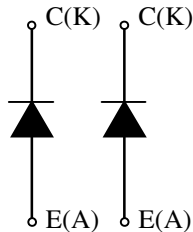


MDM900E17D

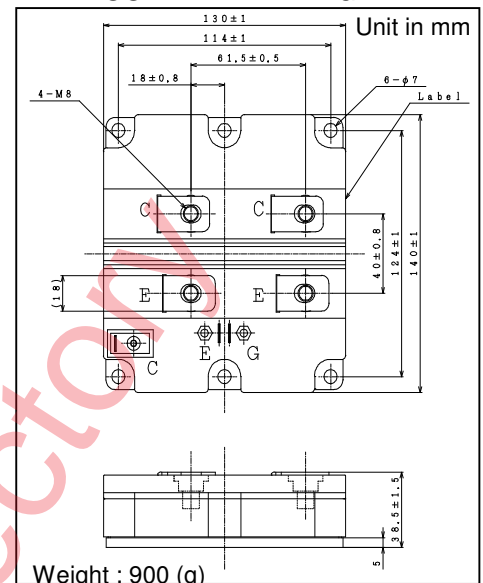
FEATURES

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

CIRCUIT DIAGRAM



OUTLINE DRAWING



ABSOLUTE MAXIMUM RATINGS (TC=25°C)

Item	Symbol	Unit	MDM900E17D
Repetitive Peak Reverse Voltage	V_{RRM}	V	1,700
Forward Current	DC	A	900
	1ms		1,800
Junction Temperature	T_j	°C	-40 ~ +125
Storage Temperature	T_{stg}	°C	-40 ~ +125
Isolation Test Voltage	V_{ISO}	V_{RMS}	4,000(AC 1 minute)
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	$V_{AK}=1,700V$, $T_j=125^\circ C$
Forward Voltage Drop	V_F	V	1.5	2.0	2.5	$I_F=900A$, $T_j=125^\circ C$ at chip level
Reverse Recovery Time	t_{rr}	μs	-	0.7	1.4	$V_{CC}=900V$, $I_F=900A$, $L=180nH$
Reverse Recovery Loss	$E_{rr(10\%)}$	J/P	-	0.4	0.7	$T_j=125^\circ C$

PACKAGE CHARACTERISTICS

Item	Symbol	Unit	Min.	Typ.	Max.	Test Conditions
Terminal Resistance	R_{CE}	mΩ	-	0.4	-	$T_c=25^\circ C$
Terminal Stray Inductance	L_{SCE}	nH	-	35	-	
Partial Discharge Extinction Voltage	V_{ex}	V_{rms}	1.3	-	-	$f=50Hz$, $Q<10pC$
Thermal Impedance	$R_{th(j-c)}$	K/W	-	-	0.045	Junction to case
Comparative tracking index	CTI		-	600	-	
Contact Thermal Impedance	$R_{th(c-f)}$	K/W	-	0.008	-	Case to fin per module

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

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

* Due to technical requirement, this product may contain restricted material for some application. Please contact our representatives.

MDM900E17D

DEFINITION OF TEST CIRCUIT

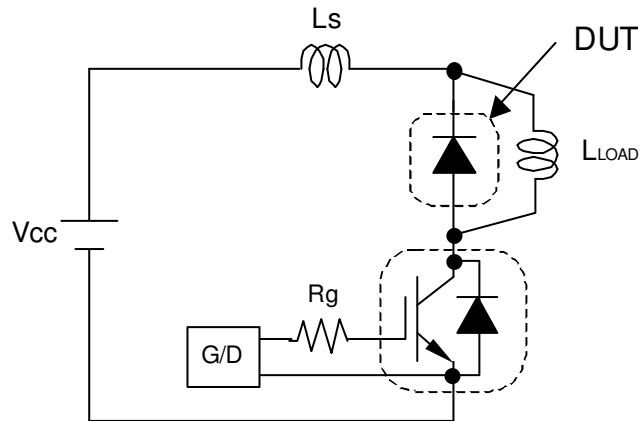


Fig.1 Switching test circuit

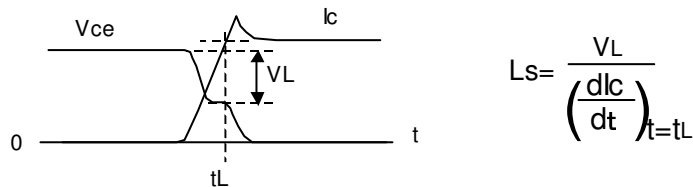
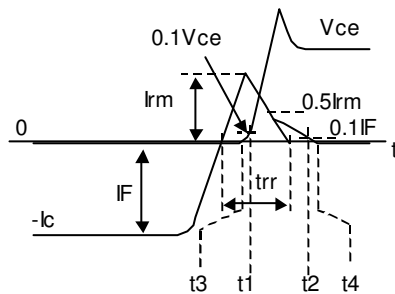


