

MDM1200E17D

FEATURES

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

ABSOLUTE MAXIMUM RATINGS (T_c=25°C)

Item	Symbol	Unit	MDM1200E17D
Repetitive Peak Reverse Voltage	V _{RRM}	V	1,700
Forward Current	DC	I _F	1,200
	1ms	I _{FM}	2,400
Junction Temperature	T _j	°C	-40 ~ +125
Storage Temperature	T _{stg}	°C	-40 ~ +125
Isolation Test Voltage	Terminals-base	V _{ISO}	V _{RMS}
	Terminal 1-Terminal 2	V _{ISO T-T}	
Screw Torque	Terminals (M8)	-	15 (1)
	Mounting (M6)	-	6 (2)

Notes: (1) Recommended Value 15⁺⁰₋₃N·m (2) Recommended Value 5.5±0.5N·m

ELECTRICAL CHARACTERISTICS

Item	Symbol	Unit	Min.	Typ.	Max.	Test Conditions
Repetitive Reverse Current	I _{RRM}	mA	-	1.0	10.0	V _{AK} =1,700V, T _j =125°C
Forward Voltage Drop	V _F	V	1.8	2.1	2.5	I _F =1,200A, T _j =125°C
Reverse Recovery Time	trr	μs	-	0.5	-	V _{CC} =900V, I _F =1,200A, L=100nH T _j =125°C, R _G =1.5Ω, (3)
Reverse Recovery Loss	E _{rr(10%)}	J/P	-	0.4	-	C _{GE} =120nF (Type test)
Reverse Recovery Time(2)	trr(2)	μs	-	0.5	1.0	V _{CC} =900V, I _F =2,400A, L=70nH
Reverse Recovery Loss(2)	E _{rr(10%)(2)}	J/P	-	0.8	1.2	T _j =125°C, R _G =1.5Ω (3)(Fig.1)

Notes: (3) Counter arm: MBN2400E17D V_{GE}=±15V

R_G and C_{GE} value are the test condition's value to define the switching characteristics not recommended value.
Please, determine the suitable R_G and C_{GE} value after the measurement of switching waveforms (overshoot voltage, etc.) with appliance mounted.

PACKAGE CHARACTERISTICS

Item	Symbol	Unit	Min.	Typ.	Max.	Conditions
Terminal Resistance	RCE	mΩ	-	0.2	-	T _c =25°C ,per arm
Terminal Stray Inductance	LsCE	nH	-	21	-	per arm
Thermal Impedance	Rth(j-c)	K/W	-	-	0.033	Junction to case (par arm)
Contact Thermal Impedance	Rth(c-f)	K/W	-	0.008	-	Case to fin (par 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.

