

900 VOLT, 90 AMP MOSFET SIX PACK MODULE

Features

- Electrically isolated, base-less construction
- Light weight, low profile standard package
- Aluminum nitride substrate
- High temperature engineering plastic shell construction



ELECTRICAL CHARACTERISTICS PER MOSFET LEG

(T_J=25°C UNLESS OTHERWISE SPECIFIED)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNIT
MOSFET SPECIFICATIONS					
B _V DSS	Drain to Source Breakdown Voltage I _D = 100 μA, V _{GS} = 0V	900	-	-	V
I _D	Continuous Drain Current V _{GS} = 15V	-	-	90 60	A
					T _C = 25°C T _C = 100°C
I _{D(pulse)}	Pulsed Drain Current, 1ms	-	-	180	A
V _{GSmax}	Gate to Source Voltage (Dynamic)	-	-	-4/+19	V
V _{GSop}	Gate to Source Voltage (Static)	-	-	-4/+15	V
I _{GSS}	Gate-Source Leakage Current, V _{GS} = +15V, V _{DS} = 0V	-	10	250	nA
V _{GS(th)}	Gate Threshold Voltage, I _D = 33mA, V _{DS} = V _{GS}	1.7	2.4 1.8	3.5	V
					T _J = 25°C T _J = 150°C
I _{DSS}	Zero Gate Voltage Drain Current V _{DS} = 900 V, V _{GS} = 0V	-	1	100	μA
R _{DS(on)}	Drain-Source On-State Resistance I _D = 75A, V _{GS} = 15V	-	13 21	15 -	mΩ
					T _J = 25°C T _J = 150°C
C _{iss}	Input Capacitance	-	4500	-	pF
C _{oss}	Output Capacitance	-	350	-	
C _{rss}	Reverse Transfer Cap. V _{DS} = 600 V, V _{GS} = 0 V, f = 1 MHz, V _{AC} = 25 mV	-	12	-	
t _{D(on)}	Turn On Delay Time	-	48	-	ns
t _r	Rise Time	-	17	-	
t _{D(off)}	Turn Off Delay Time	-	60	-	
t _f	Fall Time V _{DS} = 600 V, I _D = 100A, V _{GS} = -4/+15V, R _G = 2.5Ω, Inductive Load	-	14	-	
E _{ON}	Turn-On Switching Energy (Body Diode FWD)	-	1400	-	μJ
E _{OFF}	Turn Off Switching Energy (Body Diode FWD) V _{DS} = 600 V, I _D = 100A, V _{GS} = -4/+15V, R _G = 2.5Ω, L = 56μH	-	830	-	
R _{G(int)}	Internal Gate Resistance f = 1MHz, V _{AC} = 25mV	-	1.6	-	Ω
Q _{GS}	Gate to Source Charge	-	68	-	nC
Q _{GD}	Gate to Drain Charge		80		
Q _G	Total Gate Charge V _{DS} = 600 V, I _D = 100A, V _{GS} = -4/+15V, Per IEC60747-8-4 pg 21		222		

DATASHEET 6066, REV -

BODY DIODE CHARACTERISTICS

(T_J=25°C UNLESS OTHERWISE SPECIFIED)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNIT
V _{SD}	Diode Forward Voltage I _{SD} = 70A, V _{GS} = -4V		T _J = 25°C 4.6 T _J = 150°C 4.1	-	V
I _F	Continuous Diode Forward Current		T _J = 25°C	-	A
I _{F,pulse}	Diode Pulse Current V _{GS} = -4 V, Pulse Width t _p limited by T _{Jmax}			450	A
Q _{rr}	Reverse Recovery Charge V _{GS} = -4 V, I _{SD} = 100 A, V _R = 600 V di _F /dt = 4600 A/μs, T _J = 175 °C		1700	-	nC
t _{rr}	Reverse Recovery Time V _{GS} = -4 V, I _{SD} = 100 A, V _R = 600 V di _F /dt = 4600 A/μs, T _J = 175 °C		32	-	nS
I _{rrm}	Peak Reverse Recovery Current V _{GS} = -4 V, I _{SD} = 100 A, V _R = 600 V di _F /dt = 4600 A/μs, T _J = 175 °C		80	-	A

Note: Production units are only tested at room temperature. Low/High temperature operation is guaranteed by design.

PACKAGE THERMAL AND MECHANICAL CHARACTERISTICS

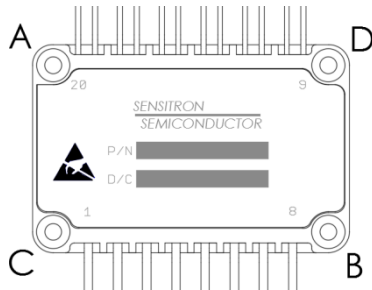
SYMBOL	PARAMETER	MIN	TYP	MAX	UNIT
L _s	Stray Inductance (Per Leg)	-	12	-	nH
R _{θJB}	MOSFET Junction-to-Base Plate Thermal Resistance Per Leg	-	0.30	0.36	°C/W
V _{iso}	Isolation to Base Plate	-	-	2500	VDC
T _J	Operating Junction Temperature	-55	-	175	°C
T _{STG}	Storage Temperature	-55	-	150	°C
	Mounting Torque for Module Mounting (see installation instructions) #4 Size Screw	3	-	4	in-lbs.
	Weight Module	-	15	20	g

