

BCA120S10D2

Silicon Carbide Schottky Diode

1200V, 10A



bestirpower

Description

BCA120S10D2 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

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

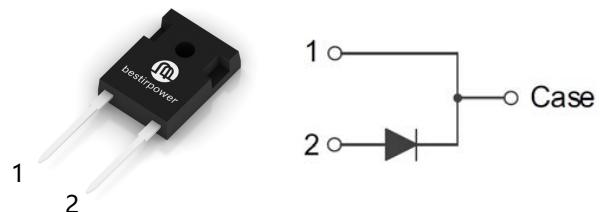
Applications

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

Features

V _{RRM}	I _F	T _{J,max}	Q _C
1200 V	10 A	175 °C	52 nC

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



Absolute Maximum Ratings (T_J = 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	35	A
		T _C = 135°C	17	A
		T _C = 158°C	10	A
I _{F,SM}	Non-Repetitive Forward Surge Current	T _C = 25°C, t _p = 10 ms	117	A
		T _C = 110°C, t _p = 10 ms	76	A
I _{F,RM}	Repetitive Peak Forward Surge Current	T _C = 25°C, t _p = 10 ms	50	A
I ² dt value	J I ² t	T _C = 25°C, t _p = 10 ms	17	A ² s
		T _C = 110°C, t _p = 10 ms	10	A ² s
P _{tot}	Power Dissipation	T _C = 25°C	191	W
		T _C = 110°C	83	W
		T _C = 150°C	32	W
T _{J,T_{STG}}	Operating Junction and Storage Temperature	-55 to +175	°C	

Thermal Characteristics

Symbol	Parameter	Value	Unit
R_{JC}	Thermal Resistance, Junction to Case, Typ.	0.787	°C/W

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

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
V_{DC}	DC blocking voltage		1200	-	-	V
V_F	Forward Voltage	$I_F=5\text{A}$	-	1.20	-	V
		$I_F=10\text{A}, T_c=25^\circ\text{C}$	-	1.43	1.70	
		$I_F=10\text{A}, T_c=175^\circ\text{C}$	-	2.0	-	
I_R	Reverse Current	$V_R = 1200\text{ V}, T_c = 25^\circ\text{C}$	-	2.0	60	μA
		$V_R = 1200\text{ V}, T_c = 175^\circ\text{C}$	-	4.0	-	
Q_C	Total Capacitive Charge	$V_R = 800\text{ V}, T_c = 25^\circ\text{C}$	-	52	-	nC
C	Total Capacitance	$V_R = 1\text{ V}, f = 1\text{MHz}$	-	546	-	pF
		$V_R = 400\text{ V}, f = 1\text{MHz}$	-	47	-	
		$V_R = 800\text{ V}, f = 1\text{MHz}$	-	41	-	
E_C	Capacitance Stored Energy	$V_R = 800\text{ V}, T_c = 25^\circ\text{C}$	-	15.86	-	μJ

