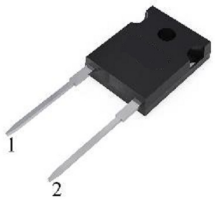
Silicon Carbide Schottky Diode

V_{RRM}	=	1200 V
I_F (Tc=145℃)	=	30 A
Q_C	=	208 nC

Features

- 1.2kV Schottky Rectifier
- Zero Reverse Recovery Current
- High-Frequency Operation
- Temperature-Independent Switching
- Extremely Fast Switching

Package



TO-247-2

RoHS

Benefits

- Replace Bipolar with Unipolar Rectifiers
- Essentially No Switching Losses
- High Efficiency
- Reduction of Heat Sink Requirements
- Parallel Devices Without Thermal Runaway

Applications

- Switching Mode Power Supply
- Boost Diodes in PFC
- DC/DC Converters
- AC/DC Converters
- Free Wheeling Diodes in Inverter

Maximum Ratings （Tc = 25 ℃ unless otherwise specified）

Symbol	Parameter	Value	Unit	Test Conditions	Note
V_{RRM}	Repetitive Peak Reverse Voltage	1200	V		
V_{RSM}	Surge Peak Reverse Voltage	1300	V		
V_R	DC Peak Reverse Voltage	1200	V		
I_F	Continuous Forward Current	78 36 30	A	T_C=25 ℃ T_C=135 ℃ T_C=145 ℃	Fig. 3
I_{FSM}	Non-Repetitive Forward Surge Current	255	A	T_C=25 ℃，t_p=10 ms，Half Sine Pulse	
P_{tot}	Power Dissipation	326 140	W	T_C=25 ℃ T_C=110 ℃	Fig. 4
T_J	Operating Junction Range	-55 to +175	℃		
T_{stg}	Storage Temperature Range	-55 to +175	℃		

Electrical Characteristics

Symbol	Parameter	Typ.	Max.	Unit	Test Conditions	Note
V_F	Forward Voltage	1.48 2.1	1.8 2.8	V	I_F = 30 A， T_J = 25 ℃ I_F = 30 A， T_J = 175 ℃	Fig. 1
I_R	Reverse Current	15 100	200 500	μA	V_R = 1200 V， T_J = 25 ℃ V_R = 1200 V， T_J = 175 ℃	Fig. 2
Q_C	Total Capacitive Charge	208		nC	V_R = 800 V， I_F = 30 A， T_J = 25 ℃	Fig. 6
C	Total Capacitance	3402 190 144		pF	V_R = 0 V， T_J = 25 ℃， f = 1 MHz V_R = 400 V， T_J = 25 ℃， f = 1 MHz V_R = 800 V， T_J = 25 ℃， f = 1 MHz	Fig. 5
E_C	Capacitance Stored Energy	54.2		μJ	V_R = 800 V	Fig. 7

Note：This is a majority carrier diode, so there is no reverse recovery charge.

Thermal Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Unit	Note
$R_{\theta JC}$	Thermal Resistance from Junction to Case		0.46		℃/W	Fig.8

