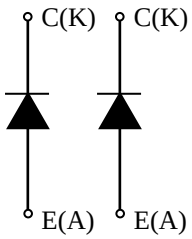
MDM1000E33E2

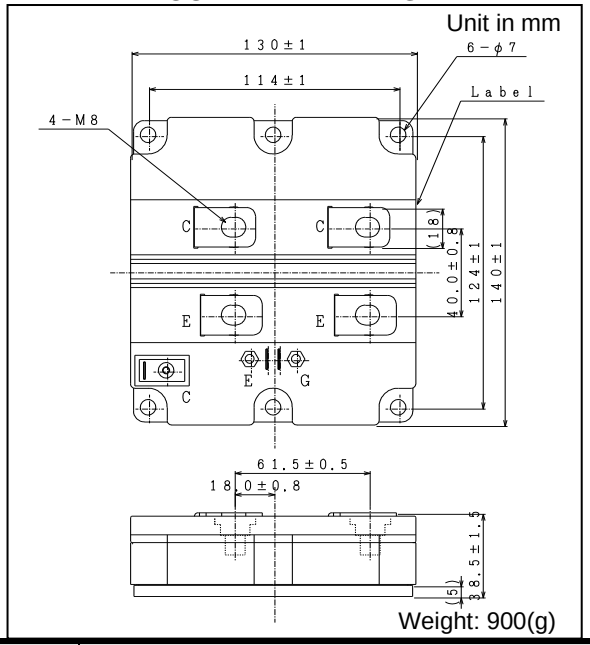
FEATURES

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

CIRCUIT DIAGRAM



OUTLINE DRAWING



Weight: 900(g)

ABSOLUTE MAXIMUM RATINGS (Tc=25℃)

Item		Symbol	Unit	MDM1000E33E2
Repetitive Peak Reverse Voltage		V_{RRM}	V	3,300
Forward Current	DC	I_F	A	1,000
	1ms	I_{FM}		2,000
Junction Temperature		Tj	℃	-40 ～ +150
Storage Temperature		Tstg	℃	-40 ～ +125
Isolation Test Voltage		V_{ISO}	V_{RMS}	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·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	-	2.5	25	VAK=3,300V, Tj=125℃	
Forward Voltage Drop	V_F	V	-	2.5	3.0	IF=1,000A, Tj=125℃	
			-	2.5	-	IF=1,000A, Tj=150℃	
Reverse Recovery Time	trr	μs	-	0.7	1.2	Tj=125ºC	V_{CC}=1,650V, IF=1,000A, Ls=100nH, Rg=3.3Ω, (3)
Reverse Recovery Loss	$E_{rr(10\%)}$	J/P	-	1.6	2.3		
	$E_{rr(full)}$		-	2.0	-		
			-	2.3	-	Tj=150ºC	

PACKAGE CHARACTERISTICS

Item	Symbol	Unit	Min.	Typ.	Max.	Test Conditions
Terminal Resistance	R_{CE}	mΩ	-	0.2	-	per arm
Terminal Stray Inductance	L_{SCE}	nH	-	21	-	per arm
Thermal Impedance	Rth(j-c)	K/W	-	-	0.017	Junction to case (par arm)
Comparative tracking index	CTI		-	600	-	
Contact Thermal Impedance	Rth(c-f)	K/W	-	0.008	-	Case to fin (λgrease=1W/(m·K), Heat-sink flatness ≤50um)

Notes:(3) Counter arm; MBN1200E33D VGE=+/-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.

