

TECHNICAL DATA, PROVISIONAL DATA ONLY  
DATA SHEET 4079, Rev. E.1

## HERMETIC SILICON CARBIDE RECTIFIER

**DESCRIPTION:** A 1200-VOLT, 10 AMP POWER SILICON CARBIDE RECTIFIER IN A CERAMIC HERMETIC TO-257 PACKAGE (GLASS SEALS NOT AVAILABLE FOR THIS VOLTAGE)

### 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

### 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 (With $T_C = 65\text{ }^\circ\text{C}$ , for part numbers with P and N suffixes)          | $I_o$           | 10          | Amps               |
| MAXIMUM DC OUTPUT CURRENT (With $T_C = 65\text{ }^\circ\text{C}$ , for part number with D suffix or without suffix) | $I_o$           | 5           | Amps               |
| MAXIMUM REPETITIVE FORWARD SURGE CURRENT (t = 8.3ms, Sine) per leg, $T_C = 25\text{ }^\circ\text{C}$                | $I_{FRM}$       | 30          | Amps               |
| MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT (t = 10 $\mu$ s, pulse) per leg, $T_C = 25\text{ }^\circ\text{C}$      | $I_{FSM}$       | 100         | Amps               |
| MAXIMUM JUNCTION CAPACITANCE ( $V_r = 5\text{V}$ ) per leg  | $C_T$           | 450         | pF                 |
| MAXIMUM POWER DISSIPATION, $T_C = 25\text{ }^\circ\text{C}$   | $P_d$           | 30          | W                  |
| MAXIMUM THERMAL RESISTANCE, Junction to Case (PER DUAL PACKAGE For Common Cathode/Anode Configurations)             | $R_{\theta JC}$ | 1.50        | $^\circ\text{C/W}$ |
| MAXIMUM OPERATING AND STORAGE TEMPERATURE RANGE   | Top, Tstg       | -55 to +175 | $^\circ\text{C}$   |

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ELECTRICAL CHARACTERISTICS

| CHARACTERISTIC  | TYP          | MAX.         | UNITS |
|---|--------------|--------------|-------|
| MAXIMUM FORWARD VOLTAGE DROP ( $I_f = 5$ A PER LEG) $V_f$ $T_J = 25^\circ\text{C}$<br>$T_J = 150^\circ\text{C}$                                     | 1.65<br>2.55 | 1.80<br>3.00 | Volts |
| MAXIMUM REVERSE CURRENT (1200V PIV PER LEG) $I_r$ $T_J = 25^\circ\text{C}$<br>$T_J = 150^\circ\text{C}$   | 0.05<br>0.10 | 0.20<br>1.00 | mA    |
| TOTAL CAPACITIVE CHARGE ( $V_R = 1200\text{V}$ , $I_F = 5\text{A}$ , $di/dt = 500\text{A}/\mu\text{s}$ and $T_J = 25^\circ\text{C}$ ) $Q_C$ per leg | 28           | N/A          | nC    |

