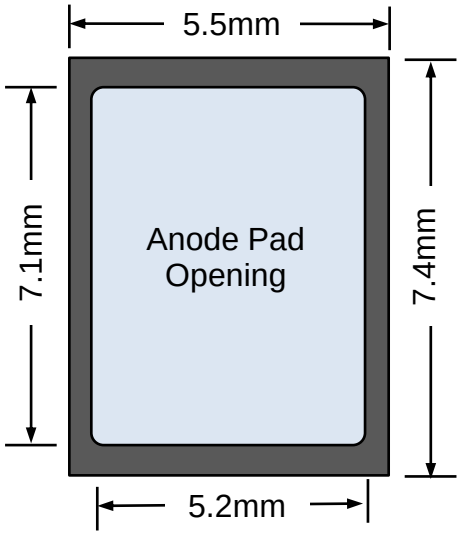
Features

- Positive temperature coefficient for safe operation and ease of paralleling
- 175°C maximum operating junction temperature
- Extremely fast switching not dependent on temperature
- Essentially no reverse or forward recovery



Typical Applications

- Power converters
- Industrial motor drives
- Switching-mode power supplies
- Power factor correction modules

Part Number	Anode Metal	Cathode Metal	Packaging
UJ3D12100Z	Al (5μm)	Ti/Ni/Ag (0.1/0.2/1μm)	Die on tape (6")

Descriptions

United Silicon Carbide, Inc offers the **xR series** of high-performance SiC Schottky diodes. With zero reverse recovery charge and 175°C maximum junction temperature, USCI's diodes are ideally suited for high-frequency and high-efficiency power systems with minimum cooling requirements.

Maximum Ratings

Parameter	Symbol	Test Conditions	Value	Units
DC Blocking Voltage	V_R		1200	V
Repetitive Peak Reverse Voltage, T_j=25°C	V_{RRM}		1200	V
Maximum DC Forward Current (1)	I_F	T_C = 137°C	100	A
Non-Repetitive Forward Surge Current (1)	I_{FSM}	T_C = 25°C, 8.3ms Half Sine Pulse	TBD	A
Non-Repetitive Avalanche Energy (1)	E_{AS}	T_j = 25°C, L = 10mH, Ipk=TBD, V_{DD}=100V	TBD	mJ
Maximum Junction Temperature	$T_{J,max}$		175	°C
Operating and Storage Temperature	T_J, T_{STG}		-55 to 175	°C

(1) Assumes a maximum junction-to-case thermal resistance of 0.125°C/W.

Electrical Characteristics

T_J = +25°C unless otherwise specified

Parameter	Symbol	Test Conditions	Value			Units
			Min	Typ	Max	
Forward Voltage	V_F	I_F = 100A, T_J = 25°C	-	1.5	1.7	V
		I_F = 100A, T_J =175°C	-	2.5	3	
Reverse Current	I_R	V_R=1200V, T_j=25°C	-	40	1200	μA
		V_R=1200V, T_J=175°C	-	200	3600	
Total Capacitive Charge	Q_C	V_R=600V, I_F=60A, di/dt=480A/μs		316		nC
Total Capacitance	C	V_R=1V, f=1MHz		5000		pF
		V_R=300V, f=1MHz		500		
		V_R=600V, f=1MHz		356		