Typical Performance Characteristics

Figure 1. Forward Characteristics

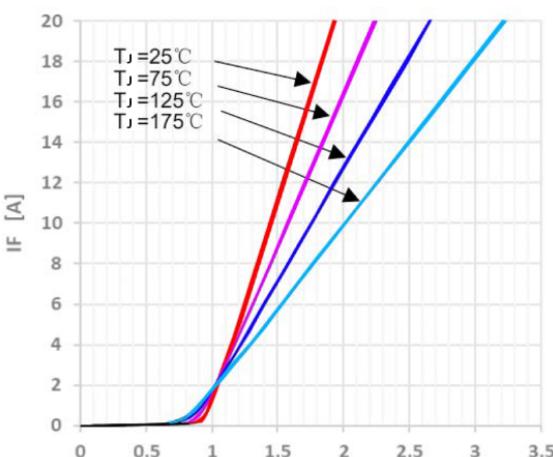


Figure 2. Reverse Characteristics

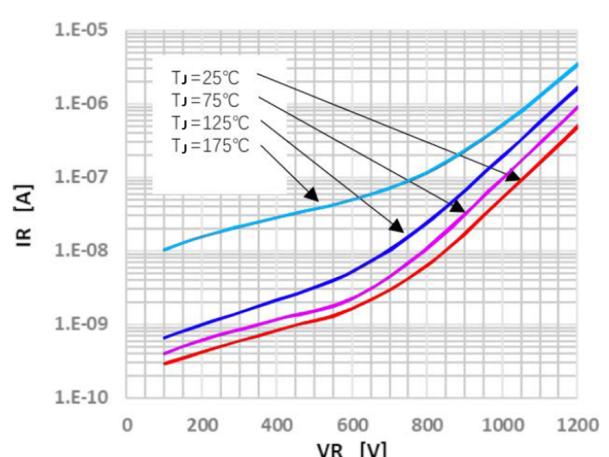


Figure 3. Peak Forward Current Derating

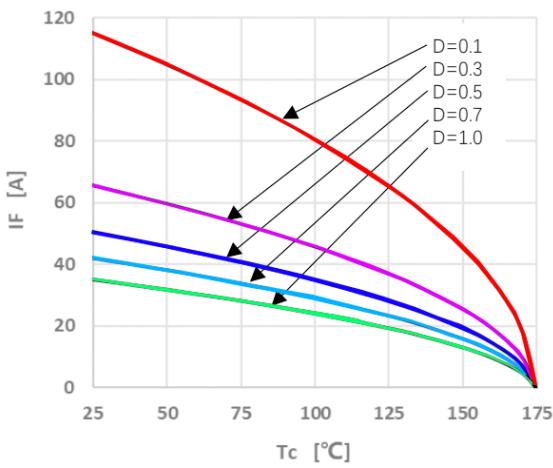


Figure 4. Power Dissipation

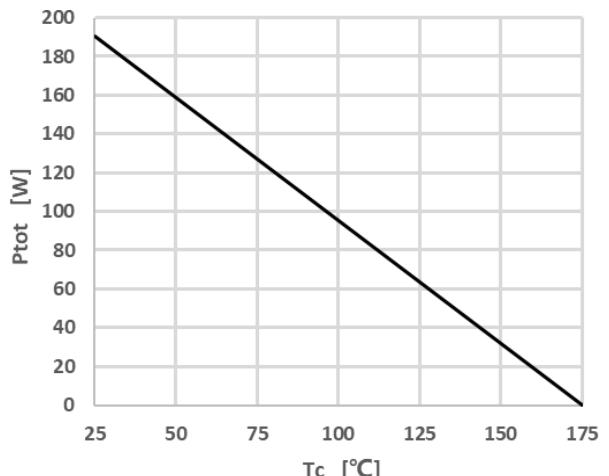


Figure 5. Capacitance vs. Reverse Voltage

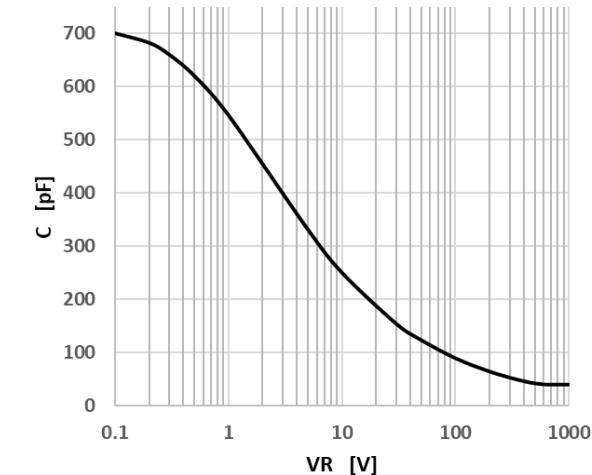
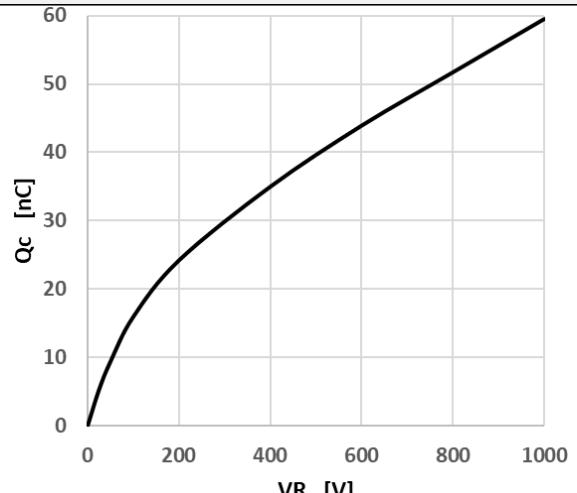
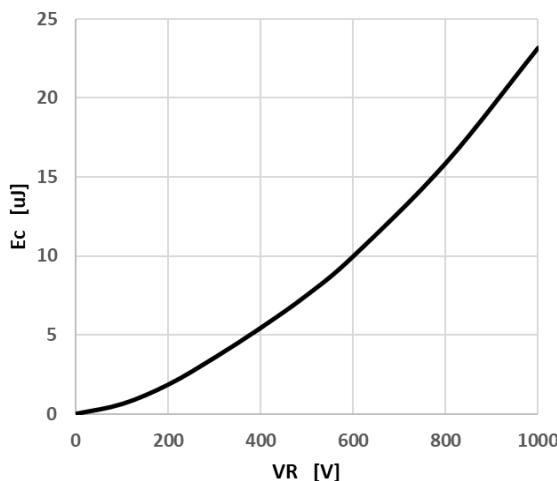
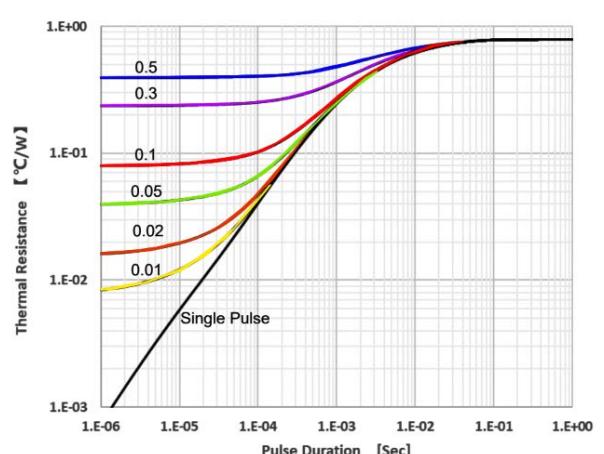


