

CPW5-1200-Z050B

Silicon Carbide Schottky Diode Chip

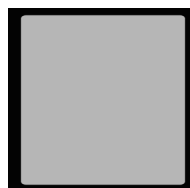
Z-REC™ RECTIFIER

$V_{RRM} = 1200 \text{ V}$
 $I_F = 50 \text{ A}$
 $Q_c = 170 \text{ nC}$

Features

- 1200-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	Die Size	Anode	Cathode
CPW5-1200-Z050B	4.9 x 4.9 mm ²	Al	Ni/Ag

Maximum Ratings

Symbol	Parameter	Value	Unit	Test Conditions	Note
V_{RRM}	Repetitive Peak Reverse Voltage	1200	V		
V_{RSM}	Surge Peak Reverse Voltage	1200	V		
V_R	DC Peak Blocking Voltage	1300	V		
I_F	Maximum DC Current	50	A	$T_J = 150^\circ\text{C}$	1
T_J, T_{stg}	Operating Junction and Storage Temperature	-55 to +175	$^\circ\text{C}$		
T_{Proc}	Maximum Processing Temperature	325	$^\circ\text{C}$	10 min Maximum	

Note:

1. Assumes θ_{JC} Thermal Resistance < 0.78°C/W and $T_c = 25^\circ\text{C}$

Electrical Characteristics

Symbol	Parameter	Typ.	Max.	Unit	Test Conditions	Note
V_F	DC Forward Voltage	1.6 2.3	1.8 2.7	V	$I_F = 50 \text{ A}$ $T_J = 25^\circ\text{C}$ $I_F = 50 \text{ A}$ $T_J = 175^\circ\text{C}$	Fig 1
I_R	Reverse Current	100 483	515 1920	μA	$V_R = 1200 \text{ V}$ $T_J = 25^\circ\text{C}$ $V_R = 1200 \text{ V}$ $T_J = 175^\circ\text{C}$	Fig 2
Q_C	Total Capacitive Charge	170		nC	$V_R = 400 \text{ V}$, $T_J = 25^\circ\text{C}$	Fig 4
C	Total Capacitance	3380 320 230		pF	$V_R = 0 \text{ V}$, $T_J = 25^\circ\text{C}$, $f = 1 \text{ MHz}$ $V_R = 200 \text{ V}$, $T_J = 25^\circ\text{C}$, $f = 1 \text{ MHz}$ $V_R = 400 \text{ V}$, $T_J = 25^\circ\text{C}$, $f = 1 \text{ MHz}$	Fig 3

Mechanical Parameters

Parameter	Typ.	Unit
Die Size	4.9 x 4.9	mm
Anode Pad opening	3.8 x 3.8	mm
Thickness	380 \pm 50	μm
Wafer Size	100	mm
Anode Metalization (Al)	4	μm
Cathode Metalization (Ni/Ag)	1.8	μm
Frontside Passivation	Polyimide	

