BCW120D30D2

Silicon Carbide Schottky Diode

1200 V, 30 A

bestirpower

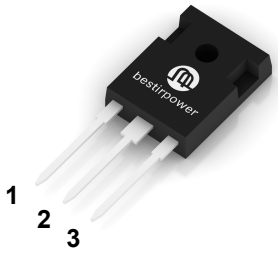
Description

BCW120D30D2 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

V_{RRM}	I_F	$T_{J,max}$	Q_C
1200 V	15 / 30 A	175 ℃	92 nC

Applications

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



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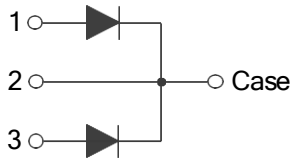


Features (Per Leg/Device)

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

Absolute Maximum Ratings (Per Leg / Device, Per Leg unless otherwise specified)

Symbol	Parameter		Value	Unit	Note
V_{RRM}	Repetitive Peak Reverse Voltage	T_C = 25℃	1200	V	
I_F	Forward Current	T_C = 147℃	30	A	Fig.2
		T_C = 135℃	13	A	
		T_C = 25℃	23	A	
$I_{F,SM}$	Non-Repetitive Forward Surge Current	T_C = 25℃, t_p = 10 ms	106	A	
		T_C = 150℃, t_p = 10 ms	90	A	
$I_{F,Max}$	Non-Repetitive Peak Forward Current	T_C = 25℃, t_p = 10 μs	850	A	
		T_C = 150℃, t_p = 10 μs	722	A	
I^2dt value	$\int I^2t$	T_C = 25℃, t_p = 10 ms	56	A^2s	
		T_C = 150℃, t_p = 10 ms	40	A^2s	
P_{tot}	Power Dissipation	T_C = 25℃	183	W	Fig.1
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, Max. (Per Leg / Device)	0.82/0.4	℃/W

Electrical Characteristics (Per Leg, T_C = 25℃ unless otherwise noted)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit	Note
V_F	Forward Voltage	I_F = 15 A, T_C = 25℃	-	1.39	1.70	V	Fig.3
		I_F = 15 A, T_C = 175℃	-	1.8	-		
I_R	Reverse Current	V_R = 1200 V, T_C = 25℃	-	-	100	μA	Fig.4
		V_R = 1200 V, T_C = 175℃	-	-	300		
Q_C	Total Capacitive Charge	V_R = 800 V, T_C = 25℃	-	92	-	nC	Fig.5
C	Total Capacitance	V_R = 1 V, f = 100 kHz	-	1010	-	pF	Fig.7
		V_R = 800 V, f = 100 kHz	-	65	-		
E_C	Capacitance Stored Energy	V_R = 800 V, T_C = 25℃	-	26	-	μJ	Fig.6

Typical Performance Characteristics (Per Leg)

