

RM1800HE-34S

HIGH POWER SWITCHING USE
INSULATED TYPE

High Voltage Diode Module

RM1800HE-34S



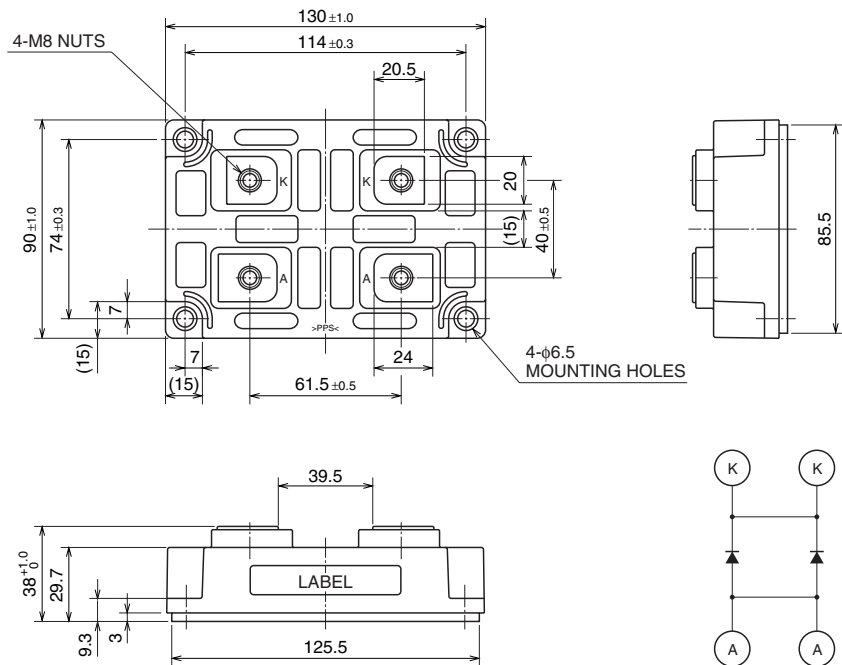
- IF 1800A
- VRRM 1700V
- Insulated Type
- 1-element in a Pack
- AISiC Baseplate

APPLICATION

Traction drives, High Reliability Converters / Inverters, DC choppers

OUTLINE DRAWING & CIRCUIT DIAGRAM

Dimensions in mm



CIRCUIT DIAGRAM

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MAXIMUM RATINGS

| Symbol | Item | Conditions | Ratings | Unit |
|------------------|-------------------------------------|-------------------------------------------------------------------------|------------|-------------------|
| VRRM | Repetitive peak reverse voltage | T _j = 25 °C | 1700 | V |
| VRSM | Non-repetitive peak reverse voltage | T _j = 25 °C | 1700 | V |
| VR(DC) | Reverse DC voltage | T _j = 25 °C | 1150 | V |
| IF | DC forward current (Note 1) | T _c = 25 °C | 1800 | A |
| IFSM | Surge forward current | T _j = 25 °C start, t _w = 8.3 ms Half sign wave | 9600 | A |
| i ² t | Current-squared, time integration | T _j = 25 °C start, t _w = 8.3 ms Half sign wave | 384 | 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 |

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 _{RM} = VRRM | T _j = 25 °C | — | — | 5 |
| | | | T _j = 125 °C | — | — | 30 |
| VFM | Forward voltage (Note 2) | IF = 1800 A | T _j = 25 °C | — | 2.90 | — |
| | | | T _j = 125 °C | — | 2.40 | — |
| t _{rr} | Reverse recovery time | V _R = 750 V, I _F = 1800 A di/dt = -4000 A/μs L _s =100nH, T _j = 125 °C | — | 0.80 | 1.8 | μs |
| I _{rr} | Reverse recovery current | | — | 850 | — | A |
| Q _{rr} | Reverse recovery charge | | — | 600 | — | μC |
| E _{rec} | Reverse recovery energy (Note 3) | | — | 0.40 | — | J/P |

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

3. E_{rec} is the integral of 0.1V_R x 0.1I_{rr} x dt.

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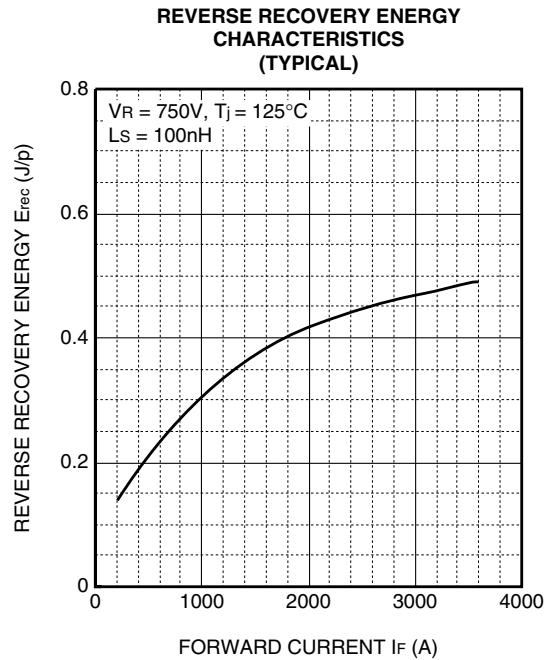
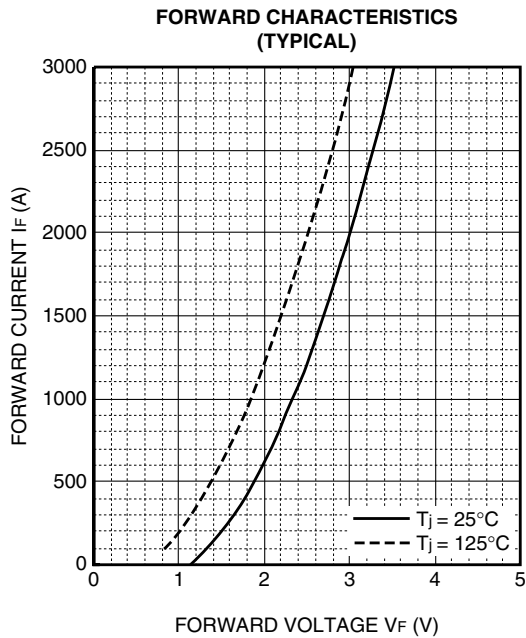
THERMAL CHARACTERISTICS

