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!

Contact us

Silicon Carbide Power Schottky Diode

V_{RRM}	=	1200 V
$I_{F\,(Tc\,=\,25°C)}$	=	5 A
$I_{F\,(Tc\,\leq\,150°C)}$	=	2 A
Q_C	=	9 nC

Features

- Industry's leading low leakage currents
- 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

Package

- RoHS Compliant

case

PIN 1
PIN 2
CASE
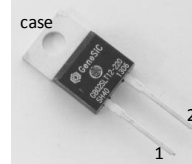
TO – 220AC

Advantages

- Low standby power losses
- 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

- Power Factor Correction (PFC)
- Switched-Mode Power Supply (SMPS)
- Solar Inverters
- Wind Turbine Inverters
- Motor Drives
- Induction Heating
- Uninterruptible Power Supply (UPS)
- High Voltage Multipliers

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

Parameter	Symbol	Conditions	Values	Unit
Repetitive peak reverse voltage	V_{RRM}		1200	V
Continuous forward current	I_F	T_C = 25 °C	5	A
Continuous forward current	I_F	T_C ≤ 150 °C	2	
RMS forward current	$I_{F(RMS)}$	T_C ≤ 150 °C	3	A
Surge non-repetitive forward current, Half Sine Wave	$I_{F,SM}$	T_C = 25 °C, t_P = 10 ms	18	A
		T_C = 150 °C, t_P = 10 ms	15	
Non-repetitive peak forward current	$I_{F,max}$	T_C = 25 °C, t_P = 10 µs	100	A
I^2t value	$\int i^2\,dt$	T_C = 25 °C, t_P = 10 ms	1.6	A^2s
		T_C = 150 °C, t_P = 10 ms	1.1	
Power dissipation	P_{tot}	T_C = 25 °C	65	W
Operating and storage temperature	T_j , T_{stg}		-55 to 175	°C

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

Parameter	Symbol	Conditions		Values		Unit
			min.	typ.	max.	
Diode forward voltage	V_F	I_F = 2 A, T_j = 25 °C		1.5	1.8	V
		I_F = 2 A, T_j = 175 °C		2.6	3.0	
Reverse current	I_R	V_R = 1200 V, T_j = 25 °C		5	50	µA
		V_R = 1200 V, T_j = 175 °C		10	100	
Total capacitive charge	Q_C	$I_F \leq I_{F,MAX}$ dI_F/dt = 200 A/µs T_j = 175 °C	V_R = 400 V	9		nC
			V_R = 960 V	14		
Switching time	t_s		V_R = 400 V	< 17		ns
			V_R = 960 V			
Total capacitance	C	V_R = 1 V, f = 1 MHz, T_j = 25 °C		131		pF
		V_R = 400 V, f = 1 MHz, T_j = 25 °C		12		
		V_R = 1000 V, f = 1 MHz, T_j = 25 °C		8		

