

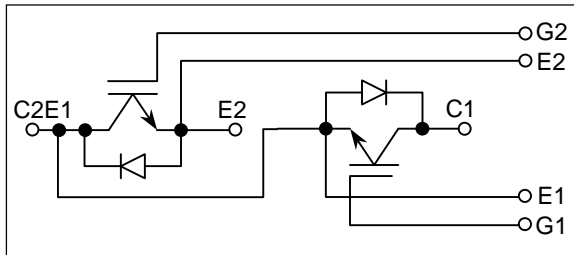
MBM100GR12A

[Rated 100A 1200V, Dual-pack type]

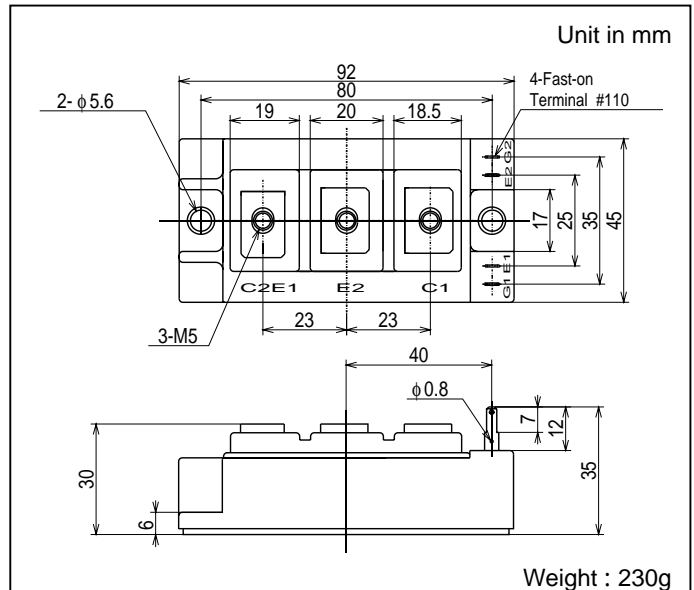
FEATURES

- Low saturation voltage and high speed.
- Low turn-OFF switching loss.
- Low noise due to built-in free-wheeling diode.
(Ultra Soft and Fast recovery Diode (USFD))
- High reliability structure.
- Isolated heat sink (terminals to base).

CIRCUIT DIAGRAM



OUTLINE DRAWING



ABSOLUTE MAXIMUM RATINGS (T_C=25°C)

Item	Symbol	Unit	Value	
Collector-Emitter Voltage	V _{CEs}	V	1200	
Gate-Emitter Voltage	V _{GES}	V	±20	
Collector Current	DC	I _C	100	
	1ms	I _{CP}	200	
Forward Current	DC	I _F	100 ^{*1}	
	1ms	I _{FM}	200	
Collector Power Dissipation	P _C	W	690	
Junction Temperature	T _j	°C	-40 ~ +150	
Storage Temperature	T _{stg}	°C	-40 ~ +125	
Isolation Voltage	V _{iso}	V _{RMS}	2500(AC 1 minute)	
Screw Torque	Terminals	—	N·m	1.96 ^{*2}
	Mounting			1.96 ^{*3}

