

TECHNICAL DATA
DATA SHEET 4283, REV. -

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

RATING	SYMBOL	MAX.	UNITS
PEAK INVERSE VOLTAGE	PIV	600	Volts
MAXIMUM DC OUTPUT CURRENT (With Cathode Maintained @ $T_C = 65^\circ\text{C}$, for Dual Package)	I_O	8	Amps
MAXIMUM DC OUTPUT CURRENT (With Cathode Maintained @ $T_C = 65^\circ\text{C}$, for Single Package)	I_O	4	Amps
MAXIMUM REPETITIVE FORWARD SURGE CURRENT PER LEG ($t = 8.3\text{ms}$, Sine) per leg, $T_C = 25^\circ\text{C}$	I_{FRM}	20	Amps
MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT PER LEG ($t = 10\mu\text{s}$, Pulse) per leg, $T_C = 25^\circ\text{C}$	I_{FSM}	110	Amps
MAXIMUM JUNCTION CAPACITANCE ($V_f = 5\text{V}$) per leg	C_T	220	pF
MAXIMUM POWER DISSIPATION, $T_C = 25^\circ\text{C}$	P_d	20	W
MAXIMUM THERMAL RESISTANCE, Junction to Case (PER DUAL PACKAGE)	$R_{\theta JC}$	5.3	$^\circ\text{C/W}$
MAXIMUM OPERATING AND STORAGE TEMPERATURE RANGE	Top, Tstg	-55 to +175	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS

CHARACTERISTIC	TYP	MAX.	UNITS
MAXIMUM FORWARD VOLTAGE DROP, Pulsed ($I_f = 4\text{ A PER LEG}$) $T_J = 25^\circ\text{C}$ V_f $T_J = 175^\circ\text{C}$	1.50 2.00	1.85 2.40	Volts
MAXIMUM REVERSE CURRENT ($I_r @ 600\text{V PIV PER LEG}$) $T_J = 25^\circ\text{C}$ I_r $T_J = 175^\circ\text{C}$	0.025 0.050	0.200 1.000	mA
TOTAL CAPACITIVE CHARGE ($V_R = 600\text{V}$ $I_F = 4\text{A}$ $di/dt = 500\text{A}/\mu\text{s}$ $T_J = 25^\circ\text{C}$) Q_C per leg	10	N/A	nC

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Figure 1. Forward Characteristics

