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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Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

GB01SLT12-214

Silicon Carbide Power Schottky Diode

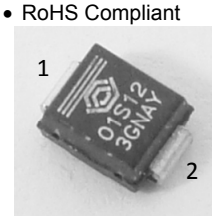
V_{RRM}	=	1200 V
$I_{F\ (Tc = 25°C)}$	=	2.5 A
$I_{F\ (Tc \leq 150°C)}$	=	1 A
Q_C	=	7 nC

Features

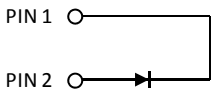
- Industry's leading low leakage currents
- 175 °C maximum operating temperature
- Temperature independent switching behavior
- Superior surge current capability
- Positive temperature coefficient of V_F
- Extremely fast switching speeds
- Superior figure of merit Q_C/I_F

Package

- RoHS Compliant



SMB / DO – 214AA



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	2.5	A
Continuous forward current	I_F	$T_C \leq$ 150 °C	1	A
RMS forward current	$I_{F(RMS)}$	$T_C \leq$ 150 °C	2	A
Surge non-repetitive forward current, Half Sine Wave	$I_{F,SM}$	T_C = 25 °C, t_P = 10 ms T_C = 150 °C, t_P = 10 ms	10 8	A
Non-repetitive peak forward current	$I_{F,max}$	T_C = 25 °C, t_P = 10 µs	65	A
I^2t value	$\int i^2\,dt$	T_C = 25 °C, t_P = 10 ms T_C = 150 °C, t_P = 10 ms	0.5 0.3	A^2s
Power dissipation	P_{tot}	T_C = 25 °C	42	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 min.	Values typ.	Values max.	Unit
Diode forward voltage	V_F	I_F = 1 A, T_j = 25 °C I_F = 1 A, T_j = 175 °C			1.6 2.4	1.8 3.7	V
Reverse current	I_R	V_R = 1200 V, T_j = 25 °C V_R = 1200 V, T_j = 175 °C			5 10	10 100	µA
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 V_R = 960 V		7 13		nC
Switching time	t_s		V_R = 400 V V_R = 960 V		< 17		ns
Total capacitance	C	V_R = 1 V, f = 1 MHz, T_j = 25 °C V_R = 400 V, f = 1 MHz, T_j = 25 °C V_R = 1000 V, f = 1 MHz, T_j = 25 °C			69 10 8		pF

