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	A	1,200
	1ms	I_{FM}		2,400
Junction Temperature		$T_{vj\ op}$	°C	-40 ~ +125
Storage Temperature		T_{stg}	°C	-40 ~ +125
Isolation Test Voltage	Terminals-base	V_{ISO}	V_{RMS}	4,000(AC 1 minute)
	Terminal 1-Terminal 2	$V_{ISO\ T\text{-}T}$		4,000(AC 1 minute)
Screw Torque	Terminals (M8)	-	N·m	15 (1)
	Mounting (M6)	-		6 (2)

Notes: (1) Recommended Value 15^{+0}_{-3}N·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	VAK=1,700V, T_{vj}=125°C
Forward Voltage Drop	V_F	V	1.8	2.1	2.5	I_F=1200A, T_{vj}=125°C
Reverse Recovery Time	t_{rr}	μs	-	0.5	-	V_{CC}=900V, I_F=1,200A, L_S=100nH
Reverse Recovery Loss	$E_{rr(10\%)}$	J/P	-	0.4	-	R_G=1.5Ω, C_{GE}=120nF (3) T_{vj}=125°C

Notes: (3) Counter arm: MBN1200E17D 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.	Test Conditions
Terminal Resistance	RCE	mΩ	-	0.2	-	Tc=25°C, per arm
Stray inductance module	L_{SCE}	nH	-	21	-	per arm
Thermal Impedance	$R_{th(j\text{-}c)}$	K/W	-	-	0.033	Junction to case (par arm)
Contact Thermal Impedance	$R_{th(c\text{-}f)}$	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

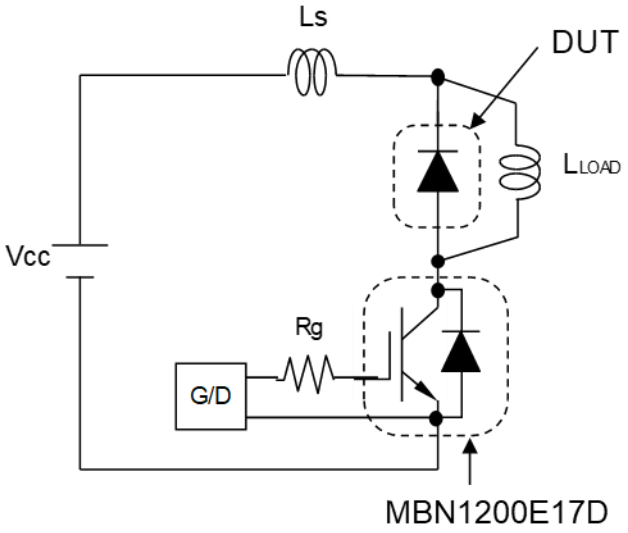
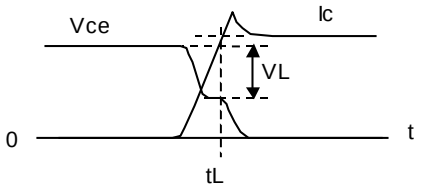
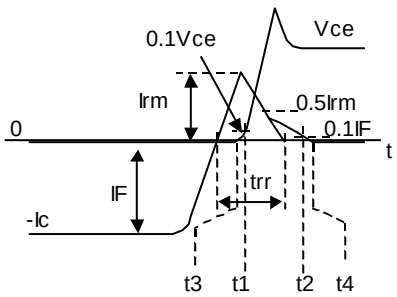


