

# SiC Schottky Barrier Diode

## SCS120AG

●Applications

Switching power supply

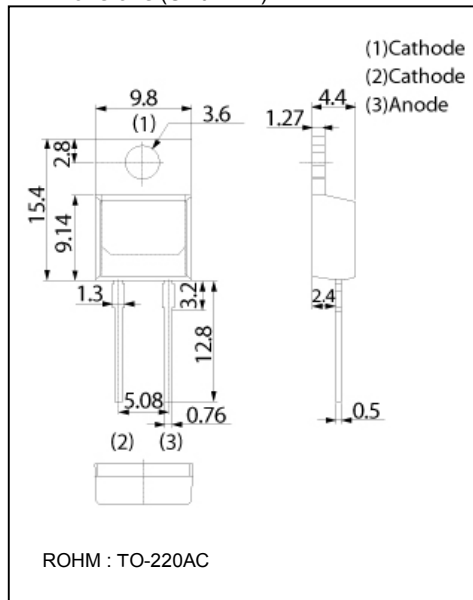
●Features

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

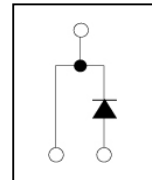
●Construction

Silicon carbide epitaxial planer type

●Dimensions (Unit : mm)



●Structure



●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Reverse voltage (repetitive)	$V_{RM}$	600	V
Reverse voltage (DC)	$V_R$	600	V
Continuous forward current(*1)	$I_F$	20	A
Forward current surge peak (60Hz· 1cyc) (*2)	$I_{FSM}$	76	A
Junction temperature	$T_j$	150	°C
Storage temperature	$T_{stg}$	-55 to +150	°C

(\*1) $T_c=98^\circ\text{C}$  max

(\*2)PW=8.3ms sinusoidal

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
DC blocking voltage	$V_{DC}$	600	-	-	V	$I_R=0.4\text{mA}$
Forward voltage	$V_F$	-	1.5	1.7	V	$I_F=20\text{A}$
Reverse current	$I_R$	-	4.0	400	$\mu\text{A}$	$V_R=600\text{V}$
Total capacitance	C	-	860	-	pF	$V_R=1\text{V}, f=1\text{MHz}$
		-	93	-	pF	$V_R=600\text{V}, f=1\text{MHz}$
Total capacitive charge	$Q_c$	-	35	-	nC	$V_R=400\text{V}, di/dt=380\text{A}/\mu\text{s}$
Switching time	$t_c$	-	19	-	ns	$V_R=400\text{V}, di/dt=380\text{A}/\mu\text{s}$
Thermal resistance	$R_{th(j-c)}$	-	-	1.4	°C/W	junction to case

