

A Portfolio of 19 Automotive MOSFETs Debuts: the World's First 12-Inch Mass Production Cuts Per-Chip Cost by Up to 50%

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/EINPresswire.com/ -- Power MOSFETs are the heart of every electrical device — home appliances, industrial motors, new energy vehicle electronic controls, AI data center power supplies. The new-generation T2X technology platform optimizes gate structure, doping profile, and termination design to sharply reduce on-resistance at the same chip area, while also improving dynamic parameters such as gate charge and gate-drain charge. The result is a simultaneous reduction in both conduction and switching losses, breaking the traditional constraint that low on-resistance requires a large die.



Nexperia ranks No. 1 globally in small-signal MOSFETs and among the global top three in automotive power MOSFETs. Nexperia China's proprietary 12-inch SGT T2X automotive MOSFETs are industry-leading in conduction loss, thermal performance, surge withstand capability, and EMI characteristics, filling the gap in 12-inch automotive-grade high-voltage MOSFETs. The products entering mass production this time have completed a full set of standardized reliability verification, covering both automotive and industrial grades. According to industry information, the effective chip output of a single 12-inch wafer is about 5.7 times that of a 5-inch wafer, about 4 times that of a 6-inch wafer, and about 2.2 to 2.4 times that of an 8-inch wafer. In terms of per-chip cost, this means a reduction of about 70% compared with 5-inch, about 60% compared with 6-inch, and about 50% compared with 8-inch.

The new-generation 40V products achieve an on-resistance as low as 0.48 milliohms, an improvement of more than 50% over the previous generation; the 80V platform reaches a minimum on-resistance of 1.3 milliohms, 45% lower than the previous generation. Device thermal resistance and avalanche energy lead the industry by about 20%, and 2,000-hour board-

level temperature cycling reliability is likewise leading.

Nexperia China has released a portfolio of 19 automotive MOSFET products in the 40–100V range, designed for body control, infotainment, battery reverse protection, and LED lighting. Automotive-grade 100V products achieve on-resistance as low as 0.99 mΩ and can handle safe currents above 460 A, suitable for OBCs, traction inverters, and BMS.

The new-generation MOS products have entered the supply chains of leading domestic new energy vehicle customers, with mass production delivery in the second half of 2026. The entire series exceeds the AEC-Q101 standard, and failure rates for core devices in braking, chassis, steering, and battery protection are controlled at the parts-per-billion level.

On product iteration: Nexperia's development cycle used to take 24 to 36 months; now it takes 6 to 12 months. The localization ratio of some core devices has been pushed from under 20% to nearly 100%.

About Nexperia Semiconductors (China) Ltd.□

As a frontrunner in the development and production of basic semiconductor devices, Nexperia Semiconductors (China) Ltd. (Anshi China) offers devices that are widely used in various applications such as automotive, industrial, mobile, and consumer electronics, supporting almost all basic functions of electronic design worldwide. Nexperia Semiconductors (China) Ltd. (Anshi China) provides products and services to customers globally, with these products becoming industry benchmarks in terms of efficiency (such as process, size, power, and performance) and gaining widespread recognition. Nexperia Semiconductors (China) Ltd. (Anshi China) boasts a rich IP product portfolio and a continuously expanding product range, and has obtained certifications under the IATF16949, ISO9001, ISO14001, and ISO45001 standards, fully demonstrating the company's firm commitment to innovation, efficiency, sustainable development, and meeting stringent industry requirements.

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