SEMICONDUCTOR

SC08120

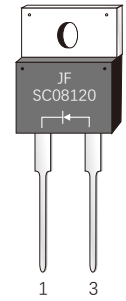
SILICON CARBIDE SCHOTTKY DIODE
Reverse Voltage - 1200V
Forward Current -8A

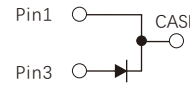
FEATURES

- Zero Reverse Recovery Current
- Zero Forward Recovery Voltage
- Positive Temperature Coefficient on VF
- Temperature-independent Switching
- 175℃ Operating Junction Temperature

TO-220AC

SC08120





BENEFITS

- Replace Bipolar with Unipolar Device
- Reduction of Heat Sink Size
- Parallel Devices Without Thermal Runaway
- Essentially No Switching Losses

APPLICATIONS

- Switch Mode Power Supplies
- Power Factor Correction
- Motor drive, PV Inverter, Wind Power Station

V_{RRM}	=	1200	V
I_F (Tc≤155℃)	=	8	A
Q_C	=	60	nC

MAXIMUM RATINGS

Symbol	Parameter	Value	Unit	Test Conditions	Note
V_{RRM}	Repetitive Peak Reverse Voltage	1200	V	T_J=25℃	
V_{RSM}	Surge Peak Reverse Voltage	1200	V	T_J=25℃	
V_R	DC Blocking Voltage	1200	V	T_J=25℃	
I_F	Forward Current	34 19 8	A	Tc=25℃ Tc=125℃ Tc=155℃	
I_{FSM}	Non-Repetitive Forward Surge Current	70	A	T_J=25℃,tp=8.3ms ,Half Sine Wave	
P_{tot}	Power Dissipation	183	W	T_J=25℃	Fig. 3
T_J\T_{STG}	Operating Junction and Storage Temperature	-55 to 175	℃		

ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Typ.	Max.	Unit	Test Conditions	Note
V_F	Forward Voltage	1.4 1.7	1.65 2.3	V	I_F=8A,T_J=25℃ I_F=8A,T_J=175℃	Fig.1
I_R	Reverse Current	- -	20 200	μA	V_R=1200V,T_J=25℃ V_R=1200V,T_J=175℃	Fig.2
C	Total Capacitance	670 55 42	/	pF	V_R=1V,T_J=25℃,f=1MHz V_R=400V,T_J=25℃,f=1MHz V_R=800V,T_J=25℃,f=1MHz	Fig.5
Qc	Total Capacitive Charge	60	/	nC	V_R=800V,TJ=25℃	Fig.4

THERMAL CHARACTERISTICS

Symbol	Parameter	Typ.	Unit	Note
$R_{\theta JC}$	Thermal Resistance from Junction to Case	0.82	℃/W	Fig.6
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	62	℃/W	
Tsold	Soldering Temperature	260	℃	

