

SiC Schottky Barrier Diode

SCS106AG

●Applications

Switching power supply

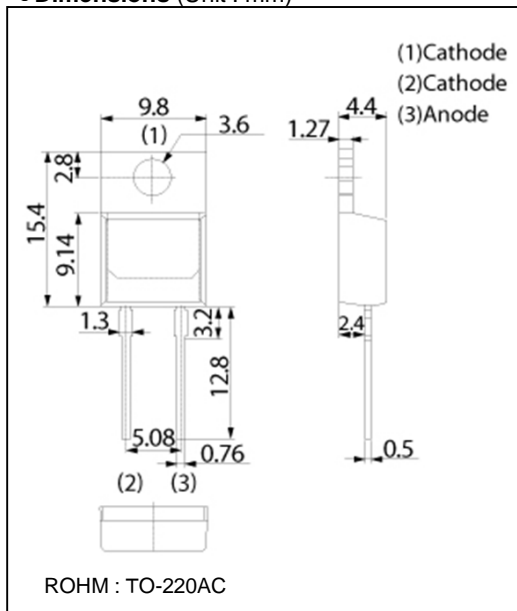
●Features

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

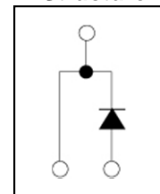
●Construction

Silicon carbide epitaxial planer type

●Dimensions (Unit : mm)



●Structure



●Absolute maximum ratings (Tj=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	6* ¹	A
Surge no repetitive forward current	I_{FSM}	21* ²	A
		86* ³	A
Repetitive peak forward current	I_{FRM}	29* ⁴	A
Total power dissipation	P_D	65* ⁵	W
Junction temperature	T_j	175	°C
Range of storage temperature	T_{stg}	-55 to +175	°C
Junction to case	$R_{th(j-c)}$	2.3	°C / W

(*1) $T_c=143^\circ\text{C}$ (*2) $PW=8.3\text{ms}$ sinusoidal, $T_j=25^\circ\text{C}$

(*3) $PW=10\mu\text{s}$ square, $T_j=25^\circ\text{C}$ (*4) $T_c=100^\circ\text{C}$, $T_j=150^\circ\text{C}$, Duty cycle=10% (*5) $T_c=25^\circ\text{C}$

●Electrical characteristics (Tj=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
DC blocking voltage	V_{DC}	600	-	-	V	$I_R=0.12\text{mA}$
Forward voltage	V_F	-	1.5	1.7	V	$I_F=6\text{A}$, $T_j=25^\circ\text{C}$
		-	1.82	-	V	$I_F=6\text{A}$, $T_j=175^\circ\text{C}$
Reverse current	I_R	-	1.2	120	μA	$V_R=600\text{V}$, $T_j=25^\circ\text{C}$
		-	24	-	μA	$V_R=600\text{V}$, $T_j=175^\circ\text{C}$
Total capacitance	C	-	260	-	pF	$V_R=1\text{V}$, $f=1\text{MHz}$
		-	28	-	pF	$V_R=600\text{V}$, $f=1\text{MHz}$
Total capacitive charge	Q_C	-	12	-	nC	$V_R=400\text{V}$, $di/dt=230\text{A}/\mu\text{s}$
Switching time	t_c	-	18	-	ns	$V_R=400\text{V}$, $di/dt=230\text{A}/\mu\text{s}$

●Electrical characteristic curves (Ta=25°C)

