

# SiC Schottky Barrier Diode

## SCS106AM

●Applications

Switching power supply

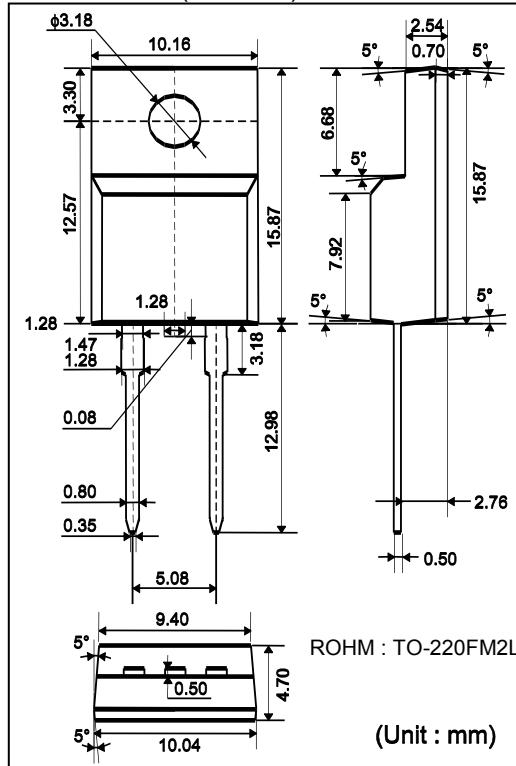
●Features

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

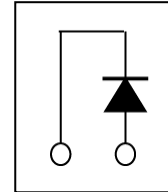
●Construction

Silicon carbide epitaxial planer type

●Dimensions (Unit : mm)



●Structure



●Absolute maximum ratings (Tj=25°C)

Parameter	Symbol	Limits	Unit
Reverse voltage (repetitive)	$V_{RM}$	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	$I_{FRM}$	17*4	A
Total power dissipation	$P_D$	25*5	W
Junction temperature	$T_j$	150	°C
Range of storage temperature	$T_{stg}$	-55 to +150	°C
Junction to case	$R_{th(j-c)}$	5.0	°C / W

(\*1)Tc=95°C (\*2)PW=8.3ms sinusoidal, Tj=25°C (\*3)PW=10μs square, Tj=25°C

(\*4)Tc=95°C, Tj=125°C, Duty cycle=10% (\*5)Tc=25°C

●Electrical characteristics (Tj=25°C) [Per Leg]

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
DC blocking voltage	$V_{DC}$	600	-	-	V	$I_R=0.12mA$
Forward voltage	$V_F$	-	1.5	1.7	V	$I_F=6A, T_j=25°C$
		-	1.6	-	V	$I_F=6A, T_j=150°C$
Reverse current	$I_R$	-	1.2	120	μA	$V_R=600V, T_j=25°C$
		-	6	-	μA	$V_R=600V, T_j=150°C$
Total capacitance	C	-	260	-	pF	$V_R=1V, f=1MHz$
		-	28	-	pF	$V_R=600V, f=1MHz$
Total capacitive charge	$Q_C$	-	12	-	nC	$V_R=400V, di/dt=230A/μs$
Switching time	$t_c$	-	18	-	ns	$V_R=400V, di/dt=230A/μs$

