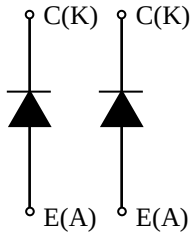
MDM1200FH33F

FEATURES

- Low Reverse Recovery Loss diode module.
- Low noise recovery: Ultra soft fast recovery diode.
- High reverse recovery capability:
  Super HiRC Structure.
- High reliability, high durability diodes.
- Isolated heat sink (terminal to base).

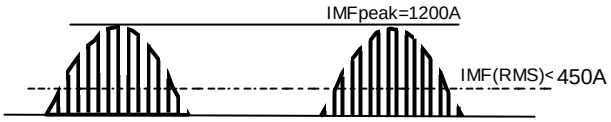
CIRCUIT DIAGRAM



ABSOLUTE MAXIMUM RATINGS (TC=25℃)

Item		Symbol	Unit	MDM1200FH33F
Repetitive Peak Reverse Voltage		V_{RRM}	V	3,300
Forward Current	AC peak	I_{MFpeak}	A	1,200
	1ms	I_{Fpulse}		2,400
Junction Temperature		Tj	°C	-50 ～ +150
Maximum Junction Temperature		$T_{vj\ max}$	°C	150 (1)
Storage Temperature		Tstg	°C	-50 ～ +150 (2)
Isolation Test Voltage	Terminals-base	V_{ISO}	V_{RMS}	10,200 (AC 1 minute)
Screw Torque	Terminals (M8)	-	N·m	10 (3)
	Mounting (M6)	-		6 (4)

Notes: (1) Regarding the definition of $T_{vj\ max}$ for each operation mode, please refer to LD-ES-130737.
(2) Terminal temperature shall not exceed the specified temperature in any operation.
(3) Recommended Value 9±1N·m (4) Recommended Value 5.5±0.5N·m



ELECTRICAL CHARECTERISTICS

Item	Symbol	Unit	Min.	Typ.	Max.	Test Conditions
Repetitive Reverse Current	I_{RRM}	mA	-	12	20	VR=3,300V, Tj=150°C
Forward Voltage Drop	V_F	V	2.9	3.3	3.6	IF=1,200A, Tj=150°C
Reverse Recovery Time	trr	μs	-	0.9	-	V_R=1,800V, IF=1,200A, di/dt=-6000A/μs, Ls=135nH, Tj=150°C, Rg=4.7Ω (5)
Reverse Recovery Current	Irr	A	-	1600	-	
Reverse Recovery Charge	Qrr	μC	-	1700	-	
Reverse Recovery Loss	E_{rr}	J/P	-	2.3	-	
I^2t value	I^2t	kA^2s	400	-	-	$T_{j,start}$=150°C, 10ms, V_R=0V, half-sinewave

PACKAGE CHARECTERISTICS

Item	Symbol	Unit	Min.	Typ.	Max.	Test Conditions
Terminal Resistance	R_{CE}	mΩ	-	0.38	-	per arm, 25°C
Terminal Stray Inductance	L_{SCE}	nH	-	36	-	per arm
Thermal Impedance	Rth(j-c)	K/W	-	-	0.020	Junction to case (per arm)
Comparative tracking index	CTI		-	600	-	
Contact Thermal Impedance	Rth(c-f)	K/W	-	0.020	-	Case to fin (λgrease=1W/(m·K), Heat-sink flatness ≤50um)

Notes:(5) Counter arm; MBN1800FH33F 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.
* ELECTRICAL CHARACTERISTIC values according to IEC 60747–2

