

Silicon Carbide Power Schottky Diode

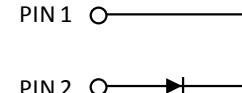
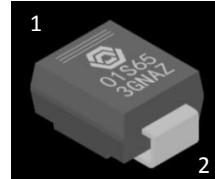
Features

- 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

V_{RRM}	=	650 V
$I_F (T_c = 25^\circ C)$	=	2.5 A
$I_F (T_c \leq 150^\circ C)$	=	1 A
Q_C	=	7 nC

Package

- RoHS Compliant



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 $T_j = 175^\circ C$, unless otherwise specified

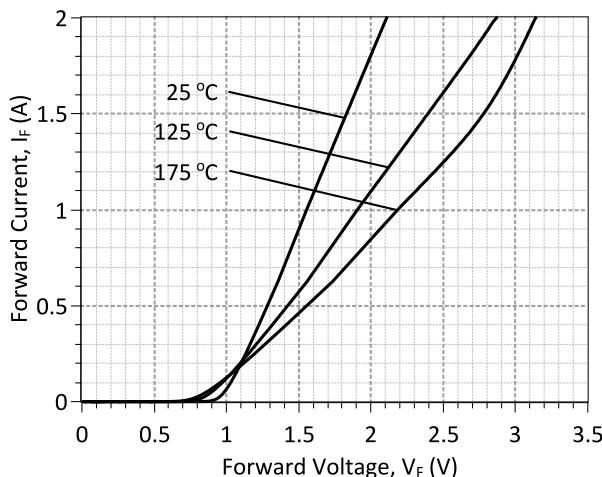
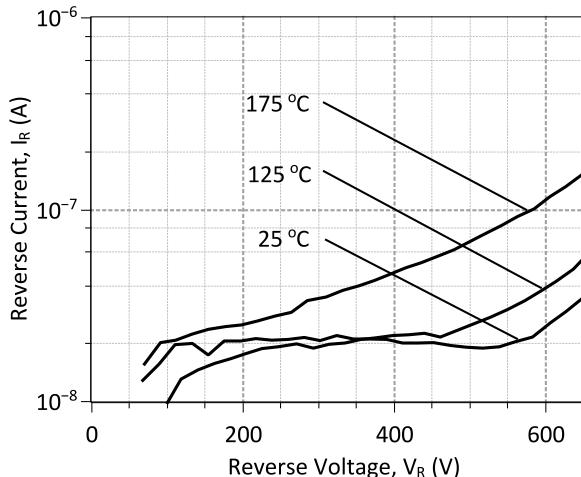
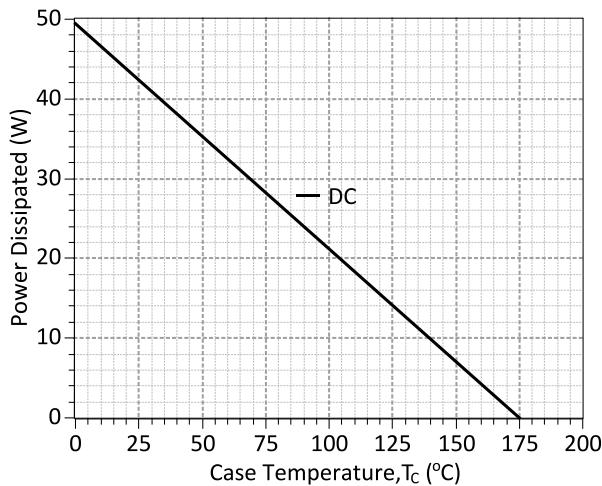
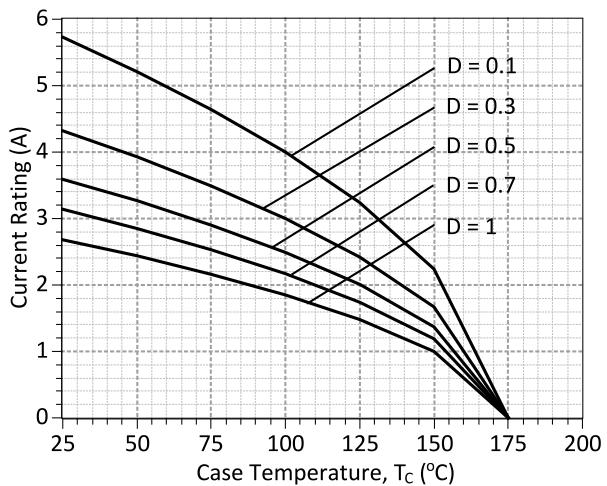
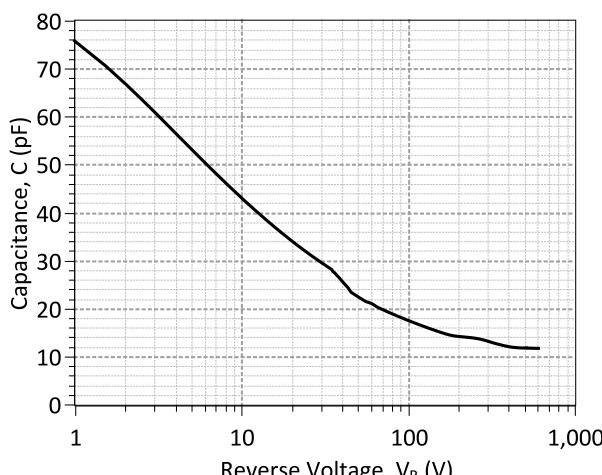
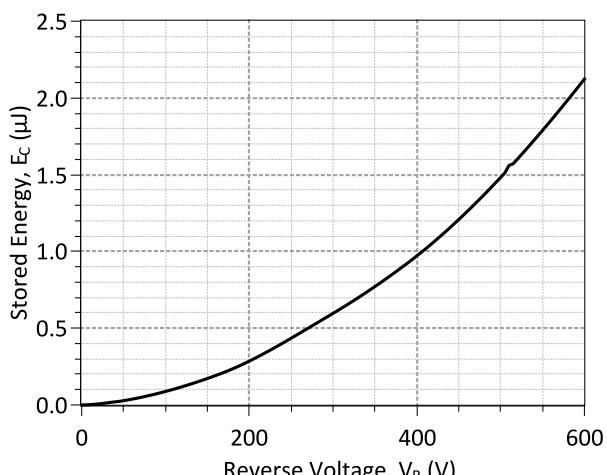
Parameter	Symbol	Conditions	Values	Unit
Repetitive peak reverse voltage	V_{RRM}		650	V
Continuous forward current	I_F	$T_c = 25^\circ C$	2.5	A
Continuous forward current	I_F	$T_c \leq 150^\circ C$	1	A
RMS forward current	$I_{F(RMS)}$	$T_c \leq 150^\circ C$	2	A
Surge non-repetitive forward current, Half Sine Wave	$I_{F,SM}$	$T_c = 25^\circ C, t_p = 10 \text{ ms}$	10	A
Non-repetitive peak forward current	$I_{F,max}$	$T_c = 25^\circ C, t_p = 10 \mu\text{s}$	65	A
I^2t value	$\int I^2 dt$	$T_c = 25^\circ C, t_p = 10 \text{ ms}$	0.5	A^2s
Power dissipation	P_{tot}	$T_c = 25^\circ C$	64	W
Operating and storage temperature	T_j, T_{stg}		-55 to 175	$^\circ C$

