

# BCM65S06D3

## Silicon Carbide Schottky Diode

650V, 6A



bestirpower

### Description

BCM65S06D3 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
- High-reliability

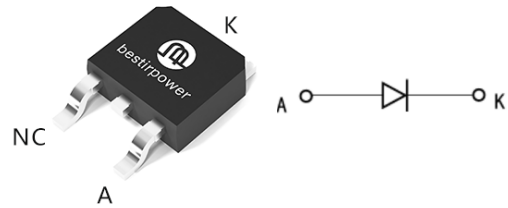
### Applications

- SMPS
- Solar inverter
- Data Center
- Uninterruptible power supply

### Features

$V_{RRM}$	$I_F$	$T_C$	$Q_C$
650 V	6 A	157°C	19 nC

- Negligible reverse recovery
- High Surge current
- Positive Temperature Coefficient
- Higher frequency
- RoHS compliant / Halogen-free



### Absolute Maximum Ratings ( $T_C = 25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Value	Unit
$V_{RRM}$	Repetitive Peak Reverse Voltage	650	V
$I_F$	Forward Current	$T_C = 25^\circ\text{C}$	19 A
		$T_C = 135^\circ\text{C}$	9 A
		$T_C = 157^\circ\text{C}$	6 A
$I_{F,SM}$	Non-Repetitive Forward Surge Current	$T_C = 25^\circ\text{C}, t_p = 10 \text{ ms}$	49 A
		$T_C = 110^\circ\text{C}, t_p = 10 \text{ ms}$	43 A
$I_{F,RM}$	Repetitive Peak Forward Surge Current	$T_C = 25^\circ\text{C}, t_p = 10 \text{ ms}$	38 A
$I^2dt$ value	$\int I^2 dt$	$T_C = 25^\circ\text{C}, t_p = 10 \text{ ms}$	13 A <sup>2</sup> s
		$T_C = 110^\circ\text{C}, t_p = 10 \text{ ms}$	10 A <sup>2</sup> s
$P_{tot}$	Power Dissipation	$T_C = 25^\circ\text{C}$	85 W
		$T_C = 110^\circ\text{C}$	37 W
		$T_C = 150^\circ\text{C}$	14 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.	1.77	$^{\circ}C/W$

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

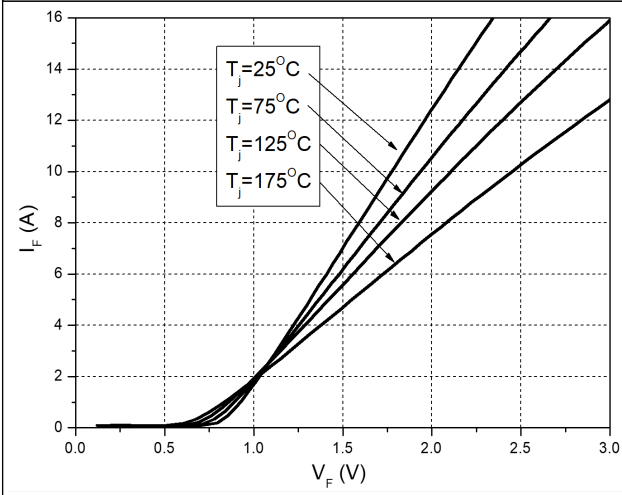
Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
$V_{DC}$	DC blocking voltage		650			V
$V_F$	Forward Voltage	$I_F=6A, T_J=25^{\circ}C$	-	1.4	1.7	V
		$I_F=6A, T_J=175^{\circ}C$	-	1.7	-	
$I_R$	Reverse Current	$V_R = 650 V, T_J = 25^{\circ}C$	-	2	20	$\mu A$
		$V_R = 650 V, T_J = 175^{\circ}C$	-	40	-	
$Q_C$	Total Capacitive Charge	$V_R = 400 V, T_J = 25^{\circ}C$	-	19	-	nC
C	Total Capacitance	$V_R = 0 V, f = 1MHz$	-	386	-	pF
		$V_R = 200 V, f = 1MHz$	-	37	-	
		$V_R = 400 V, f = 1MHz$	-	29	-	
$E_C$	Capacitance Stored Energy	$V_R = 400 V, T_C = 25^{\circ}C$	-	5.0	-	$\mu J$