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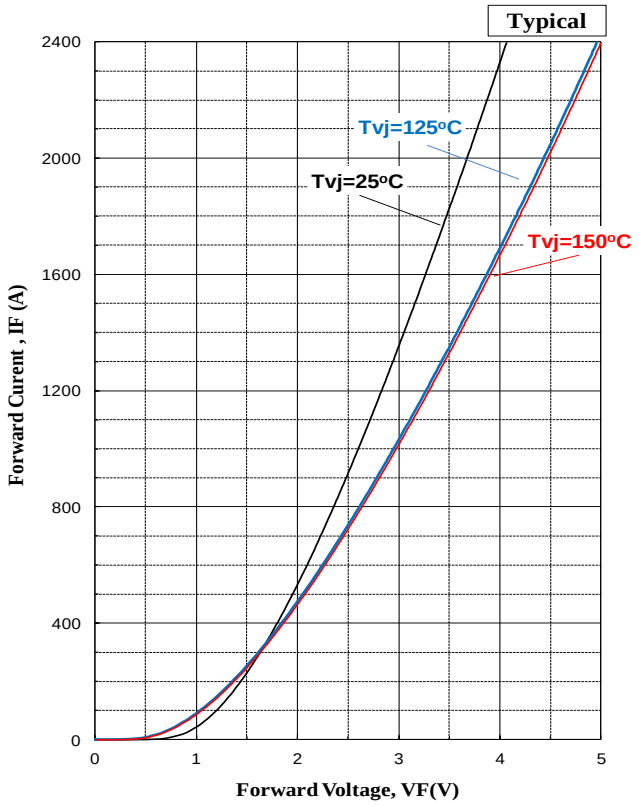
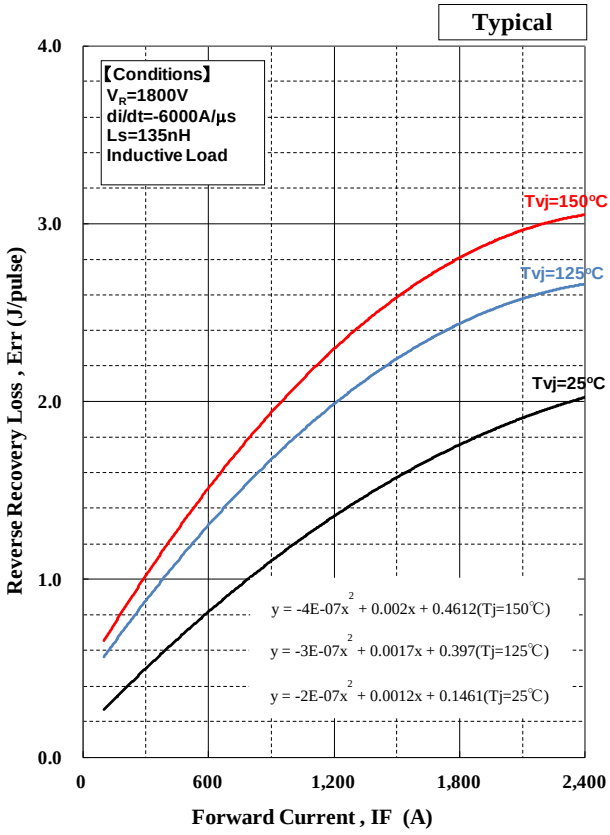
STATIC CHARACTERISTICS