Electrical Characteristics at $T_j = 175^\circ C$, unless otherwise specified

Parameter	Symbol	Conditions	Values			Unit
			min.	typ.	max.	
Diode forward voltage	V_F	$I_F = 1 \text{ A}, T_j = 25^\circ C$	1.5	2.0	2.3	V
		$I_F = 1 \text{ A}, T_j = 175^\circ C$	2.3	3.0		
Reverse current	I_R	$V_R = 650 \text{ V}, T_j = 25^\circ C$	1	10	50	μA
		$V_R = 650 \text{ V}, T_j = 175^\circ C$	5			
Total capacitive charge	Q_C	$I_F \leq I_{F,MAX}$	7			nC
Switching time	t_s	$dI_F/dt = 200 \text{ A}/\mu\text{s}$	7			ns
		$T_j = 175^\circ C$	$V_R = 400 \text{ V}$	< 20		
Total capacitance	C	$V_R = 1 \text{ V}, f = 1 \text{ MHz}, T_j = 25^\circ C$	76			pF
		$V_R = 400 \text{ V}, f = 1 \text{ MHz}, T_j = 25^\circ C$	12			

Thermal Characteristics

Thermal resistance, junction - case	R_{thJC}	3.55	$^\circ C/W$
-------------------------------------	------------	------	--------------


Figure 1: Typical Forward Characteristics

Figure 2: Typical Reverse Characteristics

Figure 3: Power Derating Curve

**Figure 4: Current Derating Curves ($D = t_P/T$, $t_P = 400 \mu s$)
(Considering worst case Z_{th} conditions)**

Figure 5: Typical Junction Capacitance vs Reverse Voltage Characteristics

Figure 6: Typical Capacitive Energy vs Reverse Voltage Characteristics

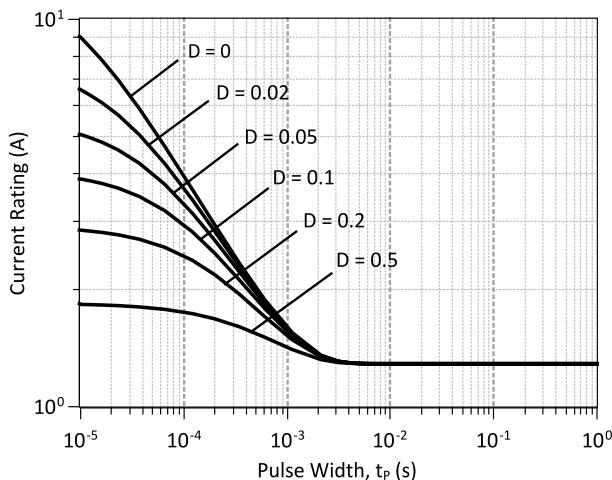


Figure 7: Current vs Pulse Duration Curves at $T_c = 160 \text{ } ^\circ\text{C}$

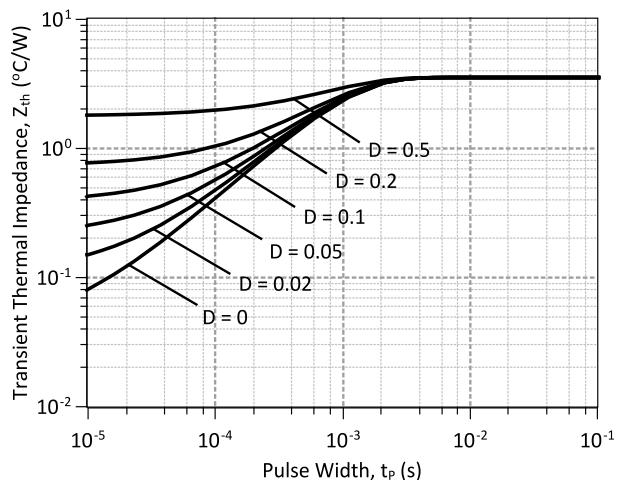
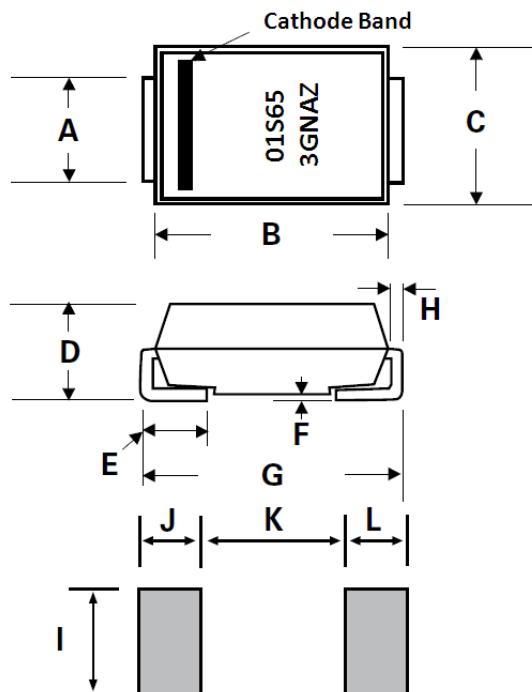


