GeneSiC SEMICONDUCTOR

GAP05SLT80-220

Silicon Carbide Power Schottky Diode

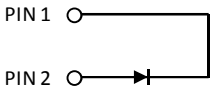
V_{RRM}	=	8000 V
I_F	=	50 mA
Q_C	=	8 nC

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 °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 mA, T_j = 25 °C		4.6		V
		I_F = 50 mA, T_j = 175 °C		12		
Reverse current	I_R	V_R = 8000 V, T_j = 25 °C		3.8		μA
		V_R = 8000 V, T_j = 125 °C		5.3		
Total capacitance	C	V_R = 1 V, f = 1 MHz, T_j = 25 °C		25		pF
		V_R = 400 V, f = 1 MHz, T_j = 25 °C		8		
		V_R = 1000 V, f = 1 MHz, T_j = 25 °C		6		

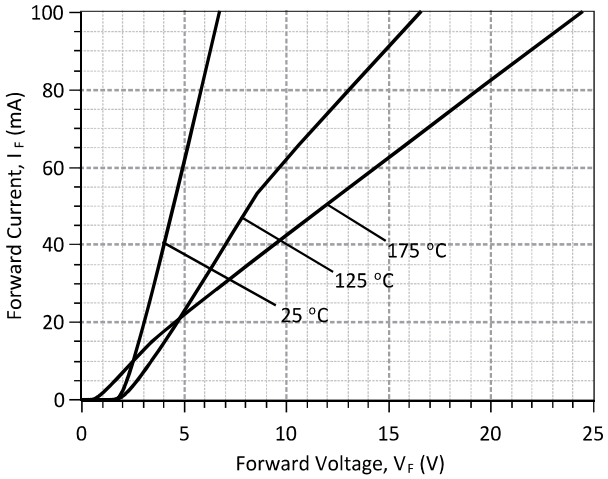


Figure 1: Typical Forward Characteristics

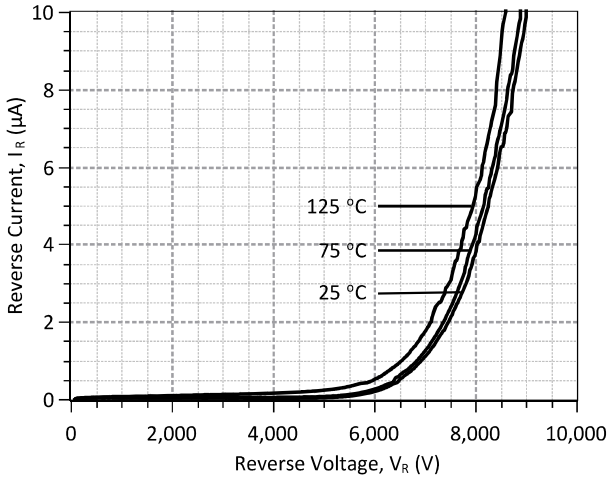


Figure 2: Typical Reverse Characteristics

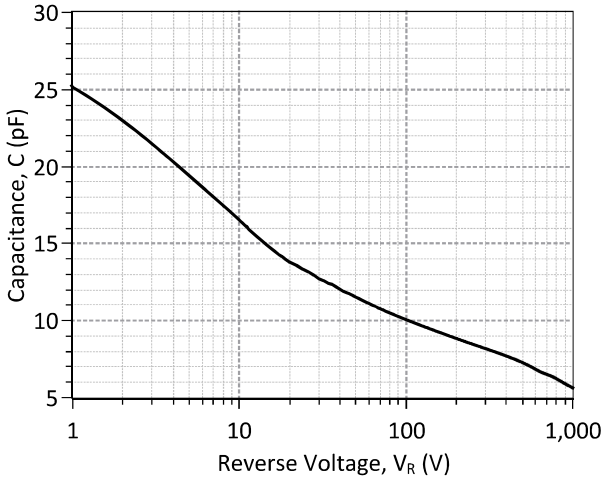
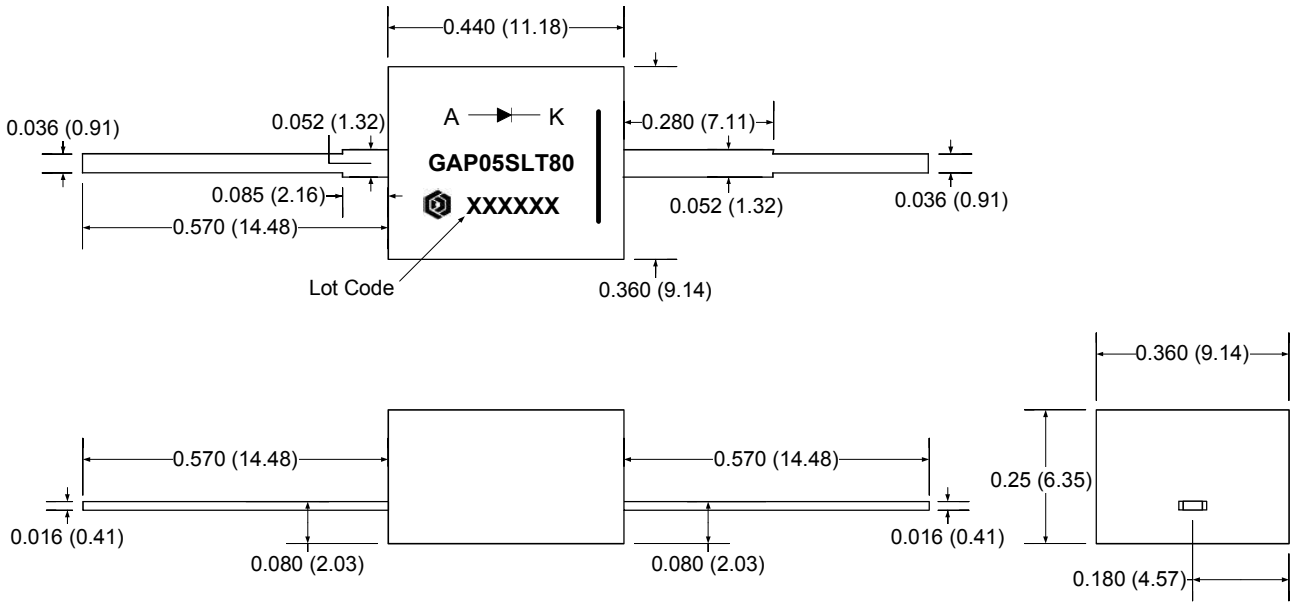


Figure 3: Typical Junction Capacitance vs Reverse Voltage Characteristics

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

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

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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) into LTSPICE (version 4) software for simulation of the GAP05SLT80-220.

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*     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
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