BCH120S05D3

Silicon Carbide Schottky Diode

1200V, 5A

bestirpower

Description

BCH120S05D3 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

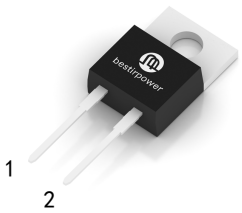
Features

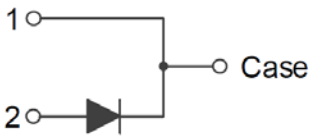
V_{RRM}	I_F	$T_{J,max}$	Q_C
1200 V	**5 A**	**175 ℃**	**27nC**

- Positive temperature coefficient
- Temperature-independent switching
- Maximum working temperature at 175 °C
- Unipolar devices and zero reverse recovery current
- Zero fo ward recovery current
- Essentially no switching losses
- Reduction of heat sink requirements
- High-frequency operation
- Reduction of EMI

Applications

- Power factor correction(PFC)
- Solar inverter
- Uninterruptible power supply
- Motor drives
- Photo-voltaic inverter
- Electric car and charger





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℃	13	A
		T_C = 137℃	7	A
		T_C = 148℃	5	A
$I_{F,SM}$	Non-Repetitive Forward Surge Current	T_C = 25℃, t_p = 10 ms	40	A
		T_C = 110℃, t_p = 10 ms	34	A
I^2dt value	$\int I^2t$	T_C = 25℃, t_p = 10 ms	12.5	A^2s
P_{tot}	Power Dissipation	T_C = 25℃	58	W
		T_C = 110℃	25	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.	2.6	℃/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=5A ，T_C = 25℃	-	1.37	1.8	V
		I_F=5A，Tc=175℃	-	1.8	-	
I_R	Reverse Current	V_R = 1200 V, T_C = 25℃	-	0.5	16	μA
		V_R = 1200 V, T_C = 175℃	-	8	-	
Q_C	Total Capacitive Charge	VR=800V, Tj=25°C , QC=∫0 VRC(V)dV	-	27	-	nC
C	Total capacitance	V_R=0V, f=1MHZ	-	377	-	pF
		V_R=400V, f=1MHZ	-	25	-	
		V_R=800V, f=1MHZ	-	19	-	
E_C	Capacitance Stored Energy	V_R =800V	-	6.8	-	μJ

Typical Performance Characteristics

Figure 1. Forward Characteristics

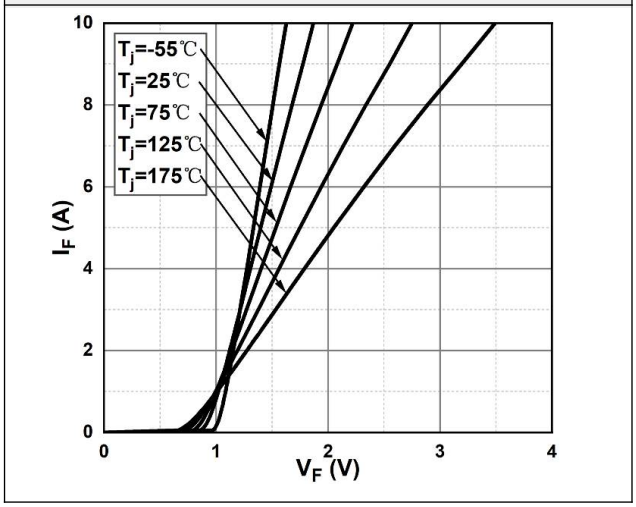
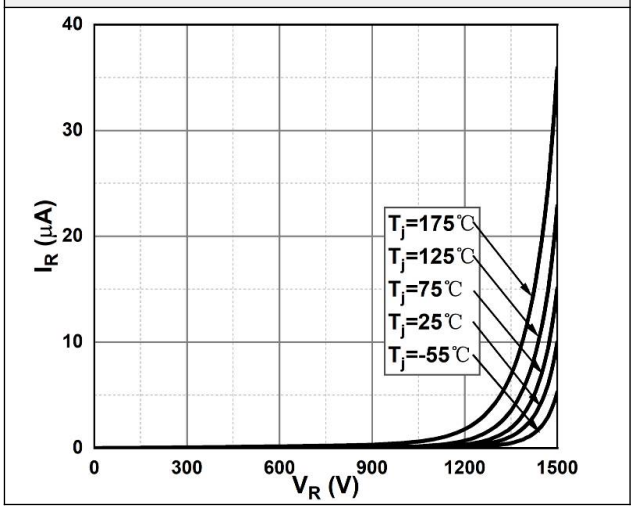