Figure 8: Transient Thermal Impedance

Package Dimensions:

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

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/GB01SLT06-214_SPICE.pdf) into LTSpice (version 4) software for simulation of the GB01SLT06-214.

```
*      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 GB01SLT06-214 SPICE Model  
*  
.SUBCKT GB01SLT06 ANODE KATHODE  
D1 ANODE KATHODE GB01SLT06_25C; Call the Schottky Diode Model  
D2 ANODE KATHODE GB01SLT06_PIN; Call the PiN Diode Model  
.MODEL GB01SLT06_25C D  
+ IS      3.57E-18      RS      0.49751  
+ TRS1    0.0057      TRS2    2.40E-05  
+ N       1      IKF      322  
+ EG      1.2      XTI      3  
+ CJO     9.12E-11      VJ      0.371817384  
+ M       1.527759838      FC      0.5  
+ TT      1.00E-10      BV      650  
+ IBV     1.00E-03      VPK     650  
+ IAVE    1      TYPE    Sic_Schottky  
+ MFG     GeneSiC_Semiconductor  
.MODEL GB01SLT06_PIN D  
+ IS      5.73E-11      RS      0.72994  
+ N       5      IKF      800  
+ EG      3.23      XTI     -14  
+ FC      0.5      TT      0  
+ BV      650      IBV     1.00E-03  
+ VPK     650      IAVE     1  
+ TYPE    Sic_PiN  
.ENDS  
*  
* End of GB01SLT06-214 SPICE Model
```



**Стандарт
Электрон
Связь**

Мы молодая и активно развивающаяся компания в области поставок электронных компонентов. Мы поставляем электронные компоненты отечественного и импортного производства напрямую от производителей и с крупнейших складов мира.

Благодаря сотрудничеству с мировыми поставщиками мы осуществляем комплексные и плановые поставки широчайшего спектра электронных компонентов.

Собственная эффективная логистика и склад в обеспечивает надежную поставку продукции в точно указанные сроки по всей России.

Мы осуществляем техническую поддержку нашим клиентам и предпродажную проверку качества продукции. На все поставляемые продукты мы предоставляем гарантию .

Осуществляем поставки продукции под контролем ВП МО РФ на предприятия военно-промышленного комплекса России , а также работаем в рамках 275 ФЗ с открытием отдельных счетов в уполномоченном банке. Система менеджмента качества компании соответствует требованиям ГОСТ ISO 9001.

Минимальные сроки поставки, гибкие цены, неограниченный ассортимент и индивидуальный подход к клиентам являются основой для выстраивания долгосрочного и эффективного сотрудничества с предприятиями радиоэлектронной промышленности, предприятиями ВПК и научно-исследовательскими институтами России.

С нами вы становитесь еще успешнее!

Наши контакты:

Телефон: +7 812 627 14 35

Электронная почта: sales@st-electron.ru

Адрес: 198099, Санкт-Петербург,
Промышленная ул, дом № 19, литер Н,
помещение 100-Н Офис 331