

BCB120S20D2

Silicon Carbide Schottky Diode

1200V, 20A



Description

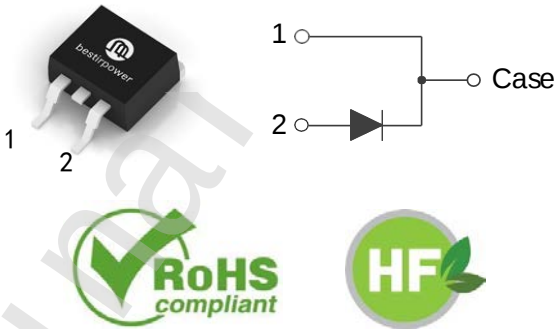
BCB120S20D2 utilizes bestirpower’s advanced silicon carbide diode technology. This technology combines the benefits of excellent low forward voltage and robustness. Consequently, the family is suitable for application requiring high power efficiency

Features

V_{RRM}	I_F	T_C	Q_C
1200 V	20 A	150 °C	121 nC

Applications

- Solar inverter, UPS
- EV charging station
- Power Factor Correction
- 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 ($T_C = 25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter		Value	Unit
V_{RRM}	Repetitive Peak Reverse Voltage		1200	V
I_F	Forward Current	$T_C = 25^{\circ}\text{C}$	58	A
		$T_C = 135^{\circ}\text{C}$	25	A
		$T_C = 150^{\circ}\text{C}$	20	A
$I_{F,SM}$	Non-Repetitive Forward Surge Current	$T_C = 25^{\circ}\text{C}, t_p = 10\text{ ms}$	135	A
		$T_C = 110^{\circ}\text{C}, t_p = 10\text{ ms}$	115	A
$I_{F,Max}$	Non-Repetitive Peak Forward Current	$T_C = 25^{\circ}\text{C}, t_p = 10\text{ }\mu\text{s}$	1180	A
		$T_C = 150^{\circ}\text{C}, t_p = 10\text{ }\mu\text{s}$	980	A
$I^2dt\text{ value}$	$\int I^2t$	$T_C = 25^{\circ}\text{C}, t_p = 10\text{ ms}$	91	A ² s
		$T_C = 150^{\circ}\text{C}, t_p = 10\text{ ms}$	66	A ² s
P_{tot}	Power Dissipation	$T_C = 25^{\circ}\text{C}$	273	W
T_J, T_{STG}	Operating Junction and Storage Temperature		-55 to +175	°C

Thermal Characteristics

Symbol	Parameter	Value	Unit
$R_{\theta JC}$	Thermal Resistance, Junction to Case, Max.	0.55	°C/W

Package Marking and Ordering Information

Part Number	Top Marking	Package	Packing Method	Quantity
BCB120S20D2	BCB120S20D2	TO263-2	Tape&Reel	800 units

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

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
V _F	Forward Voltage	I _F = 20 A, T _C = 25°C		1.39	1.70	V
		I _F = 20 A, T _C = 175°C		1.8	-	
I _R	Reverse Current	V _R = 1200 V, T _C = 25°C		10	100	μA
		V _R = 1200 V, T _C = 175°C		-	300	
Q _C	Total Capacitive Charge	V _R = 800 V, T _C = 25°C		121		nC
C	Total Capacitance	V _R = 1 V, f = 100 kHz		1357		pF
		V _R = 800 V, f = 100 kHz		85		
E _C	Capacitance Stored Energy	V _R = 800 V, T _C = 25°C		34		μJ

