LYON, France – August 31, 2017: Yole Développement (Yole) expects the IGBT market to go over US$ 5 billion by 2022 with a major growth coming from IGBT power module. The high performance that SiC1 and GaN2 materials can afford is already creating a battlefield with Silicon based IGBT. To overcome this thread, Si IGBT manufacturers need to look for prompt solutions as technologically update their systems for better efficiency or to increase their IGBT portfolio offer. How is the IGBT market evolving for different applications? How will the IGBT market face the adoption of high performance WBG based devices?... Yole’s power electronics team proposes you today a new technology & market report titled IGBT market and technology trends 2017 report. Yole’s report presents an overview of the IGBT market including detailed forecasts and a new application section focused on energy storage systems. This analysis is also showing the status of the competitive landscape. The IGBT market represents a very promising bet for the next few years, announces the “More than Moore” market research and strategy consulting company: its analysts invite you to discover the latest IGBT technology trends and market challenges.

“The IGBT industry will follow power electronics’ growth pattern, mainly caused by the high volume automotive market, especially for the electrification of powertrains in EV/HEV3”, asserts Dr Ana Villamor, Technology & Market Analyst, Power Electronics at Yole Développement. The EV/HEV sector has great growth prospects

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1 SiC: Silicon Carbide
2 GaN: Gallium Nitride
3 EV/HEV : Electric Vehicle/Hybrid Electric Vehicle
because it is still an emerging market with tremendous volume potential.

Another big sector for IGBT is clearly motor drives, which keep on growing, thanks to aggressive regulation targets. Yole Développement forecasts a 4.6% CAGR\(^4\) for motor drives from 2016 to 2022. Photovoltaics and wind are very dynamic markets with growth from huge installations being installed during the last few years. It is worth to say that China led the solar panel implementation in 2016, with an impressive 35 GW installed.

“There will be applications for SiC which will impact the IGBT market, for example it is highly possible that it will take over the automotive market”, comments Dr Ana Villamor. “However, we forecast that IGBTs will keep a significant market share in the power electronics industry and will not be replaced completely.”

In fact, even if the IGBT has almost reached its technological limit, new designs and new materials can still be used to improve system performance to overcome the WBG devices arrival. In coming years, there will be new IGBT designs from Infineon, Fuji or ABB coming into the market. Packages are being improved by different manufacturers to decrease parasitics and improve system efficiency. A clear example is the introduction of the embedded techniques for discrete IGBTs and overmolded solutions for IGBT modules to reduce size or increase functional density.

Currently, IGBT manufacturers can have wide voltage ranges in their portfolios, going from 400 V to 6.5k V. The 400 V IGBTs will directly compete with MOSFETs, whereas IGBTs with voltages higher than 600 V will compete with SJ\(^5\) MOSFETs and WBG devices, which exhibit advantages over IGBTs. Lower voltage IGBTs will not be developed since they do not show any advantage compared with MOSFETs.

As IGBTs is a mature technology, the supply chain is well established, with strong partnerships and companies well positioned in each level. “Therefore, the main IGBT manufacturers that we included in our 2015 report are still in the IGBT best sellers, except ON Semiconductor, which has become one of the top five IGBT vendors after the acquisition of Fairchild at the end of 2016”, explains Dr Ana Villamor. “However, more companies are entering the IGBT market in order to capture added value, like Littelfuse, who just announced the agreement on the acquisition of IXYS Corporation.”

A detailed description of the IGBT report is available on i-micronews.com, power electronics reports.

This section also presents one of the latest product released by Yole, updated quarterly: Power Integrated Circuit 2017 - Quarterly Update

\(^4\) CAGR : Compound Annual Growth Rate
\(^5\) SJ : superjunction
Q2, 2017, the second quarterly report from Yole. It provides exhaustive figures to understand Power IC applications market trends along with key information on market share and forecasts.

In addition, SEMICON Taiwan, Power Fortronic and SEMICON Europa welcome the consulting company to reveal its analyses, the latest technical, and market trends. Yole’s analysts have been invited to present their vision of the industry. Discover below the agenda:

- **SEMICON Taiwan (Sep. 13-15 – Taipei, Taiwan)** Dr. Pierric Gueguen, Business Unit Manager at Yole will present on September 14 at 4:25 PM: "From Technology to Market, how will Compound Semiconductor reshape RF and Power Electronics applications?" – Yole’s booth: #828

- **Power Fortronic (Sep. 20-21 – Reggio Emilia, Italy)** “Status of the Power Electronics Industry” will be presented by Dr. Milan Rosina, Senior Technology & Market Analyst, Energy Conversion & Emerging Materials, from Yole, on September 20 at 4:00 PM

- **SEMICON Europa (Nov. 11-14 – Munich, Germany)** Yole’s presentation is titled: “How technology development will shape the power electronics market in the next 5 years?”. It will take place on November 11 at 11:40 AM, within the Power Electronics Conference. Yole’s speaker is Dr. Milan Rosina, Senior Analyst, Energy Conversion and Emerging Materials. Yole’s booth at SEMICON Europa is B1-1434.

For more information about this program, please contact: Camille Veyrier.
About IGBT Market & Technology Trends 2017 report

The global IGBT market is growing and IGBT technologies keep evolving. How will the IGBT market face the adoption of performing WBG-based devices?

Produced by Yole Développement (Yole) part of Yole Group of Companies.

Companies cited in the report:


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Dr. Hong Lin works at Yole Développement, the “More than Moore” market research and strategy consulting company, as a technology and market analyst since 2013. She is specialized in compound semiconductors and provides technical and economic analysis. Before joining Yole Développement, she worked as R&D engineer at Newstep Technologies. She was in charge of the development of cold cathodes by PECVD for visible and UV lamp applications based on nanotechnologies. She holds a Ph.D in Physics and Chemistry of materials.

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, including device technology and reliability analysis. 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 her PhD 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 UAB (SP).

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Founded in 1998, Yole Développement has grown to become a group of companies providing marketing, technology and strategy consulting, media and corporate finance services. With a strong focus on emerging applications using silicon and/or micro manufacturing, the Yole Développement group has expanded to include more than 50 collaborators worldwide covering MEMS, Compound Semiconductors, RF Electronics, Solid-state lighting, Displays, Image Sensors, Optoelectronics, Microfluidics & Medical, Advanced Packaging, Manufacturing, Nanomaterials, Power Electronics and Batteries & Energy Management.
The “More than Moore” company Yole, along with its partners System Plus Consulting, PISEO, Blumorpho and KnowMade, support industrial companies, investors and R&D organizations worldwide to help them understand markets and follow technology trends to grow their business.

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