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
- **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 °C UNLESS OTHERWISE SPECIFIED.

RATING	SYMBOL	MAX.	UNITS
PEAK INVERSE VOLTAGE	PIV	1200	Volts
MAXIMUM DC OUTPUT CURRENT (With T_C = 65 ^{O}C, for part numbers with P and N suffixes)	I_O	100	Amps
MAXIMUM DC OUTPUT CURRENT (With T_C = 65 ^{O}C, for part number with D suffix or without suffix)	I_O	50	Amps
MAXIMUM REPETITIVE FORWARD SURGE CURRENT (t = 8.3ms, Sine) per leg, T_C = 25 ^{O}C	I_{FRM}	200	Amps
MAXIMUM POWER DISSIPATION, T_C = 25 ^{O}C	P_d	175	W
MAXIMUM THERMAL RESISTANCE, Junction to Case (PER DUAL PACKAGE For Common Cathode/Anode Configurations)	$R_{\theta JC}$	1.00	°C/W
MAXIMUM OPERATING AND STORAGE TEMPERATURE RANGE*	Top, Tstg	-55 to +200	°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 =10A PER LEG) V_f T_J=25 °C	1.70	2.00	
T_J=175 °C	2.50	3.00	Volts
MAXIMUM REVERSE CURRENT (1200V PIV PER LEG) I_r T_J = 25 °C	0.01	0.20	
T_J = 175 °C	0.02	1.00	mA
TOTAL CAPACITIVE CHARGE (V_R=1200V, I_F=50A, di/dt=500A/μs and T_J=25°C) Q_C, per leg	305		nC
TOTAL JUNCTION CAPACITANCE (V_r =400V, f=1MHz PER LEG) C_T	325		pF

Figure 1. Forward Characteristics

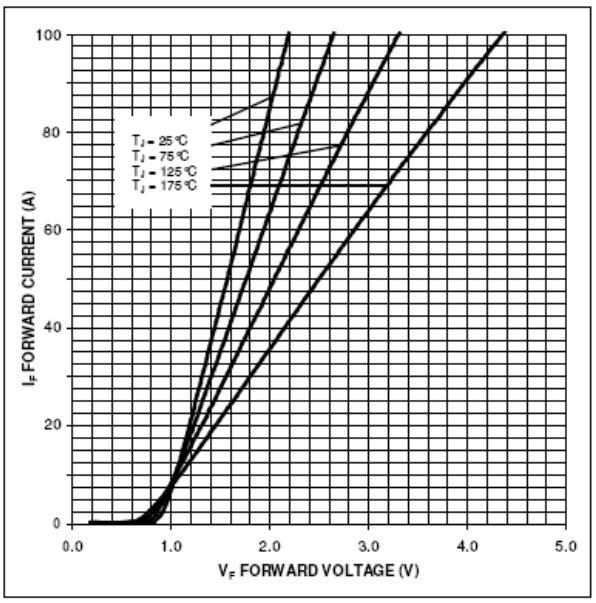
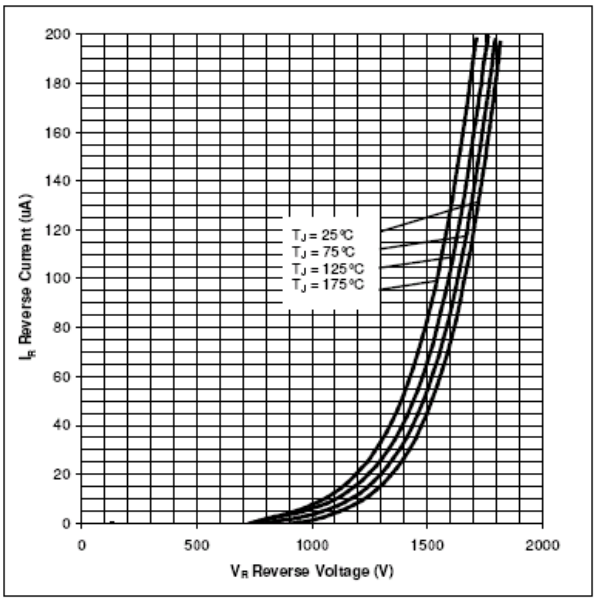


Figure 2. Reverse Characteristics



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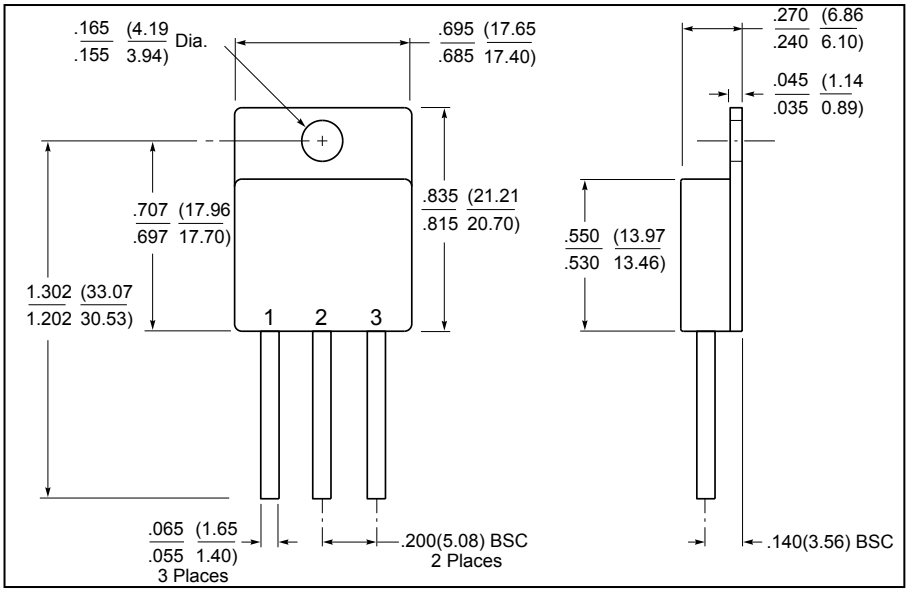
MECHANICAL DIMENSIONS

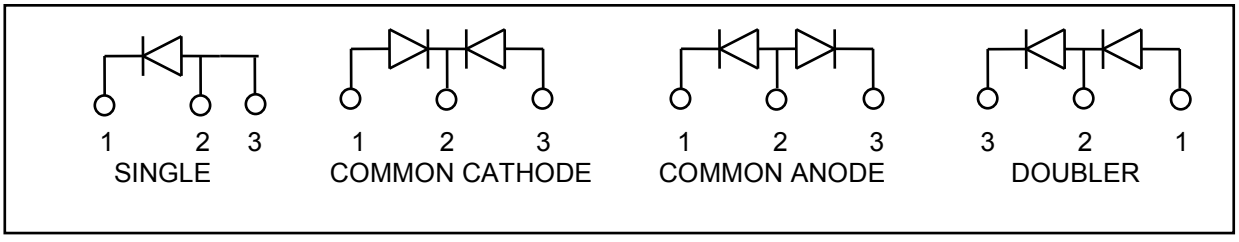
TO-258



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

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