

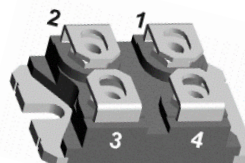
HCD5G120120P Silicon Carbide Schottky Diode

$$V_{RRM} = 1200V$$

$$I_F(T_C=153^{\circ}C) = 120 A$$

$$Q_C = 450 nC$$

Package : SOT-227

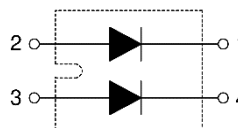


Features

- 1200 V Schottky Rectifier
- Zero Reverse Recovery Current
- High-Frequency Operation
- Temperature-Independent Switching
- Extremely Fast Switching

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

Part Number	Package	Marking
HCD5G120120P	SOT-227	HCD5G120120P

Maximum Ratings $T_C = 25^{\circ}C$ (unless otherwise specified)

Symbol	Parameter	Value	Unit	Test Conditions	Note
V_{RRM}	Repetitive Peak Reverse Voltage	1200	V		
V_{RSM}	Surge Peak Reverse Voltage	1300	V		
V_R	DC Peak Reverse Voltage	1200	V		
I_F	Continuous Forward Current	97 77 60	A	$T_C=25^{\circ}C$ $T_C=75^{\circ}C$ $T_C=108^{\circ}C$	Fig. 3
I_{FSM}	Non- Repetitive Forward Surge Current	380	A	$T_C=25^{\circ}C$, $t_p=10$ ms, Half Sine Pulse	
P_{tot}	Power Dissipation	330 145	W	$T_C=25^{\circ}C$ $T_C=110^{\circ}C$	Fig. 4
T_J	Operating Junction Range	-55 to +175	$^{\circ}C$		
T_{stg}	Storage Temperature Range	-55 to +175	$^{\circ}C$		

Electrical Characteristics

Symbol	Parameter	Typ.	Max.	Unit	Test Conditions	Note
V_F	Forward Voltage	1.65 2.5	1.9 3.0	V	$I_F = 60A, T_J = 25\text{ }^{\circ}\text{C}$ $I_F = 60A, T_J = 175\text{ }^{\circ}\text{C}$	Fig. 1
I_R	Reverse Current	25 150	100 800	μA	$V_R = 1200V, T_J = 25\text{ }^{\circ}\text{C}$ $V_R = 1200V, T_J = 175\text{ }^{\circ}\text{C}$	Fig. 2
Q_C	Total Capacitive Charge	450		nC	$V_R = 800V, I_F = 60A,$ $T_J = 25\text{ }^{\circ}\text{C}$	Fig. 6
C	Total Capacitance	10747 349 298		pF	$V_R = 0V, T_J = 25\text{ }^{\circ}\text{C}, f = 1\text{ MHz}$ $V_R = 400V, T_J = 25\text{ }^{\circ}\text{C}, f = 1\text{ MHz}$ $V_R = 800V, T_J = 25\text{ }^{\circ}\text{C}, f = 1\text{ MHz}$	Fig. 5
E_C	Capacitance Stored Energy	119		μJ	$V_R = 800V, T_J = 25\text{ }^{\circ}\text{C}$	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		0.45		$^{\circ}\text{C/W}$	Fig.8

