

Technical Data
Datasheet 5015, Rev A

HIGH VOLTAGE SILICON CARBIDE SINGLE PHASE FULL WAVE BRIDGE

DESCRIPTION: 2500-VOLT, 20 AMP POWER SILICON CARBIDE SINGLE PHASE FULL WAVE BRIDGE

FEATURES:

- NO RECOVERY TIME OR REVERSE RECOVERY LOSSES
- NO TEMPERATURE INFLUENCE ON SWITCHING BEHAVIOR
- 15000-VOLT HI-POT CAPABILITY

MAXIMUM RATINGS

ALL RATINGS ARE @ $T_C = 25\text{ }^\circ\text{C}$ UNLESS OTHERWISE SPECIFIED.

RATING	SYMBOL	MAX.	UNITS
PEAK INVERSE VOLTAGE	PIV	2500	Volts
MAXIMUM DC OUTPUT CURRENT (With $T_C = 65\text{ }^\circ\text{C}$) WHEN USED AS A BRIDGE	I_O	20	Amps
MAXIMUM REPETITIVE FORWARD SURGE CURRENT (t = 8.3ms, Sine) per leg, $T_C = 25\text{ }^\circ\text{C}$	I_{FRM}	80	Amps
MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT (t = 10 μ s, pulse) per leg, $T_C = 25\text{ }^\circ\text{C}$	I_{FSM}	250	Amps
MAXIMUM POWER DISSIPATION, $T_C = 25\text{ }^\circ\text{C}$	P_d	400	W
MAXIMUM THERMAL RESISTANCE, Junction to Case	$R_{\theta JC}$	0.2	$^\circ\text{C/W}$
MAXIMUM OPERATING AND STORAGE TEMPERATURE RANGE*	Top, Tstg	-55 to +200	$^\circ\text{C}$

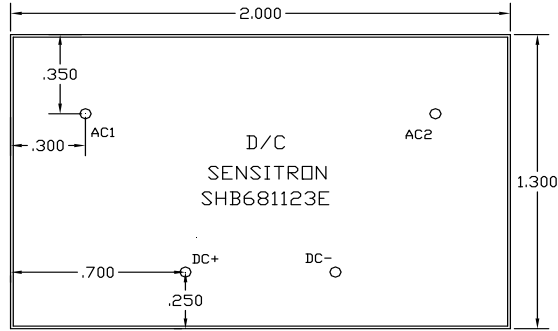
* Note: SiC semiconductors will handle at or above this operating and storage temperature. However, extended operational use of the packaged device above 175C may reduce its future performance. All qualification testing and screening per MIL-PRF-19500 will only be performed to 175C

ELECTRICAL CHARACTERISTICS

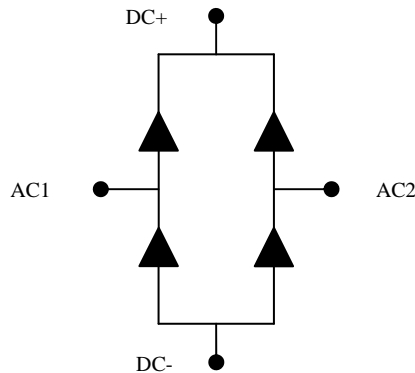
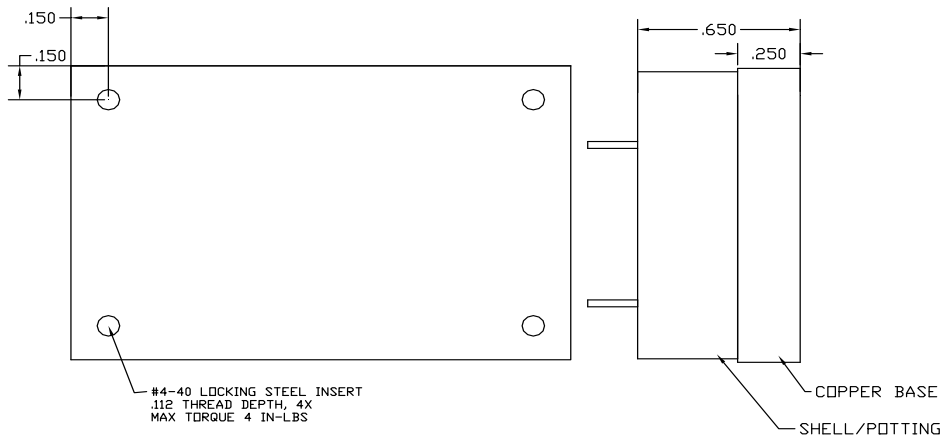
CHARACTERISTIC	TYP	MAX.	UNITS
MAXIMUM FORWARD VOLTAGE DROP ($I_f = 20\text{A PER LEG}$) V_f $T_J = 25\text{ }^\circ\text{C}$ $T_J = 150\text{ }^\circ\text{C}$	5.0 7.5	5.50 9.00	Volts
MAXIMUM REVERSE CURRENT (2500V PIV PER LEG) I_r $T_J = 25\text{ }^\circ\text{C}$ $T_J = 150\text{ }^\circ\text{C}$	0.05 0.10	0.40 2.00	mA
MAXIMUM JUNCTION CAPACITANCE ($V_r = 5\text{V}$) per leg C_T	700		pF
TOTAL CAPACITANCE CHARGE ($V_R = 2500\text{V}$, $I_F = 5\text{A}$, $di/dt = 500\text{A}/\mu\text{s}$ and $T_J = 25\text{ }^\circ\text{C}$) Q_C per leg	60	N/A	nC

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MECHANICAL DIMENSIONS (inches)



SCB-2



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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