

MDM800E33D

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	MDM800E33D
Repetitive Peak Reverse Voltage	V _{RRM}	V	3,300
Forward Current	DC	A	800
	1ms		1,600
Junction Temperature	T _{vj op}	°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⁺⁰₋₃N·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	-	2.0	20.0	V _{AK} =3,300V, T _{vj} =125°C
Forward Voltage Drop	V _F	V	2.0	2.5	3.0	I _F =800A, T _{vj} =125°C
Reverse Recovery Time	t _{rr}	μs	0.2	0.6	1.1	V _{CC} =1,650V, I _F =800A, L _s =120nH
Reverse Recovery Loss	E _{rr(10%)}	J/P	-	0.9	1.3	R _G =4.7Ω, T _{vj} =125°C (3)

Notes: (3) Counter arm: MBN800E33D V_{GE}= ±15VR_G are 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	R _{CE}	mΩ	-	0.4	-	T _C =25°C, per arm
Stray inductance module	L _{SCE}	nH	-	35	-	per arm
Thermal Impedance	R _{th(j-c)}	K/W	-	-	0.026	Junction to case (par arm)
Comparative tracking index	CTI		-	600	-	
Contact Thermal Impedance	R _{th(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.

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DEFINITION OF TEST CIRCUIT

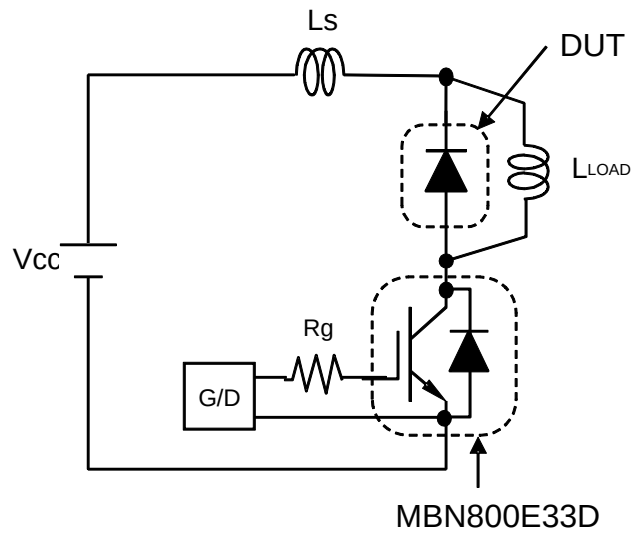


Fig.1 Switching test circuit

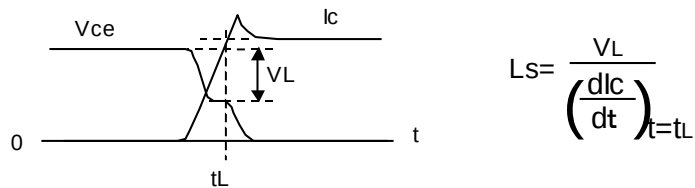


Fig.2 Definition of stray inductance

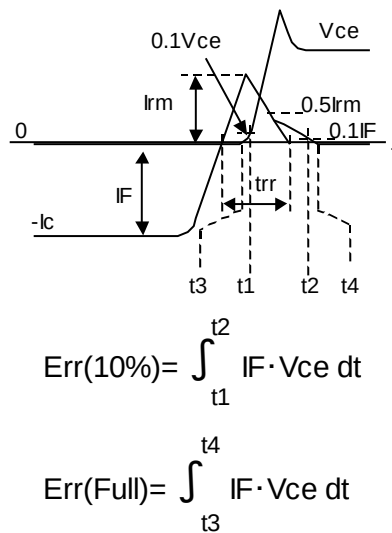
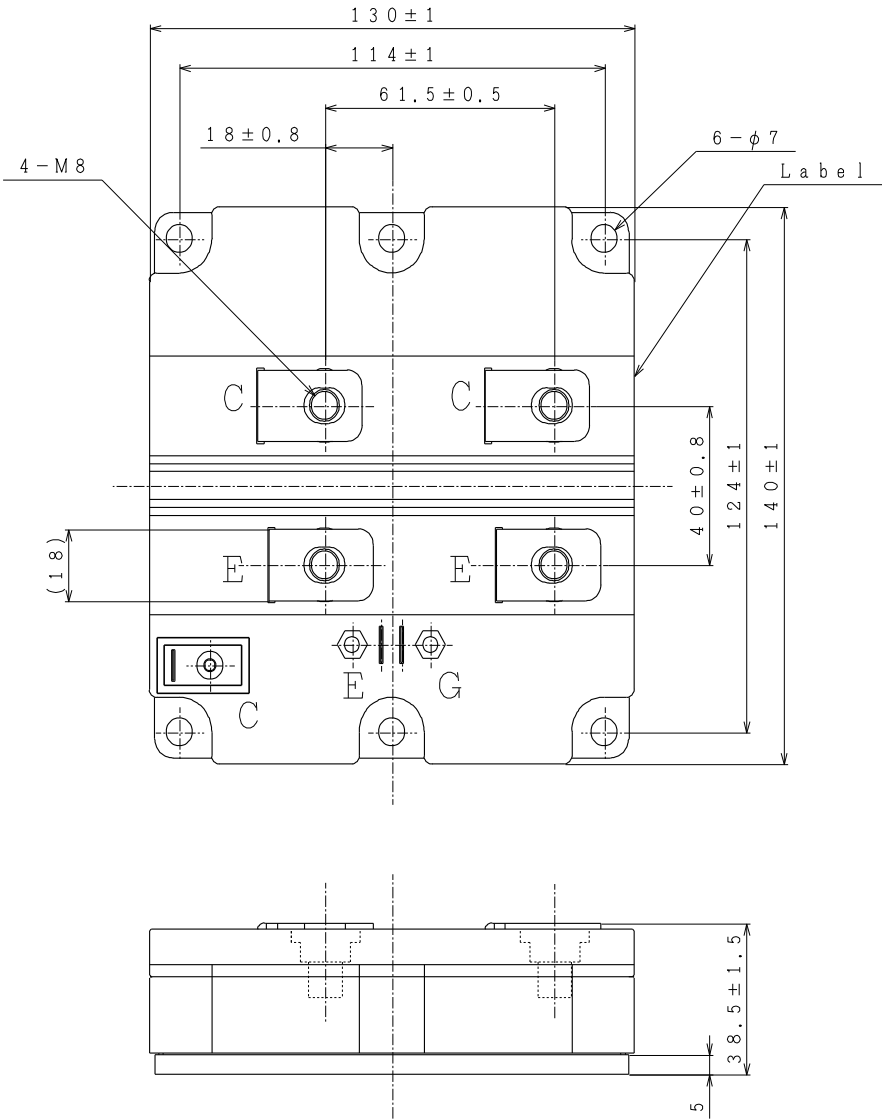