Fig.2 Definition of stray inductance



$$Err(10\%) = \int_{t1}^{t2} IF \cdot Vce \, dt$$

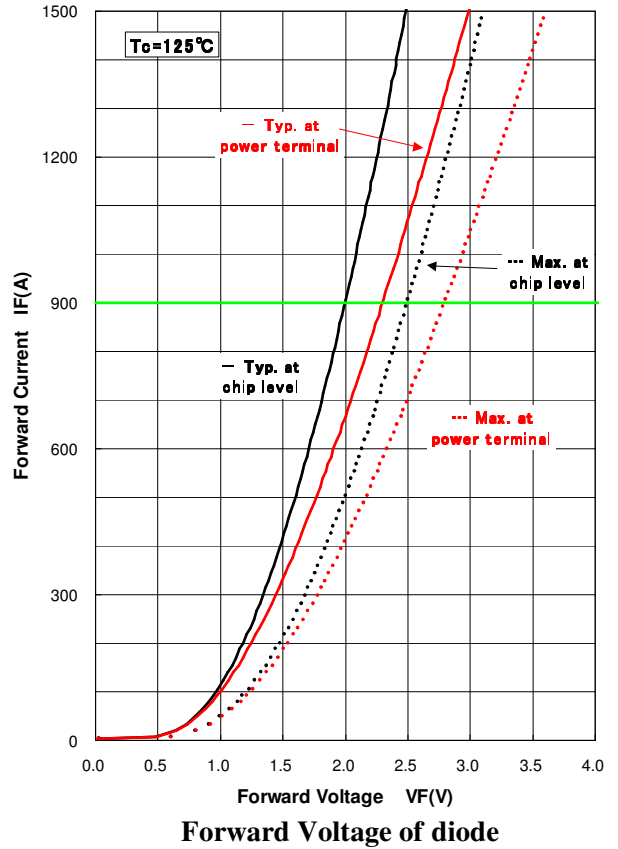
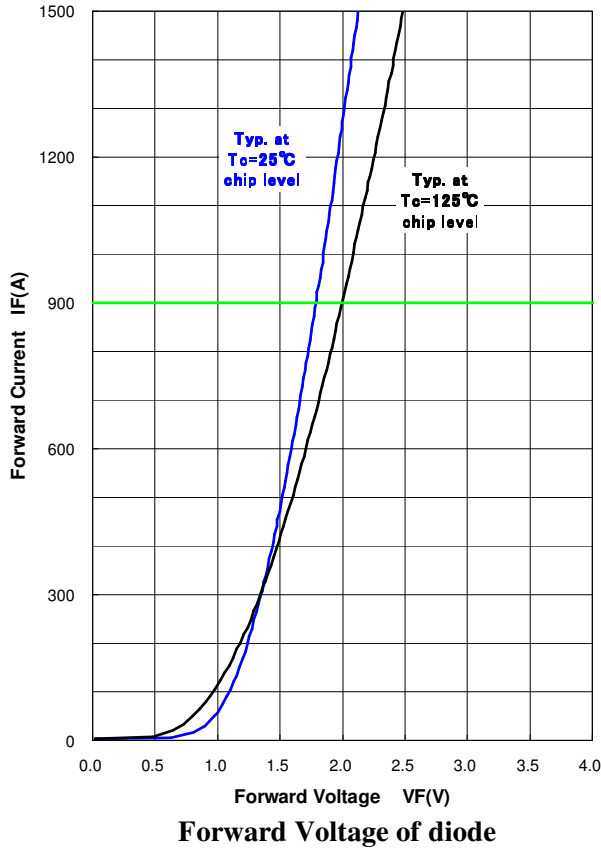
$$Err(Full) = \int_{t3}^{t4} IF \cdot Vce \, dt$$

