

# RM1800HE-34S

HIGH POWER SWITCHING USE  
INSULATED TYPE

High Voltage Diode Module

## RM1800HE-34S



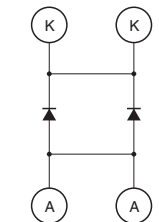
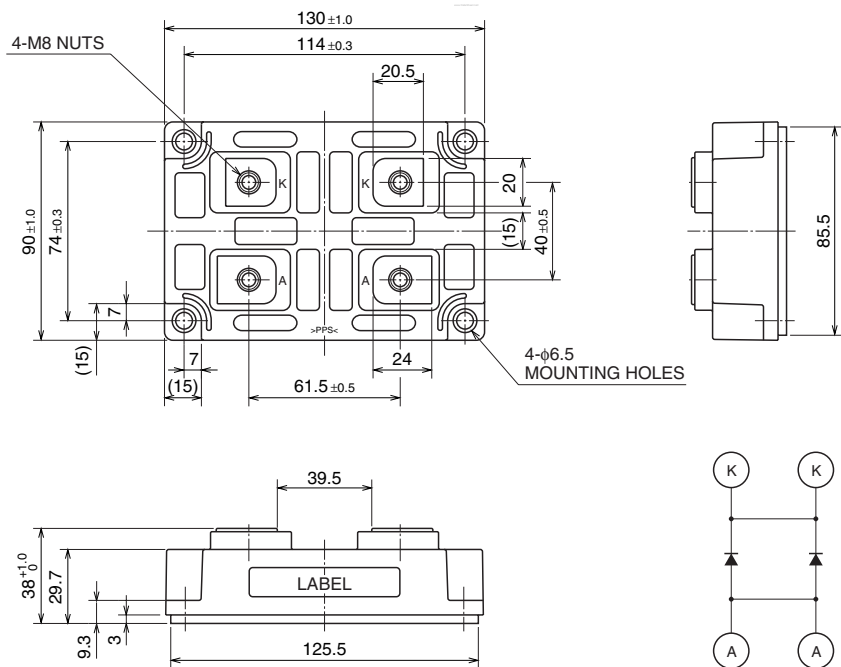
- IF ..... 1800A
- VRRM ..... 1700V
- Insulated Type
- 1-element in a Pack
- AISiC Baseplate

## APPLICATION

Traction drives, High Reliability Converters / Inverters, DC choppers

## OUTLINE DRAWING & CIRCUIT DIAGRAM

Dimensions in mm



CIRCUIT DIAGRAM

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May 2009

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**MAXIMUM RATINGS**

Symbol	Item	Conditions	Ratings	Unit
VRRM	Repetitive peak reverse voltage	T <sub>j</sub> = 25 °C	1700	V
VRSM	Non-repetitive peak reverse voltage	T <sub>j</sub> = 25 °C	1700	V
VR(DC)	Reverse DC voltage	T <sub>j</sub> = 25 °C	1150	V
IF	DC forward current (Note 1)	T <sub>c</sub> = 25 °C	1800	A
IFSM	Surge forward current	T <sub>j</sub> = 25 °C start, t <sub>w</sub> = 8.3 ms Half sign wave	9600	A
i <sup>2</sup> t	Current-squared, time integration	T <sub>j</sub> = 25 °C start, t <sub>w</sub> = 8.3 ms Half sign wave	384	kA <sup>2</sup> s
V <sub>iso</sub>	Isolation voltage	Charged part to the baseplate RMS sinusoidal, 60Hz 1min.	6000	V
T <sub>j</sub>	Junction temperature	—	-40 ~ +150	°C
T <sub>op</sub>	Operating temperature	—	-40 ~ +125	°C
T <sub>stg</sub>	Storage temperature	—	-40 ~ +125	°C

Note 1. Continuous DC current should be limited to equal to or less than 1200A due to current capacity of internal electrodes.

