CPW3-1700S025–Silicon Carbide Schottky Diode Chip

Z-Rec™ Rectifier

V_{RRM}	= 1700 V
$I_{F(AVG)}$	= 25 A
Q_c	= 170 nC

Features

- 1700-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
CPW3-1700S025B	Al	Ni/Ag	Sawn on Foil	Wafer # on Foil

Maximum Ratings

Symbol	Parameter	Value	Unit	Test Conditions	Note
V_{RRM}	Repetitive Peak Reverse Voltage	1700	V		
V_{RSM}	Surge Peak Reverse Voltage	1700	V		
V_{DC}	DC Blocking Voltage	1700	V		
$I_{F(AVG)}$	Average Forward Current	25	A	T_J=175°C	
I_{FRM}	Repetitive Peak Forward Surge Current	82 43	A	T_C=25°C, t_p=10 ms, Half Sine Wave, D=1 T_C=110°C, t_p=10 ms, Half Sine Wave, D=1	1
I_{FSM}	Non-Repetitive Peak Forward Surge Current	117 84	A	T_C=25°C, t_p=10 ms, Half Sine Wave, D=1 T_C=110°C, t_p=10 ms, Half Sine Wave, D=1	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	1.8 3.2	2 4	V	I_F = 25 A T_J=25°C I_F = 25 A T_J=175°C	
I_R	Reverse Current	20 100	100 400	μA	V_R = 1700 V T_J=25°C V_R = 1700 V T_J=175°C	
Q_C	Total Capacitive Charge	170	270	nC	V_R = 1700 V, I_F = 25 A di/dt = 400 A/μs T_J = 25°C	
C	Total Capacitance	2250 200 140		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 $\theta_{J\text{-}C}$ Thermal Resistance of 0.63°C/W or less.

