

# MDM900E17D

## 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	MDM900E17D
Repetitive Peak Reverse Voltage	$V_{RRM}$	V	1,700
Forward Current	DC	$I_F$	900
	1ms	$I_{FM}$	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	$T_j=125^\circ C, R_g=1.5\Omega$ (3)

Notes:(3) Counter arm: MBN2400E17D  $V_{GE}=\pm 15V$

$R_G$  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	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

\* 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.

# MDM900E17D

## DEFINITION OF TEST CIRCUIT

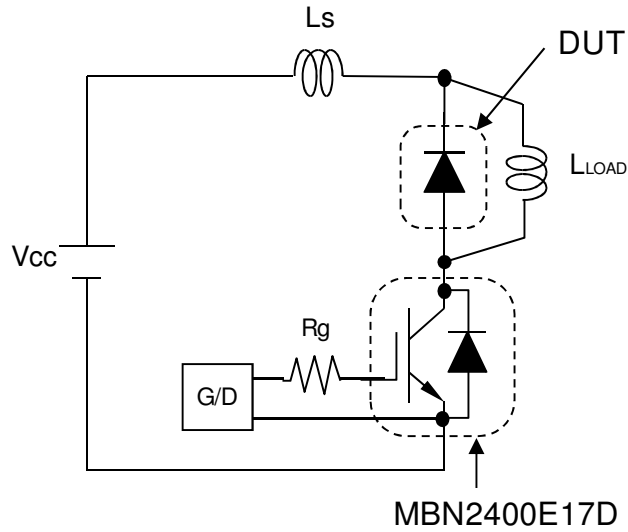


Fig.1 Switching test circuit

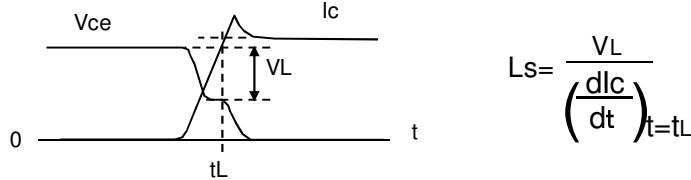


Fig.2 Definition of stray inductance

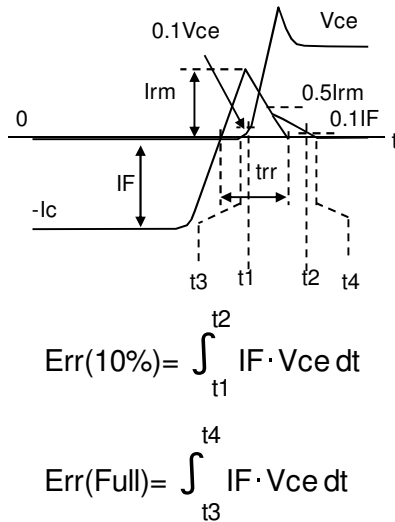
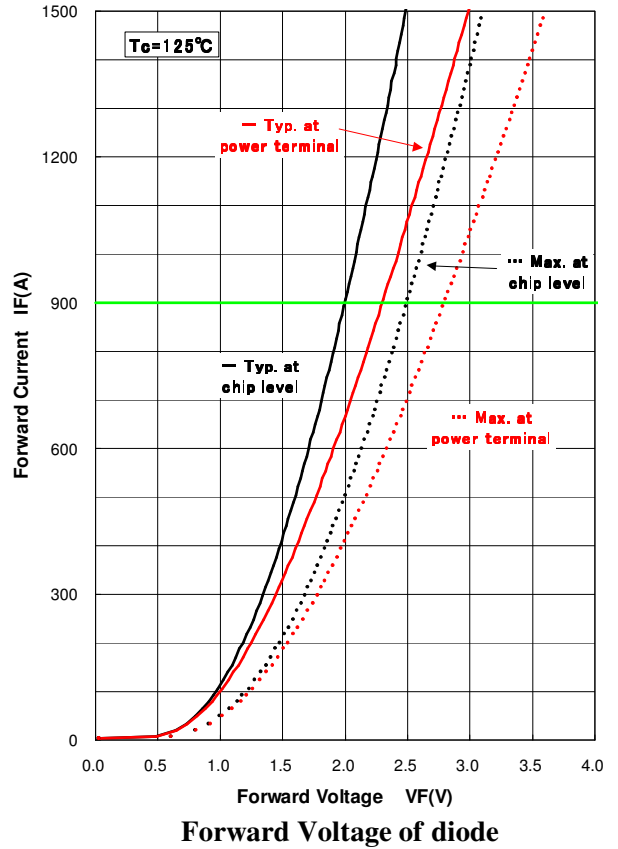
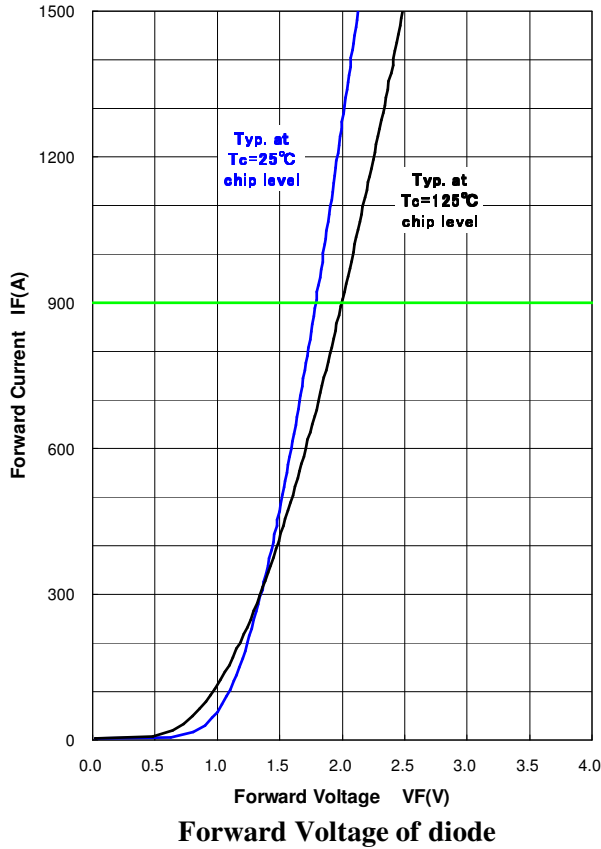