Fig.1 VF-IF Characteristics

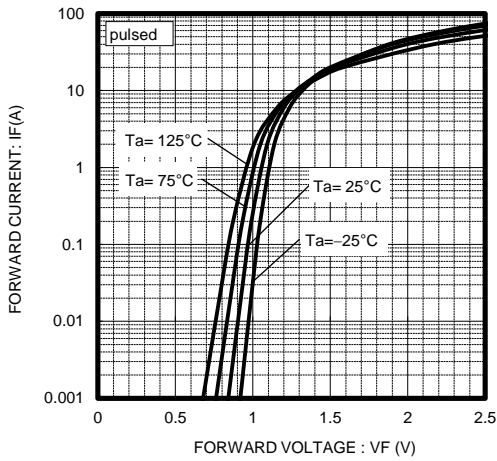


Fig.2 VF-IF Characteristics

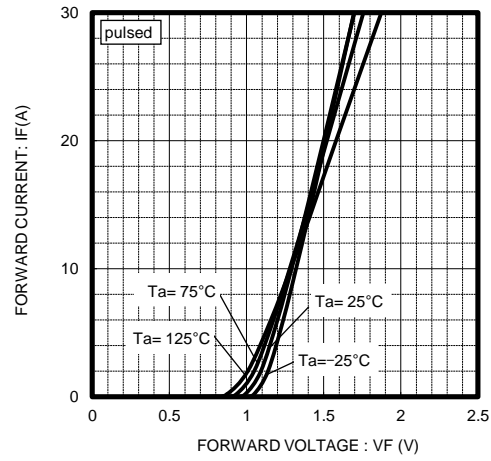


Fig.3 VR-IR Characteristics

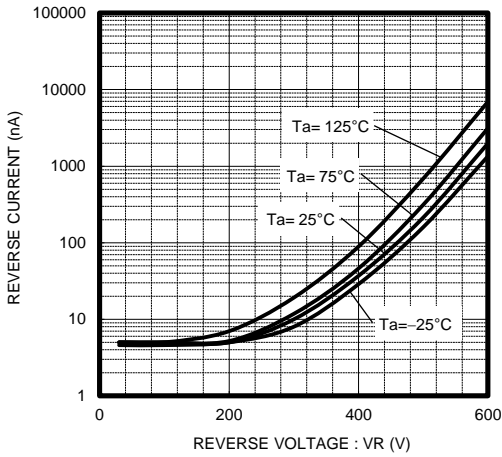


Fig.4 VR-Ct Characteristics

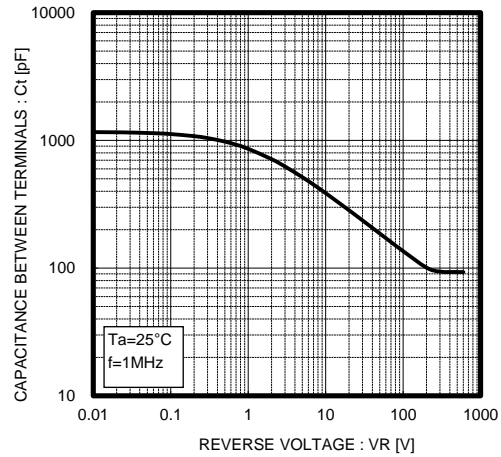


Fig.5 Thermal Resistance vs Pulse Width

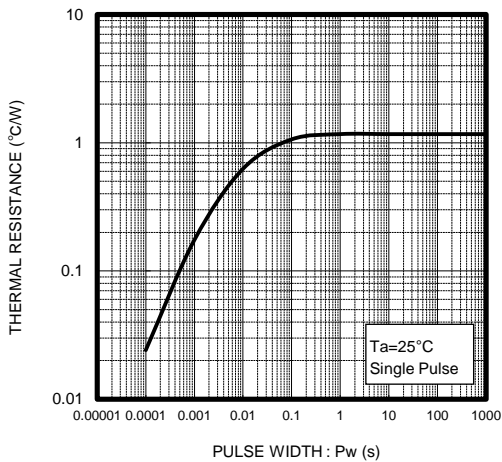


Fig.6 Power Dissipation

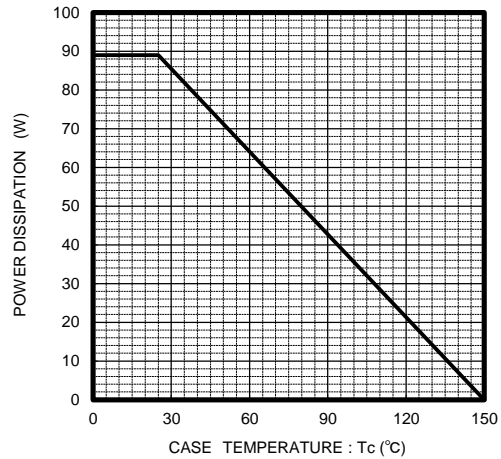


Fig.7 Derating Curve  $I_p$ - $T_c$

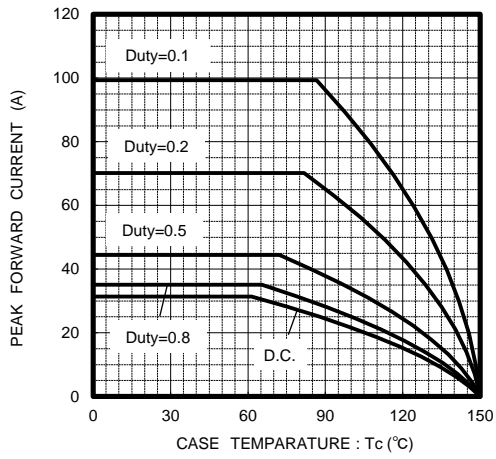
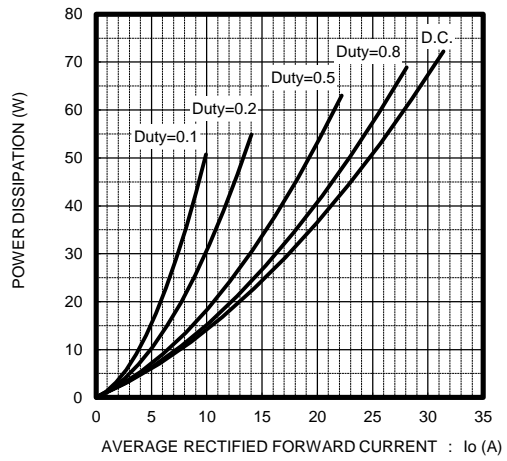


Fig.8  $I_o$ - $P_f$  Characteristics



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