Fig.1 Switching test circuit



$$Ls = \frac{V_L}{\left(\frac{dIc}{dt}\right)_{t=t_L}}$$

Fig.2 Definition of stray inductance



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

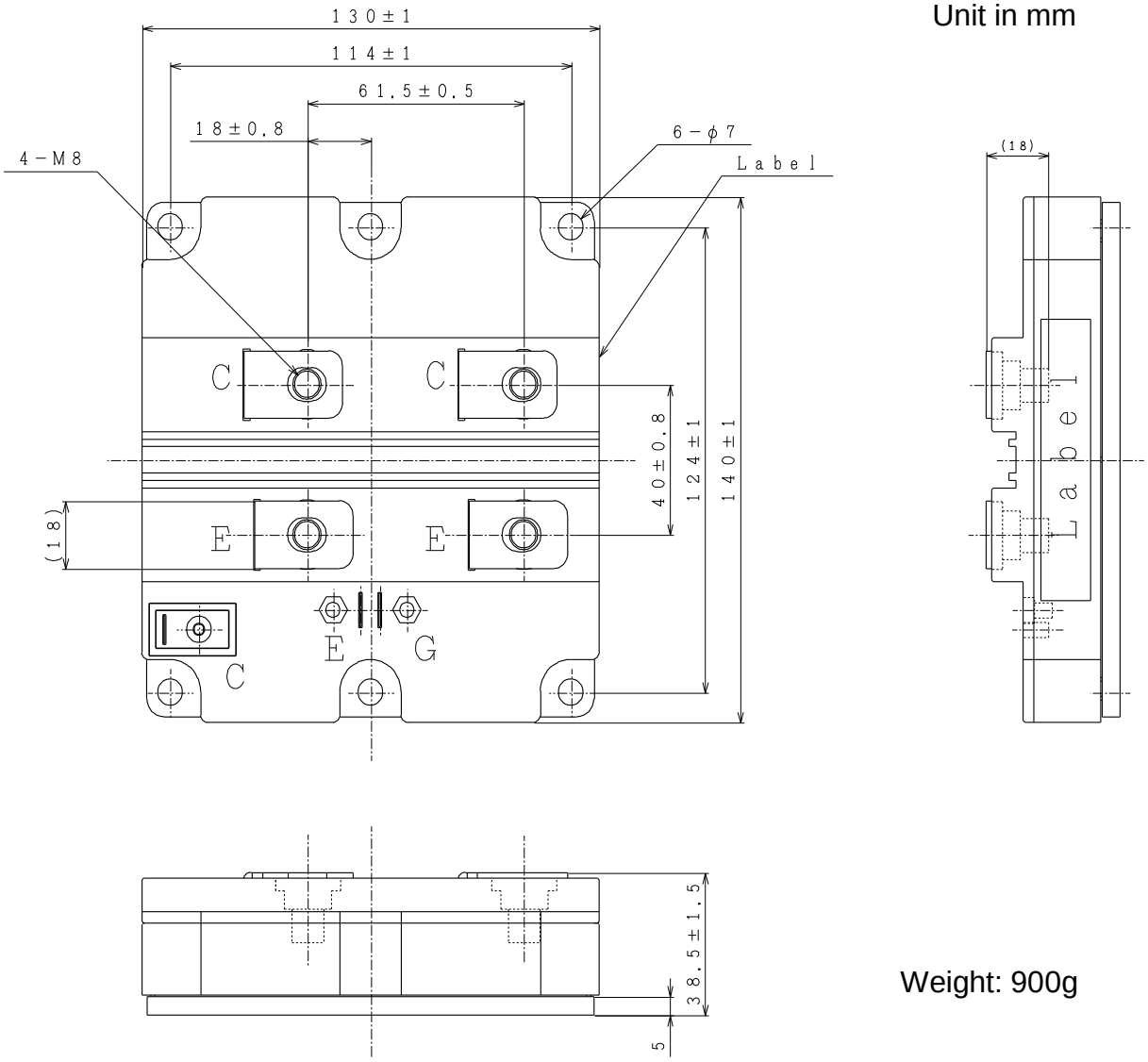
$$Err(Full) = \int_{t3}^{t4} IF \cdot Vce\, dt$$