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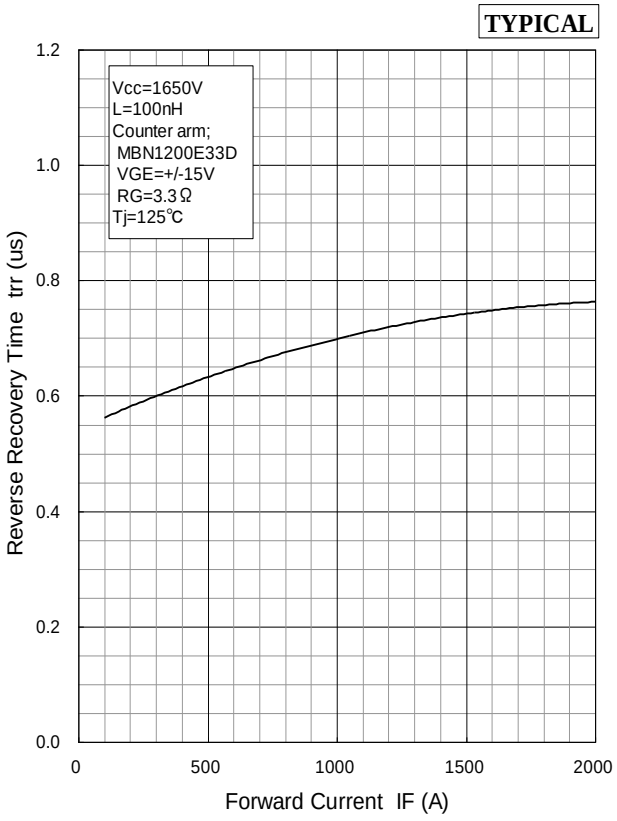
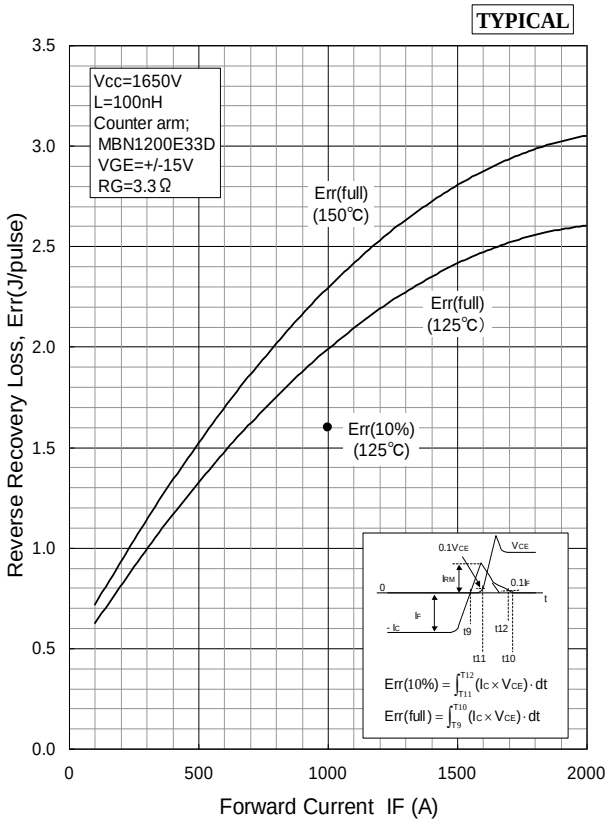
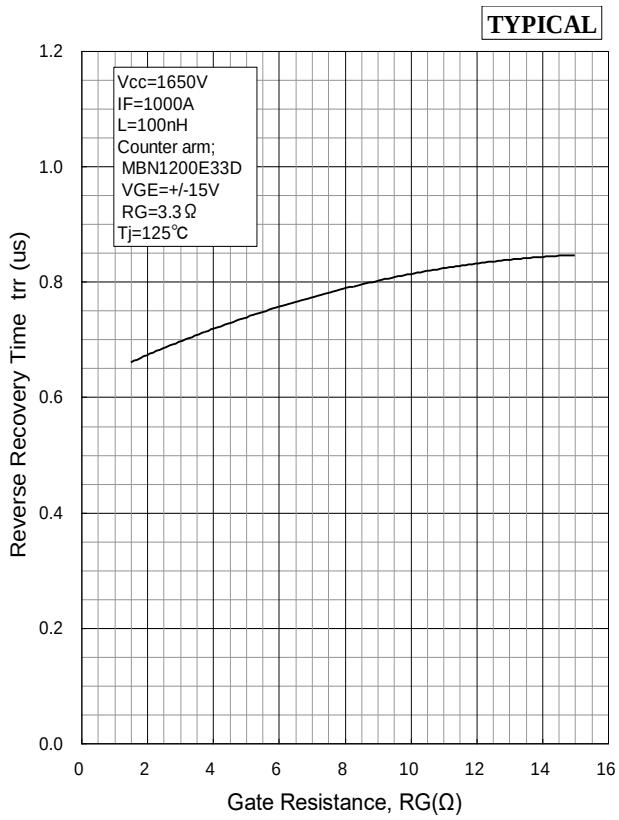
DYNAMIC CHARACTERISTICS



