

SENSITRON
SEMICONDUCTORTechnical Data
Datasheet 4290 REV. A**SILICON CARBIDE 3-PHASE HALF WAVE BRIDGE****DESCRIPTION:** 1200-VOLT, 5 AMP POWER SILICON CARBIDE 3-PHASE HALF 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 RATINGSALL 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 (With $T_C = 65\text{ }^\circ\text{C}$) PER LEG	I_O	5	Amps
MAXIMUM REPETITIVE FORWARD SURGE CURRENT ($t = 8.3\text{ms}$, Sine) per leg, $T_C = 25\text{ }^\circ\text{C}$	I_{FRM}	30	Amps
MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT ($t = 10\mu\text{s}$, pulse) per leg, $T_C = 25\text{ }^\circ\text{C}$	I_{FSM}	100	Amps
MAXIMUM POWER DISSIPATION, $T_C = 25\text{ }^\circ\text{C}$	P_d	30	W
MAXIMUM THERMAL RESISTANCE, Junction to Case	$R_{\theta JC}$	1.2	$^\circ\text{C/W}$
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 $175\text{ }^\circ\text{C}$ may reduce its future performance. All qualification testing and screening per MIL-PRF-19500 will only be performed to $175\text{ }^\circ\text{C}$.

ELECTRICAL CHARACTERISTICS

CHARACTERISTIC	TYP	MAX.	UNITS
MAXIMUM FORWARD VOLTAGE DROP ($I_f = 5\text{ A PER LEG}$) V_f $T_J = 25\text{ }^\circ\text{C}$ $T_J = 150\text{ }^\circ\text{C}$	1.65 2.55	1.80 3.00	Volts
MAXIMUM REVERSE CURRENT (1200V PIV PER LEG) I_r $T_J = 25\text{ }^\circ\text{C}$ $T_J = 150\text{ }^\circ\text{C}$	0.05 0.10	0.20 1.00	mA
MAXIMUM JUNCTION CAPACITANCE ($V_r = 5\text{V}$) per leg C_T	450		pF
TOTAL CAPACITANCE CHARGE ($V_R = 1200\text{V}$, $I_F = 5\text{A}$, $di/dt = 500\text{A}/\mu\text{s}$ and $T_J = 25\text{ }^\circ\text{C}$) Q_C per leg	28	N/A	nC

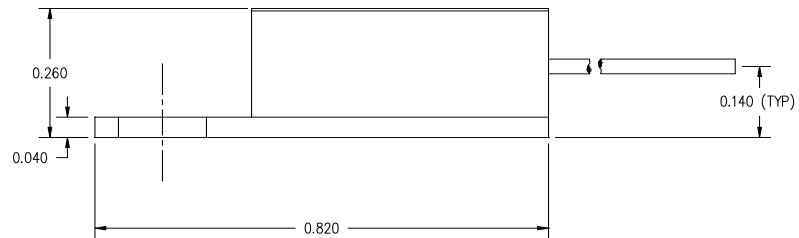
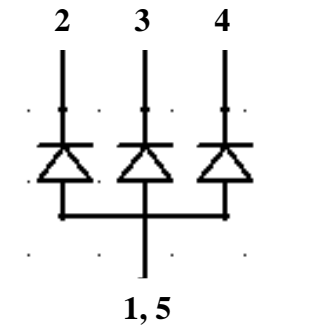
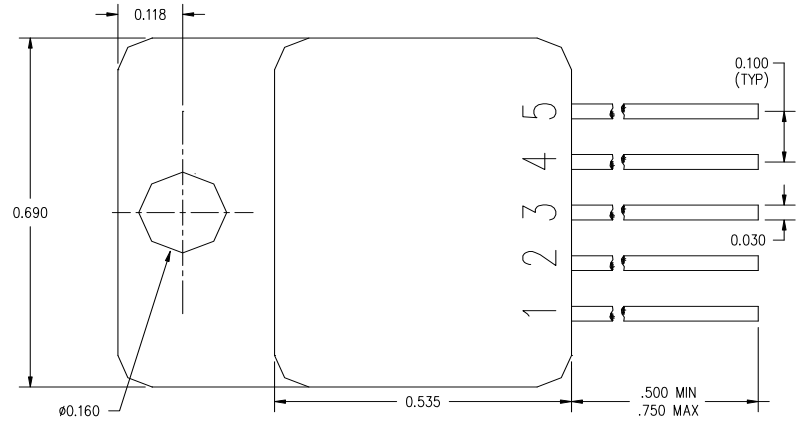
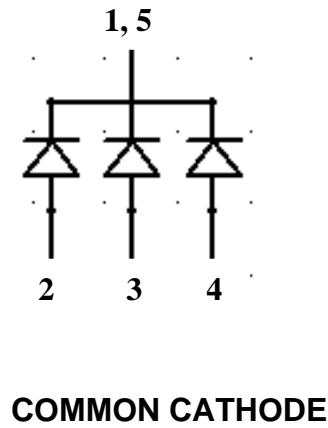
Application Note: Customers should be aware that at the current stage of technical development of SiC, the reverse avalanche capabilities of the device are limited.