Thermal Characteristics

Thermal resistance, junction - case	R_{thJC}			2.3	°C/W

Mechanical Properties

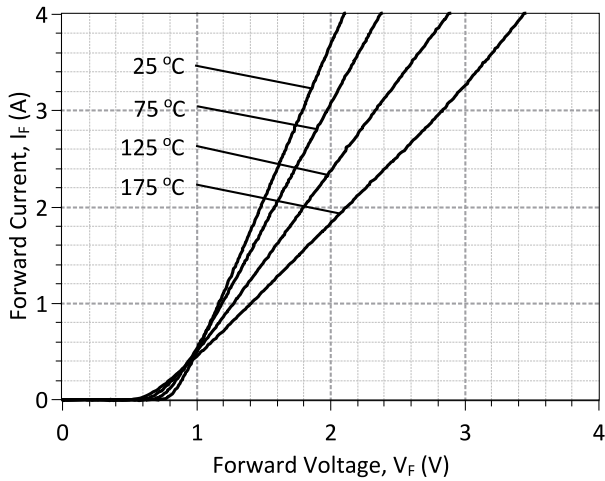|					
Mounting torque	M			0.6	Nm

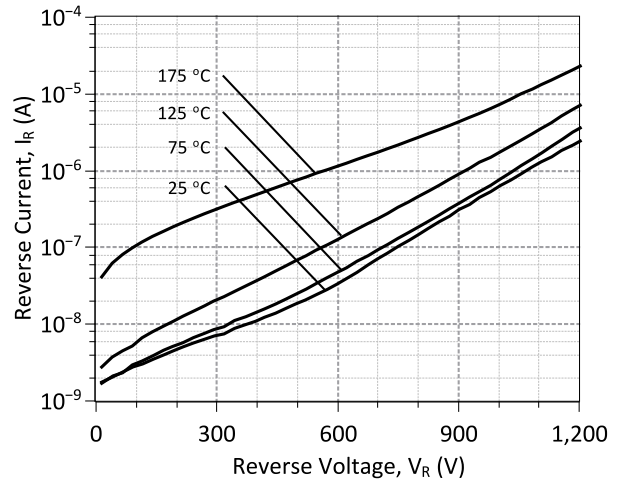**Figure 1: Typical Forward Characteristics**

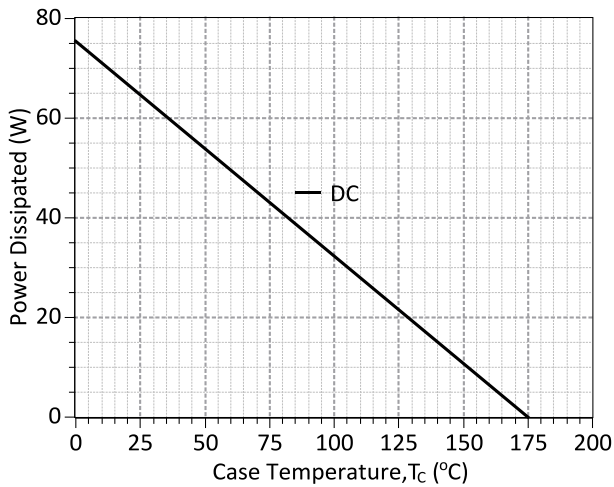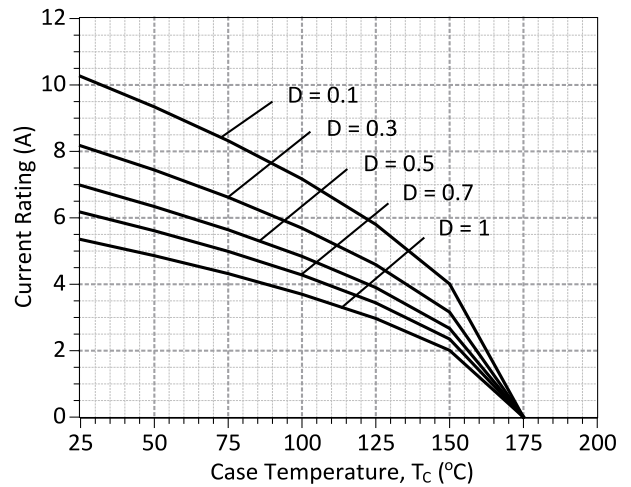

Figure 2: Typical Reverse Characteristics

Figure 3: Power Derating Curve

Figure 4: Current Derating Curves (D = t_P/T, t_P= 400 μs) (Considering worst case Z_{th} conditions)
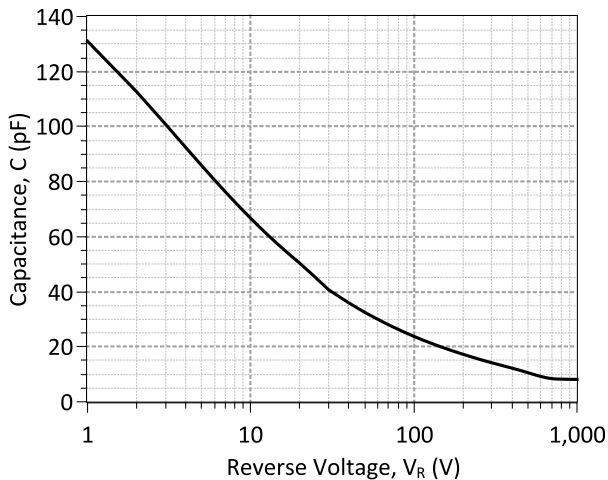

