



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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**Silicon Carbide  
PiN Diode**

$V_{RRM}$	=	15.0 kV
$I_F (T_C=25^\circ\text{C})$	=	1 A

**Features**

- 15 kV blocking
- 175 °C operating temperature
- Fast turn off characteristics
- Soft reverse recovery characteristics
- Ultra-Fast high temperature switching

**Package**

- RoHS Compliant


**Advantages**

- Highest voltage rectifier commercially available
- Reduced stacking
- Reduced system complexity/Increased reliability

**Applications**

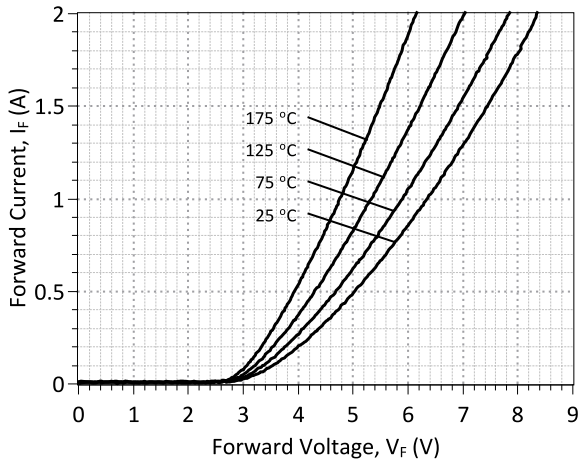
- Voltage Multiplier
- Ignition/Trigger Circuits
- Oil/Downhole
- Lighting
- Defense

**Maximum Ratings at  $T_j = 175^\circ\text{C}$ , unless otherwise specified**

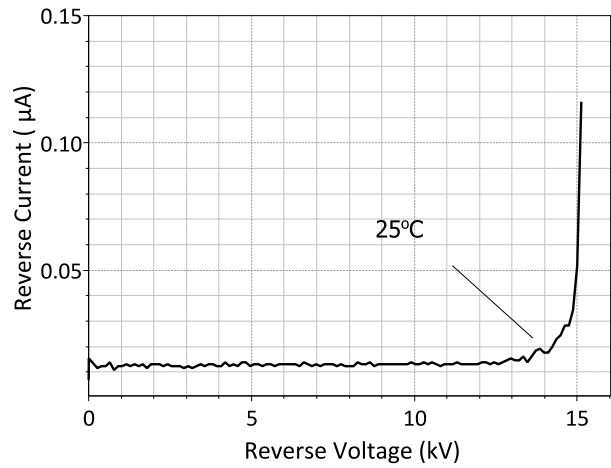
Parameter	Symbol	Conditions	Values	Unit
Repetitive peak reverse voltage	$V_{RRM}$		15	kV
Continuous forward current	$I_F$		1	A
RMS forward current	$I_{F(RMS)}$		0.5	A
Operating and storage temperature	$T_j, T_{stg}$		-55 to 175	°C

**Electrical Characteristics at  $T_j = 175^\circ\text{C}$ , unless otherwise specified**

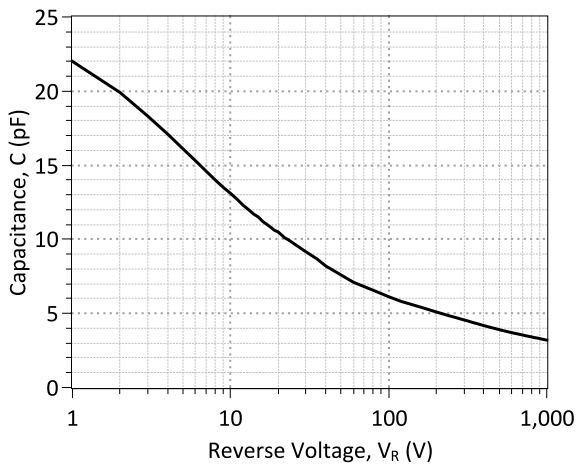
Parameter	Symbol	Conditions	Values			Unit
			min.	typ.	max.	
Diode forward voltage	$V_F$	$I_F = 1\text{ A}, T_j = 25^\circ\text{C}$		6.4		V
		$I_F = 1\text{ A}, T_j = 175^\circ\text{C}$		4.7		
Reverse current	$I_R$	$V_R = 8\text{ kV}, T_j = 25^\circ\text{C}$ $V_R = 8\text{ kV}, T_j = 175^\circ\text{C}$		1	20 100	$\mu\text{A}$
Total reverse recovery charge	$Q_{rr}$	$I_F \leq I_{F,MAX}$ $df/dt = 70\text{ A}/\mu\text{s}$ $T_j = 175^\circ\text{C}$	$V_R = 1000\text{ V}$ $I_F = 1.5\text{ A}$	558		nC
Switching time	$t_s$			$V_R = 1000\text{ V}$ $I_F = 1.5\text{ A}$	< 236	
Total capacitance	C	$V_R = 1\text{ V}, f = 1\text{ MHz}, T_j = 25^\circ\text{C}$		22		pF
		$V_R = 400\text{ V}, f = 1\text{ MHz}, T_j = 25^\circ\text{C}$		4		
		$V_R = 1000\text{ V}, f = 1\text{ MHz}, T_j = 25^\circ\text{C}$		3		
Total capacitive charge	$Q_C$	$V_R = 1000\text{ V}, f = 1\text{ MHz}, T_j = 25^\circ\text{C}$		4.5		nC



