

RM600HE-90S

HIGH POWER SWITCHING USE
INSULATED TYPE

High Voltage Diode Module

RM600HE-90S



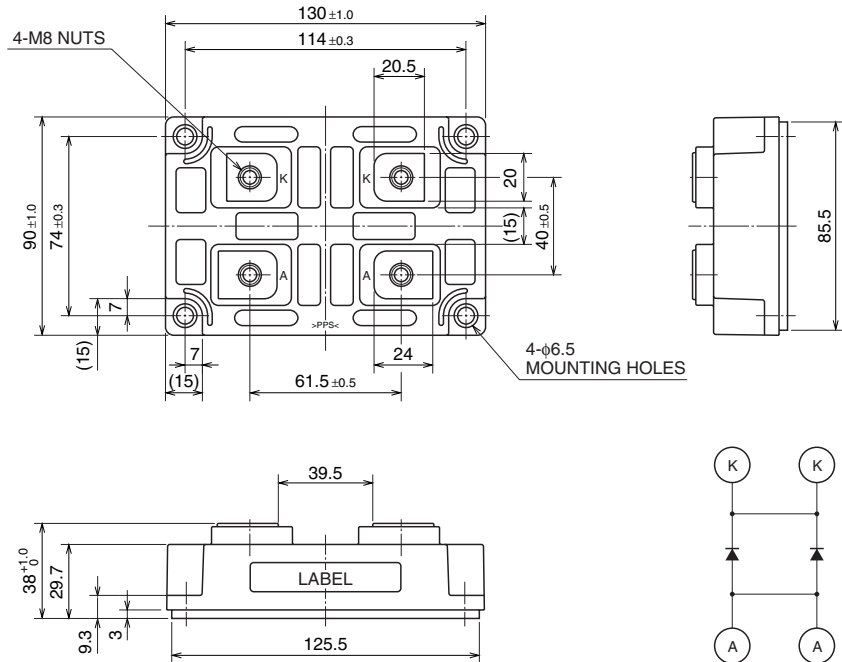
- IF 600A
- VRRM 4500V
- Insulated Type
- 1-element in a Pack
- AISiC Baseplate

APPLICATION

Traction drives, High Reliability Converters / Inverters, DC choppers

OUTLINE DRAWING & CIRCUIT DIAGRAM

Dimensions in mm



CIRCUIT DIAGRAM

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MAXIMUM RATINGS

Symbol	Item	Conditions	Ratings	Unit
VRRM	Repetitive peak reverse voltage	T _j = 25 °C	4500	V
VRSM	Non-repetitive peak reverse voltage	T _j = 25 °C	4500	V
VR(DC)	Reverse DC voltage	T _j = 25 °C	3000	V
IF	DC forward current	T _c = 25 °C	600	A
IFSM	Surge forward current	T _j = 25 °C start, t _w = 8.3 ms Half sign wave	4800	A
i ² t	Current-squared, time integration	T _j = 25 °C start, t _w = 8.3 ms Half sign wave	95.6	kA ² s
V _{iso}	Isolation voltage	Charged part to the baseplate RMS sinusoidal, 60Hz 1min.	6000	V
T _j	Junction temperature	—	-40 ~ +150	°C
T _{op}	Operating temperature	—	-40 ~ +125	°C
T _{stg}	Storage temperature	—	-40 ~ +125	°C

ELECTRICAL CHARACTERISTICS

Symbol	Item	Conditions	Limits			Unit
			Min	Typ	Max	
IRRM	Repetitive reverse current	V _{RM} = VRRM	T _j = 25 °C	—	5	mA
			T _j = 125 °C	—	30	
VFM	Forward voltage (Note 1)	I _F = 600 A	T _j = 25 °C	—	4.80	V
			T _j = 125 °C	—	4.20	
t _{rr}	Reverse recovery time	V _R = 2250 V, I _F = 600 A di/dt = -1400 A/μs L _s = 100nH, T _j = 125 °C	—	0.9	1.8	μs
I _{rr}	Reverse recovery current		—	615	—	A
Q _{rr}	Reverse recovery charge		—	600	—	μC
E _{rec}	Reverse recovery energy (Note 2)		—	0.62	—	J/P

Note 1. It doesn't include the voltage drop by internal lead resistance.
 2. E_{rec} is the integral of 0.1V_R x 0.1I_{rr} x dt.

