SENSITRON
SEMICONDUCTOR

TECHNICAL DATA
DATA SHEET 4336, REV. D

HERMETIC SILICON CARBIDE RECTIFIER

DESCRIPTION: A 600-VOLT, 20 AMP POWER SILICON CARBIDE RECTIFIER IN A HERMETIC TO-254 PACKAGE AVAILABLE SCREENED TO ANY REQUIRED LEVEL

FEATURES:

- NO RECOVERY TIME OR REVERSE RECOVERY LOSSES
- NO TEMPERATURE INFLUENCE ON SWITCHING BEHAVIOR
- **Ceramic Seal Option** – For ceramic seals use part number prefix SHDC

MAXIMUM RATINGS ALL RATINGS ARE @ T_C = 25 °C UNLESS OTHERWISE SPECIFIED.

RATING	SYMBOL	MAX.	UNITS
PEAK INVERSE VOLTAGE	PIV	600	Volts
MAXIMUM DC OUTPUT CURRENT (With T_C = 65 °C for P and N suffixes)	I_O	20	Amps
MAXIMUM DC OUTPUT CURRENT (With T_C = 65 °C for Single and D suffixes)	I_O	10	Amps
MAXIMUM REPETITIVE FORWARD SURGE CURRENT PER LEG (t = 8.3ms, Sine) per leg, T_C = 25 °C	I_{FRM}	50	Amps
MAXIMUM POWER DISSIPATION, T_C = 25 °C,	P_d	40	W
MAXIMUM THERMAL RESISTANCE, Junction to Case PER LEG	$R_{\theta JC}$	7.7	°C/W
MAXIMUM OPERATING AND STORAGE TEMPERATURE RANGE*	Top, Tstg	-55 to 175	°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	T_J = 25°C	1.65	1.80	
Pulsed (I_f = 10 A PER LEG) V_f	T_J = 150 °C	2.05	2.20	Volts
MAXIMUM FORWARD VOLTAGE DROP	T_J = 25°C	1.35	1.45	
Pulsed (I_f = 6 A PER LEG) V_f	T_J = 150 °C	1.60	1.70	Volts
MAXIMUM REVERSE CURRENT (I_r @ 600V PIV PER LEG)	T_J = 25 °C	0.04	0.15	
	T_J = 150 °C	0.08	0.50	mA
JUNCTION CAPACITANCE $C_{T)}$ (V_r =5V) per leg	C_T	400	500	pF
TOTAL CAPACITIVE CHARGE	Q_C per leg	49.1	N/A	nC
(VR = 400V, IF = 10A, di/dt = 200A/µs T_J=25°C) This is design information only				

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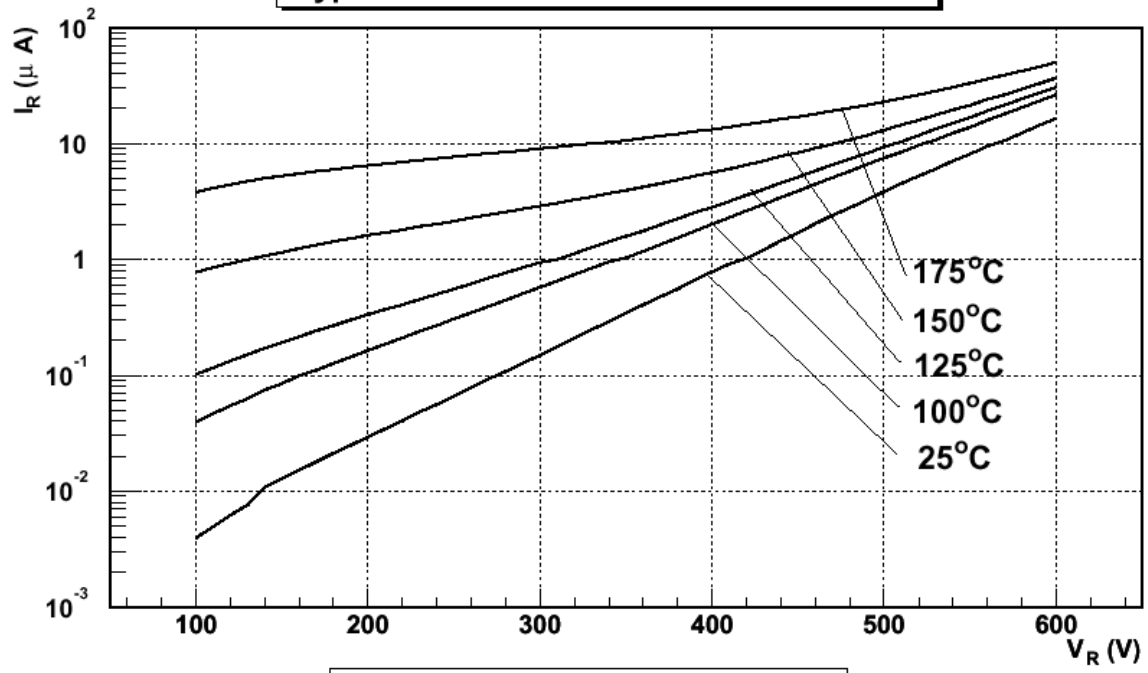
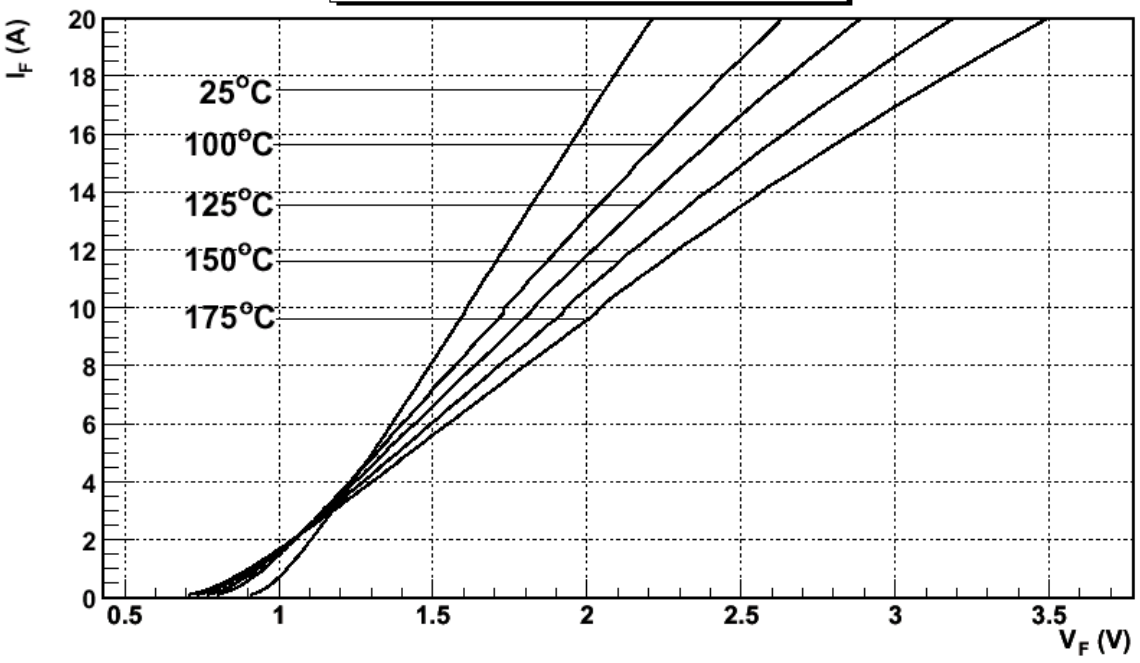
Typical Reverse Current Characteristics