Typical Performance Characteristics

Figure 1. Power Derating

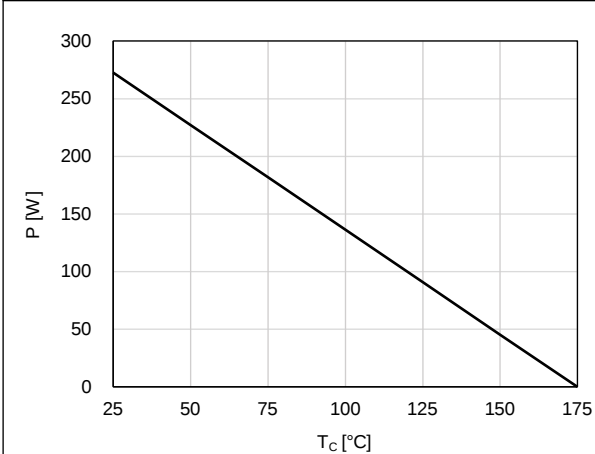


Figure 2. Current Derating

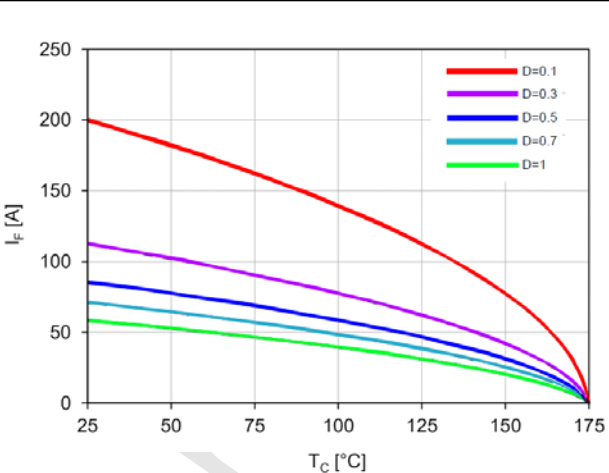


Figure 3. Forward Characteristics

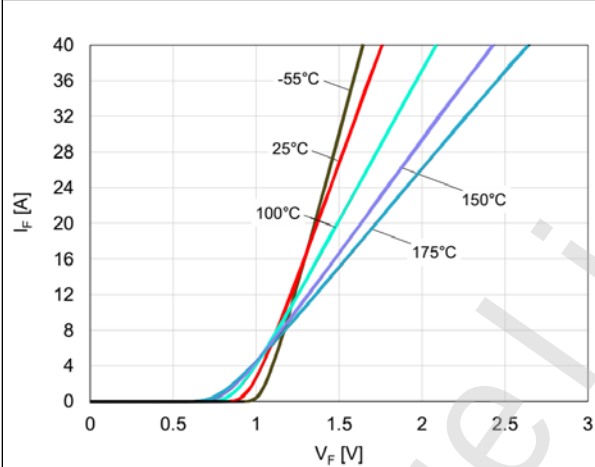


Figure 4. Reverse Characteristics

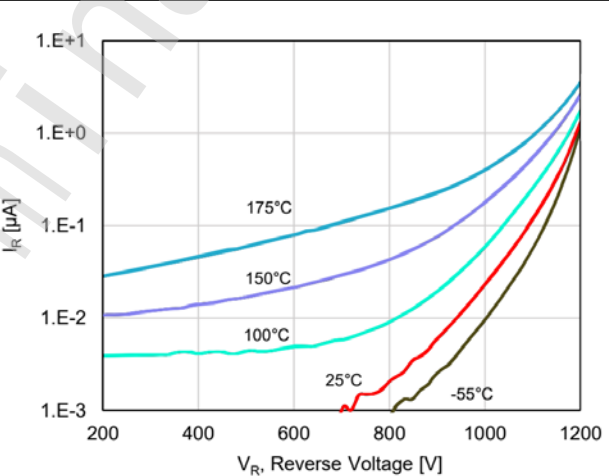


Figure 5. Capacitive Charge Characteristics

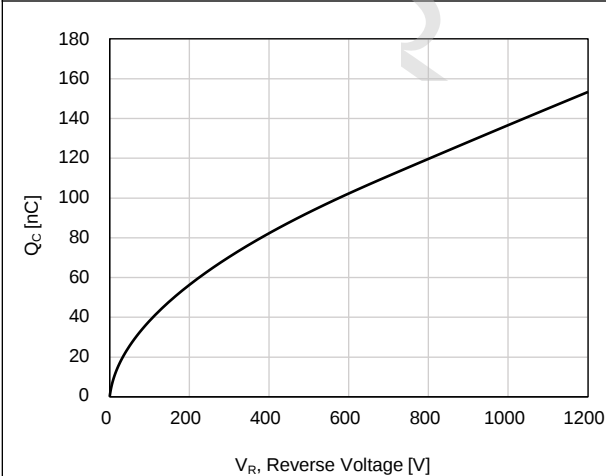
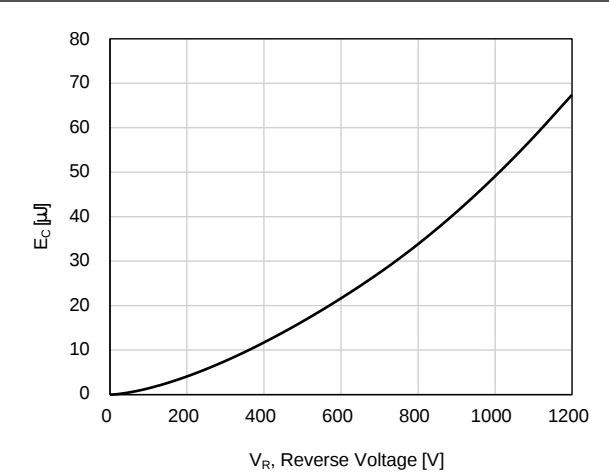


