

BCA120S100D3

Silicon Carbide Schottky Diode

1200V, 100A



bestirpower

Description

BCA120S100D3 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

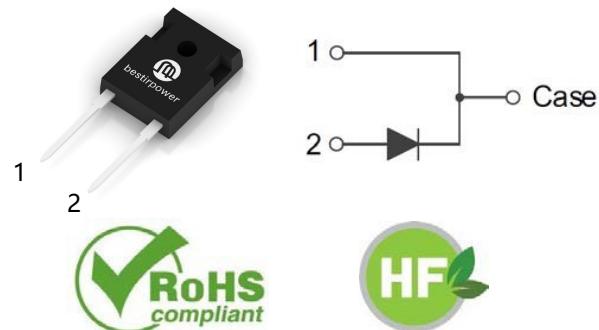
Applications

- Solar inverter, UPS
- EV charging station
- Power Factor Correction

Features

V _{RRM}	I _F	T _c	Q _c
1200 V	100 A	125 °C	46 nC

- No reverse recovery current
- Low forward voltage
- 175°C Max junction temperature
- High surge current capability
- Switching behavior independent of temperature
- Halogen Free and RoHS compliant



Absolute Maximum Ratings (T_c = 25°C unless otherwise noted)

Symbol	Parameter		Value	Unit
V _{RRM}	Repetitive Peak Reverse Voltage		1200	V
I _F	Forward Current	T _c = 25°C	173	A
		T _c = 125°C	100	A
I _{F,SM}	Non-Repetitive Forward Surge Current	T _c = 25°C, t _p = 10 ms	612	A
		T _c = 110°C, t _p = 10 ms	541	A
I ² dt value	J ² t	T _c = 25°C, t _p = 10 ms	1873	A ² s
		T _c = 110°C, t _p = 10 ms	1643	A ² s
P _{tot}	Power Dissipation	T _c = 25°C	625	W
T _J , T _{STG}	Operating Junction and Storage Temperature		-55 to +175	°C

Thermal Characteristics

Symbol	Parameter	Value	Unit
R _{AJC}	Thermal Resistance, Junction to Case, Max.	0.24	°C/W

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

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
V _F	Forward Voltage	I _F = 100 A, T _c = 25°C		1.51	1.70	V
		I _F = 100 A, T _c = 175°C		2.1	-	
I _R	Reverse Current	V _R = 1200 V, T _c = 25°C		5	150	μA
		V _R = 1200 V, T _c = 175°C		22	-	
Q _C	Total Capacitive Charge	V _R = 800 V, T _c = 25°C		46		nC
C	Total Capacitance	V _R = 1 V, f = 1 MHz		6037		pF
		V _R = 800 V, f = 1 MHz		346		
E _C	Capacitance Stored Energy	V _R = 800 V, T _c = 25°C		228		μJ

