

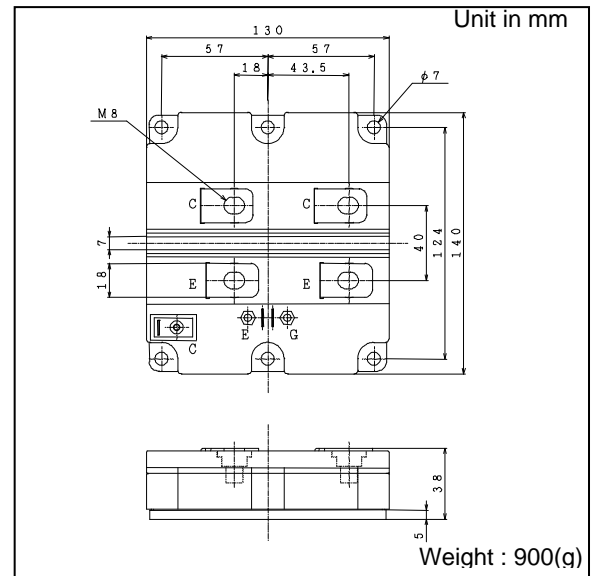
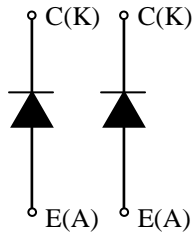
MDM600E45A

OUTLINE DRAWING

FEATURES

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

CIRCUIT DIAGRAM



ABSOLUTE MAXIMUM RATINGS (TC=25°C)

Item	Symbol	Unit	MDM600E45A
Repetitive Peak Reverse Voltage	V_{RRM}	V	4,500
Forward Current	DC	A	600
	1ms		1,200
Junction Temperature	T_j	°C	-40 ~ +125
Storage Temperature	T_{stg}	°C	-40 ~ +125
Isolation Test Voltage	Terminals-base	V_{RMS}	6,000 (AC 1 minute)
	Terminal 1-Terminal 2		6,000 (AC 1 minute)
Screw Torque	Terminals (M8)	N·m	15 (1)
	Mounting (M6)		6 (2)

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

ELECTRICAL CHARACTERISTICS

Item	Symbol	Unit	Min.	Typ.	Max.	Test Conditions
Repetitive Reverse Current	I_{RRM}	mA	-	14	27	VAK=4,500V, $T_j=125^\circ C$
Forward Voltage Drop	V_F	V	3.3	4.5	5.3	$I_F=600A$, $T_j=125^\circ C$
Reverse Recovery Time	trr	μs	-	0.6	1.0	$V_{CC}=2,600V$, $I_F=600A$, $L=130nH$
Reverse Recovery Loss	$E_{rr(10\%)}$	J/P	-	0.7	1.0	$T_j=125^\circ C$ $R_g=3.3\ \Omega$ (3)

PACKAGE CHARACTERISTICS

Item	Symbol	Unit	Min.	Typ.	Max.	Test Conditions
Terminal Resistance	RCE	mΩ	-	0.3	-	
Terminal Stray Inductance	LsCE	nH	-	35	-	
Thermal Impedance	Rth(j-c)	K/W	-	-	0.026	Junction to case
Comparative tracking index	CTI		-	600	-	
Contact Thermal Impedance	Rth(c-f)	K/W	-	0.008	-	Case to fin per module

Notes:(3) Counter arm; MBN600E45A $V_{GE}=\pm 15V$

R_G value is the test condition's value for evaluation of the switching times, not recommended value.

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

- * 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.