Fig.3 Definition of switching loss

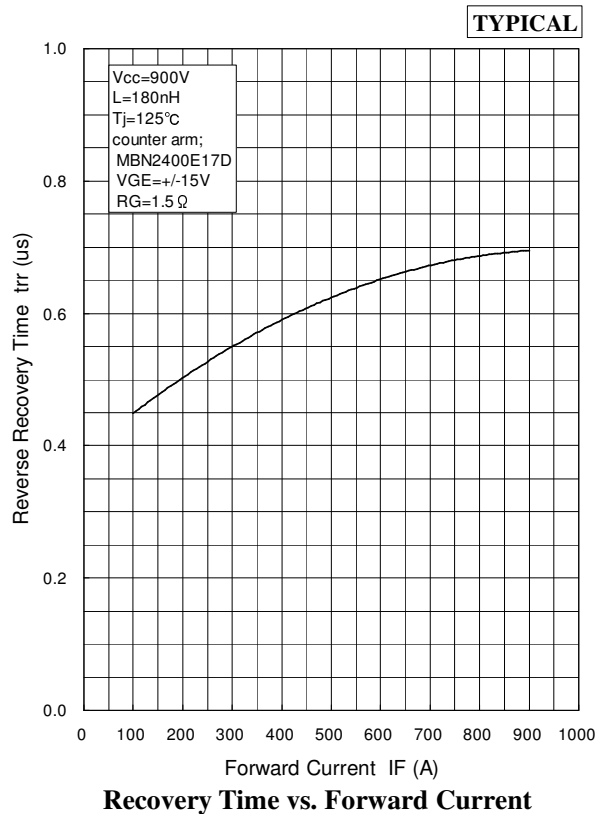
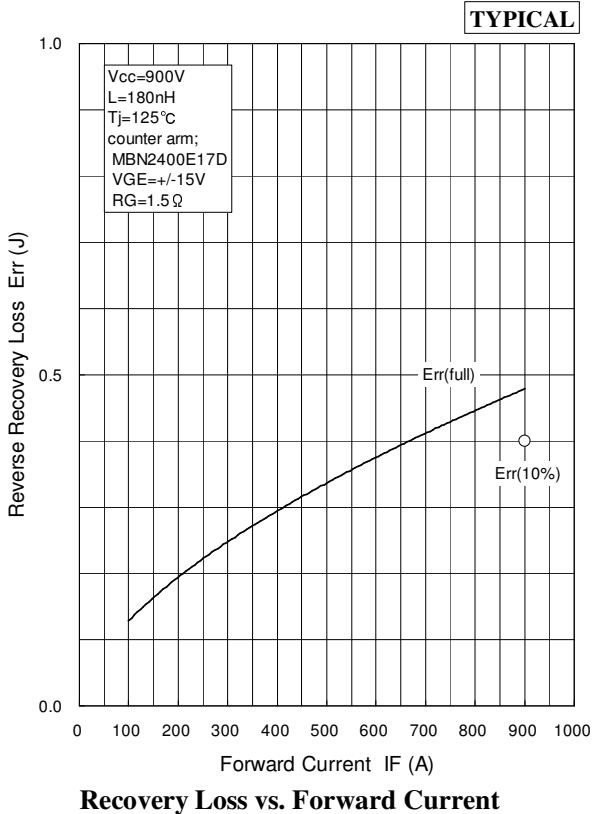
MDM900E17D

