BCM65S04D3

Silicon Carbide Schottky Diode

650V, 4A

Description

BCM65S04D3 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

Benefits

- High frequency
- Low heat dissipation requirements
- Reduce size and cost of the system
- Reduced EMI
- High-reliability

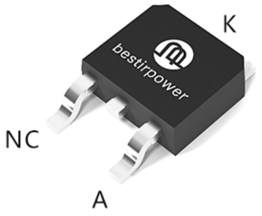
Applications

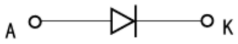
- Power factor correction
- Solar inverter
- Data Center
- Uninterruptible power supply

Features

V_{RRM}	I_F	T_C	Q_C
650 V	**4 A**	**162 ℃**	**9.5 nC**

- Benchmark switching behavior
- No reverse recovery
- Positive Temperature Coefficient
- Easy to paralleling
- RoHS compliant / Halogen-free





Absolute Maximum Ratings (T_C = 25℃ unless otherwise noted)

Symbol	Parameter		Value	Unit
V_{RRM}	Repetitive Peak Reverse Voltage		650	V
I_F	Forward Current	T_C = 25℃	15	A
		T_C = 135℃	7	A
		T_C = 162℃	4	A
$I_{F,SM}$	Non-Repetitive Forward Surge Current	T_C = 25℃, t_p = 10 ms	42	A
		T_C = 110℃, t_p = 10 ms	33	A
$I_{F,RM}$	Repetitive Peak Forward Surge Current	T_C = 25℃, tp = 10 ms	37	A
I^2dt value	$\int I^2t$	T_C = 25℃, t_p = 10 ms	8	A^2s
		T_C = 110℃, t_p = 10 ms	5	A^2s
P_{tot}	Power Dissipation	T_C = 25℃	84	W
		T_C = 110℃	37	W
		T_C = 150℃	14	W
T_J,T_{STG}	Operating Junction and Storage Temperature		-55 to +175	℃

Thermal Characteristics

Symbol	Parameter	Value	Unit
$R_{\theta JC}$	Thermal Resistance, Junction to Case, Typ.	1.77	℃/W

Electrical Characteristics (T$_C$ = 25℃ unless otherwise noted)

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

Package Marking and Ordering Information

Part Number	Top Marking	Package	Packing Method	Reel Size	Tape Width	Quantity
BCM65S04D3	BCM65S04D3	TO252NC	Tape & Reel	330 mm	16 mm	2500 units