Figure 1. Power Derating

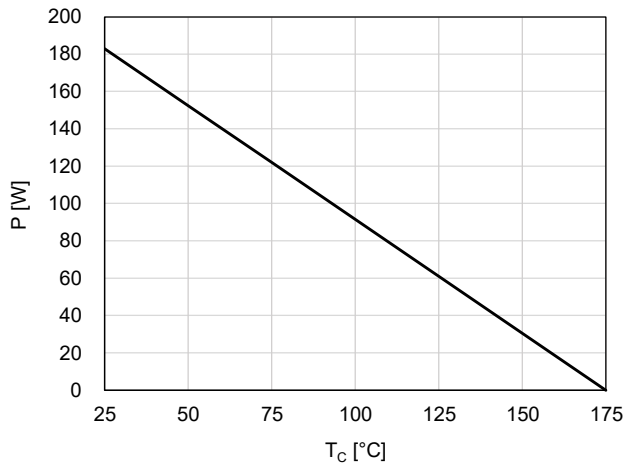


Figure 2. Current Derating

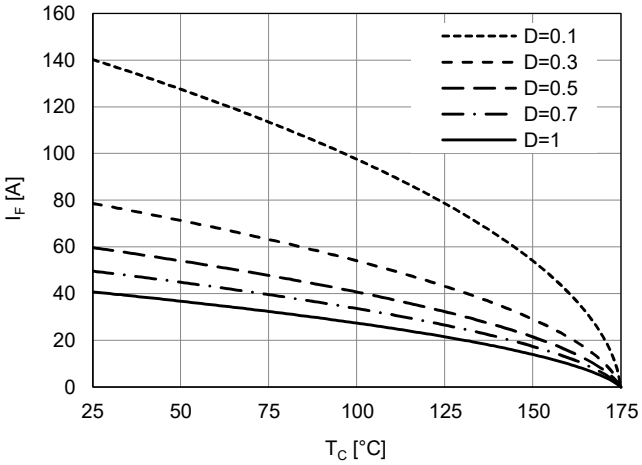


Figure 3. Forward Characteristics

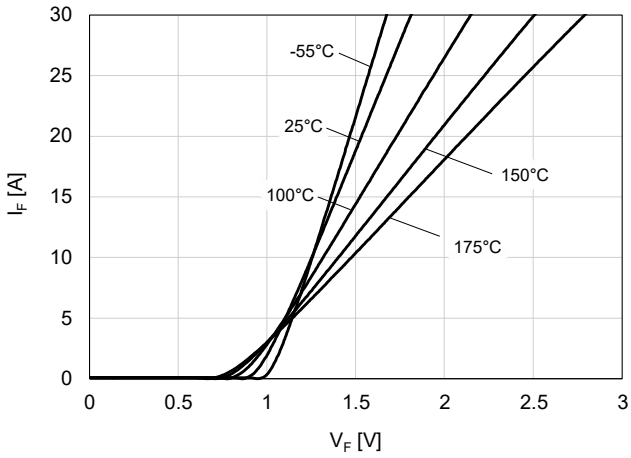


Figure 4. Reverse Characteristics

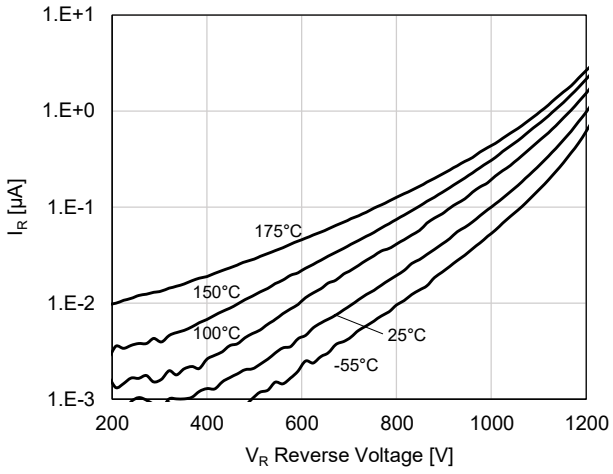


Figure 5. Capacitive Charge Characteristics

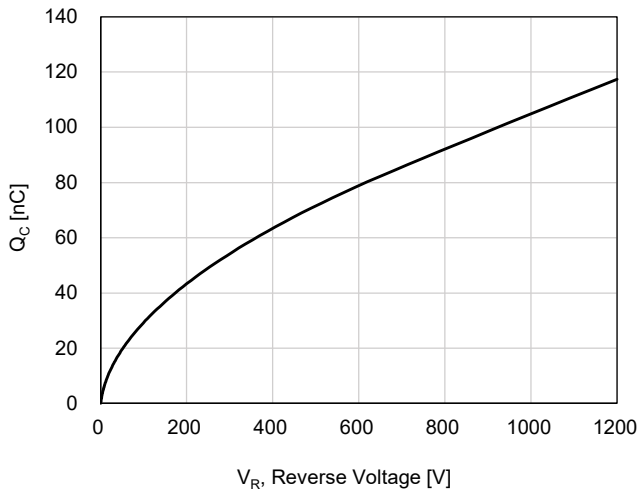
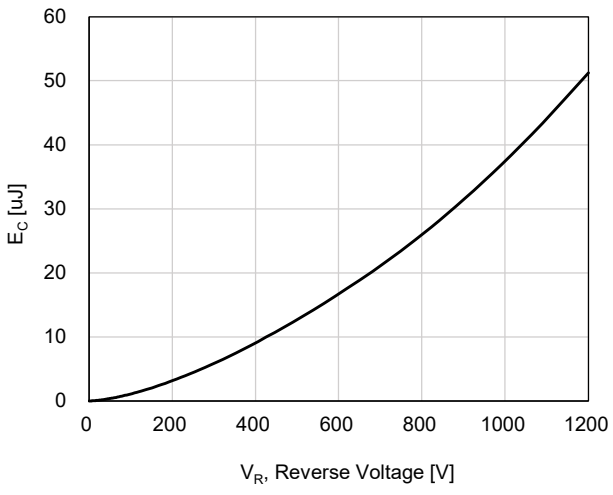


Figure 6. Capacitance Stored Energy



Typical Performance Characteristics (Per Leg)

Figure 7. Capacitance Characteristics

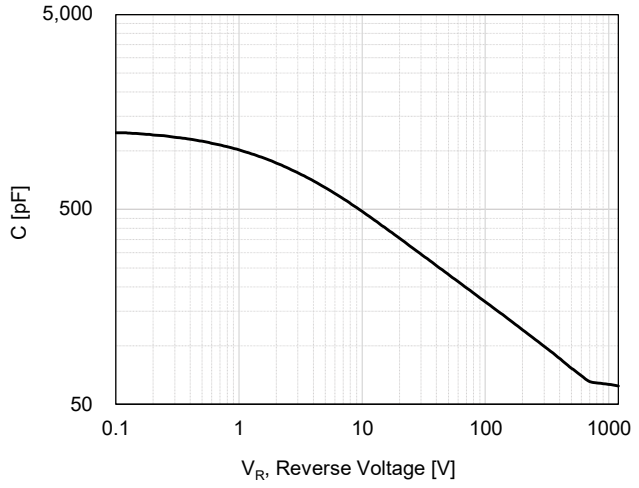
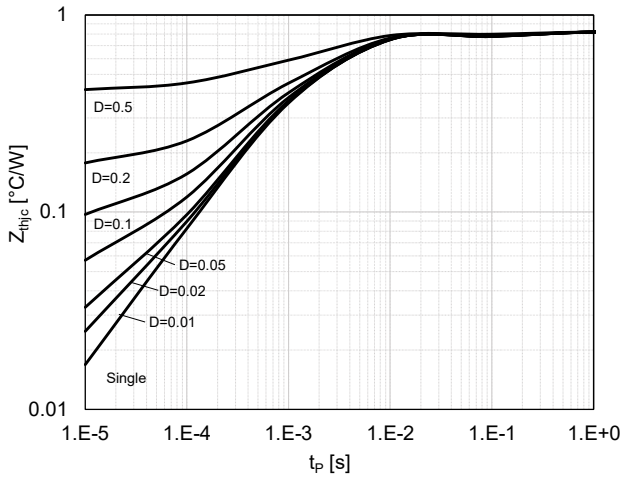


