

SiC Schottky Barrier Diode

SCS120AE2

●Applications

Switching power supply

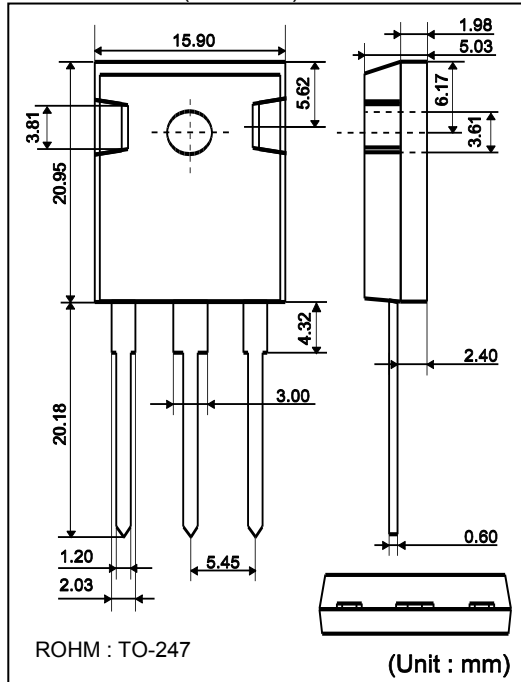
●Features

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

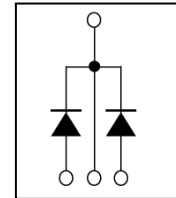
●Construction

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*6	I_F	10 / 20*1	A
Surge no repetitive forward current*6	I_{FSM}	40 / 80*2	A
		160 / 320*3	A
Repetitive peak forward current*6	I_{FRM}	42 / 82*4	A
Total power dissipation*6	P_D	83 / 160*5	W
Junction temperature	T_j	175	°C
Storage temperature	T_{stg}	-55 to +175	°C
Junction to case*6	$R_{th(j-c)}$	1.8 / 0.93	°C / W

(*1)Tc=134°C / Tc=133°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 (*6)Per Leg / Per Device

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
DC blocking voltage	V_{DC}	600	-	-	V	$I_R=0.2mA$
Forward voltage	V_F	-	1.5	1.7	V	$I_F=10A, T_j=25°C$
		-	1.82	-	V	$I_F=10A, T_j=175°C$
Reverse current	I_R	-	2	200	µA	$V_R=600V, T_j=25°C$
		-	40	-	µA	$V_R=600V, T_j=175°C$
Total capacitance	C	-	430	-	pF	$V_R=1V, f=1MHz$
		-	47	-	pF	$V_R=600V, f=1MHz$
Total capacitive charge	Q_C	-	16	-	nC	$V_R=400V, di/dt=350A/µs$
Switching time	t_c	-	15	-	ns	$V_R=400V, di/dt=350A/µs$

Fig.1 V_F - I_F Characteristics (Per Leg)

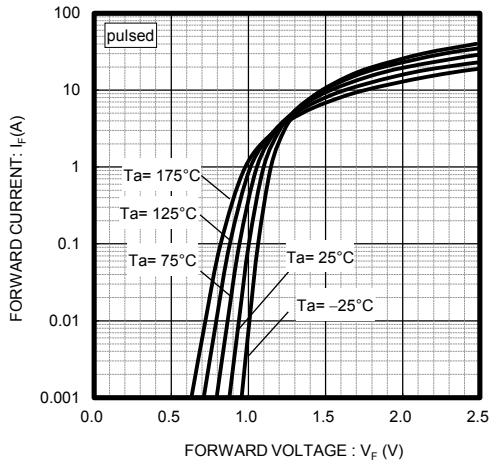


Fig.2 V_F - I_F Characteristics (Per Leg)

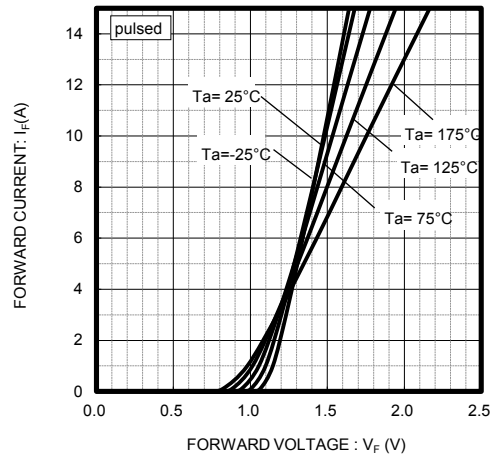


Fig.3 V_R - I_R Characteristics (Per Leg)

