

# **SENSITRON**

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## **SEMICONDUCTOR**

Technical Data  
 Datasheet 4287 REV. A

### **HERMETIC QUAD SILICON CARBIDE RECTIFIER**

**DESCRIPTION:** FOUR 1200-VOLT, 5 AMP POWER SILICON CARBIDE RECTIFIERS IN A HERMETIC DUAL TO-257 PACKAGE. IDEAL FOR CONNECTION AS A BRIDGE.

**FEATURES:**

- NO RECOVERY TIME OR REVERSE RECOVERY LOSSES
- NO TEMPERATURE INFLUENCE ON SWITCHING BEHAVIOR
- CAN BE USED AS A SINGLE PHASE FULL WAVE BRIDGE BY EXTERNALLY CONNECTING TWO PINS

**MAXIMUM RATINGS**

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

<b>RATING</b>	<b>SYMBOL</b>	<b>MAX.</b>	<b>UNITS</b>
PEAK INVERSE VOLTAGE	PIV	1200	Volts
MAXIMUM DC OUTPUT CURRENT (With $T_C = 65\text{ }^\circ\text{C}$ ) WHEN USED AS A BRIDGE	$I_O$	10	Amps
MAXIMUM REPETITIVE FORWARD SURGE CURRENT ( $t = 8.3\text{ms}$ , Sine) per leg, $T_C = 25\text{ }^\circ\text{C}$	$I_{FRM}$	30	Amps
MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT ( $t = 10\mu\text{s}$ , pulse) per leg, $T_C = 25\text{ }^\circ\text{C}$	$I_{FSM}$	100	Amps
MAXIMUM POWER DISSIPATION, $T_C = 25\text{ }^\circ\text{C}$	$P_d$	30	W
MAXIMUM THERMAL RESISTANCE, Junction to Case (Connected as a BRIDGE)	$R_{\theta JC}$	1.0	$^\circ\text{C/W}$
MAXIMUM OPERATING AND STORAGE TEMPERATURE RANGE*	Top, Tstg	-55 to +200	$^\circ\text{C}$

\* 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.

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## ELECTRICAL CHARACTERISTICS

CHARACTERISTIC	TYP	MAX.	UNITS
MAXIMUM FORWARD VOLTAGE DROP ( $I_f = 5$ A PER LEG) $V_f$ $T_J = 25^\circ\text{C}$ $T_J = 150^\circ\text{C}$	1.65 2.55	1.80 3.00	Volts
MAXIMUM REVERSE CURRENT (1200V PIV PER LEG) $I_r$ $T_J = 25^\circ\text{C}$ $T_J = 150^\circ\text{C}$	0.05 0.10	0.20 1.00	mA
MAXIMUM JUNCTION CAPACITANCE ( $V_r = 5\text{V}$ ) per leg $C_T$	450		pF
TOTAL CAPACITANCE CHARGE ( $V_R = 1200\text{V}$ , $I_F = 5\text{A}$ , $di/dt = 500\text{A}/\mu\text{s}$ and $T_J = 25^\circ\text{C}$ ) $Q_C$ per leg	28	N/A	nC

Note: The following curves are for individual legs of the bridge.

Figure 1. Forward Characteristics

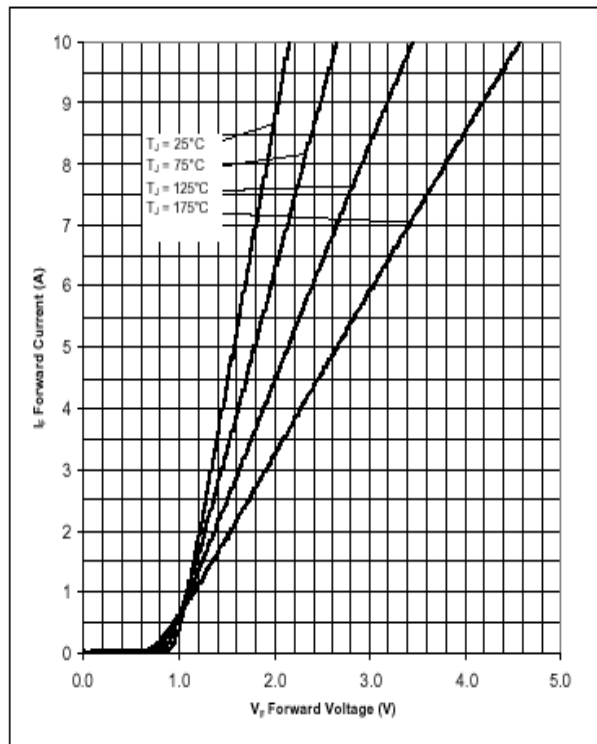
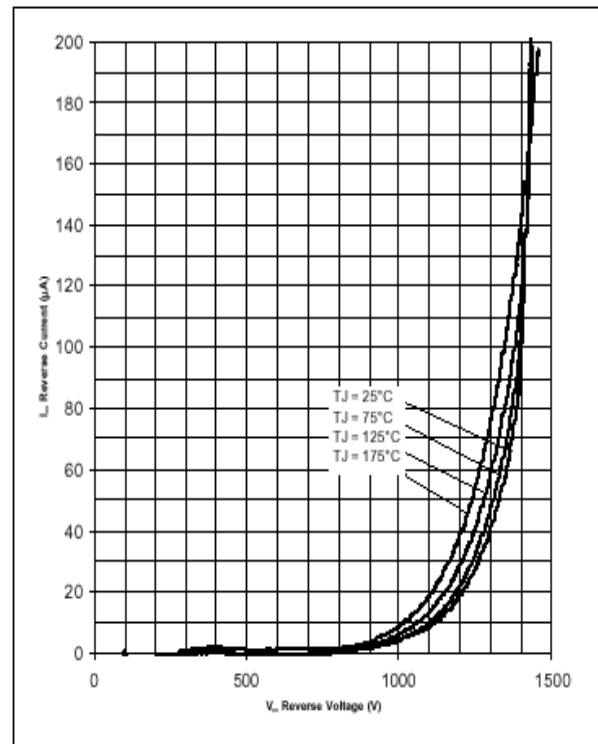


