

600 VOLT, 16 AMP LOW LOSS ULTRAFAST IGBT THREE PHASE BRIDGE MODULE

Features

- Isolated base plate
- Light weight low profile standard package
- Aluminum Nitride substrate
- High temperature engineering plastic shell construction



ELECTRICAL CHARACTERISTICS PER IGBT LEG

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
IGBT SPECIFICATIONS					
Collector to Emitter Breakdown Voltage $I_C = 200 \mu A, V_{GE} = 0V$	BV_{CES}	600	-	-	V
Continuous Collector Current $T_C = 25^\circ C$ $T_C = 100^\circ C$	I_C	-	-	30 16	A
Pulsed Collector Current, 1ms	I_{CM}	-	-	90	A
Gate to Emitter Voltage	V_{GE}	-	-	+/-20	V
Gate-Emitter Leakage Current , $V_{GE} = +/-20V$	I_{GES}	-	-	+/- 100	nA
Gate Threshold Voltage, $I_C = 0.43 mA$	$V_{GE(TH)}$	4.1	-	5.7	V
Zero Gate Voltage Collector Current $V_{CE} = 600 V, V_{GE}=0V T_i=25^\circ C$ $V_{CE} = 480 V, V_{GE}=0V T_i=125^\circ C$	I_{CES}	-	-	0.1 1.0	mA mA
Collector to Emitter Saturation Voltage $T_C = 25^\circ C I_C = 16A, V_{GE} = 15V$ $T_C = 125^\circ C I_C = 16A, V_{GE} = 15V$	$V_{CE(SAT)}$	-	-	2.2 2.6	V V
Input Capacitance Output Capacitance Reverse Transfer Cap. $V_{CE} = 25 V, V_{GE} = 0 V, f = 1 MHz$	C_{ies} C_{oes} C_{res}	-	1630 108 50	-	pF
Turn On Delay Time Rise Time Turn Off Delay Time Fall Time	$t_{d(on)}$ t_r $t_{d(off)}$ t_f	-	23 35 220 26	-	ns
Turn on Energy Loss Turn off Energy Loss (Including diode reverse recovery) $(T_i = 25^\circ C, I_C = 16A, V_{GE} = 15V, V_{CE} = 400 V, R_G = 10 \Omega)$	E_{on} E_{off}	-	0.69 0.33	-	mJ mJ

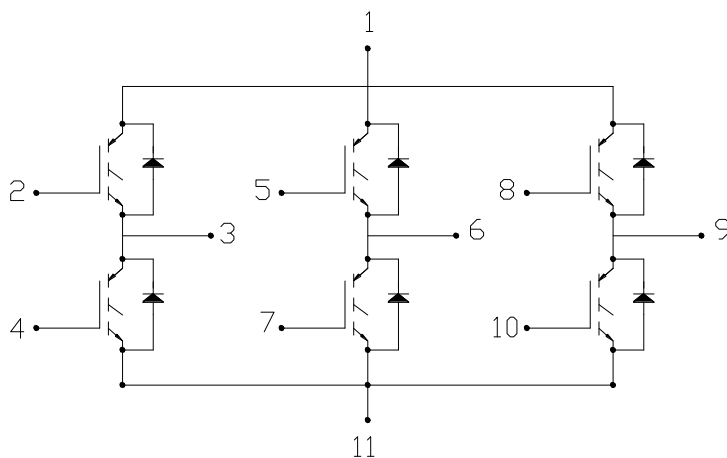
ULTRAFAST DIODES RATING AND CHARACTERISTICS

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT
Diode Peak Inverse Voltage	PIV	600	-		V
Continuous Forward Current, $T_C = 25\text{ }^\circ\text{C}$ $T_C = 100\text{ }^\circ\text{C}$	I_F			20 12	A
Forward Surge Current, $t_p = 1\text{ms}$	I_{FSM}			90	A
Diode Forward Voltage, $I_F = 16\text{A } T_C = 25\text{ }^\circ\text{C}$ $I_F = 16\text{A } T_C = 125\text{ }^\circ\text{C}$	V_F	- -	- -	1.9 1.8	V V
Diode Reverse Recovery Time $I_F = 16\text{A } T_C = 25\text{ }^\circ\text{C}$	t_{rr}	-	180	-	ns
Diode Reverse Recovery Charge ($I_F = 16\text{A}$, $V_{RR} = 200\text{V}$, $di/dt = 200\text{ A}/\mu\text{s}$, $T_C = 25\text{ }^\circ\text{C}$)	Q_{rr}	-	1.6	-	μC

