

# CBR10120W

## SiC Schottky Diode

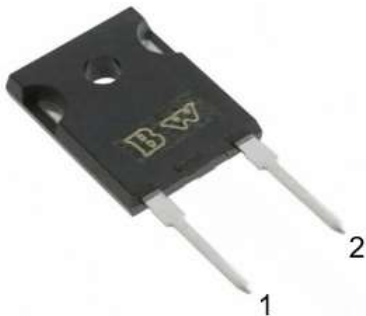
### Features

- 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

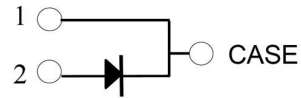
- For used in high frequency rectifier of switching mode power supplies, freewheeling diodes, dc-to-dc converters, industrial motor drives, power factor correction modules

Package type : TO247-2L

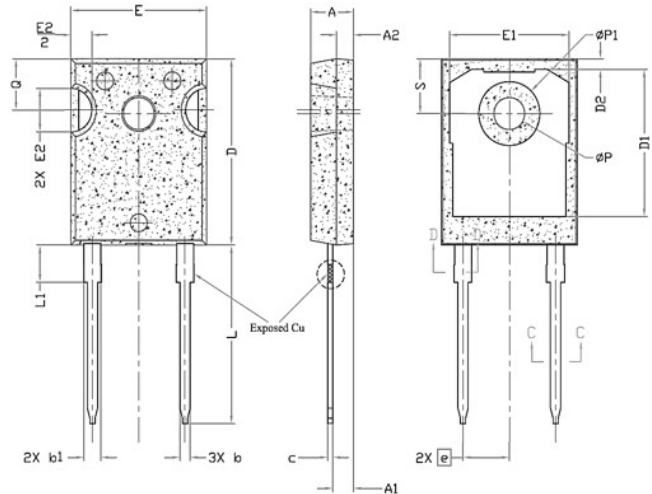


RoHS Compliant

### Graphic Symbol

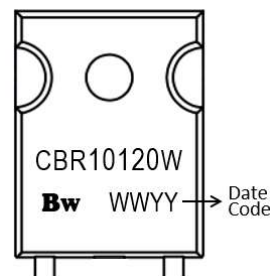


### Package Dimension



REF.	Millimeter			REF.	Millimeter		
	Min.	Nom.	Max.		Min.	Nom.	Max.
A	4.83	5.02	5.21	E	15.75	15.94	16.13
A1	2.29	2.41	2.55	E1	13.46	14.02	14.16
A2	1.50	2.00	2.49	E2	4.32	4.91	5.49
b	1.12	1.20	1.33	e	5.44 BSC		
b1	1.91	2.00	2.39	L	19.81	20.07	20.32
c	0.55	0.60	0.69	L1	4.1	4.19	4.4
D	20.80	20.95	21.10	ØP	3.56	2.61	3.65
D1	16.25	16.55	17.65	ØP1	7.19 REF.		
D2	0.51	1.19	1.35	Q	5.39	5.79	6.2
				S	6.04	6.17	6.3

### 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	A
	Maximum average forward rectified current @ T <sub>c</sub> =100°C	10	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	176	W
T <sub>J</sub> /T <sub>STG</sub>	Operating Junction and Storage Temperature	-55 to 175	°C

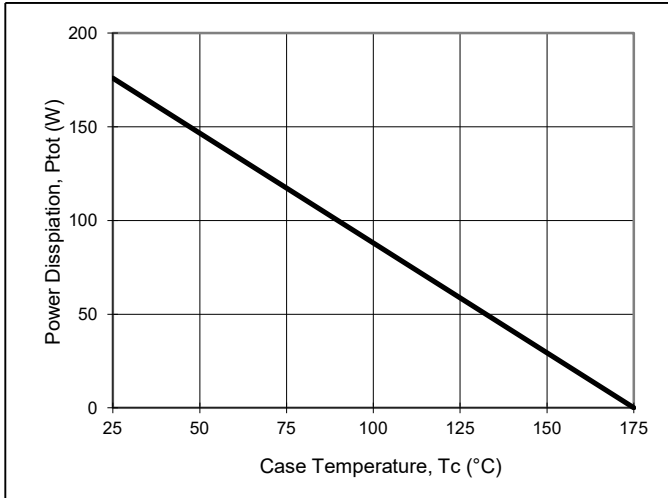
Thermal Resistance Ratings			
Symbol	Parameter	Value	Unit
R <sub>θJC</sub>	Maximum Junction-to-Case Thermal Resistance	0.85	°C/W

