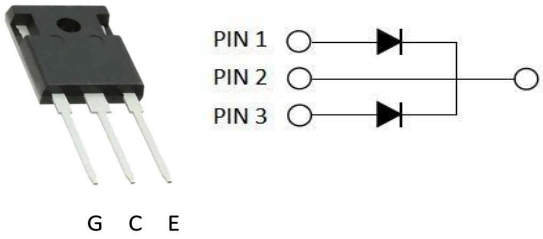
Silicon Carbide Schottky Diode

Product Summary

Parameter	Value	Unit
VRRM	1200	V
IF	53	A
VF	1.5	V



Maximum Ratings (T_C = 25˚C unless otherwise specified)

Symbol	Parameter	Value	Unit	Test Conditions	Note
V_{RRM}	Repetitive Peak Reverse Voltage	1200	V		
V_{RSM}	Surge Peak Reverse Voltage	1200	V		
V_{DC}	DC Blocking Voltage	1200	V		
I_F	Continuous Forward Current	53*	A	T_C=25˚C	Fig. 7
		27*		T_C=125˚C	
		20*		T_C=137˚C	
I_{FRM}	Repetitive Peak Forward Surge Current	100*	A	T_C=25˚C, t_P=10 ms, Half Sine Wave,D=0.3	
I_{FSM}	Non-Repetitive Peak Forward Surge Current	140*	A	T_C=25˚C, t_P=10 ms, Half Sine Wave,D=0.3	
$I_{F,Max}$	Non-Repetitive Peak Forward Surge Current	1200*	A	T_C=25˚C, t_P= 10 µs, Pulse T_C=110˚C, t_P= 10 µs, Pulse	
P_{tot}	Power Dissipation	283*	W	T_C=25˚C	Fig. 6
		123*		T_C=110˚C	
T_J , T_{stg}	Operating Junction and Storage Temperature	-55 to+175	˚C		

Electrical Characteristics (Per Leg)

VF	Forward Voltage	1.5	1.8	V	IF = 20 A, TJ=25°C	Fig. 1
		2.2	3		IF = 20A, TJ=175°C	
IR	Reverse Current	10	50	µA	VR = 1200V, TJ=25°C	Fig. 2
		20	100		VR = 1200V, TJ=175°C	
QC	Total Capacitive Charge	95		nC	VR = 800 V,TJ = 25°C Qc=∫VR C V dV	Fig. 4
C	Total Capacitance	1430		pF	VR = 0 V, TJ = 25°C, f = 1 MHz	Fig. 3
		89			VR = 400 V, TJ = 25°C,f = 1 MHz	
		65			VR = 800 V, TJ = 25°C,f = 1 MHz	
EC	Capacitance Stored Energy	50		µJ	VR = 800 V	Fig. 5

Thermal Characteristics(Per Leg)

Symbol	Parameter	Typ.	Unit	Note
Rarc	Thermal Resistance from Junction to Case	0.53	C/W	Fig.8

