BCL65S10D3

Silicon Carbide Schottky Diode

650V, 10A

bestirpower

Description

BCL65S10D3 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	10 A	148 ℃	28 nC

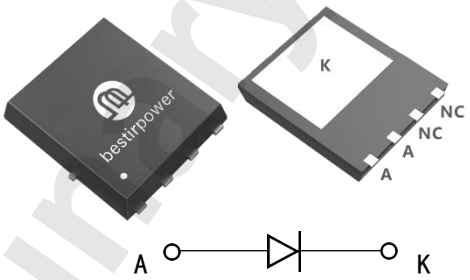
- Negligible reverse recovery
- High-speed switching
- Temperature independent switching behavior
- Higher frequency
- RoHS compliant / Halogen-free

Benefits

- System efficiency improvement over Si diodes
- Low heat dissipation requirements
- Reduce size and cost of the system
- High-reliability

Applications

- Switch mode power supply
- Power factor correction
- Data Center
- Uninterruptible power supply



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

Symbol	Parameter		Value	Unit
V_{RRM}	Repetitive Peak Reverse Voltage		1200	V
I_F	Forward Current	T_C = 25℃	27	A
		T_C = 124℃	19	A
		T_C = 148℃	10	A
$I_{F,SM}$	Non-Repetitive Forward Surge Current	T_C = 25℃, t_p = 10 ms	64	A
		T_C = 110℃, t_p = 10 ms	51	A
$I_{F,RM}$	Repetitive Peak Forward Surge Current	Tc = 25℃, tp = 10 ms	55	A
		T_C = 110℃, t_p = 10 ms	45	A
I^2dt value	$\int I^2dt$	T_C = 25℃, t_p = 10 ms	20	A^2S
		T_C = 110℃, t_p = 10 ms	15	A^2S
P_{tot}	Power Dissipation	T_C = 25℃	97	W
		T_C = 110℃	42	W
		T_C = 150℃	16	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.	1.54	℃/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=10A，T_J=25℃	-	1.45	1.7	V
		I_F=10A，T_J=175℃	-	1.75	2.0	
I_R	Reverse Current	V_R = 650 V, T_J = 25℃	-	2	20	μA
		V_R = 650 V, T_J = 175℃	-	40	200	
Q_C	Total Capacitive Charge	V_R = 400 V, T_J = 25℃	-	28	-	nC
C	Total Capacitance	V_R = 0 V, f = 1MHz	-	550	-	pF
		V_R = 200 V, f = 1MHz	-	53	-	
		V_R = 400 V, f = 1MHz	-	48	-	
E_C	Capacitance Stored Energy	V_R = 400 V, T_C = 25℃	-	7.0	-	μJ

Package Marking and Ordering Information

Part Number	Top Marking	Package	Packing Method	Quantity
BCL65S10D3	BCL65S10D3	DFN8*8	Tape & Reel	5000 units

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Typical Performance Characteristics

