

TECHNICAL DATA
DATA SHEET 4074, REV. G

HERMETIC SILICON CARBIDE RECTIFIER

DESCRIPTION: A 600-VOLT, 20 AMP POWER SILICON CARBIDE RECTIFIER IN A HERMETIC TO-257 PACKAGE AVAILABLE SCREENED TO ANY REQUIRED LEVEL

FEATURES:

- NO RECOVERY TIME OR REVERSE RECOVERY LOSSES
- NO TEMPERATURE INFLUENCE ON SWITCHING BEHAVIOR
- **High Frequency Option** - Non-magnetic Glidcop leads are available for improved performance at high frequency; use part number prefix SHDG
- **Ceramic Seal Option** – For ceramic seals use part number prefix SHDC

MAXIMUM RATINGS

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

RATING	SYMBOL	MAX.	UNITS
PEAK INVERSE VOLTAGE	PIV	600	Volts
MAXIMUM DC OUTPUT CURRENT (With $T_C = 65\text{ }^\circ\text{C}$ for P and N suffixes)	I_o	20	Amps
MAXIMUM DC OUTPUT CURRENT (With $T_C = 65\text{ }^\circ\text{C}$ for Single and D suffixes)	I_o	10	Amps
MAXIMUM REPETITIVE FORWARD SURGE CURRENT PER LEG ($t = 8.3\text{ms}$, Sine) per leg, $T_C = 25\text{ }^\circ\text{C}$	I_{FRM}	50	Amps
MAXIMUM POWER DISSIPATION, $T_C = 25\text{ }^\circ\text{C}$,	P_d	40	W
MAXIMUM THERMAL RESISTANCE, Junction to Case PER LEG	$R_{\theta JC}$	2.5	$^\circ\text{C/W}$
MAXIMUM OPERATING AND STORAGE TEMPERATURE RANGE*	T_{op} , T_{stg}	-55 to 200	$^\circ\text{C}$

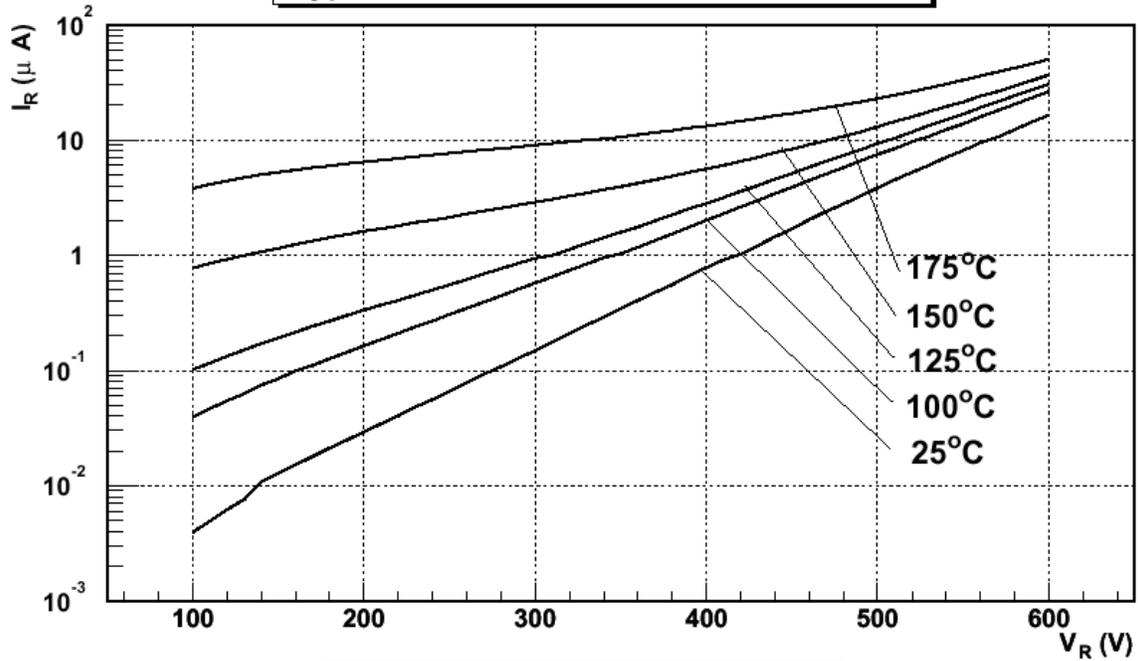
* Note: SiC semiconductors will handle at or above this operating and storage temperature. However, extended operational use of the packaged device above 175C may reduce its future performance. All qualification testing and screening per MIL-PRF-19500 will only be performed to 175C.