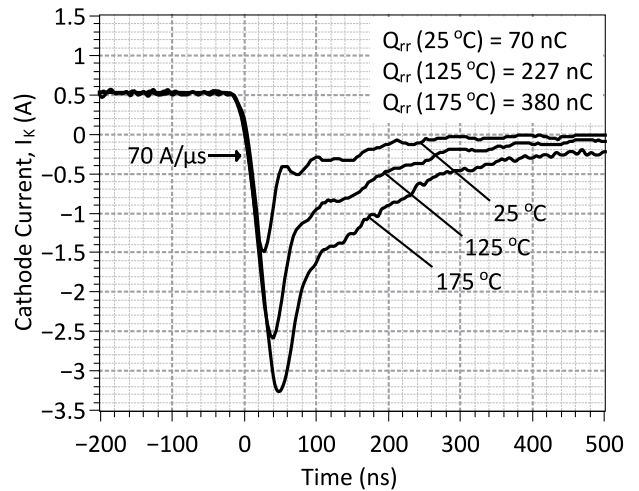
**Figure 1: Typical Forward Characteristics**



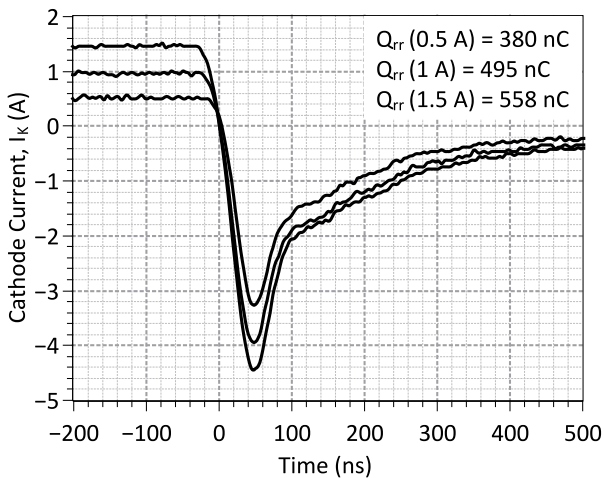
**Figure 2: Typical Reverse Characteristics at 25 °C**



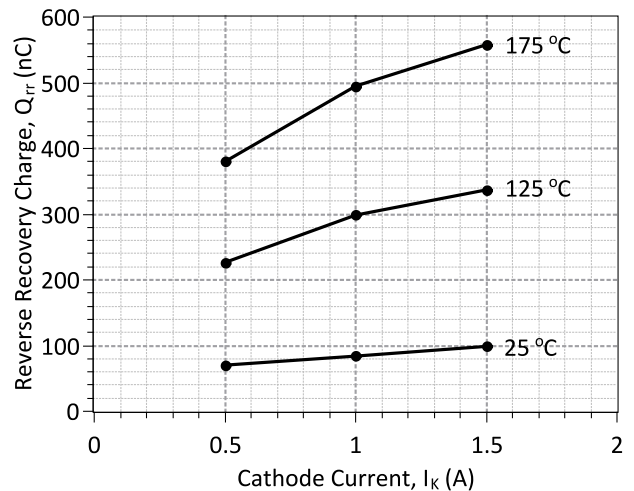
**Figure 3: Typical Junction Capacitance vs Reverse Voltage Characteristics**



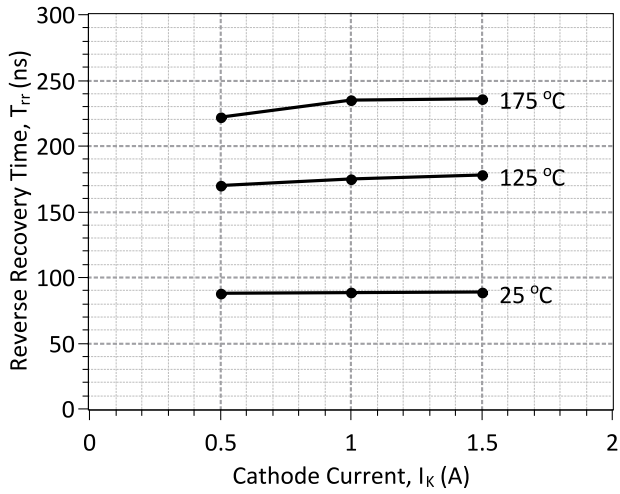
**Figure 4: Typical Turn Off Characteristics at  $I_K = 0.5$  A and  $V_R = 1000$  V**



