TECHNICAL DATA, PROVISIONAL DATA ONLY
DATA SHEET 4179, REV. B

HERMETIC SILICON CARBIDE RECTIFIER

DESCRIPTION: A 1200-VOLT, 10 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
- SCREENED VERSIONS ARE AVAILABLE

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

RATING	SYMBOL	MAX.	UNITS
PEAK INVERSE VOLTAGE	PIV	1200	Volts
MAXIMUM DC OUTPUT CURRENT (With Cathode Maintained @ T_C = 65 ^{O}C, for Single Package)	I_O	10	Amps
MAXIMUM DC OUTPUT CURRENT (With Cathode Maintained @ T_C = 65 ^{O}C, for Dual Package)	I_O	20	Amps
MAXIMUM REPETITIVE FORWARD SURGE CURRENT (t = 8.3ms, Sine) T_C = 25 ^{O}C	I_{FRM}	50	Amps
MAXIMUM NON-REPETITIVE FORWARD SURGE CURREN (t = 10μs, pulse) T_C = 25 ^{O}C	I_{FSM}	250	Amps
MAXIMUM POWER DISSIPATION, T_C = 25 ^{O}C	P_d	20	W
MAXIMUM THERMAL RESISTANCE, Junction to Case	$R_{\theta JC}$	1.8	°C/W
MAXIMUM OPERATING TEMPERATURE RANGE	Top	-55 to +200	°C
MAXIMUM STORAGE TEMPERATURE RANGE	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 (I_f = 10A) V_f	T_J = 25 °C	1.6	1.8	
	T_J = 175 °C	2.5	3.0	Volts
MAXIMUM REVERSE CURRENT (1200V PIV) I_r	T_J = 25 °C	0.01	0.20	
	T_J=175 °C	0.02	1.00	mA
MAXIMUM JUNCTION CAPACITANCE (V_r=400V)	C_T	70		PF
TOTAL CAPACITIVE CHARGE (V_R=1200V I_F=10A di/dt=500A/μs T_J=25°C) Q_C		60	N/A	nC

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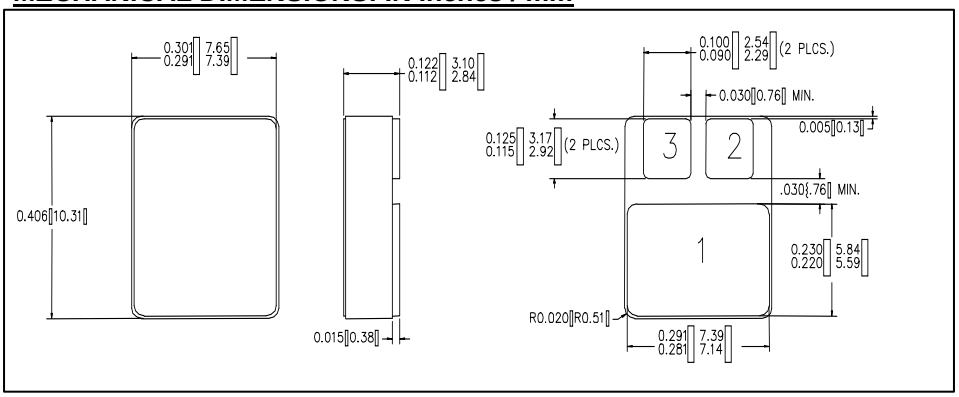
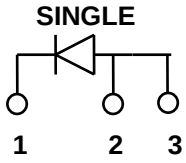
MECHANICAL DIMENSIONS: IN Inches / mm





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.

Figure 1. Forward Characteristics

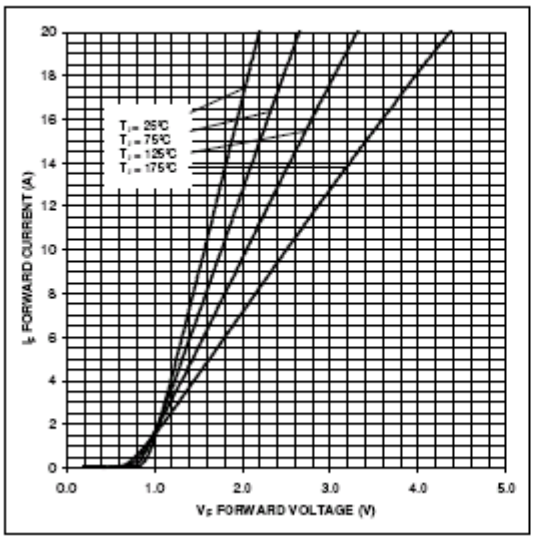
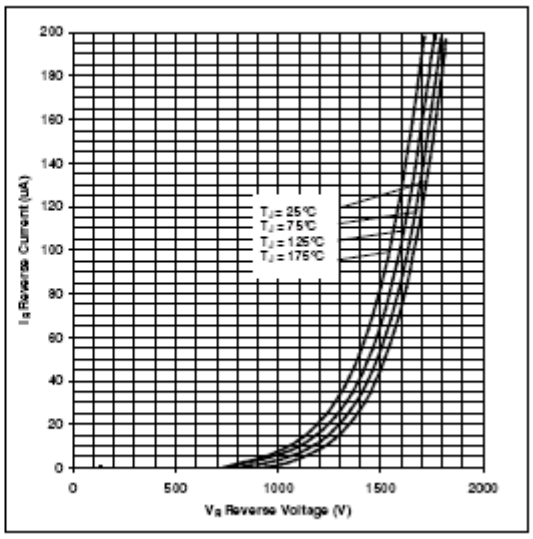


Figure 2. Reverse Characteristics



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