

650V SiC diodes for industrial applications



SiC diodes boost the performance of power converters

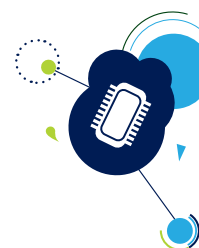
SiC diodes are high-performance power Schottky rectifiers that feature a silicon-carbide substrate. This wide bandgap material enables the design of high-voltage Schottky diodes, and ST offers 650 V Rectifiers. They present negligible reverse recovery at turn-off and minimal capacitive turn-off behavior which is independent of temperature. The very low V_F series of 650 V Rectifiers offers the lowest forward voltage drop for optimal efficiency.

KEY FEATURES

- Very low forward conduction losses
- Low switching losses
- Soft switching behavior
- High forward surge capability
- Contribute to save energy
- Allow high switching frequency
- Reduced EMI
- High T_J capability $T_{J(MAX)} = 175\text{ }^\circ\text{C}$
- 650 V guaranteed from $-40\text{ }^\circ\text{C}$ to $+175\text{ }^\circ\text{C}$

KEY BENEFITS

- High efficiency adding value to the power converter
- Reducing size and cost of the power converter
- Low EMI impact, simplifying certification and reducing time to market
- Natural high robustness ensuring very high reliability



IMPROVED EFFICIENCY

The very high efficiency behavior of SiC diodes coupled with ST's high level of quality ensures the best results for your designs and applications.

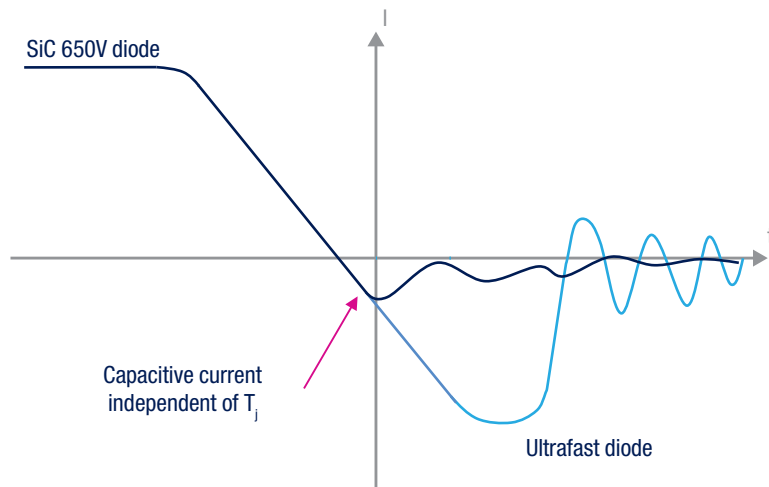
ST's SiC diodes take advantage of silicon carbide's superior physical characteristics over Si only, with 4 times better dynamic characteristics and 15% less forward voltage (V_f) versus the fastest 600V silicon diode.

In hard-switching applications, SiC Schottky diodes show a significant power-loss reduction.

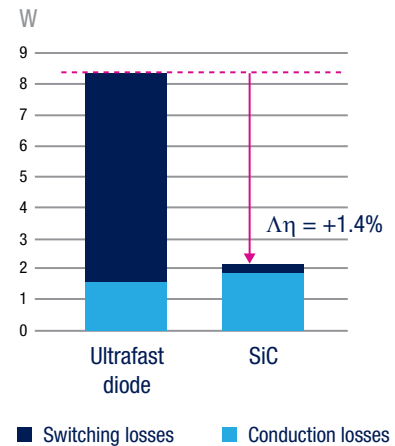
Today, they are also widely used in the industry for AC/DC converters.

SiC DIODES REDUCE SWITCHING POWER LOSSES

Reverse characteristics



Power losses



DEVICE SUMMARY

Part number	Current rating (A)	Voltage rating (V)	Packages
STPSC8065D	8	650	TO-220AC
STPSC10065D	10	650	TO-220AC
STPSC12065D	12	650	TO-220AC
STPSC20065DI	20	650	TO-220I
STPSC20065W	20	650	DO-247
STPSC40065CW	40 (2x20)	650	TO-247