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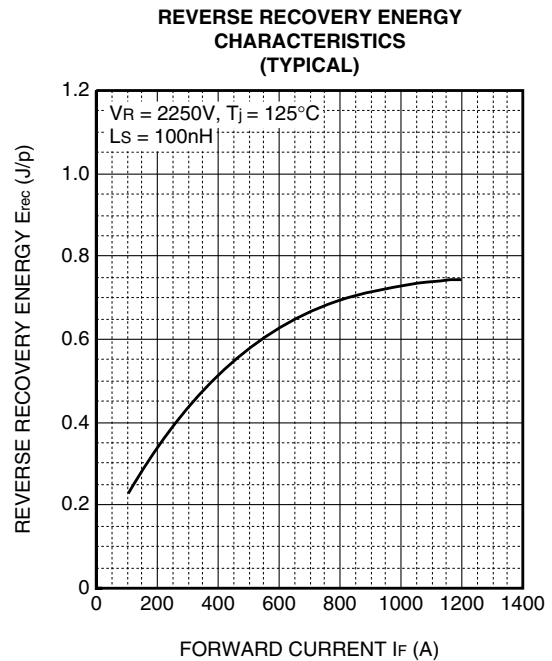
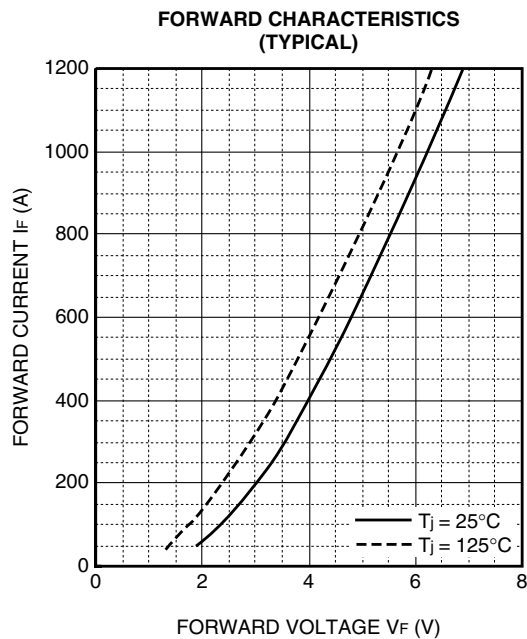
THERMAL CHARACTERISTICS

Symbol	Item	Conditions	Limits			Unit
			Min	Typ	Max	
$R_{th(j-c)}$	Thermal resistance	Junction to case	—	—	39.0	K/kW
$R_{th(c-f)}$	Contact thermal resistance	Case to Fin, $\lambda_{grease} = 1W/m-K$ $D(c-f)=100\mu m$	—	15.0	—	K/kW

MECHANICAL CHARACTERISTICS

Symbol	Item	Conditions	Limits			Unit
			Min	Typ	Max	
M_t	Mounting torque	M8: Main terminals screw	6.67	—	13.0	N-m
M_s		M6: Mounting screw	2.84	—	6.0	N-m
m	Mass	—	—	0.66	—	kg

PERFORMANCE CURVES



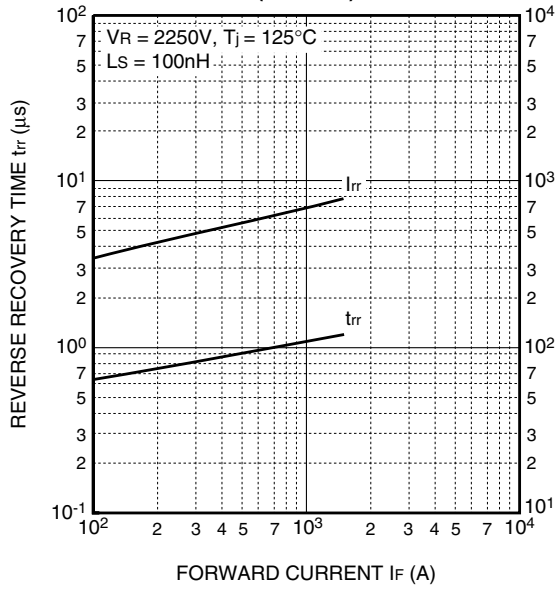
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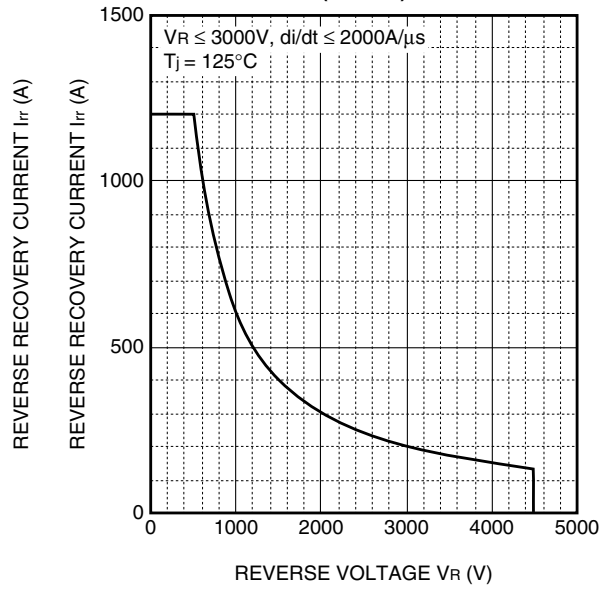
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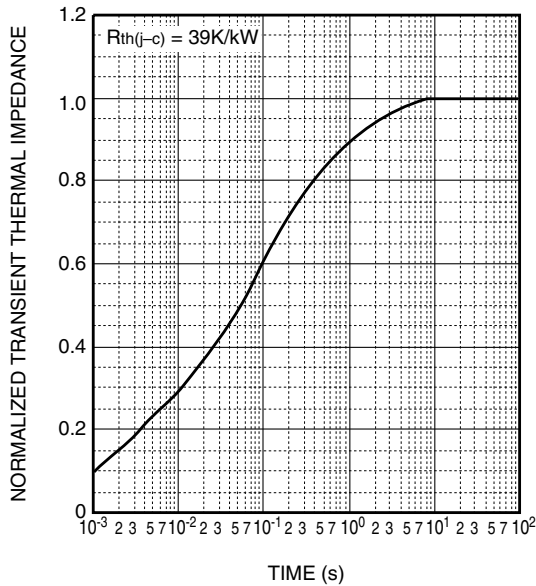
REVERSE RECOVERY CHARACTERISTICS (TYPICAL)



REVERSE RECOVERY SAFE OPERATING AREA (RRSOA)



TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS



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May 2009