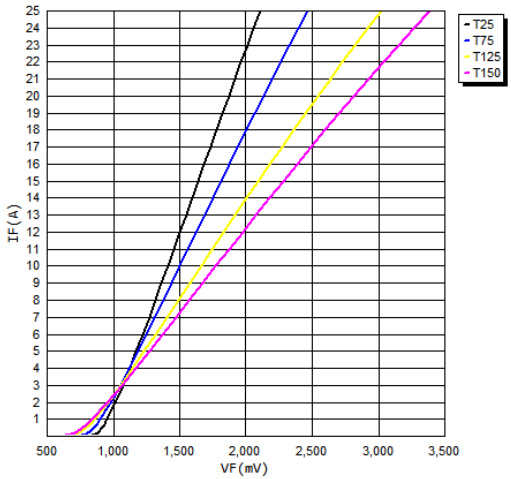


Figure 1. Forward Characteristics

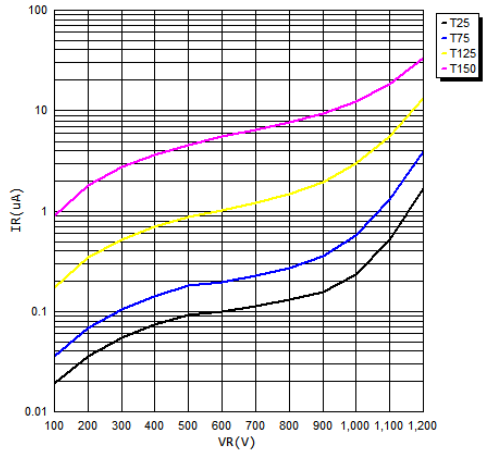


Figure 2. Reverse Characteristics

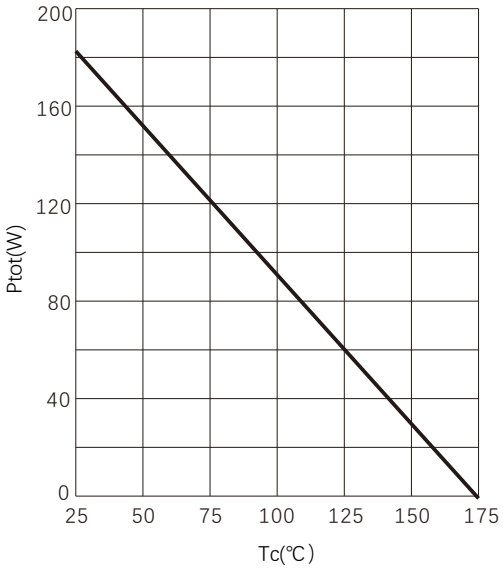


Figure 3.Power Derating

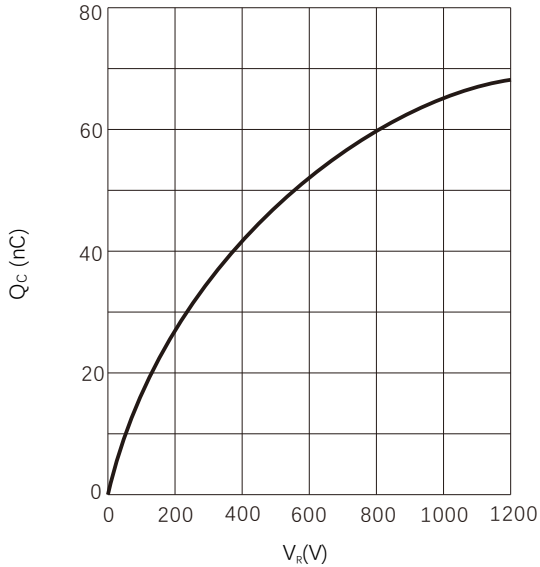


Figure 4.Total Capacitive Charge vs. Reverse Voltage

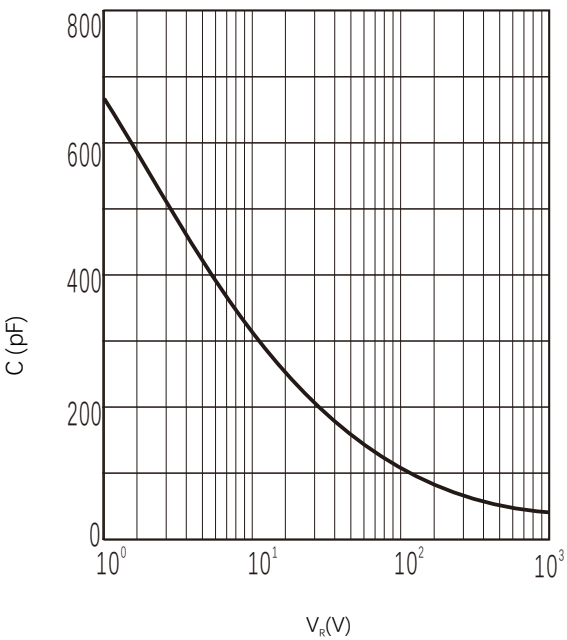


Figure 5. Total Capacitance vs. Reverse Voltage

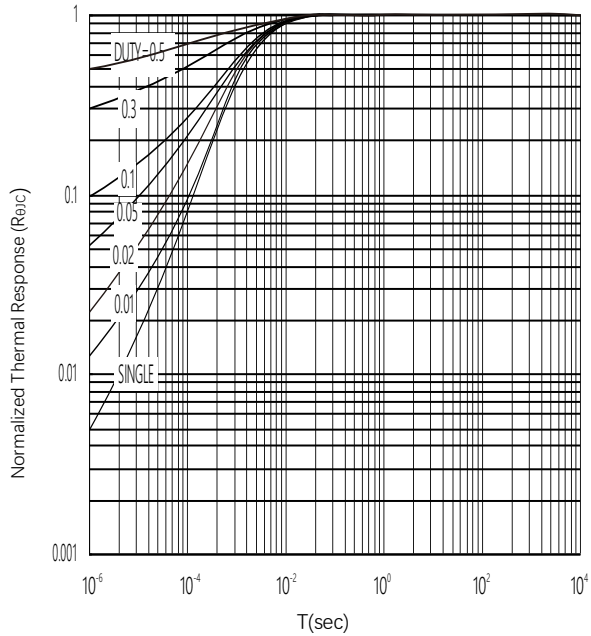


Figure 6. Transient Thermal Impedance

PACKAGE OUTLINE DIMENSIONS

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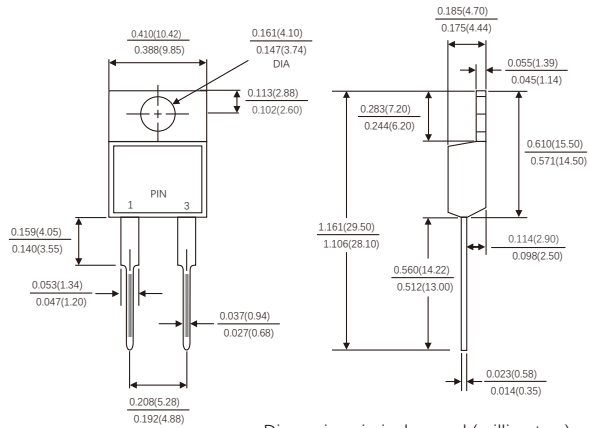

Dimensions in inches and (millimeters)

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