Fig.3 Definition of switching loss

MDM1200E17D

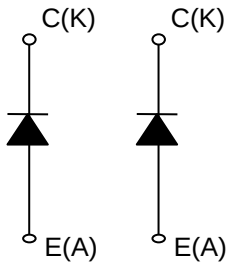
OUTLINE DRAWING

Unit in mm

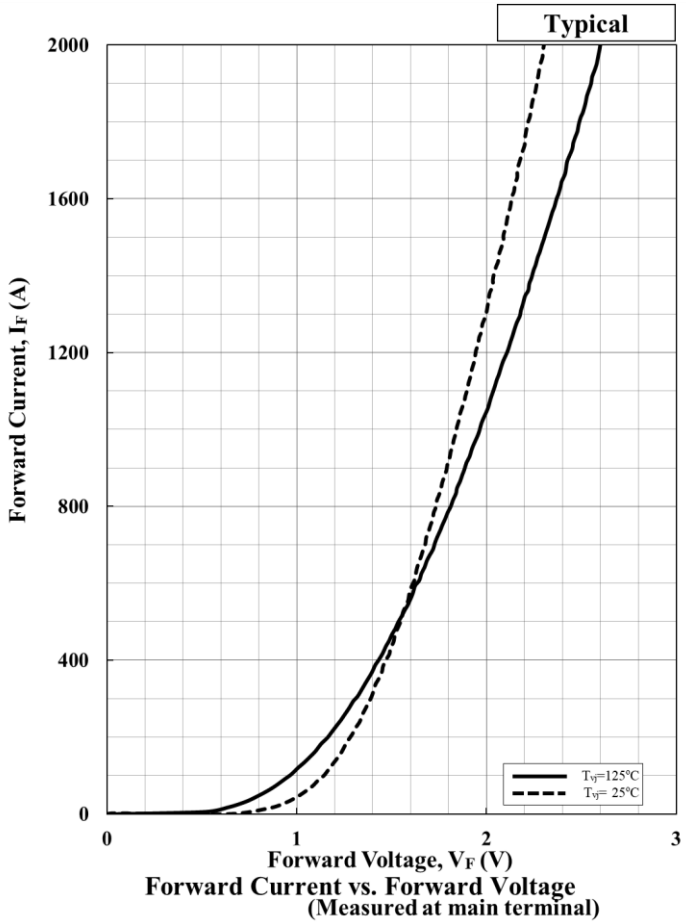


Weight: 900g

