

# MDM800E33D

## FEATURES

- \* Low noise due to soft and fast recovery diodes.
- \* High reliability, high durability diodes.
- \* Isolated heat sink (terminal to base).

## ABSOLUTE MAXIMUM RATINGS (TC=25°C)

| Item                            | Symbol         | Unit      | MDM800E33D         |
|---------------------------------|----------------|-----------|--------------------|
| Repetitive Peak Reverse Voltage | $V_{RRM}$      | V         | 3,300              |
| Forward Current                 | DC             | $I_F$     | 800                |
|                                 | 1ms            | $I_{FM}$  | 1,600              |
| Junction Temperature            | $T_J$          | °C        | -40 ~ +125         |
| Storage Temperature             | $T_{stg}$      | °C        | -40 ~ +125         |
| Isolation Test Voltage          | $V_{ISO}$      | $V_{RMS}$ | 6,000(AC 1 minute) |
| Screw Torque                    | Terminals (M8) | -         | 15 (1)             |
|                                 | Mounting (M6)  | -         | 6 (2)              |

Notes: (1) Recommended Value  $15^{+0.3}_{-0.3}$ N·m (2) Recommended Value  $5.5 \pm 0.5$ N·m

## ELECTRICAL CHARACTERISTICS

| Item                       | Symbol         | Unit    | Min. | Typ. | Max. | Test Conditions                           |
|----------------------------|----------------|---------|------|------|------|---|
| Repetitive Reverse Current | $I_{RRM}$      | mA      | -    | 2.0  | 20.0 | $V_{AK}=3,300V, T_J=125^\circ C$          |
| Forward Voltage Drop       | $V_F$          | V       | 2.0  | 2.5  | 3.0  | $I_F=800A, T_J=125^\circ C$ at chip level |
| Reverse Recovery Time      | $t_{rr}$       | $\mu s$ | 0.2  | 0.6  | 1.1  | $V_{CC}=1,650V, I_F=800A, L=120nH$        |
| Reverse Recovery Loss      | $E_{rr(10\%)}$ | J/P     | -    | 0.9  | 1.3  | $T_J=125^\circ C, R_g=4.7\Omega$ (3)      |

Notes:(3) Counter arm: MBN800E33D  $V_{GE}=\pm 15V$

$R_G$  value is the test condition's value to define the switching characteristics not recommended value.

Please, determine the suitable  $R_G$  value after the measurement of switching waveforms (overshoot voltage, etc.) with appliance mounted.

## PACKAGE CHARACTERISTICS

| Item                       | Symbol        | Unit       | Min. | Typ.  | Max.  | Test Conditions        |
|----------------------------|---------------|------------|------|-------|-------|------------------------|
| Terminal Resistance        | RCE           | m $\Omega$ | -    | 0.4   | -     |                        |
| Terminal Stray Inductance  | $L_{sCE}$     | nH         | -    | 35    | -     |                        |
| Thermal Impedance          | $R_{th(j-c)}$ | K/W        | -    | -     | 0.026 | Junction to case       |
| Comparative tracking index | CTI           | -          | -    | 600   | -     |                        |
| Contact Thermal Impedance  | $R_{th(c-f)}$ | K/W        | -    | 0.008 | -     | Case to fin per module |

\* Please contact our representatives at order.

\* For improvement, specifications are subject to change without notice.

\* For actual application, please confirm this spec sheet is the newest revision.