Typical Performance

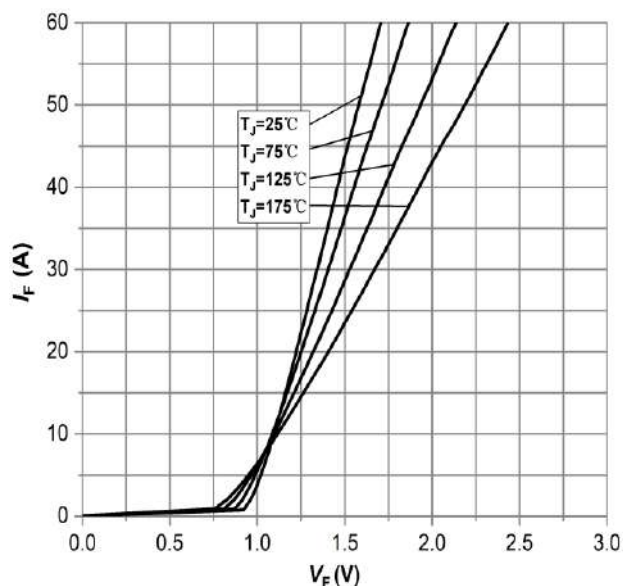


Figure 1: Forward Characteristics

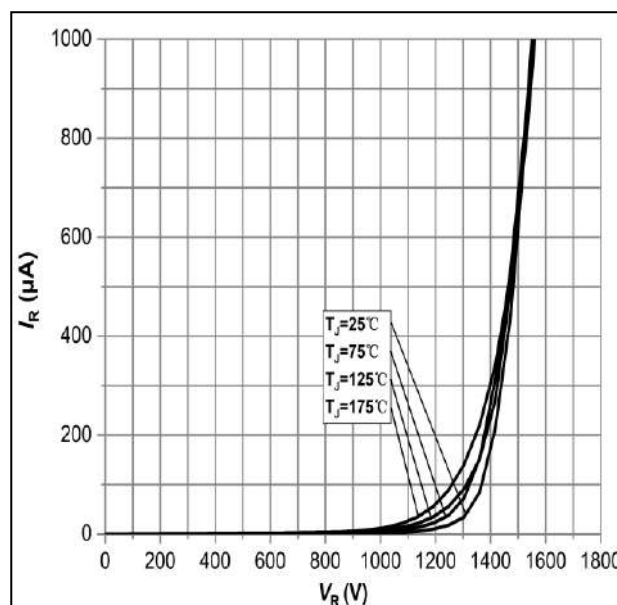


Figure 2: Reverse Characteristics

Typical Performance

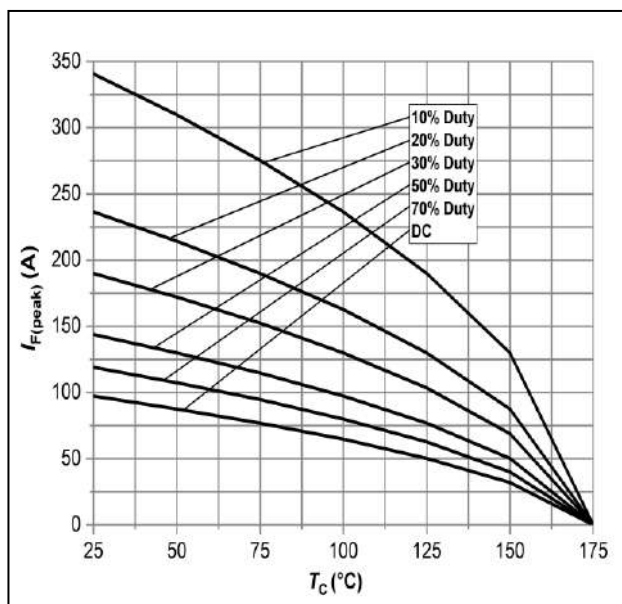


Figure 3: Current Derating

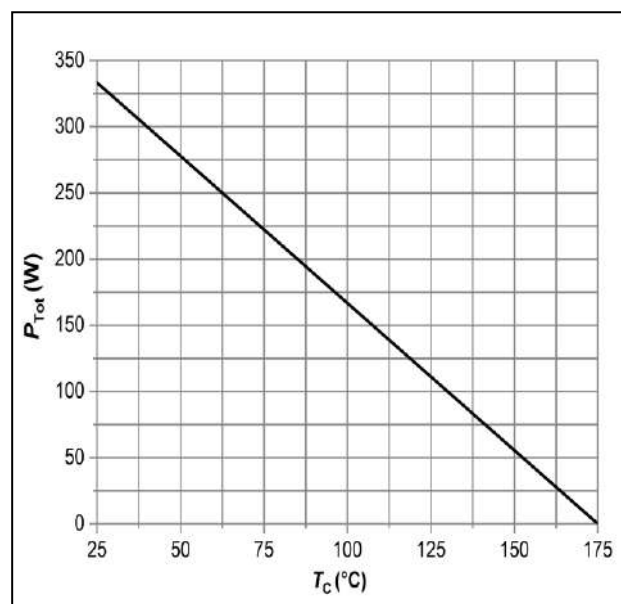


Figure 4: Power Derating

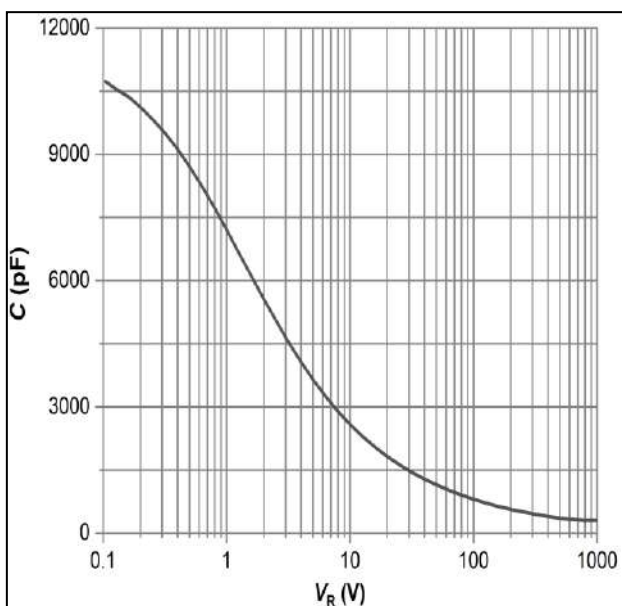


