

1200-V SiC MOSFETs Feature Low Gate Resistance For High Efficiency

[Alpha and Omega Semiconductor](#) has released a new 1200-V silicon carbide (SiC) MOSFET technology platform. Specifically targeting the industrial and automotive markets, this next-generation α SiC technology will enable customers to achieve higher levels of efficiency and power density compared to existing silicon solutions, according to the vendor.

Optimized for minimizing both ac and dc power losses through a low gate resistance (R_G) design combined with the low increase in on-resistance ($R_{DS(ON)}$) over temperature, the α SiC technology can achieve the highest efficiencies across a wide range of application switching frequencies and temperatures. This higher efficiency can result in significantly reduced system costs and total bill-of-materials for many industrial uses, including solar inverters, UPS systems, and EV inverter and charging systems.

The first product release for this new platform is the AOK065V120X2, a 1200-V 65-m Ω SiC MOSFET available in a TO-247-3L package. For ease of use, the AOK065V120X2 is designed to be driven with a -5-V/+15-V gate drive, allowing the broadest compatibility with existing high-voltage IGBT and SiC gate drivers. Operation with a unipolar drive is also possible with optimized system design. Additional benefits of the α SiC platform include a robust UIS capability, enhanced short-circuit performance, and a high maximum operating temperature of 175°C.

"After years of development work, we are excited to add this new next-generation SiC MOSFET technology to Alpha and Omega's existing class-leading Si MOSFET and IGBT portfolio. Adding to our previously released 650-V GaN platform, the α SiC devices further expand our positioning for the projected multi-billion dollar wide bandgap power semiconductor market. We are committed to providing the optimal technology solution for each customer's needs," said David Sheridan, senior director of wide bandgap products at AOS.

The α SiC MOSFET portfolio will expand later this year to include a broader range of on-resistance and additional package options with full AEC-Q101 qualification.

The AOK065V120X2 is immediately available in production quantities. For more information, see the [datasheet](#). Contact your local sales representative for pricing.



Figure. The low internal resistance of the AOK065V120X2 1200-V SiC MOSFET enables fast switching and low loss. The transistor is designed to be driven with a -5-V/+15-V gate drive, allowing the broadest compatibility with existing high-voltage IGBT and SiC gate drivers.