SiC Schottky Barrier Diode

**SCS110AG**

### Applications
Switching power supply

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

### Construction
Silicon carbide epitaxial planer type

### Dimensions (Unit: mm)

![Dimensions Diagram]

1) Cathode
2) Cathode
3) Anode

### Structure

![Structure Diagram]

### 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>10</td>
<td>A</td>
</tr>
<tr>
<td>Forward current surge peak (60Hz·1cyc) (*2)</td>
<td>$I_{FSM}$</td>
<td>40</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) $T_{c}=117°C$ 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>$I_{B}=0.2mA$</td>
</tr>
<tr>
<td>Forward voltage</td>
<td>$V_{F}$</td>
<td>1.5</td>
<td>1.7</td>
<td>V</td>
<td>$I_{F}=10A$</td>
<td></td>
</tr>
<tr>
<td>Reverse current</td>
<td>$I_{R}$</td>
<td>2.0</td>
<td>200</td>
<td>μA</td>
<td>$V_{R}=600V$</td>
<td></td>
</tr>
<tr>
<td>Total capacitance</td>
<td>$C$</td>
<td>430</td>
<td>-</td>
<td>pF</td>
<td>$V_{R}=1V,f=1MHz$</td>
<td></td>
</tr>
<tr>
<td>Total capacitive charge</td>
<td>$Q_{C}$</td>
<td>47</td>
<td>-</td>
<td>pF</td>
<td>$V_{R}=600V,f=1MHz$</td>
<td></td>
</tr>
<tr>
<td>Switching time</td>
<td>$t_{c}$</td>
<td>16</td>
<td>-</td>
<td>nC</td>
<td>$V_{R}=400V,di/dt=350A/μs$</td>
<td></td>
</tr>
<tr>
<td>Thermal resistance</td>
<td>$R_{th(j-c)}$</td>
<td>-</td>
<td>-</td>
<td>1.8</td>
<td>°C/W</td>
<td>$V_{R}=400V$</td>
</tr>
</tbody>
</table>

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FORWARD CURRENT: IF(A)

FORWARD VOLTAGE : VF (V)

Ta= 125°C
Ta= 75°C
Ta= -25°C
Ta= 25°C

pulsed

Fig.1 VF-IF Characteristics

Fig.2 VF-IF Characteristics

REVERSE CURRENT (nA)

REVERSE VOLTAGE : VR (V)

Ta=25°C
f=1MHz

Fig.3 VR-IR Characteristics

Fig.4 VR-Ct Characteristics

REVERSE VOLTAGE : VR [V]

CAPACITANCE BETWEEN TERMINALS : Ct [pF]

Fig.5 Thermal Resistance vs Pulse Width

Fig.6 Power Dissipation

THERMAL RESISTANCE : (°C/W)

POWER DISSIPATION (W)

PULSE WIDTH : Pw (s)

CASE TEMPERATURE : Tc (°C)
Fig. 7 Derating Curve Ip-Tc

Fig. 8 Io-Pf Characteristics

Duty=0.1
Duty=0.2
Duty=0.5
Duty=0.8
D.C.
**Notes**

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