



# BCH65S08D3

## Silicon Carbide Schottky Diode

650V, 8A

### Description

BCH65S08D3 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

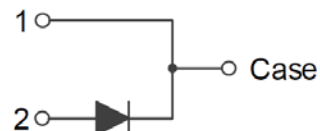
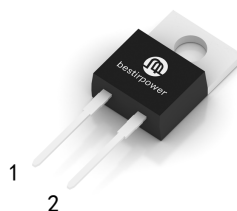
### Applications

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

### Features

$V_{RRM}$	$I_F$	$T_C$	$Q_C$
650 V	8 A	154 °C	22 nC

- Negligible reverse recovery
- High-speed switching
- Positive Temperature Coefficient
- Temperature-Independent Switching
- RoHS compliant



### Absolute Maximum Ratings (T<sub>C</sub> = 25°C unless otherwise noted)

Symbol	Parameter	Value	Unit	
$V_{RRM}$	Repetitive Peak Reverse Voltage	650	V	
$I_F$	Forward Current	$T_C = 25^\circ C$	25	A
		$T_C = 135^\circ C$	11	A
		$T_C = 154^\circ C$	8	A
$I_{F,SM}$	Non-Repetitive Forward Surge Current	$T_C = 25^\circ C, t_p = 10\text{ ms}$	76	A
		$T_C = 110^\circ C, t_p = 10\text{ ms}$	68	A
$I_{F,RM}$	Repetitive Peak Forward Surge Current	$T_C = 25^\circ C, t_p = 10\text{ ms}$	67	A
$I^2dt$ value	$\int I^2 dt$	$T_C = 25^\circ C, t_p = 10\text{ ms}$	32	A <sup>2</sup> s
		$T_C = 110^\circ C, t_p = 10\text{ ms}$	28	A <sup>2</sup> s
$P_{tot}$	Power Dissipation	$T_C = 25^\circ C$	100	W
		$T_C = 110^\circ C$	43	W
		$T_C = 150^\circ C$	16	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.	1.495	°C/W

## Electrical Characteristics (T<sub>C</sub> = 25°C unless otherwise noted)

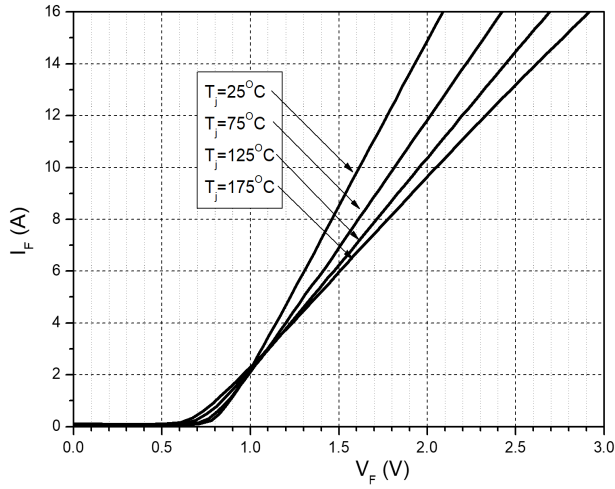
Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
V <sub>DC</sub>	DC blocking voltage		650	-	-	V
V <sub>F</sub>	Forward Voltage	I <sub>F</sub> =8A, T <sub>J</sub> =25°C	-	1.45	1.7	V
		I <sub>F</sub> =8A, T <sub>J</sub> =175°C	-	1.75	-	
I <sub>R</sub>	Reverse Current	V <sub>R</sub> = 650 V, T <sub>J</sub> = 25°C	-	2	20	μA
		V <sub>R</sub> = 650 V, T <sub>J</sub> = 175°C	-	40	-	
Q <sub>C</sub>	Total Capacitive Charge	V <sub>R</sub> = 400 V, T <sub>J</sub> = 25°C	-	22	-	nC
C	Total Capacitance	V <sub>R</sub> = 0 V, f = 1MHz	-	440	-	pF
		V <sub>R</sub> = 200 V, f = 1MHz	-	44	-	
		V <sub>R</sub> = 400 V, f = 1MHz	-	38	-	
E <sub>C</sub>	Capacitance Stored Energy	V <sub>R</sub> = 400 V, T <sub>C</sub> = 25°C	-	5.8	-	μJ