CHARACTERISTICS CURVE

STATIC CHARACTERISTICS



DYNAMIC CHARACTERISTICS

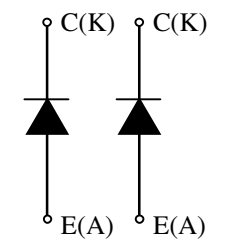
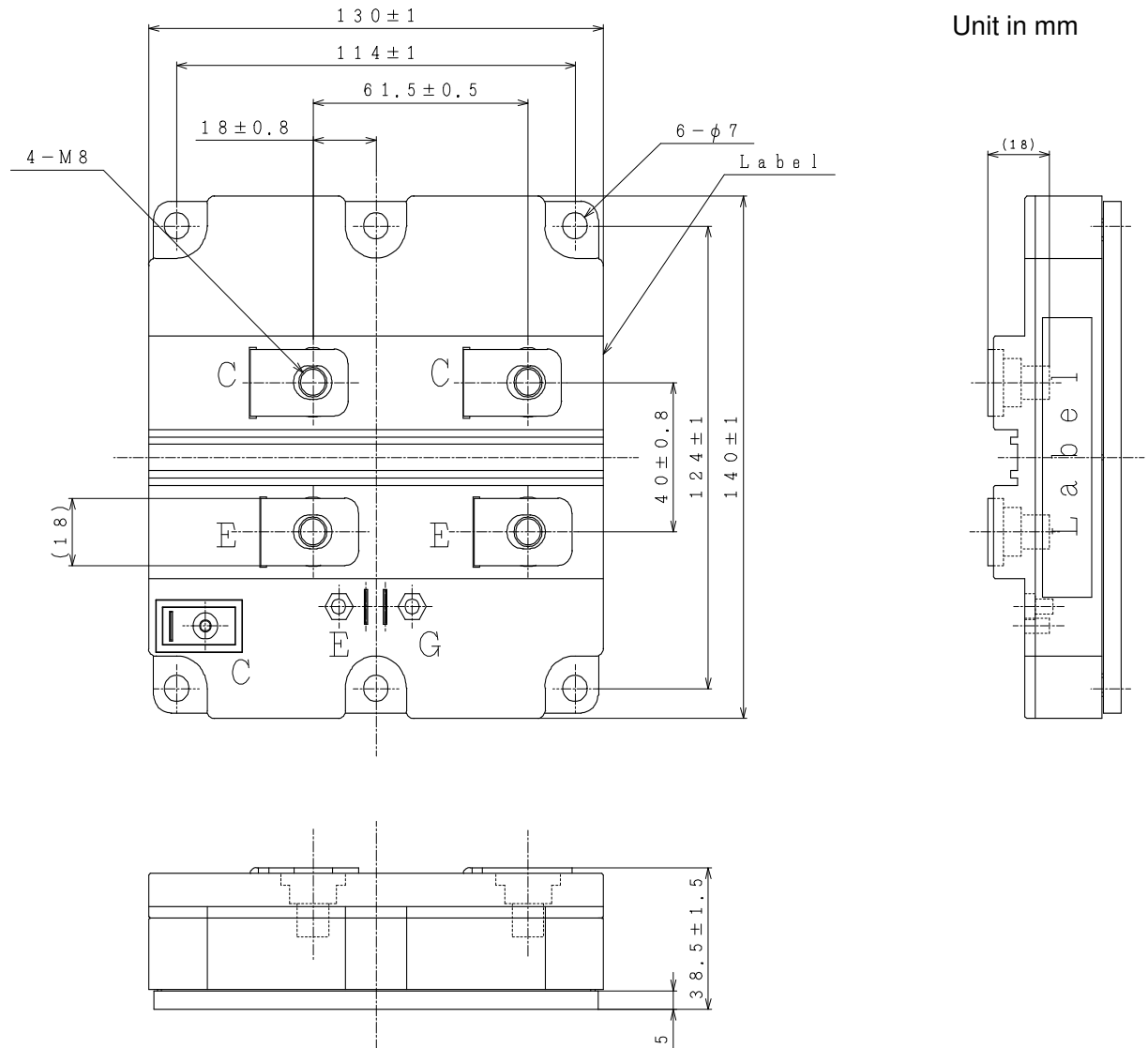