## Package Marking and Ordering Information

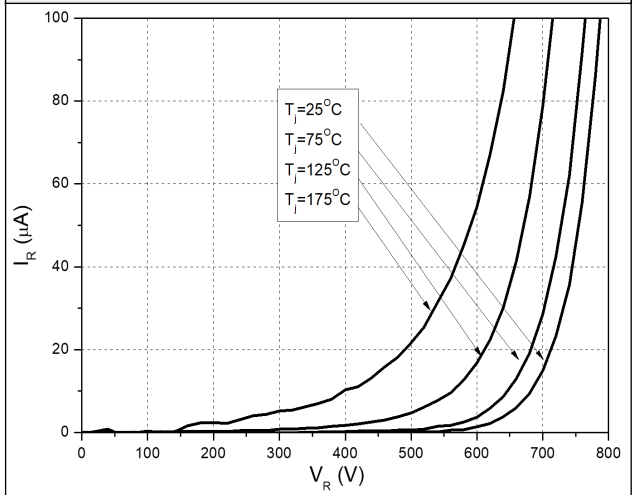
Part Number	Top Marking	Package	Packing Method	Quantity
BCM65S06D3	BCM65S06D3	D-Pak	Tape & Reel	2500 units

## Typical Performance Characteristics

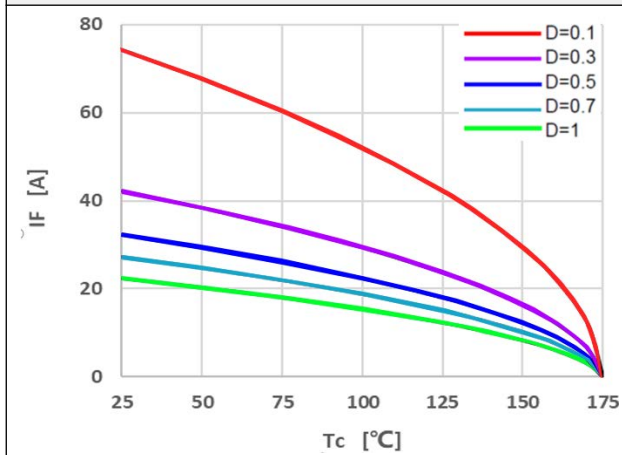
**Figure 1. Forward Characteristics**



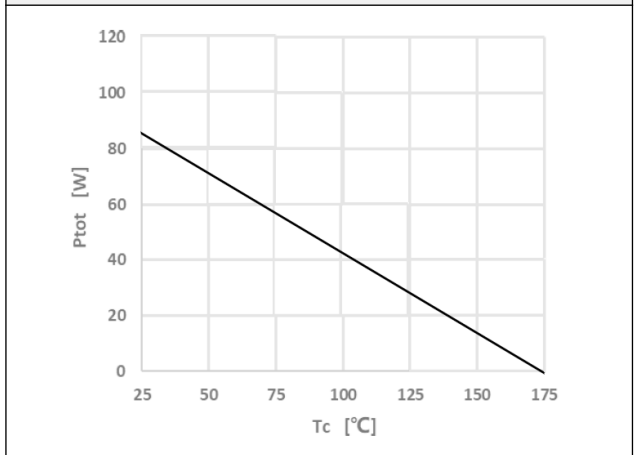
**Figure 2. Reverse Characteristics**



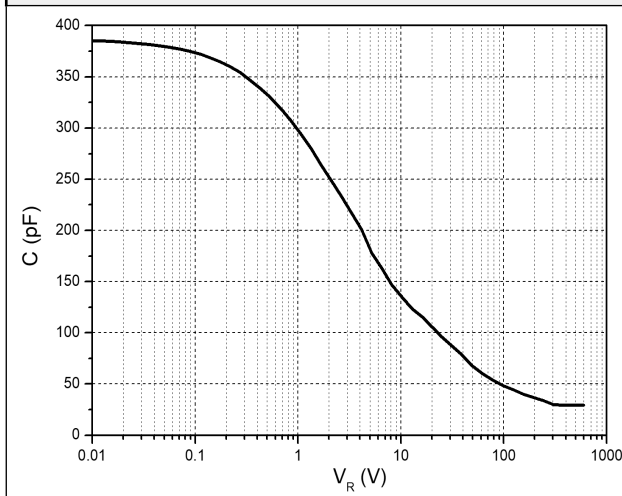
**Figure 3. Peak Forward Current Derating**



