



# 1200V 2A SiC Schottky Diode - SiS1200S02AS

Rev 1.0  
30/10/23

Silicon Carbide Schottky Barrier Rectifier diode in bare die form

## Features:

- Capable of high temperature operation  $\geq 175^{\circ}\text{C}$
- High Frequency Operation
- High Surge Current Capability
- No Reverse Recovery / No Forward Recovery
- Positive Temperature Coefficient

## Ordering Information:

The following part suffixes apply:

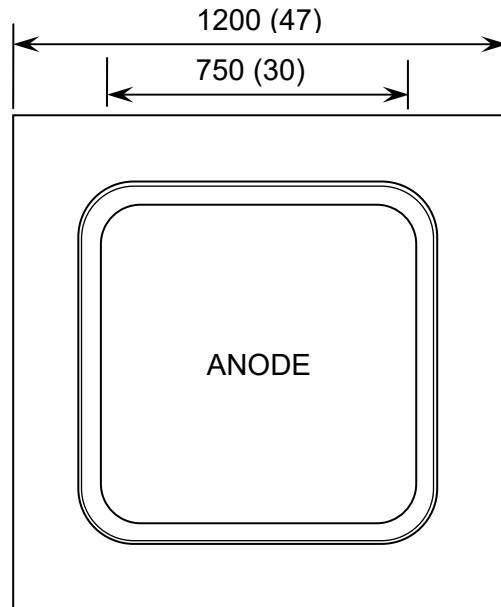
- No suffix - MIL-STD-750 /2073 Visual Inspection
- "H" - MIL-STD-750 /2073 Visual Inspection  
+ MIL-PRF-38534 Class H LAT
- "K" - MIL-STD-750 /2073 Visual Inspection  
+ MIL-PRF-38534 Class K LAT

LAT = Lot Acceptance Test.

For further information on LAT process flows see below.

[www.siliconsupplies.com/quality/bare-die-lot-qualification](http://www.siliconsupplies.com/quality/bare-die-lot-qualification)

## Die Dimensions in $\mu\text{m}$ (mils)



CHIP BACKSIDE IS CATHODE

## Supply Formats:

- Default – Die in Waffle Pack (400 per tray capacity)
- Sawn Wafer on Tape – By specific request
- Unsawn Wafer – By specific request
- With additional electrical selection – By specific request

## Mechanical Specification

Die Size (Unsawn)	1200 x 1200 47 x 47	$\mu\text{m}$ mils
Anode Pad Size	750 x 750 30 x 30	$\mu\text{m}$ mils
Die Thickness	350 ( $\pm 20$ ) 13.78 (0.79)	$\mu\text{m}$ mils
Top Metal Composition	Al 4 $\mu\text{m}$	
Back Metal Composition	Ag 0.4 $\mu\text{m}$	





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## Absolute Maximum Ratings $T_J = 25^\circ\text{C}$ unless otherwise stated

PARAMETER	SYMBOL	VALUE	UNIT
Repetitive peak reverse voltage	$V_{RRM}$	1200	V
Surge peak reverse voltage	$V_{RSM}$	1200	V
DC Peak Blocking Voltage	$V_{BR}$	1200	V
Average forward rectified current	$I_{F(AV)}$	2	A
Repetitive Peak Forward Surge Current	$I_{FRM}$	25	A
Peak Single-Cycle Non-Repetitive Surge Current	$I_{FSM}$	44	A
Operating Junction temperature	$T_J$	-55 to 175	$^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	-65 to 175	$^\circ\text{C}$

## Electrical Characteristics $T_J = 25^\circ\text{C}$ unless otherwise stated

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Maximum instantaneous forward voltage <sup>1</sup>	$V_{F1}$	$V_{RRM} = 1200\text{V}, I_{FM} = 2\text{A}$	-	1.50	1.80	V
	$V_{F2}$	$V_{RRM} = 1200\text{V}, I_{FM} = 2\text{A}, T_J = 175^\circ\text{C}$	-	1.90	2.50	
Maximum reverse leakage current <sup>1</sup>	$I_{RM} @ V_{RM}$	$V_R = 1200\text{V}$	-	1	25	$\mu\text{A}$
		$V_R = 1200\text{V}, T_J = 175^\circ\text{C}$	-	20	35	
Junction Capacitance	$C_T$	$V_R = 0\text{V}, f = 1\text{MHz}$	-	160	-	pF
Reverse Recovery Charge	$Q_C$	$V_R = 800\text{V}, I_F = 2\text{A}, di/dt = 200\text{A}/\mu\text{s}$	-	12.33	-	nC
Capacitance Stored Energy	$E_C$	$V_R = 800\text{V}$	-	6.33	-	$\mu\text{J}$

