

BCH65S04D3

Silicon Carbide Schottky Diode

650V, 4A



bestirpower

Description

BCH65S04D3 utilizes Bestirpower's advanced silicon carbide diode technology. This technology combines the benefits of excellent low forward voltage and robustness. Consequently, the family is suitable for application requiring high power efficiency .

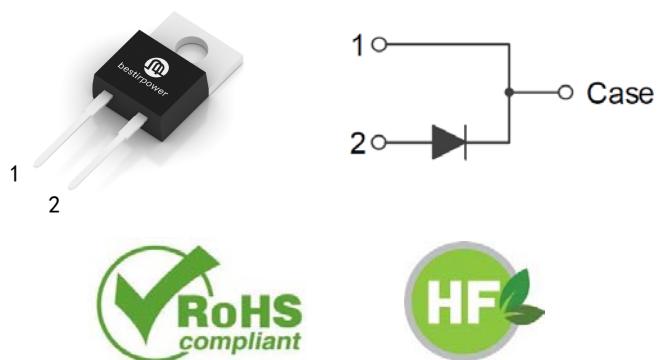
Features

V _{RRM}	I _F	T _C	Q _C
650 V	4 A	154 °C	9.5 nC

- High-speed switching
- Low heat dissipation requirements
- Reduce size and cost of the system
- Reduced EMI
- Higher system reliability due to lower operating temperatures

Applications

- Switch mode power supply
- Solar inverter
- Data Center
- Uninterruptible power supply



Absolute Maximum Ratings (T_C = 25°C unless otherwise noted)

Symbol	Parameter	Value	Unit	
V _{RRM}	Repetitive Peak Reverse Voltage	650	V	
I _F	Forward Current	T _C = 25°C	13	A
		T _C = 135°C	6	A
		T _C = 154°C	4	A
I _{F,SM}	Non-Repetitive Forward Surge Current	T _C = 25°C, t _p = 10 ms	39	A
		T _C = 110°C, t _p = 10 ms	32	A
I _{F,RM}	Repetitive Peak Forward Surge Current	T _C = 25°C, t _p = 10 ms	34	A
I ² dt value	J ² t	T _C = 25°C, t _p = 10 ms	7	A ² s
		T _C = 110°C, t _p = 10 ms	5	A ² s
P _{tot}	Power Dissipation	T _C = 25°C	61	W
		T _C = 110°C	27	W
		T _C = 150°C	10	W
T _J , T _{STG}	Operating Junction and Storage Temperature	-55 to +175	°C	

Thermal Characteristics

Symbol	Parameter	Value	Unit
$R_{\theta JC}$	Thermal Resistance, Junction to Case, Typ.	2.44	°C/W

Electrical Characteristics ($T_C = 25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
V_{DC}	DC blocking voltage		650			V
V_F	Forward Voltage	$I_F=4\text{A}, T_J=25^\circ\text{C}$	-	1.35	1.7	V
		$I_F=4\text{A}, T_J=175^\circ\text{C}$	-	1.7	1.9	
I_R	Reverse Current	$V_R = 650\text{ V}, T_J = 25^\circ\text{C}$	-	1	20	μA
		$V_R = 650\text{ V}, T_J = 175^\circ\text{C}$	-	12	100	
Q_C	Total Capacitive Charge	$V_R = 400\text{ V}, T_J = 25^\circ\text{C}$	-	9.5	-	nC
C	Total Capacitance	$V_R = 0\text{ V}, f = 1\text{MHz}$	-	185	-	pF
		$V_R = 200\text{ V}, f = 1\text{MHz}$	-	19	-	
		$V_R = 400\text{ V}, f = 1\text{MHz}$	-	16.7	-	
E_C	Capacitance Stored Energy	$V_R = 400\text{ V}, T_C = 25^\circ\text{C}$	-	2.4	-	μJ