Thermal Characteristics

Thermal resistance, junction - case	R_{thJC}	3.6	°C/W

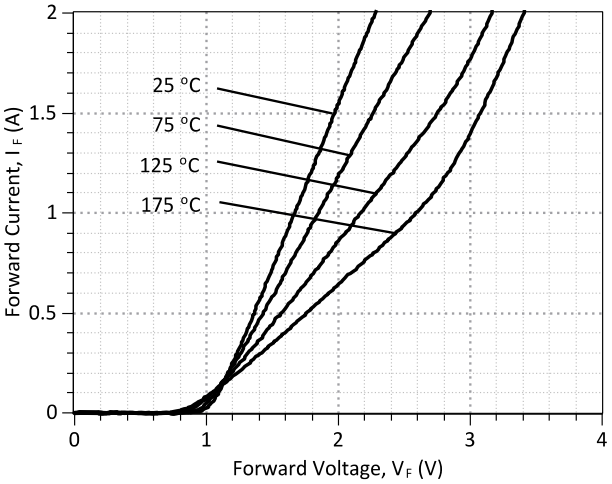


Figure 1: Typical Forward Characteristics

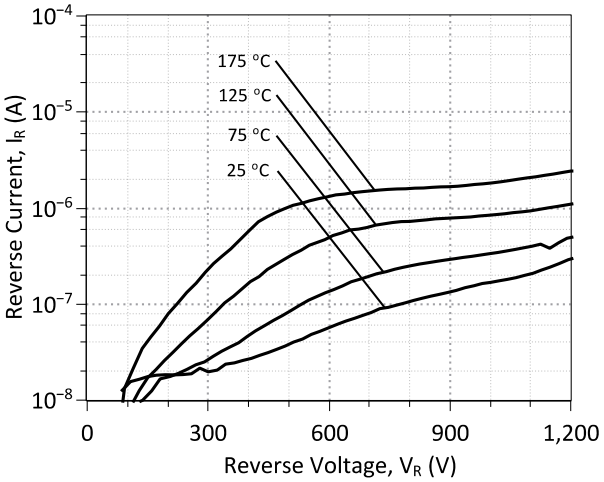


Figure 2: Typical Reverse Characteristics

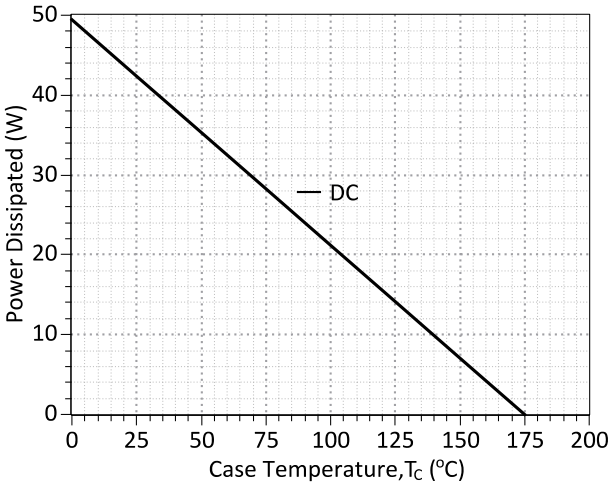


Figure 3: Power Derating Curve

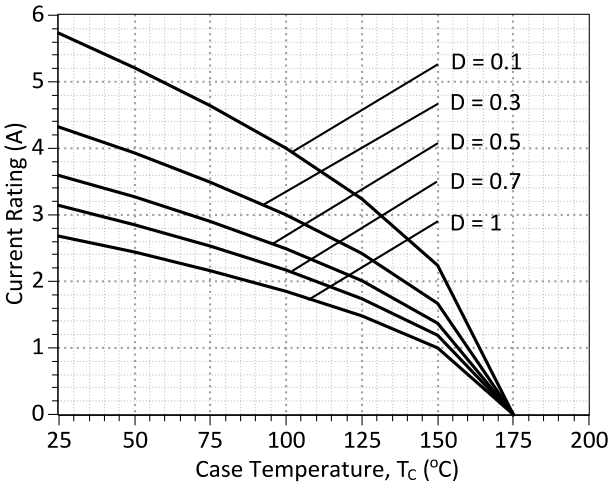


Figure 4: Current Derating Curves (D = t_P/T, t_P= 400 µs) (Considering worst case Z_{th} conditions)

