



BCF65S08D3

650V, 8A

Key Features

BCF65S08D3 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

Advantages

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

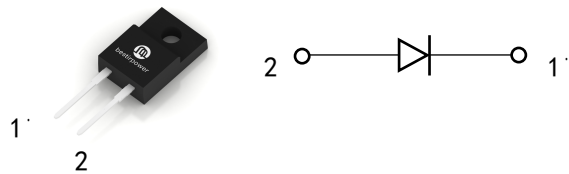
Applications

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

Key Parameters

J_{FFA}	=	H_c	E_7
*) \$ J	, '5	148'	&2'b7

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



Electrical Characteristics (T_C = 25°C unless otherwise noted)

Symbol	Parameter	Value	Unit	
V_{RRM}	Repetitive Peak Reverse Voltage	650	V	
I_F	Forward Current	$T_C = 25^\circ C$	25	A
		$T_C = 135^\circ C$	11	A
		$T_C = 148^\circ C$	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^2t value	$\int I^2t$	$T_C = 25^\circ C, t_p = 10 \text{ ms}$	32	A ² s
		$T_C = 110^\circ C, t_p = 10 \text{ ms}$	28	A ² 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
$R_{\theta C}$	Thermal Resistance, Junction to Case, Typ.	1.93	$^{\circ}\text{C}/\text{W}$

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	$I_F=8\text{A}, T_J=25^{\circ}\text{C}$	-	1.45	1.7	V
		$I_F=8\text{A}, T_J=175^{\circ}\text{C}$	-	1.75	-	
I_R	Reverse Current	$V_R = 650\text{ V}, T_J = 25^{\circ}\text{C}$	-	2	20	μA
		$V_R = 650\text{ V}, T_J = 175^{\circ}\text{C}$	-	40	-	
Q_C	Total Capacitive Charge	$V_R = 400\text{ V}, T_J = 25^{\circ}\text{C}$	-	22	-	nC
C	Total Capacitance	$V_R = 0\text{ V}, f = 1\text{MHz}$	-	440	-	pF
		$V_R = 200\text{ V}, f = 1\text{MHz}$	-	44	-	
		$V_R = 400\text{ V}, f = 1\text{MHz}$	-	38	-	
E_C	Capacitance Stored Energy	$V_R = 400\text{ V}, T_C = 25^{\circ}\text{C}$	-	5.8	-	μJ