Characteristics diagrams

Figure 1.Forward Characteristics

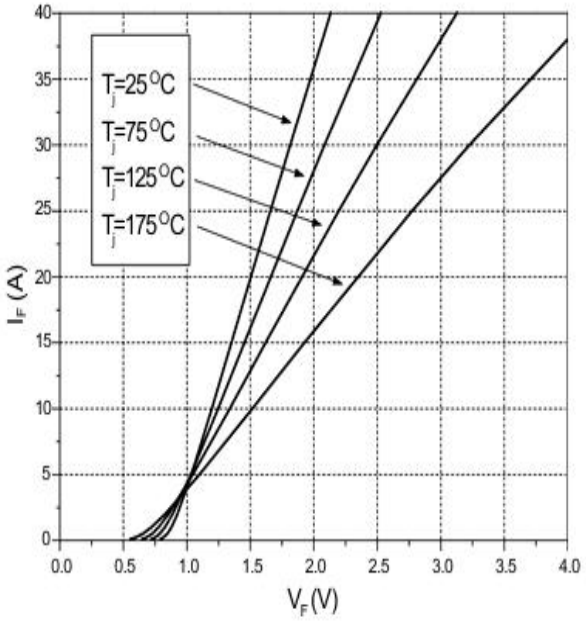


Figure 2.Reverse Characteristics

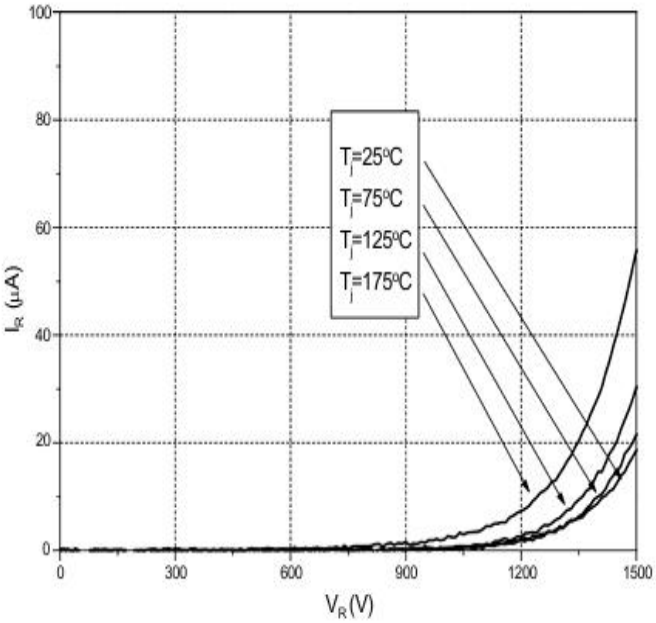


Figure 3.Capacitance vs.Reverse Voltage

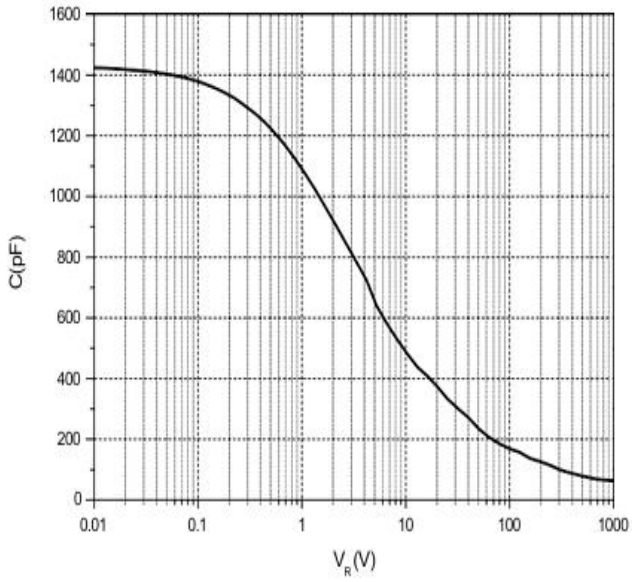


Figure 4.Total Capacitance Charge vs.Reverse Voltage

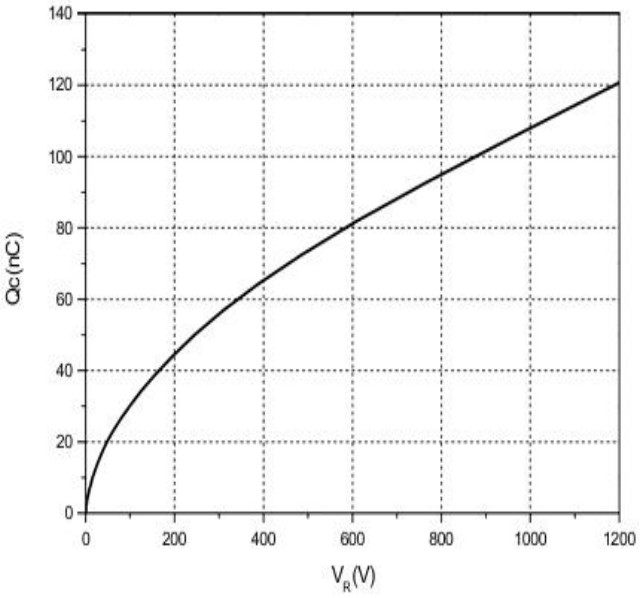


Figure 5.Capacitance Stored Energy

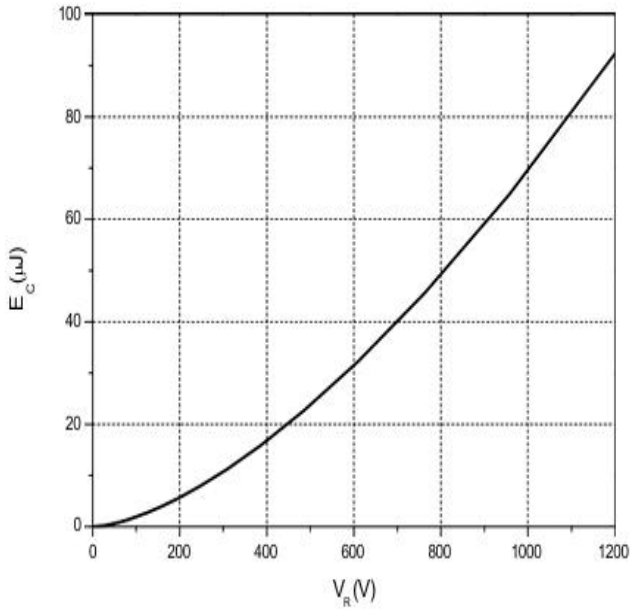


Figure 6. Power Derating

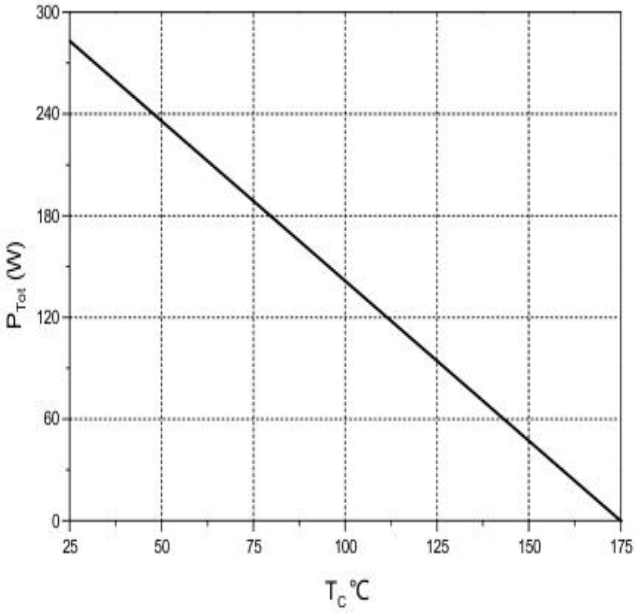


Figure 7.Current Derating

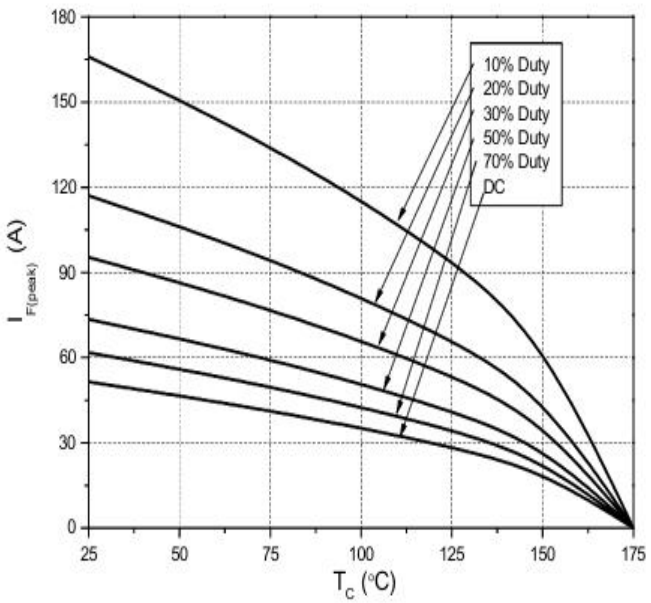
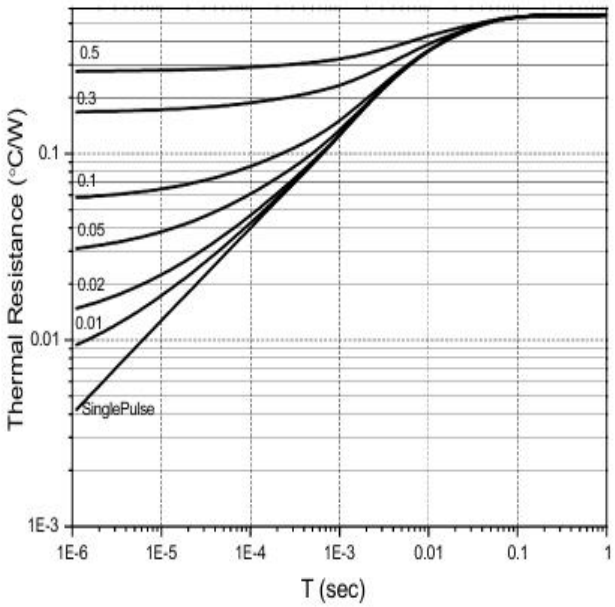
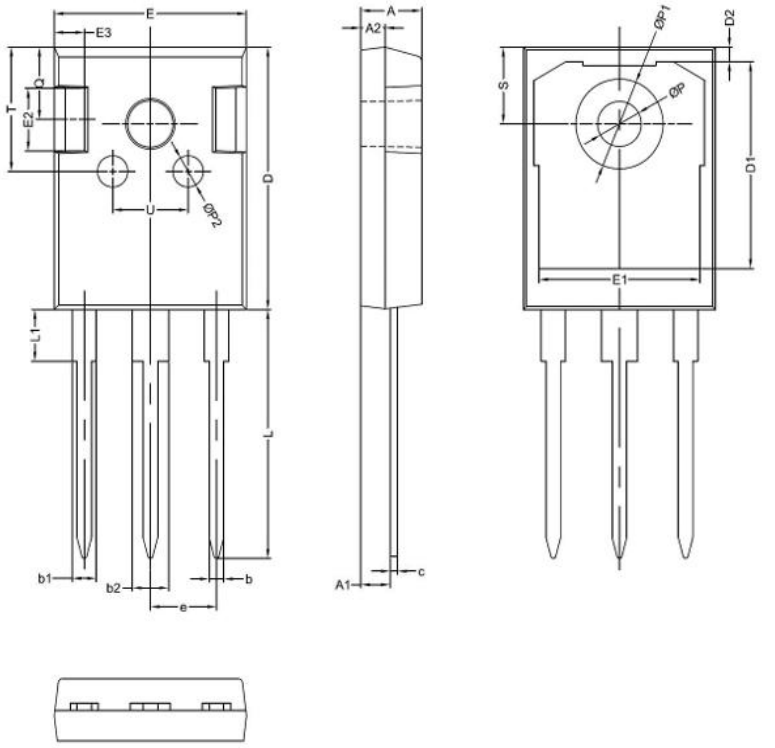