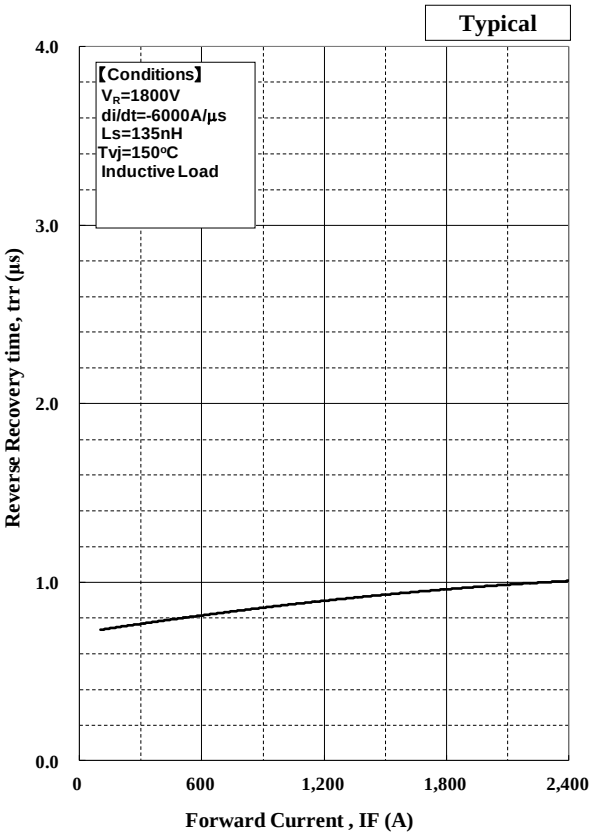


Forward Voltage of free-wheeling diode

DYNAMIC CHARACTERISTICS



Reverse Recovery Loss vs. Forward Current



Reverse Recovery time vs. Forward Current

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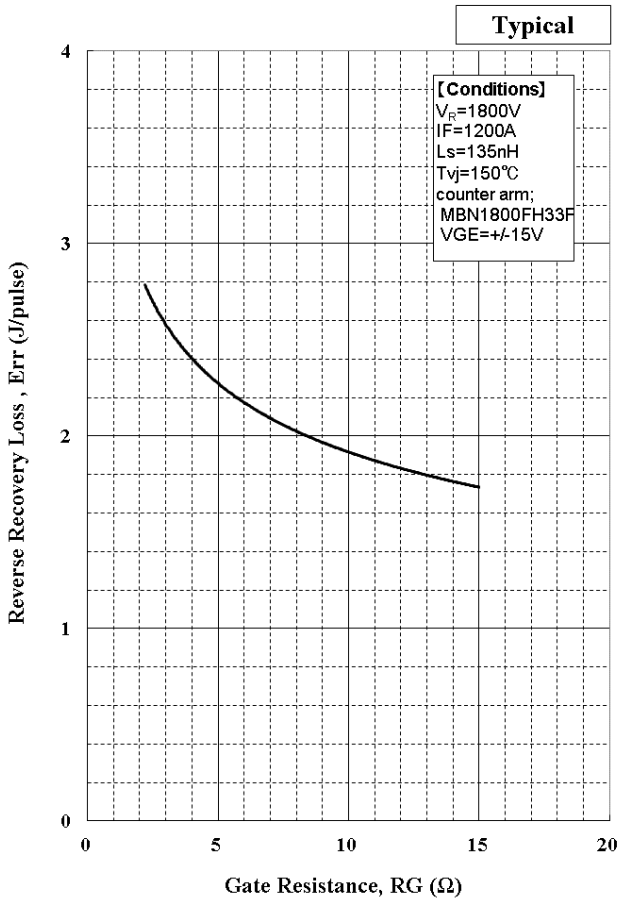
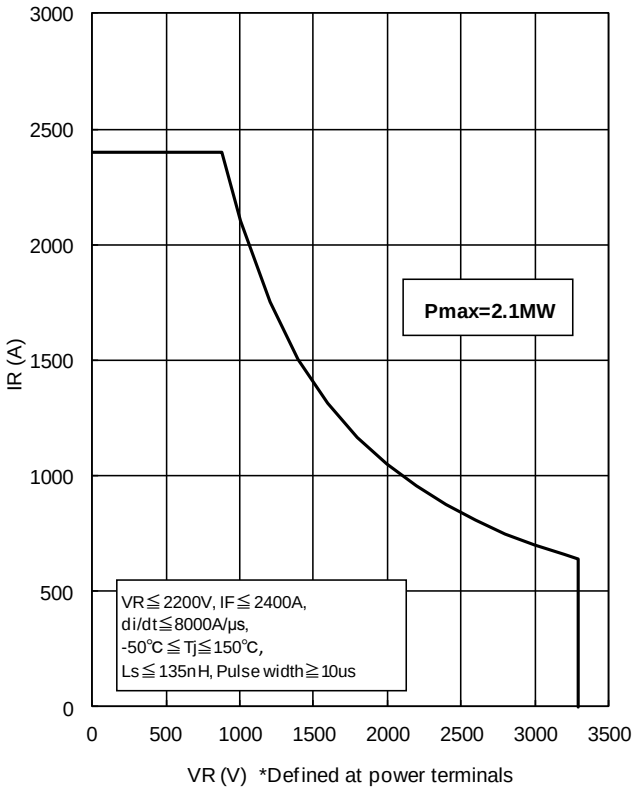


