CBR20P65PC

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
- Avalanche rated 67mJ[1]
- Component in accordance to ROHS

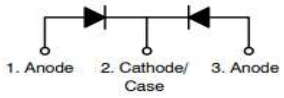
Typical Applications

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

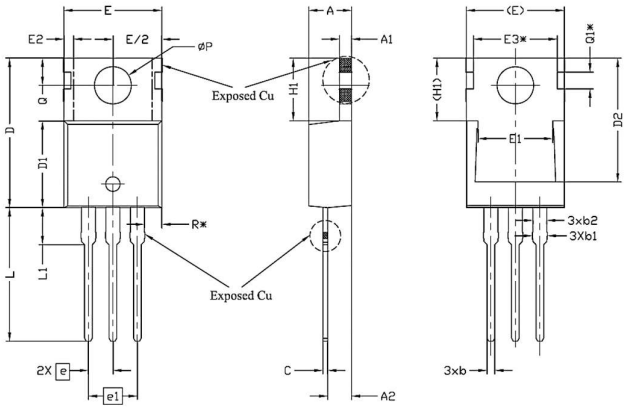
Package type：TO220-3L

RoHS Compliant

Graphic Symbol

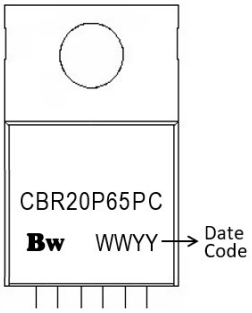


Package Dimension



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 (Tc=25°C unless otherwise noted)			
Symbol	**Parameter**	**Value**	**Unit**
V_{RRM}	Maximum repetitive reverse voltage	650	V
I_F	Maximum average forward rectified current @ T_C=25°C	21[2] / 43[3]	A
	Maximum average forward rectified current @ T_C=150°C	10[2] / 20[3]	A
I_{FSM}	Peak forward surge current (tp=8.3ms) @ T_C=25°C	80	A
	Peak forward surge current (tp=8.3ms) @ T_C=110°C	70	A
I_{FRM}	Repetitive peak forward surge current (tp=8.3ms) @ T_C=25°C	40	A
	Repetitive peak forward surge current (tp=8.3ms) @ T_C=110°C	27	A
$I_{F\ Max}$	Non-repetitive peak forward current (tp=10μs) @ T_C=25°C	575	A
P_{tot}	Power Dissipation	60	W
T_J/T_{STG}	Operating Junction and Storage Temperature	-55 to 175	°C

Thermal Resistance Ratings			
Symbol	**Parameter**	**Value**	**Unit**
$R_{\theta JC}$	Maximum Junction-to-Case Thermal Resistance	2.5[2] / 1.5[3]	°C/W

Electrical Characteristics(TJ =25°C unless otherwise specified)					
Symbol	**Parameter**	**Test Conditions**	**Typ.**	**Max.**	**Unit**
V_F	Instantaneous forward voltage	I_F=10A, T_J=25°C	1.5	1.7	V
		I_F=10A, T_J=150°C	1.7	2.1	
		I_F=10A, T_J=175°C	1.8	2.25	
I_R	Maximum reverse current	V_R=650V, T_J=25°C	1.5	25	μA
		V_R=650V, T_J=175°C	36	250	
C	Total Capacitance	V_R=1V	419	-	pF
		V_R=200V	51	-	
		V_R=400V	43	-	
Q_C	Total Capacitive charge	V_R=400V, I_F=10A, di/dt=250A/μs	26	-	nC

NOTE:

1. Max. EAS is tested base on TJ=25oC, L=1.0mH, IAS=11.58A, V=50V
2. Per leg
3. Per device

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Typical Electrical Characteristics