Recovery Loss vs. Forward Current

Recovery Time vs. Forward Current

MDM900E17D

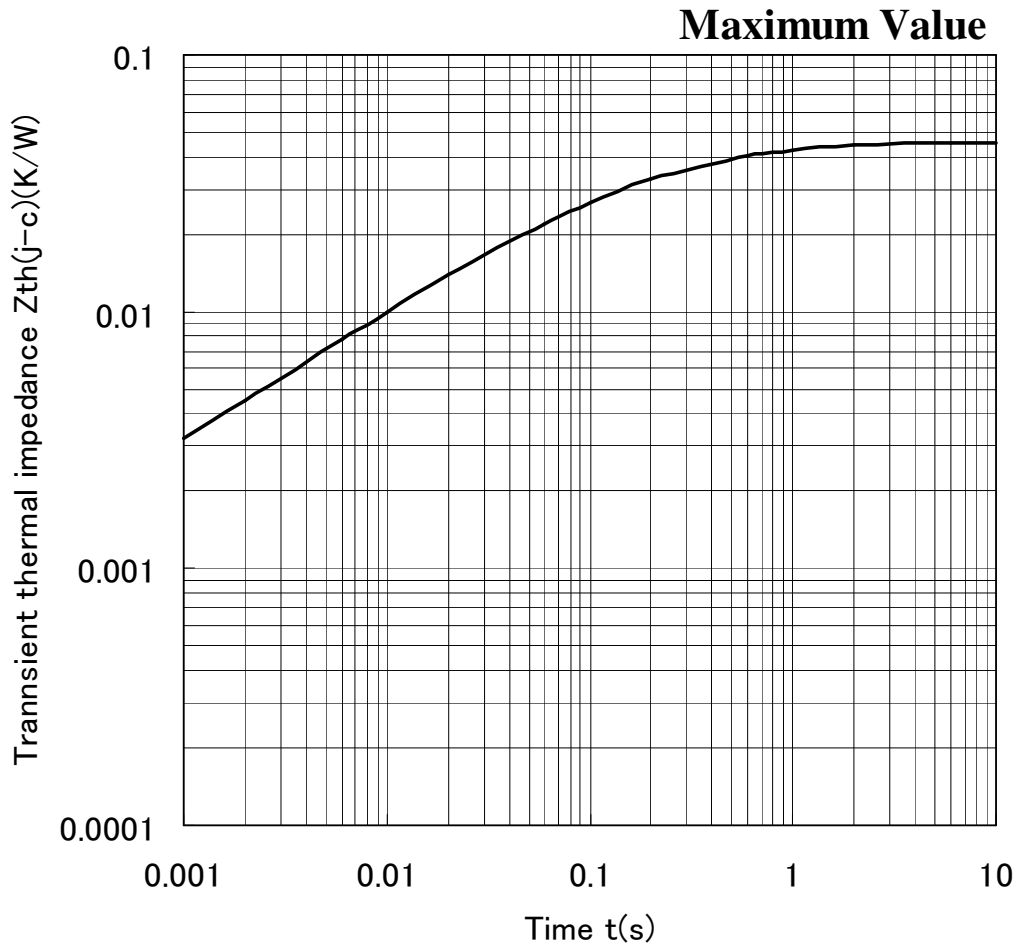
PACKAGE OUTLINE DRAWING



Circuit diagram

MDM900E17D

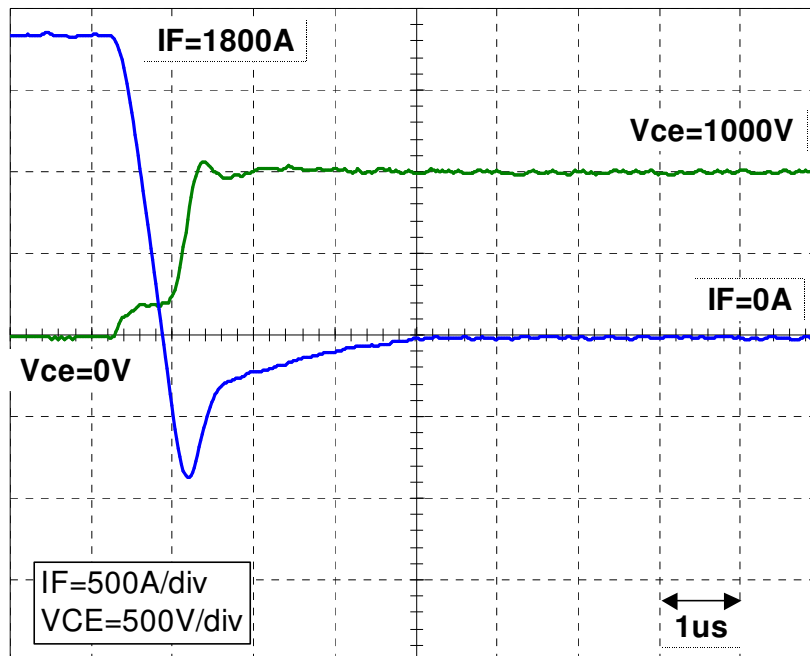
TRANSIENT THERMAL IMPEDANCE



MDM900E17D

Recovery SOA

TYPICAL



Test Conditions

$T_c=125 \text{ degC}$, $V_{ce}=1000V$, $I_F=1800A$, $L_s=180nH$, $V_{ge}=\pm 15V$, $R_g=1.5 \Omega$
 V_{ce} is measured at power terminals.

Items	Symbols	Units	MDM900E17D	Test Conditions
Reverse Recovery Capability (Routine test)	Prr	kW	650	$V_{CC}=1000V$, $I_F=1800A$, $V_{GE}=\pm 15V$, $T_J=125^\circ C$, $R_G=1.5 \Omega$, $L=180nH$

Negative environmental impact material

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

MDM900E17D

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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