

SiC Schottky Barrier Diode

VOLTAGE RANGE: 1200V

Features

- Shorter recovery time
- Reduced temperature dependence
- High-speed switching possible

MECHANICAL DATA

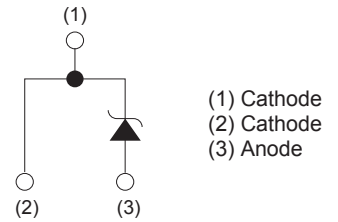
- Case style: TO-220AC molded plastic
- Mounting position: any

● Outline

TO-220AC



● Inner circuit



MAXIMUM RATINGS AND CHARACTERISTICS

@ 25°C Ambient Temperature (unless otherwise noted)

Parameter	Symbol	Value	Unit
Reverse voltage (repetitive peak)	V_{RM}	1200	V
Reverse voltage (DC)	V_R	1200	V
Continuous forward current	I_F	10* ¹	A
Surge no repetitive forward current	I_{FSM}	45* ²	A
		190* ³	A
		33* ⁴	A
Repetitive peak forward current	I_{FRM}	46* ⁵	A
Total power dissipation	P_D	150* ⁶	W
Junction temperature	T_j	175	°C
Range of storage temperature	T_{stg}	-55 to +175	°C

*1 $T_c=146^\circ\text{C}$ *2 $P_W=8.3\text{ms}$ sinusoidal, $T_j=25^\circ\text{C}$ *3 $P_W=10\mu\text{s}$ square, $T_j=25^\circ\text{C}$

*4 $P_W=8.3\text{ms}$ sinusoidal, $T_j=150^\circ\text{C}$, *5 $T_c=100^\circ\text{C}$, $T_j=150^\circ\text{C}$, Duty cycle=10% *6 $T_c=25^\circ\text{C}$

● Electrical characteristics ($T_j = 25^\circ\text{C}$)

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
DC blocking voltage	V_{DC}	$I_R=0.2\text{mA}$	1200	-	-	V
Forward voltage	V_F	$I_F=10\text{A}, T_j=25^\circ\text{C}$	-	1.4	1.6	V
		$I_F=10\text{A}, T_j=150^\circ\text{C}$	-	1.8	-	V
		$I_F=10\text{A}, T_j=175^\circ\text{C}$	-	1.9	-	V
Reverse current	I_R	$V_R=1200\text{V}, T_j=25^\circ\text{C}$	-	10	200	μA
		$V_R=1200\text{V}, T_j=150^\circ\text{C}$	-	80	-	μA
		$V_R=1200\text{V}, T_j=175^\circ\text{C}$	-	130	-	μA
Total capacitance	C	$V_R=1\text{V}, f=1\text{MHz}$	-	550	-	pF
		$V_R=800\text{V}, f=1\text{MHz}$	-	42	-	pF
Total capacitive charge	Q_c	$V_R=800\text{V}, di/dt=500\text{A}/\mu\text{s}$	-	34	-	nC
Switching time	t_c	$V_R=800\text{V}, di/dt=500\text{A}/\mu\text{s}$	-	15	-	ns

● Thermal characteristics

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Thermal resistance	$R_{th(j-c)}$	-	-	0.73	0.99	°C/W