**Figure 5: Typical Turn Off Characteristics at  $T_J = 175$  °C and  $V_R = 1000$  V**



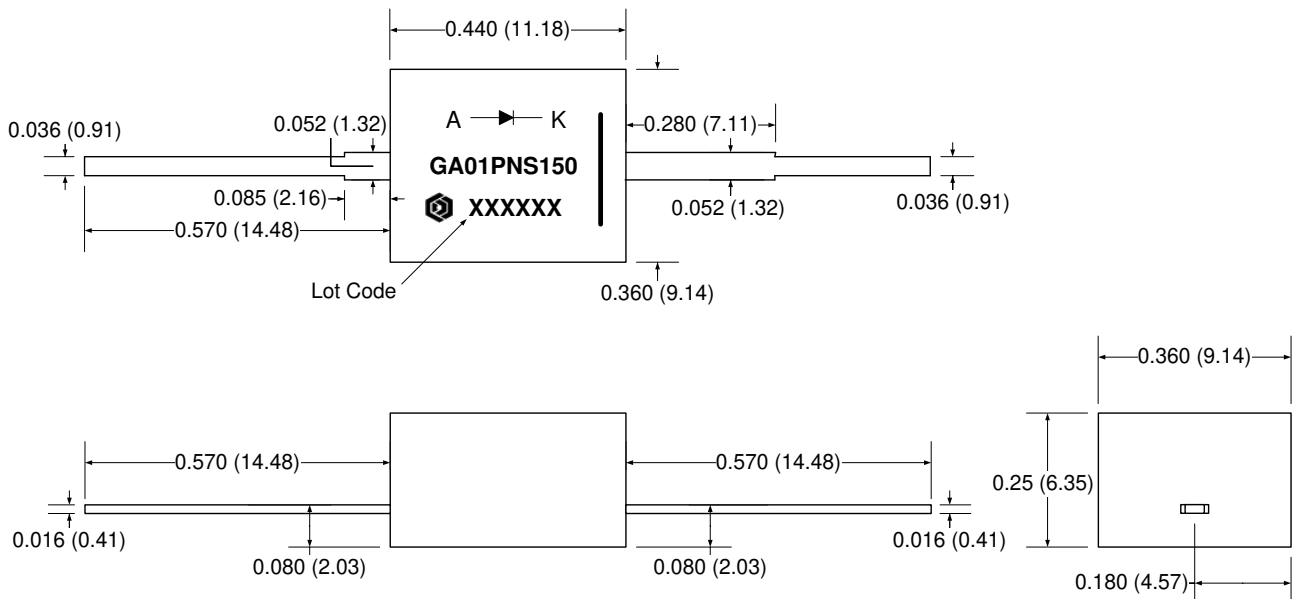
**Figure 6: Reverse Recovery Charge vs Cathode Current**



**Figure 7: Reverse Recovery Time vs Cathode Current**

**Package Dimensions:**

**PACKAGE OUTLINE**



**NOTE**

1. CONTROLLED DIMENSION IS INCH. DIMENSION IN BRACKET IS MILLIMETER.
2. DIMENSIONS DO NOT INCLUDE END FLASH, MOLD FLASH, MATERIAL PROTRUSIONS

**Revision History**

Date	Revision	Comments	Supersedes
2015/04/30	1	Updated Electrical Characteristics	
2014/11/07	0	Initial release	

## Published by

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## SPICE Model Parameters

This is a secure document. Please copy this code from the SPICE model PDF file on our website ([http://www.genesicsemi.com/images/products\\_sic/thyristor/GA01PNS150-220\\_SPICE.pdf](http://www.genesicsemi.com/images/products_sic/thyristor/GA01PNS150-220_SPICE.pdf)) into LTSPICE (version 4) software for simulation of the GA01PNS150-220.

```
*      MODEL OF GeneSiC Semiconductor Inc.
*
*      $Revision:   1.1           $
*      $Date:      30-APR-2015   $
*
*      GeneSiC Semiconductor Inc.
*      43670 Trade Center Place Ste. 155
*      Dulles, VA 20166
*
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*      PARTICULAR PURPOSE."
*      Models accurate up to 2 times rated drain current.
*
*      Start of GA01PNS150-220 SPICE Model
*
. MODEL GA01PNS150 D
+ IS      9.2491e-015
+ RS      2.24770
+ N       3.3373
+ IKF     0.00011784
+ EG      3.23
+ XTI     25
+ TRS1    -0.0024
+ CJO     2.28E-11
+ VJ      2.304
+ M       0.376
+ FC      0.5
+ BV      8000
+ IBV     1.00E-03
+ VPK     15000
+ IAVE    1
+ TYPE    SiC_PiN
+ MFG     GeneSiC_Semi
*
*      End of GA01PNS150-220 SPICE Model
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