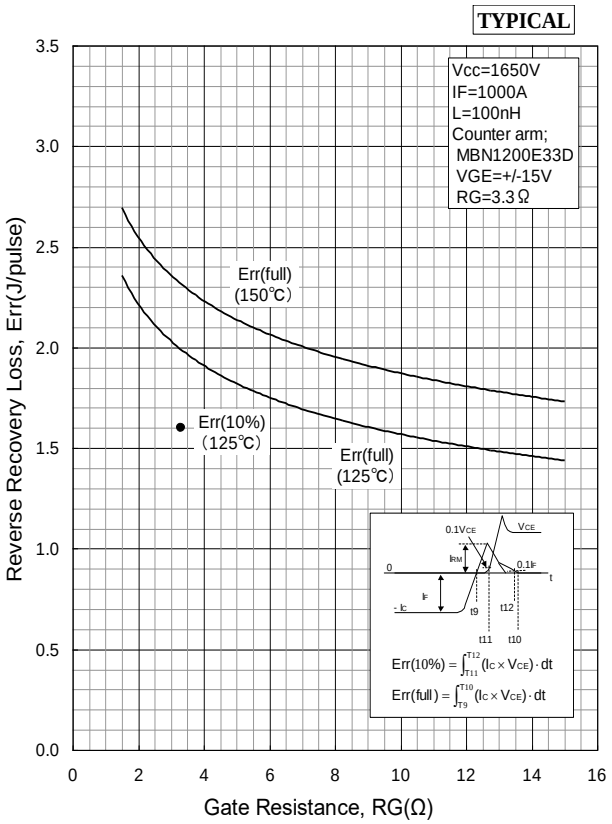
Reverse Recovery Time vs Forward Current