Figure 1. Forward Characteristics

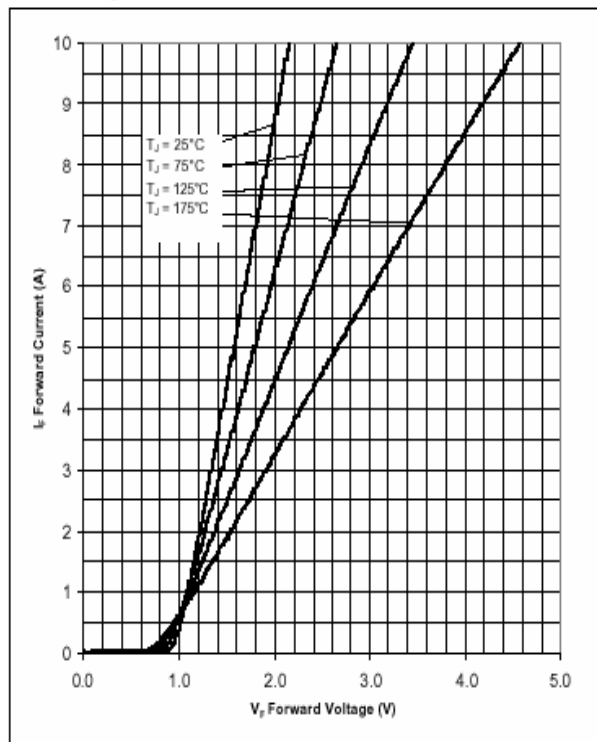
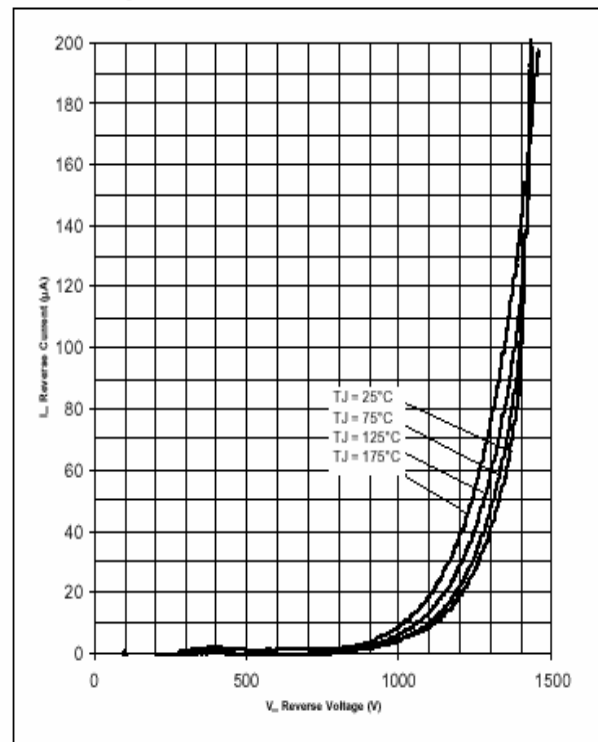
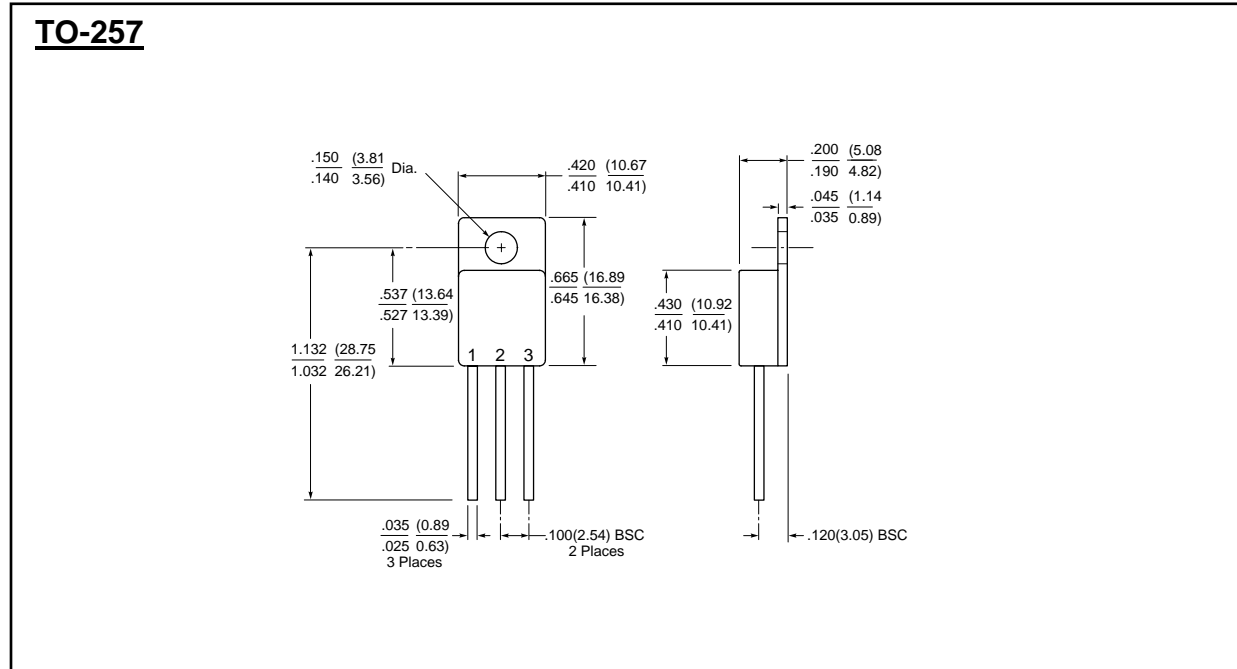


Figure 2. Reverse Characteristics



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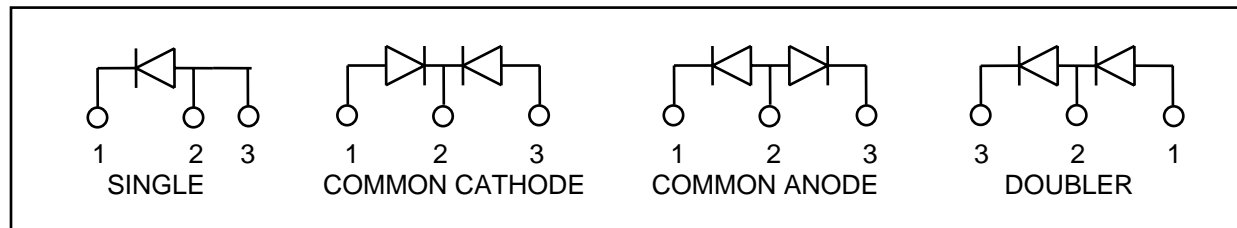
**MECHANICAL DIMENSIONS**



**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/<br>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.

**SENSITRON**  
**SEMICONDUCTOR**

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SHDC626052  
SHDC626052P  
SHDC626052N  
SHDC626052D

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