CPWR-0600S001 – Silicon Carbide Schottky Diode Chip

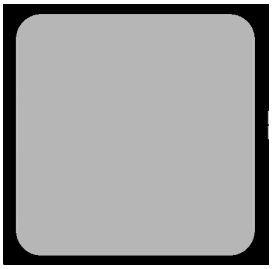
Zero Recovery® Rectifier

V_{RRM} = 600 V
$I_{F(AVG)}$ = 1 A
Q_c = 3.3 nC

Features

- 600-Volt Schottky Rectifier
- Zero Reverse Recovery
- Zero Forward Recovery
- High-Frequency Operation
- Temperature-Independent Switching Behavior
- Extremely Fast Switching
- Positive Temperature Coefficient on V_F

Chip Outline



Part Number	Anode	Cathode	Package	Marking
CPWR-0600S001B	Al	Ni/Ag	Sawn on Foil	Wafer # on Foil

Maximum Ratings

Symbol	Parameter	Value	Unit	Test Conditions	Note
V_{RRM}	Repetitive Peak Reverse Voltage	600	V		
V_{RSM}	Surge Peak Reverse Voltage	600	V		
V_{DC}	DC Blocking Voltage	600	V		
$I_{F(AVG)}$	Average Forward Current	1	A	T_J=175ºC	
I_{FRM}	Repetitive Peak Forward Surge Current	5	A	T_C=25ºC, t_p=8.3 ms, Half Sine Wave	1
I_{FSM}	Non-Repetitive Peak Forward Surge Current	20	A	T_C=25ºC, t_p=10 µs, Pulse	1
T_J , T_{stg}	Operating Junction and Storage Temperature	-55 to +175	°C		

Electrical Characteristics

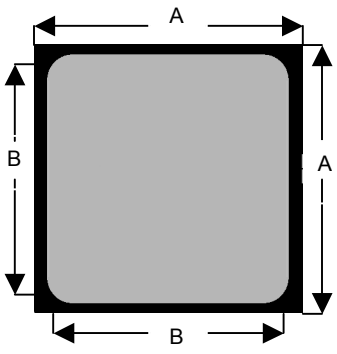
Symbol	Parameter	Typ.	Max.	Unit	Test Conditions	Note
V_F	Forward Voltage	1.6 2.0	1.8 2.4	V	I_F = 1 A T_J=25°C I_F = 1 A T_J=175°C	
I_R	Reverse Current	2 20 40	5 100 500	µA	V_R = 450 V T_J=25°C V_R = 600 V T_J=25°C V_R = 600 V T_J=150°C	
Q_C	Total Capacitive Charge	3.3		nC	V_R = 500 V, I_F = 1 A di/dt = 500 A/µs T_J = 25°C	
C	Total Capacitance	80 11 8.5		pF	V_R = 0 V, T_J = 25°C, f = 1 MHz V_R = 200 V, T_J = 25°C, f = 1 MHz V_R = 400 V, T_J = 25°C, f = 1 MHz	

Note:
1. Assumes θJC Thermal Resistance of 1.8°C/W or less

Mechanical Parameters

Parameter	Typ.	Unit
Die Size	.84 x .84	mm
Anode Pad Size	0.70 x 0.70	mm
Anode Pad Opening	0.58 x 0.0.58	mm
Thickness	377 ± 10%	µm
Wafer Size	100	mm
Anode Metalization (Al)	4	µm
Cathode Metalization (Ni/Ag)	0.8	µm
Frontside Passivation	Polyimide	

Chip Dimensions



symbol	dimension	
	mm	inch
A	0.84	0.0331
B	0.70	0.0276

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The die-on-tape method of delivering these SiC die may be considered a means of temporary storage only. Due to an increase in adhesion over time, die stored for an extended period may affix too strongly to the tape. These die should be stored in a temperature-controlled nitrogen dry box soon after receipt. Cree will further recommend that all die be removed from tape to a waffle pack, to a similar storage medium, or used in production within 2 – 3 weeks of delivery to assure 100% release of all die without issues.

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