Typical Performance

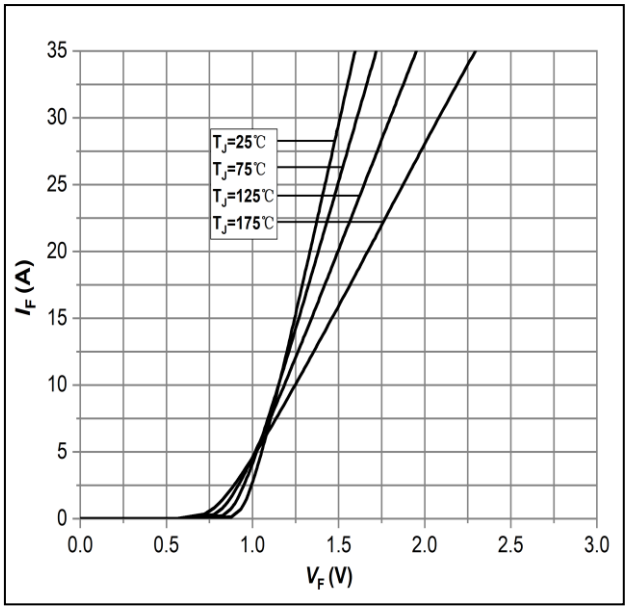


Figure 1: Forward Characteristics

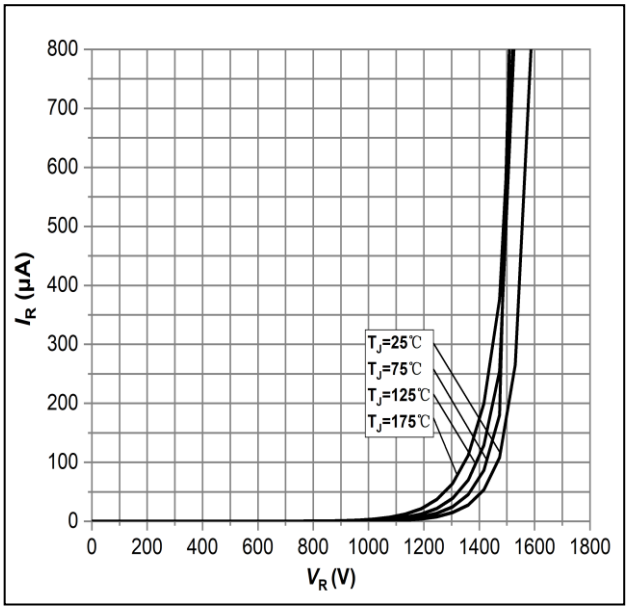


Figure 2: Reverse Characteristics

Typical Performance

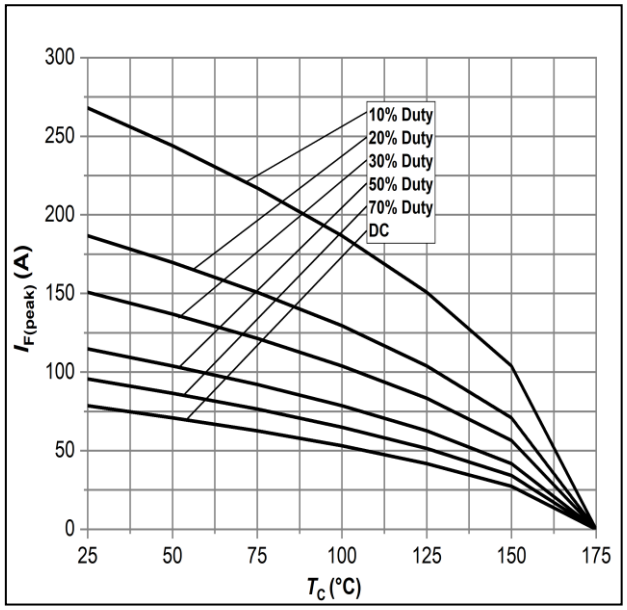


Figure 3: Current Derating

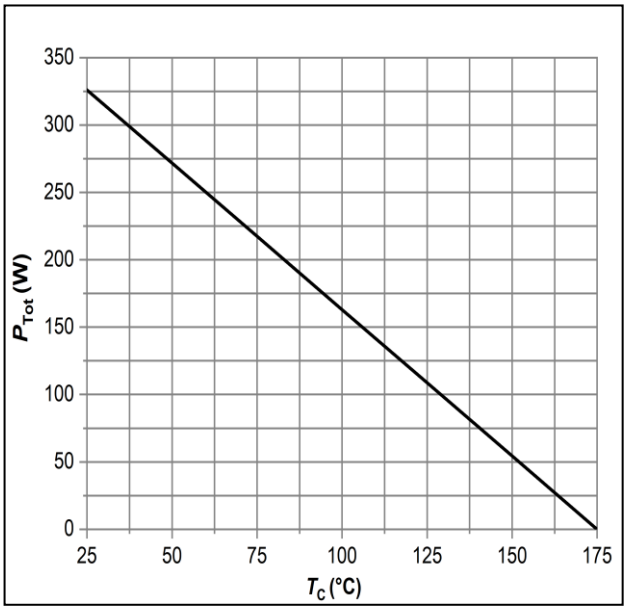


Figure 4: Power Derating

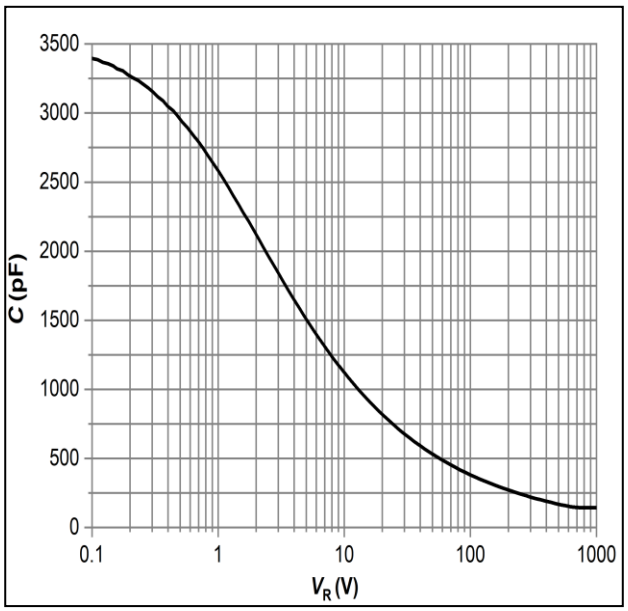


Figure 5: Capacitance vs. Reverse Voltage

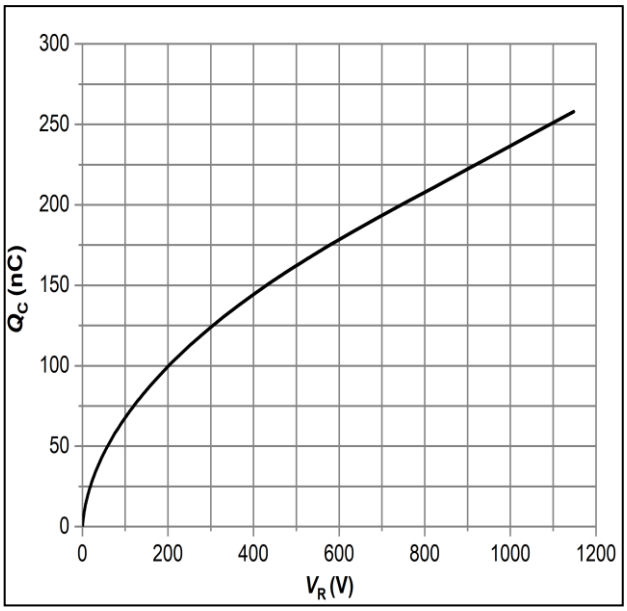