MDM600E45A

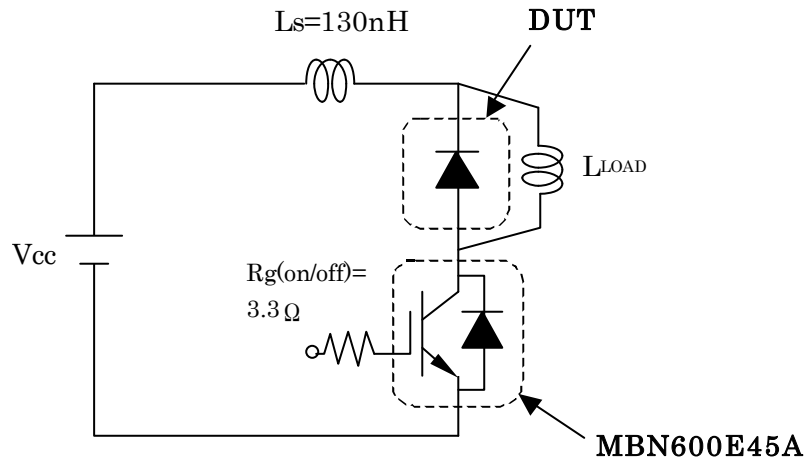


Fig.1 Switching test circuit

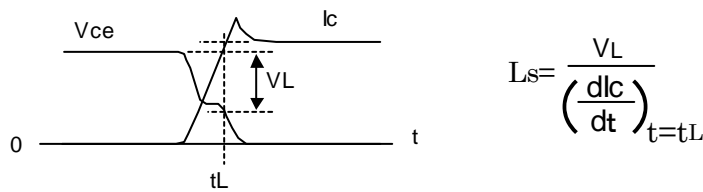
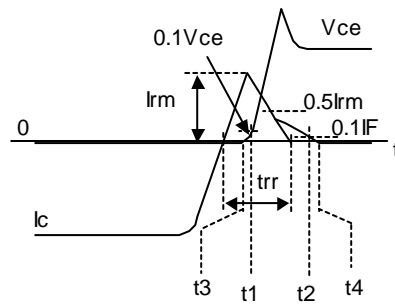