Typical Performance Characteristics

Figure 1. Power Derating

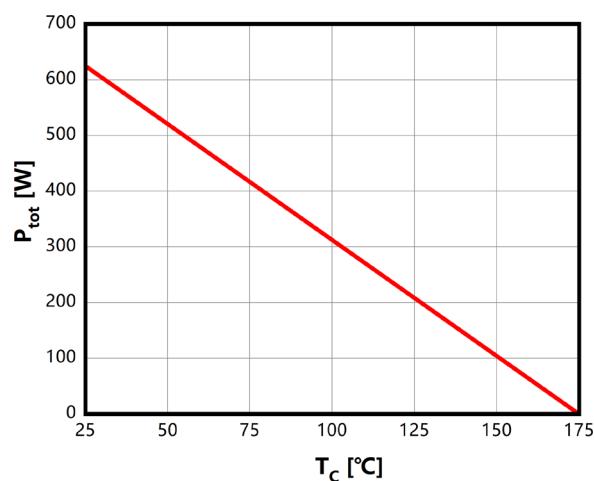


Figure 2. Current Derating

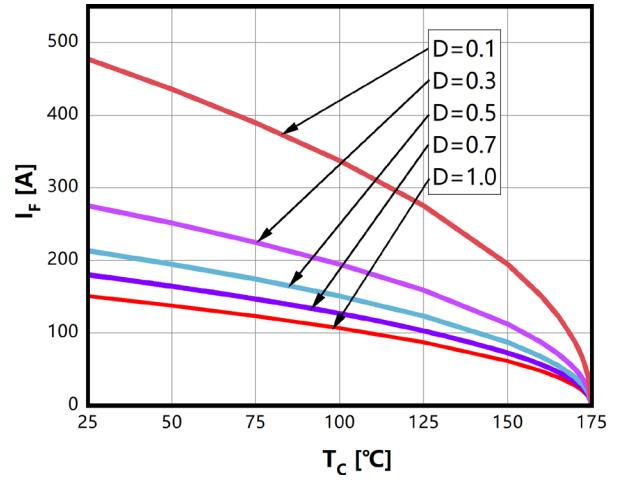


Figure 3. Forward Characteristics

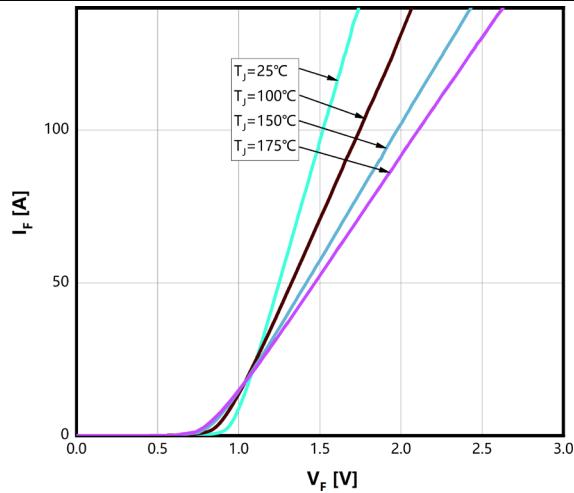


Figure 4. Reverse Characteristics

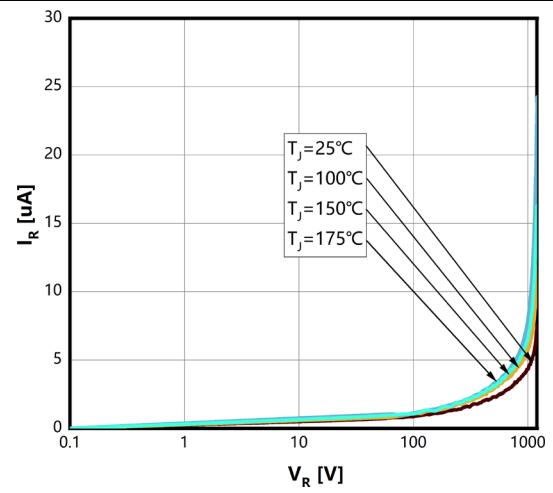


Figure 5. Capacitive Charge Characteristics

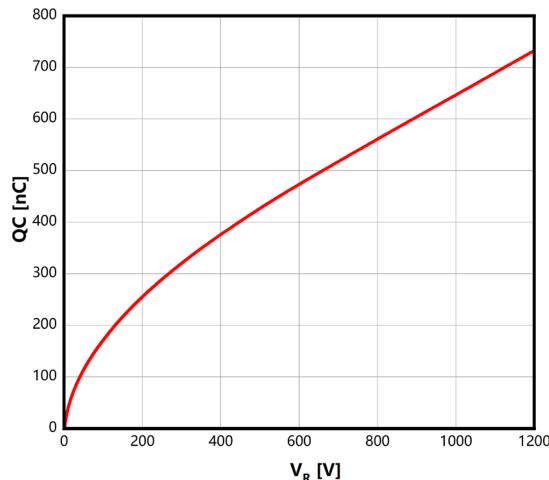
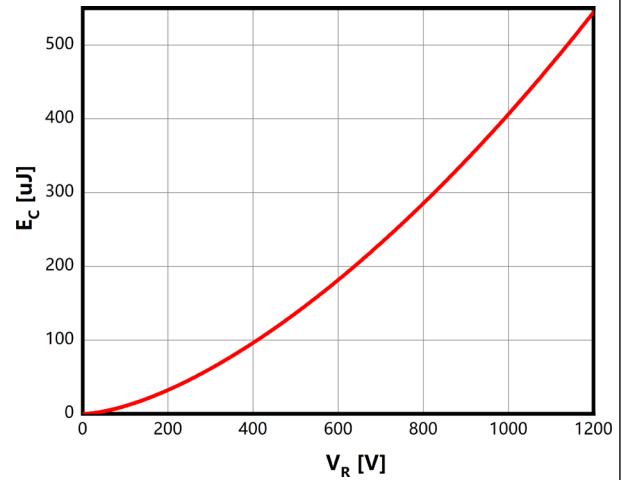