## Package Marking and Ordering Information

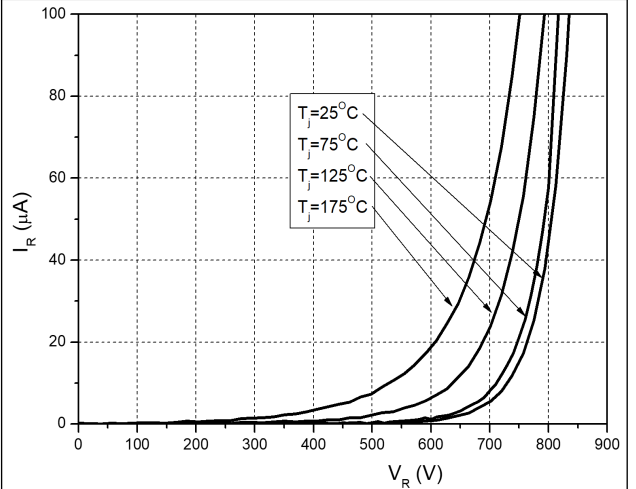
Part Number	Top Marking	Package	Packing Method	Quantity
BCH65S08D3	BCH65S08D3	TO220-2	Tube	50 units

### Typical Performance Characteristics

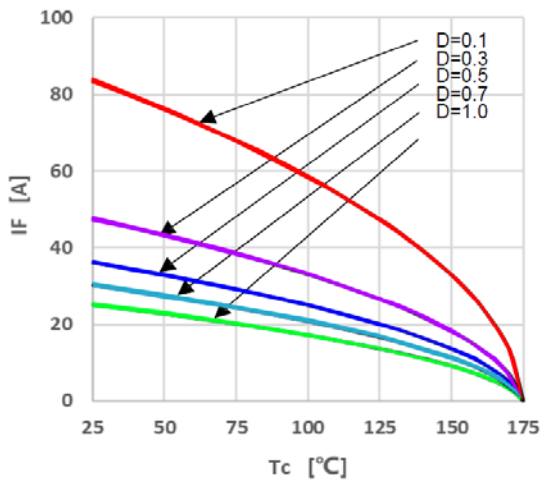
**Figure 1. Forward Characteristics**



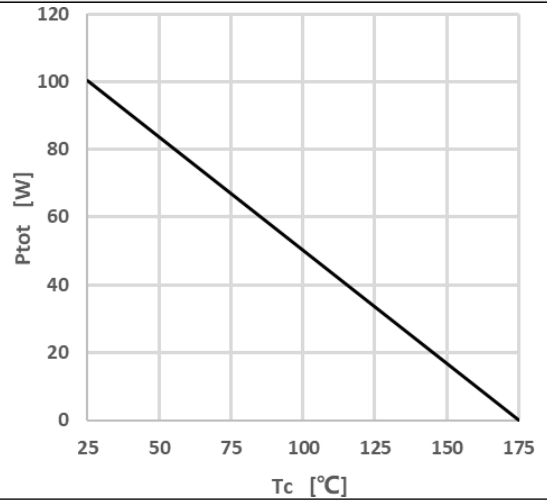
**Figure 2. Reverse Characteristics**



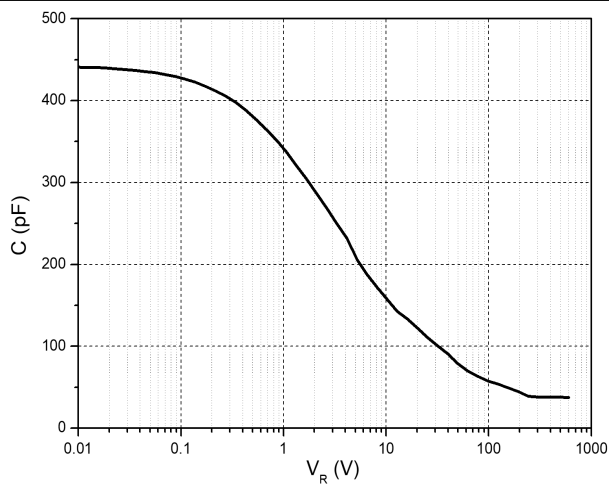
**Figure 3. Peak Forward Current Derating**