Typical Performance Characteristics

Figure 1. Forward Characteristics

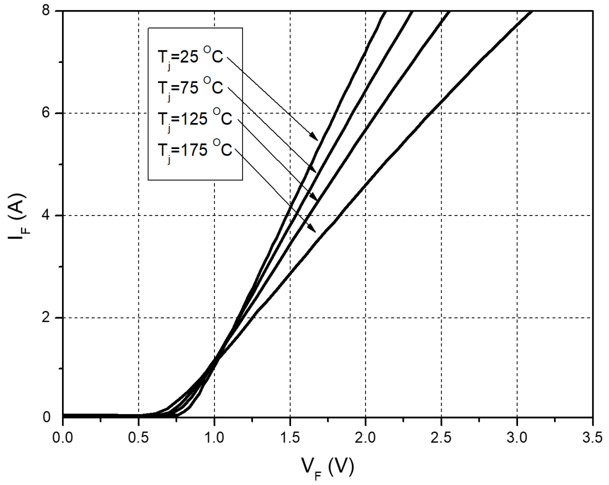


Figure 2. Reverse Characteristics

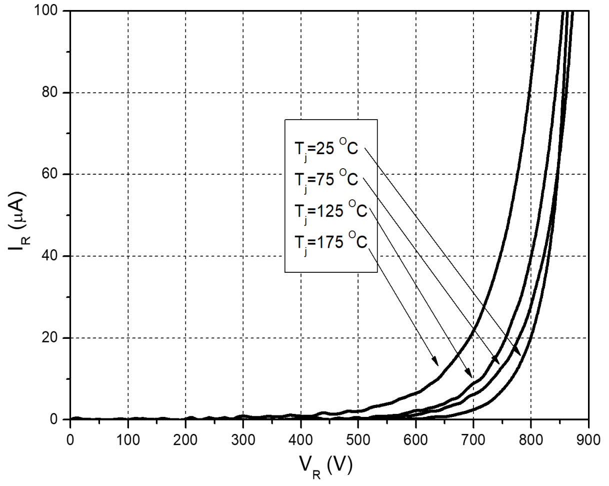


Figure 3. Peak Forward Current Derating

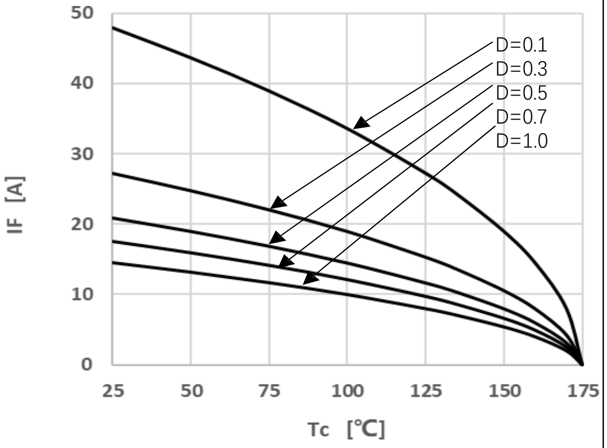


Figure 4. Power Dissipation

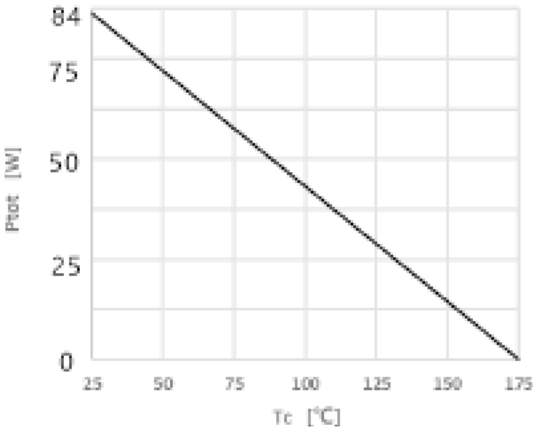


Figure 5. Capacitance vs. Reverse Voltage

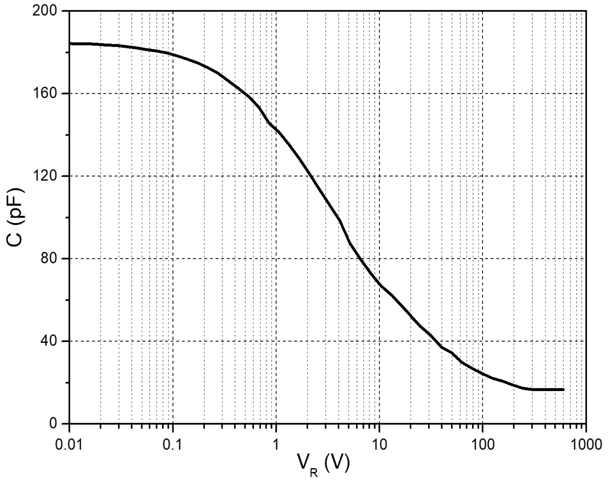
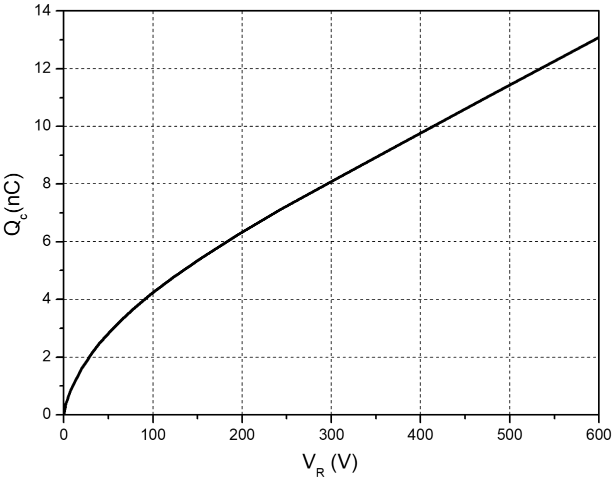
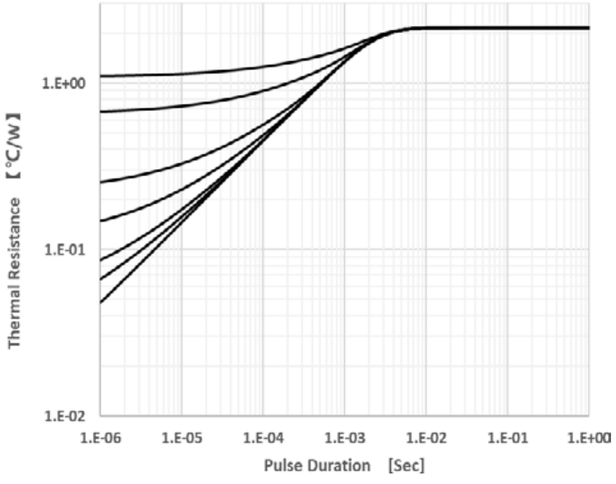


