SiC Schottky Barrier Diode

SCS106AG

Applications
Switching power supply

Features
1) Shorter recovery time
2) Reduced temperature dependence
3) High-speed switching possible

Construction
Silicon carbide epitaxial planer type

Absolute maximum ratings (Ta=25°C)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Limits</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reverse voltage (repetitive)</td>
<td>(V_{RM})</td>
<td>600</td>
<td>V</td>
</tr>
<tr>
<td>Reverse voltage (DC)</td>
<td>(V_{R})</td>
<td>600</td>
<td>V</td>
</tr>
<tr>
<td>Continuous forward current (*1)</td>
<td>(I_{F})</td>
<td>6</td>
<td>A</td>
</tr>
<tr>
<td>Forward current surge peak (60Hz)</td>
<td>(I_{FSM})</td>
<td>21</td>
<td>A</td>
</tr>
<tr>
<td>Junction temperature</td>
<td>(T_j)</td>
<td>150</td>
<td>°C</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>(T_{stg})</td>
<td>-55 to +150</td>
<td>°C</td>
</tr>
</tbody>
</table>

\(*1\) \(T_{c}=124°C\) max
\(*2\) PW=8.3ms sinusoidal

Electrical characteristics (Ta=25°C)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Min.</th>
<th>Typ.</th>
<th>Max.</th>
<th>Unit</th>
<th>Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC blocking voltage</td>
<td>(V_{DC})</td>
<td>600</td>
<td>-</td>
<td>-</td>
<td>V</td>
<td>(I_{F}=0.12mA)</td>
</tr>
<tr>
<td>Forward voltage</td>
<td>(V_F)</td>
<td>-</td>
<td>1.5</td>
<td>1.7</td>
<td>V</td>
<td>(I_{F}=6A)</td>
</tr>
<tr>
<td>Reverse current</td>
<td>(I_{R})</td>
<td>-</td>
<td>1.2</td>
<td>120</td>
<td>(\mu A)</td>
<td>(V_{R}=600V)</td>
</tr>
<tr>
<td>Total capacitance</td>
<td>(C)</td>
<td>-</td>
<td>260</td>
<td>-</td>
<td>pF</td>
<td>(V_{R}=1V,f=1MHz)</td>
</tr>
<tr>
<td>Total capacitive charge</td>
<td>(Q_c)</td>
<td>-</td>
<td>28</td>
<td>-</td>
<td>pC</td>
<td>(V_{R}=600V,f=1MHz)</td>
</tr>
<tr>
<td>Switching time</td>
<td>(t_c)</td>
<td>-</td>
<td>18</td>
<td>-</td>
<td>ns</td>
<td>(V_{R}=400V,di/dt=230A/\mu s)</td>
</tr>
<tr>
<td>Thermal resistance</td>
<td>(R_{th(j-c)})</td>
<td>-</td>
<td>-</td>
<td>2.3</td>
<td>°C/W</td>
<td>junction to case</td>
</tr>
</tbody>
</table>
Fig. 1 VF-IF Characteristics

Fig. 2 VF-IF Characteristics

Fig. 3 VR-IR Characteristics

Fig. 4 VR-CI Characteristics

Fig. 5 Thermal Resistance vs Pulse Width

Fig. 6 Power Dissipation
Fig. 7 Derating Curve $I_p$-$T_c$

![Derating Curve $I_p$-$T_c$](image)

Fig. 8 $I_o$-$P_f$ Characteristics

![$I_o$-$P_f$ Characteristics](image)
Notes

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