Figure 6. Capacitance Stored Energy



Typical Performance Characteristics

Figure 7. Capacitance Characteristics

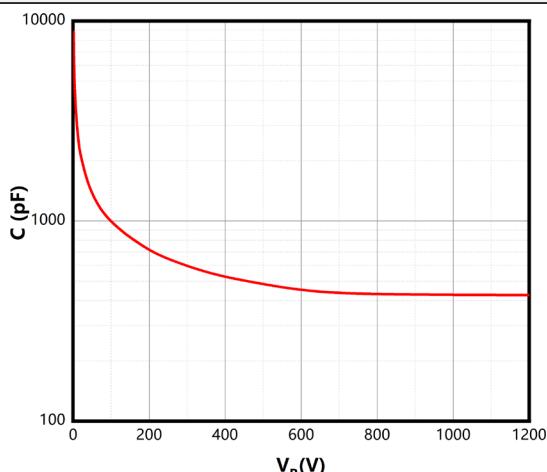
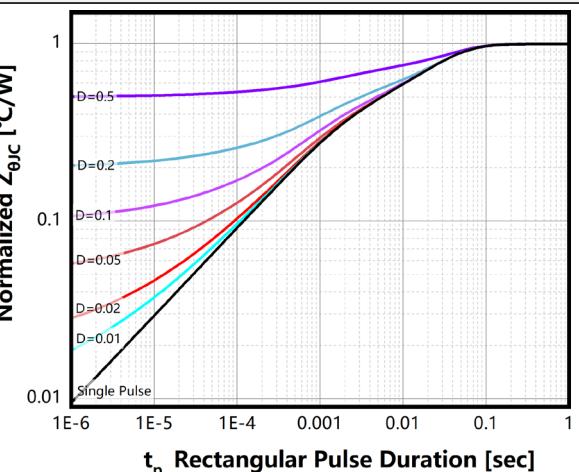
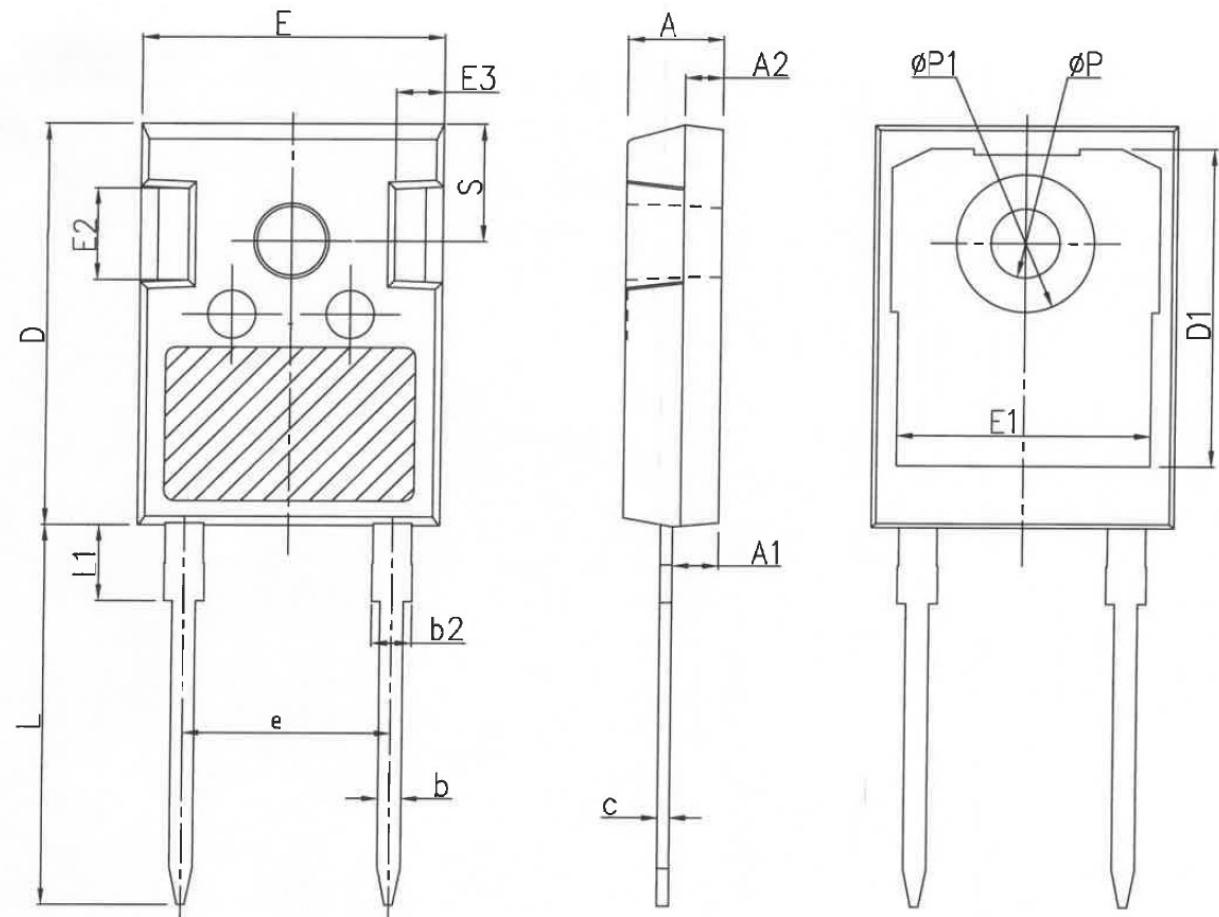


Figure 8. Transient Thermal Impedance



Package Outlines

TO247-2



COMMON DIMENSIONS

SYMBOL	mm		
	MIN	NOM	MAX
A	4.80	5.00	5.20
A1	2.21	2.41	2.59
A2	1.85	2.00	2.15
b	1.11	1.21	1.36
b2	1.91	2.01	2.21
c	0.51	0.61	0.75
D	20.70	21.00	21.30
D1	16.25	16.55	16.85
E	15.50	15.80	16.10
E1	13.00	13.30	13.60
E2	4.80	5.00	5.20
E3	2.30	2.50	2.70
e	10.88BSC		
L	19.62	19.92	20.22
L1	—	—	4.30
ΦP	3.40	3.60	3.80
ΦP1	—	—	7.30
S	6.15BSC		

* Dimensions in millimeters

Package Marking and Ordering Information

Part Number	Top Marking	Package	Packing Method	Quantity
BCA120S100D3	BCA120S100D3	TO247-2	Tube	30 units

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