A new consortium to create the European silicon carbide semiconductor supply chain – November 9, 2021

A new consortium to create the European silicon carbide semiconductor supply chain

Editorial board November 9, 2021A new consortium to create the European silicon carbide semiconductor supply chain2021-11-09T21: 10: 07 + 02: 00

Print PDF

Today, many of the key projects aim at a single goal: improving energy efficiency in order to protect the environment. These projects typically cover areas such as electromobility, renewable energy and cloud computing, including data centers. Experts agree that silicon carbide semiconductors and the components that contain them will ensure the most efficient use of available electricity. The goal of the publicly funded " **Transform** " project is to build a resilient European supply chain for this technology, ranging from wafers and other base materials to finished devices with SiC power semiconductors and electronics applications. of power. In a consortium led by **Bosch**, a total of 34 companies, universities and research institutes from seven European countries have joined forces to achieve this goal. “The purpose of the Transform project is to ensure that Europe plays a prominent role in new silicon carbide-based technologies,” said **Jens Fabrowsky** , Executive Vice-President of Bosch's Automotive Electronics Division. The project, which will run until 2024 and funded with public funds, covers five use cases in the automotive, renewable energy and agriculture sectors.

“The aim of the Transform project is to ensure that Europe plays a prominent role in the new technologies based on silicon carbide. ”Said Jens Fabrowsky, Executive Vice-President of Bosch's Automotive Electronics Division.

Power electronics applications are the heart of many electronic systems. They control the switching processes of the systems and minimize power losses. Power semiconductors in these applications are essential in ensuring maximum efficiency. Typically, the chips in these devices are made of pure silicon. In the future, this element will increasingly be replaced by silicon carbide, which offers numerous

advantages over pure silicon. For example, silicon carbide semiconductors exhibit improved electrical conductivity, which allows for higher switching frequencies while ensuring less energy loss in the form of heat. Furthermore, power electronics applications with these new chips can be used at much higher temperatures, as a result, simpler cooling systems can be used which contribute to energy savings. Finally, silicon carbide has a greater electric field intensity so that, with this material, it is possible to design components in smaller dimensions while still providing greater power conversion efficiency. Compared to traditional silicon chips, experts believe that up to 30% energy can be saved, depending on where the components are used. it is possible to design components in smaller dimensions while still providing greater power conversion efficiency. Compared to traditional silicon chips, experts believe that up to 30% energy can be saved, depending on where the components are used. it is possible to design components in smaller dimensions while still providing greater power conversion efficiency. Compared to traditional silicon chips, experts believe that up to 30% energy can be saved, depending on where the components are used.

The goal of the Transform project is to establish a resilient European supply chain for the production of power electronics applications based on the innovative SiC power semiconductor devices. Demand for this technology is set to grow rapidly, in particular for energy-intensive applications such as electric vehicle propulsion systems, charging stations and energy supply infrastructure. A forecast by market research and consulting firm Yole indicates that between now and 2025, the SiC market as a whole will grow an average of 30% annually to over $ 2.5 billion. The Transform project will therefore also address the development of new SiC technologies, as well as the necessary manufacturing methods and processes. Furthermore,

Over 89 million euros have been allocated for this project, subsidized by the European Union and national bodies. The project brings together key players in Austria, the Czech Republic, France, Germany, Italy, Spain and Sweden. Partner companies include, among others: **Aixtron, Danfoss** , **EV Group** , **Premo** , **Saint-Gobain** , **Semikron** , **Soitec** , **STMicroelectronics** and **Valeo-Siemens Automotive** . The various scientific organizations participating include the **Brno University of Technology** , the **CEA Leti Institute** , the **Fraunhofer IISB**and the **University of Seville** .

https://www.villaggiotecnologico.it/un-nuovo-consorzio-per-creare-la-supply-chain-europea-dei-semiconduttori-al-carburo-di-silicio/