Fig.3 Definition of switching loss

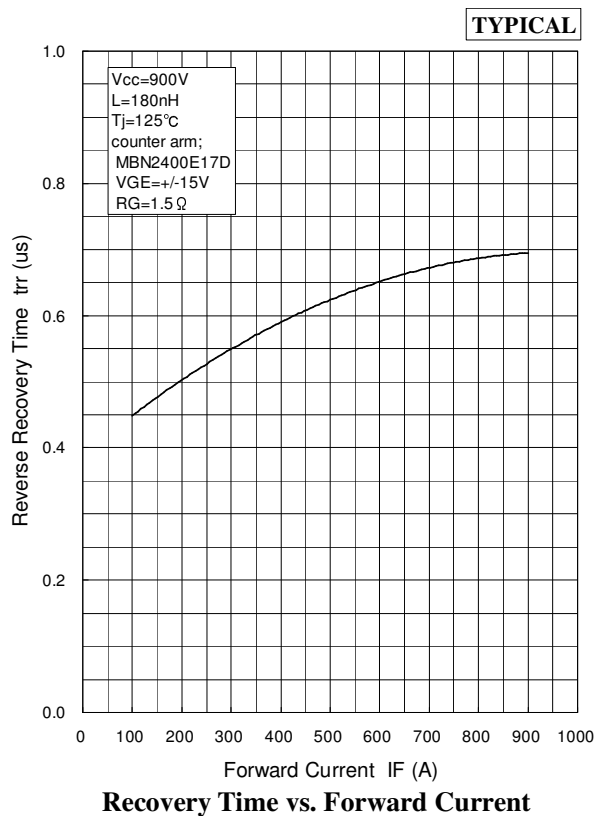
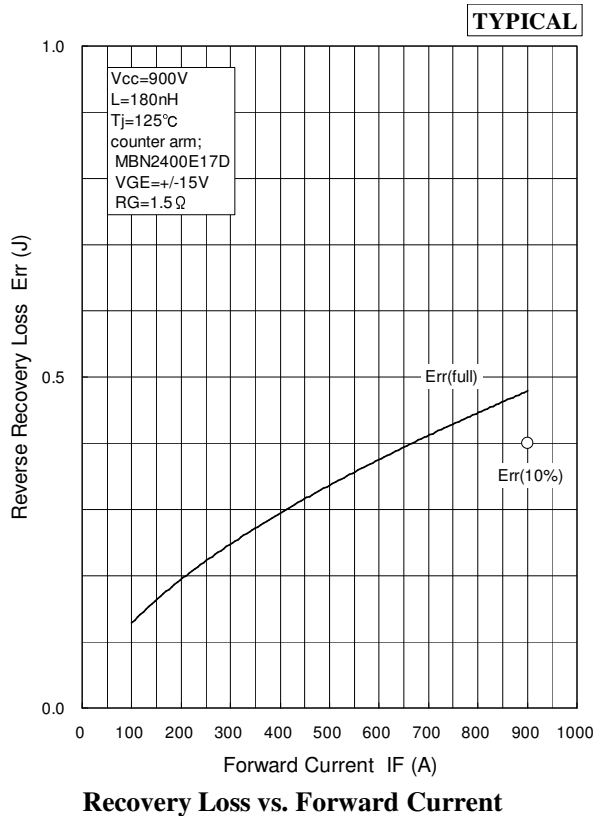
# MDM900E17D

