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 650V high-voltage Schottky diodes. 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 diodes forward voltage drop for optimal efficiency.

**KEY FEATURES**
- Very low forward conduction losses
- Low switching losses
- Soft switching behavior
- High forward surge capability
- Reduced EMI
- High $T_J$ capability $T_{J(MAX)} = 175 \, \text{°C}$
- 650 V guaranteed from -40 °C to +175 °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
- Allow high switching frequency
- Natural high robustness ensuring very high reliability

www.st.com/sicdiodes
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.

SiC diodes reduce switching power losses

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 600 V 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.

Device summary

<table>
<thead>
<tr>
<th>Part number</th>
<th>Current rating (A)</th>
<th>Voltage rating (V)</th>
<th>Packages</th>
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<tbody>
<tr>
<td>STPSC8065D</td>
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<td>650</td>
<td>TO-220AC</td>
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<td>TO-247, TO-247 LL, TO-220AC</td>
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