Figure 6. Capacitance Charge vs. Reverse Voltage



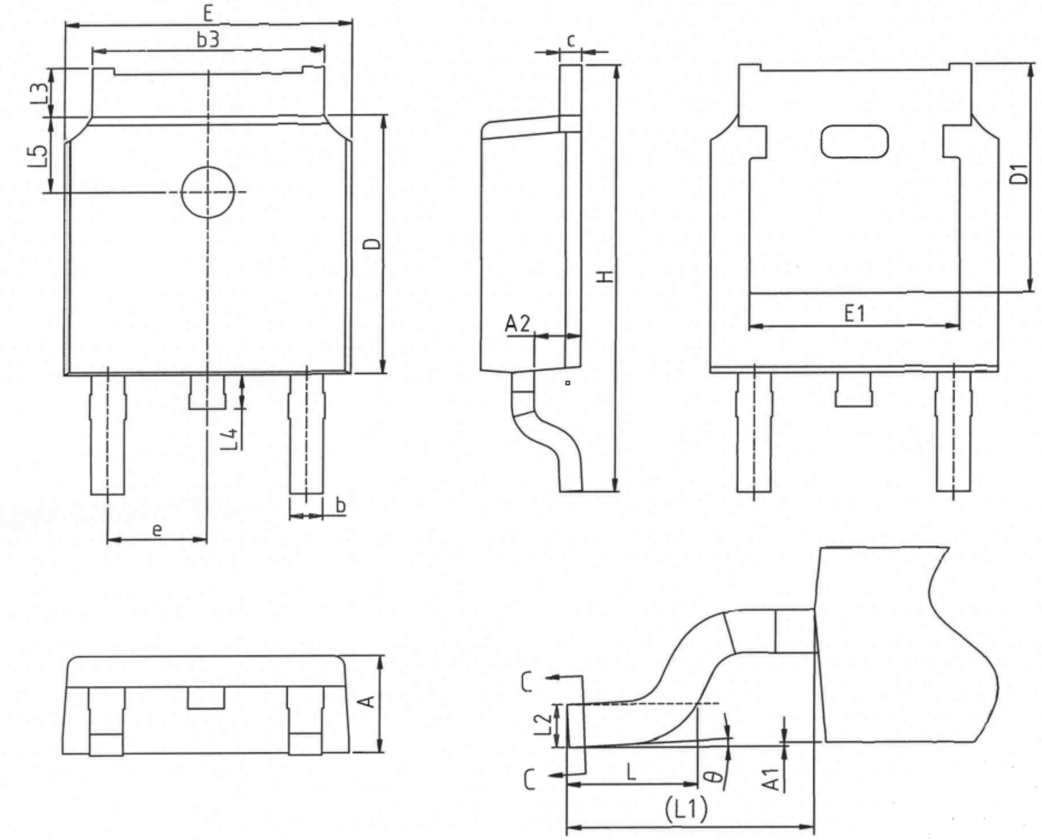
Typical Performance Characteristics

Figure 7. Transient Thermal Impedance

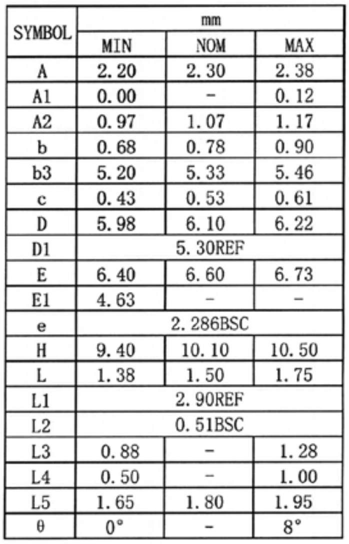


Package Outlines

TO252NC



COMMON DIMENSIONS



SYMBOL	mm		
	MIN	NOM	MAX
A	2.20	2.30	2.38
A1	0.00	–	0.12
A2	0.97	1.07	1.17
b	0.68	0.78	0.90
b3	5.20	5.33	5.46
c	0.43	0.53	0.61
D	5.98	6.10	6.22
D1	5.30REF		
E	6.40	6.60	6.73
E1	4.63	–	–
e	2.286BSC		
H	9.40	10.10	10.50
L	1.38	1.50	1.75
L1	2.90REF		
L2	0.51BSC		
L3	0.88	–	1.28
L4	0.50	–	1.00
L5	1.65	1.80	1.95
θ	0°	–	8°

* Dimensions in millimeters

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.