

# CBR20120PC

## SiC Schottky Diode

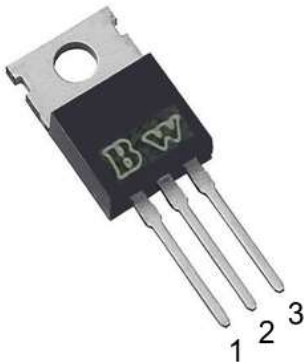
### Features

- Positive temperature coefficient for safe operation and ease of paralleling
- 175°C maximum operating junction temperature
- Extremely fast switching, temperature-independent
- No reverse or forward recovery
- Enhanced surge capability
- Component in accordance to ROHS

### Typical Applications

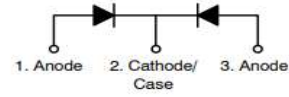
- For used in high frequency rectifier of switching mode power supplies, freewheeling diodes, dc-to-dc converters, industrial motor drives, power factor correction modules

Package type : TO220-3L

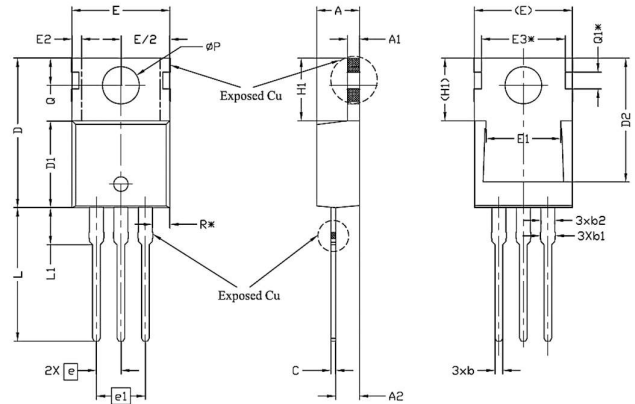


RoHS Compliant

### Graphic Symbol

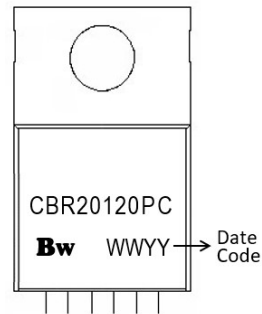


### Package Dimension



REF.	Millimeter			REF.	Millimeter		
	Min.	Nom.	Max.		Min.	Nom.	Max.
A	4.24	4.44	4.64	E2	-	-	0.76
A1	1.15	1.27	1.40	E3	8.70 REF.		
A2	2.30	2.48	2.70	e	2.54 BSC		
b	0.70	0.80	0.90	e1	5.08 BSC		
b1	1.20	1.55	1.75	H1	6.30	6.45	6.60
b2	1.20	1.45	1.70	L	13.47	13.72	13.97
c	0.40	0.50	0.60	L1	3.60	3.80	4.00
D1	14.70	15.37	16.00	ØP	3.75	3.84	3.93
D1	8.82	8.92	9.02	Q	2.60	2.80	3.00
D2	12.43	12.73	12.83	Q1	1.73 REF.		
E1	9.96	10.16	10.36	R	1.82 REF.		
E1	6.86	7.77	8.89				

### Marking



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#### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Absolute Maximum Ratings (T <sub>c</sub> =25°C unless otherwise noted)			
Symbol	Parameter	Value	Unit
V <sub>RRM</sub>	Maximum repetitive reverse voltage	1200	V
I <sub>F</sub>	Maximum average forward rectified current @ T <sub>c</sub> =25°C	20 <sup>1</sup> / 32 <sup>2</sup>	A
	Maximum average forward rectified current @ T <sub>c</sub> =100°C	10 <sup>1</sup> / 20 <sup>2</sup>	A
I <sub>FSM</sub>	Peak forward surge current (tp=8.3ms) @ T <sub>c</sub> =25°C	66	A
	Peak forward surge current (tp=8.3ms) @ T <sub>c</sub> =110°C	37	A
I <sub>FRM</sub>	Repetitive peak forward surge current (tp=8.3ms) @ T <sub>c</sub> =25°C	32	A
	Repetitive peak forward surge current (tp=8.3ms) @ T <sub>c</sub> =110°C	19	A
I <sub>F Max</sub>	Non-repetitive peak forward current (tp=10μs) @ T <sub>c</sub> =25°C	315	A
P <sub>tot</sub>	Power Dissipation	60	W
T <sub>J</sub> /T <sub>STG</sub>	Operating Junction and Storage Temperature	-55 to 175	°C

