
TECHNICAL DATA, PROVISIONAL DATA ONLY
DATASHEET 4178, Rev. A

HERMETIC SILICON CARBIDE RECTIFIER

DESCRIPTION: A 1200-VOLT, 20 AMP POWER SILICON CARBIDE RECTIFIER IN A CERAMIC HERMETIC SHD-5 PACKAGE

FEATURES:

- NO RECOVERY TIME OR REVERSE RECOVERY LOSSES
- NO TEMPERATURE INFLUENCE ON SWITCHING BEHAVIOR

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 PER LEG	I_O	10	Amps
MAXIMUM REPETITIVE FORWARD SURGE CURRENT PER LEG ($t = 8.3\text{ms}$, Sine)	I_{FRM}	50	Amps
MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT PER LEG ($t = 10\mu\text{s}$, pulse)	I_{FSM}	250	Amps
MAXIMUM JUNCTION CAPACITANCE PER LEG ($V_r=400\text{V}$)	C_T	70	pF
MAXIMUM POWER DISSIPATION	P_d	40	W
MAXIMUM THERMAL RESISTANCE (Junction to Case)	$R_{\theta JC}$	0.90	$^{\circ}\text{C/W}$
MAXIMUM OPERATING AND STORAGE TEMPERATURE RANGE	T_{op} , T_{stg}	-55 to +200	$^{\circ}\text{C}$

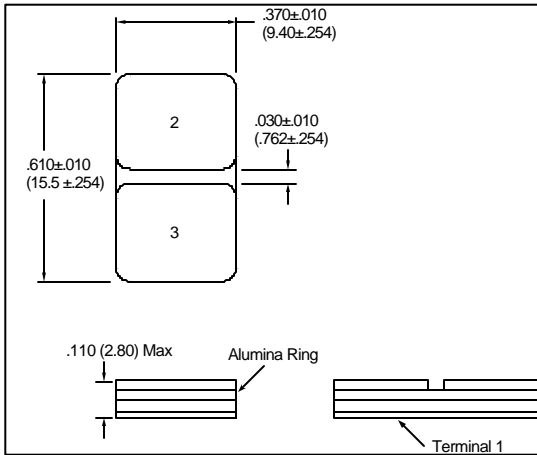
ELECTRICAL CHARACTERISTICS

CHARACTERISTIC	TYP	MAX.	UNITS
MAXIMUM FORWARD VOLTAGE DROP $I_f=10\text{A}$ PER LEG, $T_J=25\text{ }^{\circ}\text{C}$	1.60	1.80	Volts
$T_J=175\text{ }^{\circ}\text{C}$	2.50	3.00	
MAXIMUM REVERSE CURRENT PIV = 1200V PER LEG, $T_J = 25\text{ }^{\circ}\text{C}$	0.01	0.40	mA
$T_J = 175\text{ }^{\circ}\text{C}$	0.02	2.00	
TOTAL CAPACITIVE CHARGE PER LEG ($V_R=1200\text{V}$, $I_F=10\text{A}$, $di/dt=500\text{A}/\mu\text{s}$ and $T_J=25\text{ }^{\circ}\text{C}$) Q_C	60	N/A	nC

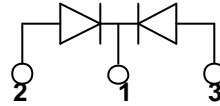
SENSITRON

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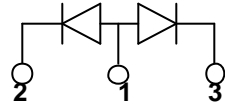
MECHANICAL DIMENSIONS: In Inches / mm



