TECHNICAL DATA
DATA SHEET 4283, REV. A

HERMETIC SILICON CARBIDE RECTIFIER

DESCRIPTION: A 600-VOLT, 8 AMP POWER SILICON CARBIDE RECTIFIER IN A CERAMIC HERMETIC LCC-5 PACKAGE

FEATURES:

- NO RECOVERY TIME OR REVERSE RECOVERY LOSSES
- NO TEMPERATURE INFLUENCE ON SWITCHING BEHAVIOR
- AVAILABLE SCREENED TO ANY REQUIRED LEVEL

MAXIMUM RATINGS ALL RATINGS ARE @ T_C = 25 °C UNLESS OTHERWISE SPECIFIED.

RATING	SYMBOL	MAX.	UNITS
PEAK INVERSE VOLTAGE	PIV	600	Volts
MAXIMUM DC OUTPUT CURRENT (With Cathode Maintained @ T_C = 65 ^{O}C, for Dual Package)	I_O	8	Amps
MAXIMUM DC OUTPUT CURRENT (With Cathode Maintained @ T_C = 65 ^{O}C, for Single Package)	I_O	4	Amps
MAXIMUM REPETITIVE FORWARD SURGE CURRENT PER LEG (t = 8.3ms, Sine) per leg, T_C = 25 ^{O}C	I_{FRM}	20	Amps
MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT PER LEG (t = 10μs, Pulse) per leg, T_C = 25 ^{O}C	I_{FSM}	110	Amps
MAXIMUM POWER DISSIPATION, T_C = 25 ^{O}C	P_d	20	W
MAXIMUM THERMAL RESISTANCE, Junction to Case (PER DUAL PACKAGE)	$R_{\theta JC}$	5.3	°C/W
MAXIMUM OPERATING AND STORAGE TEMPERATURE RANGE*	Top, Tstg	-55 to +200	°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, Pulsed (I_f = 4 A PER LEG)					
	T_J = 25 °C	V_f	1.50	1.85	Volts
	T_J = 175 °C		2.00	2.40	
MAXIMUM REVERSE CURRENT (I_r @ 600V PIV PER LEG)					
	T_J = 25 °C	I_r	0.025	0.200	mA
	T_J = 175 °C		0.050	1.000	
JUNCTION CAPACITANCE (V_r =5V) per leg		C_T	220		pF
TOTAL CAPACITIVE CHARGE (V_R=600V I_F=4A di/dt=500A/μs T_J=25°C) Q_C per leg			10	N/A	nC

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Figure 1. Forward Characteristics

