

TECHNICAL DATA  
DATA SHEET 5411, REV. -

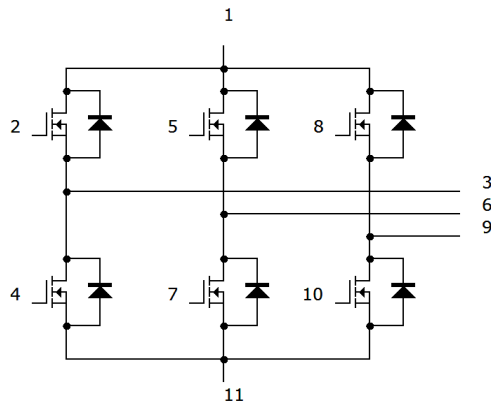
## 1200 VOLT, 30 AMP THREE PHASE SILICON CARBIDE MOSFET BRIDGE

### FEATURES:

- 80mΩ typical on-resistance
- Isolated base plate
- Aluminum Nitride substrate
- Light Weight Low Profile Standard Package
- High Temperature Engineering Plastic Shell Construction



### Schematic Diagram:



### MAXIMUM RATINGS

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

RATING	SYMBOL	MAX	UNITS
DRAIN-SOURCE VOLTAGE	$V_{DSS}$	1200	V
CONTINUOUS DRAIN CURRENT	$I_D$	30	A
CONTINUOUS DRAIN CURRENT, $T_C = 100\text{ }^\circ\text{C}$	$I_D$	19	A
PULSED DRAIN CURRENT ( $t \leq 10\mu\text{s}$ , $dc \leq 1\%$ )	$I_{D,pulse}$	90	A
GATE - SOURCE VOLTAGE	$V_{GSS}$	-5 to 25	V
MAXIMUM POWER DISSIPATION, $T_C = 25\text{ }^\circ\text{C}$ (PER MOSFET)	$P_d$	125	W
MAXIMUM THERMAL RESISTANCE	$R_{\theta JC}$	1.0	$^\circ\text{C/W}$
MAXIMUM STORAGE TEMPERATURE RANGE	$T_{stg}$	-55 to 150	$^\circ\text{C}$
MAXIMUM OPERATING TEMPERATURE RANGE	$T_{op}$	-55 to 150	$^\circ\text{C}$

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**ELECTRICAL CHARACTERISTICS**

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

CHARACTERISTIC	MIN	TYP	MAX	UNITS
DRAIN - SOURCE BREAKDOWN VOLTAGE (VGS = 0V, ID = 0.1mA)	1200			V
ZERO GATE VOLTAGE DRAIN CURRENT (VDS = 1200V, VGS = 0V)			100	$\mu\text{A}$
GATE - SOURCE LEAKAGE CURRENT (VGS = +20V, VDS = 0V)			250	nA
GATE THRESHOLD VOLTAGE (VDS = VGS, ID = 1mA)		2.5	4.0	V
STATIC DRAIN - SOURCE ON - STATE RESISTANCE (VGS = 18V, ID = 10A) Tj = 150°C		80 110	110 140	m $\Omega$
TRANSCONDUCTANCE (VDS = 20V, ID = 20A)		7.3		S
INPUT CAPACITANCE (VGS = 0V, VDS = 800V, f = 1MHz)		1915		pF
OUTPUT CAPACITANCE (VGS = 0V, VDS = 800V, f = 1MHz)		120		pF
REVERSE TRANSFER CAPACITANCE (VGS = 0V, VDS = 800V, f = 1MHz)		13		pF
Turn-on delay time (VDD = 800V, VGS = +20V/0V, ID = 20A, RG = 2.5 $\Omega$ )		13		ns
Rise time (VDD = 800V, VGS = +20V/0V, ID = 20A, RG = 2.5 $\Omega$ )		24		ns
Turn-off delay time (VDD = 800V, VGS = +20V/0V, ID = 20A, RG = 2.5 $\Omega$ )		40		ns
Fall time (VDD = 800V, VGS = +20V/0V, ID = 20A, RG = 2.5 $\Omega$ )		38		ns
Total gate charge (VDD = 800V, VGS = 20V, ID = 20A)		91		nC
Gate - Source charge (VDD = 800V, VGS = 20V, ID = 20A)		24		nC
Gate - Drain charge (VDD = 800V, VGS = 20V, ID = 20A)		43		nC
FORWARD VOLTAGE (Vgs = -5V, Is = 10A)		3.5		V
FORWARD VOLTAGE (Vgs = -2V, Is = 10A)		3.1		V
REVERSE RECOVERY TIME (If = 20A, Vr = 800V, di/dt = 100A/ $\mu\text{s}$ , VGS = -5V)		220		ns
REVERSE RECOVERY CHARGE (If = 20A, Vr = 800V, di/dt = 100A/ $\mu\text{s}$ , VGS = -5V)		142		nC
PEAK REVERSE RECOVERY CURRENT (If = 20A, Vr = 800V, di/dt = 100A/ $\mu\text{s}$ , VGS = -5V)		2.3		A

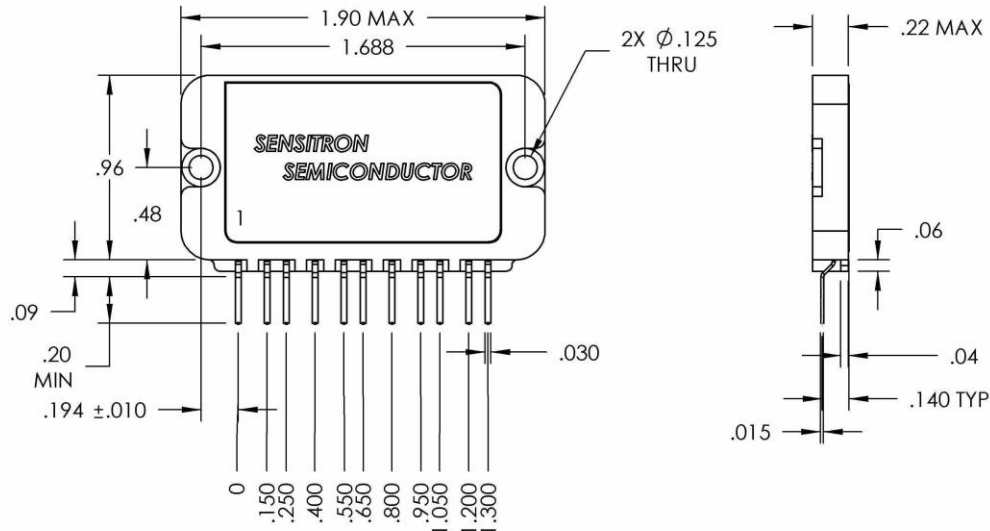
# SENSITRON SEMICONDUCTOR

SPM1008

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Mechanical Outline:

Package: EPAK1



NOTES:

1. TOLERANCE UNLESS OTHERWISE NOTED:  
.XX =  $\pm 0.010$   
.XXX =  $\pm 0.005$
2. MAXIMUM MOUNTING TORQUE = 4 IN-LB
3. PRE-TORQUE BOTH FASTENERS TO 2 IN-LB MAX BEFORE APPLYING FINAL TORQUE.
4. CONTACT FACTORY FOR THERMAL INTERFACE MATERIAL SUGGESTIONS AND COMPATIBILITY.

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