CPW3-0600S004–Silicon Carbide Schottky Diode Chip

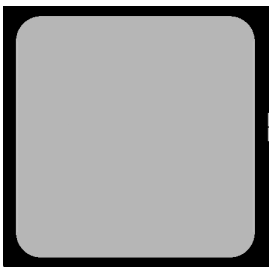
Z-Rec™ Rectifier

V_{RRM} = 600 V
$I_{F(AVG)}$ = 4 A
Q_c = 8.5 nC

Features

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

Chip Outline



Part Number	Anode	Cathode	Package	Marking
CPW3-0600S004B	Al	NiV/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	4	A	T_J=175°C	
I_{FRM}	Repetitive Peak Forward Surge Current	22	A	T_C=25°C, t_p=10 ms, Half Sine Wave, D=0.3	1
I_{FSM}	Non-Repetitive Peak Forward Surge Current	110	A	T_C=25°C, t_p=10 µs, Pulse	1
T_J , T_{stg}	Operating Junction and Storage Temperature	-55 to +175	°C		

Subject to change without notice.
www.cree.com/power

Electrical Characteristics

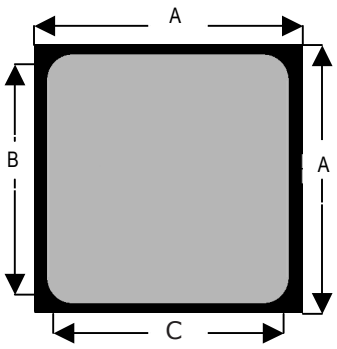
Symbol	Parameter	Typ.	Max.	Unit	Test Conditions	Note
V_F	Forward Voltage	1.5 1.8	1.8 2.4	V	I_F = 4 A T_J=25°C I_F = 4 A T_J=175°C	
I_R	Reverse Current	10 20	50 100	µA	V_R = 600 V T_J=25°C V_R = 600 V T_J=175°C	
Q_C	Total Capacitive Charge	8.5		nC	V_R = 600 V, I_F = 4 A di/dt = 500 A/µs T_J = 25°C	
C	Total Capacitance	251 22 21		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 2.02°C/W or less

Mechanical Parameters

Parameter	Typ.	Unit
Die Size	1.13 x 1.13	mm
Anode Pad Size	0.98 x 0.99	mm
Anode Pad Opening	0.87 x 0.88	mm
Thickness	377 ± 10%	µm
Wafer Size	100	mm
Anode Metalization (Al)	4	µm
Cathode Metalization (NiV/Ag)	1.8	µm
Frontside Passivation	Polyimide	

Chip Dimensions



symbol	dimension	
	mm	inch
A	1.13	0.044
B	0.98	0.039
C	0.99	0.039

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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.

This product has not been designed or tested for use in, and is not intended for use in, applications implanted into the human body nor in applications in which failure of the product could lead to death, personal injury or property damage, including but not limited to equipment used in the operation of nuclear facilities, life-support machines, cardiac defibrillators or similar emergency medical equipment, aircraft navigation or communication or control systems, air traffic control systems, or weapons systems.

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