## CHARACTERISTICS CURVE

### STATIC CHARACTERISTICS

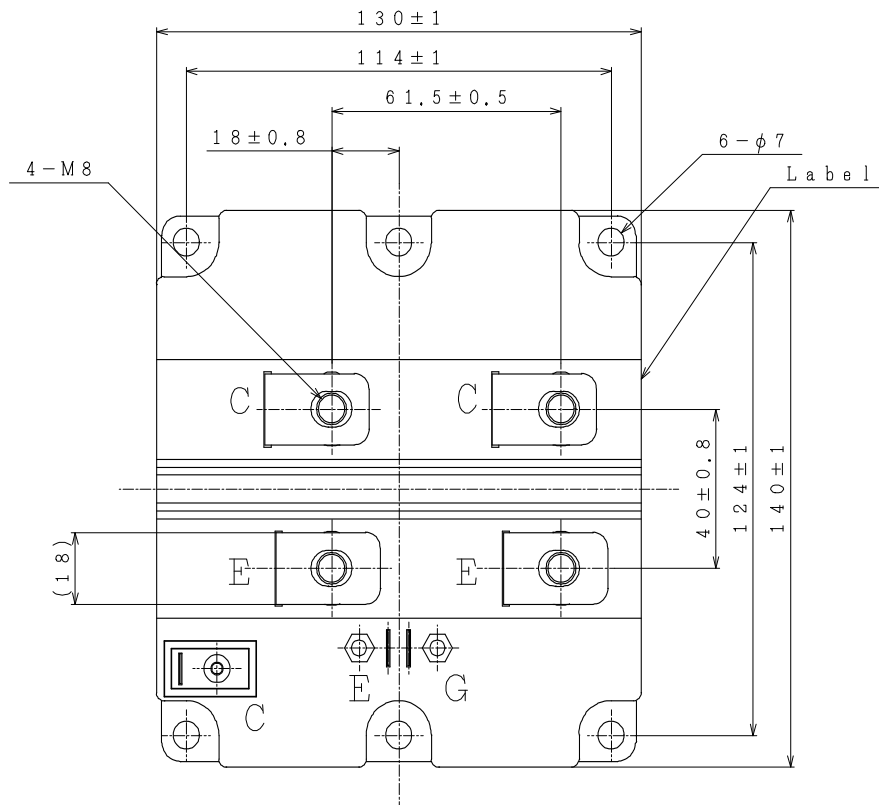


### DYNAMIC CHARACTERISTICS

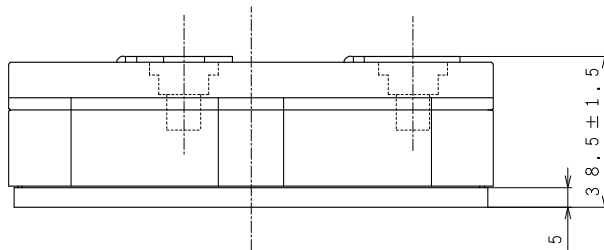
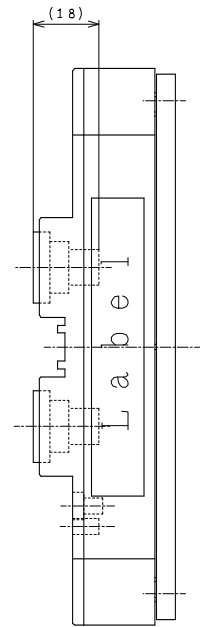


