BCD120S02D3

Silicon Carbide Schottky Diode

1200V, 2A

Description

BCD120S02D3 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

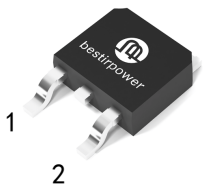
Features

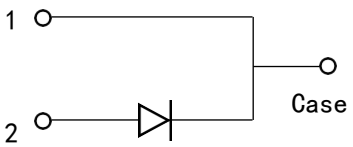
V_{RRM}	I_F	$T_{J,max}$	Q_C
1200 V	**2 A**	**175 ℃**	**11.2nC**

- High surge current capability
- No reverse recovery
- Positive Temperature Coefficient
- Specified dv/dt ruggedness
- Halogen-free / RoHS compliant

Benefits

- Extremely fast switching
- Low heat dissipation requirements
- Reduce size and cost of the system
- High-reliability
- System efficiency improvement





Applications

- Solar inverter
- Power factor correction
- Data Center
- Switch mode power supply
- AC/DC converters

Absolute Maximum Ratings (T_C = 25℃ unless otherwise noted)

Symbol	Parameter		Value	Unit
V_{RRM}	Repetitive Peak Reverse Voltage		1200	V
I_F	Forward Current	T_C = 25℃	10	A
		T_C = 135℃	5	A
		T_C = 166℃	2	A
$I_{F,SM}$	Non-Repetitive Forward Surge Current	T_C = 25℃, t_p = 10 ms	18	A
		T_C = 110℃, t_p = 10 ms	16	A
$I_{F,RM}$	Repetitive Peak Forward Surge Current	T_C = 25℃, tp = 10 ms	16	A
I^2dt value	$\int I^2t$	T_C = 25℃, t_p = 10 ms	1.62	A^2s
		T_C = 110℃, t_p = 10 ms	1.28	A^2s
P_{tot}	Power Dissipation	T_C = 25℃	83	W
		T_C = 110℃	36	W
		T_C = 150℃	14	W
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, Typ.	1.81	℃/W

Electrical Characteristics (T_C = 25℃ unless otherwise noted)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
V_{DC}	DC blocking voltage		1200	-	-	V
V_F	Forward Voltage	I_F=2A，T_J=25℃	-	1.35	1.80	V
		I_F=2A，T_J=175℃	-	1.8	-	
I_R	Reverse Current	V_R = 1200 V, T_J = 25℃	-	2	20	μA
		V_R = 1200 V, T_J= 175℃	-	40	100	
Q_C	Total Capacitive Charge	V_R = 800 V, T_J = 25℃	-	11.2	-	nC
C	Total capacitance	V_R=0V， f=1MHZ	-	148	-	pF
		V_R=400V， f=1MHZ	-	11	-	pF
		V_R=800V， f=1MHZ	-	8	-	pF
E_C	Capacitance StoredEnergy	V_R=800V	-	5.80	-	uJ

Package Marking and Ordering Information

Part Number	Top Marking	Package	Packing Method	Reel Size	Tape Width	Quantity
BCD120S02D3	BCD120S02D3	D-Pak	Tape & Reel	330 mm	16 mm	2500 units