Figure 6. Capacitance Charge vs. Reverse Voltage

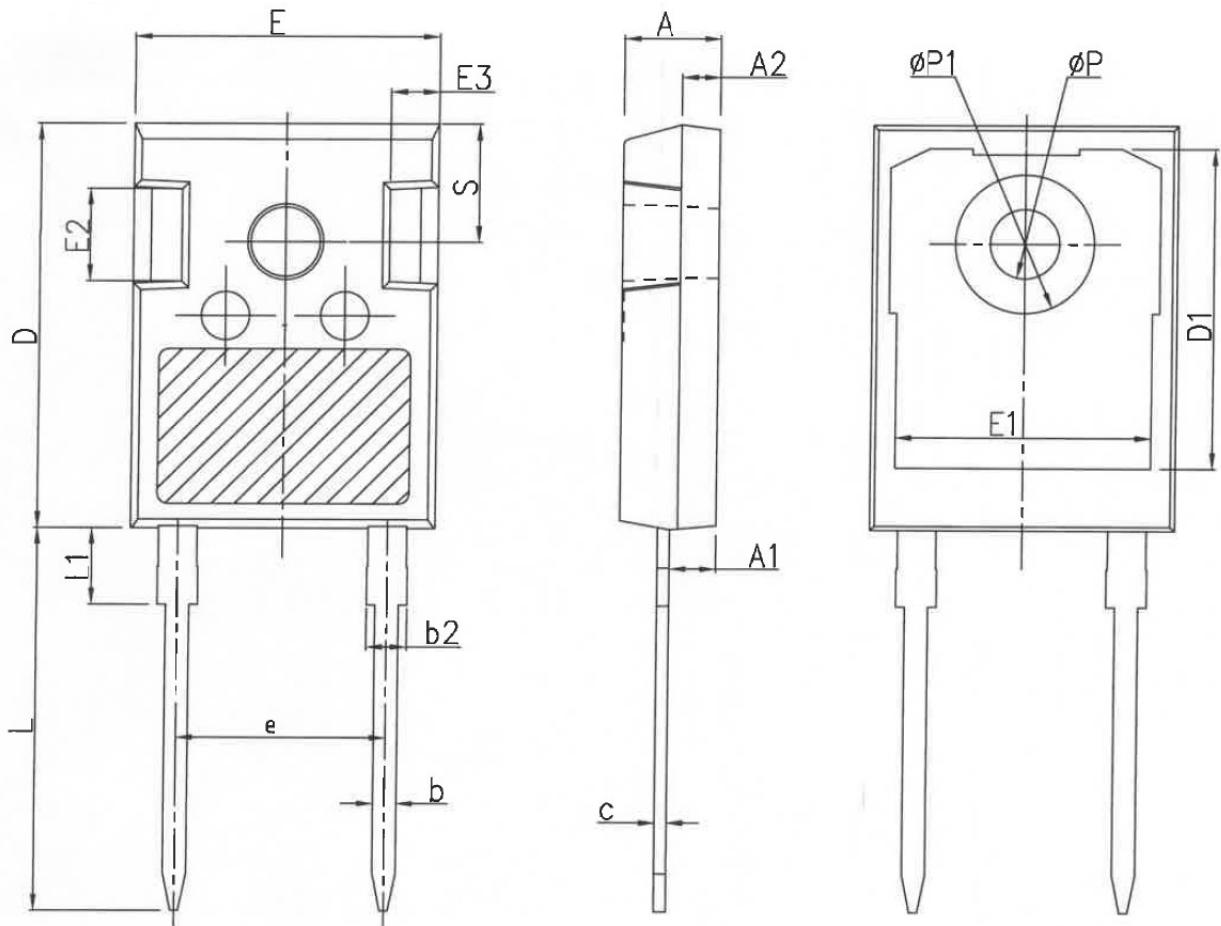


Typical Performance Characteristics

Figure 7. Capacitance Stored Energy**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
ØP	3.40	3.60	3.80
ØP1	—	—	7.30
S	6.15BSC		

* Dimensions in millimeters

Package Marking and Ordering Information

Part Number	Top Marking	Package	Packing Method	Quantity
BCA120S10D2	BCA120S10D2	TO247-2	Tube	30 units

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