

# SiC Schottky Barrier Diode

## SCS110AG

### ●Applications

Switching power supply

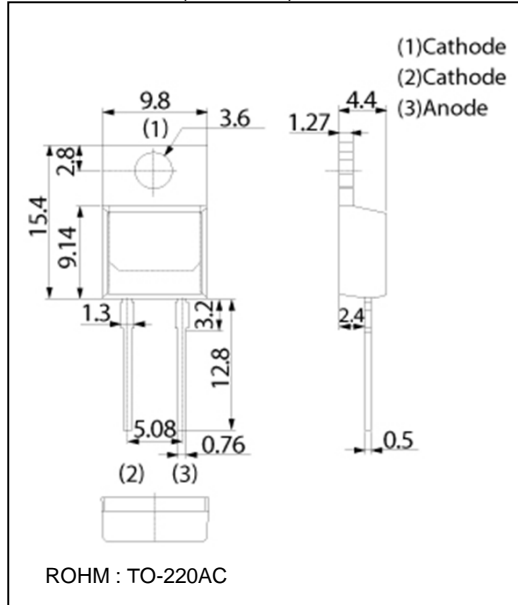
### ●Features

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

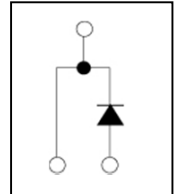
### ●Construction

Silicon carbide epitaxial planer type

### ●Dimensions (Unit : mm)



### ●Structure



### ●Absolute maximum ratings (T<sub>j</sub>=25°C)

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

(\*1)T<sub>c</sub>=134°C (\*2)PW=8.3ms sinusoidal,T<sub>j</sub>=25°C

(\*3)PW=10μs square,T<sub>j</sub>=25°C (\*4)T<sub>c</sub>=100°C,T<sub>j</sub>=150°C,Duty cycle=10% (\*5)T<sub>c</sub>=25°C

### ●Electrical characteristics (T<sub>j</sub>=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
DC blocking voltage	V <sub>DC</sub>	600	-	-	V	I <sub>R</sub> =0.2mA
Forward voltage	V <sub>F</sub>	-	1.5	1.7	V	I <sub>F</sub> =10A,T <sub>j</sub> =25°C
		-	1.82	-	V	I <sub>F</sub> =10A,T <sub>j</sub> =175°C
Reverse current	I <sub>R</sub>	-	2	200	μA	V <sub>R</sub> =600V,T <sub>j</sub> =25°C
		-	40	-	μA	V <sub>R</sub> =600V,T <sub>j</sub> =175°C
Total capacitance	C	-	430	-	pF	V <sub>R</sub> =1V,f=1MHz
		-	47	-	pF	V <sub>R</sub> =600V,f=1MHz
Total capacitive charge	Q <sub>C</sub>	-	16	-	nC	V <sub>R</sub> =400V,di/dt=350A/μs
Switching time	t <sub>c</sub>	-	15	-	ns	V <sub>R</sub> =400V,di/dt=350A/μs

●Electrical characteristic curves (Ta=25°C)