Typical Performance Characteristics

Figure 1. Forward Characteristics

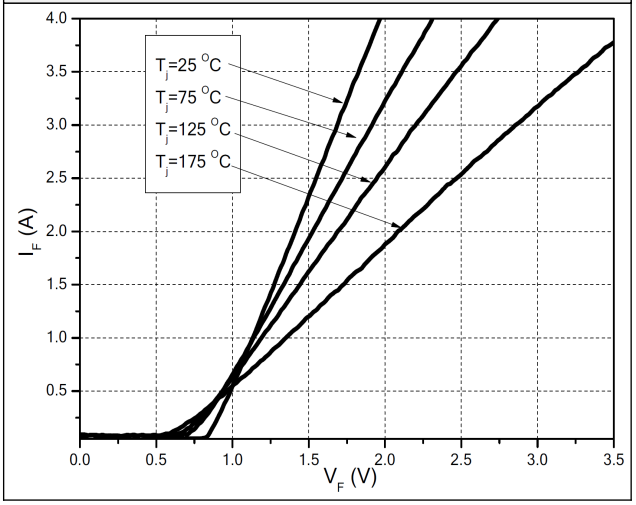


Figure 2. Reverse Characteristics

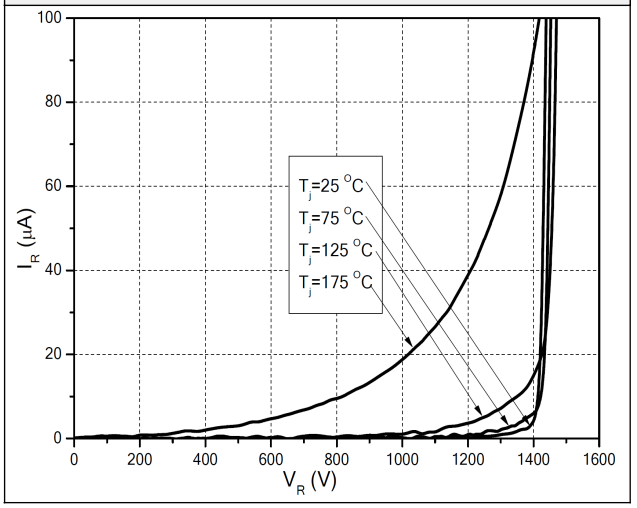


Figure 3. Peak Forward Current Derating

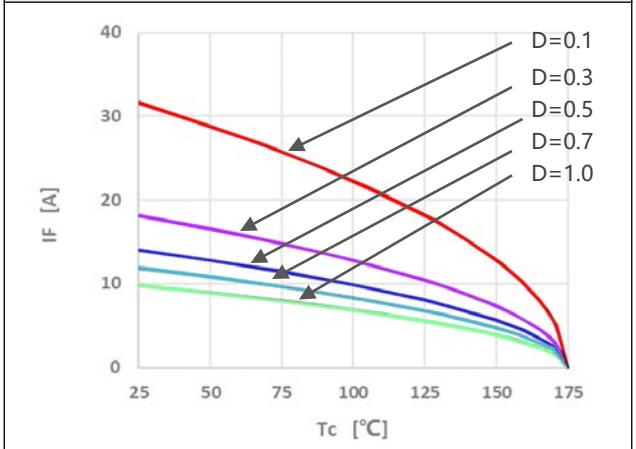


Figure 4. Power Dissipation

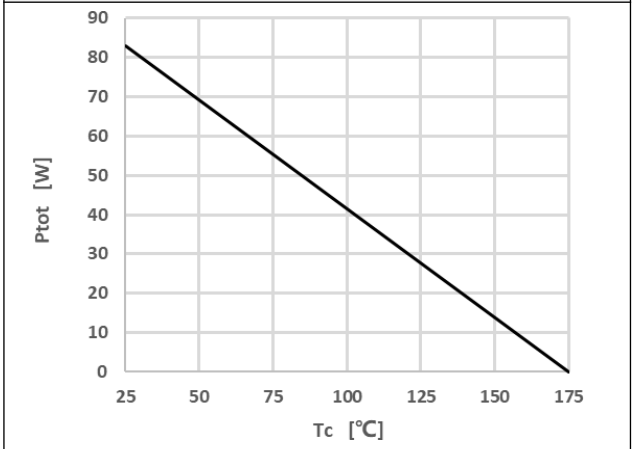


Figure 5. Capacitance vs. Reverse Voltage

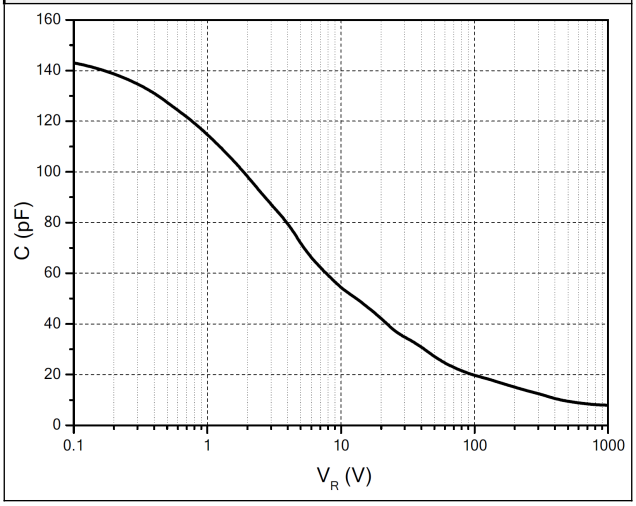
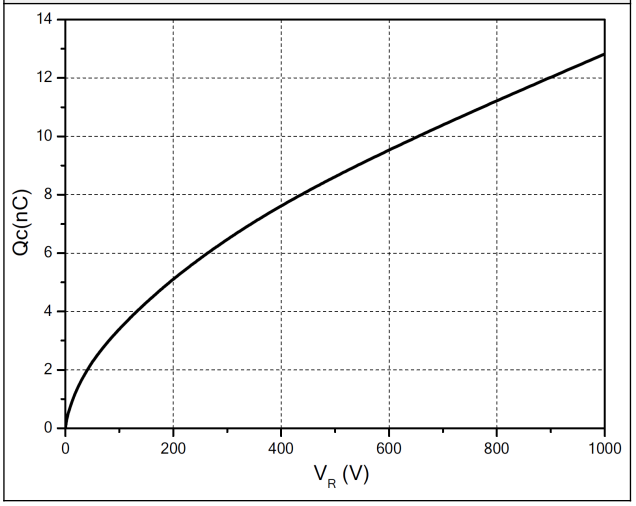
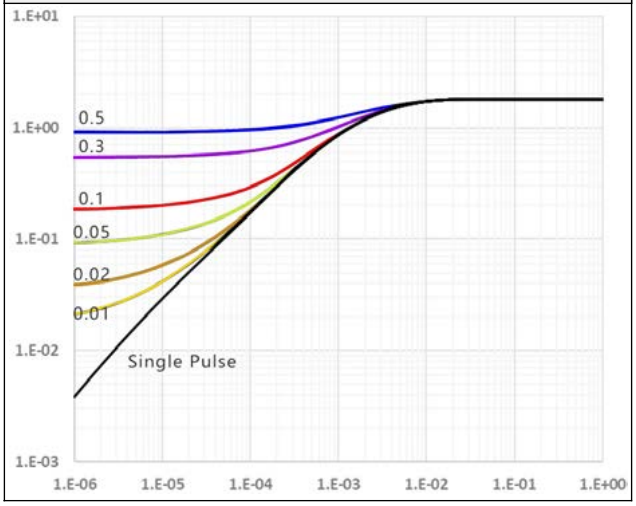