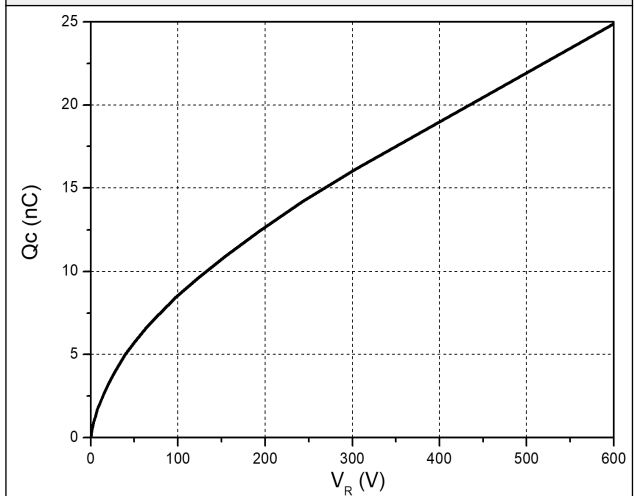
**Figure 4. Power Dissipation**



**Figure 5. Capacitance vs. Reverse Voltage**

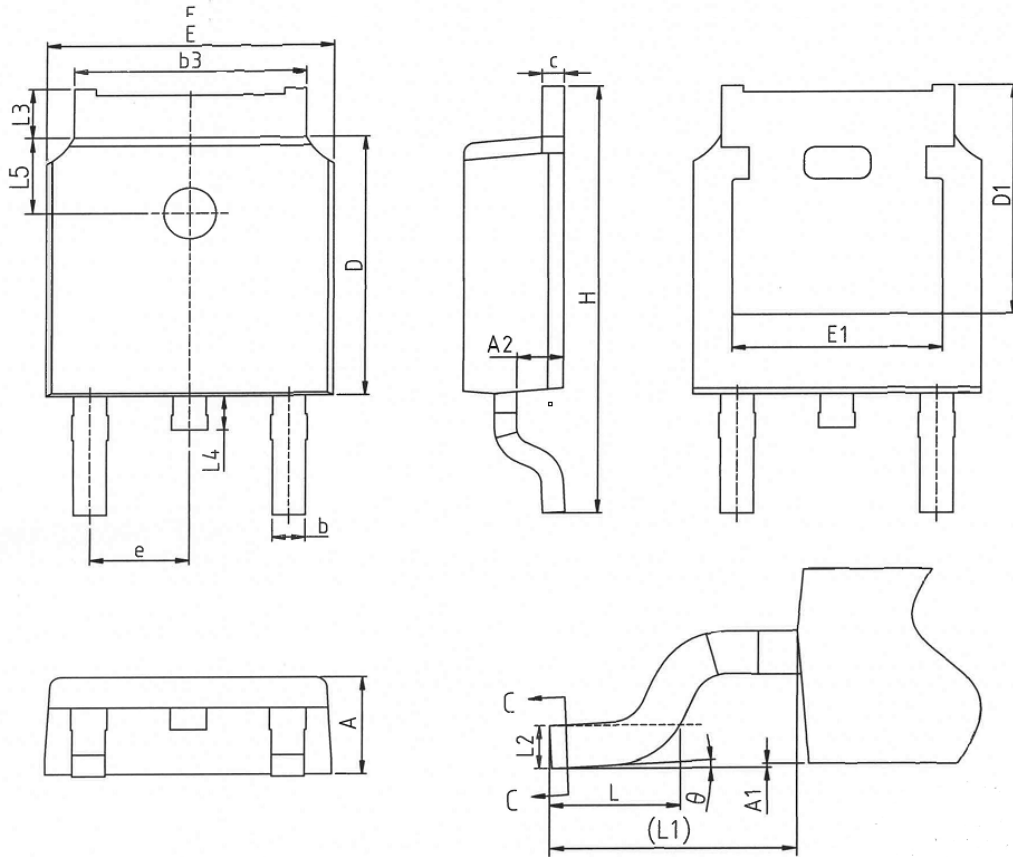


**Figure 6. Capacitance Charge vs. Reverse Voltage**



Package Outlines

D-Pak



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

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