Reverse Recovery Loss vs Forward Current



Reverse Recovery Time vs Gate Resistance



Reverse Recovery Loss vs Gate Resistance

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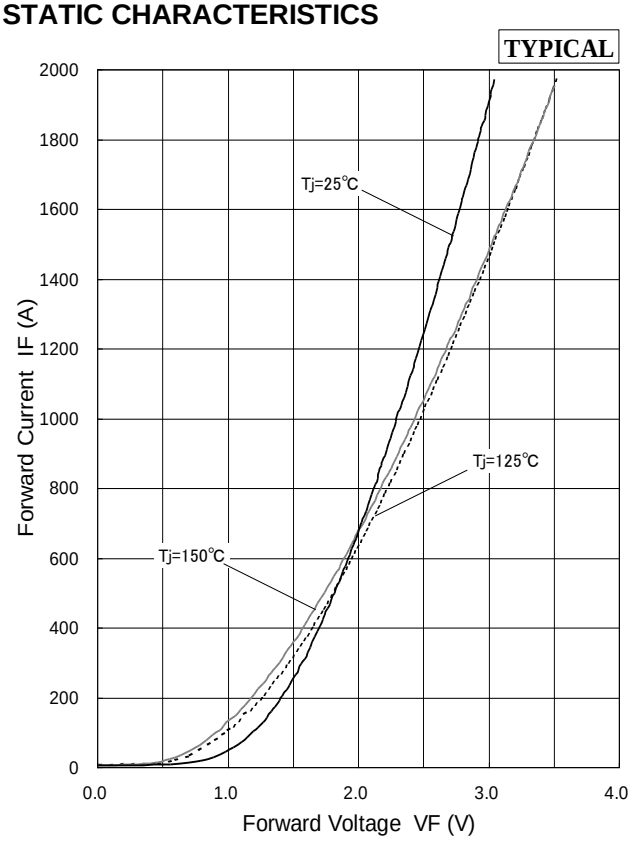
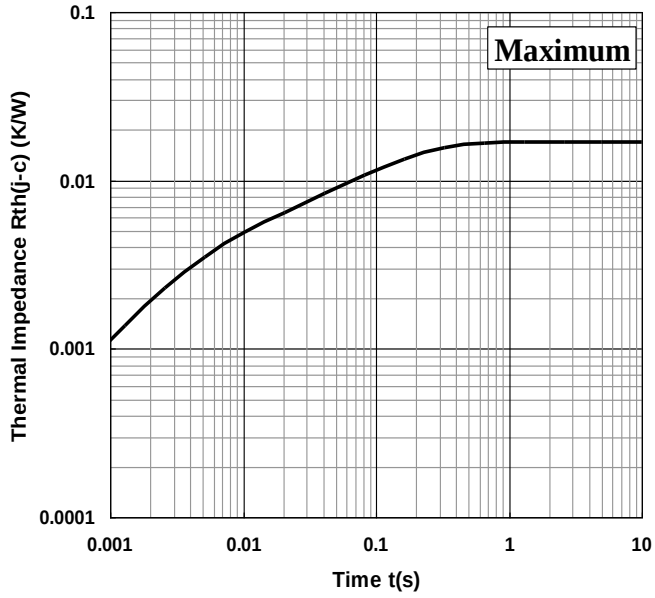
STATIC CHARACTERISTICS



Diode Forward Characteristics

TRANSIENT THERMAL IMPEDANCE



Transient Thermal Impedance Curve

Material declaration

Please note that 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

MDM1000E33E2

HITACHI POWER SEMICONDUCTORS

Notices

1. Since mishandling of semiconductor devices may cause malfunctions, please be sure to read "Precautions for Safe Use and Notices" in the individual brochure before use.
2. When designing an electronic circuit using semiconductor devices, please do not exceed the absolute maximum rating specified for the device under any external fluctuations. And for pulse applications, please also do not exceed the "Safe Operating Area (SOA)".
3. Semiconductor devices may sometimes break down by accidental or unexpected surge voltage, so please be careful about the safety design such as redundant design and malfunction prevention design which don't cause the damage expand even if they break down.
4. In cases where extremely high reliability is required (such as use in nuclear power control, aerospace and aviation, traffic equipment, life-support-related medical equipment, fuel control equipment and various kinds of safety equipment), safety should be ensured by using semiconductor devices that feature assured safety or by means of users' fail-safe precautions or other arrangement. Or consult with Hitachi's sales department staff. (When semiconductor devices fail, as a result the semiconductor devices or wiring, wiring pattern may smoke, ignite, or the semiconductor devices themselves may burst.)
5. A semi-processed article is done now using solder which contains lead inside the semiconductor devices. There is possibility of the regulation substance depend on the applied models, so please check before using.
6. This specification is a material for component selection, which describes specifications of power semiconductor devices (hereinafter referred to as products), characteristic charts, and external dimension drawings.
7. 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 with Hitachi power semiconductor sales department for the latest version of this data sheets.
8. For handling other than described in this manual, follow the handling instructions (IGBT-HI-00002).

■ For inquiries relating to the products, please contact nearest representatives which is located "Inquiry" portion on the top page of a home page.

Hitachi power semiconductor home page address

http://www.hitachi-power-semiconductor-device.co.jp/

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HITACHI POWER SEMICONDUCTORS

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