

BCA120S030D2

Silicon Carbide Schottky Diode

1200V, 30A

Description

BCA120S030D2 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

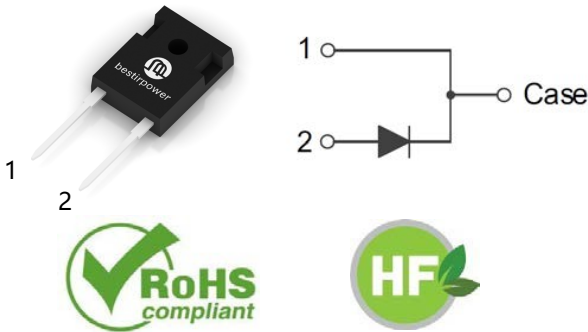
Applications

- SMPS、Power Factor Correction
- Solar inverters
- Uninterruptable power supplies
- Motor drives

Features

V_{RRM}	I_F	T_C	Q_C
1200 V	30 A	150 °C	150nC

- 1200-Volt MPS Rectifier
- Zero Reverse Recovery
- Positive Temperature Coefficient on VF
- Temperature-Independent Switching Behavior
- Extremely Fast Switching



Absolute Maximum Ratings $(T_C = 25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter		Value	Unit
V_{RRM}	Repetitive Peak Reverse Voltage		1200	V
I_F	Forward Current	$T_C = 25^{\circ}\text{C}$	88	A
		$T_C = 135^{\circ}\text{C}$	44	A
		$T_C = 150^{\circ}\text{C}$	30	A
$I_{F,SM}$	Non-Repetitive Forward Surge Current	$T_C = 25^{\circ}\text{C}, t_p = 10 \text{ ms}$	200	A
		$T_C = 110^{\circ}\text{C}, t_p = 10 \text{ ms}$	185	A
P_{tot}	Power Dissipation	$T_C = 25^{\circ}\text{C}$	361	W
T_J, T_{STG}	Operating Junction and Storage Temperature		-55 to +175	$^{\circ}\text{C}$

Thermal Characteristics

Symbol	Parameter	Value	Unit
$R_{\theta JC}$	Thermal Resistance, Junction to Case, Max.	0.415	$^{\circ}\text{C/W}$

Package Marking and Ordering Information

Part Number	Top Marking	Package	Packing Method	Quantity
BCA120S030D2	BCA120S030D2	TO247-2	Tube	30 units

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

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
V_F	Forward Voltage	$I_F = 30\text{ A}, T_C = 25^{\circ}\text{C}$		1.45	1.74	V
		$I_F = 30\text{ A}, T_C = 175^{\circ}\text{C}$		2	2.4	
I_R	Reverse Current	$V_R = 1200\text{ V}, T_C = 25^{\circ}\text{C}$		10	50	μA
		$V_R = 1200\text{ V}, T_C = 175^{\circ}\text{C}$		50	200	
Q_C	Total Capacitive Charge	$V_R = 800\text{ V}, T_C = 25^{\circ}\text{C}$		150		nC
C	Total Capacitance	$V_R = 1\text{ V}, f = 1\text{ MHz}$		2318		pF
		$V_R = 400\text{ V}, f = 1\text{ MHz}$		140		
		$V_R = 800\text{ V}, f = 1\text{ MHz}$		115		μJ