Figure 2. Reverse Characteristics



Typical Performance Characteristics

Figure 3. Capacitance vs. Reverse Voltage

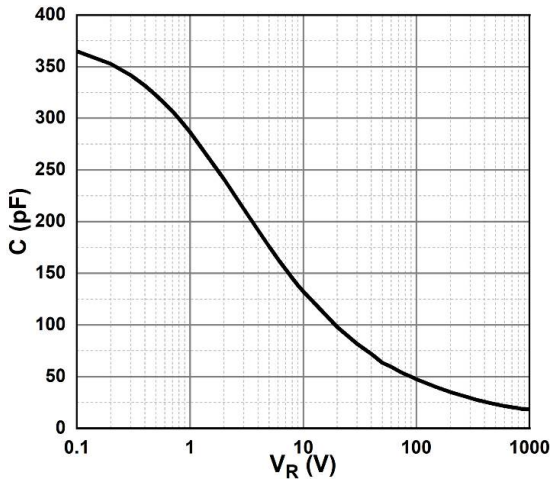


Figure 4. Total Capacitance Charge vs. Reverse Voltage

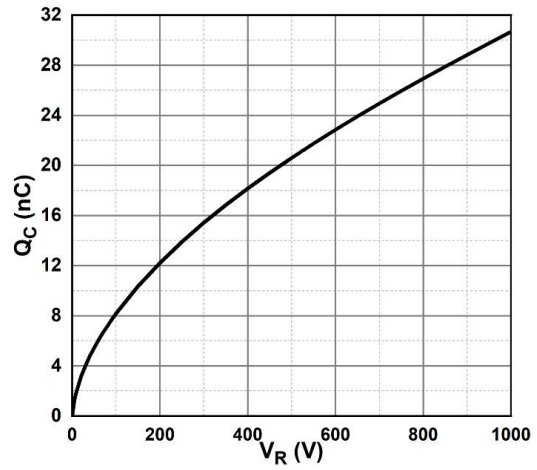


Figure 5. Capacitance Stored Energy

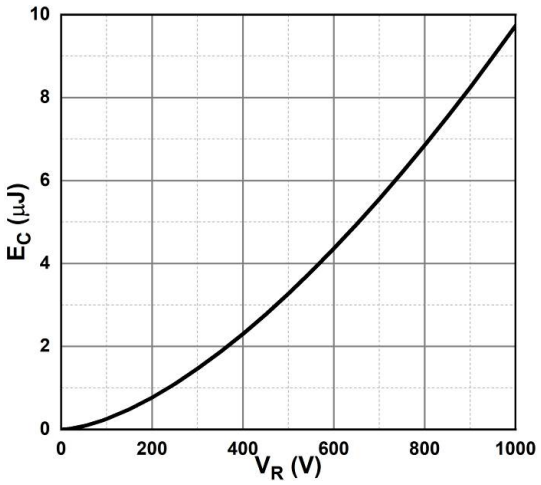


Figure 6. Power Derating

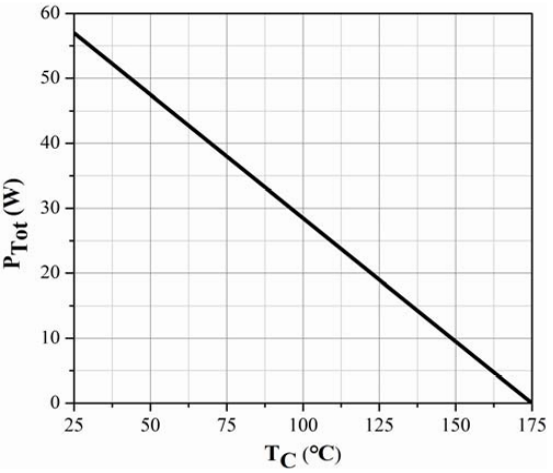


