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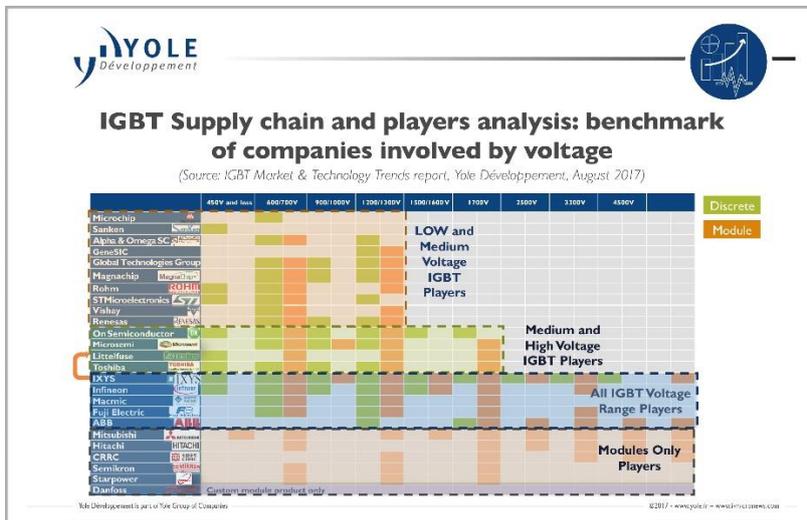
The IXYS acquisition by Littelfuse is a new step towards the IGBT industry consolidation

Extracted from: IGBT Market & Technology Trends 2017 report - Power SiC 2017: Materials, Devices, Modules, and Applications report - Power Module Packaging: Material Market and Technology Trends 2017 | Yole Développement, August 2017

LYON, France – September 6, 2017: [IXYS acquisition by Littelfuse](#) turns again the IGBT landscape upside down. This impulse initiates a new process towards the market consolidation, a trend identified by [Yole Développement’s](#) analysts in their latest report, [IGBT Market & Technology Trends 2017](#). Therefore, the leading position of Infineon Technologies forces IGBT players to reinforce their technical expertise and their market position and consider collaborations and/or acquisitions.

Expected to reach more than US\$ 5 billion in 2022¹, the IGBT market is showing a well-established supply chain with strong partnerships and companies positioned at each level.

[KnowMade](#) and Yole Développement, both part of Yole Group of Companies take today a closer look on the industry structure and comment its evolution.



Littelfuse is developing circuit protection with growing global platforms in power control and sensing. IXYS is strongly involved in the development of power semiconductors, solid-state relays, high voltage integrated circuits, and microcontrollers.

Both companies have strong synergies: they have for example the same customers’ portfolio composed of the electronics, automotive and industrial companies.

Under this merger, their aim is to propose a relevant combination of their technical expertise and create value for their common customers’ portfolio to become a key IGBT player. With this acquisition, Littelfuse gradually enlarges its role within the IGBT market and takes clearly part in the market consolidation.

¹ Source : [IGBT Market & Technology Trends report](#), August 2017

This acquisition is also supporting Littelfuse's activities in power module design. Low inductance and good thermal performance become today a "must-have" to sell power devices.

*"Power packaging is now a key knowledge that must be optimized to obtain good performance at the module level", details **Dr. Pierric Gueguen, Business Unit Manager at Yole.** "Power packaging management will clearly accelerate the adoption of innovative technologies including WBG². Thus it is not a surprise to see many leading power electronics companies to move towards this level of the power electronics supply chain.³"*

For example, in the SiC⁴ area, Cree (today Wolfspeed) adopted this strategy with [the acquisition of APEI in 2015](#).

With both deals, Cree (with APEI) and Littelfuse (with IXYS) expanded their expertise towards the packaging technologies, especially for SiC.

Thus Littelfuse confirms its penetration within the SiC industry, initially initiated with its [strong investments in Monolith Semiconductors in March 2017](#). Today's SiC market is still dominated by discrete devices. However, that situation will soon change, explain Yole Développement's analysts. Indeed hybrid modules are already penetrating some applications and full SiC modules are coming with dedicated packaging solutions⁵.

*"With IXYS acquisition and investments within Monolith company, Littelfuse modifies its market positioning: the company adds another activity in its products portfolio: the development of SiC-based power electronics solutions", comments **Nicolas Baron, CEO & Founder, KnowMade.** "Based on its impressive patent portfolio including more than 400 patents and patent applications related to the power semiconductor industry, IXYS is showing a strong knowledge of IGBT modules packaging." Under this context, Littelfuse will also get soon the capability to propose SiC power modules.*

Today a comprehensive analysis of IXYS and Littelfuse patent portfolios reveals the complementarity of their expertise and positioning focused on IGBT market segment as well as their strategy to offer dedicated SiC-based products in a near future.

Tomorrow will probably see more and more mergers and acquisition within the IGBT industry. IXYS acquisition by Littelfuse is not the first case and will not be not the last... KnowMade and Yole are daily working together to mix their vision of the industry, understand the supply chain evolution, identify new deals and analyze business

² WBG: Wide Band Gap

³ Source: [Power Module Packaging: Material Market and Technology Trends 2017 report](#), May 2017

⁴ SiC: Silicon Carbide

⁵ Source: [Power SiC 2017: Materials, Devices, Modules, and Applications report](#), August 2017

opportunities. Yole Group of Companies 'reports and custom products are offering an in-depth overview of the power electronics industry, the competitive landscape, the technology roadmaps and more. More information about Yole Group of Companies expertise is available on [i-micronews.com, reports section](https://www.i-micronews.com/reports-section).

Yole Group of Companies – Reports mentioned in the press release:**[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.

**[Power SiC 2017: Materials, Devices, Modules, And Applications report](#)**

2019 will see SiC adoption reach a tipping point...

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

**[Power Module Packaging report](#)**

How new applications drive the choice of power module materials and designs.

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

About KnowMade – www.knowmade.com

Specialized in analysis of patents and scientific information, KnowMade provides Technology Intelligence and IP strategy consulting services. The company is supporting R&D organizations, industrial companies and investors worldwide in their business development by offering them a deep understanding of the technology trends and their IP environment. KnowMade operates in the following industrial sectors: Microelectronics & Optoelectronics, Compound Semiconductors, IC Manufacturing, Advanced Packaging, Power Electronics, RF Devices, MEMS Sensors & Actuators, Photonics, Micro & Nanotechnology, Biotechnology, Pharmaceuticals, Medical Devices and Agri-Food.



KnowMade performs prior art search, patent landscape analysis, scientific literature analysis, patent valuation and freedom-to-operate analysis. In parallel, the company proposes litigation/licensing support, technology scouting and IP watch service. KnowMade's analysts combine their technical and patent expertise by using powerful analytics tools and proprietary methodologies to deliver relevant patent analyses and scientific reviews.

About Yole Développement – 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. 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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