Typical Performance Characteristics

Figure 1. Forward Characteristics

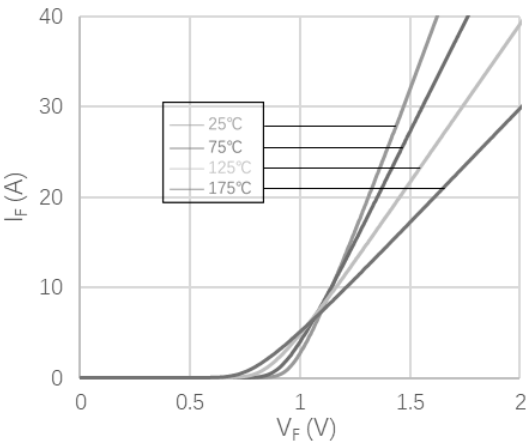


Figure 2. Reverse Characteristics

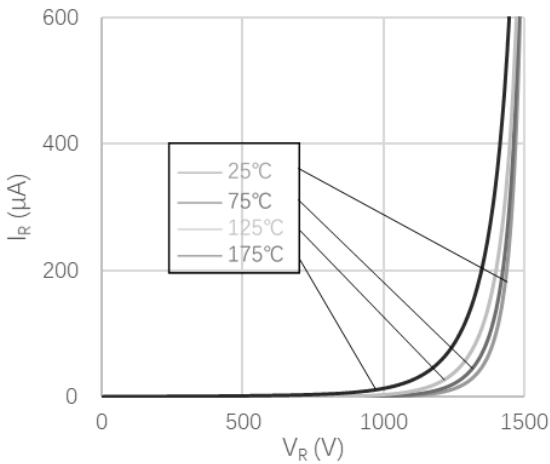


Figure 3. Total Capacitance Charge vs. Reverse Voltage

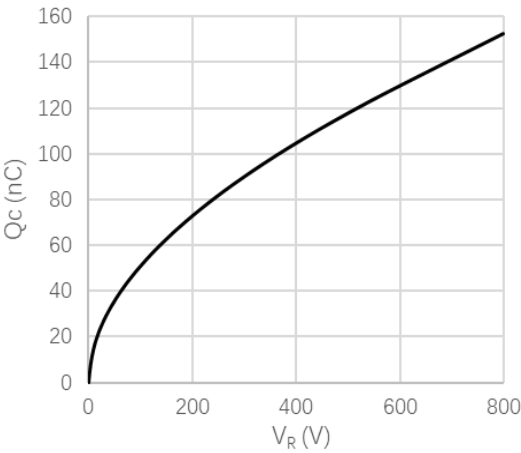


Figure 4. Capacitance vs. Reverse Voltage

