

## Silicon Carbide Power Schottky Diode

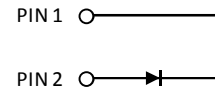
$V_{RRM}$	=	8000 V
$I_F$	=	50 mA
$Q_C$	=	8 nC

### Features

- Industry's leading low leakage currents
- 175 °C maximum operating temperature
- Positive temperature coefficient of  $V_F$
- Extremely fast switching speeds
- Superior figure of merit  $Q_C/I_F$

### Package

- RoHS Compliant



### Advantages

- Low reverse leakage current at operating temperature
- Improved circuit efficiency (Lower overall cost)
- Low switching losses
- Ease of paralleling devices without thermal runaway
- Smaller heat sink requirements
- Low reverse recovery current
- Low device capacitance
- Low reverse leakage current at operating temperature

### Applications

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

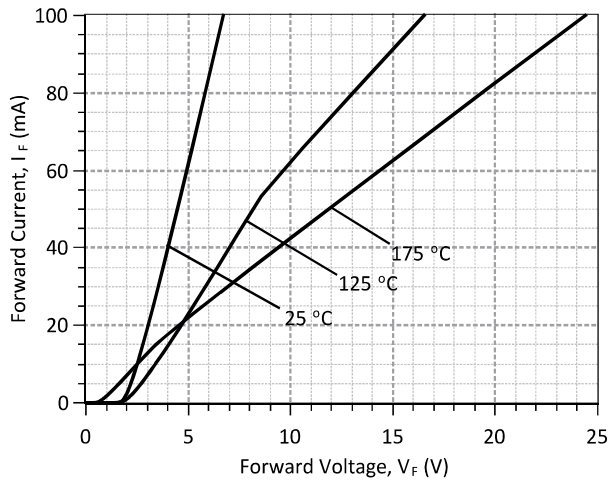
## Electrical Specifications

### Absolute Maximum Ratings

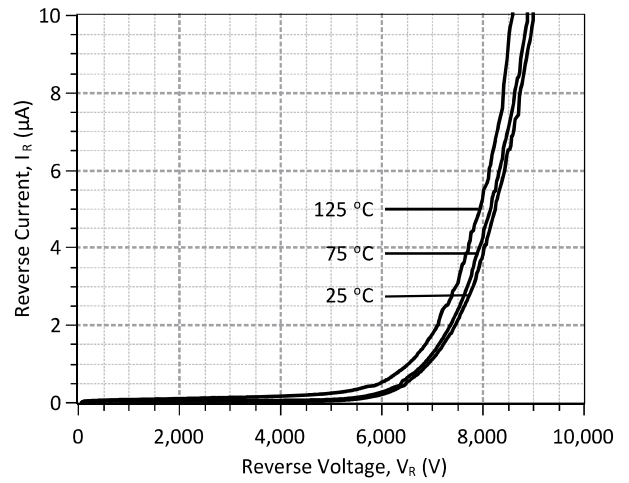
Parameter	Symbol	Conditions	Values	Unit
Repetitive peak reverse voltage	$V_{RRM}$		8000	V
Continuous forward current	$I_F$		50	mA
RMS forward current	$I_{F(RMS)}$		87	mA
Power dissipation	$P_{tot}$	$T_C = 25\text{ °C}$	0.2	W
Operating and storage temperature	$T_j, T_{stg}$		-55 to 175	°C

### Electrical Characteristics

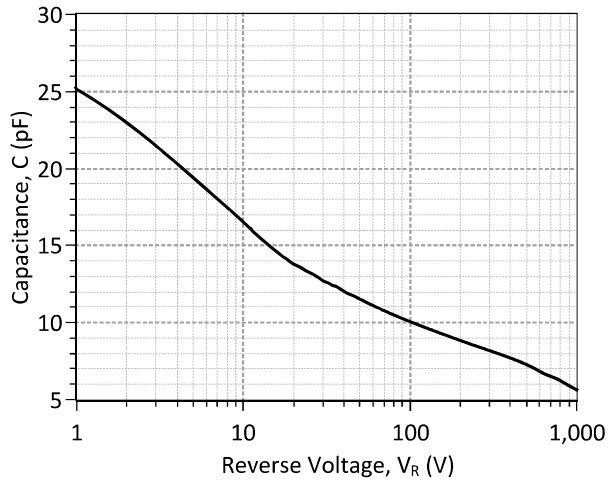
Parameter	Symbol	Conditions	Values			Unit
			min.	typ.	max.	
Diode forward voltage	$V_F$	$I_F = 50\text{ mA}, T_j = 25\text{ °C}$		4.6		V
		$I_F = 50\text{ mA}, T_j = 175\text{ °C}$		12		
Reverse current	$I_R$	$V_R = 8000\text{ V}, T_j = 25\text{ °C}$		3.8		$\mu\text{A}$
		$V_R = 8000\text{ V}, T_j = 125\text{ °C}$		5.3		
Total capacitance	C	$V_R = 1\text{ V}, f = 1\text{ MHz}, T_j = 25\text{ °C}$		25		pF
		$V_R = 400\text{ V}, f = 1\text{ MHz}, T_j = 25\text{ °C}$		8		
		$V_R = 1000\text{ V}, f = 1\text{ MHz}, T_j = 25\text{ °C}$		6		