Figure 6: Total Capacitance Charge vs. Reverse Voltage

Typical Performance

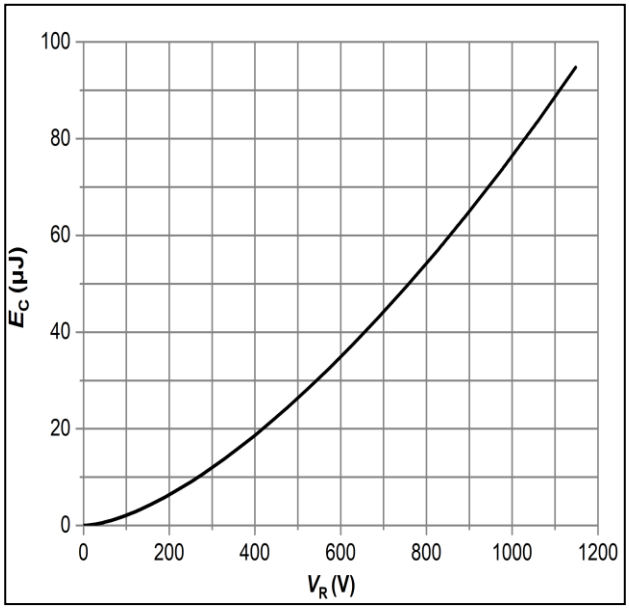


Figure 7:Typical Capacitance Stored Energy

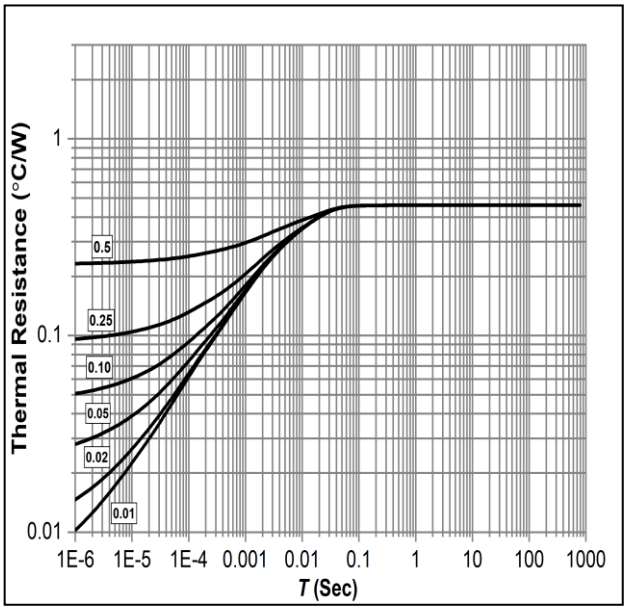
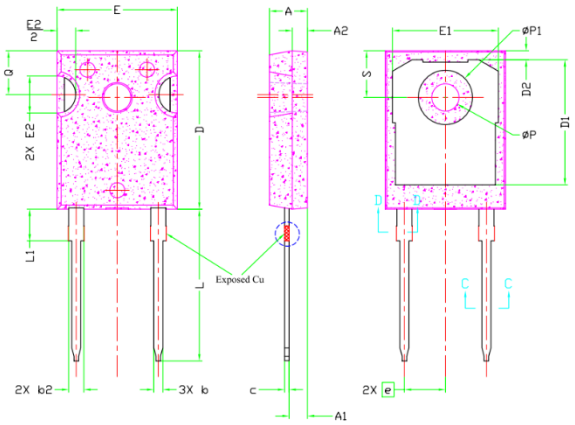


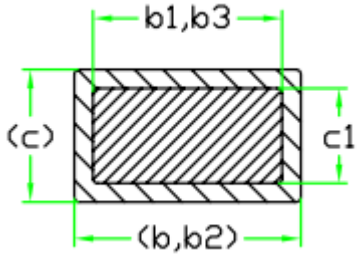
Figure 8: Transient Thermal Impedance

Silicon Carbide Schottky Diode

Package Dimensions

Package： TO-247-2





SYMBOL	DIMENSIONS			NOTES
	MIN.	NOM.	MAX.	
A	4.83	5.02	5.21	
A1	2.29	2.41	2.55	
A2	1.50	2.00	2.49	
b	1.12	1.20	1.33	
b1	1.12	1.20	1.28	
b2	1.91	2.00	2.39	6
b3	1.91	2.00	2.34	
c	0.55	0.60	0.69	6
c1	0.55	0.60	0.65	
D	20.80	20.95	21.10	4
D1	16.25	16.55	17.65	5
D2	0.51	1.19	1.35	
E	15.75	15.94	16.13	4
E1	13.46	14.02	14.16	5
E2	4.32	4.91	5.49	3
e		5.44BSC		
L	19.81	20.07	20.32	
L1	4.10	4.19	4.40	6
ØP	3.56	3.61	3.65	7
ØP1		7.19REF.		
Q	5.39	5.79	6.20	
S	6.04	6.17	6.30	