Thermal Resistance Ratings			
Symbol	Parameter	Value	Unit
R <sub>θJC</sub>	Maximum Junction-to-Case Thermal Resistance	2.5 <sup>1</sup> / 1.5 <sup>2</sup>	°C/W

Electrical Characteristics(T <sub>J</sub> =25°C unless otherwise specified)					
Symbol	Parameter	Test Conditions	Typ.	Max.	Unit
V <sub>F</sub>	Instantaneous forward voltage	I <sub>F</sub> =10A, T <sub>J</sub> =25°C	1.5	1.7	V
		I <sub>F</sub> =10A, T <sub>J</sub> =175°C	2.2	3	
I <sub>R</sub>	Maximum reverse current	V <sub>R</sub> =1200V, T <sub>J</sub> =25°C	1	100	μA
		V <sub>R</sub> =1200V, T <sub>J</sub> =175°C	42	300	
C	Total Capacitance	V <sub>R</sub> =0.1V	620	-	pF
		V <sub>R</sub> =400V	56	-	
		V <sub>R</sub> =800V	41	-	
Q <sub>C</sub>	Total Capacitive charge	V <sub>R</sub> =800V, I <sub>F</sub> =10A, di/dt=250A/μs	50	-	nC
				-	

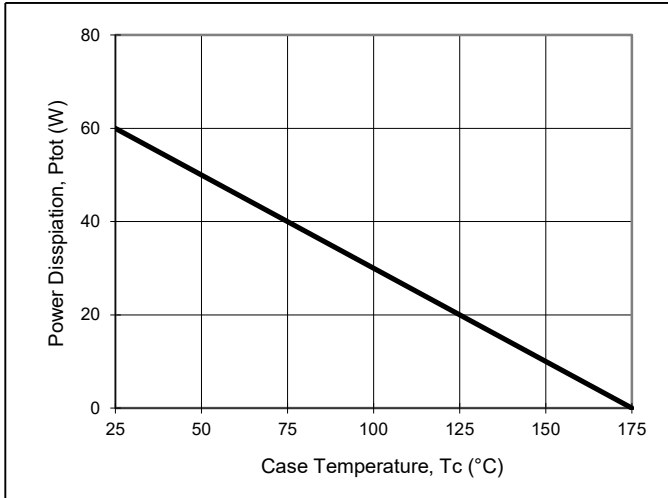
**Note:**

1. Per leg
2. Per device

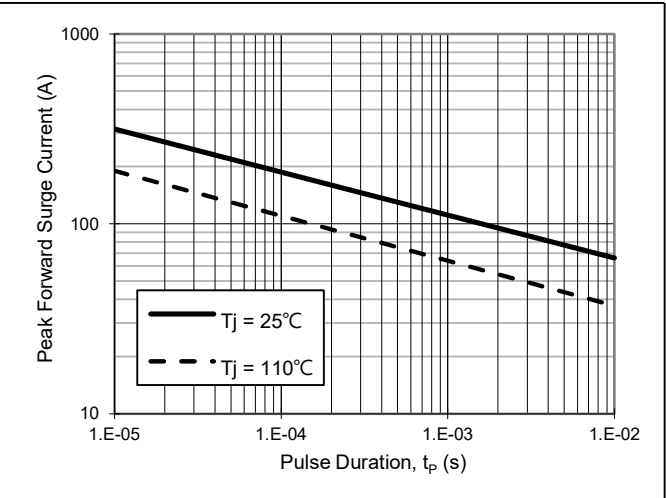
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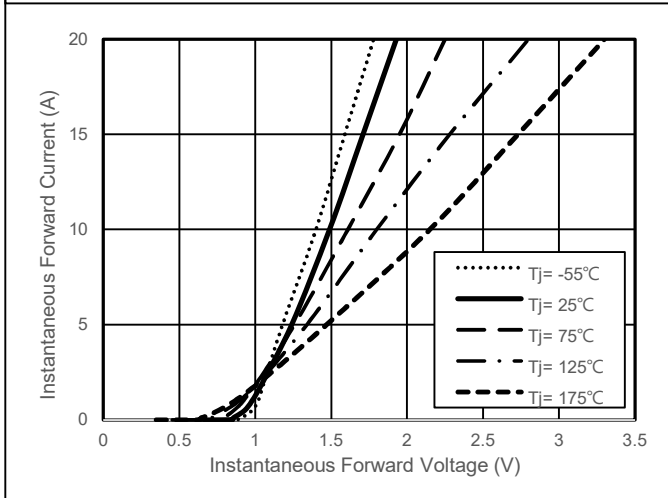
#### Typical Electrical Characteristics