Figure 7. Current Derating

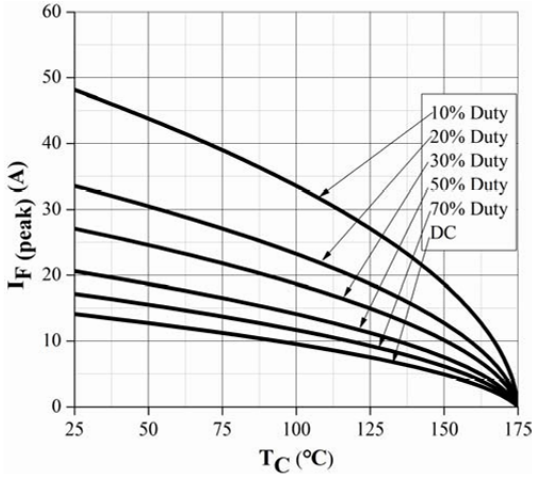
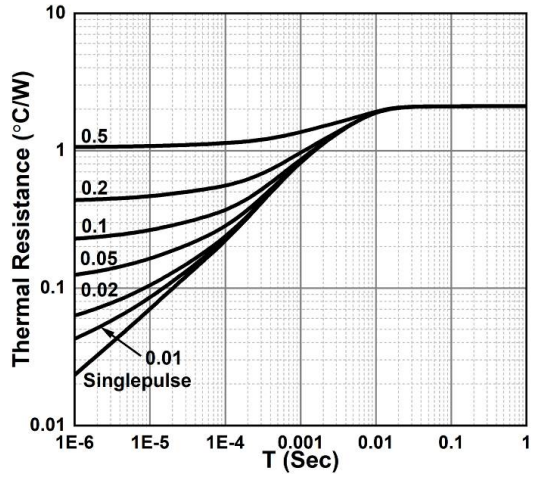
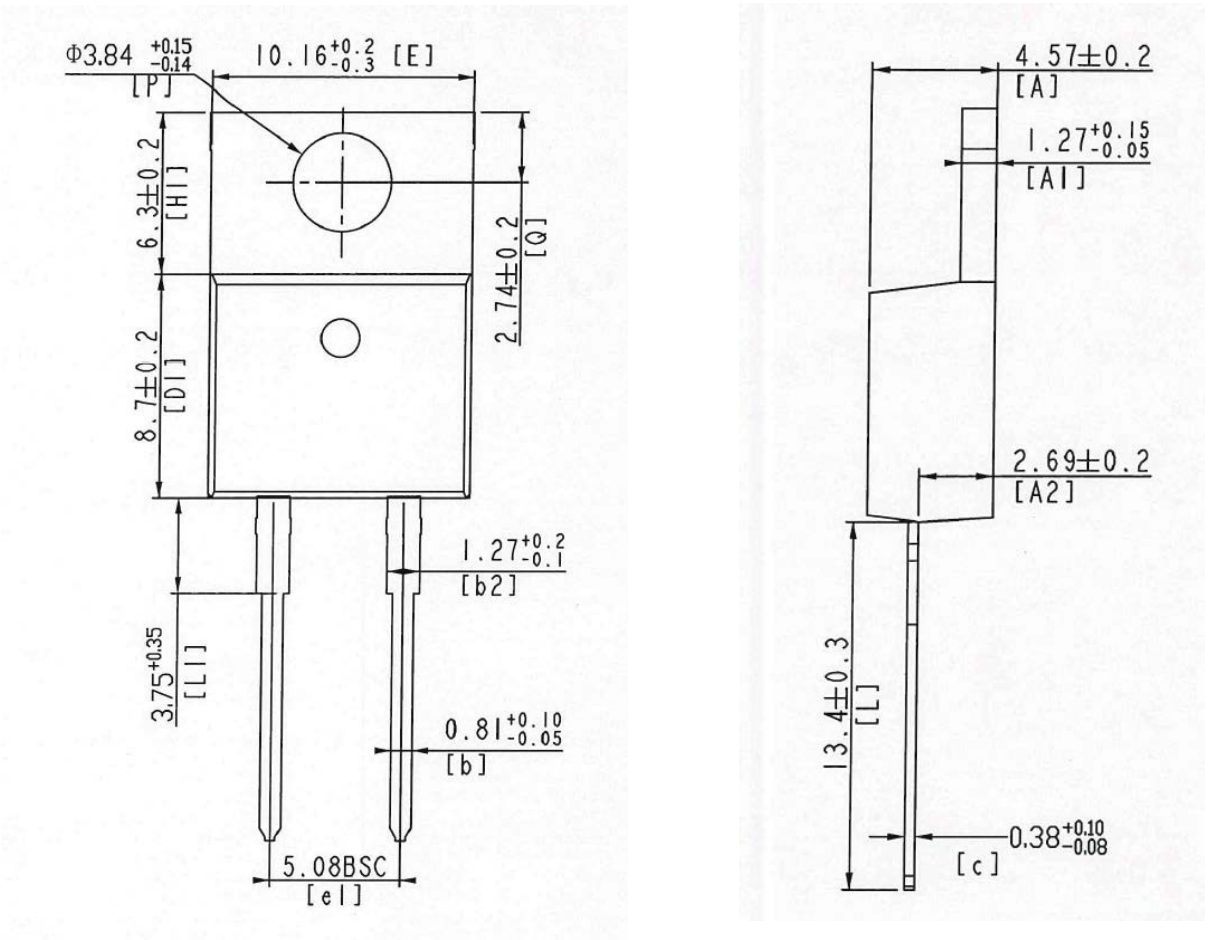


Figure 8. Transient Thermal Impedance



Package Outlines

TO220-2



Package Marking and Ordering Information

Part Number	Top Marking	Package	Packing Method	Quantity
BCH120S05D3	BCH120S05D3	TO220-2	Tube	50 units

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