**ELECTRICAL CHARACTERISTICS**

Symbol	Item	Conditions	Limits			Unit	
			Min	Typ	Max		
IRRM	Repetitive reverse current	V <sub>RM</sub> = VRRM	T <sub>j</sub> = 25 °C	—	—	5	mA
			T <sub>j</sub> = 125 °C	—	—	30	
VFM	Forward voltage (Note 2)	IF = 1800 A	T <sub>j</sub> = 25 °C	—	2.90	—	V
			T <sub>j</sub> = 125 °C	—	2.40	—	
t <sub>rr</sub>	Reverse recovery time	V <sub>R</sub> = 750 V, IF = 1800 A di/dt = -4000 A/μs L <sub>s</sub> =100nH, T <sub>j</sub> = 125 °C	—	0.80	1.8	μs	
I <sub>rr</sub>	Reverse recovery current		—	850	—	A	
Q <sub>rr</sub>	Reverse recovery charge		—	600	—	μC	
E <sub>rec</sub>	Reverse recovery energy (Note 3)		—	0.40	—	J/P	

Note 2. It doesn't include the voltage drop by internal lead resistance.

3. E<sub>rec</sub> is the integral of 0.1V<sub>R</sub> x 0.1I<sub>rr</sub> x dt.

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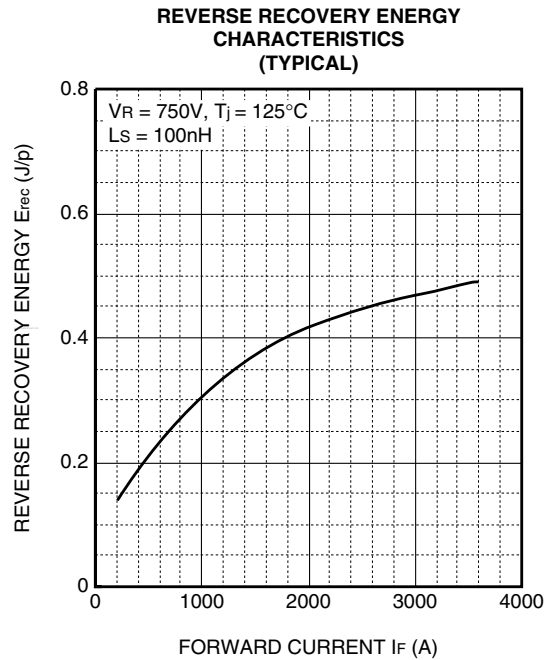
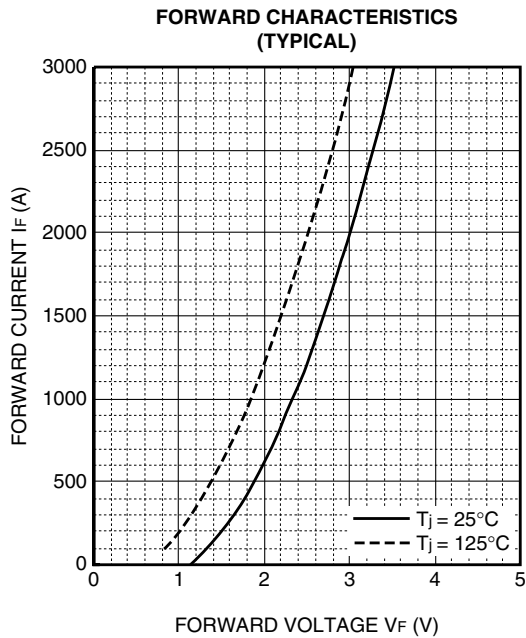
## THERMAL CHARACTERISTICS

Symbol	Item	Conditions	Limits			Unit
			Min	Typ	Max	
R <sub>th(j-c)</sub>	Thermal resistance	Junction to case	—	—	22.0	K/kW
R <sub>th(c-f)</sub>	Contact thermal resistance	Case to Fin, λ <sub>grease</sub> = 1W/m·K D(c-f)=100μm	—	17.0	—	K/kW