Typical Performance Characteristics

Figure 1. Forward Characteristics

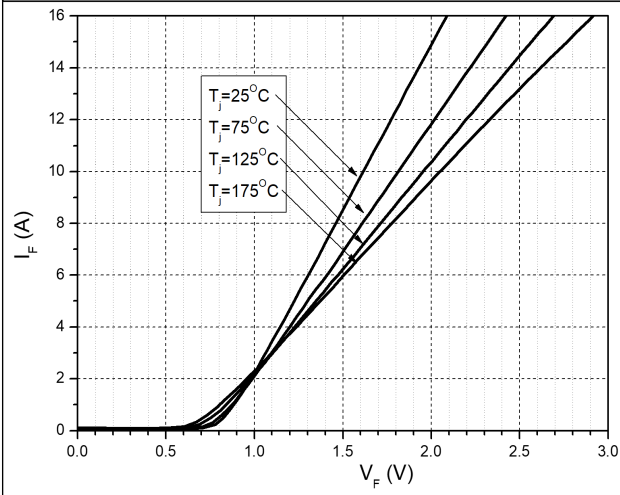


Figure 2. Reverse Characteristics

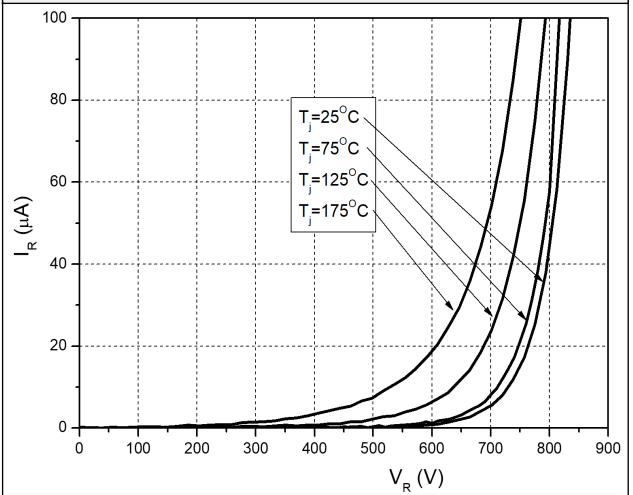


Figure 3. Peak Forward Current Derating

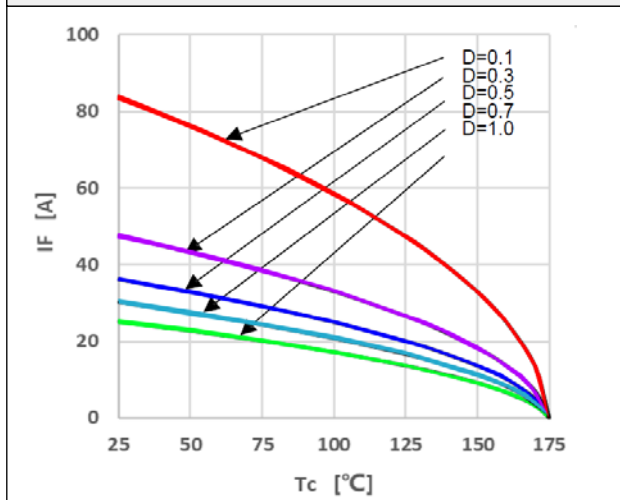


Figure 4. Power Dissipation

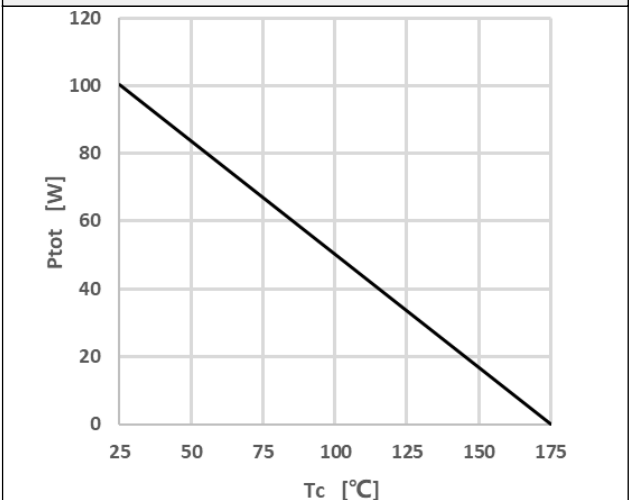


Figure 5. Capacitance vs. Reverse Voltage

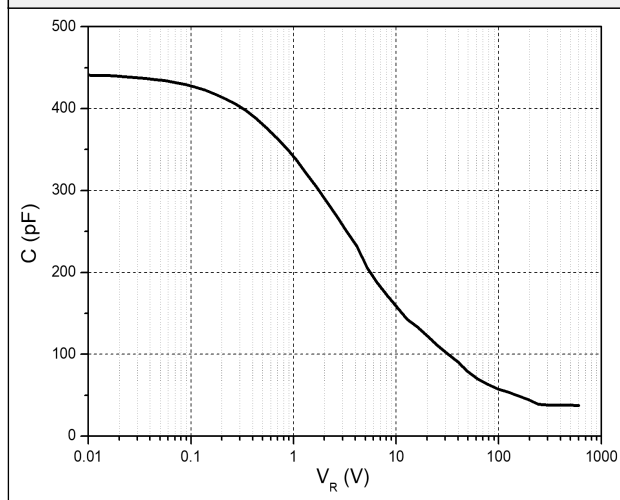
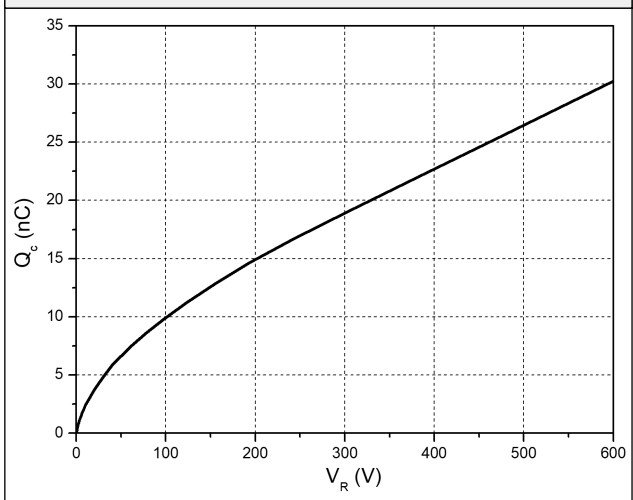
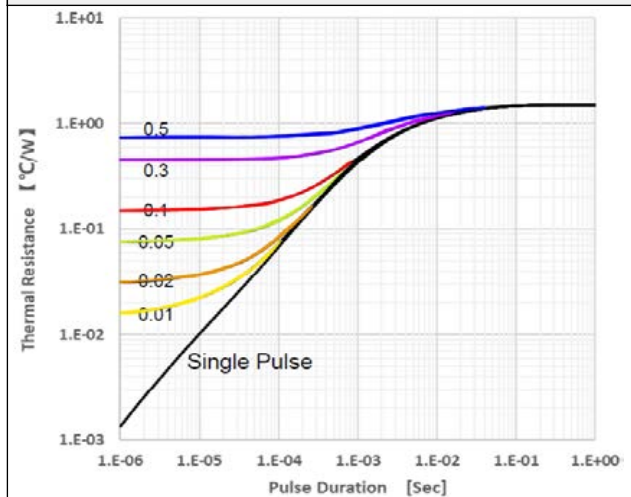