MDM1200E17D

DEFINITION OF TEST CIRCUIT

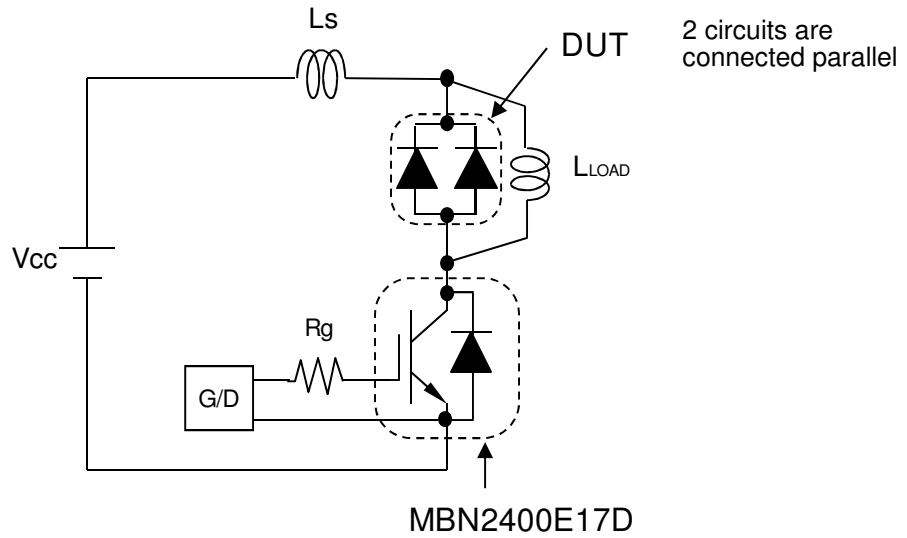


Fig.1 Switching test circuit

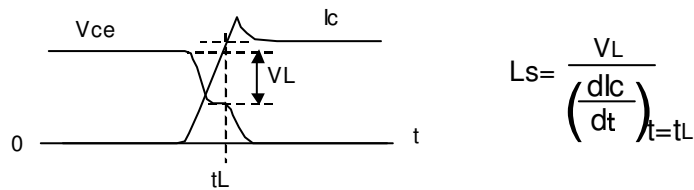
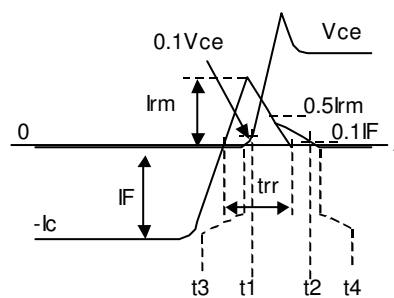


Fig.2 Definition of stray inductance



$$Err(10\%) = \int_{t_1}^{t_2} I_F \cdot V_{ce} dt$$

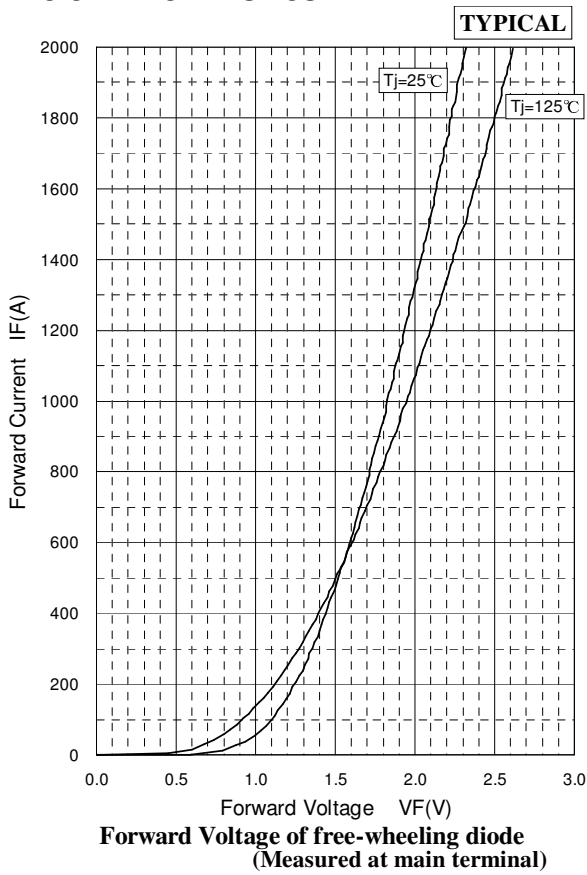
$$Err(Full) = \int_{t_3}^{t_4} I_F \cdot V_{ce} dt$$