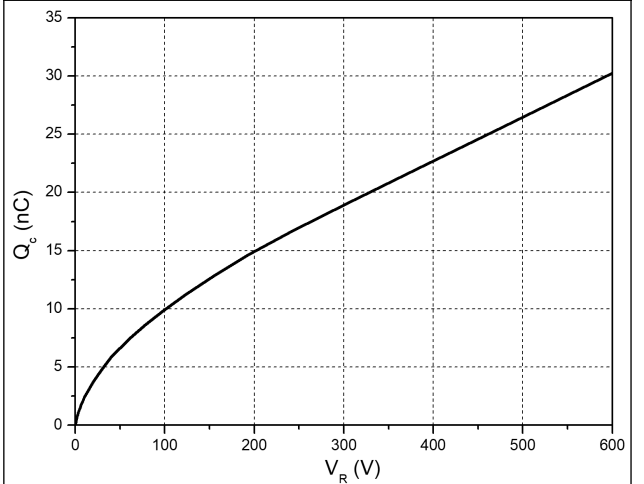
**Figure 4. Power Dissipation**



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

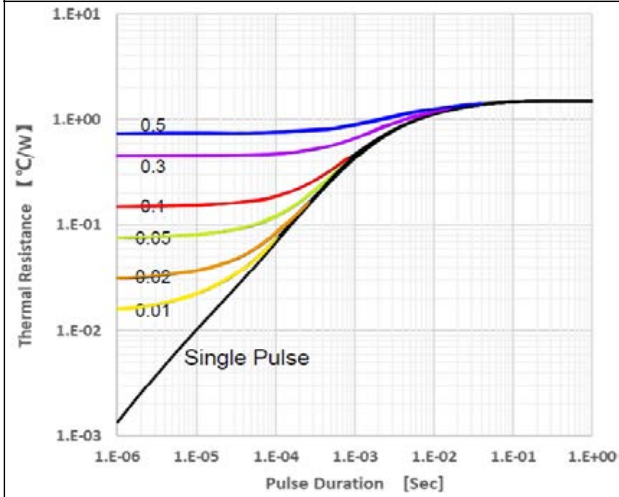


**Figure 6. Capacitance Charge vs. Reverse Voltage**

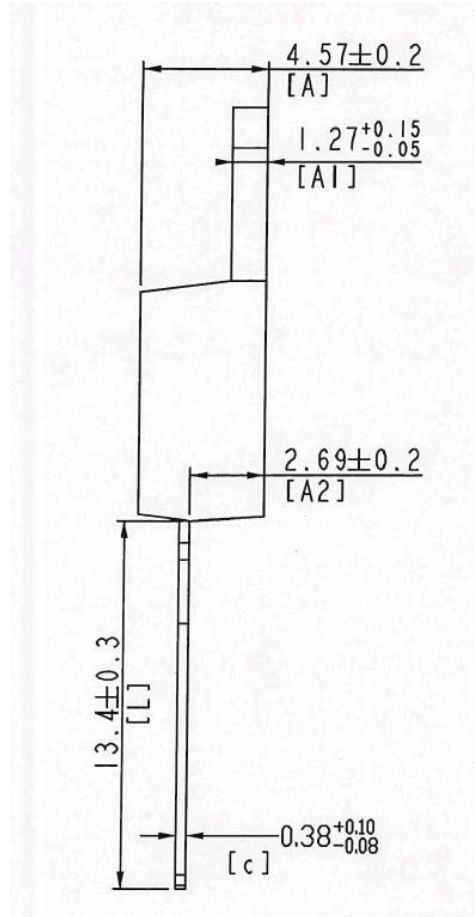
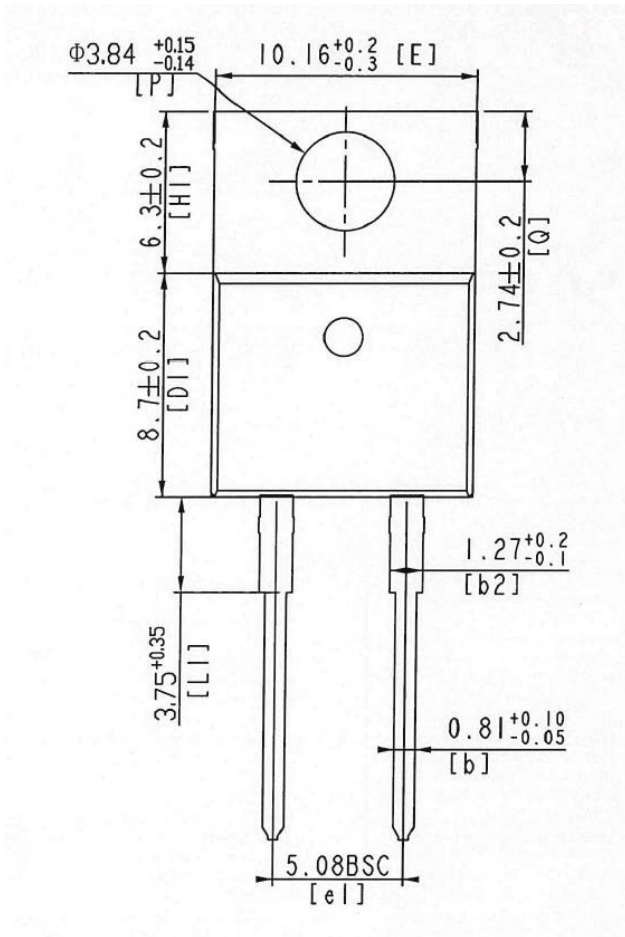


### Typical Performance Characteristics

Figure 7. Transient Thermal Impedance



## Package Outlines TO220-2



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