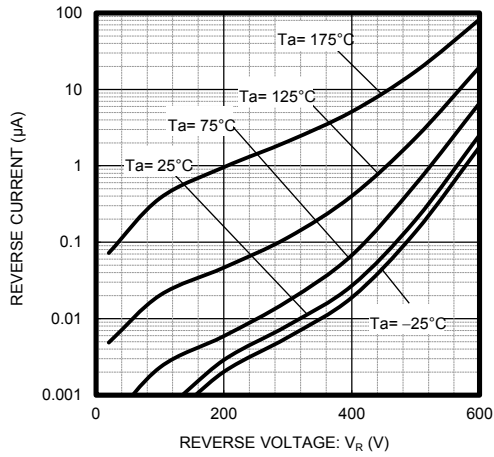


Fig.4 V_R - C_t Characteristics (Per Leg)

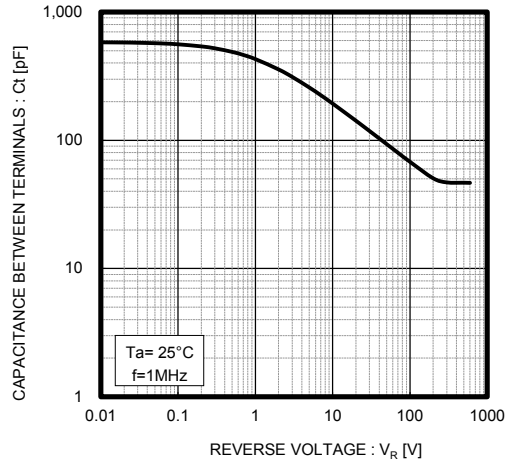


Fig.5 Thermal Resistance vs. Pulse Width

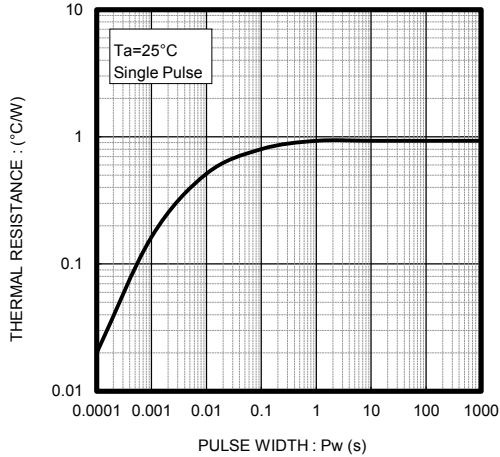


Fig.6 Power Dissipation

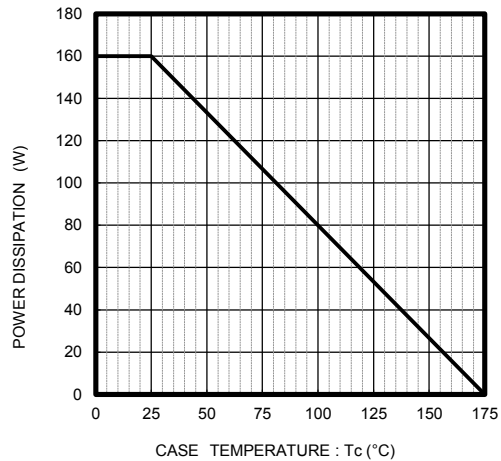


Fig.7 Derating Curve Ip-Tc

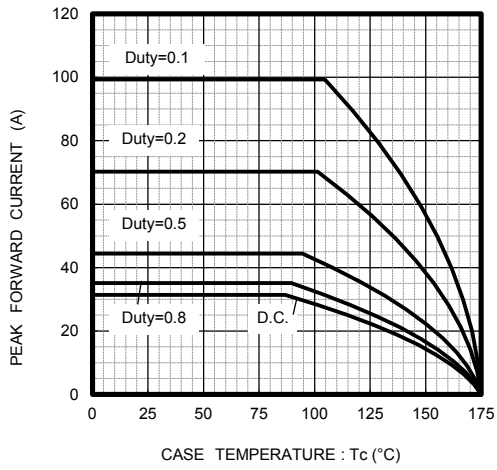
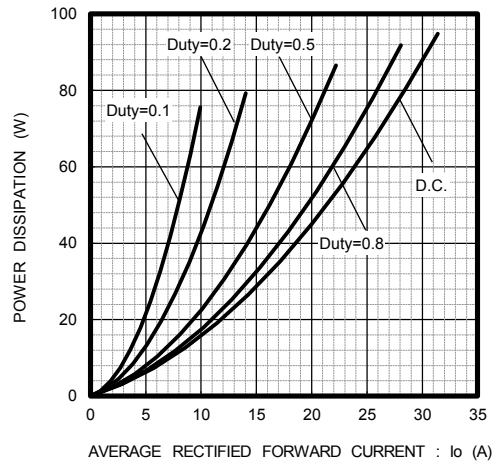


Fig.8 I_o-P_f Characteristics



Notes

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