Figure 6. Capacitance Stored Energy



Typical Performance Characteristics

Figure 7. Capacitance Characteristics

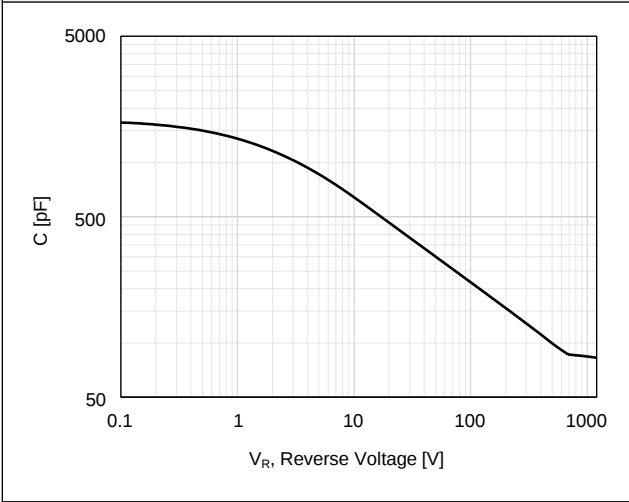
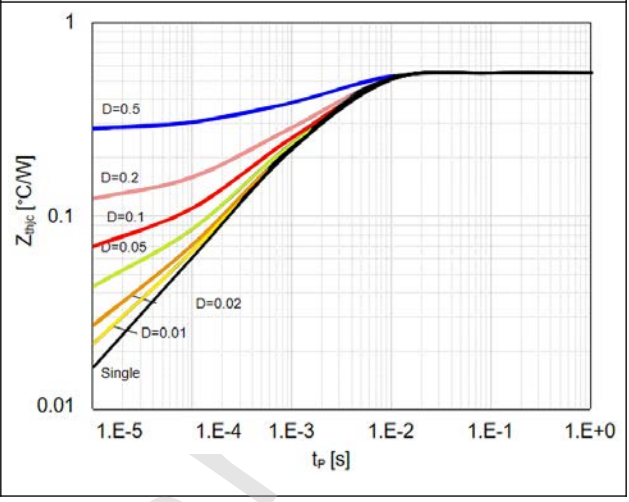
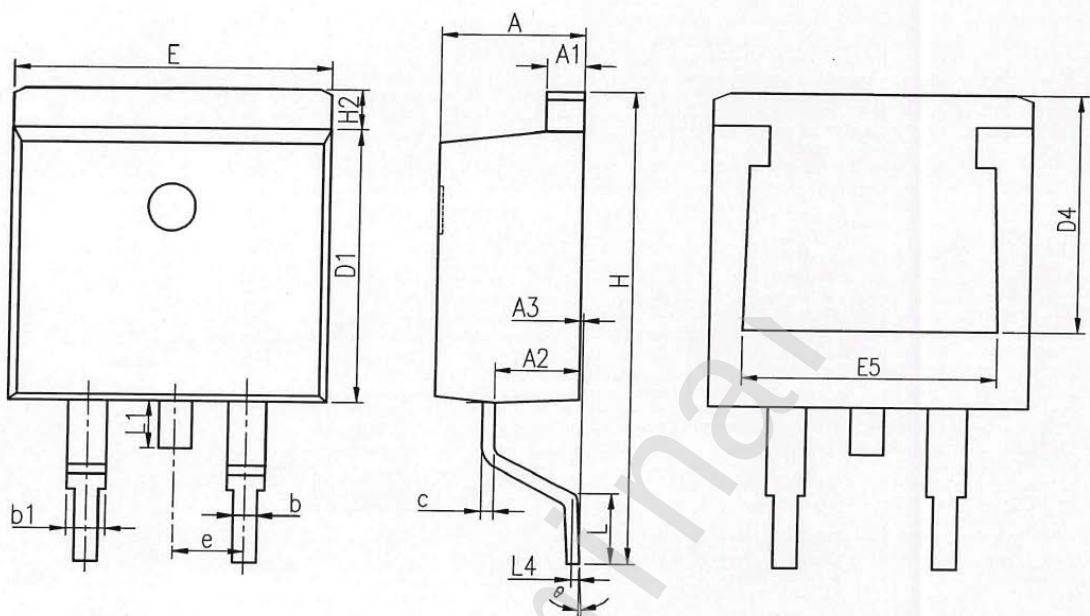


Figure 8. Transient Thermal Response Curve



Package Outlines

TO263-2L



COMMON DIMENSIONS

SYMBOL	MM		
	MIN	NOM	MAX
A	4.37	4.57	4.77
A1	1.22	1.27	1.42
A2	2.49	2.69	2.89
A3	0.00	0.13	0.25
b	0.70	0.81	0.96
b1	1.17	1.27	1.47
c	0.30	0.38	0.53
D1	8.50	8.70	8.90
D4	6.60	-	-
E	9.86	10.16	10.36
E5	7.06	-	-
e	2.54 BSC		
H	14.70	15.10	15.50
H2	1.07	1.27	1.47
L	2.00	2.30	2.60
L1	1.40	1.55	1.70
L4	0.25 BSC		
θ	0°	5°	9°

* Dimensions in millimeters

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