

HERMETIC SILICON CARBIDE RECTIFIER

DESCRIPTION: A 1200-VOLT, 50 AMP POWER SILICON CARBIDE RECTIFIER IN A CERAMIC HERMETIC TO-258 PACKAGE

FEATURES:

- NO RECOVERY TIME OR REVERSE RECOVERY LOSSES
- NO TEMPERATURE INFLUENCE ON SWITCHING BEHAVIOR
- SCREENED VERSIONS ARE AVAILABLE

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	100	Amps
MAXIMUM DC OUTPUT CURRENT (With $T_C = 65\text{ }^\circ\text{C}$, for part number with D suffix or without suffix)	I_O	50	Amps
MAXIMUM REPETITIVE FORWARD SURGE CURRENT ($t = 8.3\text{ms}$, Sine) per leg, $T_C = 25\text{ }^\circ\text{C}$	I_{FRM}	120	Amps
MAXIMUM POWER DISSIPATION, $T_C = 25\text{ }^\circ\text{C}$	P_d	136	W
MAXIMUM THERMAL RESISTANCE, Junction to Case (PER DUAL PACKAGE For Common Cathode/Anode Configurations)	$R_{\theta JC}$	1.1	$^\circ\text{C/W}$
MAXIMUM OPERATING AND STORAGE TEMPERATURE RANGE*	Top, Tstg	-55 to +175	$^\circ\text{C}$

* 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 ($I_f=50A$ PER LEG) V_f $T_J=25\text{ }^\circ\text{C}$ $T_J=175\text{ }^\circ\text{C}$	1.80 2.40	2.00 2.90	Volts
MAXIMUM FORWARD VOLTAGE DROP ($I_f=25A$ PER LEG) V_f $T_J=25\text{ }^\circ\text{C}$ $T_J=175\text{ }^\circ\text{C}$	1.40 1.70	1.80 2.20	Volts
MAXIMUM REVERSE CURRENT (1200V PIV PER LEG) I_r $T_J=25\text{ }^\circ\text{C}$ $T_J=175\text{ }^\circ\text{C}$	0.10 0.30	0.50 1.00	mA
TOTAL CAPACITIVE CHARGE ($V_R=800V$) Q_C per leg	250		nC
TOTAL JUNCTION CAPACITANCE ($V_f=400V$, $f=1MHz$ PER LEG) C_T	230		pF

Figure 1. Forward Characteristics

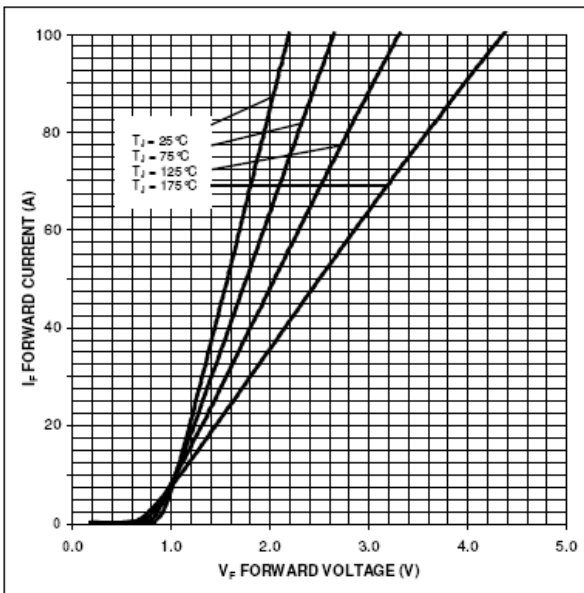
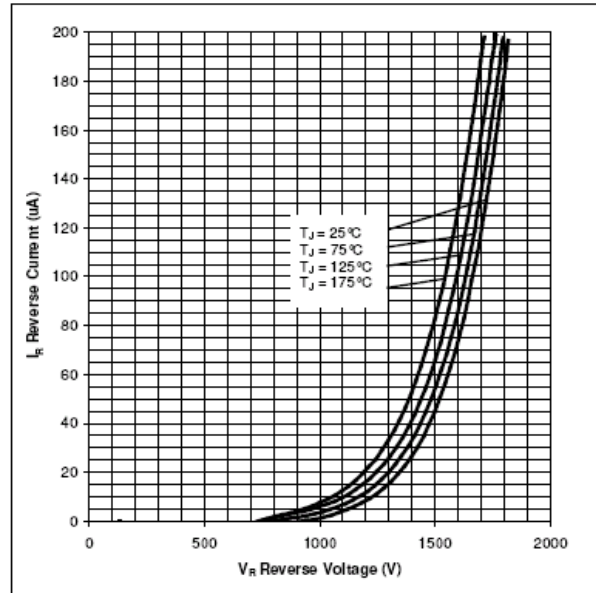