Figure 8. Transient Thermal Response Curve



Package Outlines

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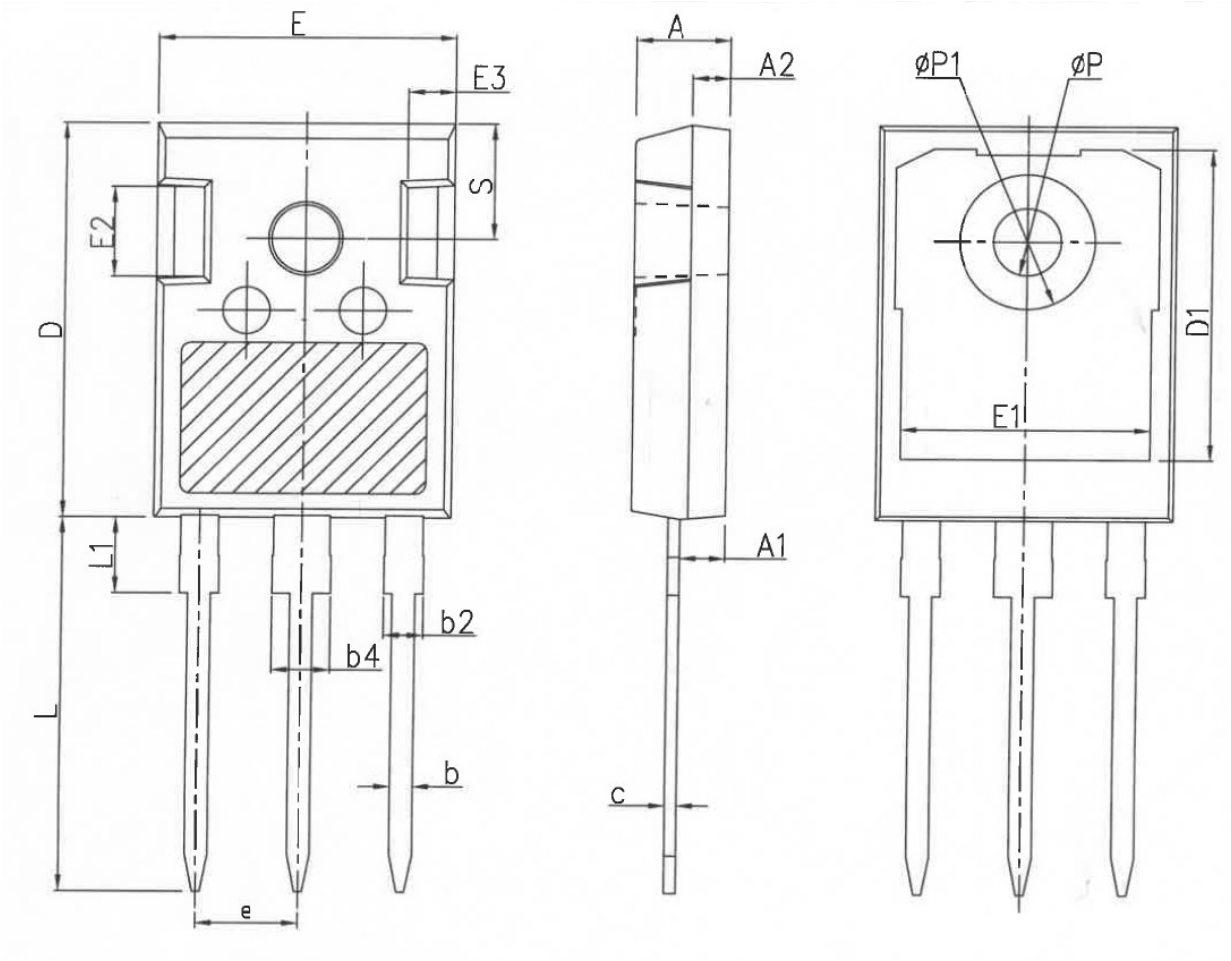

COMMON DIMENSIONS

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
b4	2.91	3.01	3.21
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	5.44BSC		
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
BCW120D30D2	BCW120D30D2	TO-247-3	Tube	30 units

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