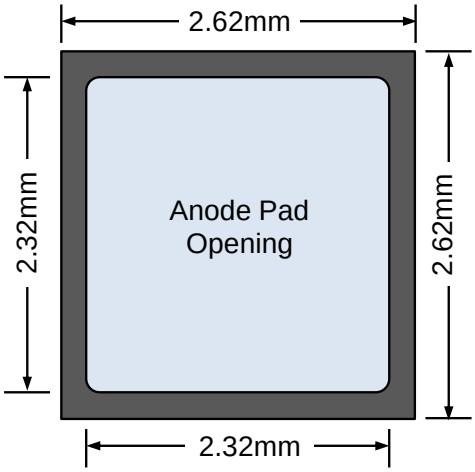
xR SiC Series
15A - 1200V SiC Schottky Diode
UJ2D1215Z Die Form

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
UJ2D1215Z	Al (5μm)	Ti/Ni/Au (0.07/0.1/0.1μm)	Die on Tape

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.

Absolute 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 = 138°C	15	A
Non-Repetitive Forward Surge Current (1)	I_{FSM}	T_C = 25°C, 8.3ms Half Sine Pulse	120	A
Non-Repetitive Avalanche Energy (1)	E_{AS}	T_j = 25°C, L = 10mH, Ipk=5A, V_{DD}=100V	132	mJ
Maximum Junction Temperature	$T_{J,max}$		175	°C
Storage Temperature	T_{STG}		-55 to 175	°C

(1) Assumes a maximum junction-to-case thermal resistance of 0.8°C/W.

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Electrical Characteristics

T_J = +25°C unless otherwise specified

Parameter	Symbol	Test Conditions	Value			Units
			Min	Typ	Max	
Forward Voltage	V_F	I_F = 15A, T_J = 25°C	-	1.5	1.7	V
		I_F = 15A, T_J =175°C	-	2.5	3	
Reverse Current	I_R	V_R=1200V, T_j=25°C	-	45	375	µA
		V_R=1200V, T_J=175°C	-	90	1000	
Total Capacitive Charge	Q_C	V_R=600V, I_F=15A, di/dt=250A/µs		60		nC
Total Capacitance	C	V_R=1V, f=1MHz		750		pF
		V_R=300V, f=1MHz		75		
		V_R=600V, f=1MHz		54		

Typical Performance

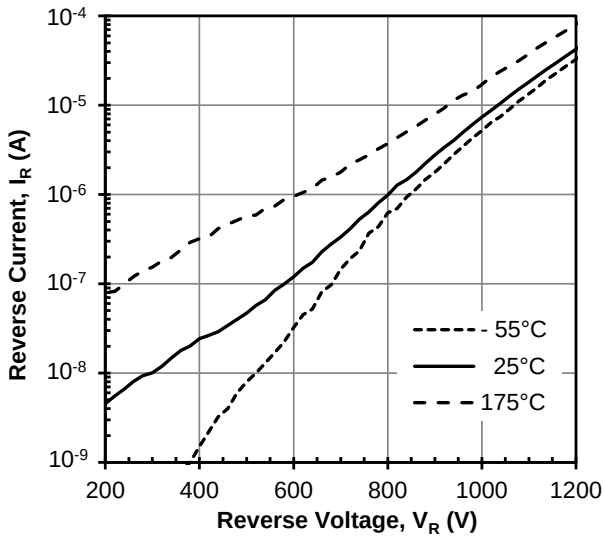

Figure 1 Typical reverse characteristics

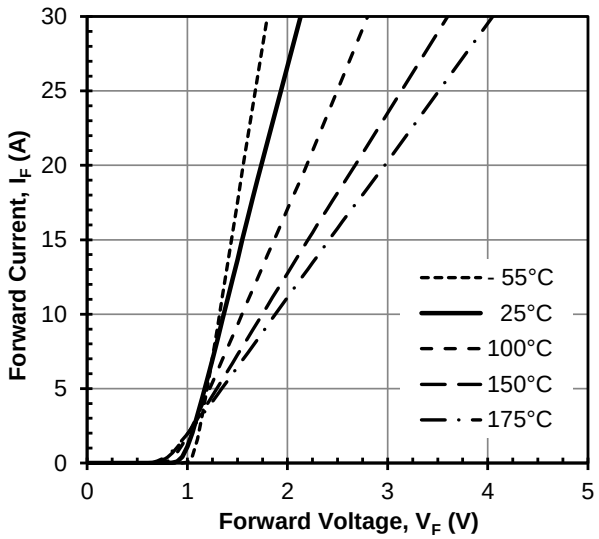

Figure 2 Typical forward characteristics

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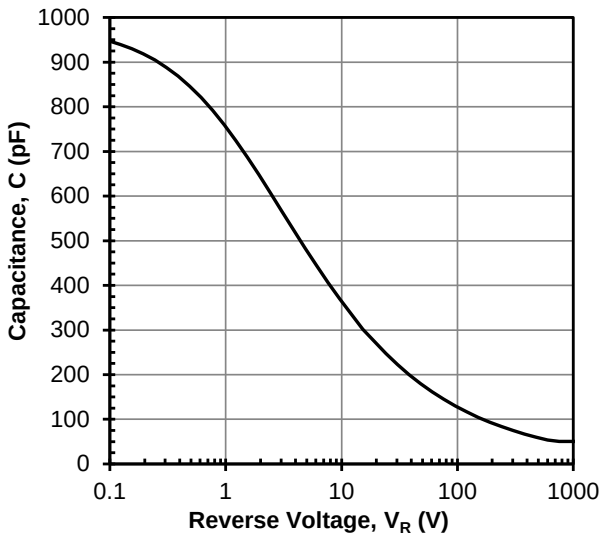

Figure 3 Capacitance vs. reverse voltage

Mechanical Characteristics

Parameter	Typical Value	Units
Die Dimensions (L x W)	2.62 x 2.62	mm
Top Anode Pad Opening (L x W)	2.32 x 2.32	mm
Wafer Size	100	mm
Anode Metallization (Al)	5	µm
Cathode Metallization (Ti/Ni/Au)	0.07/0.1/0.1	µm
Die Thickness	150	µm

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