Fig.1  $V_F$ - $I_F$  Characteristics

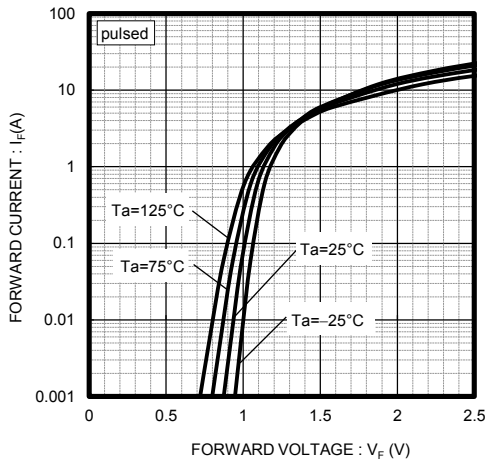


Fig.2  $V_F$ - $I_F$  Characteristics

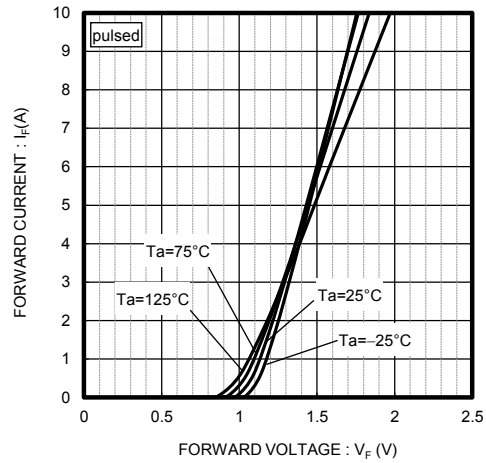


Fig.3  $V_R$ - $I_R$  Characteristics

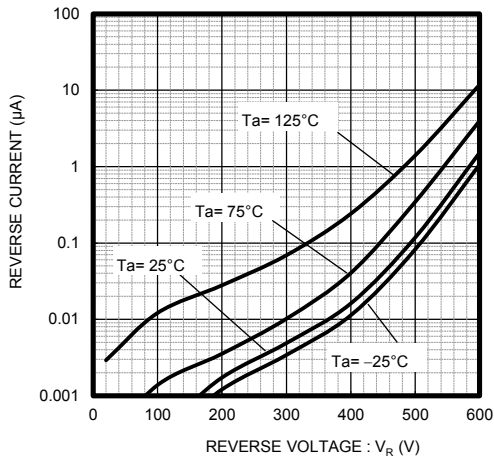


Fig.4  $V_R$ - $C_t$  Characteristics

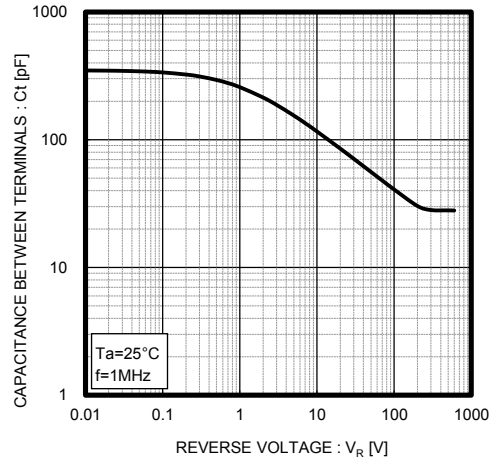


Fig.5 Thermal Resistance vs. Pulse Width

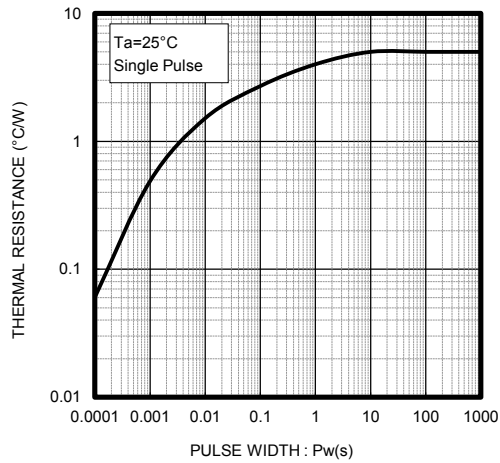


Fig.6 Power Dissipation

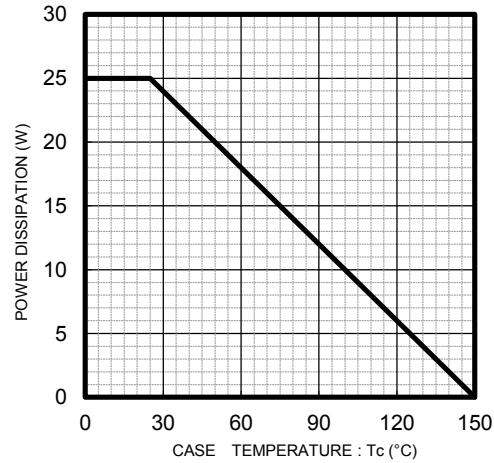


Fig.7 Derating Curve Ip-Tc

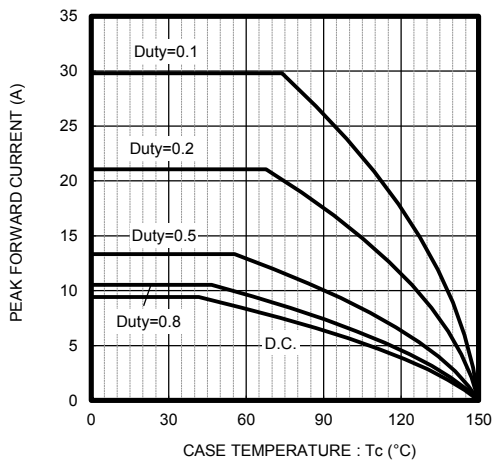
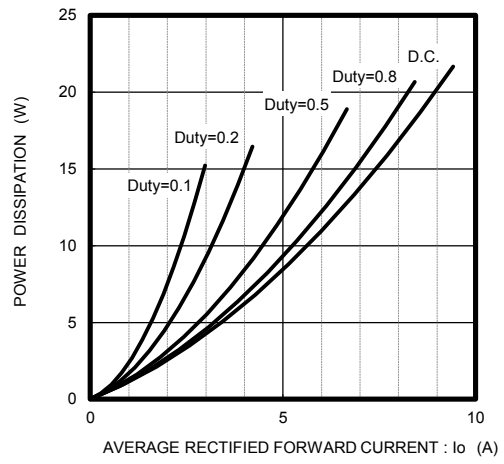


Fig.8 Io-Pf Characteristics



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