Typical Performance

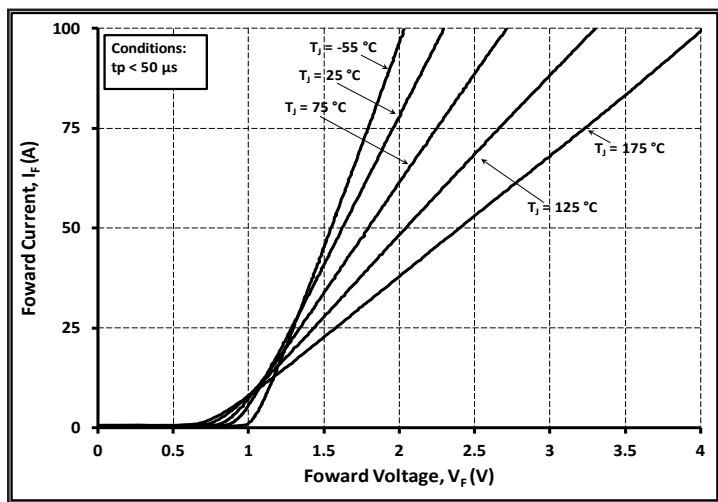


Figure 1. Typical Forward Characteristics

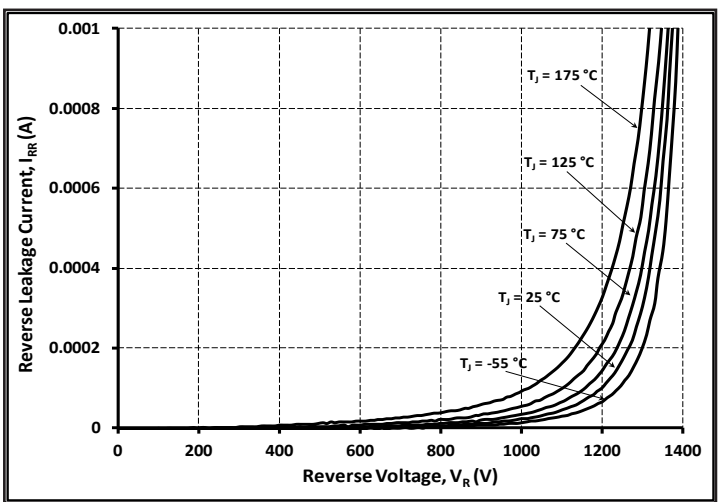


Figure 2. Typical Reverse Characteristics

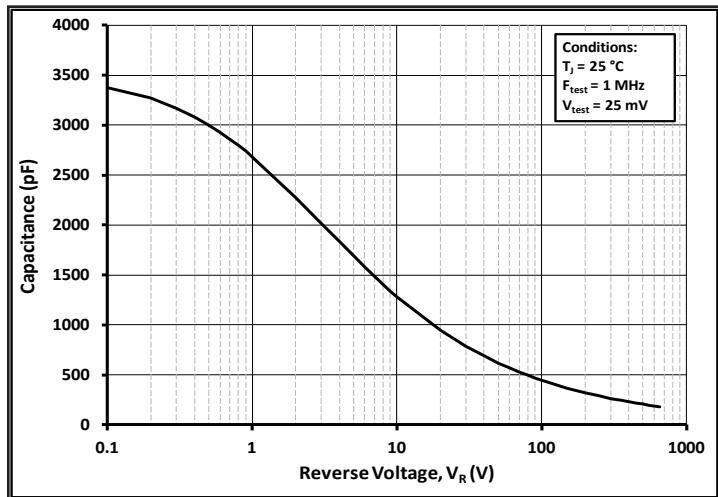


Figure 3. Typical Capacitance vs. Reverse Voltage

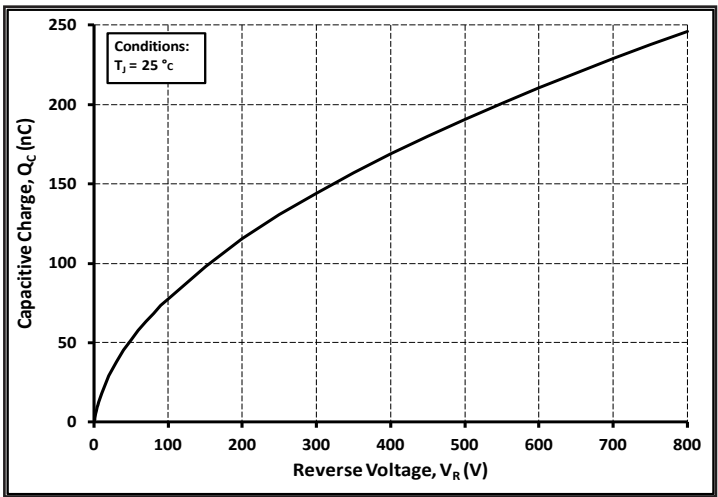
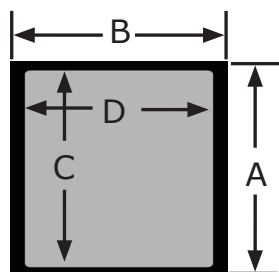


Figure 4. Typical Recovery Charge vs. Reverse Voltage

Chip Dimensions



symbol	dimension	
	mm	inch
A	4.9	0.193
B	4.9	0.193
C	3.8	0.150
D	3.8	0.150

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.

Copyright © 2013 Cree, Inc. All rights reserved. The information in this document is subject to change without notice. Cree and the Cree logo are registered trademarks and Z-Rec is a trademark of Cree, Inc.

Cree, Inc.
4600 Silicon Drive
Durham, NC 27703
USA Tel: +1.919.313.5300
Fax: +1.919.313.5451
www.cree.com/power