Fig.2 Definition of Ls

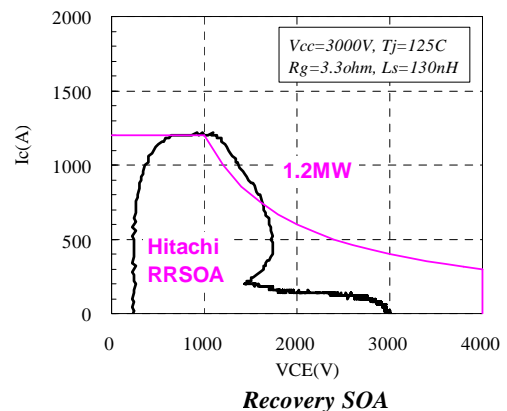
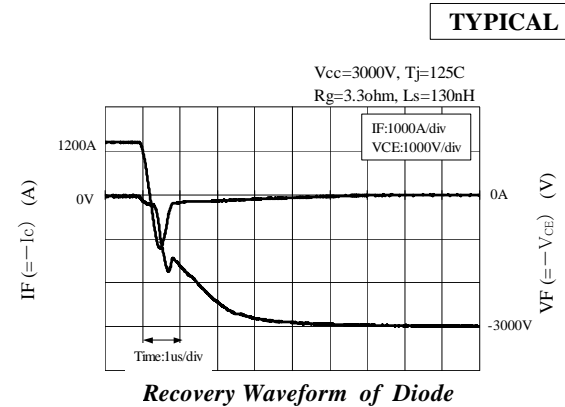
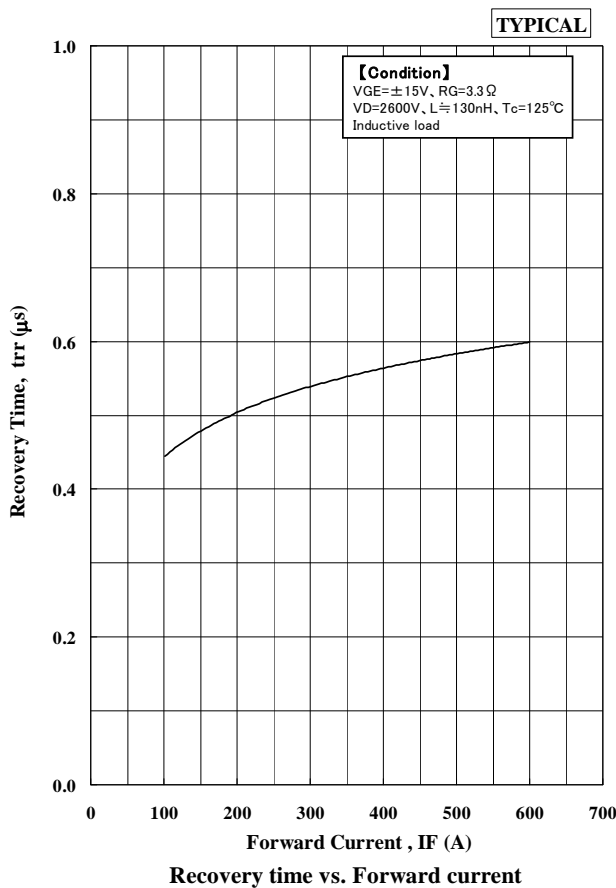
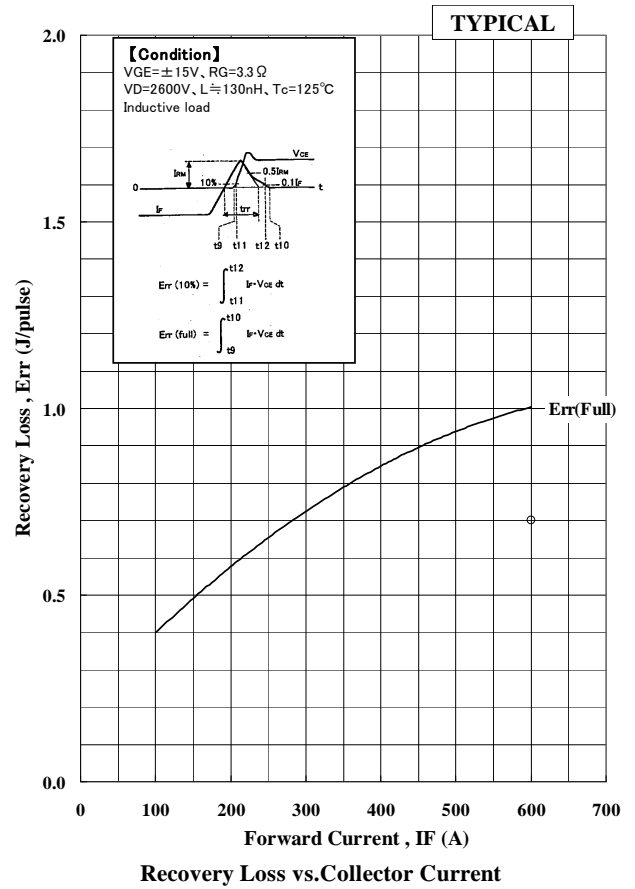
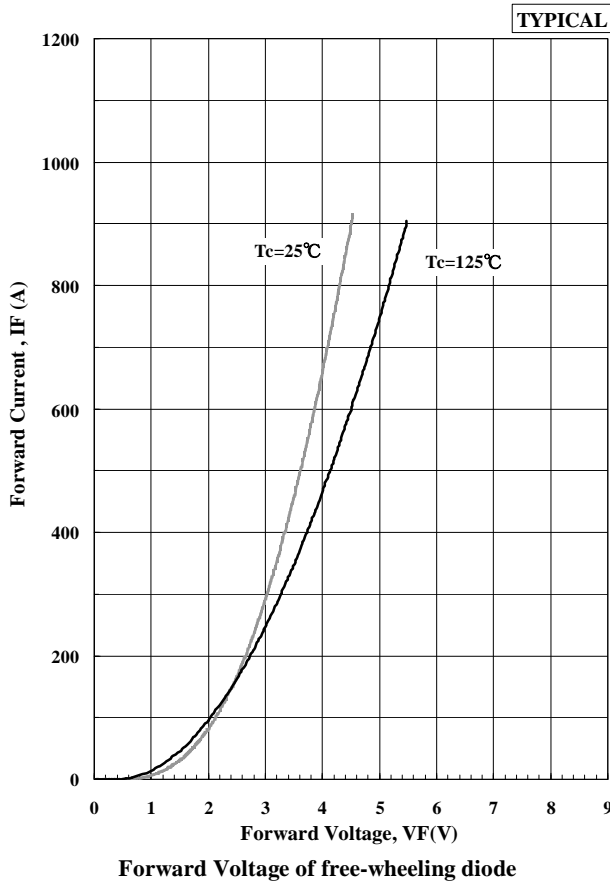


