

Renowned automotive supplier is manufacturing chips for eMobility on AIXTRON new SiC system

Customer will start SiC epi-wafer industrialization on AIXTRON's new fully automated SiC system / Best performance for next generation SiC power electronics

Automotive supplier Bosch will manufacture epi-wafers for its silicon carbide power semiconductors on the new automated [AIX G5 WW C](#) system from AIXTRON SE (FWB: AIXA), a leading global provider of deposition equipment to the semiconductor industry. In its Reutlingen fab, Bosch has built a 6-inch (150 millimeter) pilot-line for the development of SiC Trench MOSFETs. These efficient power switching devices are recognized as the key component of traction inverters for modern electric vehicle drive trains.

Delivering high throughput of quality SiC epitaxy

Wide-Band-Gap semiconductors such as silicon carbide (SiC) have unique physical properties which enable high power handling capabilities, efficient switching and reduced losses in power devices compared to their traditional silicon counterparts. They provide a substantial contribution to the CO₂ emission reduction and to climate goals in an economy increasingly powered by electrical energy. Therefore, SiC based semiconductors are expected to gain a leading market share in efficient high performance applications.

In particular, they are expected to gain massive traction in electric vehicles (EVs) over the next few years. SiC power transistors significantly reduce switching losses compared to mainstream silicon solutions. This comes along with extreme robustness even at high operating temperatures as well as with a reduction of size, cooling needs and system cost. Most important, the high efficiency of SiC power switches increases the range of electric vehicles by about 6 percent.

"We are pleased to collaborate with AIXTRON in the area of SiC epitaxy in our fab in Reutlingen. Their G5 WW C system delivers SiC epi layers of excellent uniformity and lowest particles levels, which is a key requirement in the SiC MOSFET manufacturing process. The G5 WW C system delivers an outstanding throughput," says Dr Christian Förster, Vice President Project Power SiC at Bosch.

Best in class throughput and lowest cost of ownership

The Planetary Reactor® of the AIX G5 WW C system combines 8x150 mm multiwafer capacity with automated wafer transfer and high temperature loading. These features enable high

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system throughput as well as precise on-wafer temperature control for optimum layer uniformity and reproducibility.

Dr. Felix Grawert, President of AIXTRON SE, comments: "Efficient power electronics systems for modern electric vehicles are transitioning from traditional silicon based semiconductors to the wide-band-gap material SiC. We are proud to serve the industry with our latest automated SiC epi platform and are particularly honored to work together with Bosch. Our innovations in the field of SiC power are geared towards superior SiC material performance on a highly productive and cost efficient batch wafer manufacturing platform".

To download photos please click [here](#).

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About AIXTRON

AIXTRON SE is a leading provider of deposition equipment to the semiconductor industry. The Company was founded in 1983 and is headquartered in Herzogenrath (near Aachen), Germany, with subsidiaries and sales offices in Asia, United States and in Europe. AIXTRON's technology solutions are used by a diverse range of customers worldwide to build advanced components for electronic and opto-electronic applications based on compound, or organic semiconductor materials. Such components are used in a broad range of innovative applications, technologies and industries. These include LED applications, display technologies, data storage, data transmission, energy management and conversion, communication, signaling and lighting as well as a range of other leading-edge technologies.

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