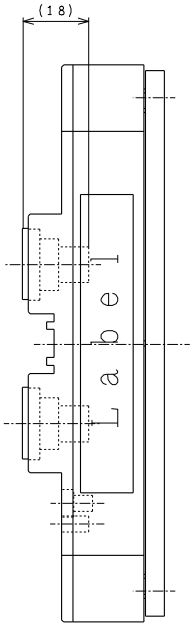
Fig.3 Definition of switching loss

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OUTLINE DRAWING

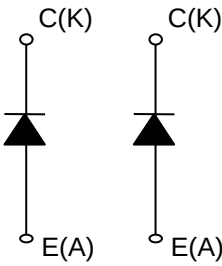


Unit in mm

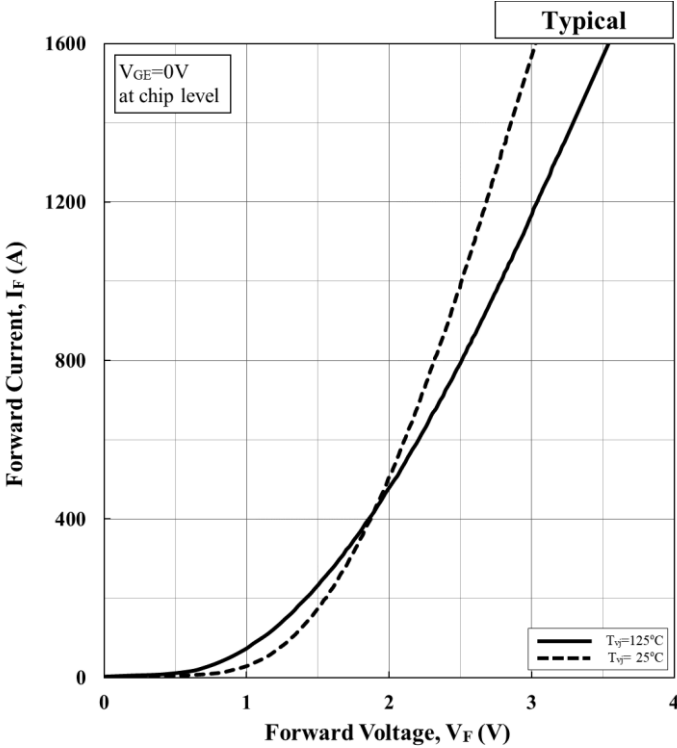


Weight: 900g

CIRCUIT DIAGRAM

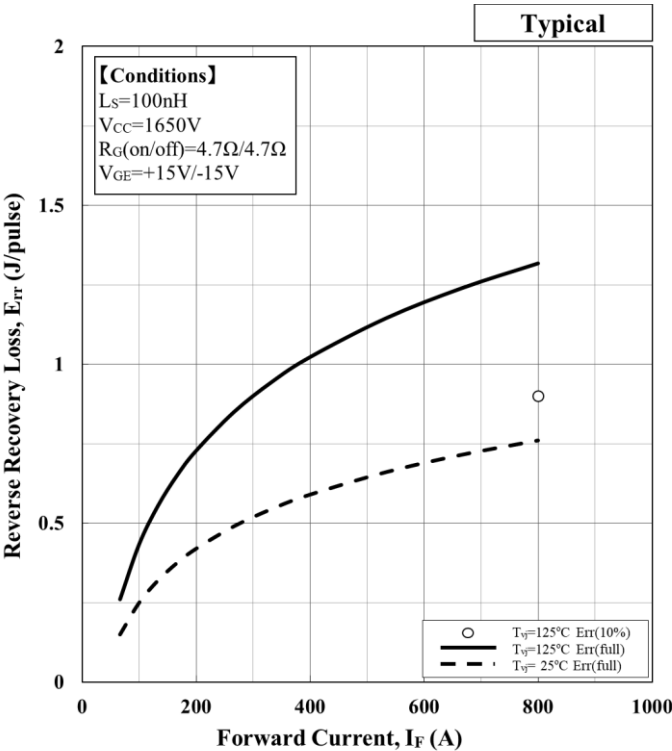


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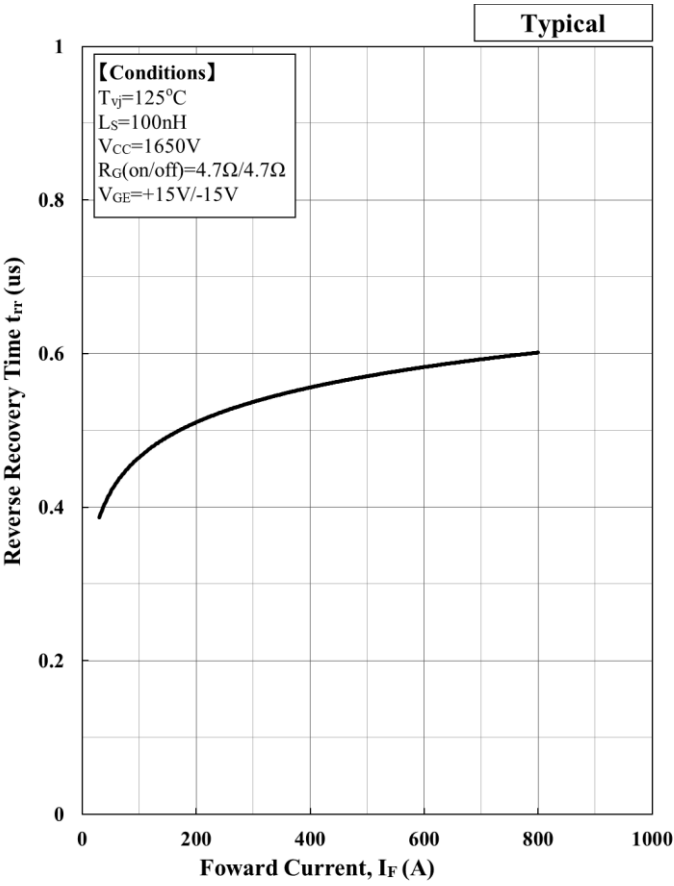
$V_F[V] = a_3 \cdot I_F ^3 + a_2 \cdot I_F ^2 + a_1 \cdot I_F + a_0$				
Temp.[°C]	a_3	a_2	a_1	a_0
25	3.51E-10	-1.22E-06	2.24E-03	1.13E+00
125	4.05E-10	-1.45E-06	2.97E-03	8.64E-01