Typical Performance

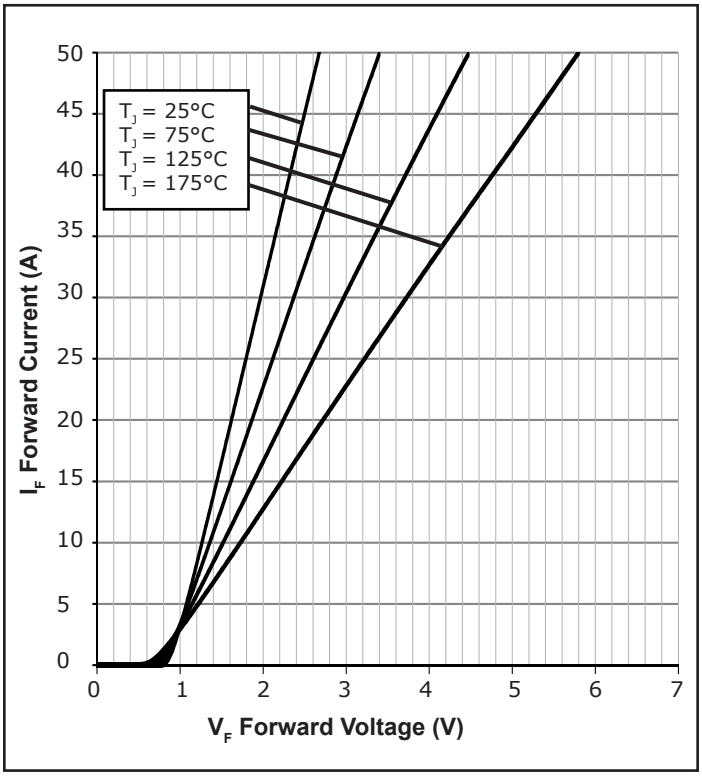


Figure 1. Forward Characteristics

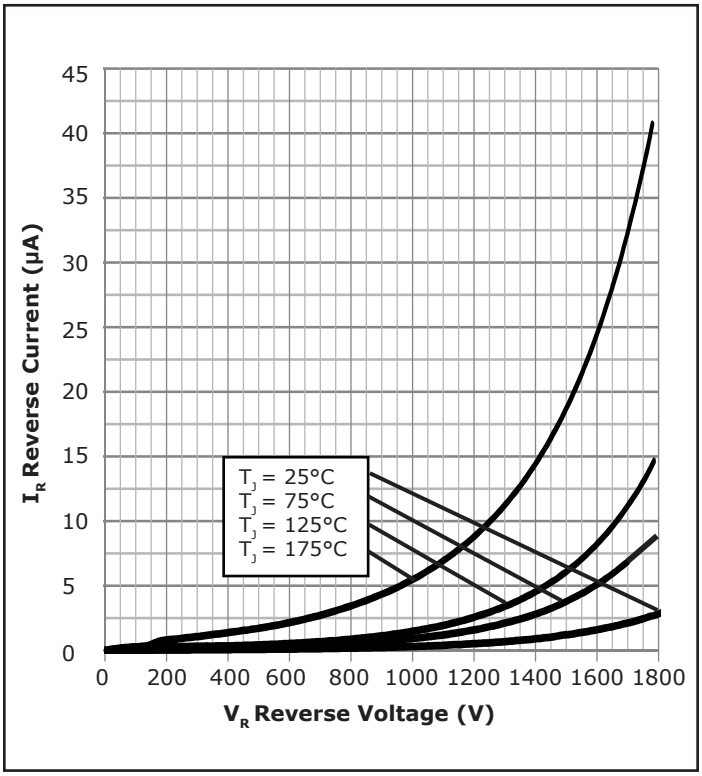


Figure 2. Reverse Characteristics

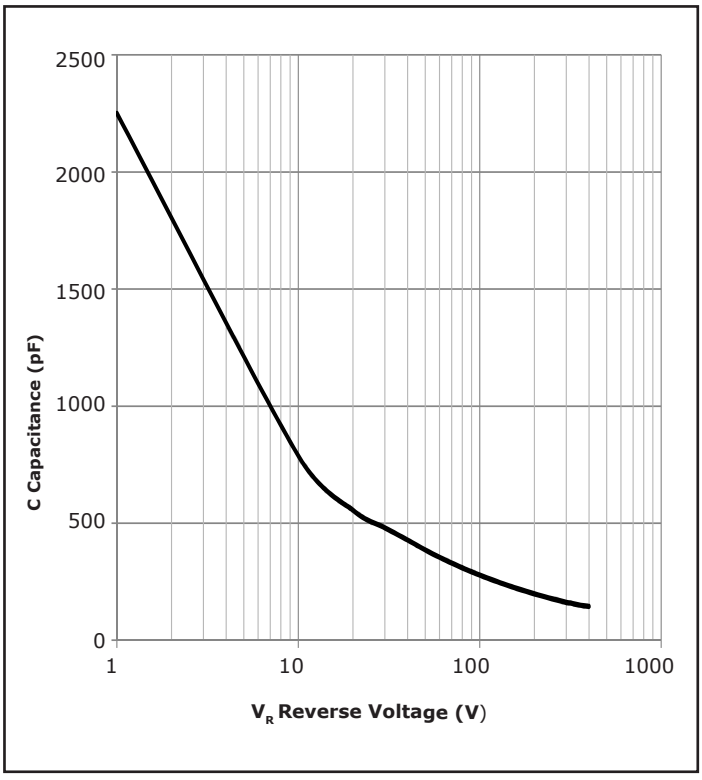
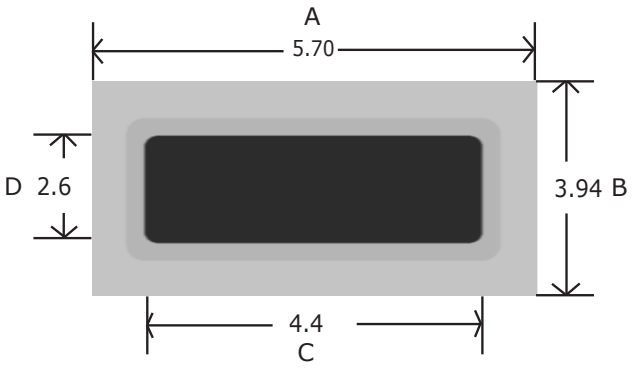


Figure 3. Capacitance vs. Reverse Voltage

Mechanical Parameters

Parameter	Typ.	Unit
Die Size	5.70 X 3.94	mm
Anode Pad Size	5.1 X 3.3	mm
Anode Pad Opening	4.4 X 2.6	mm
Thickness	387 ± 10%	µm
Anode Metalization (Al)	4	µm
Cathode Metalization (Ni/Ag)	1.8	µm

Chip Dimensions



Symbol	Dimension mm	inch
A	5.70	0.224
B	3.94	0.155
C	4.4	0.173
D	2.6	0.102

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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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