

**TECHNICAL DATA**  
**DATA SHEET 4074, REV. D**

**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 Temperature Option** - Maximum operation & storage temperature can be increased to 250°C; use part number prefix as SHDT
- **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**

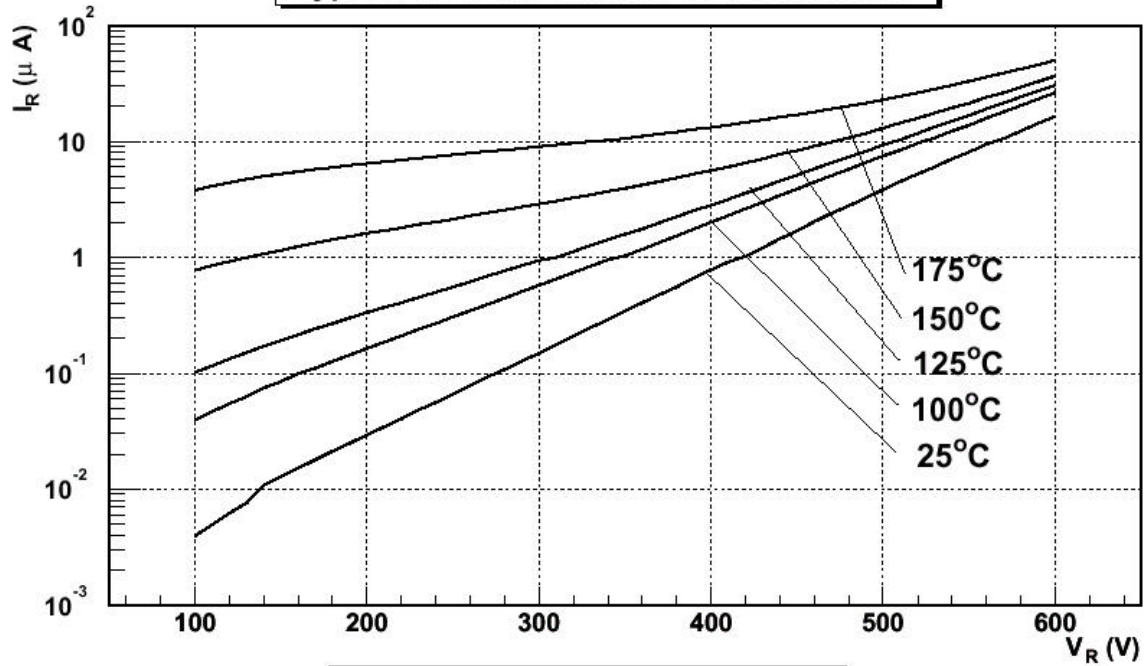
ALL RATINGS ARE @  $T_C = 25^\circ\text{C}$  UNLESS OTHERWISE SPECIFIED.

RATING	SYMBOL	MAX.	UNITS
PEAK INVERSE VOLTAGE	PIV	600	Volts
MAXIMUM DC OUTPUT CURRENT (With $T_C = 65^\circ\text{C}$ , for part numbers with P and N suffixes)	$I_O$	20	Amps
MAXIMUM DC OUTPUT CURRENT (With $T_C = 65^\circ\text{C}$ , for part numbers with Single and D suffixes)	$I_O$	10	Amps
MAXIMUM REPETITIVE FORWARD SURGE CURRENT PER LEG ( $t = 8.3\text{ms}$ , Sine) per leg, $T_C = 25^\circ\text{C}$	$I_{FRM}$	50	Amps
MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT PER LEG ( $t = 10\mu\text{s}$ , Pulse) per leg, $T_C = 25^\circ\text{C}$	$I_{FSM}$	250	Amps
MAXIMUM JUNCTION CAPACITANCE ( $V_r = 5\text{V}$ ) per leg	$C_T$	350	pF
MAXIMUM POWER DISSIPATION, $T_C = 25^\circ\text{C}$ ,	$P_d$	40	W
MAXIMUM THERMAL RESISTANCE, Junction to Case (PER DUAL PACKAGE For Common Cathode/Anode Configurations)	$R_{\theta JC}$	2.1	$^\circ\text{C/W}$
MAXIMUM OPERATING AND STORAGE TEMPERATURE RANGE	$T_{op}$ , $T_{stg}$	-55 to +175	$^\circ\text{C}$

