TECHNICAL DATA, PROVISIONAL DATA ONLY
DATA SHEET 4984, REV. B

HERMETIC SILICON CARBIDE RECTIFIER

DESCRIPTION: A 1200-VOLT, 40 AMP POWER SILICON CARBIDE RECTIFIER IN A HERMETIC TO-258 PACKAGE WITH CERAMIC SEAL

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 °C UNLESS OTHERWISE SPECIFIED.

RATING	SYMBOL	MAX.	UNITS
PEAK INVERSE VOLTAGE	PIV	1200	Volts
MAXIMUM DC OUTPUT CURRENT PER LEG (With Cathode Maintained @ T_C = 65 ^{O}C)	I_O	20	Amps
MAXIMUM REPETITIVE FORWARD SURGE CURRENT PER LEG (t = 8.3ms, Sine) T_C = 25 ^{O}C	I_{FRM}	60	Amps
MAXIMUM NON-REPETITIVE FORWARD SURGE CURREN PER LEG (t = 10µs, pulse) T_C = 25 ^{O}C	I_{FSM}	250	Amps
MAXIMUM POWER DISSIPATION, T_C = 25 ^{O}C	P_d	80	W
MAXIMUM THERMAL RESISTANCE, Junction to Case, Per Dual Package	$R_{\theta JC}$	0.5	°C/W
MAXIMUM OPERATING TEMPERATURE RANGE	Top	-55 to +175	°C
MAXIMUM STORAGE TEMPERATURE RANGE*	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
FORWARD VOLTAGE DROP PER LEG(I_f = 20A) V_f	T_J = 25 °C	1.6	1.8	
	T_J = 175 °C	2.5	3.0	Volts
REVERSE CURRENT PER LEG (1200V PIV) I_r	T_J = 25 °C	0.02	0.40	
	T_J=175 °C	0.04	2.00	mA
JUNCTION CAPACITANCE (V_r=400V, f = 1MHz) C_T PER LEG	T_J = 25 °C	140	N/A	pF
TOTAL CAPACITIVE CHARGE PER LEG (V_R=1200V I_F=10A di/dt=500A/µs T_J=25°C) Q_C		100	N/A	nC

SENSITRON

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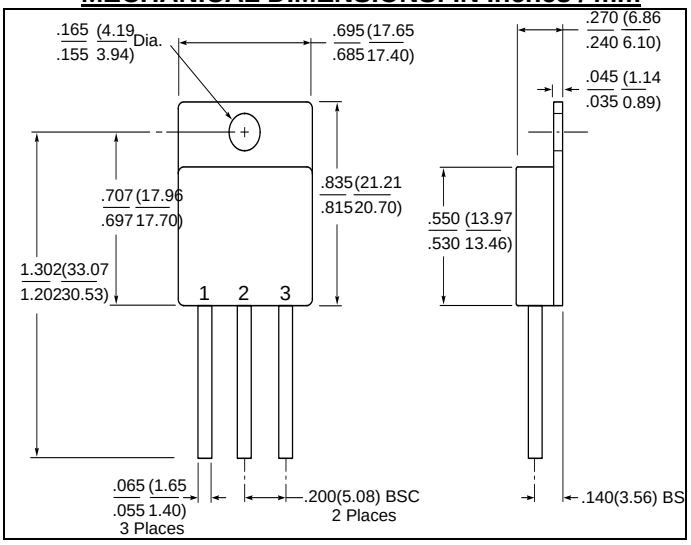
MECHANICAL DIMENSIONS: IN Inches / mm

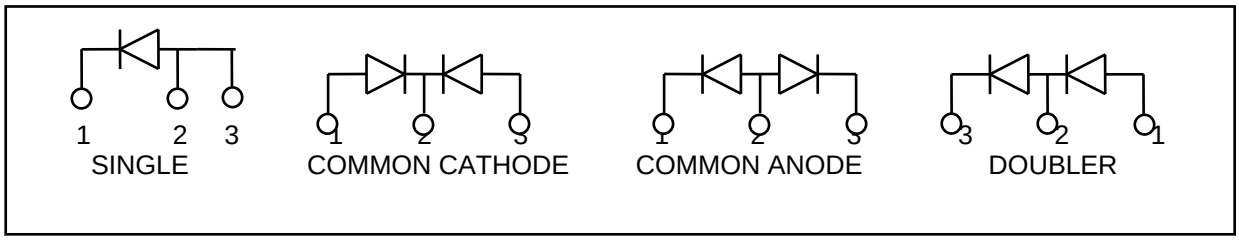


TO-258

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



TYPICAL PERFORMANCE PER LEG

Figure 1. Forward Characteristics

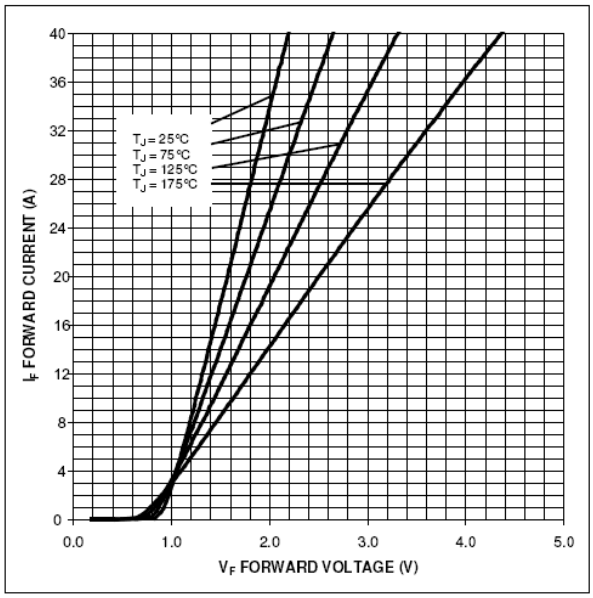
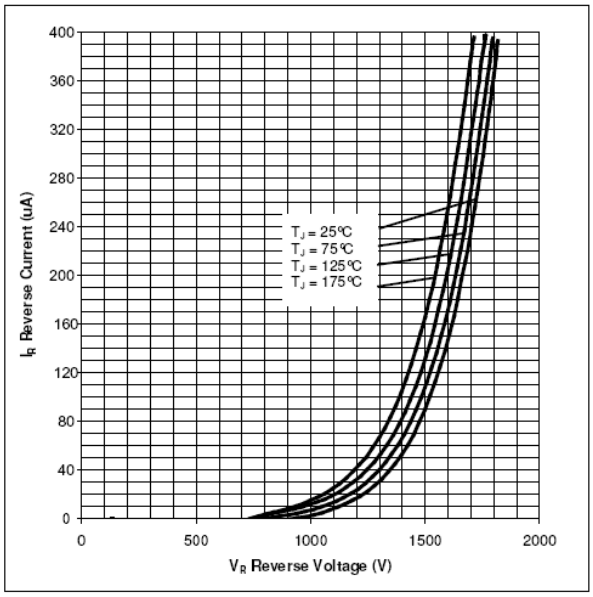


Figure 2. Reverse Characteristics



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.