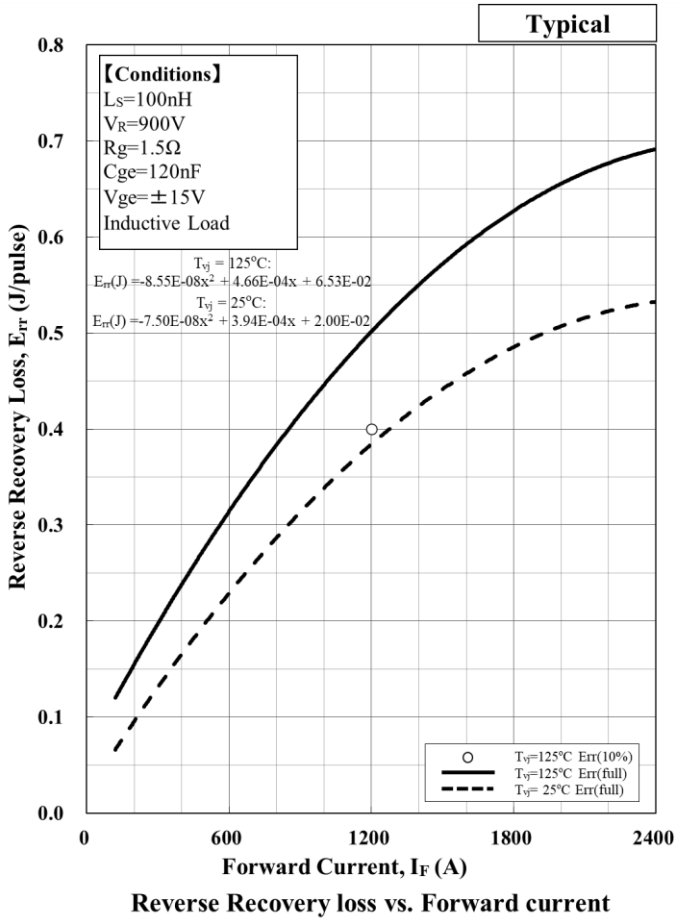
CIRCUIT DIAGRAM



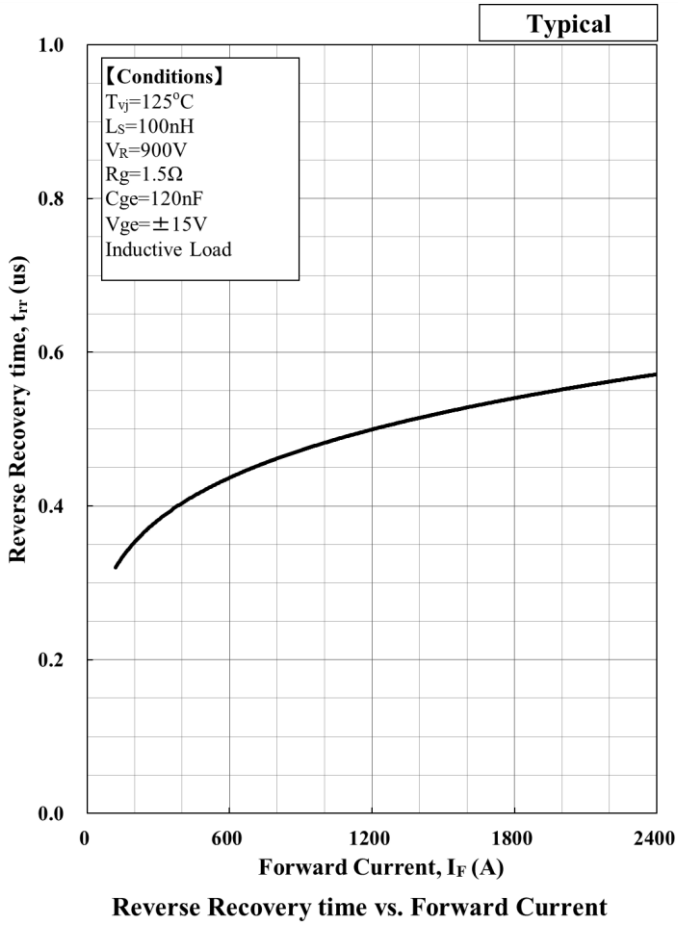
MDM1200E17D



Forward Current vs. Forward Voltage
(Measured at main terminal)