Fig.1  $V_F$ - $I_F$  Characteristics

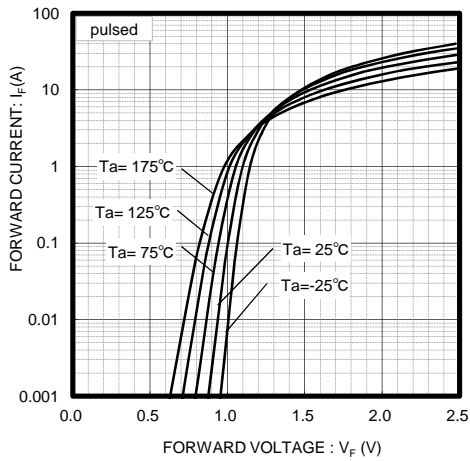


Fig.2  $V_F$ - $I_F$  Characteristics

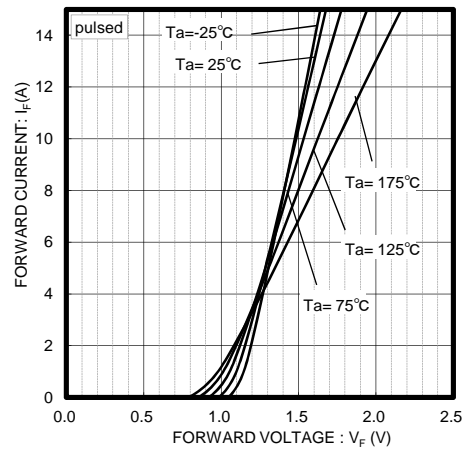


Fig.3  $V_R$ - $I_R$  Characteristics

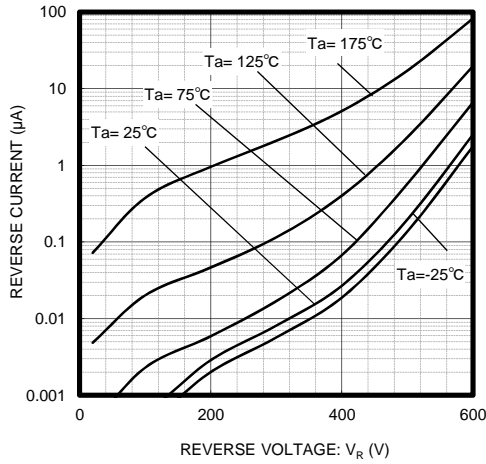


Fig.4  $V_R$ - $C_t$  Characteristics

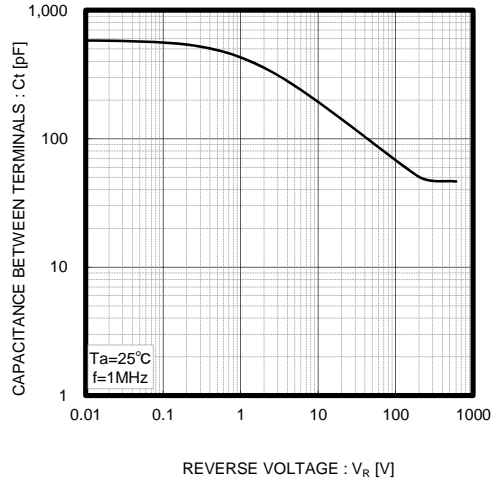


Fig.5 Thermal Resistance vs Pulse Width

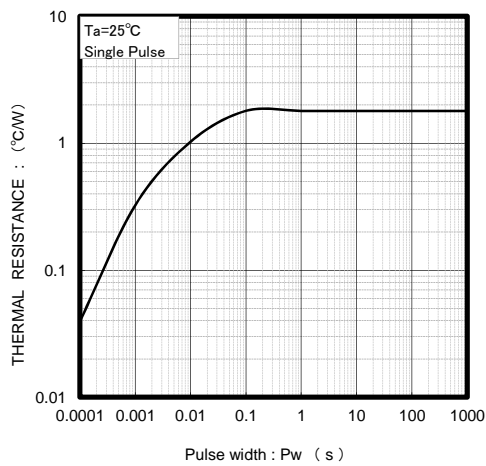


Fig.6 Power Dissipation

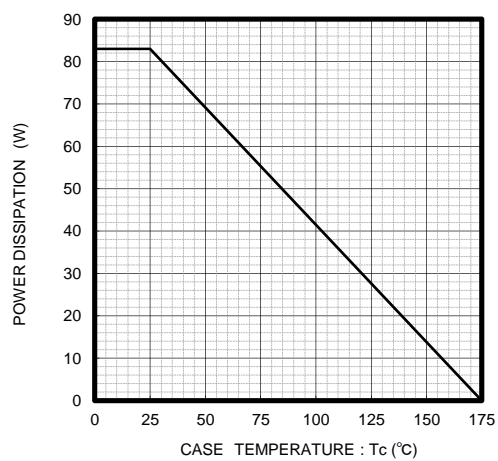


Fig.7 Derating Curve Ip-Tc

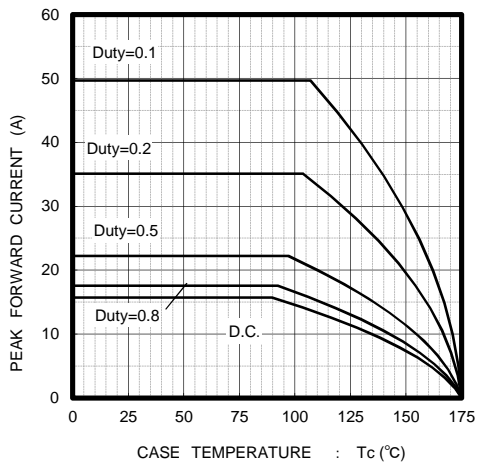
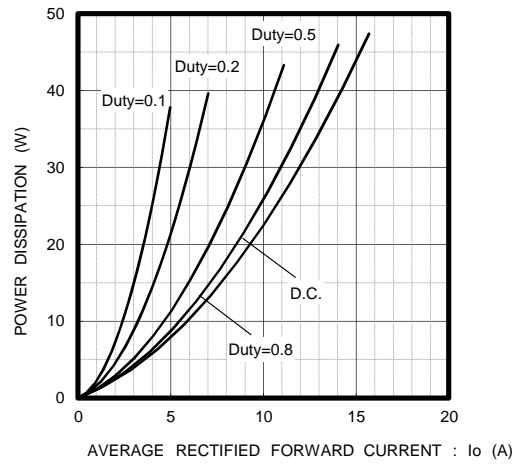


Fig.8 Io-Pf Characteristics



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