# 1200V 2A SiC Schottky Diode - SiS1200S02AS

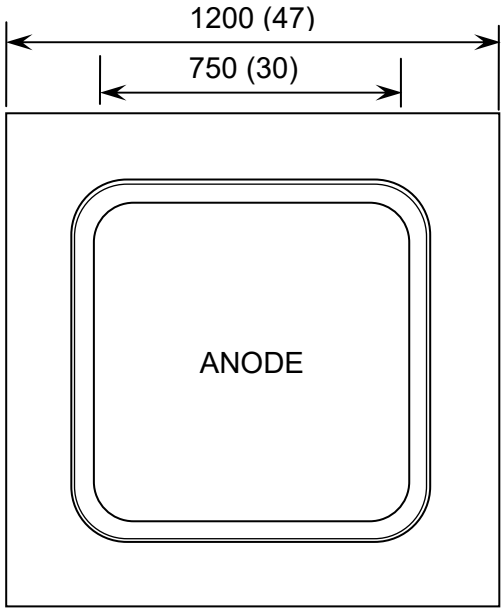
**Rev 1.0**
**30/10/23**

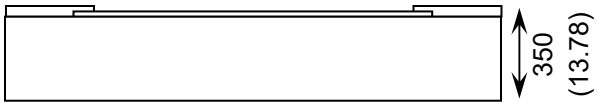
**Silicon Carbide Schottky Barrier Rectifier diode in bare die form**

## Features:

- Capable of high temperature operation >= 175°C
- High Frequency Operation
- High Surge Current Capability
- No Reverse Recovery / No Forward Recovery
- Positive Temperature Coefficient

## Die Dimensions in µm (mils)




CHIP BACKSIDE IS CATHODE

## 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

## 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<br>47 x 47 | µm<br>mils |
| Anode Pad Size | 750 x 750<br>30 x 30 | µm<br>mils |
| Die Thickness | 350 (±20)<br>13.78 (0.79) | µm<br>mils |
| Top Metal Composition | Al 4µm | |
| Back Metal Composition | Ag 0.4µm | |

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## Absolute Maximum Ratings $T_J$ = 25°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 | °C |
| Storage Temperature Range | $T_{STG}$ | -65 to 175 | °C |