1. Pulse Width  $\leq 300\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$

## Typical Characteristics $T_J = 25^\circ\text{C}$ unless otherwise stated

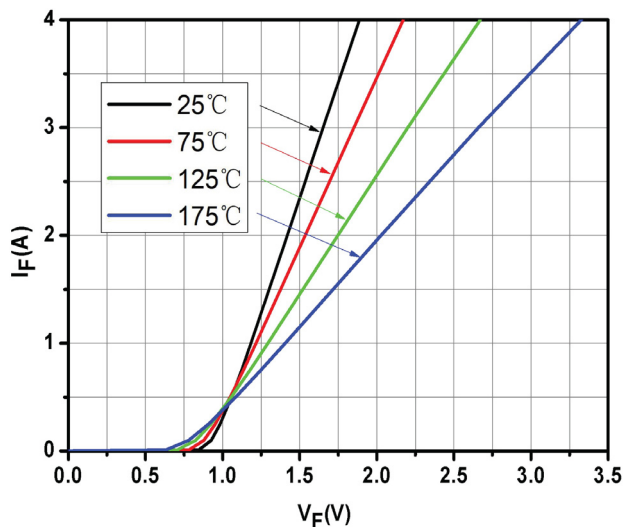


FIGURE 1. Forward Voltage Characteristics

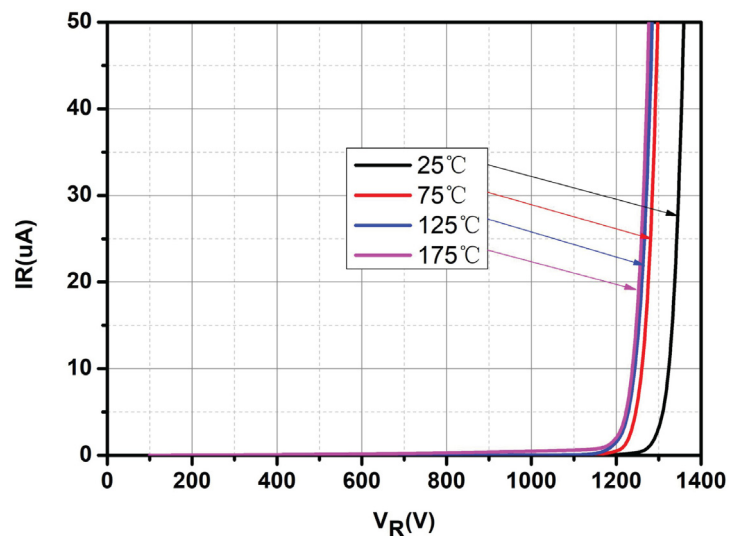


FIGURE 2. Reverse Characteristics





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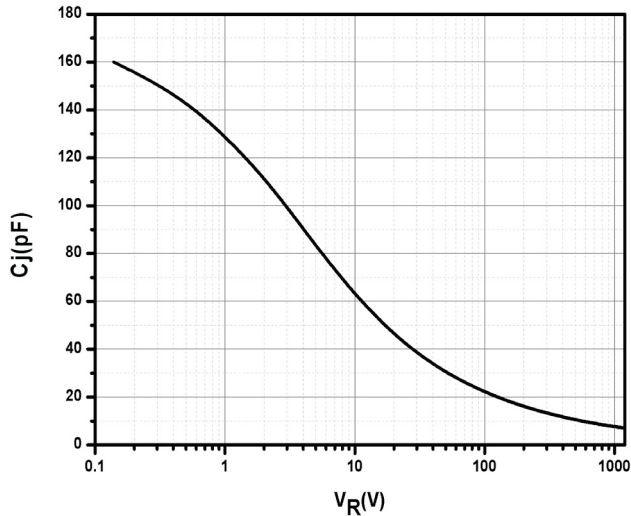


FIGURE 3. Capacitance Versus Reverse Voltage

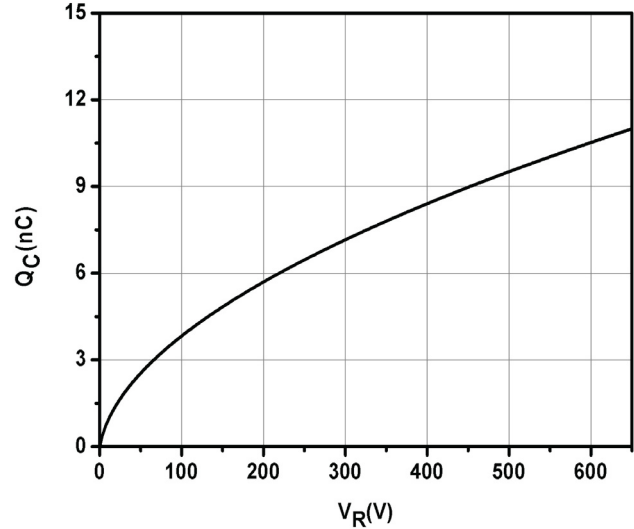


FIGURE 4. Total Capacitance Charge Versus Reverse Voltage

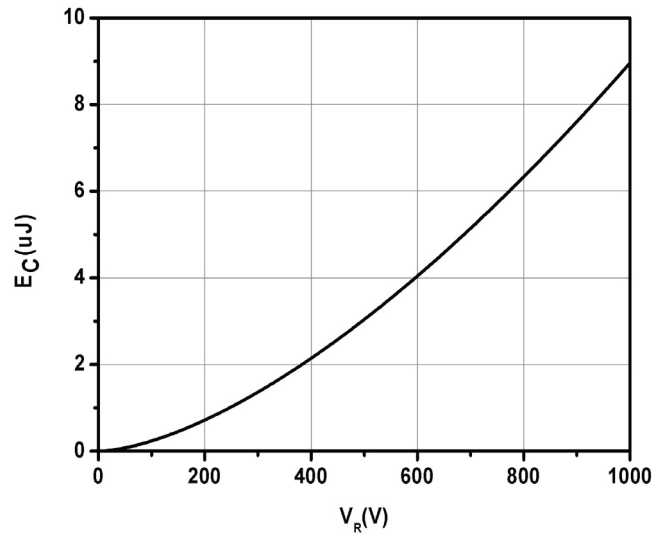


FIGURE 5. Capacitance Stored Energy

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