$$\text{Err}(10\%) = \int_{t1}^{t2} IF \cdot V_{ce} dt$$

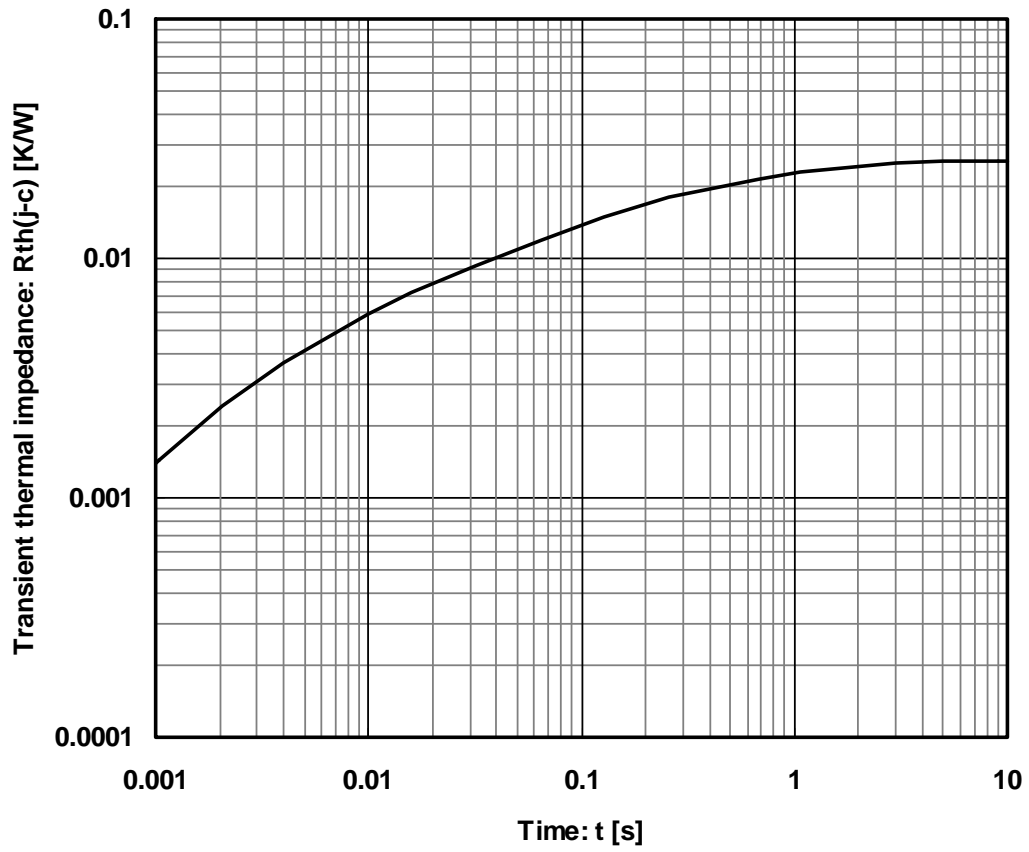
$$\text{Err}(\text{Full}) = \int_{t3}^{t4} IF \cdot V_{ce} dt$$

Fig.3 Definition of switching loss

MDM600E45A



MDM600E45A



Transient Thermal Impedance

Material declaration

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

Material	Contained part
Lead (Pb) and its compounds	Solder

MDM600E45A

HITACHI POWER SEMICONDUCTORS

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