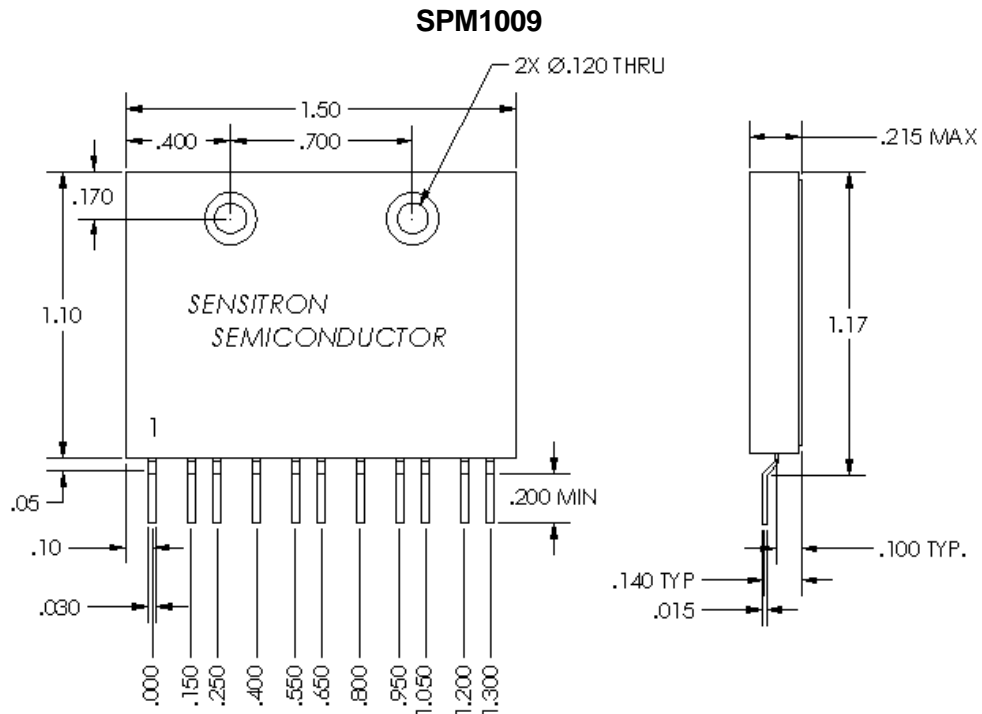
PACKAGE CHARACTERISTICS

Diode Maximum Junction-to-Case Thermal Resistance Per Leg	$R_{\theta JC}$	-	-	3.0	$^\circ\text{C}/\text{W}$
IGBT Maximum Junction-to-Case Thermal Resistance Per Leg	$R_{\theta JC}$	-	-	1.0	
Maximum and Storage Junction Temperature	T_{jmax}	-55	-	150	$^\circ\text{C}$
Isolation to Base Plate	V_{iso}	-	-	2500	V

Schematic Diagram:



Mechanical Outline (inches):



NOTES:

1. TOLERANCE UNLESS OTHERWISE NOTED:

.XX = ± 0.10

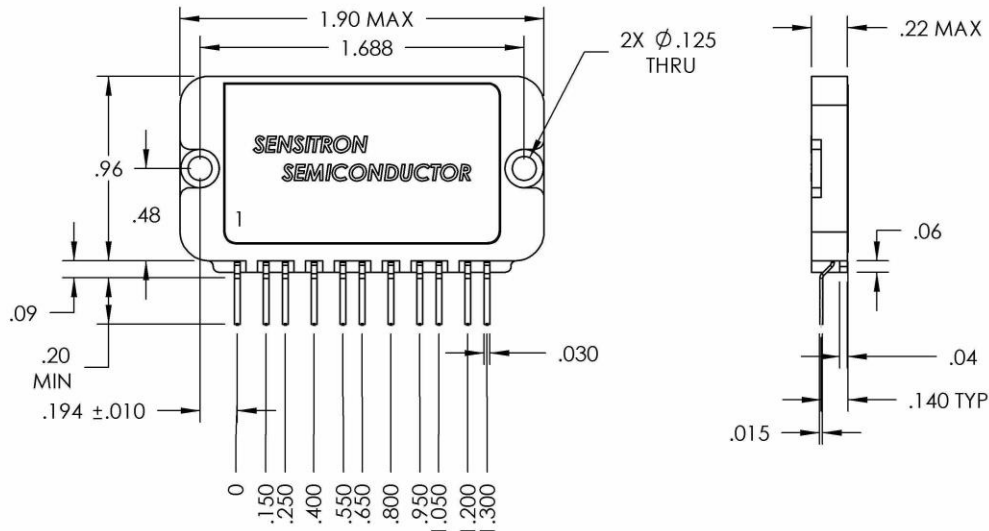
.XXX = ± 0.005

2. MAXIMUM MOUNTING TORQUE = 3 IN-LB

3. PRE-TORQUE BOTH FASTENERS TO 1.5 IN-LB MAX
BEFORE APPLYING FINAL TORQUE.

4. CONTACT FACTORY FOR THERMAL INTERFACE MATERIAL
SUGGESTIONS AND COMPATIBILITY.

SPM1009A



NOTES:

Package: EPAK1

1. TOLERANCE UNLESS OTHERWISE NOTED:
.XX = ±.010
.XXX = ±.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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