Forward Voltage of diode



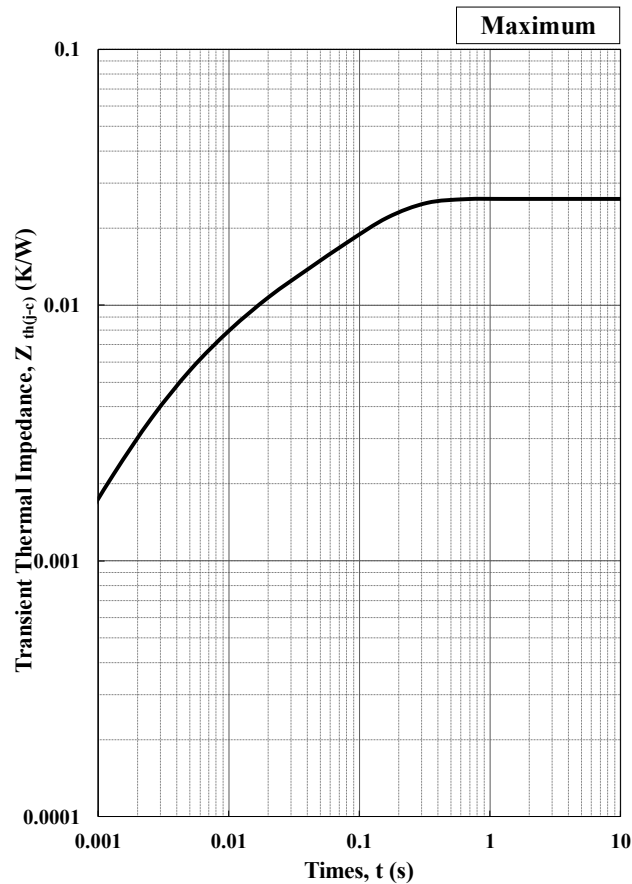
$E [J] = a_3 \cdot I_F ^3 + a_2 \cdot I_F ^2 + a_1 \cdot I_F + a_0$				
Temp.[°C]	a_3	a_2	a_1	a_0
25	2.42E-09	-4.26E-06	2.81E-03	7.70E-04
125	4.20E-09	-7.39E-06	4.89E-03	1.34E-03

Recovery loss vs. Forward current



Reverse Recovery Time vs. Forward Current

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Transient Thermal Impedance Curve

Foster model lumped circuit constant

n	1	2	3	4
R th, Diode [n]	1.73E-02	2.62E-03	6.69E-05	6.00E-03
C th, Diode [n]	6.47E+00	8.38E-01	2.36E+00	1.67E+00

Cauer model lumped circuit constant

n	1	2	3	4
R th, Diode [n]	1.71E-03	4.84E-03	6.18E-03	1.33E-02
C th, Diode [n]	4.22E-01	1.52E-01	1.46E+00	6.14E+00

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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Minebea POWER SEMICONDUCTORS

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