Fig.3 Definition of switching loss

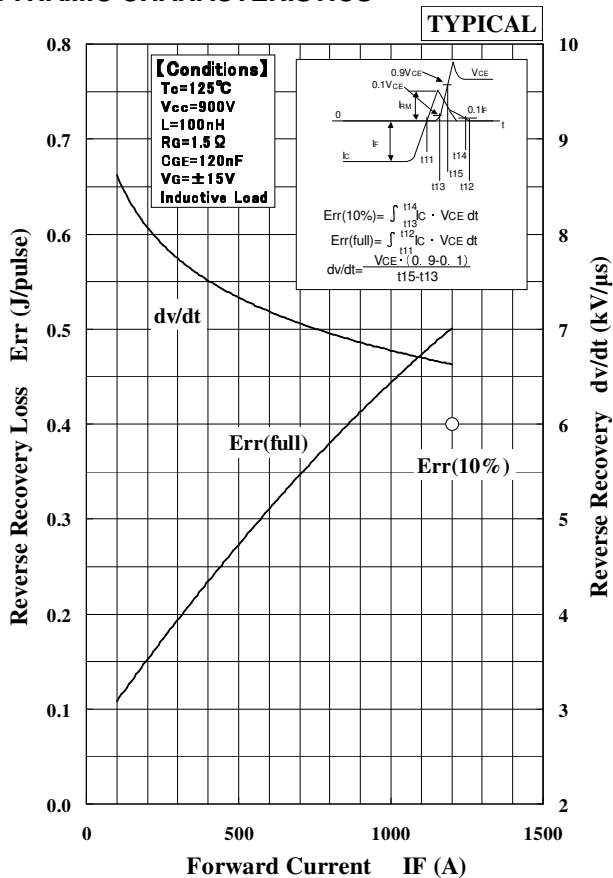
MDM1200E17D

CHARACTERISTICS CURVE

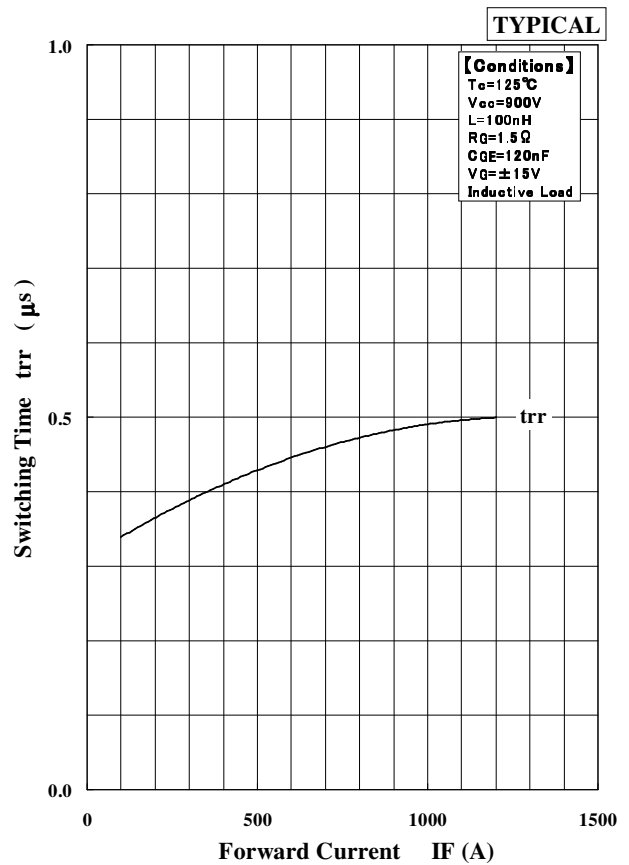
STATIC CHARACTERISTICS



DYNAMIC CHARACTERISTICS



