiC MOSFETs are already replacing silicon IGBTs in the main inverters. However, a future market for the 48 V battery’s DC/DC converter is still possible for GaN due to its high-speed switching capability. Some main players, as Transphorm, have already obtained qualification for automotive, and this would help to finally ramp-up GaN production for EV/HEV.

In parallel, the GaN power devices supply chain is acting to support market growth. Therefore it is close to being settle for the power GaN market and deals during 2017 show confidence that GaN will be a successful market.

“First of all, there have been big investments from the main foundries to increase their capacity to handle mass production”, asserts Zhen Zong, Technology & Market Analyst at Yole Développement. And he adds: “Navitas just announced the partnership with TSMC and Amkor to ramp production capacity. Moreover, BMW i Ventures has just invested in

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3 EV/HEV : Electric & Hybrid Electric Vehicle
4 SiC : Silicon Carbide

GaN Systems. The Taiwan’s Ministry of Economic Affairs is also interested in using GaN for clean and green technologies, also in collaboration with GaN Systems.”

GaN manufacturers clearly continue developing new products and provide samples to customers, as is the case with EPC and its wireless charging line. For example, during 2017, Panasonic announced the mass production of its 650 V products and Exagan successfully produced its first high voltage devices on 8-inch wafers. Other players are in the final phase of R&D or qualification for their GaN products to be launched in 2018. In both cases, manufacturers and clients are pushing to use GaN HEMTs in emerging technologies…

A detailed presentation of the Power GaN report, 2017 edition is available on i-micronews.com, power electronics reports section.
ABOUT THE REPORT:


The GaN power device supply chain is acting to support market growth - Produced by Yole Développement (Yole) part of Yole Group of Companies.

Companies cited in the report:

Author:
Dr. Ana Villamor serves as a Technology & Market Analyst | Power Electronics at Yole Développement. She is involved in many custom studies and reports focused on emerging power electronics technologies at Yole Développement, including device technology and reliability analysis (MOSFET, IGBT, HEMT, etc). Previously Ana was involved in a high-added value collaboration related to SJ Power MOSFETs, within the CNM research center for the leading power electronic company ON Semiconductor. During this partnership and after two years as Silicon Development Engineer, she acquired a relevant technical expertise and a deep knowledge of the power electronic industry. Ana is author and co-author of several papers as well as a patent. She holds an Electronics Engineering degree completed by a Master in micro and nano electronics, both from Universitat Autonoma de Barcelona (SP).

Zhen Zong works as an analyst for Power Electronics and Compound Semiconductors technologies and market at Yole Développement, the “More than Moore” strategy consulting and market research company. He graduated from INSA Lyon with an engineering degree in material sciences, specialized in power electronic devices and Micro/Nano technologies.

ABOUT YOLE DEVELOPPEMENT – WWW.YOLE.FR

Founded in 1998, Yole Développement has grown to become a group of companies providing marketing, technology and strategy consulting, media and corporate finance services, reverse engineering and reverse costing services as well as IP and patent analysis. With a strong focus on emerging applications using silicon and/or micro manufacturing, the Yole group of companies has expanded to include more than 80 collaborators worldwide covering MEMS and image sensors, Compound Semiconductors, RF Electronics, Solid-state lighting, Displays, software, Optoelectronics, Microfluidics & Medical, Advanced Packaging, Manufacturing, Nanomaterials, Power Electronics and Batteries & Energy Management. The “More than Moore” market research, technology and strategy consulting company Yole Développement, along with its partners System Plus Consulting, PISEO and KnowMade, support industrial companies, investors and R&D organizations worldwide to help them understand markets and follow technology trends to grow their business. For more information, visit www.yole.fr and follow Yole on LinkedIn and Twitter.


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