Figure 2. Reverse Characteristics



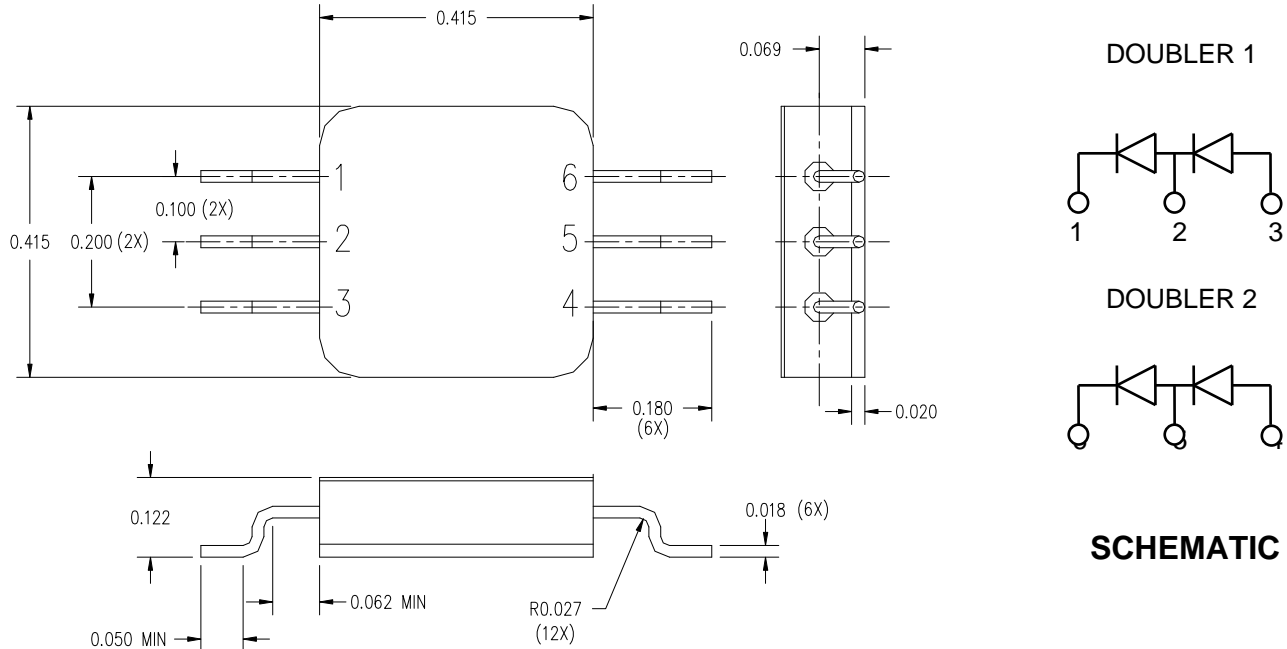
Application Note: Customers should be aware that at the current stage of technical development of SiC, the reverse avalanche capabilities of the device are limited.

Customer designs will need to accommodate these limitations and avoid exposure of the device to this and other potentially damaging conditions in their applications.

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**MECHANICAL DIMENSIONS (inches)  
SURFACE MOUNT 6-LEAD TO-257 PACKAGE**



TOLERANCE = .XXX ± .010

**PINOUT TABLE**

TYPE	PINS	
DUAL RECTIFIER/DOUBLER (D)	CATHODE	1
	ANODE/CATHODE	2
	ANODE	3
	ANODE	4
	ANODE/CATHODE	5
	CATHODE	6

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