

# SiC Schottky Barrier Diode

## SCS112AG

●Applications

Switching power supply

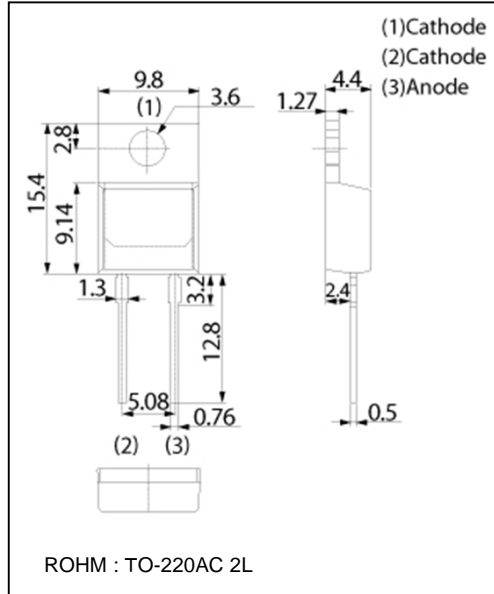
●Features

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

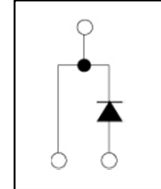
●Construction

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	$I_F$	12	A
Surge no repetitive forward current	$I_{FSM}$	41 <sup>*2</sup>	A
		167 <sup>*3</sup>	A
Repetitive peak forward current	$I_{FRM}$	48 <sup>*4</sup>	A
Total power dissipation	$P_D$	93 <sup>*5</sup>	W
Junction temperature	$T_j$	175	°C
Range of storage temperature	$T_{stg}$	-55 to +175	°C
Junction to case	$R_{th(j-c)}$	1.6	°C / W

(\*1)Tc=131°C (\*2)PW=8.3ms sinusoidal, Tj=25°C

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

●Electrical characteristics (Tj=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
DC blocking voltage	$V_{DC}$	600	-	-	V	$I_R=0.24mA$
Forward voltage	$V_F$	-	1.5	1.7	V	$I_F=12A, T_j=25°C$
		-	1.82	-	V	$I_F=12A, T_j=175°C$
Reverse current	$I_R$	-	2.4	240	μA	$V_R=600V, T_j=25°C$
		-	48	-	μA	$V_R=600V, T_j=175°C$
Total capacitance	$C$	-	516	-	pF	$V_R=1V, f=1MHz$
		-	56	-	pF	$V_R=600V, f=1MHz$
Total capacitive charge	$Q_c$	-	22	-	nC	$V_R=400V, di/dt=350A/μs$
Switching time	$t_c$	-	16	-	ns	$V_R=400V, di/dt=350A/μs$

●Electrical characteristic curves (Ta=25°C)