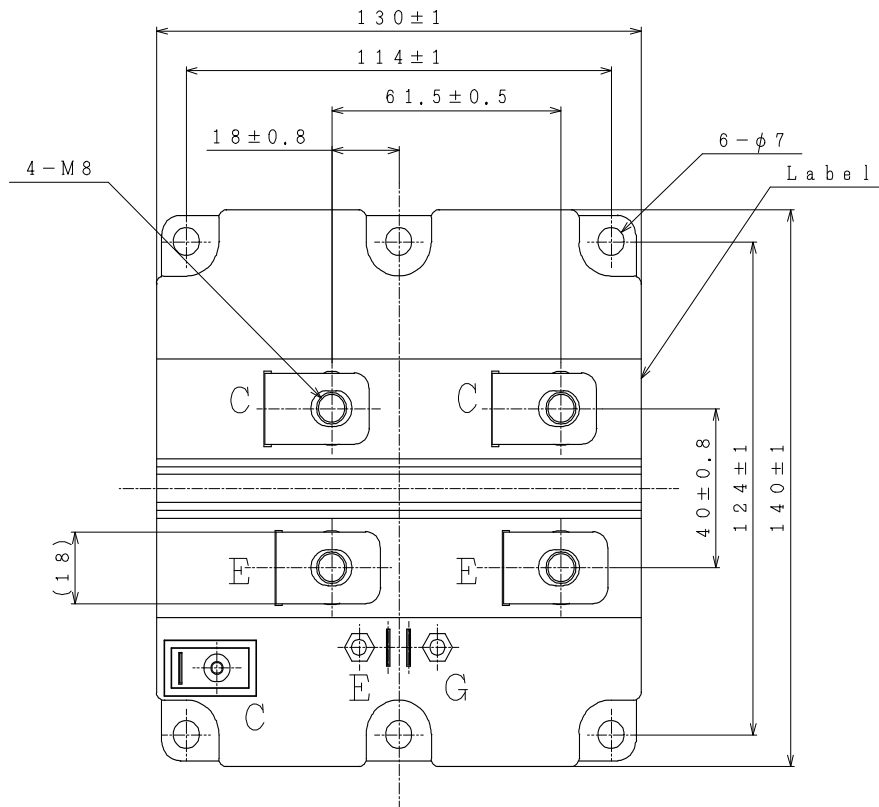
Recovery Loss, dv/dt vs. Forward Current



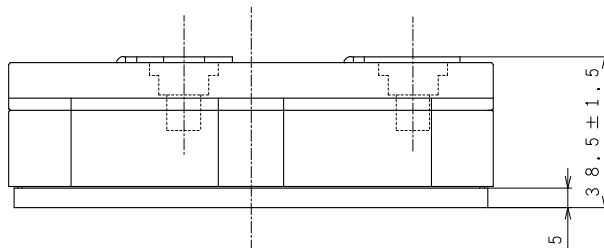
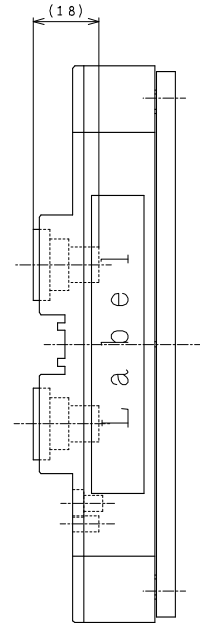
Recovery Loss vs. Forward Current

