Growth in SiC Power Modules a Boon to Upstate New York

July 7, 2017
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Danfoss Silicon Power will establish packaging operations in Utica's Computer Chip Commercialization Center (Quad-C), generating more high-skill jobs in that area while advancing SiC technology.

Although power semiconductor companies have started to take advantage of silicon carbide (SiC) material, such activity is still limited. Yet many potential SiC applications are thought to be available, such as solar inverters, automotive inverters, and battery storage. SiC power devices could potentially benefit numerous applications at high voltages and, in the future, even at low voltages. SiC technology provides benefits like high efficiency and high power ratings in smaller packages at high switching frequencies.

Working to accelerate the commercialization of SiC is the New York Power Electronics Manufacturing Consortium (NY-PEMC). This public-private partnership helps to develop the next generation of materials used in semiconductors at a state-owned R&D facility in Albany, N.Y. As a result of these efforts, it is creating thousands of high-skilled, high-paying jobs in upstate New York. The latest company to join this effort is Danfoss. It will manufacture SiC power modules using SiC chips provided by General Electric (GE). Danfoss is expected to establish SiC power-module operations in the Mohawk Valley by early 2018.

Danfoss will occupy the full Quad-C in conjunction with the establishment of the New York Power Electronics Manufacturing Consortium Packaging Center. (Courtesy of SUNY Poly)

New York State is financing all startup costs as well as the production facilities. Danfoss will lease both the facility and equipment from New York State and occupy the entire facility in Utica, which includes two cleanrooms, labs, offices, and logistics space. This project is expected to create at least 300 new jobs. “With Danfoss’ commitment to establishing state-of-the-art manufacturing operations in Utica, we are cementing New York’s role as a leader in semiconductor research and development, while creating hundreds of good-paying jobs in the region,” Gov. Andrew Cuomo said. “This expansion is proof positive that we are attracting 21st-century companies from across the globe to Utica, and leveraging next-generation technology to foster the continued growth and success of Mohawk Valley communities for years to come.”

“This is a very important step for Danfoss, as the U.S. is our biggest market and essential to our business. The cooperation with GE has great strategic impact for Danfoss—it is important for our future growth plans in the U.S., and we have big expectations for the further developments in this highly specialized area,” says Danfoss Executive Vice President and COO Kim Fausing.

Demand for SiC devices will keep increasing to fill the growing demand for smaller and lighter solutions due to the electrification of the world. SiC diodes and inverters had been developed successfully and there are already SiC power modules in the market. SiC devices have a lot of potential and with more research and development, better SiC solutions will be created. This new New York partnership will definitely increase the research and development of SiC technology on the U.S. East Coast.