Fig.1  $V_F-I_F$  Characteristics

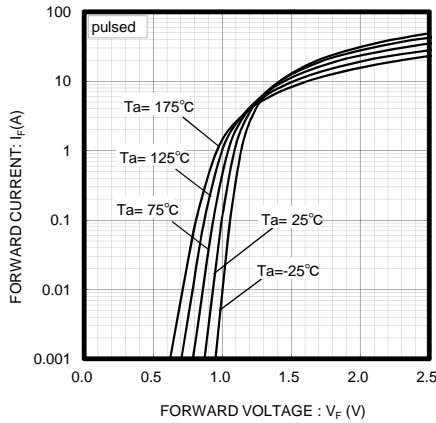


Fig.2  $V_F-I_F$  Characteristics

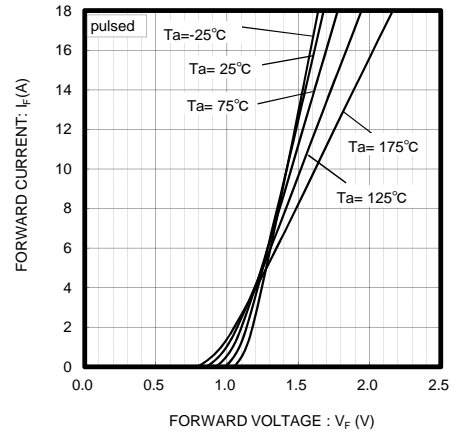


Fig.3  $V_R-I_R$  Characteristics

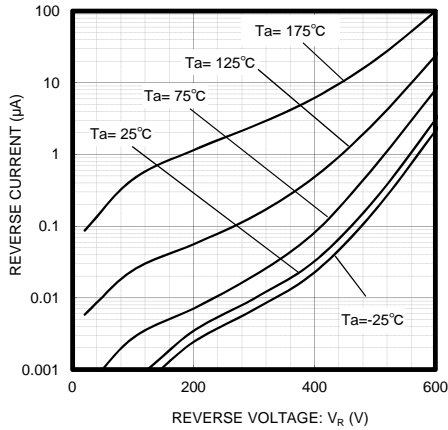


Fig.4  $V_R-C_t$  Characteristics

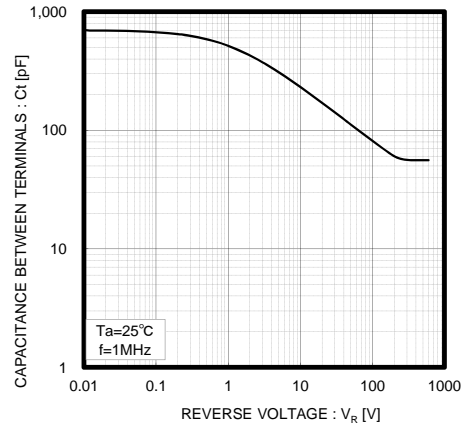


Fig.5 Thermal Resistance vs Pulse Width

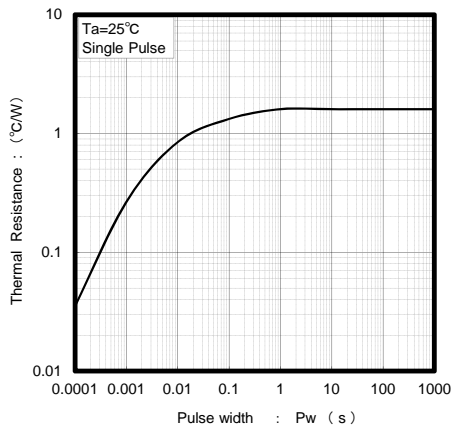


Fig.6 Power Dissipation

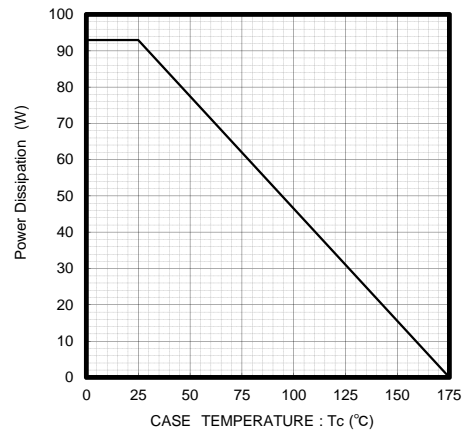


Fig.7 Derating Curve  $I_p$ - $T_c$

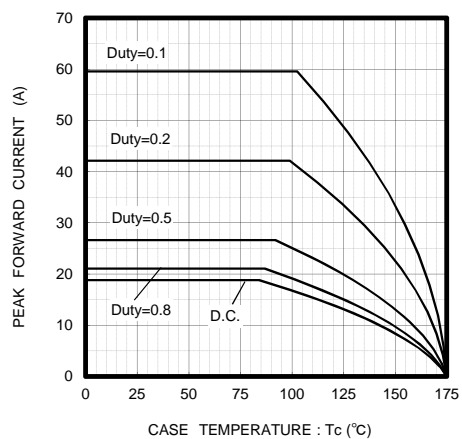
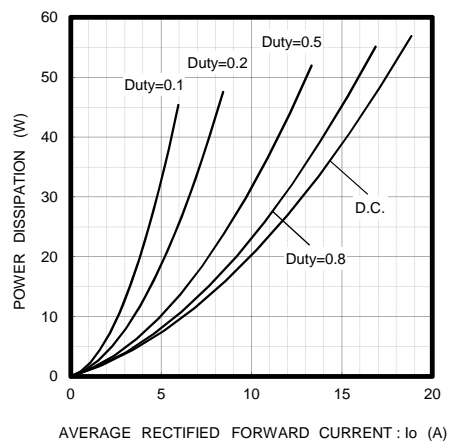


Fig.8  $I_o$ - $P_f$  Characteristics



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