**Figure 1: Typical Forward Characteristics**



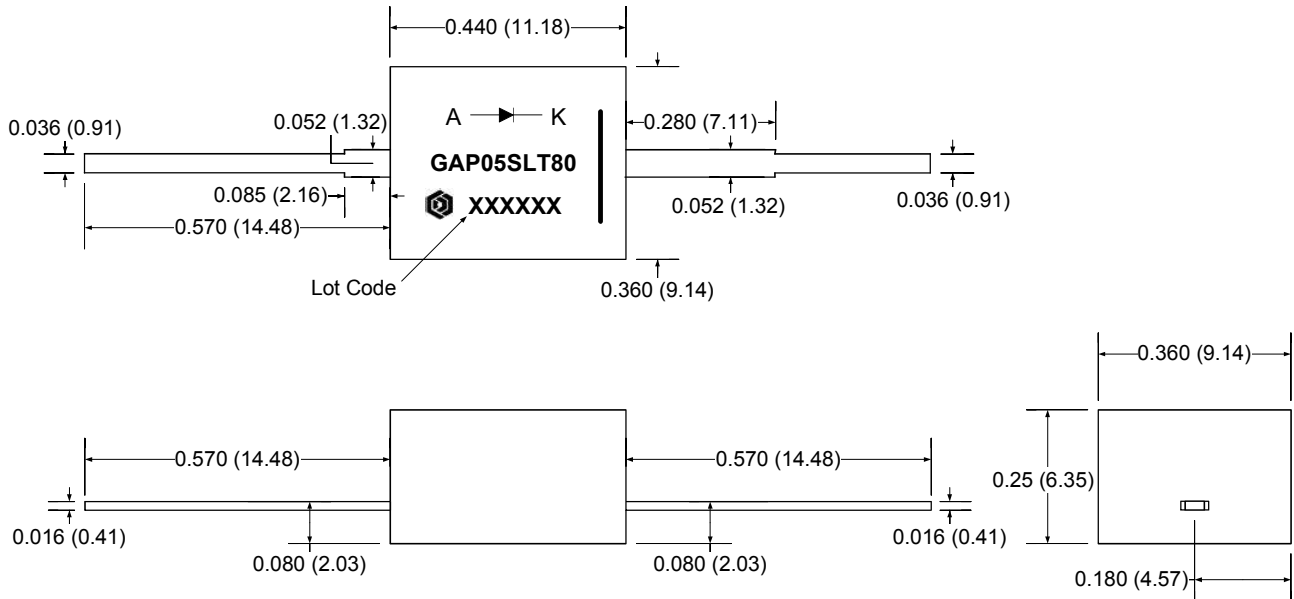
**Figure 2: Typical Reverse Characteristics**



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

**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

<b>Revision History</b>			
Date	Revision	Comments	Supersedes
2014/09/15	1	Initial Release	

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 43670 Trade Center Place Suite 155  
 Dulles, VA 20166

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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/rectifiers/GAP05SLT80-220\\_SPICE.pdf](http://www.genesicsemi.com/images/products_sic/rectifiers/GAP05SLT80-220_SPICE.pdf)) into LTSPICE (version 4) software for simulation of the GAP05SLT80-220.

```
*      MODEL OF GeneSiC Semiconductor Inc.
*
*      $Revision:  1.1          $
*      $Date:    15-SEP-2014   $
*
*      GeneSiC Semiconductor Inc.
*      43670 Trade Center Place Ste. 155
*      Dulles, VA 20166
*
*      COPYRIGHT (C) 2014 GeneSiC Semiconductor Inc.
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*
* These models are provided "AS IS, WHERE IS, AND WITH NO WARRANTY
* OF ANY KIND EITHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED
* TO ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A
* PARTICULAR PURPOSE."
* Models accurate up to 2 times rated drain current.
*
* Start of GAP05SLT80-220 SPICE Model
.SUBCKT GAP05SLT80_220 ANODE KATHODE
R1 ANODE INT R=((TEMP-24)*0.81); Temperature Dependant Resistor
D1 INT KATHODE GAP05SLT80_220_25C
.MODEL GAP05SLT80_220_25C D; Model of GAP05SLT80-220 Device at 25 C
+ IS      14.067E-15
+ N       1.3760
+ RS      42.6
+ IKF     157.39E-6
+ EG      1.2
+ XTI     -85
+ CJO     21.838E-12
+ M       0.258
+ VJ      3.198
+ BV      9000
+ IBV     1E-3
+ TT      1.0000E-10
+ VPK     8000
+ IAVE    3E-2
+ TYPE    SiC_Schottky
+ MFG     GeneSiC_Semiconductor
.ENDS
*
* End of GAP05SLT80-220 SPICE Model
```