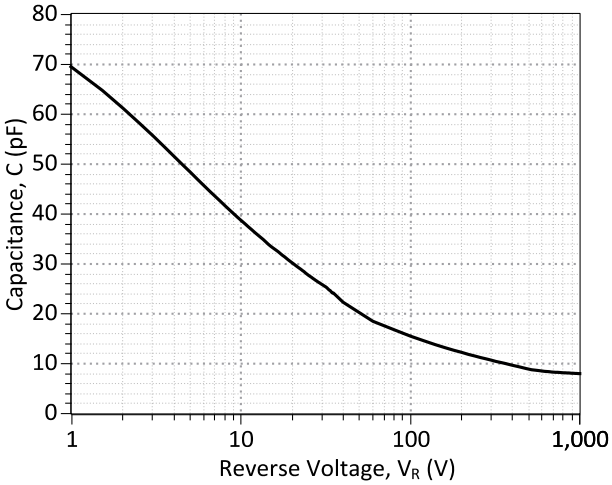


Figure 5: Typical Junction Capacitance vs Reverse Voltage Characteristics

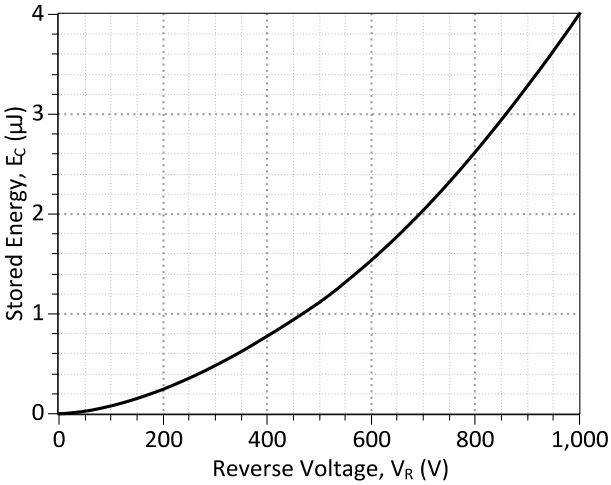


Figure 6: Typical Capacitive Energy vs Reverse Voltage Characteristics

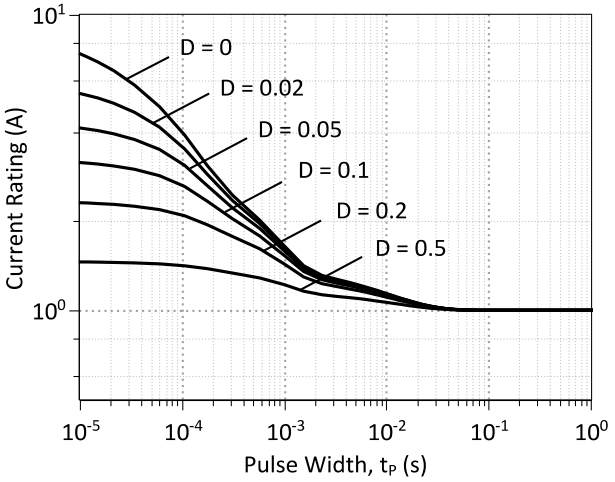


Figure 7: Current vs Pulse Duration Curves at T_C = 160 °C

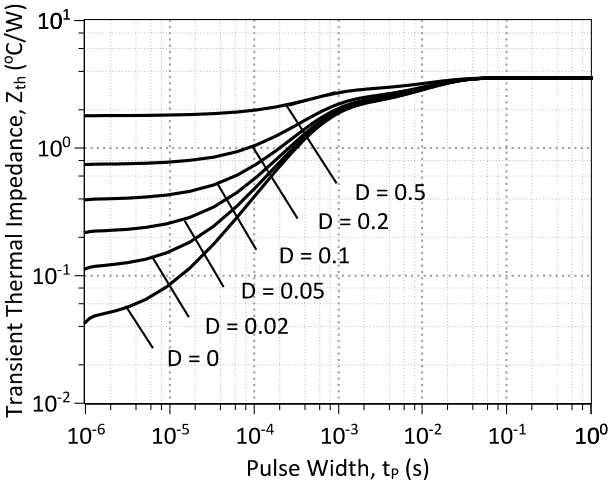
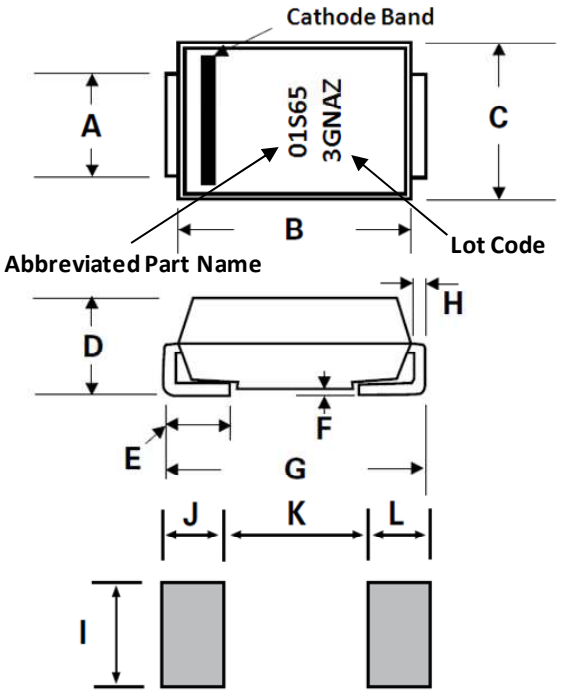


Figure 8: Transient Thermal Impedance

Package Dimensions:

SMB / DO - 214AA **PACKAGE OUTLINE**



Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.077	0.086	1.950	2.200
B	0.160	0.180	4.060	4.570
C	0.130	0.155	3.300	3.940
D	0.084	0.096	2.130	2.440
E	0.030	0.060	0.760	1.520
F	-	0.008	-	0.203
G	0.205	0.220	5.210	5.590
H	0.006	0.012	0.152	0.305
I	0.089	-	2.260	-
J	0.085	-	2.160	-
K	-	0.107	-	2.740
L	0.085	-	2.160	-

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	1	Updated Electrical Characteristics	
2013/09/09	0	Initial release	

Published by
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Dulles, VA 20166

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/GB01SLT12-214_SPICE.pdf) into LTSPICE (version 4) software for simulation of the GB01SLT12-214.

```
*     MODEL OF GeneSiC Semiconductor Inc.
*
*     $Revision:   1.0           $
*     $Date:   09-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 GB01SLT12-214 SPICE Model
*
.SUBCKT GB01SLT12 ANODE KATHODE
R1 ANODE INT R=((TEMP-24)*0.0069); Temperature Dependant Resistor
D1 INT KATHODE GB01SLT12_25C; Call the 25C Diode Model
D2 ANODE KATHODE GB01SLT12_PIN; Call the PiN Diode Model
.MODEL GB01SLT12_25C D
+ IS       7.27E-19        RS         0.592251
+ N        1               IKF        407.773
+ EG       1.2             XTI        3
+ CJO      7.90E-11        VJ         0.367
+ M        1.63            FC         0.5
+ TT       1.00E-10        BV         1200
+ IBV      1.00E-03        VPK        1200
+ IAVE     1               TYPE       SiC_Schottky
+ MFG      GeneSiC_Semiconductor
.MODEL GB01SLT12_PIN D
+ IS       1.08E-17        RS         1.8
+ N        2.2313          IKF        999
+ EG       3.23            XTI        -65
+ FC       0.5             TT         0
+ BV       1200            IBV        1.00E-03
+ VPK      1200            IAVE       1
+ TYPE     SiC_PiN
.ENDS
*
* End of GB01SLT12-214 SPICE Model
```