

# STPOWER Gen3 SiC MOSFETs IDEAL FOR EV



Efficient technology  
silicon carbide in EV



## Step up efficiency and reduce cooling system complexity

STPOWER Gen3 SiC MOSFETs implement robust technology to meet the challenges of the most demanding automotive applications, as well as industrial.

Leaders in high power electric vehicle applications, this SiC Gen3 technology allows further improvements to system power density and energy efficiency, ensuring superior vehicle performance, range, and charging time.

The STPOWER portfolio includes innovative packages as HU3PAK package to ensure high reliability in critical EV power electronics systems. The various package options also help designers build optimized solutions for main traction inverters, on-board chargers, DC-DC converters, and e-climate compressors.

For more details, visit [www.st.com/sic-mosfets](http://www.st.com/sic-mosfets)

### KEY FEATURE & BENEFITS

- Overall CO<sub>2</sub> emission reduction
- BV<sub>DSS</sub> cover Voltage range 650/750 V, 900/1200 V
- AEC-Q101 qualified
- Higher inverter efficiency
- High-speed switching performance
- Extra mileage/lower battery cost
- Source sensing pin for increased efficiency
- Very fast and robust intrinsic body diode

### KEY APPLICATIONS

- DC-DC converters for HV/HEV
- Main inverter (electric traction)
- On-board chargers

## SiC Gen3 MOSFETs ultrafast series optimizing Ron and Qg for high frequency application

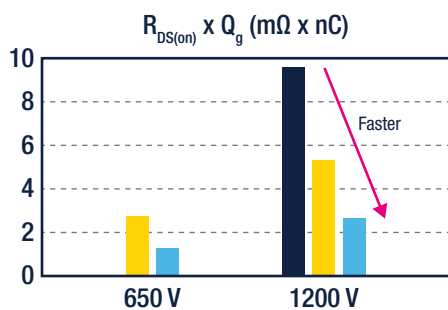
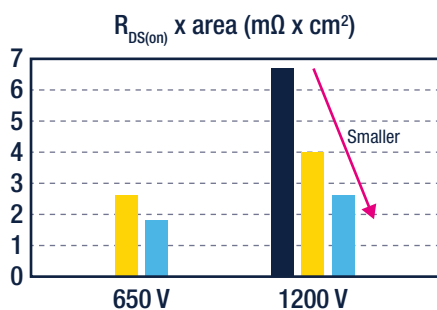
### SiC Gen3 analysis

SiC MOSFETs represent one of the most advanced available technologies in terms of maximizing switching performance while minimizing on-state resistance per area.

With respect to the previous generation, STPOWER SiC Gen3 MOSFETs deliver lower  $R_{DS(on)}$  over the entire temperature range, for even higher application efficiency or lower system size and weight.

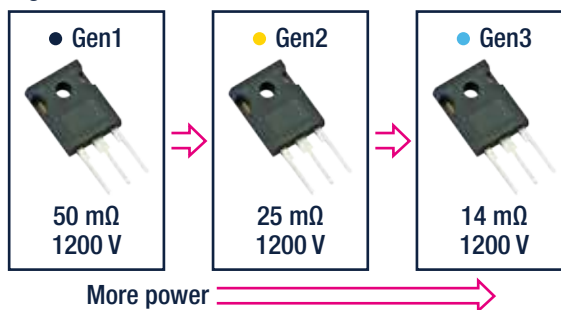
SiC Gen3 MOSFETs can even be driven at 15 V Vgs\*.

### SiC MOSFET Advances in Technology



● Gen1 ● Gen2 ● Gen3

### Figure of Merits



### Improvement in MOSFET generations

- **Lower Ron x Area** → lower Ron for a given chip size or smaller chip size for a given Ron, higher current capability, lower conduction Losses → for a power module means **higher power achievable with the same form factor**
- **Lower Ron x Qg** → **lower switching losses, higher frequency (reduced board)**



FIND OUT MORE

[www.st.com/en/sic-devices/sic-mosfets/products.html](http://www.st.com/en/sic-devices/sic-mosfets/products.html)



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