# MDM800E33D

## DEFINITION OF TEST CIRCUIT

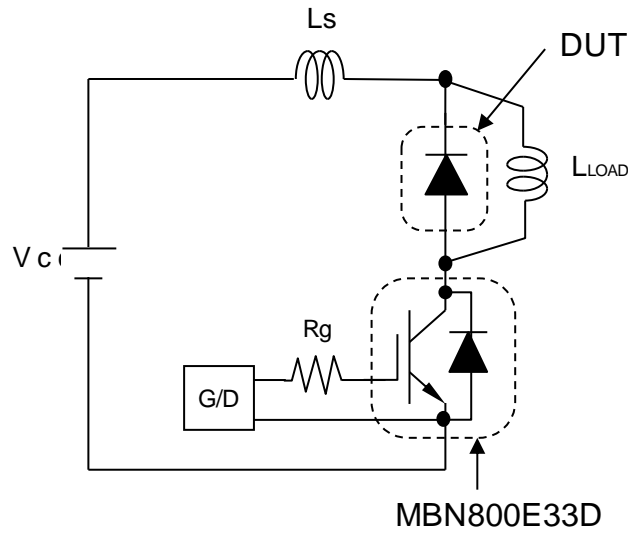


Fig.1 Switching test circuit

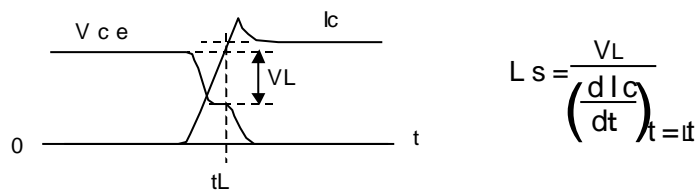


Fig.2 Definition of stray inductance

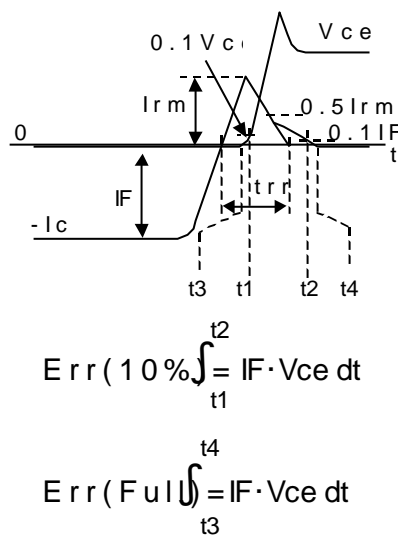


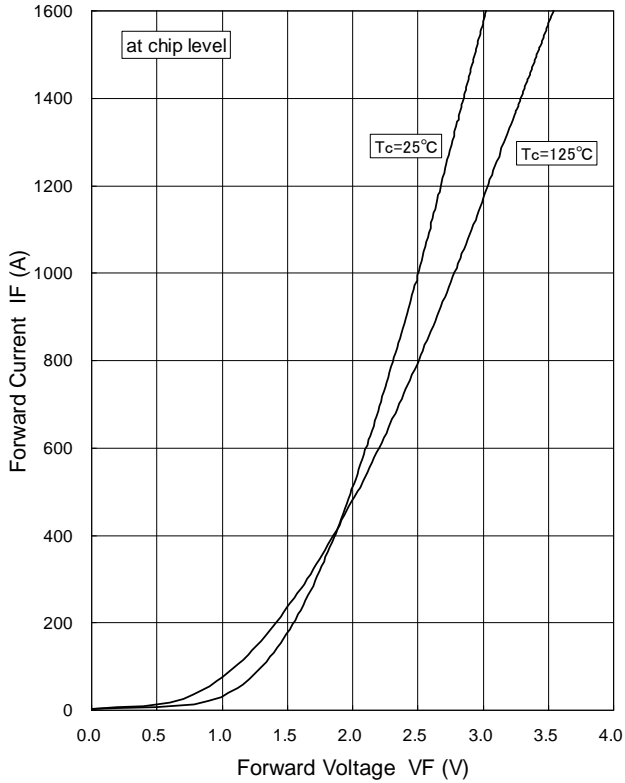
Fig.3 Definition of switching loss

# MDM800E33D

## CHARACTERISTICS CURVE

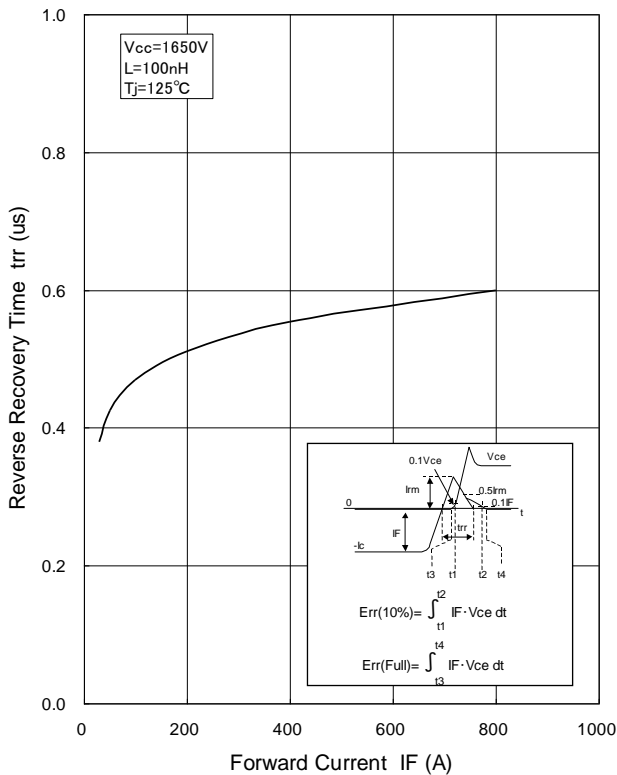
### STATIC CHARACTERISTICS

**TYPICAL**

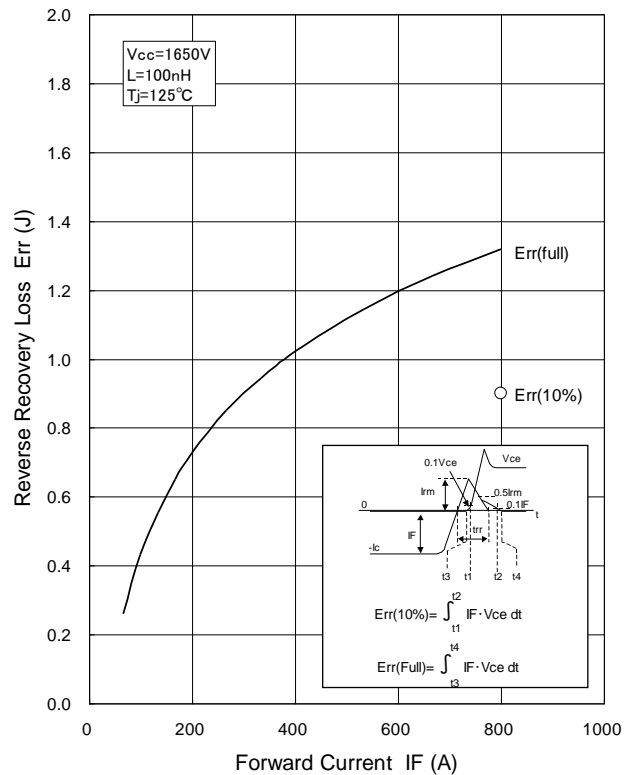