Fig.1 V_F-I_F Characteristics

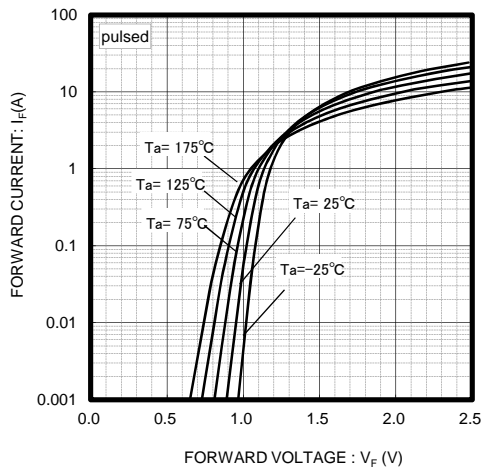


Fig.2 V_F-I_F Characteristics

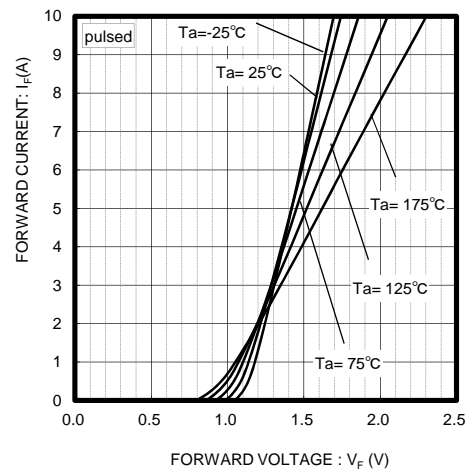


Fig.3 V_R-I_R Characteristics

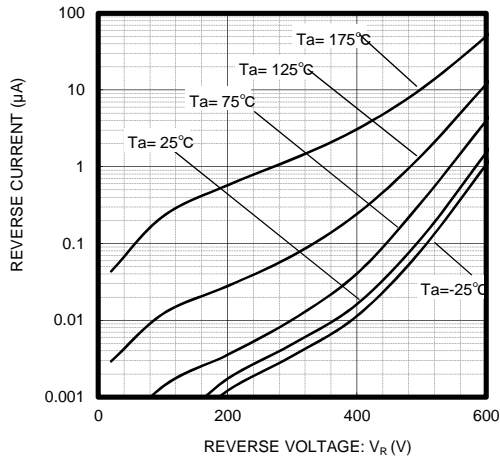


Fig.4 V_R-C_t Characteristics

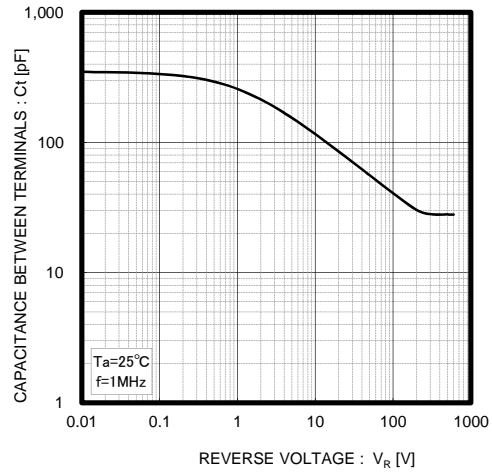


Fig.5 Thermal Resistance vs Pulse Width

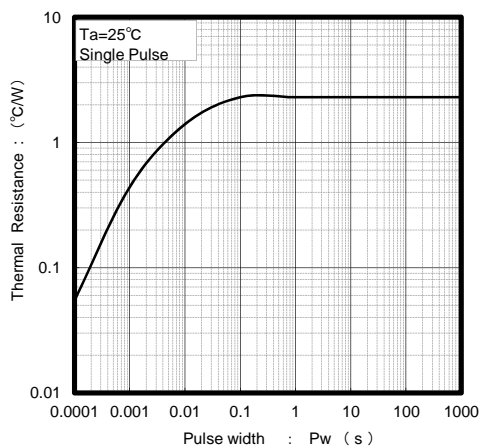


Fig.6 Power Dissipation

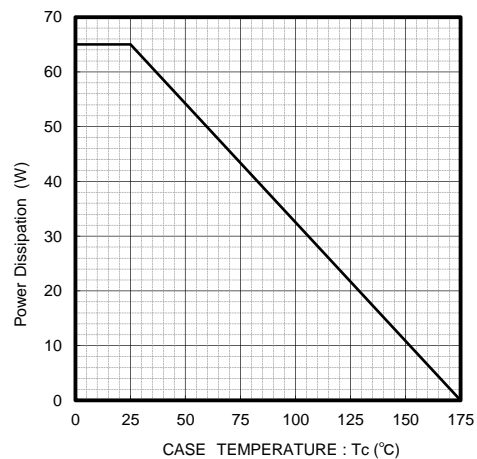


Fig.7 Derating Curve I_p - T_c

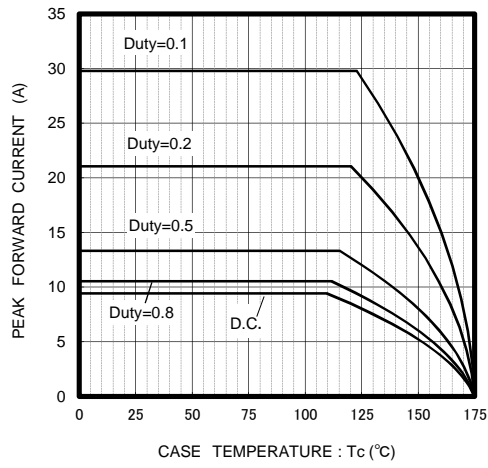
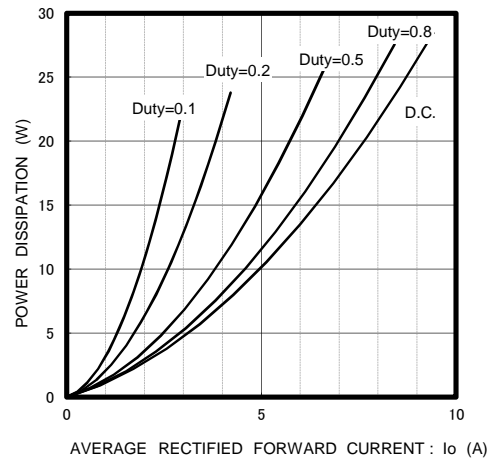


Fig.8 I_o - P_f CHARACTERISTICS



Notes

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