Figure 1. Forward Characteristics

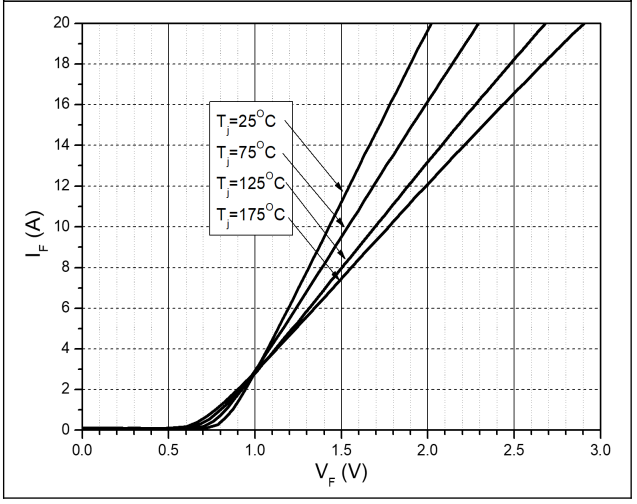


Figure 2. Reverse Characteristics

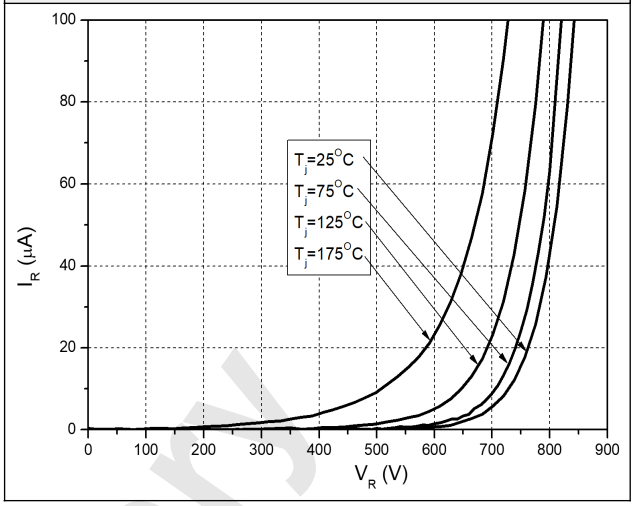


Figure 3. Capacitance vs. Reverse Voltage

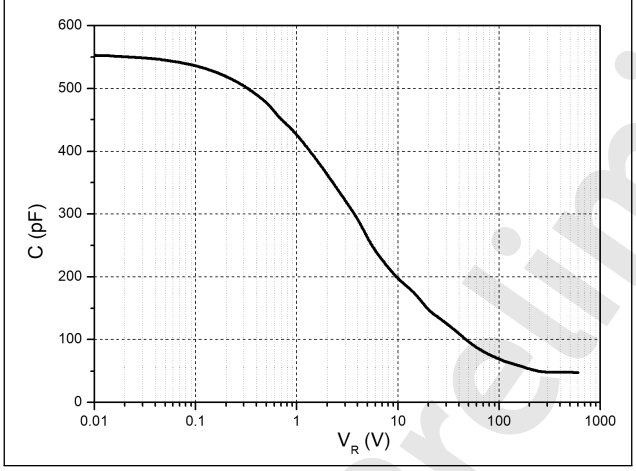
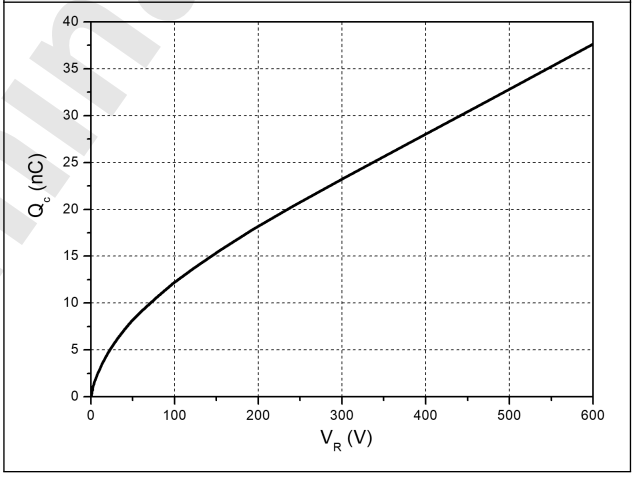


Figure 4. Capacitance Charge vs. Reverse Voltage



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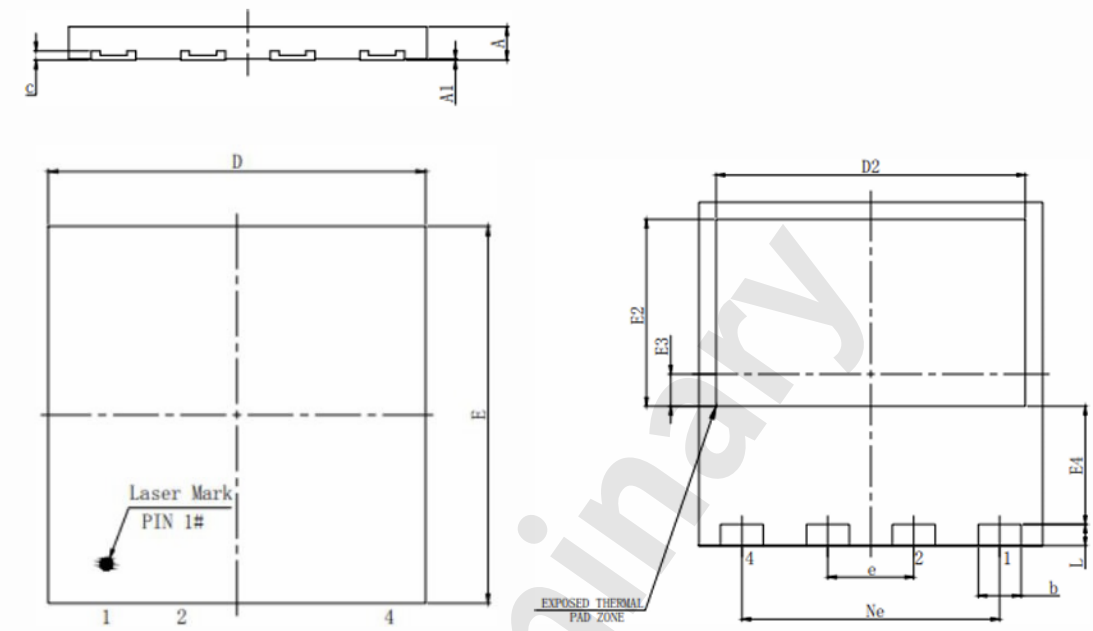
Package Outlines

DFN 8*8



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Symbol	Dimensions In Millimeters		
	Min	Nom	Max
D	7.90	8.00	8.10
E	7.90	8.00	8.10
D2	7.10	7.20	7.30
E2	4.25	4.35	4.45
e		2. 00BSC	
E3		0.75REF	
E4		2.75REF	
Ne		6.00BSC	
b	0.95	1.00	1.05
A	0.70	0.75	0.80
c		0.203REF	
A1	0	/	0.050
L	0.40	0.50	0.55

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