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
				-	

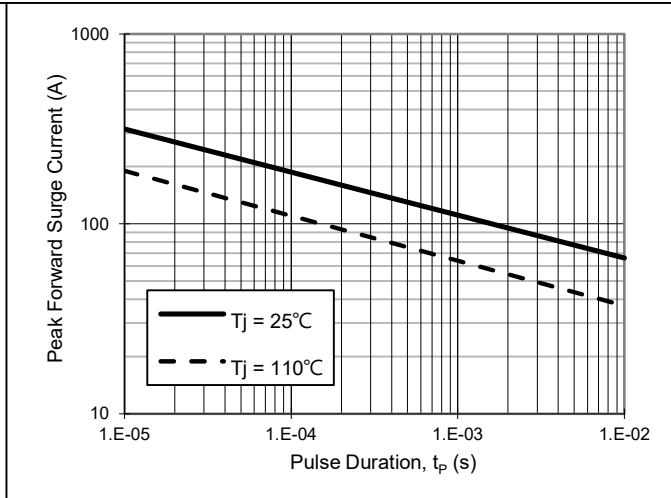
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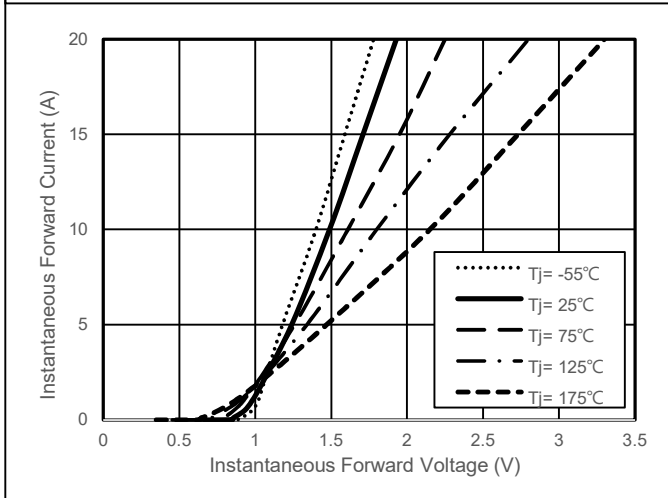
### Typical Electrical Characteristics



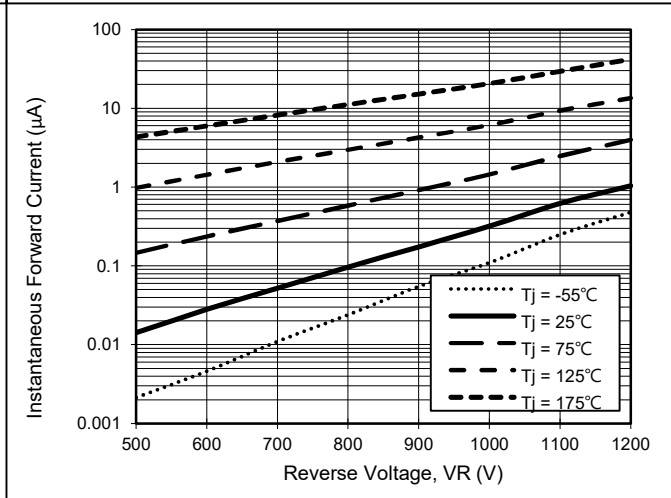
**Fig1. Power Dissipation**



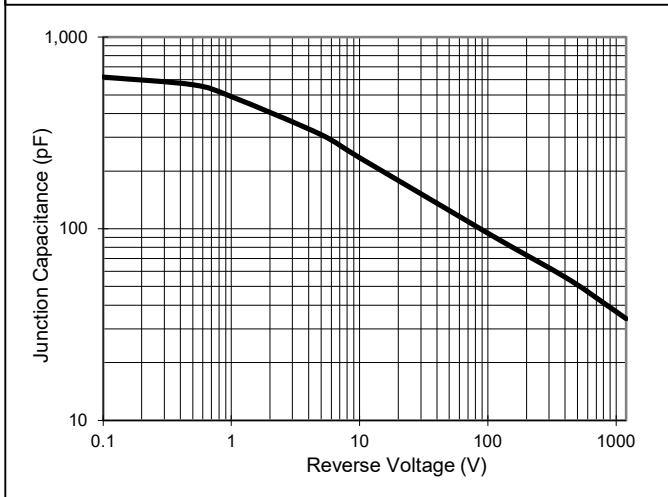
**Fig2. Non-repetitive peak forward current vs.  $t_p$**



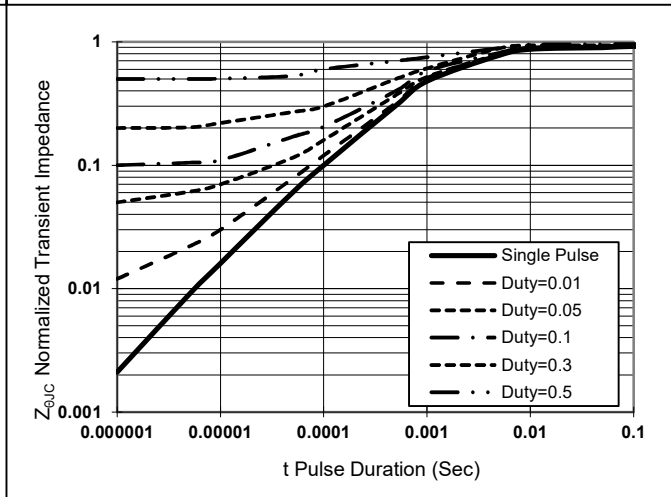
**Fig3. Typical Forward Characteristics**



**Fig4. Typical Reverse Characteristics**



**Fig5. Typical Junction Capacitance**



**Fig6. Transient Thermal Impedance**

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