| Symbol | Item | Conditions | Limits | | | Unit |
|---------------|----------------------------|--------------------------------------------------------------------|--------|------|------|------|
| | | | Min | Typ | Max | |
| $R_{th(j-c)}$ | Thermal resistance | Junction to case | — | — | 22.0 | K/kW |
| $R_{th(c-f)}$ | Contact thermal resistance | Case to Fin, $\lambda_{grease} = 1W/m\cdot K$ $D(c-f)=100\mu m$ | — | 17.0 | — | 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

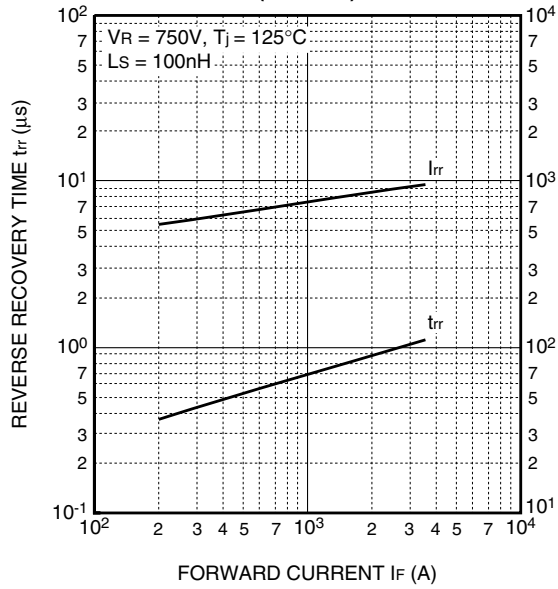


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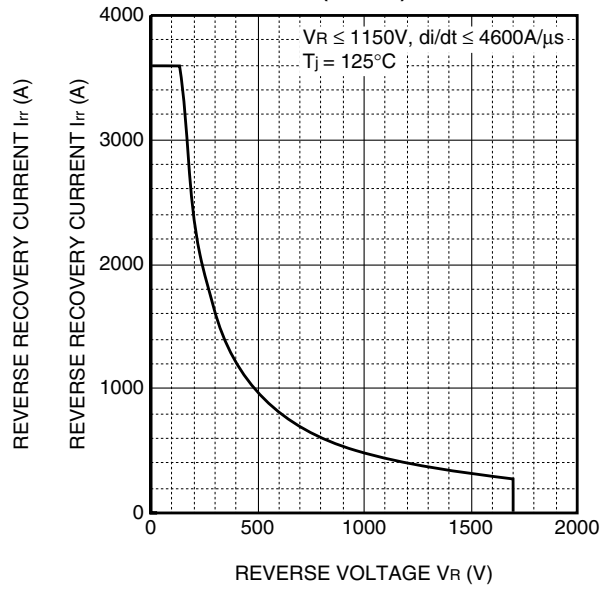
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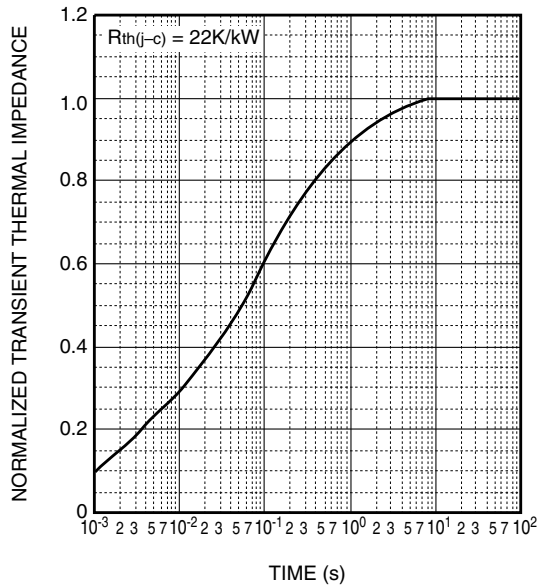
REVERSE RECOVERY CHARACTERISTICS (TYPICAL)



REVERSE RECOVERY SAFE OPERATING AREA (RRSOA)



TRANSIENT THERMAL IMPEDANCE CHARACTERISTICS



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