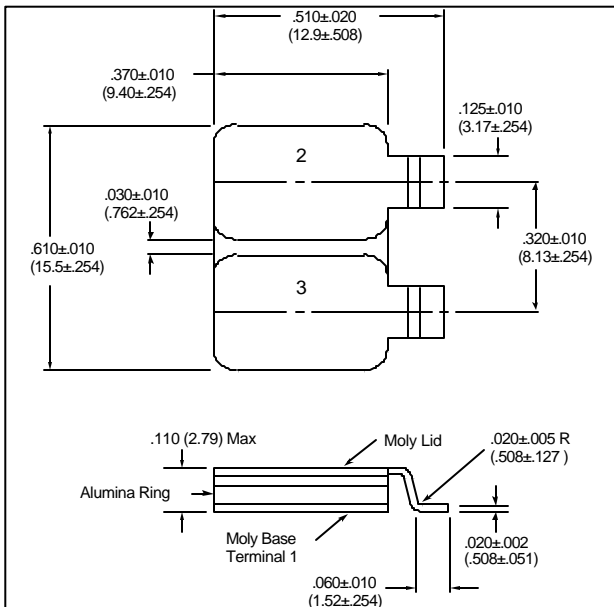
COMMON CATHODE



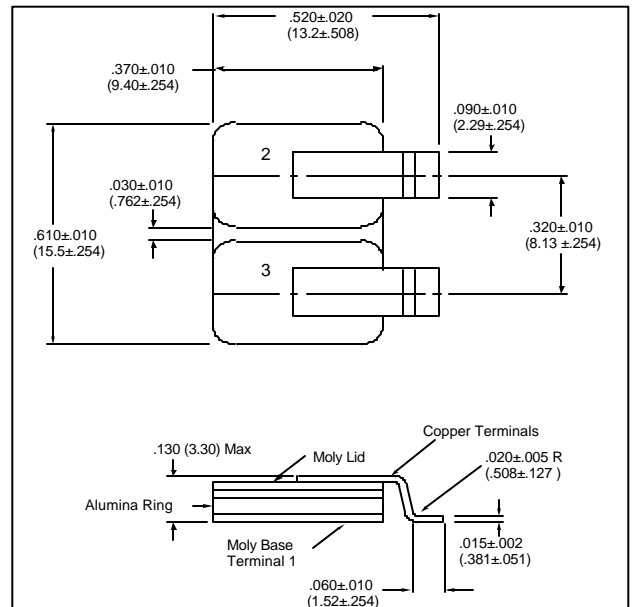
COMMON ANODE



SHD-5



SHD-5A



SHD-5B

PINOUT TABLE

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

SENSITRON

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Figure 1. Forward Characteristics

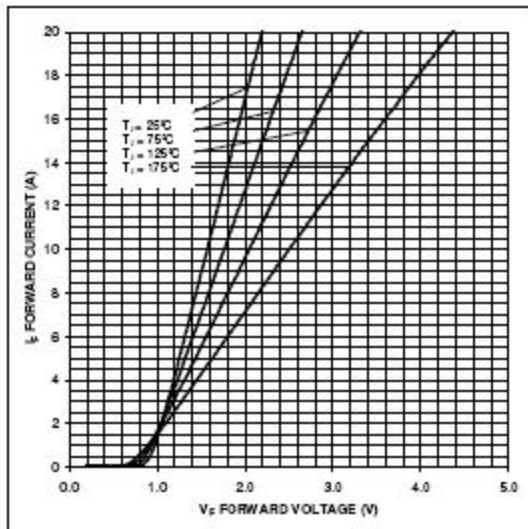
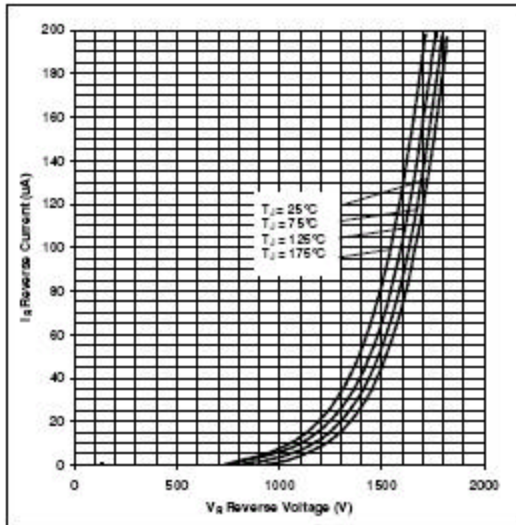


Figure 2. Reverse Characteristics



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.

TECHNICAL DATA

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