Recovery Loss vs.Gate Resistance



RecSOA

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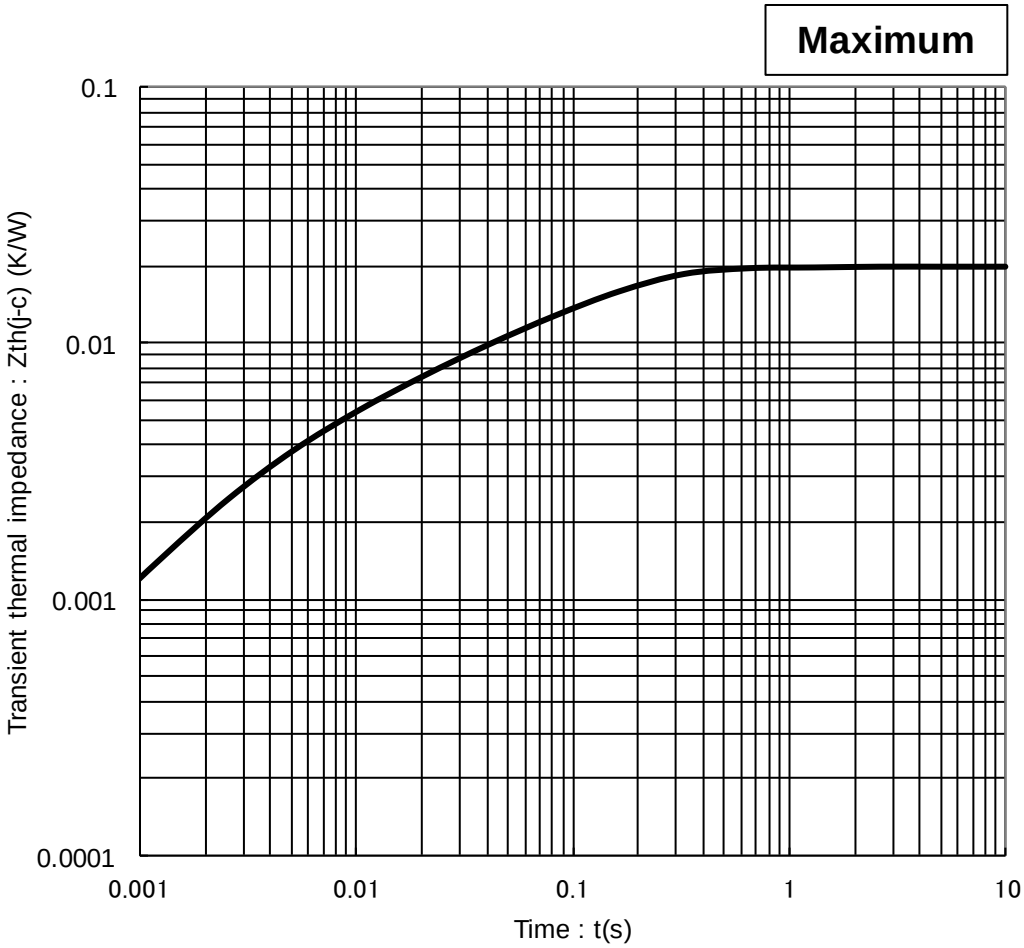
TRANSIENT THERMAL IMPEDANCE



Transient Thermal Impedance Curve

Curve approximation model

(ΣZth[n]*(1-exp(-t/τth[n])))

n	1	2	3	4	Unit
τth[n]	0.003	0.03	0.1	0.3	sec
Zth[n,Diode]	3.77E-03	2.70E-03	1.12E-02	2.35E-03	K/W