# MDM900E17D

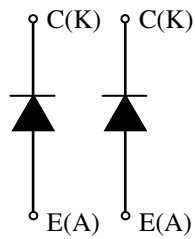
## PACKAGE OUTLINE DRAWING



Unit in mm



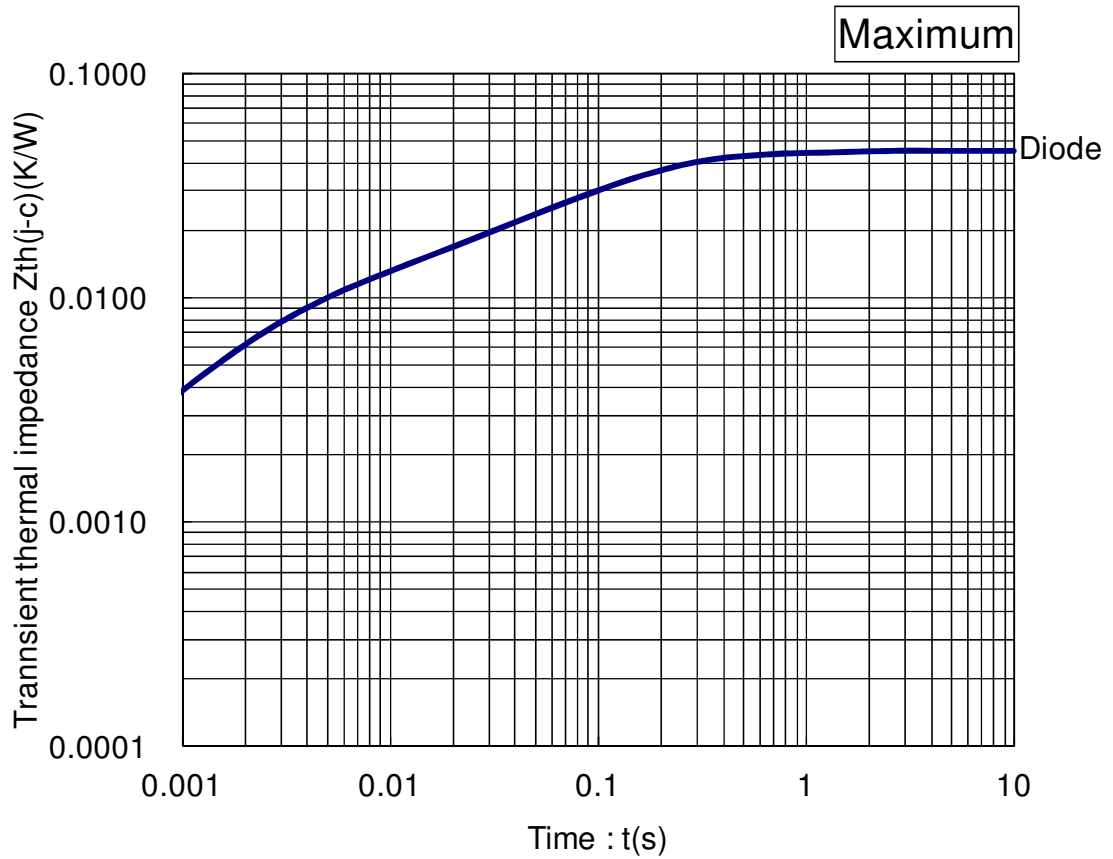
Weight: 900(g)



Circuit diagram

# MDM900E17D

## TRANSIENT THERMAL IMPEDANCE

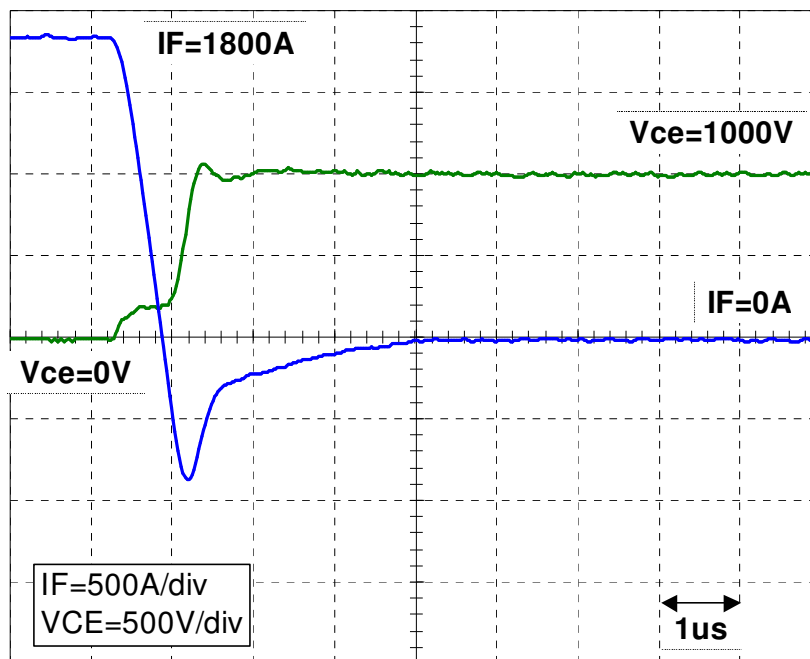


Transient Thermal Impedance Curve

# MDM900E17D

Recovery SOA

**TYPICAL**



Test Conditions  
 Tc=125°C, Vce=1000V, IF=1800A, Ls=180nH, Vge=±15V, Rg=1.5Ω  
 Vce is measured at power terminals.

Items	Symbols	Units	MDM900E17D	Test Conditions
Reverse Recovery Capability (Routine test)	Prr	kW	650	V <sub>CC</sub> =1000V, I <sub>F</sub> =1800A, V <sub>GE</sub> =±15V, T <sub>j</sub> =125°C, R <sub>G</sub> =1.5Ω, L=180nH

**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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