MDM1200E17D

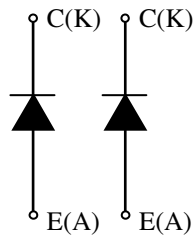
PACKAGE OUTLINE DRAWING



Unit in mm



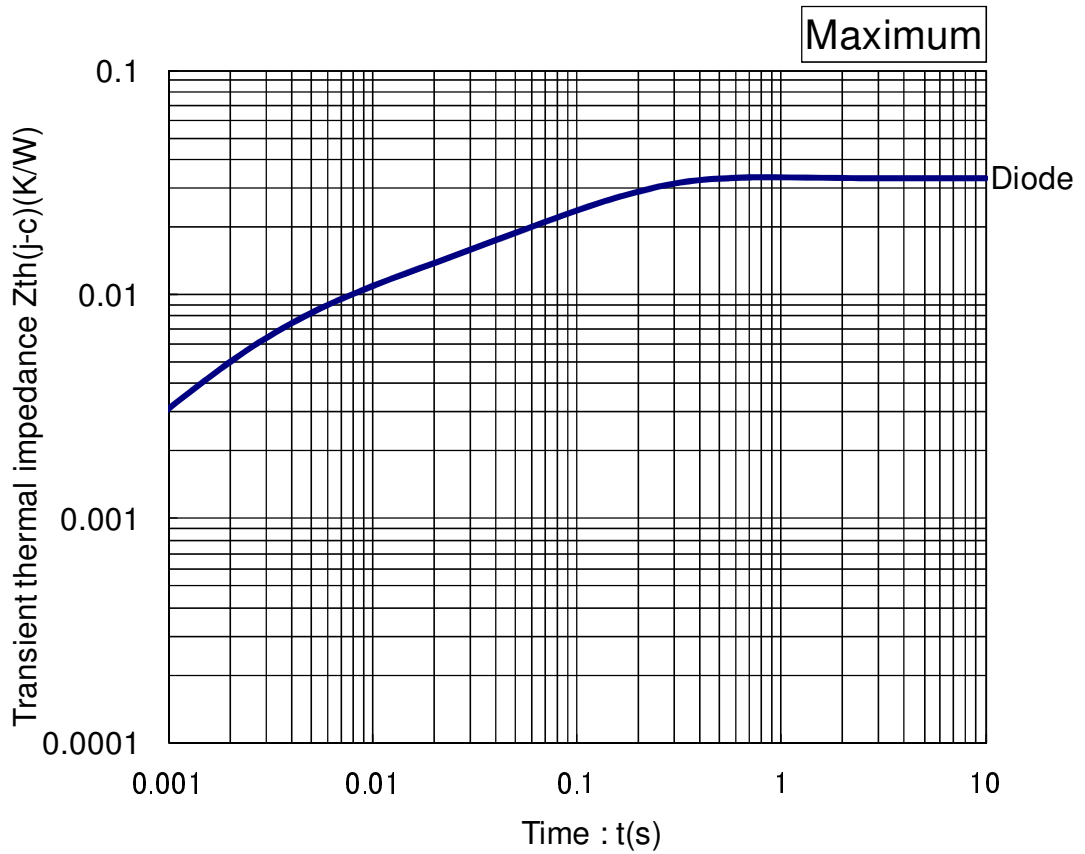
Weight: 900(g)



Circuit diagram

MDM1200E17D

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

MDM1200E17D

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.
2. Please be sure to read "Precautions for Safe Use and Notices" in the individual brochure before use.
3. In cases where extremely high reliability is required (such as use in nuclear power control, aerospace and aviation, traffic equipment, life-support-related medical equipment, fuel control equipment and various kinds of safety equipment), safety should be ensured by using semiconductor devices that feature assured safety or by means of users' fail-safe precautions or other arrangement. Or consult Hitachi's sales department staff.
4. In no event shall Hitachi be liable for any damages that may result from an accident or any other cause during operation of the user's units according to this data sheets. Hitachi assumes no responsibility for any intellectual property claims or any other problems that may result from applications of information, products or circuits described in this data sheets.
5. In no event shall Hitachi be liable for any failure in a semiconductor device or any secondary damage resulting from use at a value exceeding the absolute maximum rating.
6. No license is granted by this data sheets under any patents or other rights of any third party or Hitachi Power Semiconductor Device, Ltd.
7. This data sheets may not be reproduced or duplicated, in any form, in whole or in part, without the expressed written permission of Hitachi Power Semiconductor Device, Ltd.
8. The products (technologies) described in this data sheets are not to be provided to any party whose purpose in their application will hinder maintenance of international peace and safety not are they to be applied to that purpose by their direct purchasers or any third party. When exporting these products (technologies), the necessary procedures are to be taken in accordance with related laws and regulations.

-
- For inquiries relating to the products, please contact nearest overseas representatives that is located "Inquiry" portion on the top page of a home page.
-

Hitachi power semiconductor home page address <http://www.hitachi-power-semiconductor-device.co.jp/en/>