SENSITRON SEMICONDUCTOR

SHD625051 SHD625051P SHD625051N SHD625051D

TECHNICAL DATA DATA SHEET 4336, REV. B

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
- **High Frequency Option** Non-magnetic Glidcop leads with ceramic seals are available for improved performance at high frequency; use part number prefix SHDCG

MAXIMUM RATINGS

ALL RATINGS ARE @ $T_{\rm C}$ = 25 °C UNLESS OTHERWISE SPECIFIED.

RATING	SYMBOL	MAX.	UNITS
PEAK INVERSE VOLTAGE	PIV	600	Volts
MAXIMUM DC OUTPUT CURRENT (With $T_c = 65 {}^{\circ}C$ for P and N suffixes)	lo	20	Amps
MAXIMUM DC OUTPUT CURRENT (With $T_c = 65 ^{\circ}C$ for Single and D suffixes)	lo	10	Amps
MAXIMUM REPETITIVE FORWARD SURGE CURRENT PER LEG (t = 8.3ms, Sine) per leg, T_c = 25 $^{\circ}C$	I _{FRM}	50	Amps
MAXIMUM POWER DISSIPATION, $T_C = 25 \ ^{\circ}C$,	Pd	40	W
MAXIMUM THERMAL RESISTANCE, Junction to Case PER LEG	$R_{ ext{ heta}JC}$	2.5	°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.

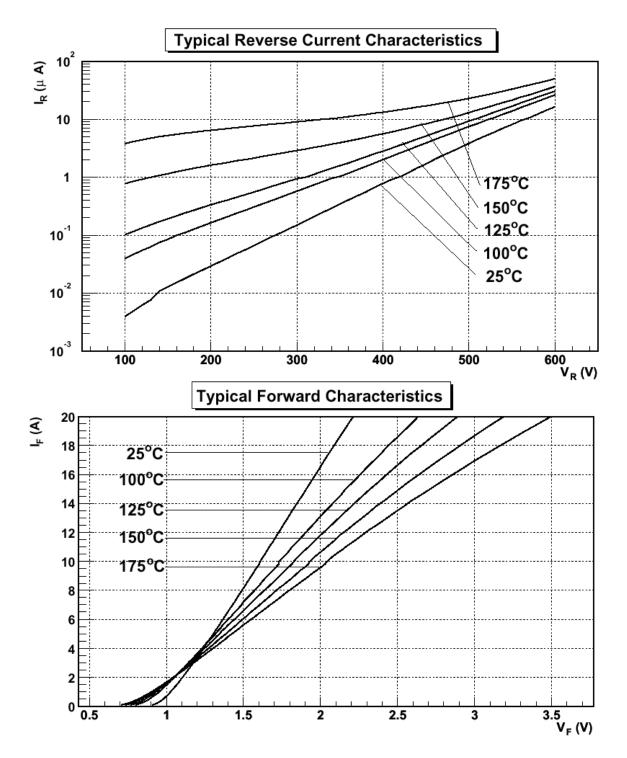
ELECTRICAL CHARACTERISTICS

CHARACTERISTIC		TYP	MAX.	UNITS
MAXIMUM FORWARD VOLTAGE DROP	$T_J = 25^{\circ}C$	1.65	1.80	
Pulsed (I _f = 10 A PER LEG) V_f	$T_J = 150 \ ^\circ C$	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	$T_J = 150 \ ^\circ C$	1.60	1.70	Volts
MAXIMUM REVERSE CURRENT (Ir @ 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_j} (V _r =5V) per leg	CT	250	350	pF
TOTAL CAPACITIVE CHARGE	Q _C per leg	35	N/A	nC
(V_R=600V I_F=20A di/dt=500A/ μs T_J=25°C) This is design inform	nation only			

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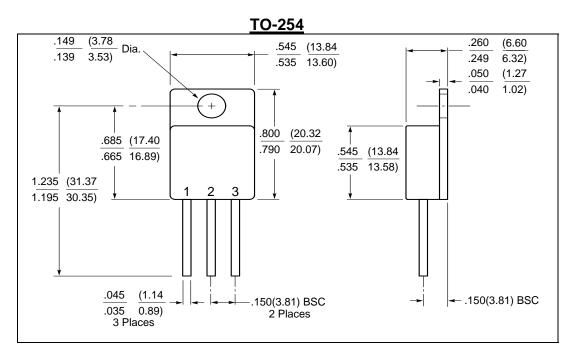


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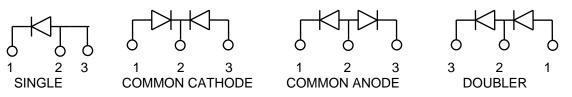
MECHANICAL DIMENSIONS



PINOUT TABLE

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

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