

TECHNICAL DATA  
DATA SHEET 5497, REV. A

## HERMETIC SILICON CARBIDE RECTIFIER

**DESCRIPTION:** A 1200-VOLT, 50 AMP POWER SILICON CARBIDE RECTIFIER IN A CERAMIC HERMETIC SMD-1 PACKAGE

**FEATURES:**

- NO RECOVERY TIME OR REVERSE RECOVERY LOSSES
- NO TEMPERATURE INFLUENCE ON SWITCHING BEHAVIOR
- SCREENED VERSIONS ARE AVAILABLE

**MAXIMUM RATINGS**

ALL RATINGS ARE @  $T_C = 25\text{ }^\circ\text{C}$  UNLESS OTHERWISE SPECIFIED.

RATING	SYMBOL	MAX.	UNITS
PEAK INVERSE VOLTAGE	PIV	1200	Volts
MAXIMUM DC OUTPUT CURRENT (With Cathode Maintained @ $T_C = 65\text{ }^\circ\text{C}$ )	$I_O$	50	Amps
MAXIMUM REPETITIVE FORWARD SURGE CURRENT PER LEG ( $t = 8.3\text{ms}$ , Sine) per leg, $T_C = 25\text{ }^\circ\text{C}$	$I_{FRM}$	120	Amps
MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT PER LEG ( $t = 10\mu\text{s}$ , pulse) per leg, $T_C = 25\text{ }^\circ\text{C}$ (information only)	$I_{FSM}$	800	Amps
MAXIMUM POWER DISSIPATION, $T_C = 25\text{ }^\circ\text{C}$	$P_d$	136	W
MAXIMUM THERMAL RESISTANCE, Junction to Case	$R_{\theta JC}$	1.1	$^\circ\text{C/W}$
MAXIMUM OPERATING and STORAGE TEMPERATURE RANGE*	Top, Tstg	-55 to +175	$^\circ\text{C}$

\* Note: SiC semiconductors will handle at or above this operating and storage temperature. However, extended operational use of the packaged device above 175C may reduce its future performance. All qualification testing and screening per MIL-PRF-19500 will only be performed to 175C.

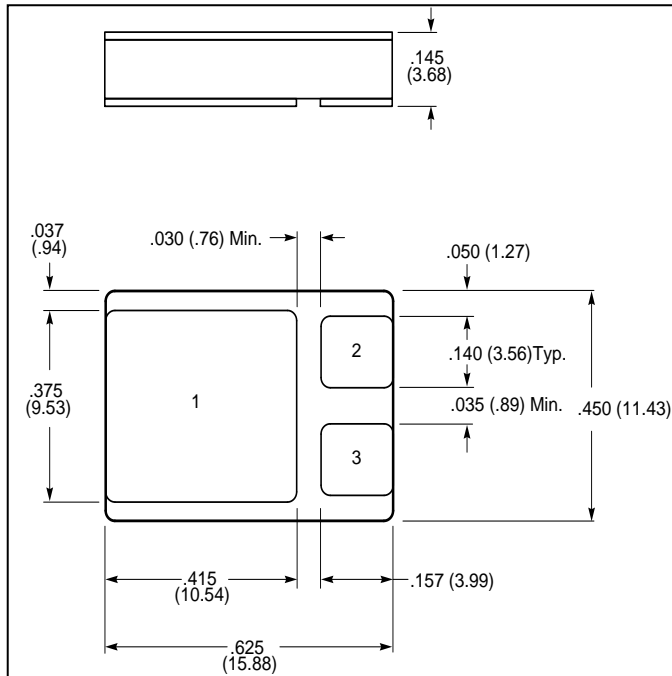
**ELECTRICAL CHARACTERISTICS**

CHARACTERISTIC		TYP	MAX.	UNITS
MAXIMUM FORWARD VOLTAGE DROP ( $I_f = 50\text{A}$ )	$V_F$ $T_J = 25\text{ }^\circ\text{C}$	1.8	2.0	Volts
		$T_J = 175\text{ }^\circ\text{C}$	2.4	
MAXIMUM FORWARD VOLTAGE DROP ( $I_f = 25\text{A}$ )	$V_F$ $T_J = 25\text{ }^\circ\text{C}$	1.4	1.8	Volts
		$T_J = 175\text{ }^\circ\text{C}$	1.7	
MAXIMUM REVERSE CURRENT (1200V PIV)	$I_R$ $T_J = 25\text{ }^\circ\text{C}$	0.1	0.5	mA
		$T_J = 175\text{ }^\circ\text{C}$	0.3	
JUNCTION CAPACITANCE	$C$ $V_R = 0\text{V}$	3380	---	pF
		$V_R = 400\text{V}$	230	
TOTAL CAPACITIVE CHARGE	$Q_C$ $V_R = 800\text{V}$	250	---	nC

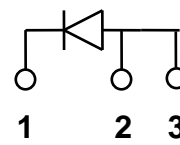
**SENSITRON**

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**MECHANICAL DIMENSIONS: In Inches / mm**



**Single**



**SMD-1**

**PINOUT TABLE**

DEVICE TYPE	PIN 1	PIN 2	PIN 3
SINGLE RECTIFIER	CATHODE	ANODE	ANODE

Application Note: Customers should be aware that at the current stage of technical development of SiC, the reverse avalanche capabilities of the device are limited. Customer designs will need to accommodate these limitations and avoid exposure of the device to this and other potentially damaging conditions in their applications.

**Typical Performance**

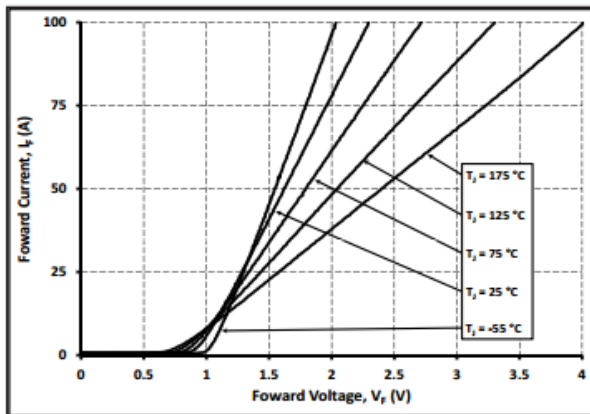


Figure 1. Typical Forward Characteristics

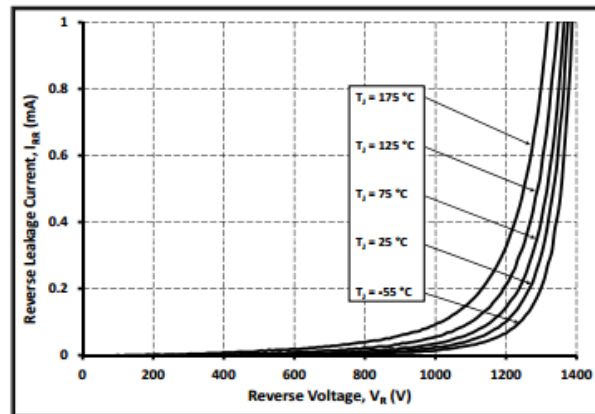


Figure 2. Typical Reverse Characteristics

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