## MECHANICAL CHARACTERISTICS

Symbol	Item	Conditions	Limits			Unit
			Min	Typ	Max	
M <sub>t</sub>	Mounting torque	M8: Main terminals screw	6.67	—	13.0	N·m
M <sub>s</sub>		M6: Mounting screw	2.84	—	6.0	N·m
m	Mass	—	—	0.66	—	kg

## PERFORMANCE CURVES

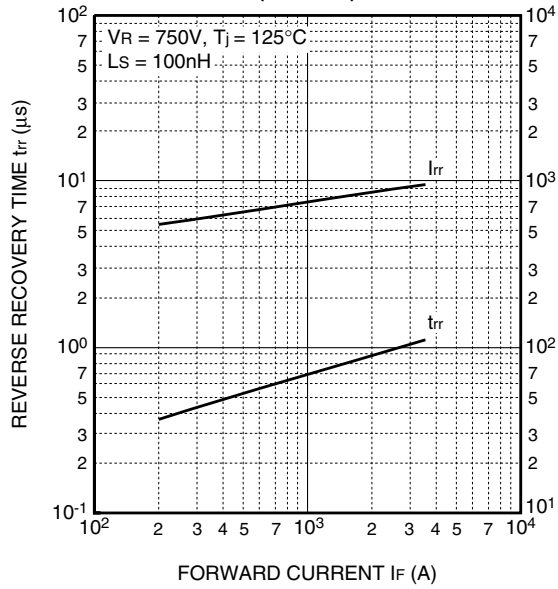


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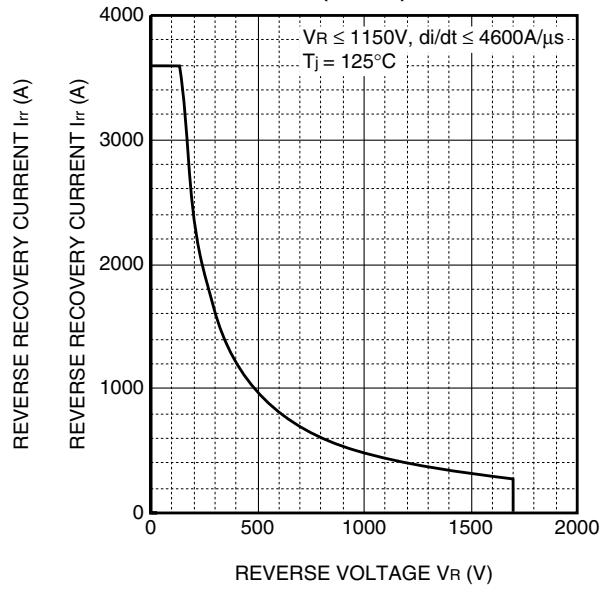
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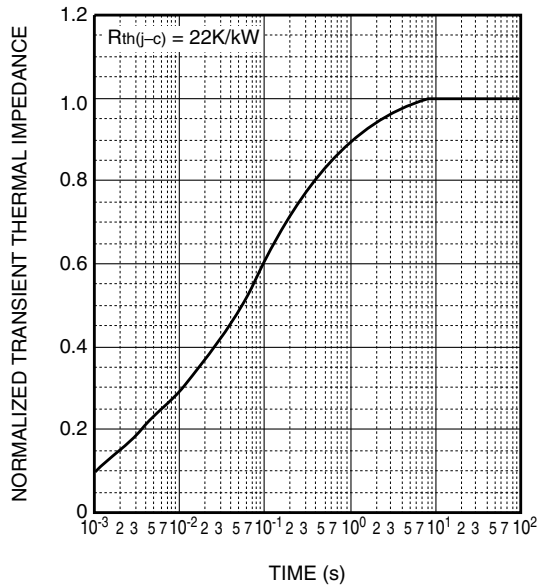
**REVERSE RECOVERY CHARACTERISTICS (TYPICAL)**



**REVERSE RECOVERY SAFE OPERATING AREA (RRSOA)**



**TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS**



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