Figure 5: Capacitance vs. Reverse Voltage

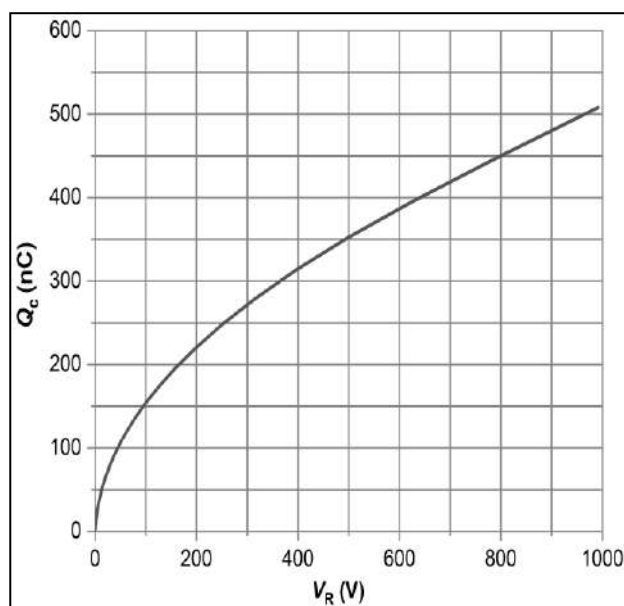


Figure 6: Total Capacitance Charge vs. Reverse Voltage

Typical Performance

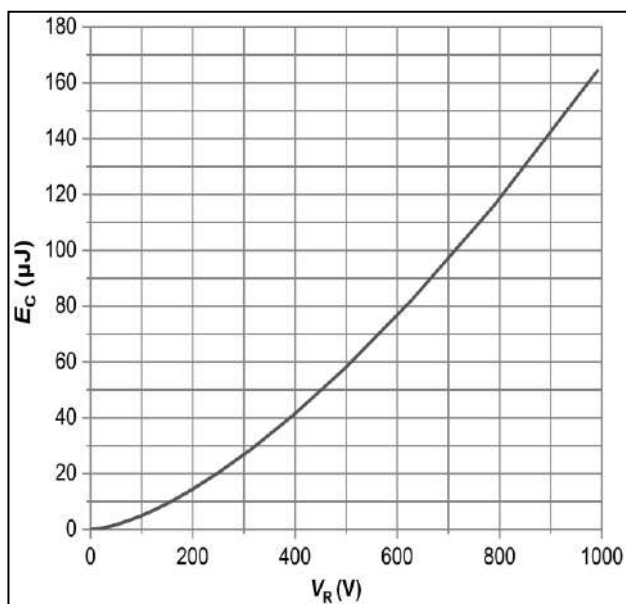


Figure 7: Typical Capacitance Stored Energy

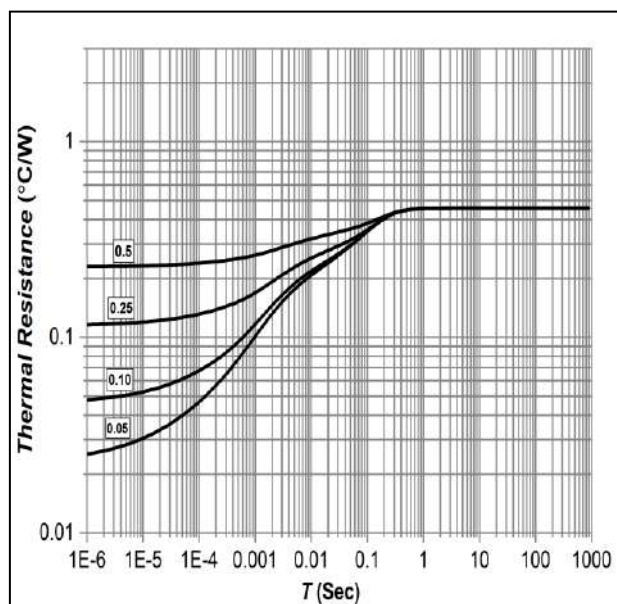
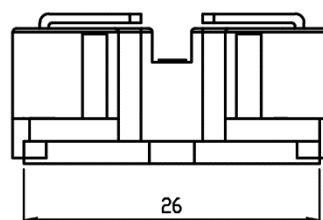
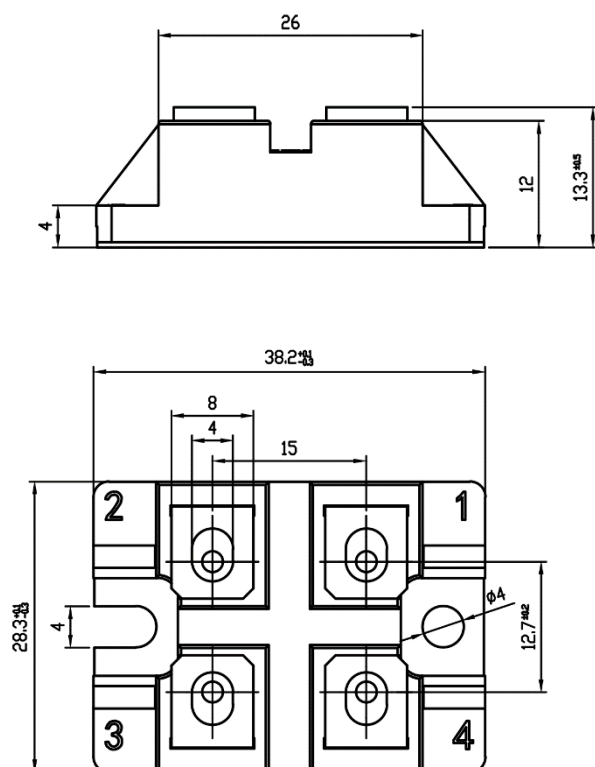


Figure 8: Transient Thermal Impedance

Package Dimensions

Package : SOT-227



All dimensions do not include mold flash or protrusions
All dimensions are in units mm

Revision History

Document Version	Description of Changes
RevX.0.1	Released

Zhejiang HIITIO New Energy Co., Ltd

ADD : NO.1125 Zhixing Road,Qiaonan District, Xiaoshan Economic and
Technological Development Zone, Hangzhou, Zhejiang

TEL :400-667-9977