DATASHEET 6066, REV -

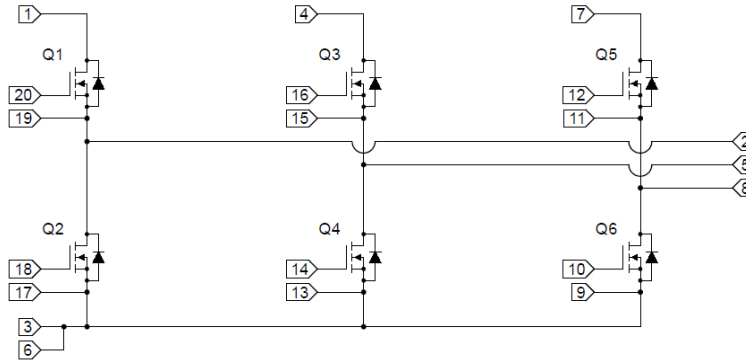
Installation instructions:

Recommended thermal interface material = Laird Tgon 805 (5 mil thick graphite pad)

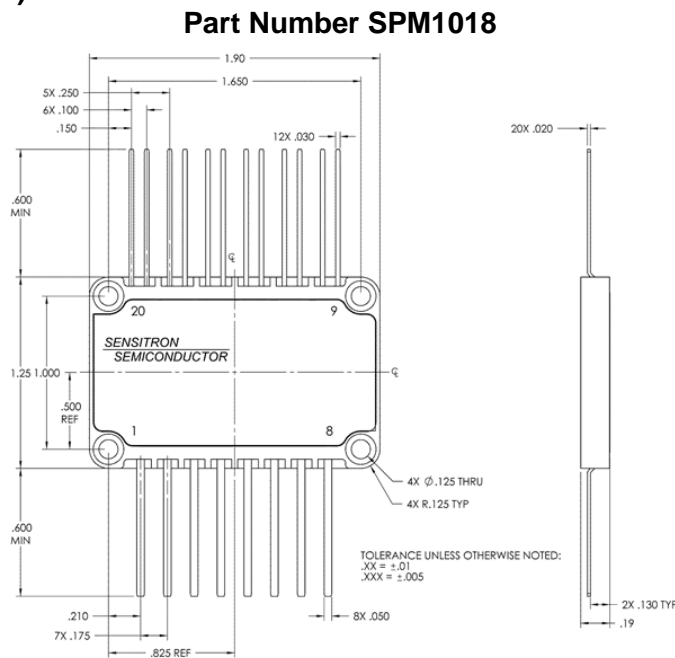
1. Fasten screws to 1 to 2 in-lb of torque in the following sequence: A, B, C, D.
2. Fasten screws to final torque in the same sequence: A, B, C, D



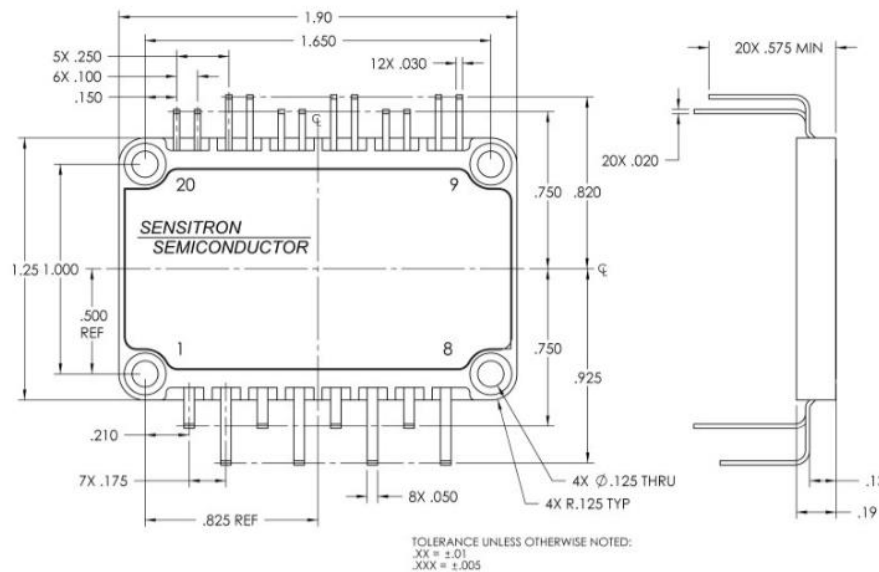
Schematic Diagram:



Mechanical Outline (inches):



Part Number SPM1018L



Part Number Description

“SPM1018”: Straight leads

“SPM1018L”: Leads bent up in staggered configuration

DISCLAIMER: 1- The information given herein, including the specifications and dimensions, is subject to change without prior notice to improve product characteristics. Before ordering, purchasers are advised to contact the Sensitron Semiconductor sales department for the latest version of the datasheet(s).
2- In cases where extremely high reliability is required (such as use in nuclear power control, aerospace and aviation, traffic equipment, medical equipment, and safety equipment), safety should be ensured by using semiconductor devices that feature assured safety or by means of users' fail-safe precautions or other arrangement.
3- In no event shall Sensitron Semiconductor be liable for any damages that may result from an accident or any other cause during operation of the user's units according to the datasheet(s). Sensitron Semiconductor assumes no responsibility for any intellectual property claims or any other problems that may result from applications of information, products or circuits described in the datasheets.
4- In no event shall Sensitron Semiconductor be liable for any failure in a semiconductor device or any secondary damage resulting from use at a value exceeding the absolute maximum rating.
5- No license is granted by the datasheet(s) under any patents or other rights of any third party or Sensitron Semiconductor.
6- The datasheet(s) may not be reproduced or duplicated, in any form, in whole or part, without the expressed written permission of Sensitron Semiconductor.
7- The products (technologies) described in the datasheet(s) are not to be provided to any party whose purpose in their application will hinder maintenance of international peace and safety nor are they to be applied to that purpose by their direct purchasers or any third party. When exporting these products (technologies), the necessary procedures are to be taken in accordance with related laws and regulations.