

SiC Schottky Barrier Diode

SCS110AG

●Applications

Switching power supply

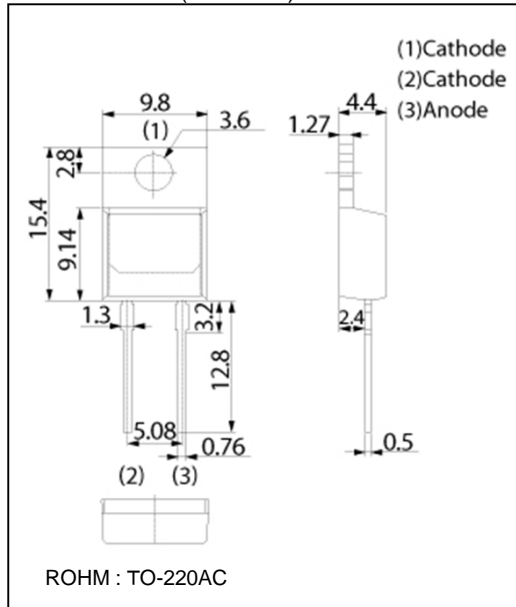
●Features

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

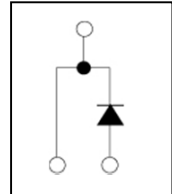
●Construction

Silicon carbide epitaxial planer type

●Dimensions (Unit : mm)



●Structure



●Absolute maximum ratings (T_j=25°C)

| Parameter | Symbol | Limits | Unit |
|-------------------------------------|----------------------|-------------------|--------|
| Reverse voltage (repetitive peak) | V _{RM} | 600 | V |
| Reverse voltage (DC) | V _R | 600 | V |
| Continuous forward current | I _F | 10* ¹ | A |
| Surge no repetitive forward current | I _{FSM} | 40* ² | A |
| | | 160* ³ | A |
| Repetitive peak forward current | I _{FRM} | 42* ⁴ | A |
| Total power dissipation | P _D | 83* ⁵ | W |
| Junction temperature | T _j | 175 | °C |
| Range of storage temperature | T _{stg} | -55 to +175 | °C |
| Junction to case | R _{th(j-c)} | 1.8 | °C / W |

(*1)T_c=134°C (*2)PW=8.3ms sinusoidal,T_j=25°C

(*3)PW=10μs square,T_j=25°C (*4)T_c=100°C,T_j=150°C,Duty cycle=10% (*5)T_c=25°C

●Electrical characteristics (T_j=25°C)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions |
|-------------------------|-----------------|------|------|------|------|--|
| DC blocking voltage | V _{DC} | 600 | - | - | V | I _R =0.2mA |
| Forward voltage | V _F | - | 1.5 | 1.7 | V | I _F =10A,T _j =25°C |
| | | - | 1.82 | - | V | I _F =10A,T _j =175°C |
| Reverse current | I _R | - | 2 | 200 | μA | V _R =600V,T _j =25°C |
| | | - | 40 | - | μA | V _R =600V,T _j =175°C |
| Total capacitance | C | - | 430 | - | pF | V _R =1V,f=1MHz |
| | | - | 47 | - | pF | V _R =600V,f=1MHz |
| Total capacitive charge | Q _C | - | 16 | - | nC | V _R =400V,di/dt=350A/μs |
| Switching time | t _c | - | 15 | - | ns | V _R =400V,di/dt=350A/μs |

●Electrical characteristic curves (Ta=25°C)