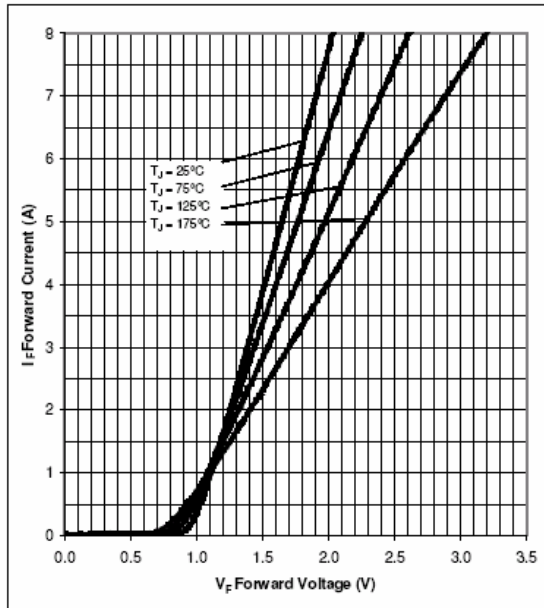


Figure 2. Reverse Characteristics

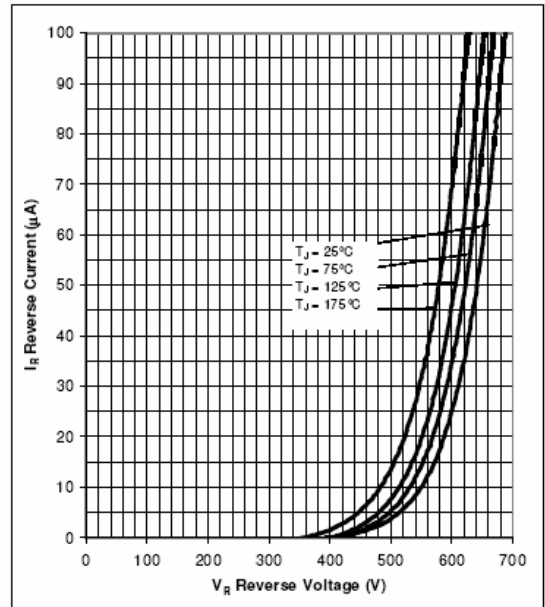


Figure 3. Current Derating

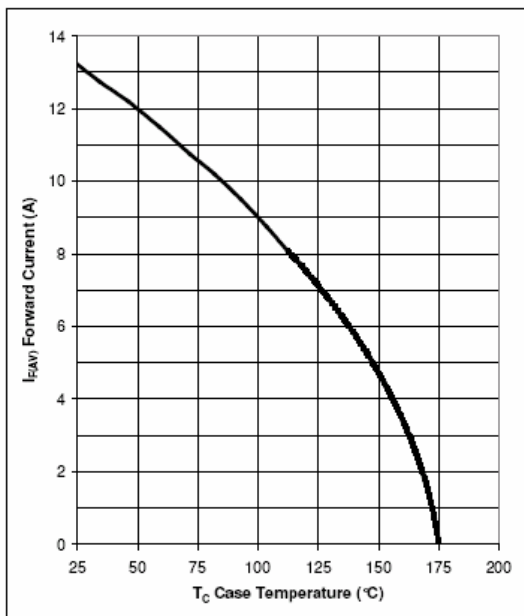
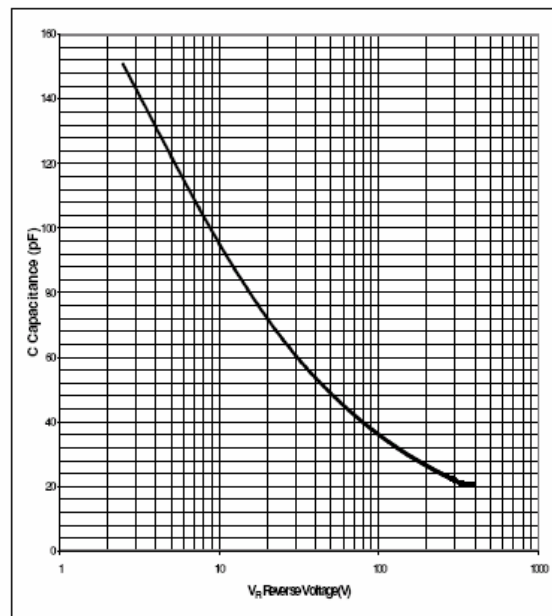
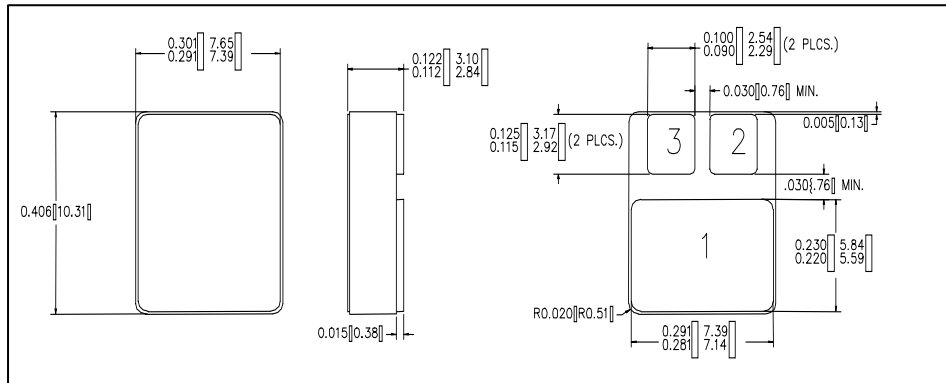


Figure 4. Capacitance vs. Reverse Voltage

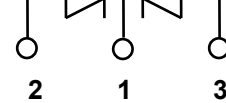


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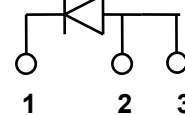
MECHANICAL DIMENSIONS: IN Inches / mm



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.

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