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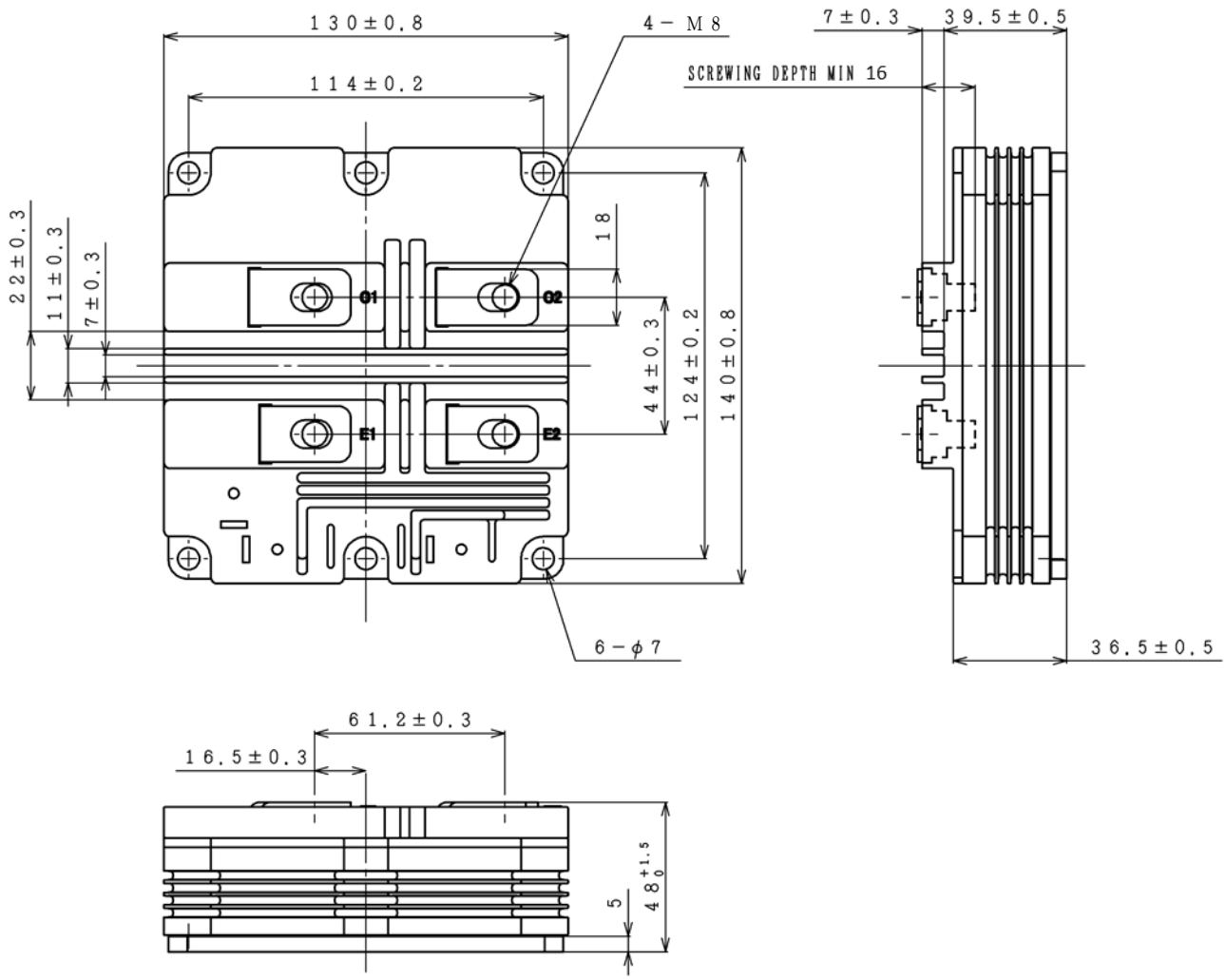
OUTLINE DRAWING

Unit in mm



Weight: 1000(g)

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HITACHI POWER SEMICONDUCTORS

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