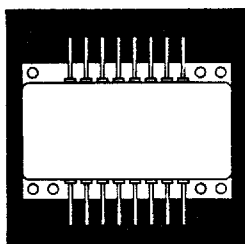


OMNIREL CORP

T-39-27

HERMETIC MOSFET POWER MODULE

**250 Watt Power Module, 100/500 Volt,
N-Channel MOSFETs With Power Schottkys,
High Speed Rectifiers And Zener Gate Clamps**

FEATURES

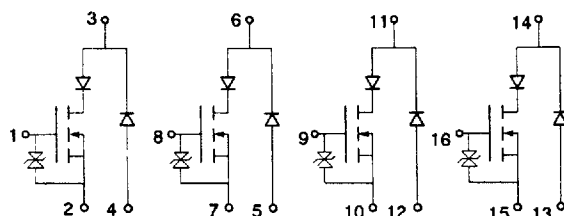
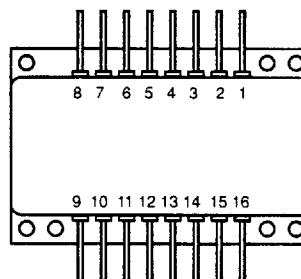
- Dual Inline 16 Pin Hermetic Power Package
- Low EMI Metal Package
- Isolated Heat Sink Design
- Individual N-Channel Power MOSFETs
- Zener Gate Protection
- Blocking Schottky Diodes Internally Connected
- Flyback High Speed Rectifier With Uncommitted Anode Lead
- OM 803 Screening Available

DESCRIPTION

These hermetic power modules are ideally suited for many high-speed, high power switching applications such as switching power supplies and motor controls. This design utilizes four power MOSFETs, four high speed rectifiers and four Schottky diodes, connected for motor control and actuator applications. Each MOSFET gate is protected using back to back zener clamps.

5**PRODUCT SUMMARY**

PART NUMBER	POWER MOSFET			HIGH SPEED RECTIFIER		
	(Min) BV _{DSS}	(Max) V _{ON(SAT)}	(Max) I _D	PIV	I _O	t _{rr}
	Volts	Volts	Amps	Volts	Amps	nsec
OM9011SF	100	2.0	18	100	18	35
OM9012SF	200	2.5	16	200	18	50
OM9013SF	400	4.5	10	400	10	50
OM9014SF	500	5.0	10	500	10	50

SCHEMATIC**PIN CONNECTION**

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ABSOLUTE MAXIMUM RATINGS ($T_c = 25^\circ\text{C}$ unless otherwise noted)
MOSFET CIRCUIT (Per Channel)

PARAMETER		RATING		UNITS
PART NUMBER		OM9011SF	OM9012SF	
V_{DS}	Drain-Source Voltage	100	200	V
V_{DGS}	Drain-Gate Voltage ($R_{GS} = 1\text{ M}\Omega$)	100	200	V
$I_D @ T_c = 25^\circ\text{C}$	Continuous Drain Current	18	16	A
$I_D @ T_c = 100^\circ\text{C}$	Continuous Drain Current	18	16	A
I_{DM}	Pulsed Drain Current ¹	40	35	A
V_{GSC}	Gate-Source Voltage (Clamped)	16	16	V
$P_D @ T_c = 25^\circ\text{C}$	Max. Power Dissipation	125	125	W
$P_D @ T_c = 100^\circ\text{C}$	Max. Power Dissipation	50	50	W
$R_{\theta JC}$	Thermal Resistance Junction to Case	1.0	1.0	$^\circ\text{C/W}$
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	30	30	$^\circ\text{C/W}$
T_J	Operating Resistance Storage Temperature Range	-55 to +150	-55 to +150	$^\circ\text{C}$
T_{seg} Lead Temp.	(1/16" from case for 10 secs.)	300	300	$^\circ\text{C}$

HIGH SPEED RECTIFIER (Per Device)

PARAMETER		RATING		UNITS
PART NUMBER		OM9011SF	OM9012SF	
PIV	Peak Inverse Voltage	100	200	V
$V_{FM} @ 25^\circ\text{C}$	Maximum Forward Voltage ¹ @18A	1.10	1.2	V
$V_{FM} @ 100^\circ\text{C}$	Maximum Forward Voltage ¹ @18A	0.95	1.05	V
$I_{RM} @ 25^\circ\text{C}$	Max. Reverse Current @ PIV	50	50	μA
$I_{RM} @ 100^\circ\text{C}$	Max. Reverse Current @ PIV	10	10	mA
$R_{\theta JC}$	Thermal Resistance Junction to Case	2.0	2.0	$^\circ\text{C/W}$
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	40	40	$^\circ\text{C/W}$
t_{RRM}	Max Reverse Recovery Time ²	35	50	nsec

NOTE: ¹Pulse Test Pulswidth $\leq 300\mu\text{sec}$, Duty Cycle $\leq 2\%$ ²Measured in circuit $I_F=0.5\text{A}$, $I_R=1\text{A}$, $I_{RRM}=0.25\text{A}$

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ABSOLUTE MAXIMUM RATINGS ($T_c = 25^\circ\text{C}$ unless otherwise noted)
MOSFET CIRCUIT (Per Channel)