## Electrical Characteristics $T_J$ = 25°C unless otherwise stated

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

**1.** Pulse Width≤ 300μs, Duty Cycle ≤ 2.0%

## Typical Characteristics $T_J$ = 25°C unless otherwise stated

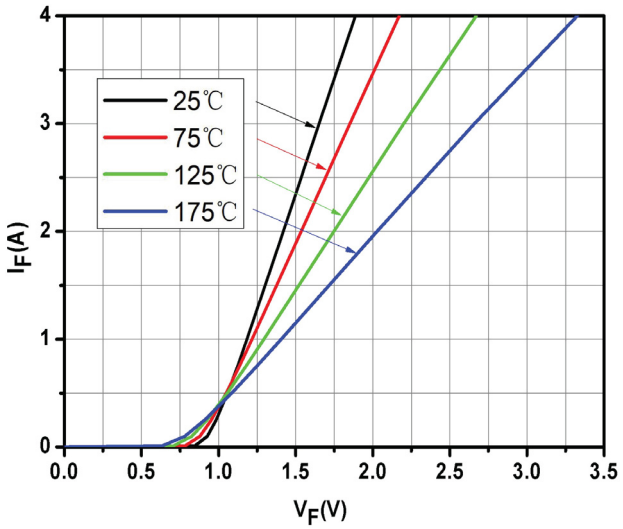


**FIGURE 1.** Forward Voltage Characteristics

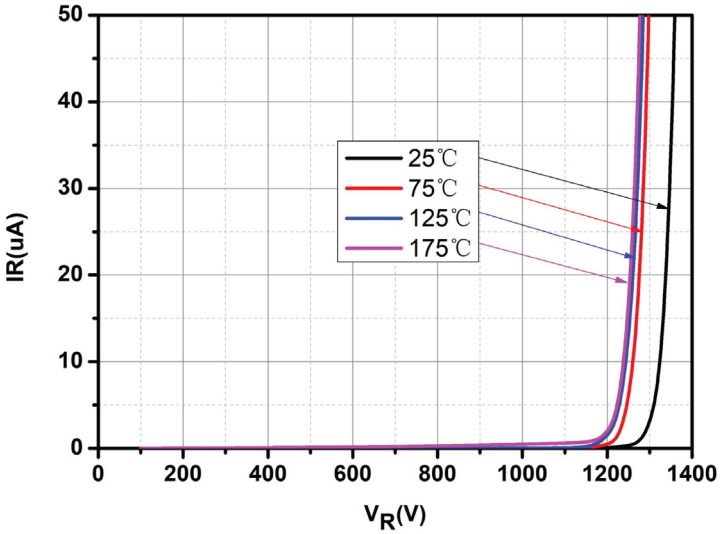


**FIGURE 2.** Reverse Characteristics

## Typical Characteristics $T_J$ = 25°C unless otherwise stated

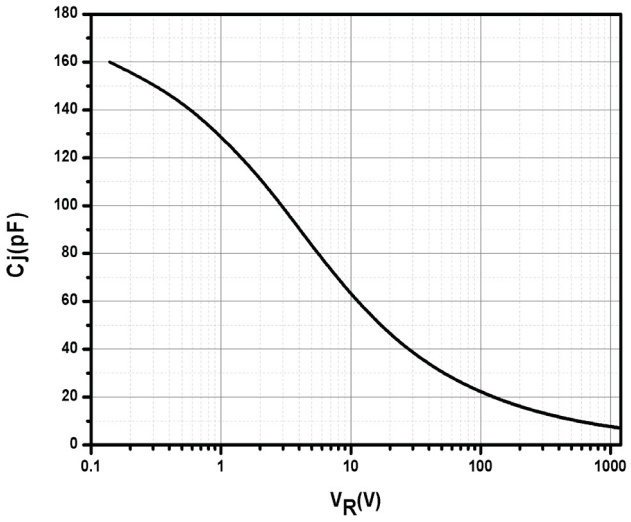


**FIGURE 3.** Capacitance Versus Reverse Voltage

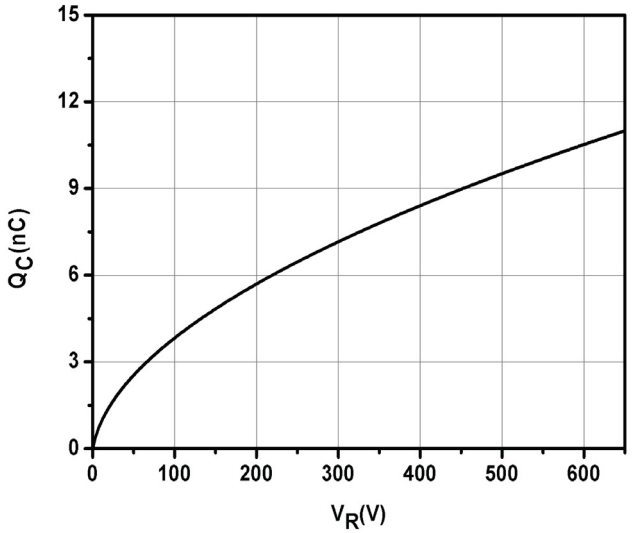


**FIGURE 4.** Total Capacitance Charge Versus Reverse Voltage

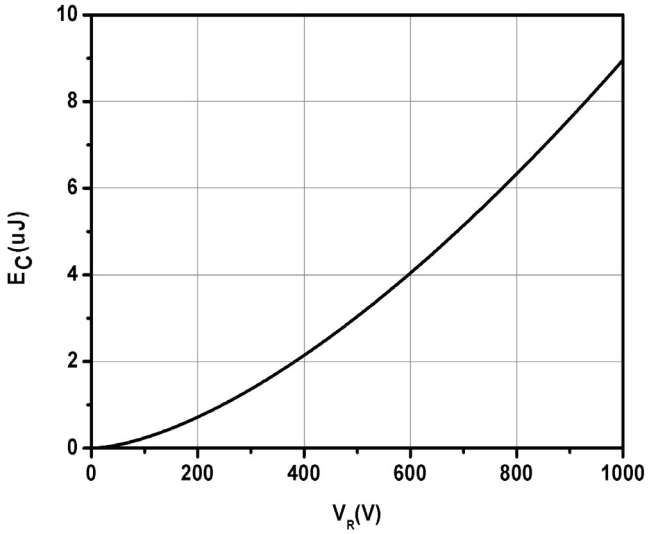


**FIGURE 5.** Capacitance Stored Energy