Figure 5: Typical Junction Capacitance vs Reverse Voltage Characteristics
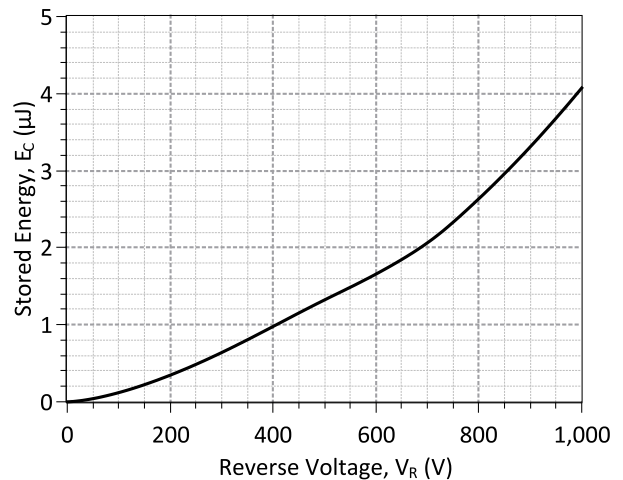

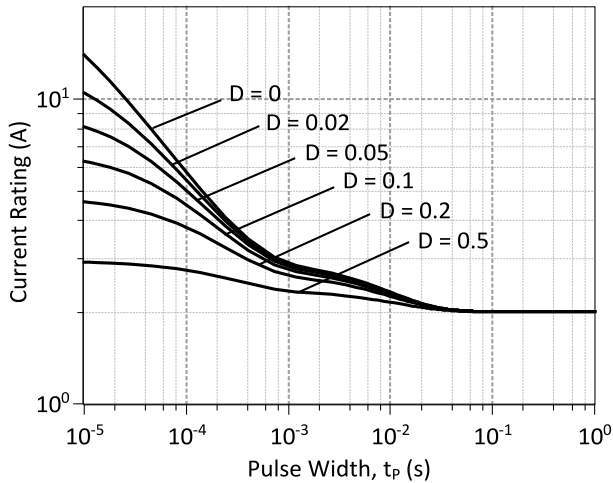**Figure 6: Typical Capacitive Energy vs Reverse Voltage Characteristics**

Figure 7: Current vs Pulse Duration Curves at T_C = 160 °C

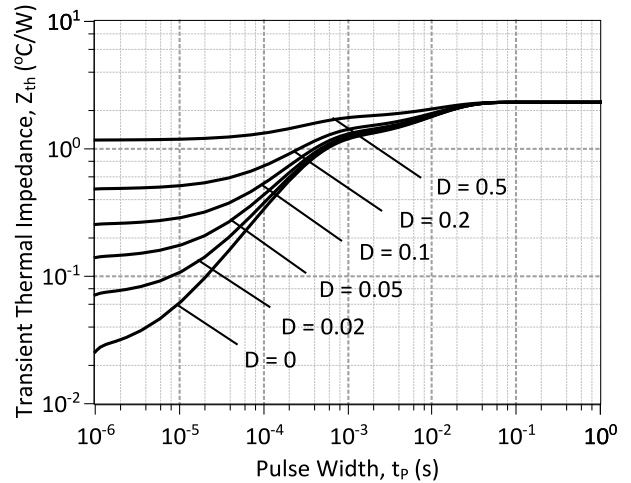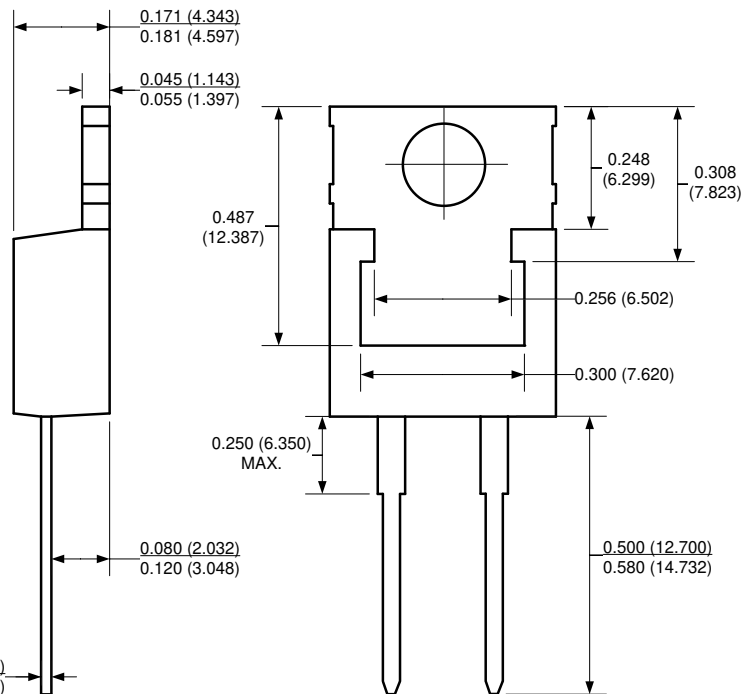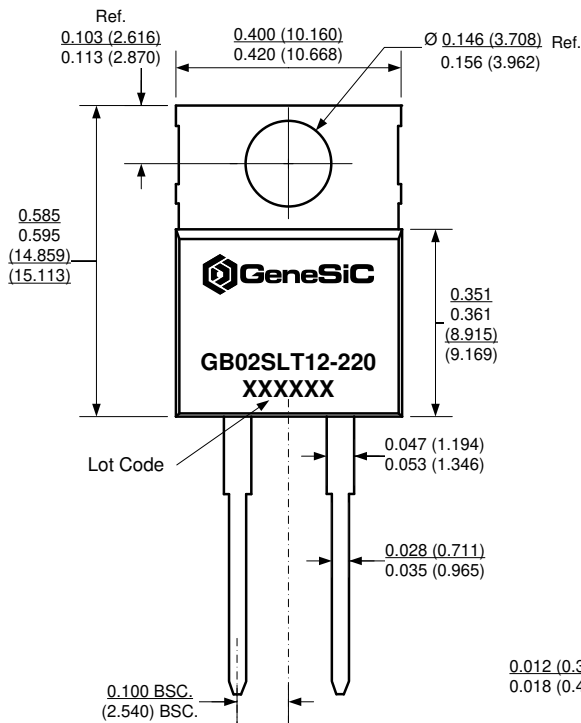Figure 8: Transient Thermal Impedance