Typical Performance Characteristics

Figure 1. Forward Characteristics

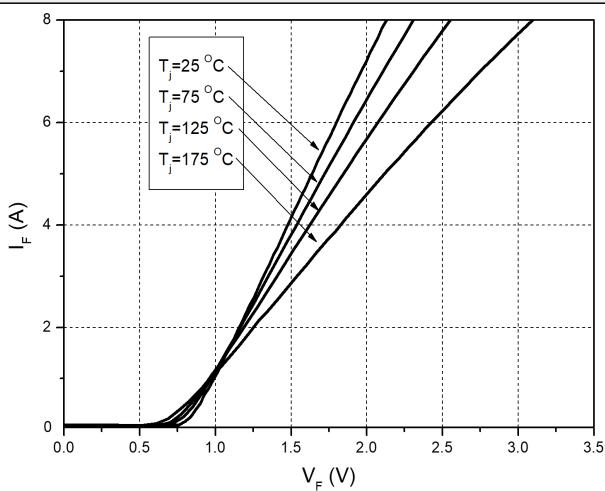


Figure 2. Reverse Characteristics

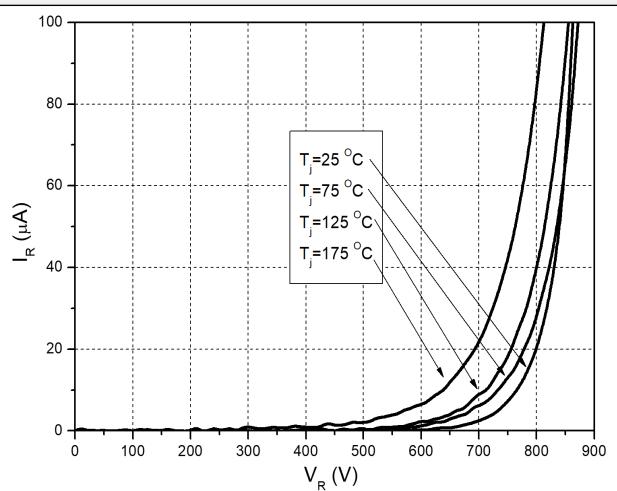


Figure 3. Peak Forward Current Derating

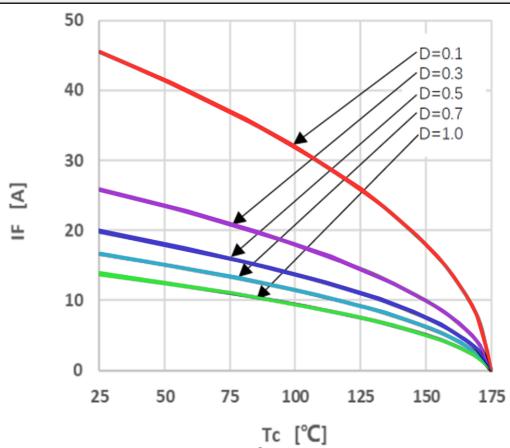


Figure 4. Power Dissipation

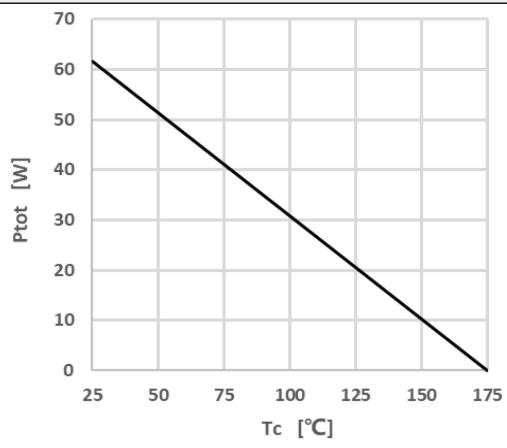


Figure 5. Capacitance vs. Reverse Voltage

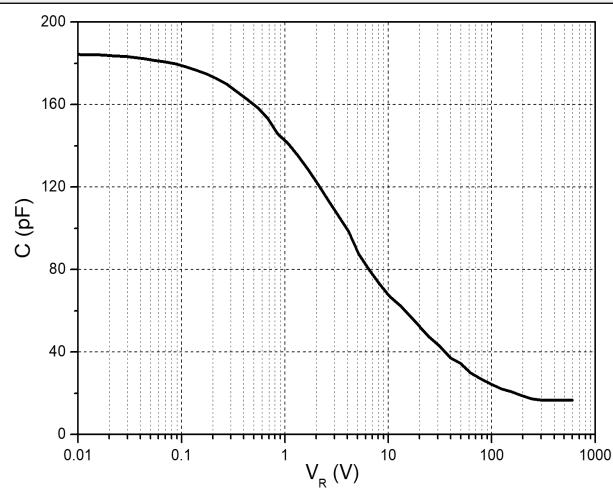
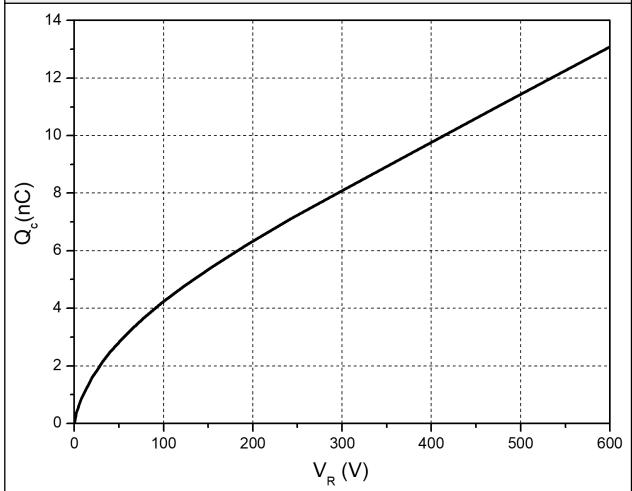
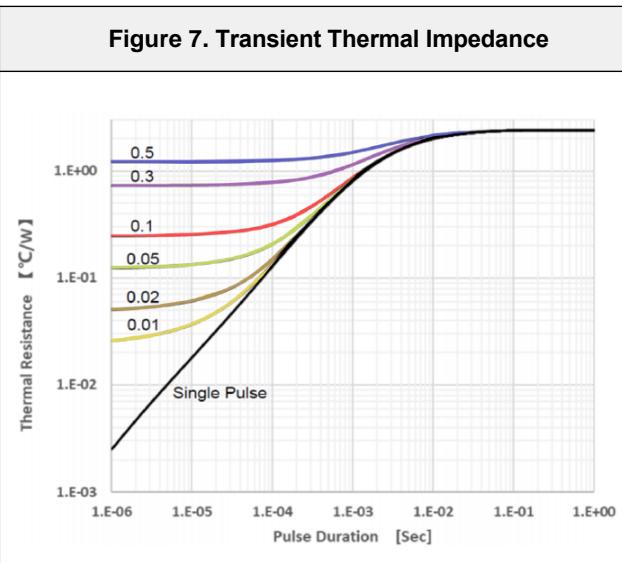