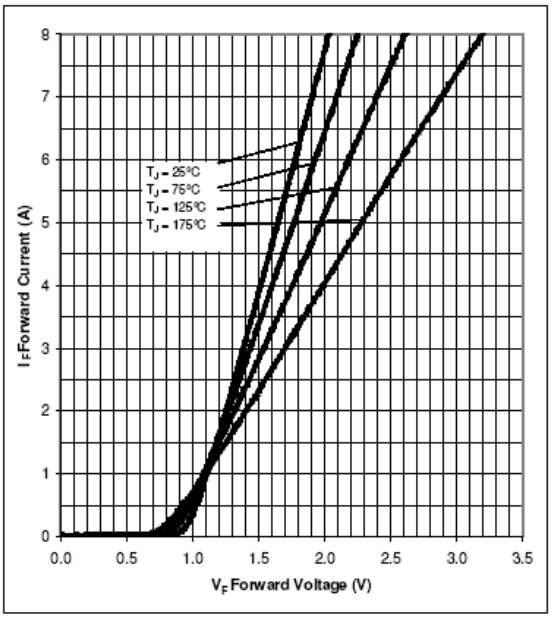


Figure 2. Reverse Characteristics

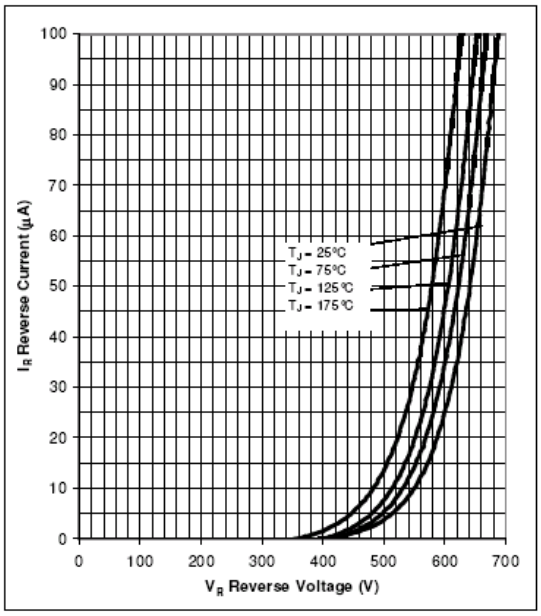


Figure 3. Current Derating

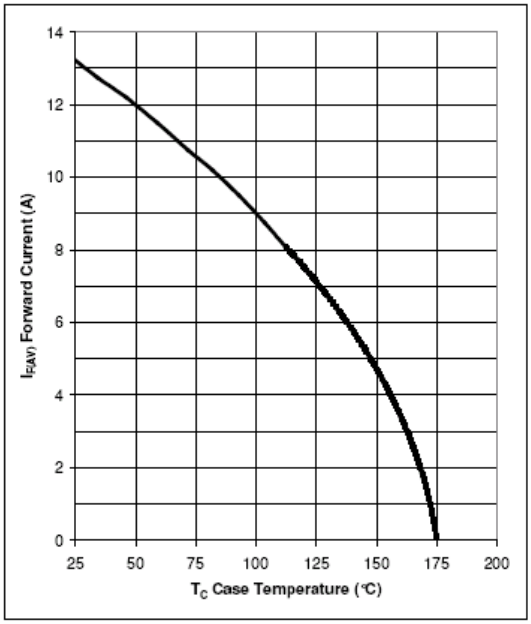
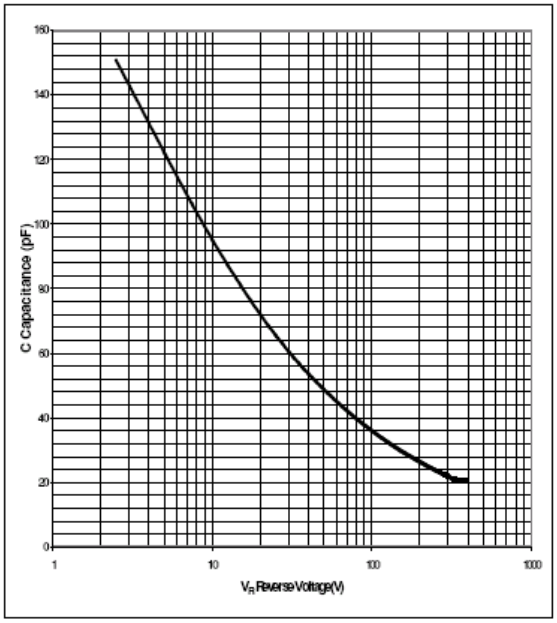


Figure 4. Capacitance vs. Reverse Voltage



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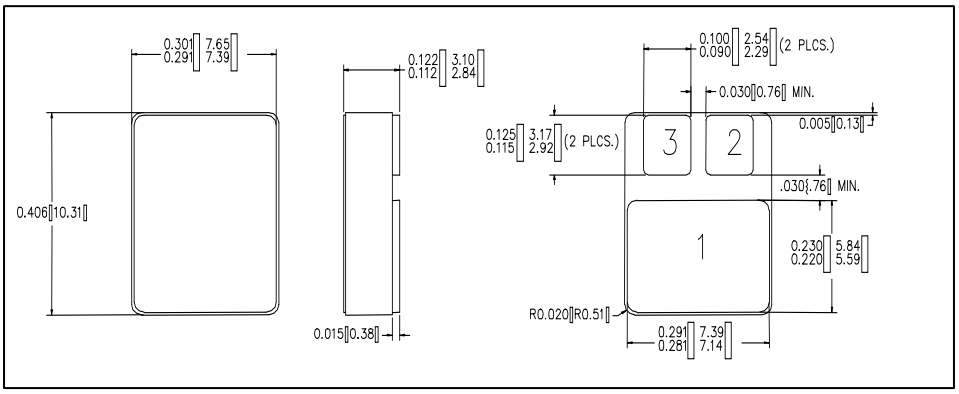
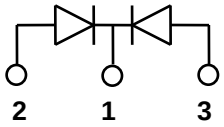
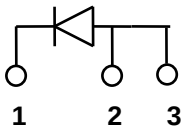
MECHANICAL DIMENSIONS: IN Inches / mm



COMMON CATHODE



SINGLE



LCC-5

PINOUT TABLE

DEVICE TYPE	PIN 1	PIN 2	PIN 3
SINGLE RECTIFIER	CATHODE	ANODE	ANODE
DUAL RECTIFIER, COMMON CATHODE (P)	COMMON CATHODE	ANODE 1	ANODE 2

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.