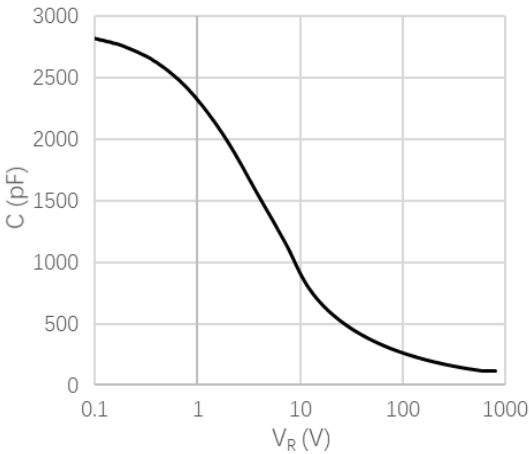


Figure 5. Peak Forward Current Derating

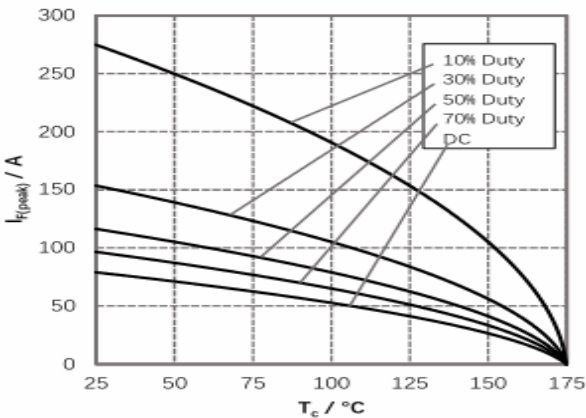
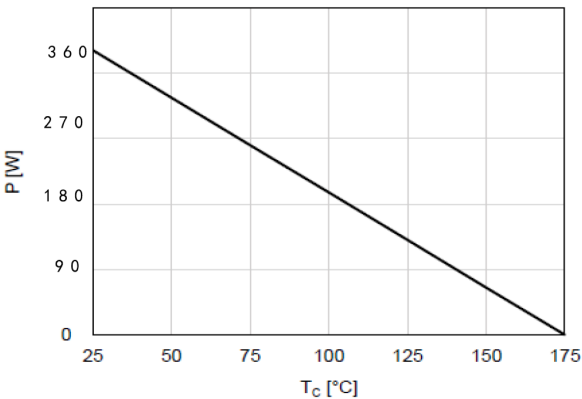
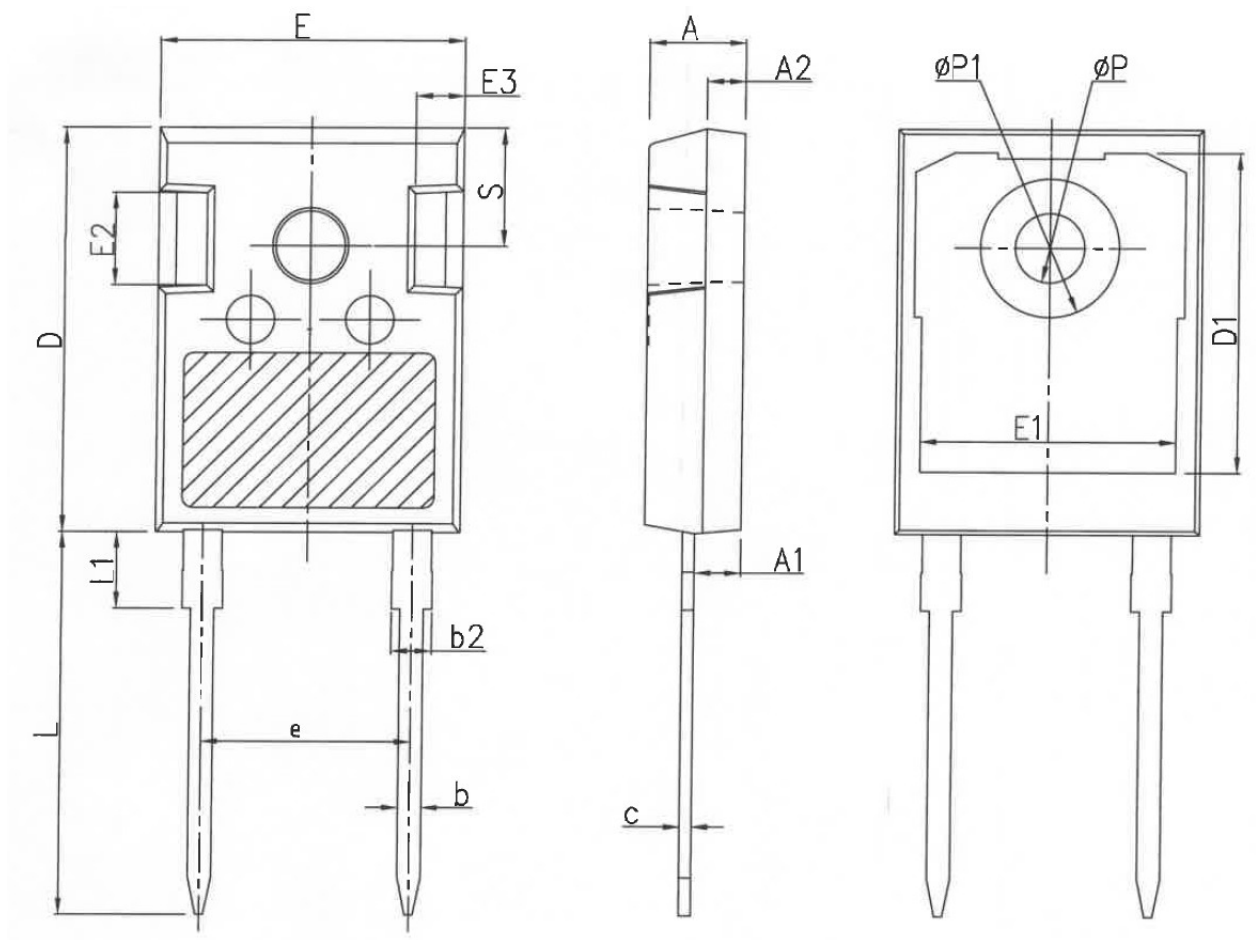


Figure 6 Power Dissipation



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

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