Typical Forward Characteristics



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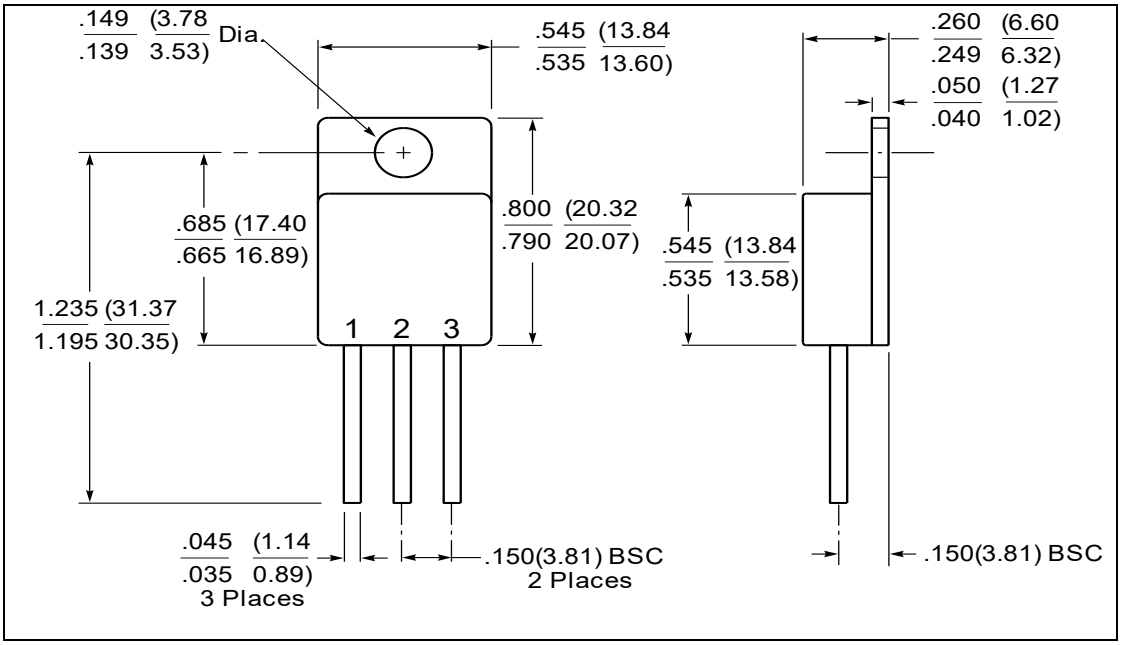
MECHANICAL DIMENSIONS:

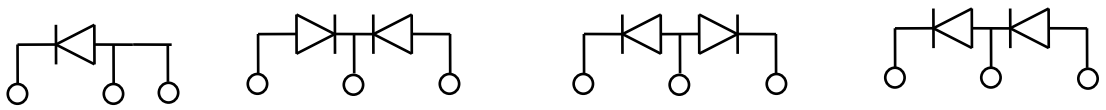
TO-254



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.

SHD625051
SHD625051P
SHD625051N
SHD625051D

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