

# BCH120S20D2

## Silicon Carbide Schottky Diode

1200V, 20A



bestirpower

### Description

BCH120S20D2 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

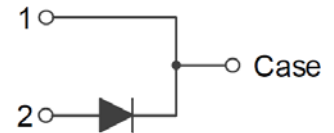
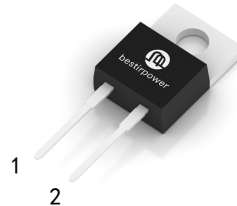
### Applications

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

### Features

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

- 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	$T_C=25^\circ\text{C}$	65 A
		$T_C=135^\circ\text{C}$	30 A
		$T_C=155^\circ\text{C}$	20 A
$I_{F,SM}$	Non-Repetitive Forward Surge Current	$T_C=25^\circ\text{C}, t_p=10\text{ms}$	195 A
		$T_C=110^\circ\text{C}, t_p=10\text{ms}$	120 A
$I_{F,Max}$	Non-Repetitive Peak Forward Current	$T_C=25^\circ\text{C}, t_p=10\mu\text{s}$	1180 A
		$T_C=150^\circ\text{C}, t_p=10\mu\text{s}$	980 A
$I^2dt$ value	$\int I^2t$	$T_C=25^\circ\text{C}, t_p=10\text{ms}$	91 A <sup>2</sup> s
		$T_C=150^\circ\text{C}, t_p=10\text{ms}$	66 A <sup>2</sup> s
$P_{tot}$	Power Dissipation	$T_C=25^\circ\text{C}$	333 W
$T_J, T_{STG}$	Operating Junction and Storage Temperature	-55 to +175	°C

## Thermal Characteristics

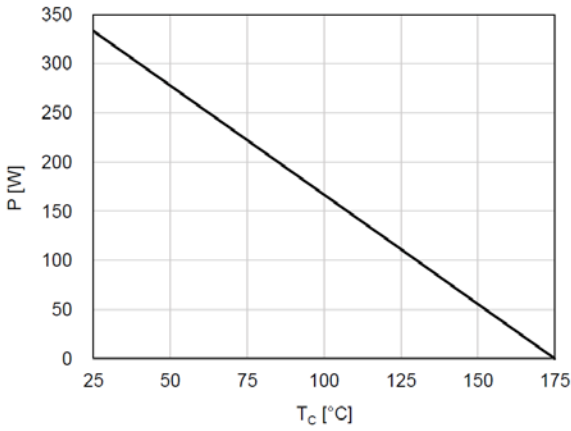
Symbol	Parameter	Value	Unit
$R_{\theta JC}$	Thermal Resistance, Junction to Case, Max.	0.45	$^{\circ}C/W$

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

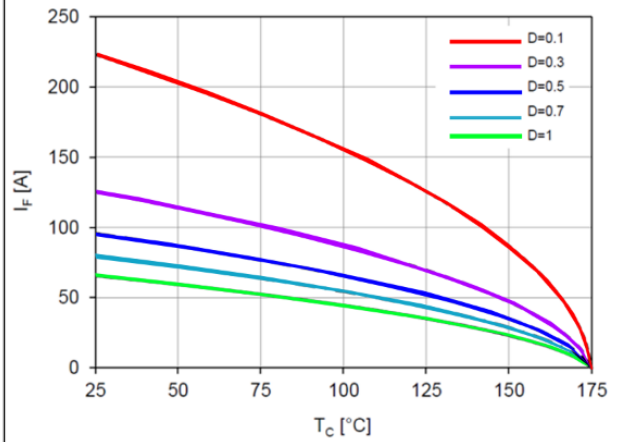
Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
$V_F$	Forward Voltage	$I_F=20A, T_C=25^{\circ}C$		1.39	1.70	V
		$I_F=20A, T_C=175^{\circ}C$		1.8	-	
$I_R$	Reverse Current	$V_R=1200V, T_C=25^{\circ}C$		10	100	$\mu A$
		$V_R=1200V, T_C=175^{\circ}C$		-	300	
$Q_C$	Total Capacitive Charge	$V_R=800V, T_C=25^{\circ}C$		121		nC
C	Total Capacitance	$V_R=1V, f=100Khz$		1357		pF
		$V_R=800V, f=100Khz$		85		
$E_C$	Capacitance Stored Energy	$V_R=800V, T_C=25^{\circ}C$		34		$\mu J$