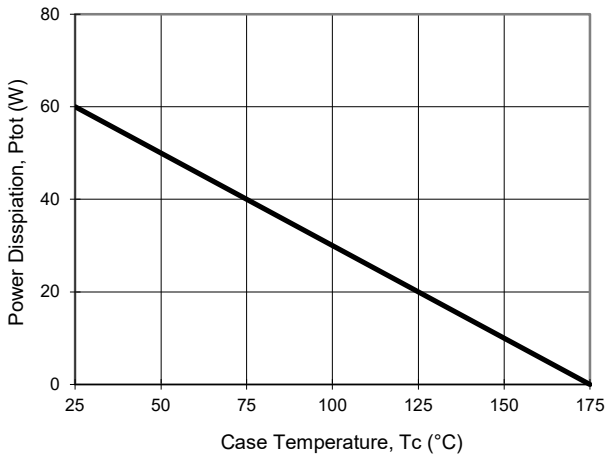

Fig1. Power Dissipation

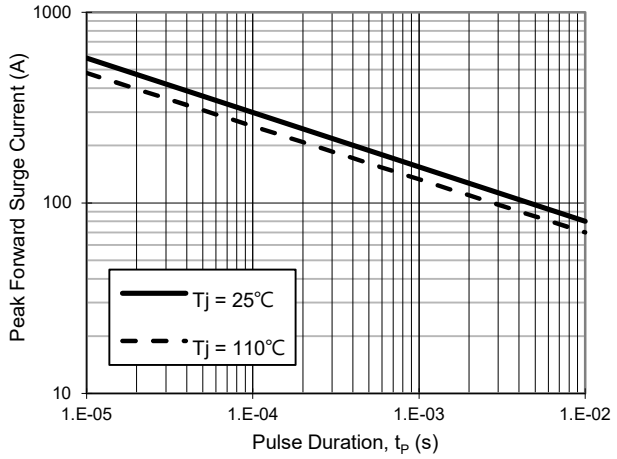

Fig2. Non-repetitive peak forward current vs. t_P

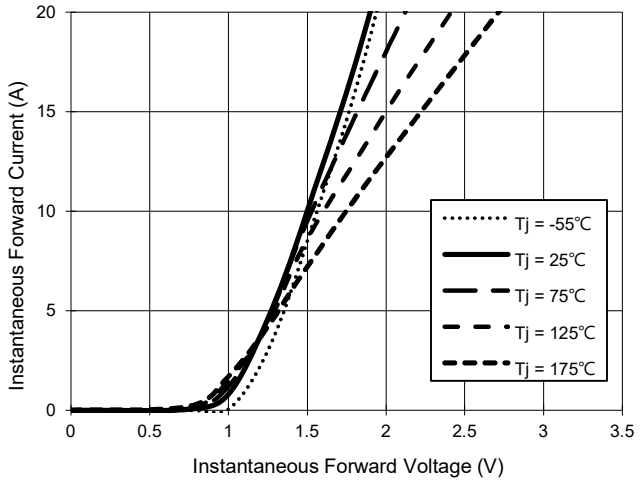

Fig3. Typical Forward Characteristics

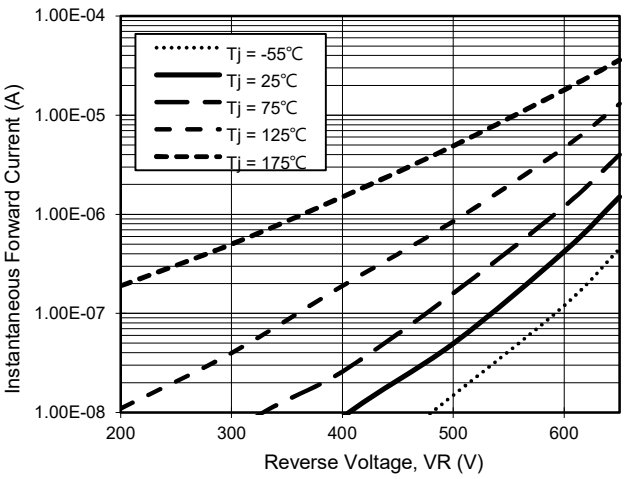

Fig4. Typical Reverse Characteristics

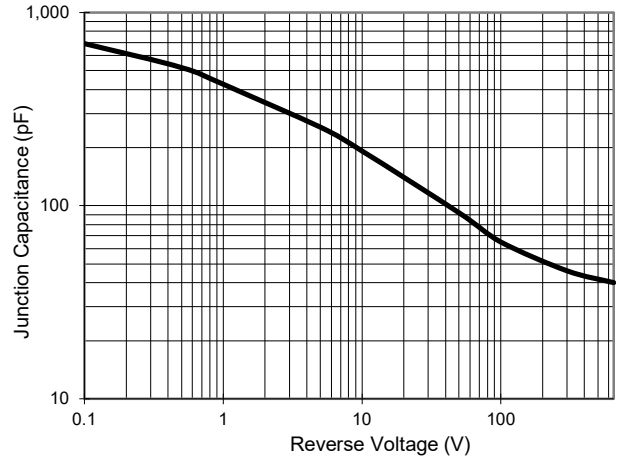

Fig5. Typical Junction Capacitance

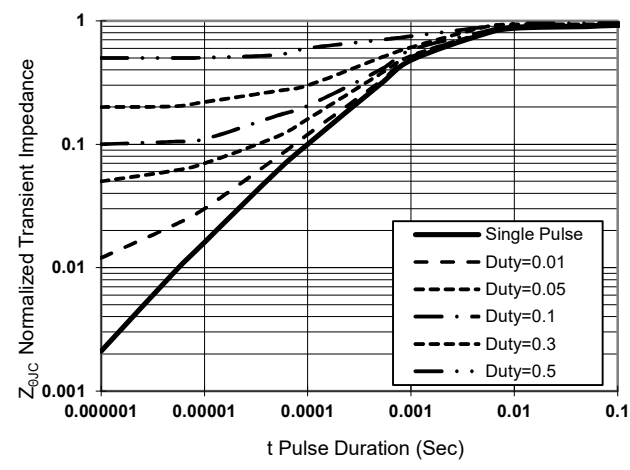

Fig6. Transient Thermal Impedance

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