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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MECHANICAL DIMENSIONS (inches) (MO-078)



PINOUT TABLE

DEVICE TYPE	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5
3-PHASE HALF WAVE BRIDGE COMMON CATHODE (SHB601052FP)	DC	AC(1)	AC(2)	AC(3)	DC
3-PHASE HALF WAVE BRIDGE COMMON ANODE (SHB601052FN)	DC	AC(1)	AC(2)	AC(3)	DC

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Forward and Reverse Characteristics of Individual Diode

Figure 1. Forward Characteristics

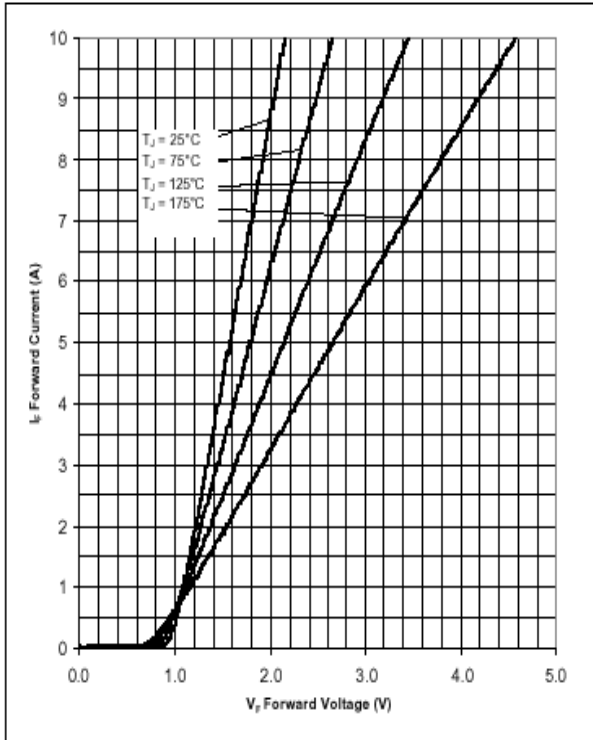
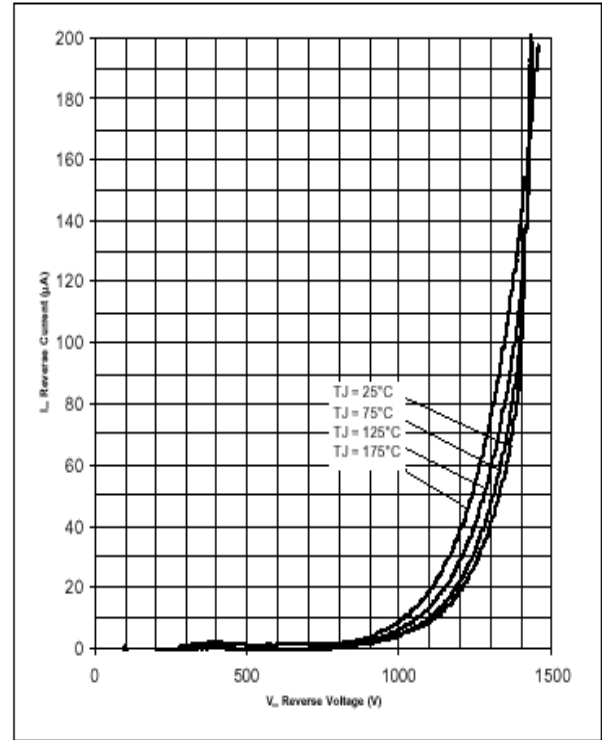


Figure 2. Reverse Characteristics



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