Fig.1 V_F - I_F Characteristics

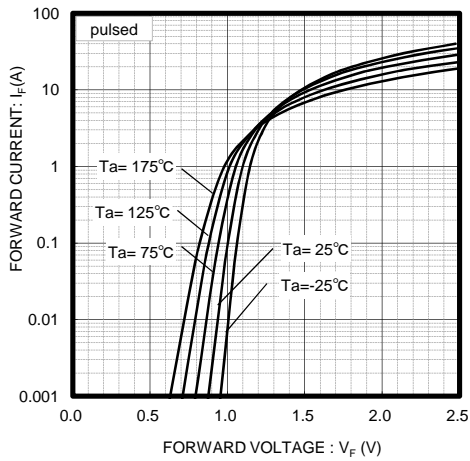


Fig.2 V_F - I_F Characteristics

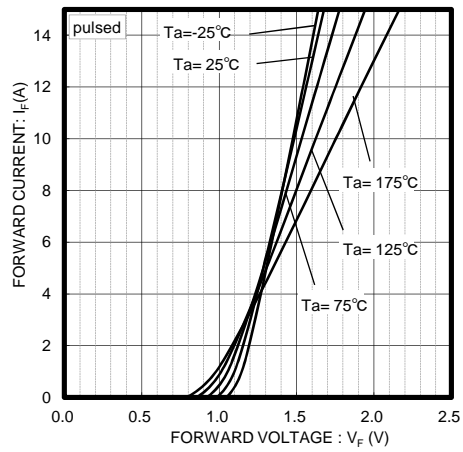


Fig.3 V_R - I_R Characteristics

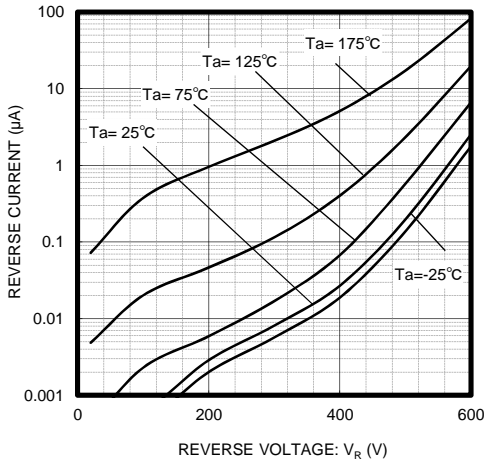


Fig.4 V_R - C_t Characteristics

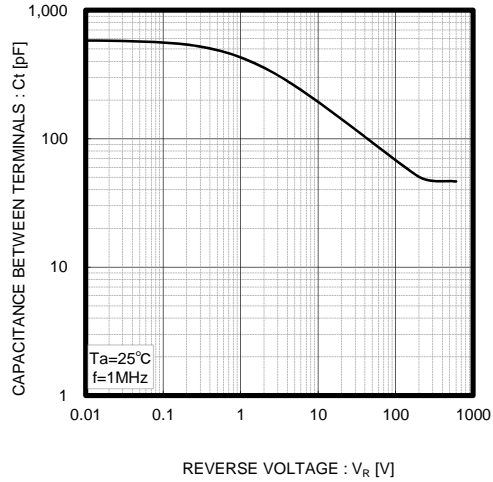


Fig.5 Thermal Resistance vs Pulse Width

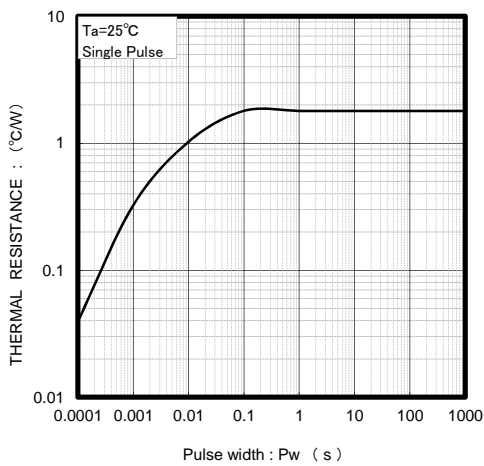


Fig.6 Power Dissipation

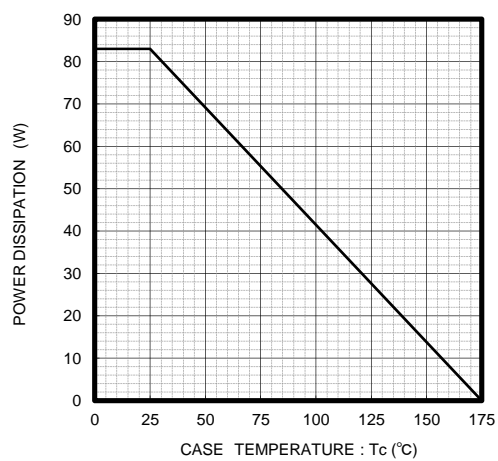


Fig.7 Derating Curve Ip-Tc

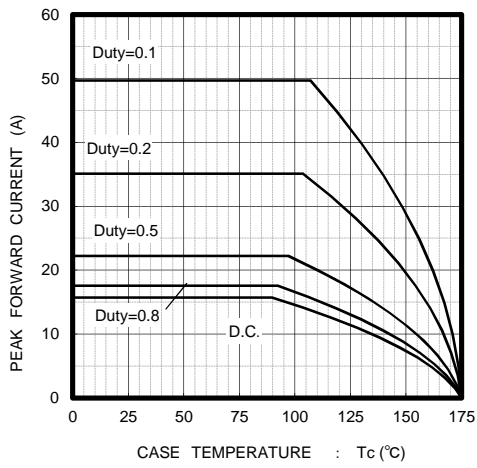
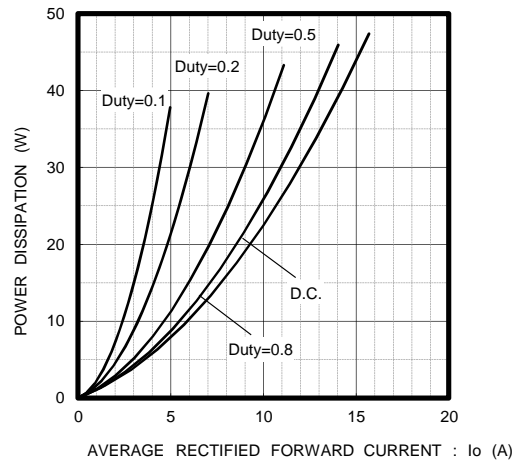


Fig.8 Io-Pf Characteristics



Notes

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