### Typical Performance Characteristics

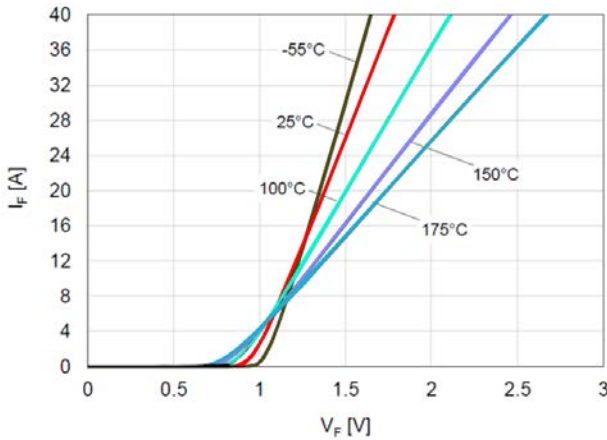
**Figure 1. Power Derating**



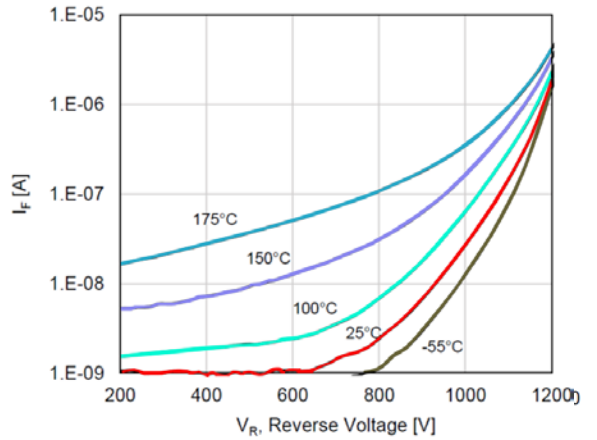
**Figure 2. Current Derating**



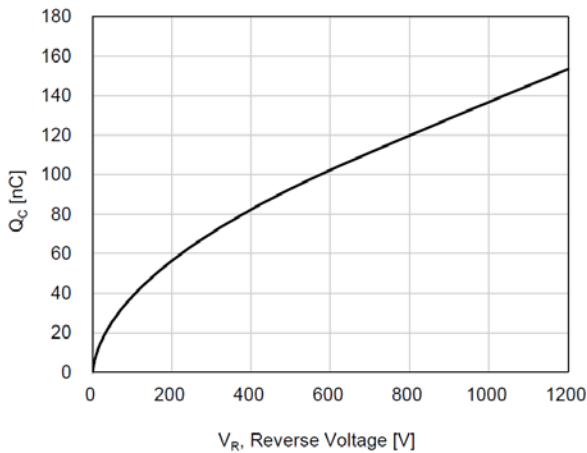
**Figure 3. Forward Characteristics**



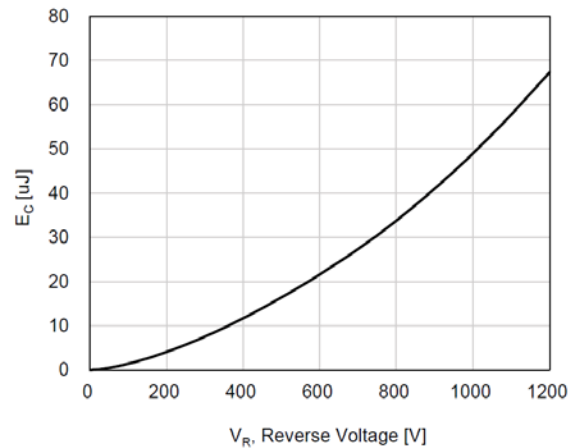
**Figure 4. Reverse Characteristics**



**Figure 5. Capacitive Charge Characteristic**



**Figure 6. Capacitance Stored Energy**



## Typical Performance Characteristics

Figure 7. Capacitance Characteristic