PARAMETER		RATING		UNITS
PART NUMBER		OM9013SF	OM9014SF	
V_{DS}	Drain-Source Voltage	400	500	V
V_{DGR}	Drain-Gate Voltage ($R_{GS} = 1\text{ M}\Omega$)	400	500	V
$I_D @ T_c = 25^\circ\text{C}$	Continuous Drain Current	12	12	A
$I_D @ T_c = 100^\circ\text{C}$	Continuous Drain Current	7.5	7.5	A
I_{DM}	Pulsed Drain Current ¹	25	25	A
V_{GSC}	Gate-Source Voltage (Clamped)	16	16	V
$P_D @ T_c = 25^\circ\text{C}$	Max. Power Dissipation	120	120	W
$P_D @ T_c = 100^\circ\text{C}$	Max. Power Dissipation	50	50	W
$R_{\theta JC}$	Thermal Resistance Junction to Case	1.0	1.0	$^\circ\text{C/W}$
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	30	30	$^\circ\text{C/W}$
T_J	Operating Resistance Storage Temperature Range	-55 to +150	-55 to +150	$^\circ\text{C}$
T_{stg} Lead Temp.	(1/16" from case for 10 secs.)	300	300	$^\circ\text{C}$

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HIGH SPEED RECTIFIER (Per Device)

PARAMETER		RATING		UNITS
PART NUMBER		OM9013SF	OM9014SF	
PIV	Peak Inverse Voltage	400	500	V
$V_{FM} @ 25^\circ\text{C}$	Maximum Forward Voltage ¹ @10A	1.2	1.2	V
$V_{FM} @ 100^\circ\text{C}$	Maximum Forward Voltage ¹ @10A	1.0	1.0	V
$I_{RM} @ 25^\circ\text{C}$	Max. Reverse Current @ PIV	50	50	μA
$I_{RM} @ 100^\circ\text{C}$	Max. Reverse Current @ PIV	10	10	mA
$R_{\theta JC}$	Thermal Resistance Junction to Case	2.0	2.0	$^\circ\text{C/W}$
$R_{\theta JA}$	Thermal Resistance Junction to Ambient	40	40	$^\circ\text{C/W}$
t_{RRM}	Max Reverse Recovery Time ²	50	50	nsec

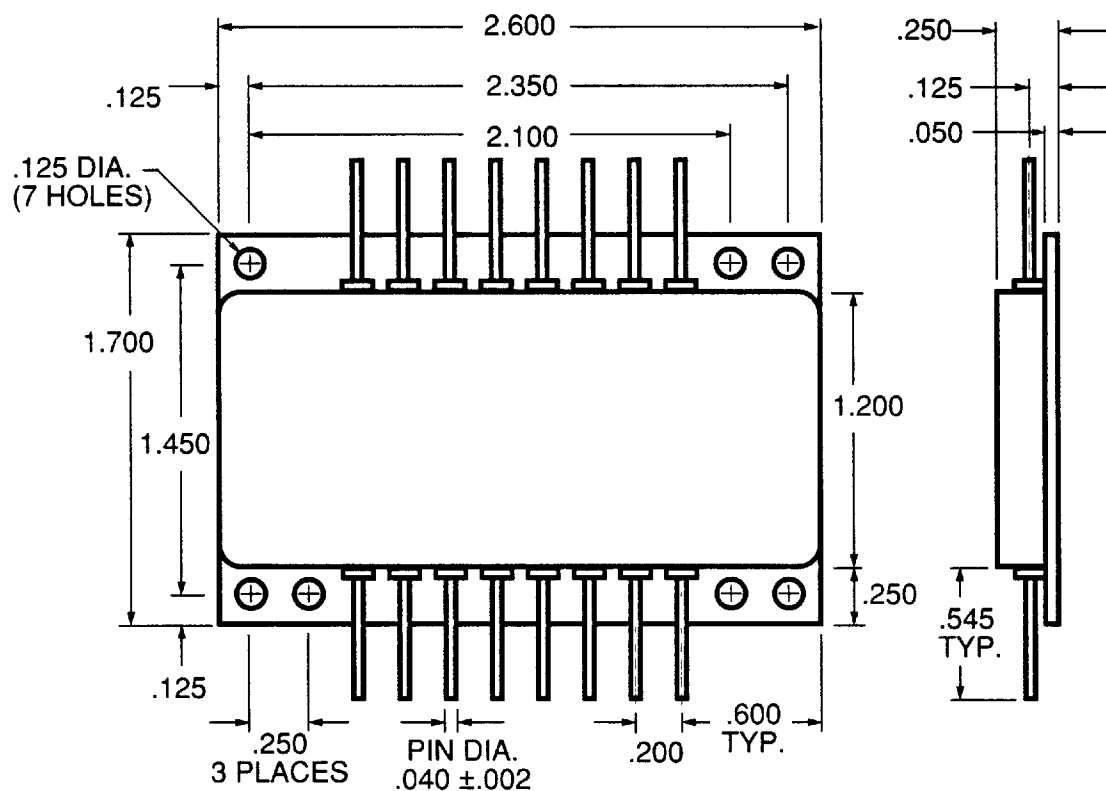
NOTE: ¹Pulse Test Pulsewidth $\leq 300\mu\text{sec}$, Duty Cycle $\leq 2\%$

²Measured in circuit $I_F=0.5\text{A}$, $I_R=1\text{A}$, $I_{RRC}=0.25\text{A}$

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MECHANICAL OUTLINE



Unless otherwise specified, the general tolerance is $\pm .010$.



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