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## **650-V SiC Diodes Address Automotive And Wider Range Of Industrial Applications**

[Nexperia's](#) 650-V, 10-A SiC Schottky diode is now automotive qualified (PSC1065H-Q) and available in real-two-pin (R2P) DPAK (TO-252-2) packaging, making it suitable for various applications in electric vehicles and other automobiles. Additionally, in a further extension to its portfolio of SiC diodes, Nexperia is now also offering industrial-grade devices with current ratings of 6 A, 16 A, and 20 A in TO-220-2, TO-247-2, and D2PAK-2 packaging to facilitate greater design flexibility (see the figure).

These diodes address the challenges of demanding high-voltage and high-current applications including switched-mode power supplies, ac-dc and dc-dc converters, battery-charging infrastructure, motor drives, uninterruptible power supplies as well as photovoltaic inverters for sustainable energy production.

According to the vendor, the merged PiN Schottky (MPS) structure of these devices provides additional advantages over similar competing SiC diodes, including outstanding robustness against surge currents. This eliminates the need for additional protection circuitry, thereby significantly reducing system complexity and enabling hardware designers to achieve higher efficiency with smaller form factors in rugged high-power applications. Nexperia's consistent quality across various semiconductor technologies provides designers with confidence in the reliability of these diodes, according to the vendor.

In addition, Nexperia's "thin SiC" technology delivers a thinner substrate (one-third of its original thickness) which dramatically reduces the thermal resistance from the junction to the back-side metal. This results in lower operating temperature, higher reliability and device lifetime, higher surge current capability, and lower forward voltage drop.

"We've seen an excellent market response to the initial release of our SiC diodes. They have proven themselves in design-ins with one notable example in power supplies for industrial applications, where customers have achieved especially good results. The superior reverse recovery of these diodes translates to high efficiency in real-world use", says Katrin Feurle, senior director and head of Product Group SiC Diodes & FETs at Nexperia. "We are particularly excited that this is our first automotive-qualified product, and it is already recognized by major automotive players for its performance and reliability."

To learn more about Nexperia's extended range of 650-V SiC Schottky diodes for automotive and industrial applications, see the Silicon Carbide (SiC) Schottky diodes [page](#).



*Figure. Nexperia's 650-V 10-A SiC Schottky diode, which is available in R2P DPAK packaging, is automotive-qualified. Meanwhile, the company is also offering industrial-grade 650-V Schottky devices with 6-A, 16-A, and 20-A ratings and in TO-220-2, TO-247-2, and D2PAK-2 packages to facilitate greater design flexibility.*