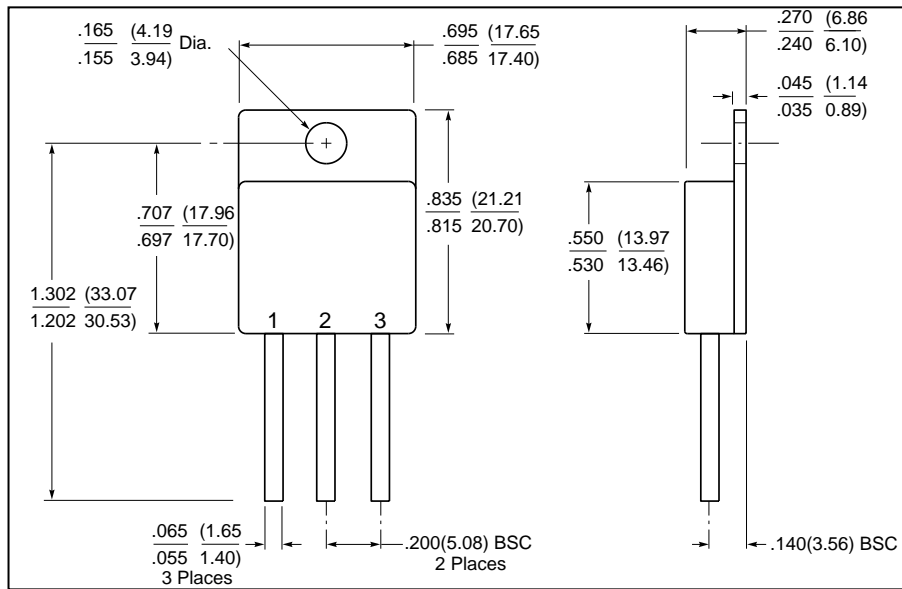
Figure 2. Reverse Characteristics



DATA SHEET 5341, Rev. B

MECHANICAL DIMENSIONS

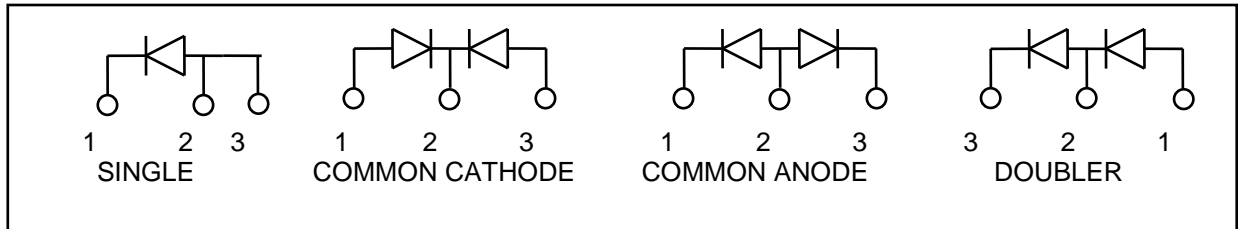
TO-258



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.

SENSITRON
SEMICONDUCTOR

SHDC624172
SHDC624172P
SHDC624172N
SHDC624172D

DATA SHEET 5341, Rev. B

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.