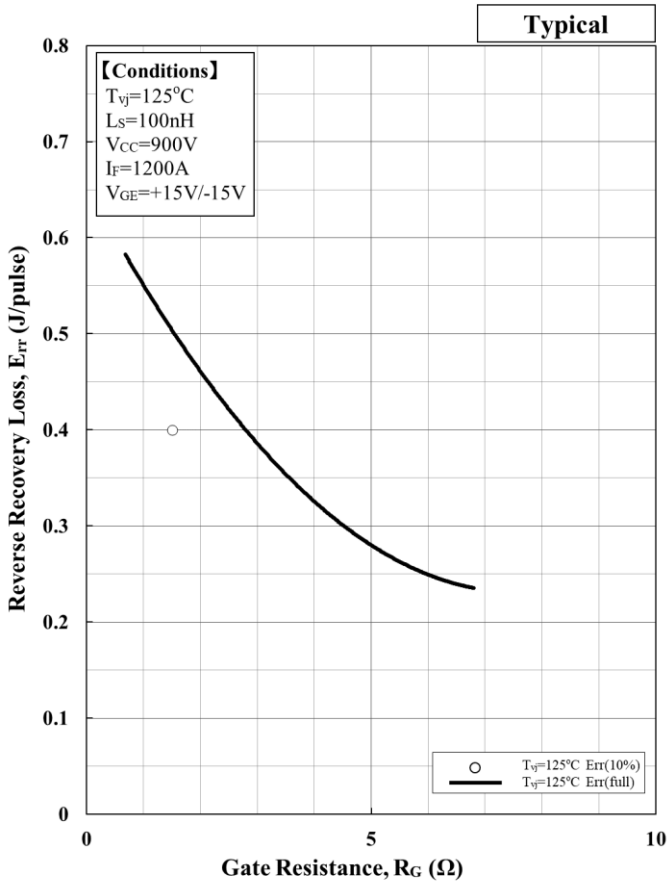


Reverse Recovery loss vs. Forward current

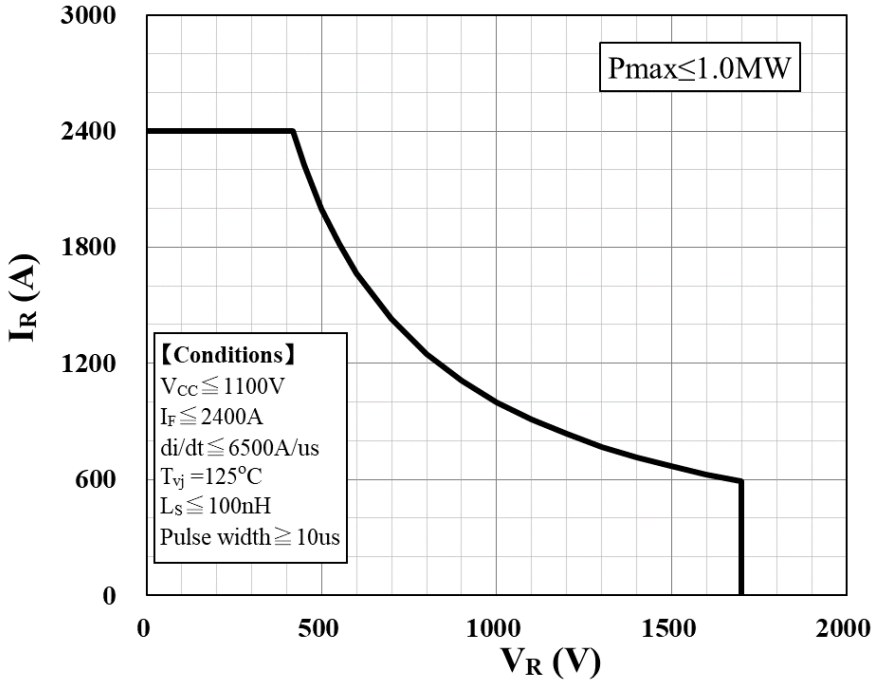


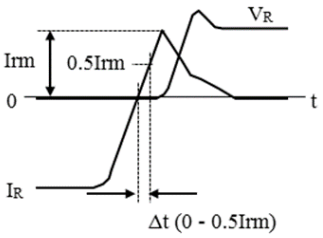
Reverse Recovery time vs. Forward Current

MDM1200E17D



Reverse Recovery loss vs. Gate Resistance





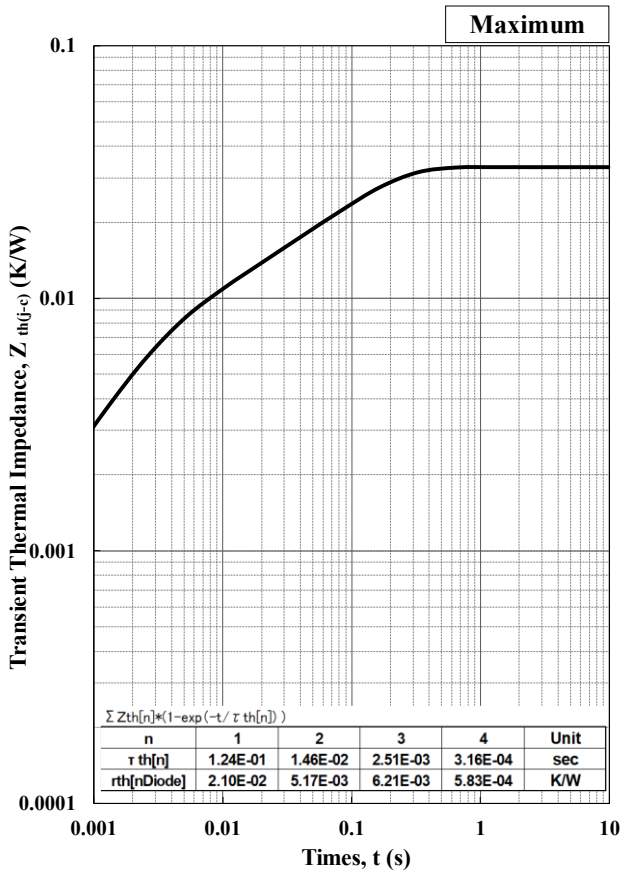
$$di/dt = \frac{0.5Irm}{\Delta t}$$

Definition of Recovery di/dt

(Defined at power terminals)

Reverse Recovery Safe Operation Area (RRSOA)

MDM1200E17D



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

Minebea POWER SEMICONDUCTORS

Notices

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Minebea POWER SEMICONDUCTORS

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