ST’s new 1200V SiC diodes, ranging from 2 up to 40 A, are available in 4 different packages. The combination of having the lowest forward voltage ($V_F$) with state-of-the-art forward surge current robustness enables designers to select a lower current rating diode while matching the expected converter’s efficiency level, increasing the affordability of high performing systems. These diodes are ideal for use in high power applications such as solar converters, charging stations, OBC, power supplies, and motor drives.

**KEY FEATURES**
- Best $V_F$ on the market
- High robustness
- A complete range of devices from 2A up to 40A
- Unique D²PAK version on top of TO-220AC, TO-247, and DPAK HV
- Automotive-grade version AEC-Q101 qualified

**KEY BENEFITS**
- Negligible reverse recovery characteristics
- Increase efficiency in high-end systems through a drastic reduction of switching losses, combined with best $V_F$
- Best performance reproducibility thanks to low $V_F$ variation between typical and maximum values
- Higher reliability thanks to a low leakage current

**KEY APPLICATIONS**
- Solar converters
- EV/HEV charging stations
- On-board battery chargers for electric and hybrid vehicles
- Telecom power supplies
- Motor drives
- High-power servers
- UPS

These 1200V silicon-carbide diodes increase efficiency in all systems thanks to their low forward voltage ($V_F$).
STAY WORRY-FREE WITH ST’S 1200V SiC DIODES

ST’s new 1200V silicon-carbide (SiC) diodes are designed with an optimized trade-off between $V_f$ and $I_{FSM}$.

With state-of-the-art robustness, the surge capability for a 10ms pulse is in the range of 7 times the diode’s nominal current. The diode’s forward voltage drop ($V_f$) is typically 1.35 V at nominal current and room temperature, which is the best level available on the market. Moreover, the variation from typical to maximum on this $V_f$ parameter is 90%, which is again today the best reproducible $V_f$ performance for 1200V SiC diodes.

Thanks to these characteristics, our customers can achieve worry-free the best level of efficiency in their applications, and ensure an enhanced production yield during manufacturing stages.

For applications where solution cost matters, designers can also select a lower current rating of 1200V SiC for their applications. Indeed, the advantage of negligible switching losses will be preserved, and ST’s best-in-class $V_f/I_{FSM}$ trade-off can be considered to reach the minimum expected efficiency level.

Thus, ST’s 1200V SiC diodes increase the affordability of high performing systems.

EASY REPRODUCIBLE EFFICIENCY FOR POWER CONVERTERS

Typical to Maximum $V_f$ value variation

```
78%  80%  82%  84%  86%  88%  90%
```

PRODUCT PORTFOLIO OFFER

<table>
<thead>
<tr>
<th>Part number</th>
<th>Current ratings $I_f$ (AV)</th>
<th>$V_f$ at $I_f$ &amp; 25°C typ / max</th>
<th>Surge capability $I_{FSM}$ at 10ms</th>
<th>Packages</th>
</tr>
</thead>
<tbody>
<tr>
<td>STPSC2H12</td>
<td>2 A</td>
<td>1.35 V / 1.50 V</td>
<td>15 A</td>
<td>TO-220AC, DPAK HV</td>
</tr>
<tr>
<td>STPSC5H12</td>
<td>5 A</td>
<td>1.35 V / 1.50 V</td>
<td>35 A</td>
<td>TO-220AC, DPAK HV</td>
</tr>
<tr>
<td>STPSC6H12</td>
<td>6 A</td>
<td>1.55 V / 1.90 V</td>
<td>36 A</td>
<td>DPAK HV</td>
</tr>
<tr>
<td>STPSC10H12(*)</td>
<td>10 A</td>
<td>1.35 V / 1.50 V</td>
<td>71 A</td>
<td>TO-220AC, DPAK HV, D²PAK</td>
</tr>
<tr>
<td>STPSC15H12(*)</td>
<td>15 A</td>
<td>1.35 V / 1.50 V</td>
<td>105 A</td>
<td>TO-220AC</td>
</tr>
<tr>
<td>STPSC20H12(*)</td>
<td>20 A</td>
<td>1.35 V / 1.50 V</td>
<td>140 A</td>
<td>TO-220AC, DPAK HV, D²PAK</td>
</tr>
<tr>
<td>STPSC10H12C</td>
<td>2 x 5 A</td>
<td>1.35 V / 1.50 V</td>
<td>35 A</td>
<td>TO-247LL</td>
</tr>
<tr>
<td>STPSC20H12C</td>
<td>2 x 10 A</td>
<td>1.35 V / 1.50 V</td>
<td>71 A</td>
<td>TO-247LL</td>
</tr>
<tr>
<td>STPSC30H12C</td>
<td>2 x 15 A</td>
<td>1.35 V / 1.50 V</td>
<td>105 A</td>
<td>TO-247LL</td>
</tr>
<tr>
<td>STPSC40H2C</td>
<td>2 x 20 A</td>
<td>1.35 V / 1.50 V</td>
<td>140 A</td>
<td>TO-247LL</td>
</tr>
</tbody>
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Note *: AEC-Q101 versions available with “Y” suffix