Package Dimensions:

TO-220AC

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
2014/08/26	4	Updated Electrical Characteristics	
2013/06/12	3	Updated Electrical Characteristics	
2012/12/18	2	Second generation update	
2012/05/22	1	Second generation release	
2010/12/13	0	Initial release	

Published by

GeneSiC Semiconductor, Inc.

43670 Trade Center Place Suite 155

Dulles, VA 20166

GeneSiC Semiconductor, Inc. reserves right to make changes to the product specifications and data in this document without notice.

GeneSiC disclaims all and any warranty and liability arising out of use or application of any product. No license, express or implied to any intellectual property rights is granted by this document.

Unless otherwise expressly indicated, GeneSiC products are not designed, tested or authorized for use in life-saving, medical, aircraft navigation, communication, air traffic control and weapons systems, nor in applications where their failure may result in death, personal injury and/or property damage.

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/GB02SLT12-220_SPICE.pdf) into LTSPICE (version 4) software for simulation of the GB02SLT12-220.

```
*      MODEL OF GeneSiC Semiconductor Inc.
*
*      $Revision:   1.0            $
*      $Date:   04-SEP-2013        $
*
*      GeneSiC Semiconductor Inc.
*      43670 Trade Center Place Ste. 155
*      Dulles, VA 20166
*
*      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 GB02SLT12-220 SPICE Model
*
.SUBCKT GB02SLT12 ANODE KATHODE
D1 ANODE KATHODE GB02SLT12
D2 ANODE KATHODE GB02SLT12_PIN
.MODEL GB02SLT12 D
+ IS      2.05E-15       RS       0.282
+ TRS1    0.0054         TRS2     3E-05
+ N       1              IKF      251
+ EG      1.2            XTI      -1.8
+ CJO     1.61E-10       VJ       0.4508
+ M       1.586          FC       0.5
+ TT      1.00E-10       BV       1200
+ IBV     1.00E-03       VPK      1200
+ IAVE    2              TYPE     SiC_Schottky
+ MFG     GeneSiC_Semi
.MODEL GB02SLT12_PIN D
+ IS      1.54E-25       RS       0.39
+ TRS1    -0.003         N        3.941
+ EG      3.23           IKF      19
+ XTI     0              FC       0.5
+ TT      0              BV       1200
+ IBV     1.00E-03       VPK      1200
+ IAVE    10             TYPE     SiC_PiN
.ENDS
*
* End of GB02SLT12-220 SPICE Model
```