More industrial segments adopt SiC technology

SiC Modules, Devices and Substrates for Power Electronics Market report
from Yole Développement

LYON, France – September 23, 2014 – Silicon Carbide (SiC) propagates over all industrial segments, announces Yole Développement (Yole), the market research, technology and strategy consulting company. Power factor corrector (PFC), photovoltaic inverter, motor control … and more represented a $100 million business in 2013. Yole released last week, its SiC technology and market analysis: SiC Modules, Devices and Substrates for Power Electronics Market. The company updated its investigation and give us today its vision of the SiC industry. This 2014 edition includes a bill-of-material comparison SiC versus Si at the system level, a payback-time simulation and detailed market data. This report is a complete analysis of the SiC industry at the device, module and substrate levels, in the power electronics field; it shows the involvement of key SiC players, the state-of-the-art technology. This study also reviews all manufacturing costs and key economics of SiC technology …

In 2013, SiC chip business has almost reached $100 million due to already well-established power factor corrector (PFC) applications, which PFC still drives large volumes of diodes. In the second place, photovoltaic systems, despite a depressed market, are the beachhead for newly SiC-powered inverter or micro-inverter line-ups.
Surprisingly, train traction has adopted Silicon Carbide solution, sooner than expected. This strategic choice has been done by industrials, because of the availability of 1.7kV full and hybrid modules that have been demonstrated and installed by Mitsubishi Electric in Japan. Train applications could dynamically expand, exhibiting a >80% CAGR over 2015-2020. “Indeed, we expect other rolling-stock manufacturers will quickly adopt SiC, firstly in metro and then in the high-speed trains”, explains Dr Philippe Roussel, Business Unit Manager at Yole. “We also forecast PV inverters to keep on implementing SiC at an annual growth rate of almost 12”%, he adds.

Adoption of SiC in train applications is a main fact in the SiC industry. “It shows that SiC could play an important role in the high and very high voltage ranges, more than 1.7kV”, says Dr Hong Lin, Technology & Market Analyst, Compound Semiconductors & Power Electronics. “We stay convinced that these voltage and related power ranges, are exactly the place-to-be for SiC technology. Therefore such technology can bring a real added-value, despite a price positioning that differs from silicon”, analyzes Hong Lin. Here savings are made at the system level, where passives and other cooling can be dramatically reduced when moving to SiC.

Yole also takes into account, in its 2014 analysis, the competition with GaN devices in the PFC area. GaN, now able to answer 600V segment needs, becomes a serious competitor for SiC technology. However Yole’s analysts remain conservative regarding this market evolution: “PFC should switch to nitrides solution in the coming years”, details Hong Lin.

More information about Yole Développement SiC report is available on www.i-micronews.com, Compound Semi. section.

About “SiC Modules, Devices and Substrates for Power Electronics Market” report

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