Figure 8.Transient Thermal Impedance



Package Dimensions:



符号	机械尺寸/mm		
	最小值	典型值	最大值
A	4.80	5.00	5.20
A1	2.21	2.41	2.61
A2	1.90	2.00	2.10
b	1.10	1.20	1.35
b1		2.00	
b2		3.00	
c	0.55	0.60	0.75
D	20.80	21.00	21.20
D1		16.55	
D2		1.20	
E	15.60	15.80	16.0
E1		13.30	
E2		5.00	
E3		2.50	
e		5.44	
L	19.42	19.92	20.42
L1		4.13	
P	3.50	3.60	3.70
P1	-	-	7.40
P2		2.50	
Q		5.80	
S	6.05	6.15	6.25
T		10.00	
U		6.20	

NOTICE

Zhuhai Hypersemi Co., Ltd. (hereinafter "Hypersemi") reserves the right to modify, enhance, improve, correct, or otherwise change any product described herein without further notice. Hypersemi shall not be held liable for any consequences arising from the application or use of its products.

While Hypersemi exerts maximum efforts to ensure product quality and reliability, semiconductor devices may malfunction or fail due to inherent electrical sensitivity and susceptibility to physical stress. When utilizing Hypersemi products, the Buyer is obligated to:

1) Comply with applicable safety standards in designing a secure system architecture;
2) Implement redundancy, fire-prevention measures, and malfunction prevention protocols;
3) Mitigate risks of accidents, fires, or societal damages resulting from product use.
4) Designers must ensure Hypersemi products operate strictly within specified parameters defined in the latest product specifications.