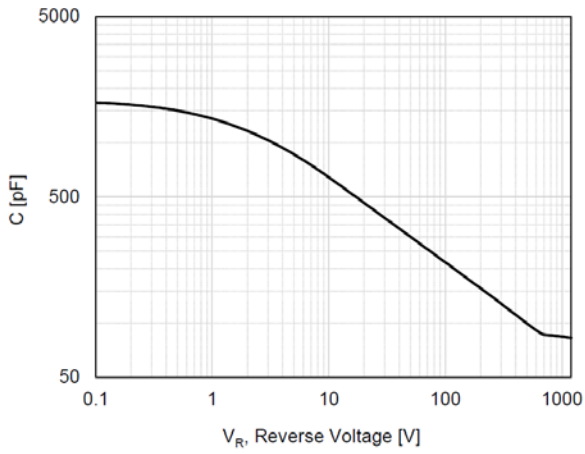
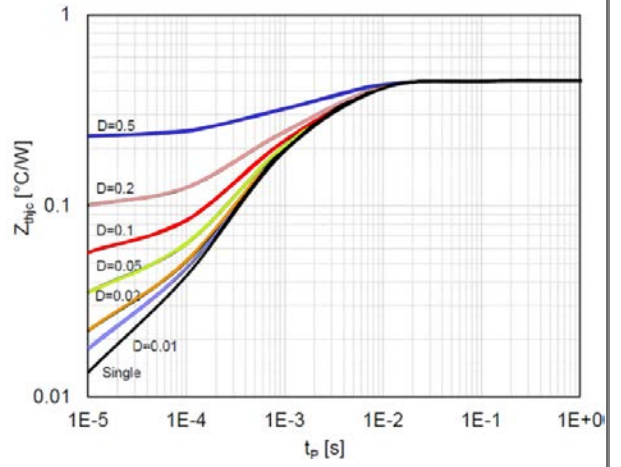
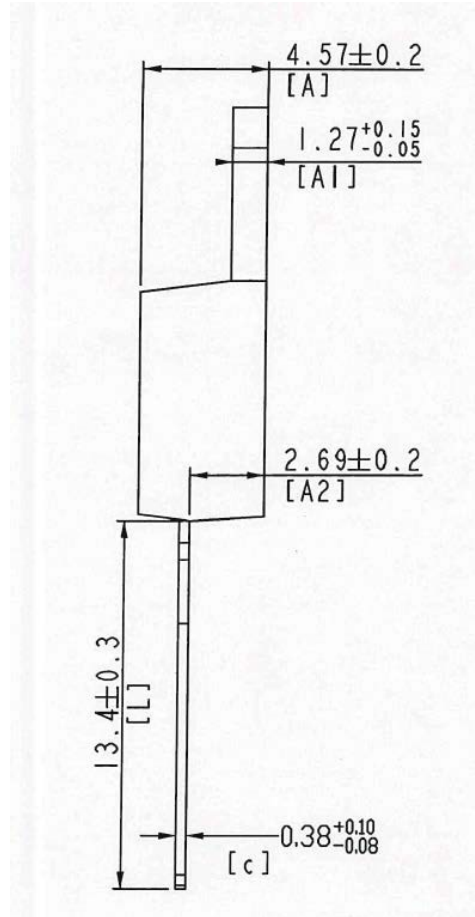
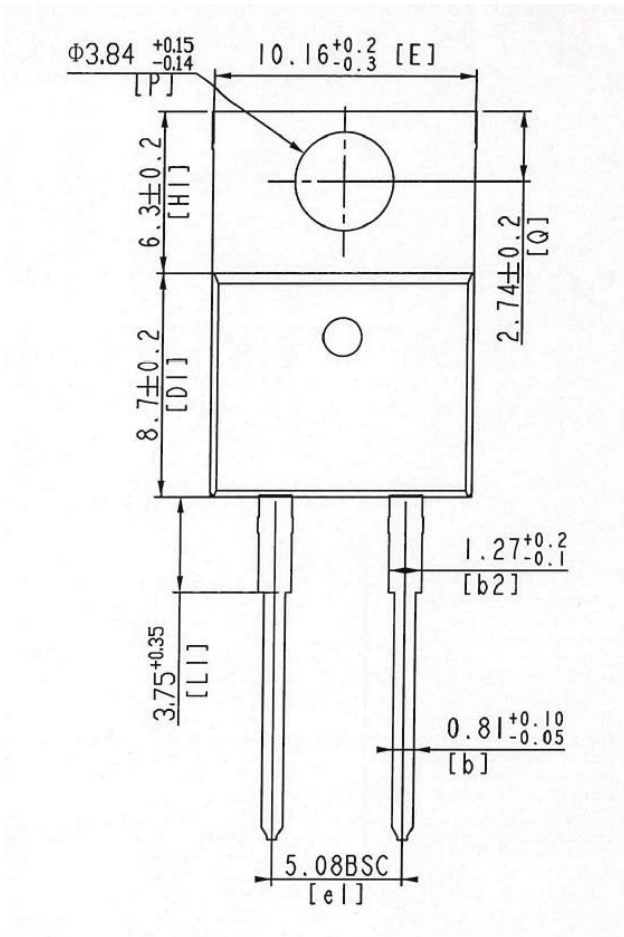


Figure 8. Transient Thermal Response Curve



Package Outlines

# TO220-2



## Package Marking and Ordering Information

Part Number	Top Marking	Package	Packing Method	Quantity
BCH120S20D2	BCH120S20D2	TO220-2	Tube	50 units

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