Figure 6. Capacitance Charge vs. Reverse Voltage



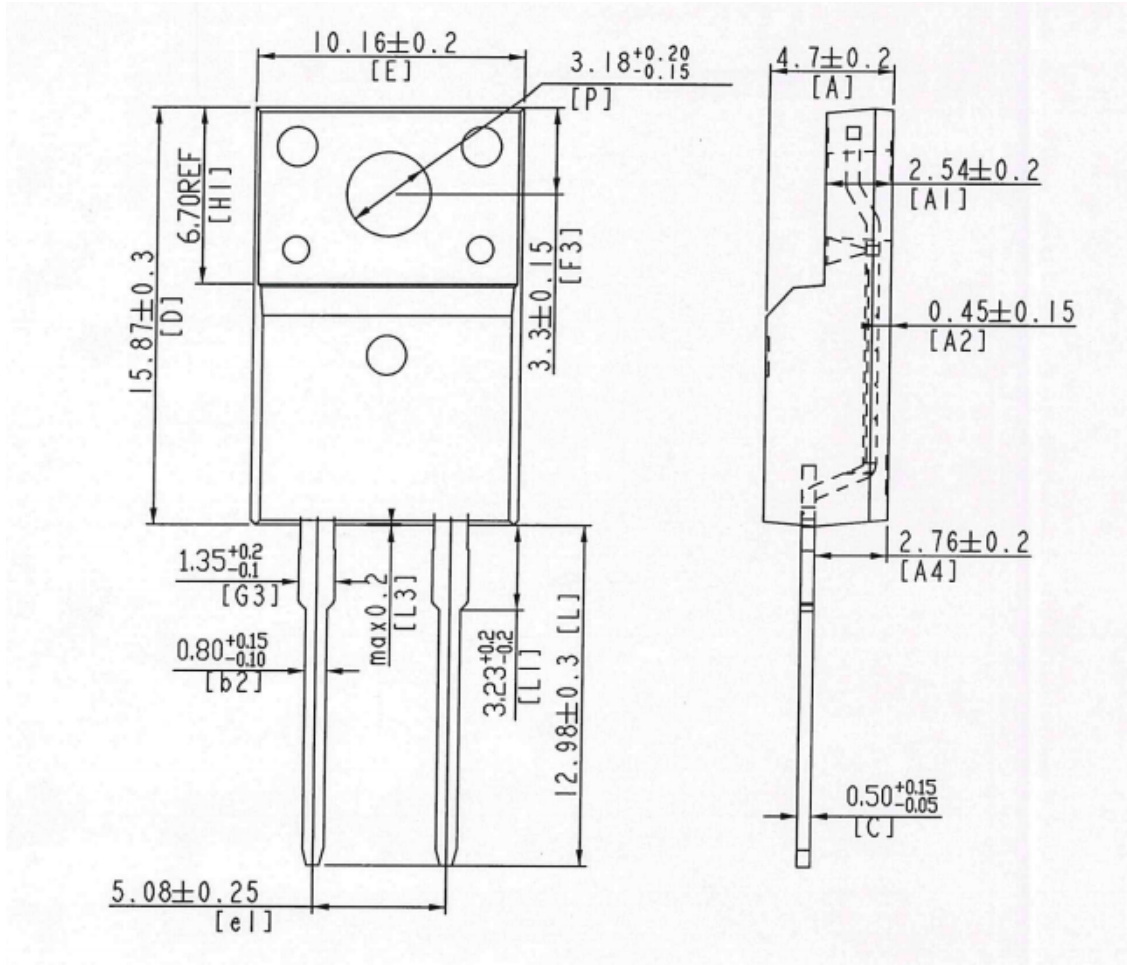
Typical Performance Characteristics

Figure 7. Transient Thermal Impedance



Package Outlines

TO220F-2



Package Marking and Ordering Information

Part Number	Top Marking	Package	Packing Method	Quantity
BCF65S08D3	BCF65S08D3	TO220F-2	Tube	50 units

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