Typical Performance

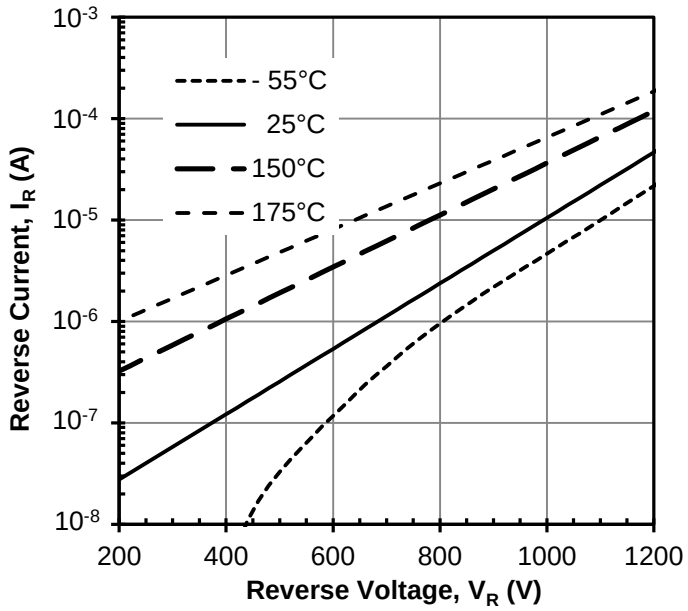


Figure 1 Typical reverse characteristics

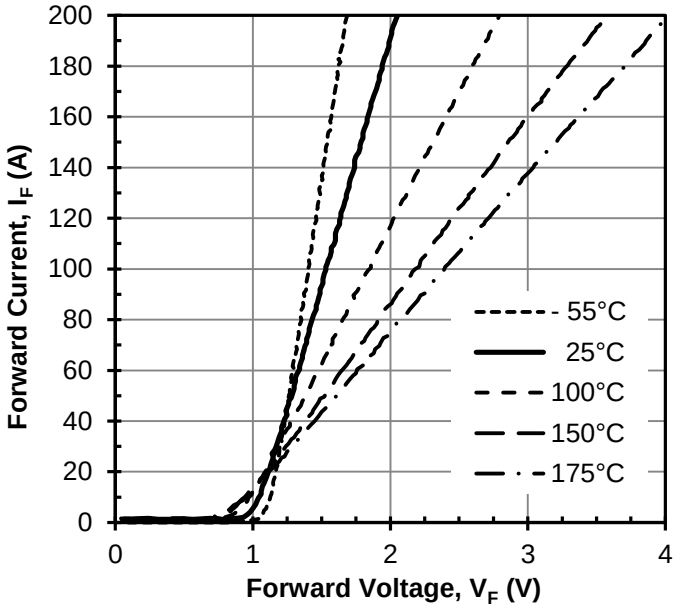


Figure 2 Typical forward characteristics

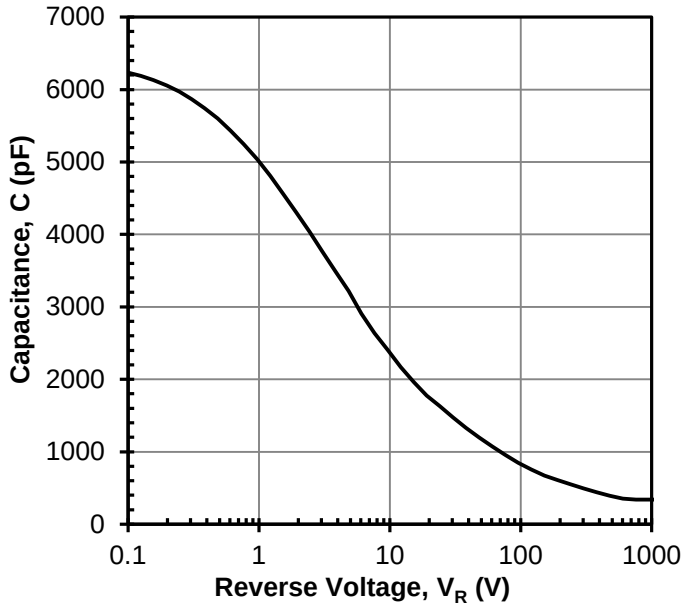


Figure 3 Capacitance vs. reverse voltage

Mechanical Characteristics

Parameter	Typical Value	Units
Die Dimensions (L x W)	5.5 x 7.4	mm
Top Anode Pad Opening (L x W)	5.2 x 7.1	mm
Wafer Size	150	mm
Anode Metallization (Al)	5	μm
Cathode Metallization (Ti/Ni/Ag)	0.1/0.2/1.0	μm
Die Thickness	150	μm

Disclaimer

United Silicon Carbide, Inc. reserves the right to change or modify any of the products and their inherent physical and technical specifications without prior notice. United Silicon Carbide, Inc. assumes no responsibility or liability for any errors or inaccuracies within.

Information on all products and contained herein is intended for description only. No license, express or implied, to any intellectual property rights is granted within this document.

United Silicon Carbide, Inc. assumes no liability whatsoever relating to the choice, selection or use of the United Silicon Carbide, Inc. products and services described herein.