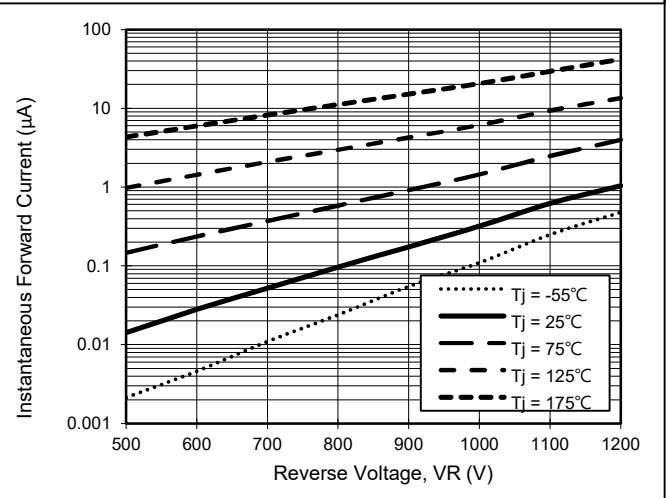
**Fig1. Power Dissipation**



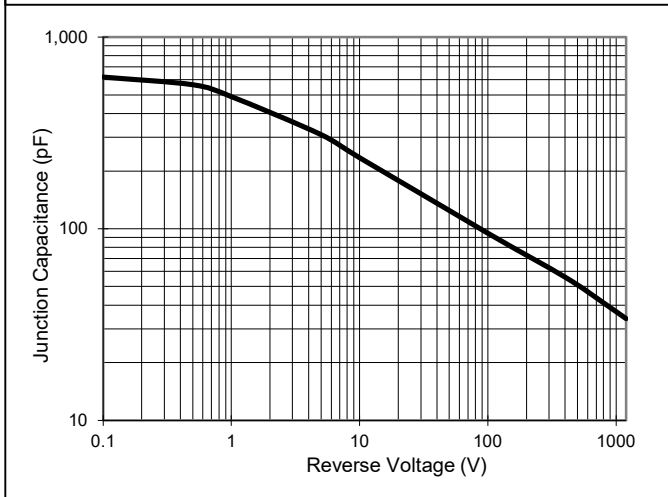
**Fig2. Non-repetitive peak forward current vs.  $t_p$**



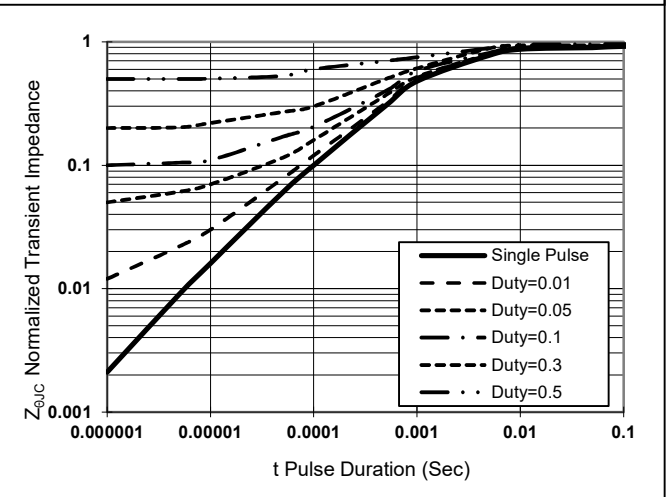
**Fig3. Typical Forward Characteristics**



**Fig4. Typical Reverse Characteristics**



**Fig5. Typical Junction Capacitance**



**Fig6. Transient Thermal Impedance**

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