

TECHNICAL DATA, PROVISIONAL DATA ONLY
DATA SHEET 4289, Rev. B

SILICON CARBIDE SINGLE PHASE FULL WAVE BRIDGE

DESCRIPTION: A 1200-VOLT, 10 AMP POWER SILICON CARBIDE SINGLE PHASE FULL WAVE BRIDGE IN A HERMETIC 5-PIN TO-258 (MO-078) PACKAGE

FEATURES:

- NO RECOVERY TIME OR REVERSE RECOVERY LOSSES
- NO TEMPERATURE INFLUENCE ON SWITCHING BEHAVIOR

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 PER LEG	I_O	10	Amps
MAXIMUM REPETITIVE FORWARD SURGE CURRENT PER LEG ($t = 8.3\text{ms}$, Sine)	I_{FRM}	50	Amps
MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT PER LEG ($t = 10\mu\text{s}$, pulse)	I_{FSM}	250	Amps
MAXIMUM POWER DISSIPATION	P_d	80	W
MAXIMUM THERMAL RESISTANCE (Junction to Case)	$R_{\theta JC}$	0.50	$^\circ\text{C/W}$
MAXIMUM OPERATING AND STORAGE TEMPERATURE RANGE	Top, Tstg	-55 to +200	$^\circ\text{C}$

* 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.

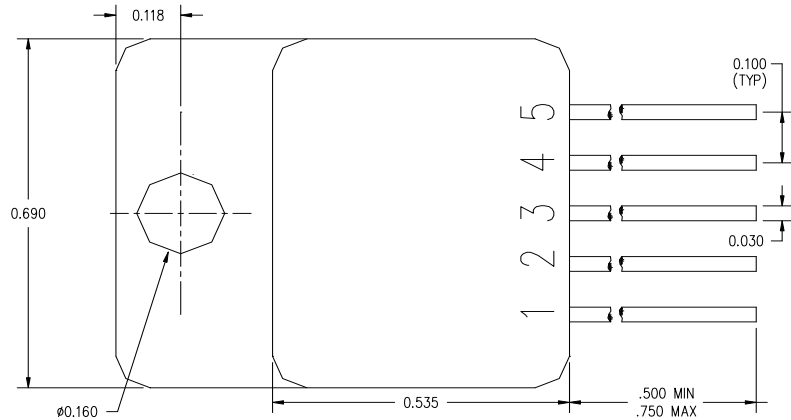
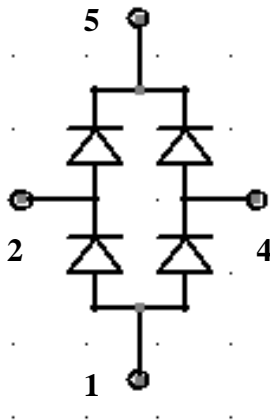
ELECTRICAL CHARACTERISTICS

CHARACTERISTIC	TYP	MAX.	UNITS
MAXIMUM FORWARD VOLTAGE DROP $I_F=10\text{A}$ PER LEG, $T_J=25\text{ }^\circ\text{C}$ $T_J=175\text{ }^\circ\text{C}$	1.60 2.50	1.80 3.00	Volts
MAXIMUM REVERSE CURRENT PIV = 1200V PER LEG, $T_J = 25\text{ }^\circ\text{C}$ $T_J = 175\text{ }^\circ\text{C}$	0.01 0.02	0.20 1.00	mA
MAXIMUM JUNCTION CAPACITANCE PER LEG ($V_r=400\text{V}$) C_T	70		pF
TOTAL CAPACITIVE CHARGE PER LEG ($V_R=1200\text{V}$, $I_F=10\text{A}$, $di/dt=500\text{A}/\mu\text{s}$ and $T_J=25\text{ }^\circ\text{C}$) Q_C	60	N/A	nC

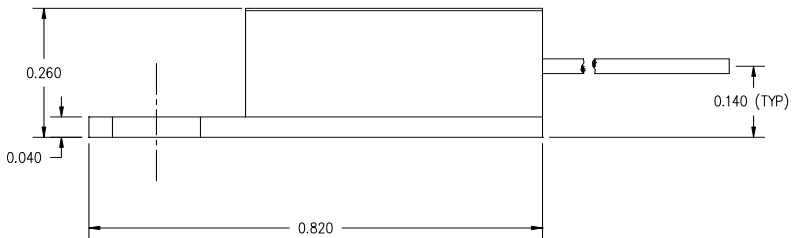
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MECHANICAL DIMENSIONS: In Inches



MO-078



PINOUT TABLE

DEVICE TYPE	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5
SINGLE PHASE FULL WAVE BRIDGE	DC(-)	AC(1)	NC	AC(2)	DC(+)

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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Forward and Reverse Characteristics for Individual Diode

Figure 1. Forward Characteristics

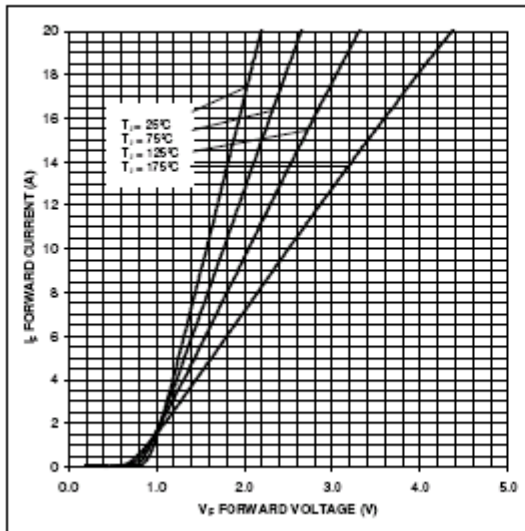
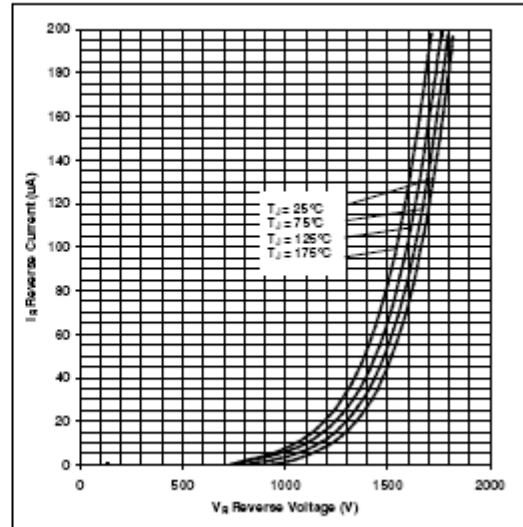


Figure 2. Reverse Characteristics

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