ELECTRICAL CHARACTERISTICS

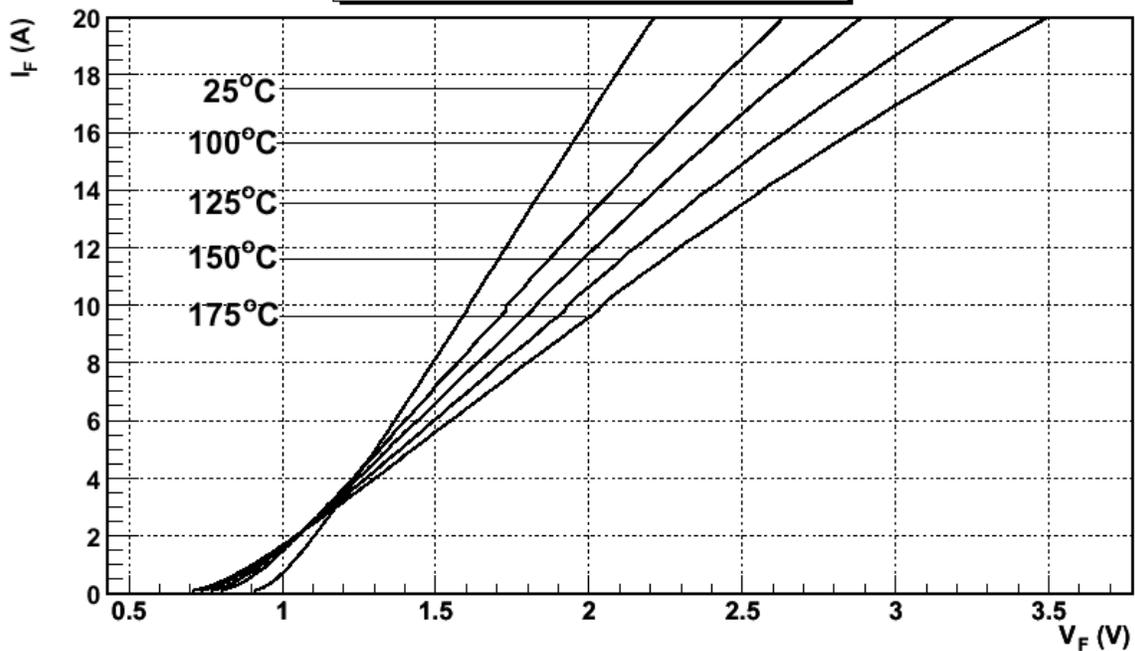
CHARACTERISTIC	TYP	MAX.	UNITS
MAXIMUM FORWARD VOLTAGE DROP Pulsed ($I_f = 10\text{ A PER LEG}$) V_f	$T_J = 25\text{ }^\circ\text{C}$ $T_J = 150\text{ }^\circ\text{C}$	1.65 2.05	1.80 2.20 Volts
MAXIMUM FORWARD VOLTAGE DROP Pulsed ($I_f = 6\text{ A PER LEG}$) V_f	$T_J = 25\text{ }^\circ\text{C}$ $T_J = 150\text{ }^\circ\text{C}$	1.35 1.60	1.45 1.70 Volts
MAXIMUM REVERSE CURRENT (I_r @ 600V PIV PER LEG)	$T_J = 25\text{ }^\circ\text{C}$ $T_J = 150\text{ }^\circ\text{C}$	0.04 0.08	0.15 0.50 mA
JUNCTION CAPACITANCE C_T ($V_r = 5\text{V}$) per leg	C_T	250	350 pF
TOTAL CAPACITIVE CHARGE ($V_R = 600\text{V}$ $I_F = 20\text{A}$ $di/dt = 500\text{A}/\mu\text{s}$ $T_J = 25\text{ }^\circ\text{C}$) This is design information only	Q_C per leg	35	N/A nC

TECHNICAL DATA
DATA SHEET 4074, REV. G

Typical Reverse Current Characteristics



Typical Forward Characteristics



TECHNICAL DATA
DATA SHEET 4074, REV. G

DISCLAIMER:

- 1- *The information given herein, including the specifications and dimensions, is subject to change without prior notice to improve product characteristics. Before ordering, purchasers are advised to contact the Sensitron Semiconductor sales department for the latest version of the datasheet(s).*
- 2- *In cases where extremely high reliability is required (such as use in nuclear power control, aerospace and aviation, traffic equipment, medical equipment, and safety equipment), safety should be ensured by using semiconductor devices that feature assured safety or by means of users' fail-safe precautions or other arrangement.*
- 3- *In no event shall Sensitron Semiconductor be liable for any damages that may result from an accident or any other cause during operation of the user's units according to the datasheet(s). Sensitron Semiconductor assumes no responsibility for any intellectual property claims or any other problems that may result from applications of information, products or circuits described in the datasheets.*
- 4- *In no event shall Sensitron Semiconductor be liable for any failure in a semiconductor device or any secondary damage resulting from use at a value exceeding the absolute maximum rating.*
- 5- *No license is granted by the datasheet(s) under any patents or other rights of any third party or Sensitron Semiconductor.*
- 6- *The datasheet(s) may not be reproduced or duplicated, in any form, in whole or part, without the expressed written permission of Sensitron Semiconductor.*
- 7- *The products (technologies) described in the datasheet(s) are not to be provided to any party whose purpose in their application will hinder maintenance of international peace and safety nor are they to be applied to that purpose by their direct purchasers or any third party. When exporting these products (technologies), the necessary procedures are to be taken in accordance with related laws and regulations.*