Figure 6. Capacitance Charge vs. Reverse Voltage



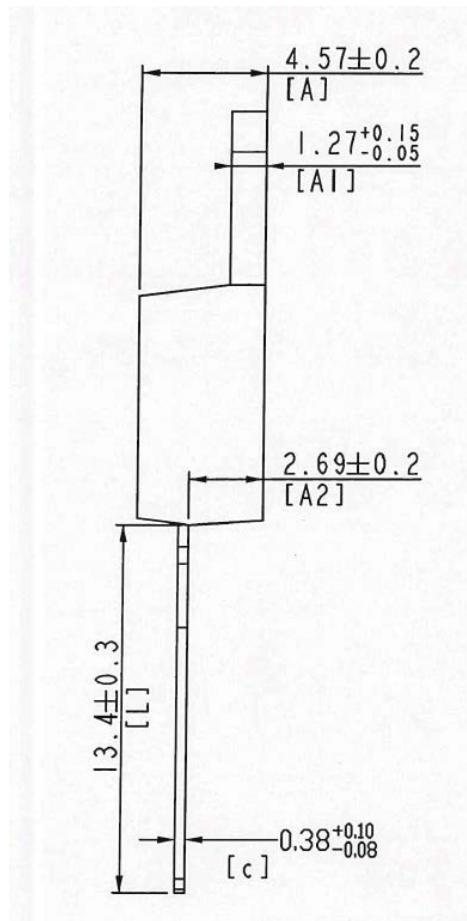
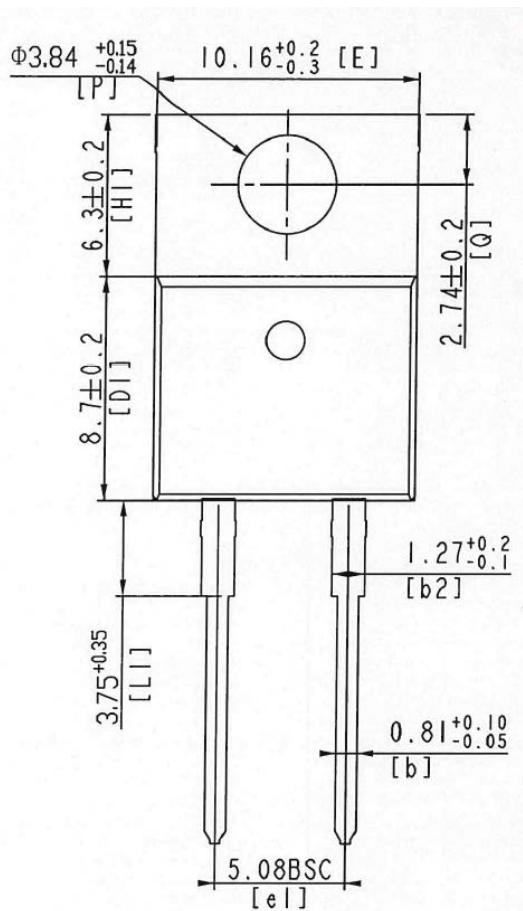
Typical Performance Characteristics

Figure 7. Transient Thermal Impedance



Package Outlines

TO220-2



Package Marking and Ordering Information

Part Number	Top Marking	Package	Packing Method	Quantity
BCH65S04D3	BCH65S04D3	TO220-2	Tube	50 units

Disclaimer

Bestirpower reserve the right to make changes, corrections, enhancements, modifications, and improvements to Bestirpower products and/or to this document at any time without notice.

The information given in this document shall in no event be regarded as a guarantee of conditions or characteristics. Bestirpower does not assume any liability for infringement of patents, copyrights, or other intellectual property rights of third parties by or arising from the use of Products or technical information described in this document.

This document is the property of Bestirpower Co., LTD., and not allowed to copy or transformed to other format if not under the authority approval.

© 2024 bestirpower – All rights reserved