Electrical Datasheet*

GB02SLT06-CAL

Silicon Carbide Power Schottky Diode Chip

Features

- 650 V Schottky rectifier
- 175 °C maximum operating temperature
- Temperature independent switching behavior
- · Superior surge current capability
- Positive temperature coefficient of V_F
- Extremely fast switching speeds
- Superior figure of merit Q_C/I_F



Maximum Ratings at T_j = 175 °C, unless otherwise specified

Parameter	Symbol	Conditions	Values	Unit
Repetitive peak reverse voltage	V_{RRM}		650	V
Continuous forward current	I _F	T _C = 25 °C	5	Α
Continuous forward current	l _F	T _C ≤ 160 °C	2	Α
RMS forward current	I _{F(RMS)}	T _C ≤ 160 °C	3	Α
Operating and storage temperature	T_{j} , T_{stg}		-55 to 175	°C

Electrical Characteristics at T_j = 175 °C, unless otherwise specified

Danamatan	Comple ed	Conditions		Values		11:4	
Parameter	Symbol			min.	typ.	max.	Unit
Diode forward voltage	\/	I _F = 2 A, T _j = 25 °C I _F = 2 A, T _j = 175 °C		1.45		V	
	V_{F}			2.6			
Reverse current	I _R	$V_R = 650 \text{ V}, T_j = 25 ^{\circ}\text{C}$		5		μΑ	
		$V_R = 650 \text{ V}, T_j = 175 ^{\circ}\text{C}$		50			
Total capacitive charge	Q_{C}	$I_F \le I_{F,MAX}$	V _R = 400 V		9		nC
Switching time	t _s	dl _ε /dt = 200 A/μs T _i = 175 °C	V _R = 400 V		< 17		ns
Total capacitance	С	V _R = 1 V, f = 1 MHz, T _j = 25 °C			131		
		$V_R = 400 \text{ V}, f = 1 \text{ MHz}$	z, T _i = 25 °C		12		pF

Thermal Characteristics

Thomas Grandotoriotics				
Thermal resistance, junction - case	R _{thJC}	Assuming TO-220 package	2.3	°C/W

^{*}For chip size and metallization, please refer to the mechanical datasheet (must have a non-disclosure agreement with GeneSiC Semiconductor).

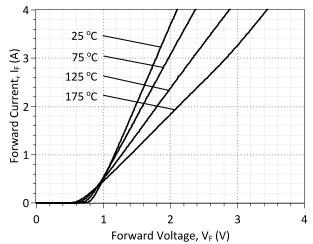


Figure 1: Typical Forward Characteristics

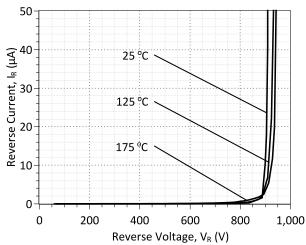


Figure 2: Typical Reverse Characteristics

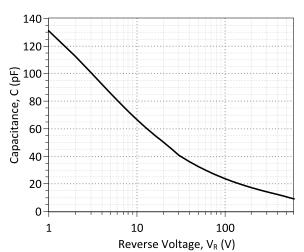


Figure 3: Typical Junction Capacitance vs Reverse Voltage Characteristics

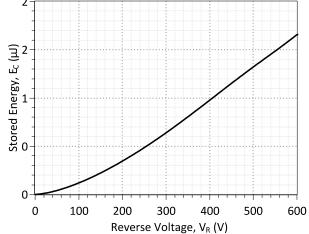


Figure 4: Typical Switching Energy vs Reverse Voltage Characteristics

Revision History					
Date	Revision	Comments	Supersedes		
2014/09/12	1	Updated Electrical Characteristics			
2013/11/06	0	Initial release			

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SPICE Model Parameters

Copy the following code into a SPICE software program for simulation of the GB02SLT06-CAL device.

```
MODEL OF GeneSiC Semiconductor Inc.
     $Revision: 1.0
     $Date: 06-NOV-2013
    GeneSiC Semiconductor Inc.
    43670 Trade Center Place Ste. 155
    Dulles, VA 20166
    http://www.genesicsemi.com/index.php/hit-sic/baredie
    COPYRIGHT (C) 2013 GeneSiC Semiconductor Inc.
    ALL RIGHTS RESERVED
* 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 GB02SLT06-CAL SPICE Model
.SUBCKT GB02SLT06 ANODE KATHODE
D1 ANODE KATHODE GB02SLT06
D2 ANODE KATHODE GB02SLT06 PIN
.MODEL GB02SLT06 D
     2.05E-15
+ IS
                       RS
                                  0.282
+ TRS1 0.0054
                       TRS2
                                  3E-05
+ N
         1
                       IKF
                                  251
                       XTI
VJ
+ EG
        1.2
                                  -1.8
        1.61E-10
                                  0.4508
+ CJO
        1.586
                                  0.5
+ M
                       FC
+ TT
        1.00E-10
                       BV
                                  650
+ IBV
        1.00E-03
                        VPK
                                   650
+ IAVE
                         TYPE
                                  SiC Schottky
+ MFG GeneSiC Semi
.MODEL GB02SLT06 PIN D
+ IS 1.54E-25
                       RS
                                  0.39
+ TRS1
         -0.003
                        N
                                   3.941
                        IKF
         3.23
+ EG
                                  19
+ XTI
                        FC
                                  0.5
+ TT
                        BV
                                   650
      1.00E-03
                       VPK
+ IBV
                                   650
+ IAVE
         10
                         TYPE
                                   SiC PiN
.ENDS
```

^{*} End of GB02SLT06-CAL SPICE Model