Figure 6. Capacitance Charge vs. Reverse Voltage



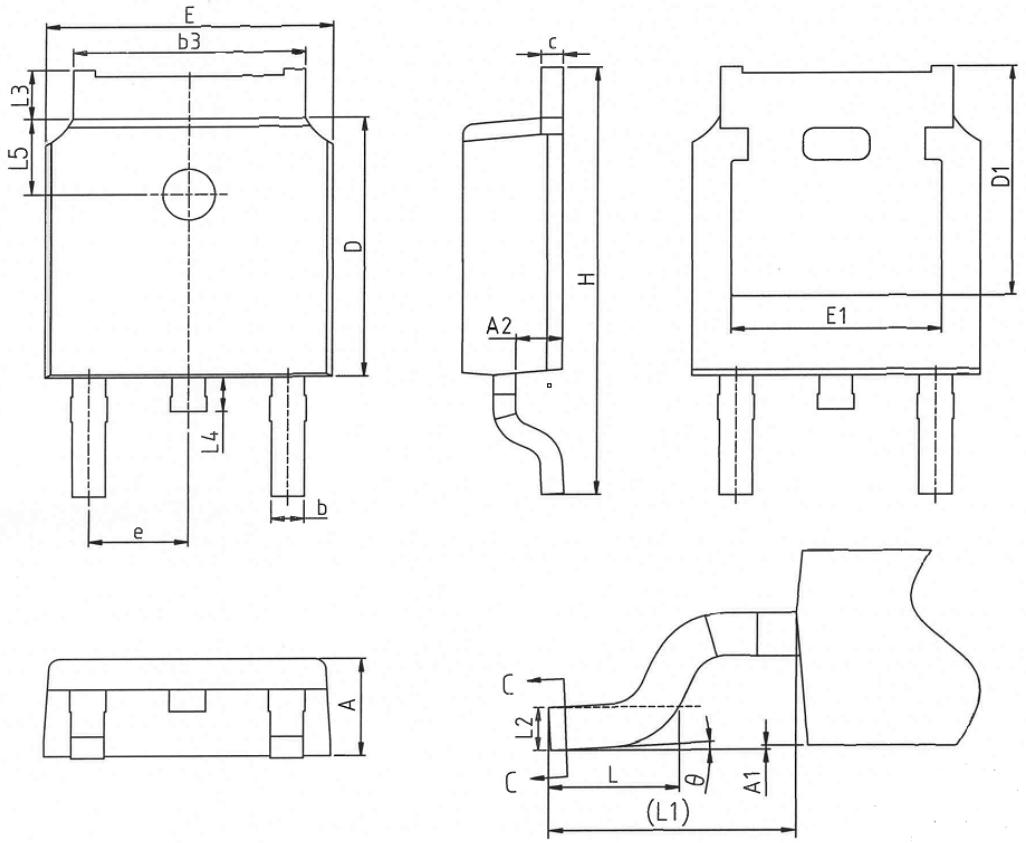
Typical Performance Characteristics

Figure 7. Transient Thermal Impedance



Package Outlines

D - pak



COMMON DIMENSIONS

SYMBOL	mm		
	MIN	NOM	MAX
A	2.20	2.30	2.38
A1	0.00	-	0.12
A2	0.97	1.07	1.17
b	0.68	0.78	0.90
b3	5.20	5.33	5.46
c	0.43	0.53	0.61
D	5.98	6.10	6.22
D1	5.30REF		
E	6.40	6.60	6.73
E1	4.63	-	-
e	2.286BSC		
H	9.40	10.10	10.50
L	1.38	1.50	1.75
L1	2.90REF		
L2	0.51BSC		
L3	0.88	-	1.28
L4	0.50	-	1.00
L5	1.65	1.80	1.95
θ	0°	-	8°

* Dimensions in millimeters

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