RATINGS AND CHARACTERISTIC CURVES

●Electrical characteristic curves

Fig.1 $V_F - I_F$ Characteristics

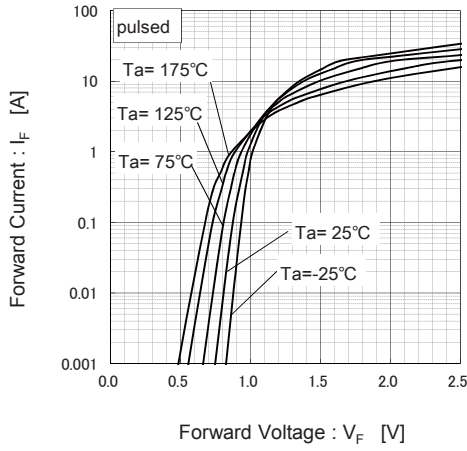


Fig.2 $V_F - I_F$ Characteristics

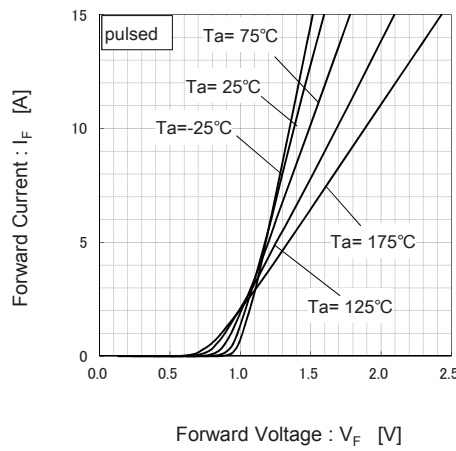


Fig.3 $V_R - I_R$ Characteristics

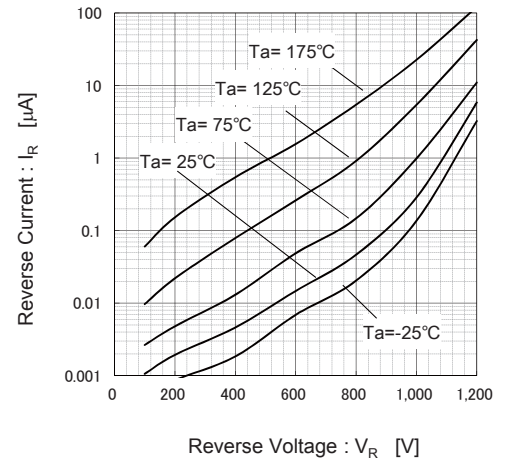


Fig.4 $V_R - C_t$ Characteristics

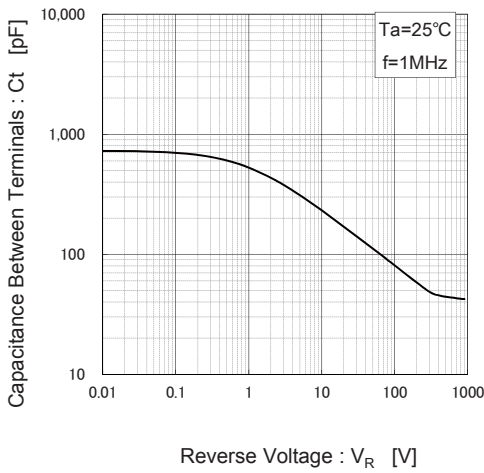


Fig.5 Thermal Resistance vs. Pulse Width

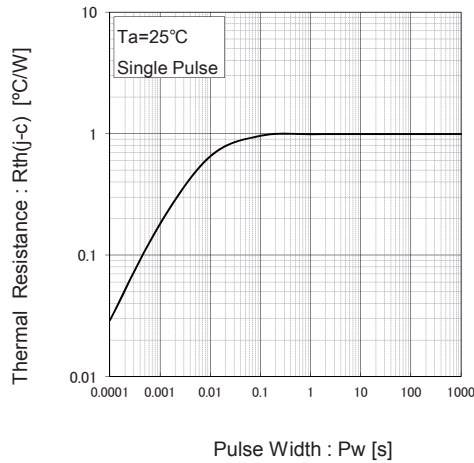


Fig.6 Power Dissipation

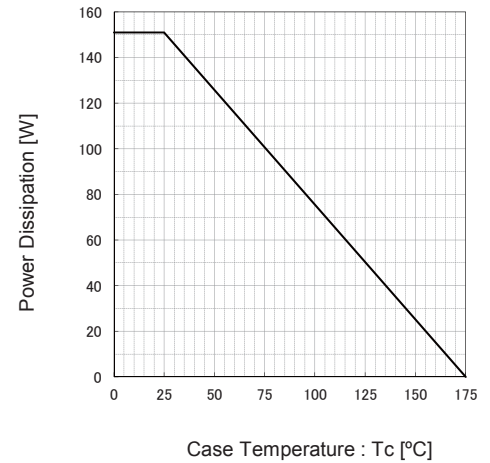


Fig.7 Derating Curve $I_p - T_c$

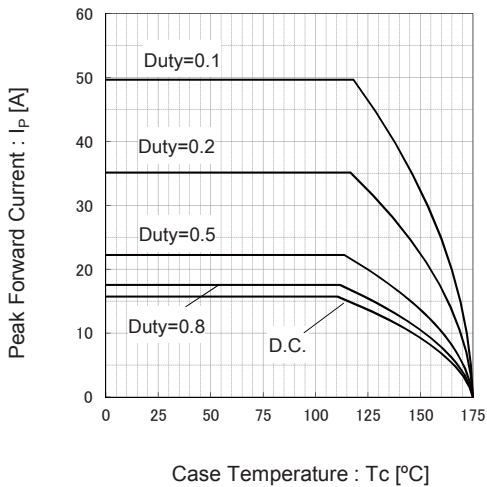


Fig.8 $I_o - P_f$ Characteristics