### DEPENDENCE OF CURRENT

**TYPICAL**

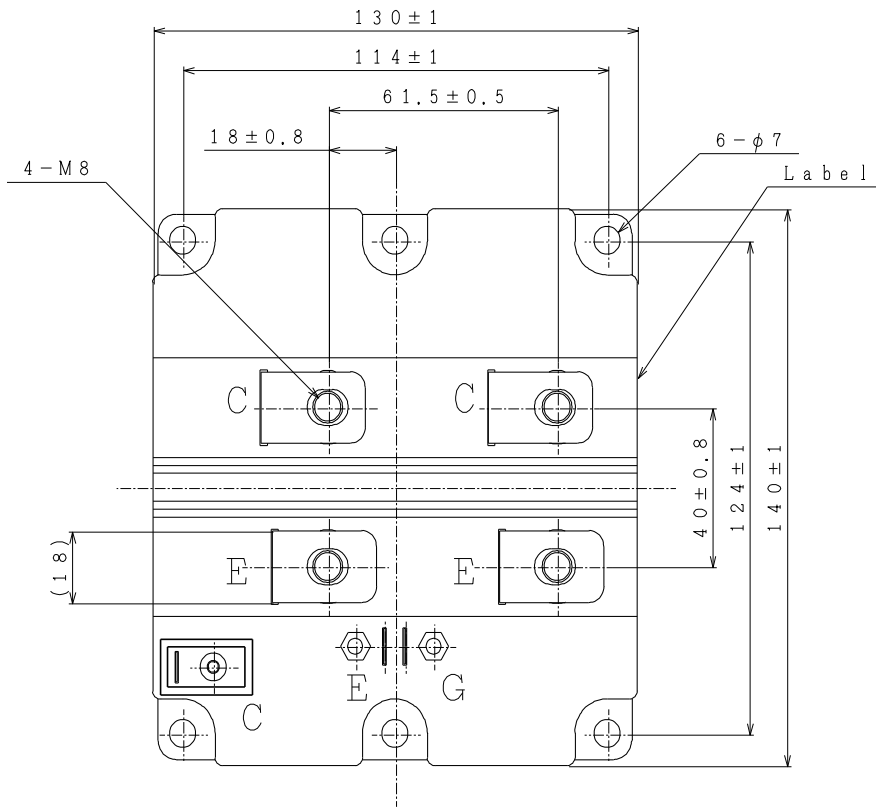


**TYPICAL**

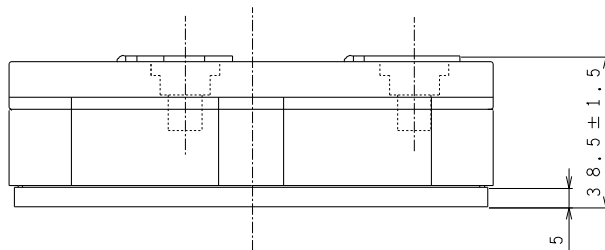
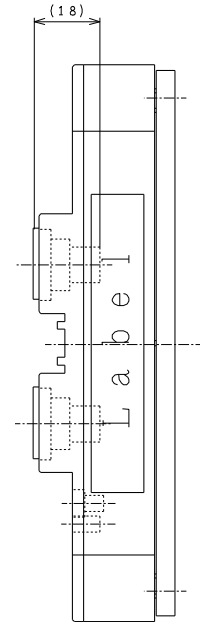


# MDM800E33D

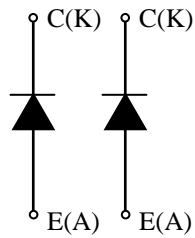
## PACKAGE OUTLINE DRAWING



Unit in mm



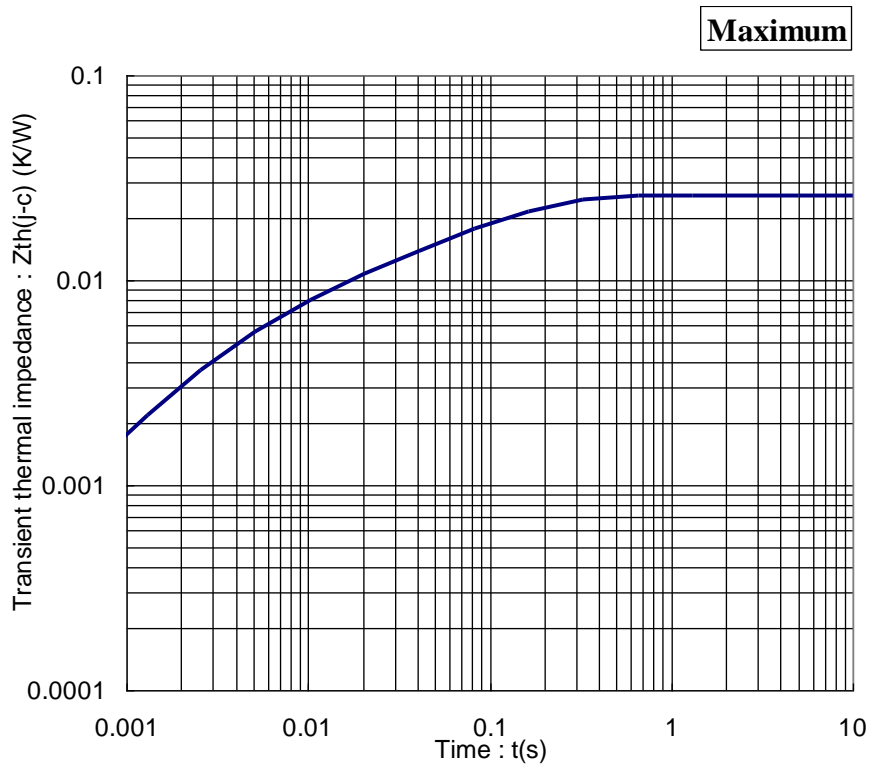
Weight: 900(g)



Circuit diagram

# MDM800E33D

## TRANSIENT THERMAL IMPEDANCE



**Transient Thermal Impedance Curve**

### Material declaration

Please note the following materials are contained in the product, in order to keep characteristic and reliability level.

| Material                    | Contained part |
|-----------------------------|----------------|
| Lead (Pb) and its compounds | Solder         |

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## HITACHI POWER SEMICONDUCTORS

### Notices

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 Hitachi sales department for the latest version of this data sheets.
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