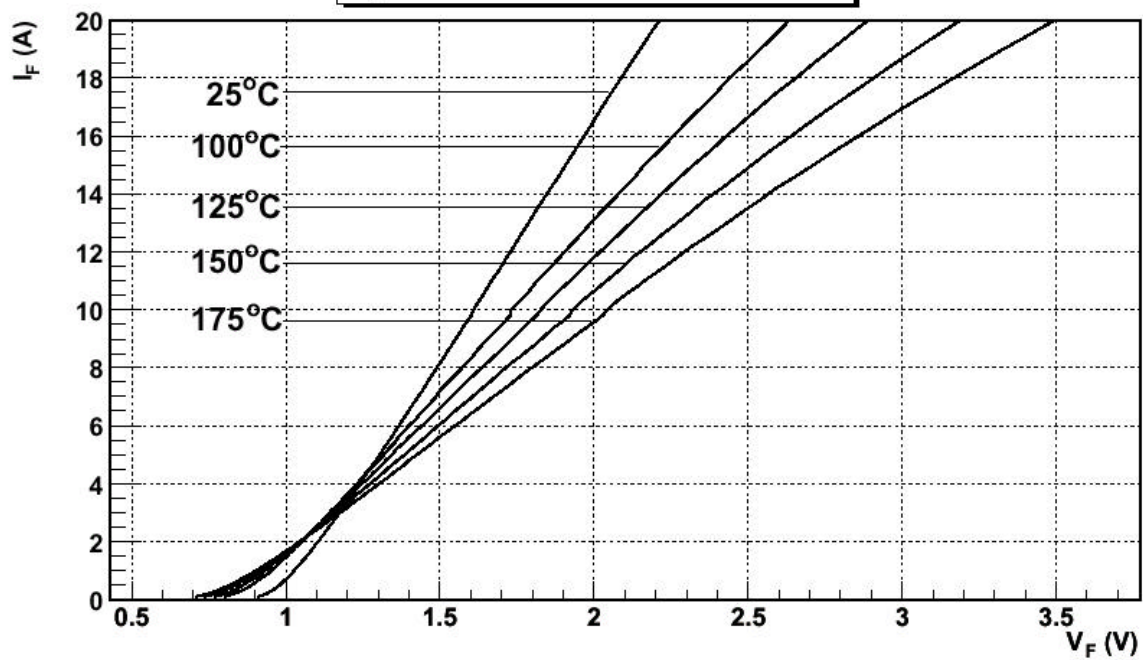
**ELECTRICAL CHARACTERISTICS**

CHARACTERISTIC	TYP	MAX.	UNITS
MAXIMUM FORWARD VOLTAGE DROP Pulsed ( $I_f = 10\text{ A PER LEG}$ ) $V_f$ $T_J = 25^\circ\text{C}$ $T_J = 150^\circ\text{C}$	1.65 1.85	1.75 1.95	Volts
MAXIMUM FORWARD VOLTAGE DROP Pulsed ( $I_f = 6\text{ A PER LEG}$ ) $V_f$ $T_J = 25^\circ\text{C}$ $T_J = 150^\circ\text{C}$	1.35 1.50	1.45 1.60	Volts
MAXIMUM REVERSE CURRENT ( $I_r$ @ 600V PIV PER LEG) $T_J = 25^\circ\text{C}$ $T_J = 150^\circ\text{C}$	0.04 0.08	0.15 0.50	mA
TOTAL CAPACITIVE CHARGE ( $V_R = 600\text{V}$ $I_F = 10\text{A}$ $di/dt = 500\text{A}/\mu\text{s}$ $T_J = 25^\circ\text{C}$ ) $Q_C$ per leg	40	N/A	nC

Typical Reverse Current Characteristics



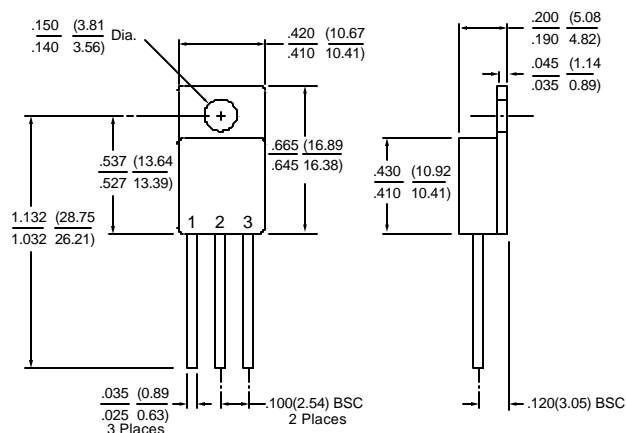
Typical Forward Characteristics



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**MECHANICAL DIMENSIONS**

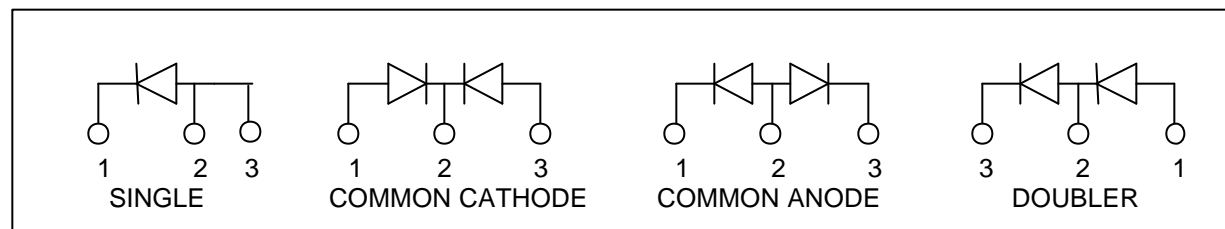
**TO-257**



**PINOUT TABLE**

TYPE	PIN 1	PIN 2	PIN 3
SINGLE RECTIFIER	CATHODE	ANODE	ANODE
DUAL RECTIFIER/COMMON CATHODE (P)	ANODE 1	COMMON CATHODE	ANODE 2
DUAL RECTIFIER/COMMON ANODE (N)	CATHODE 1	COMMON ANODE	CATHODE 2
DUAL RECTIFIER/DOUBLER (D)	ANODE	ANODE/CATHODE	CATHODE

**SCHEMATIC**



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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