Notes; *1 : RMS current of diode ≤ 30 Arms

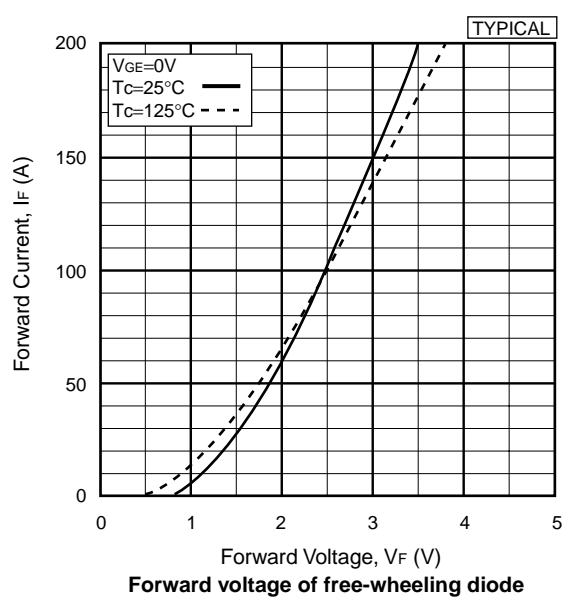
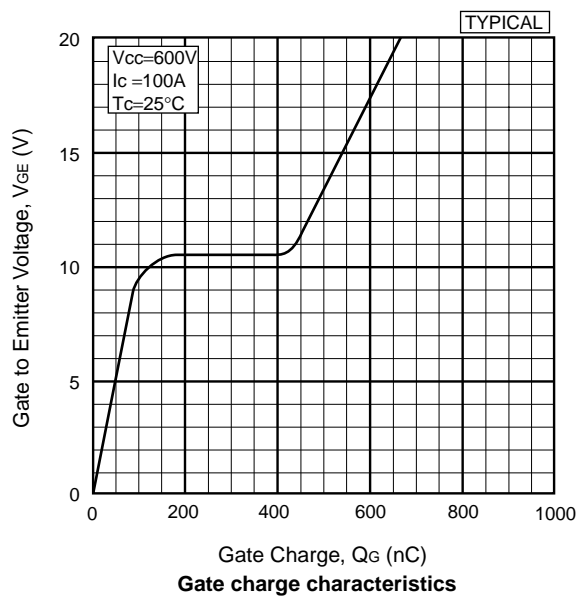
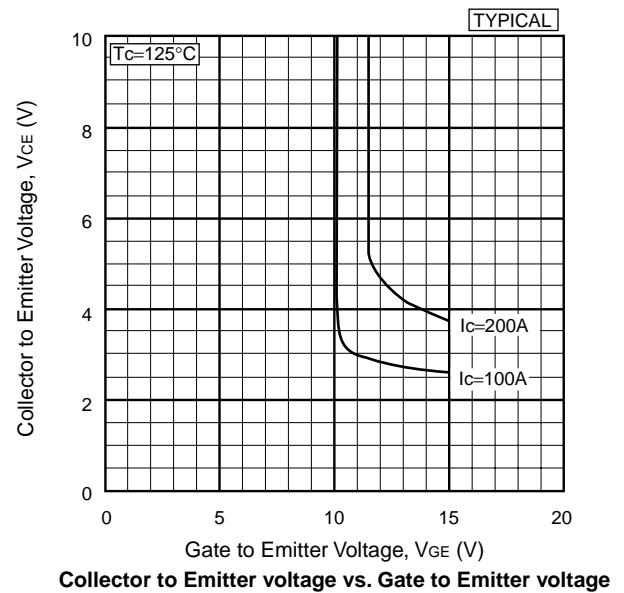
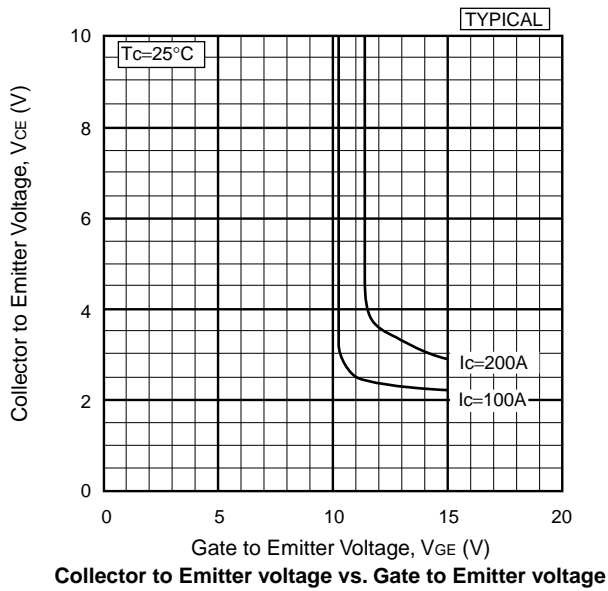
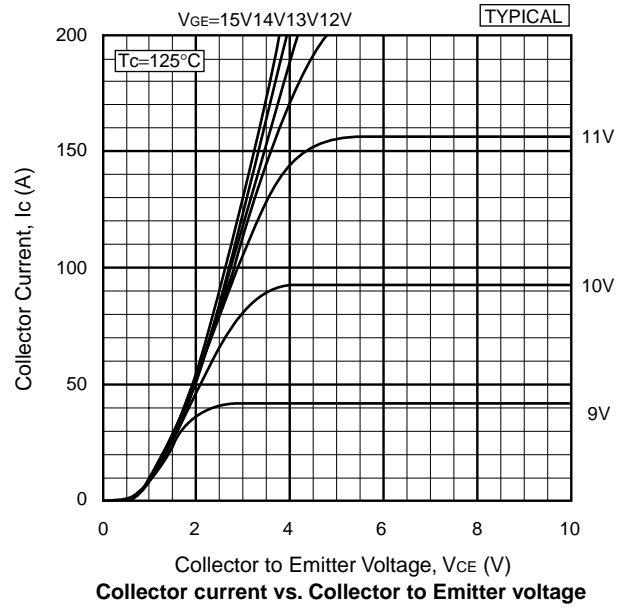
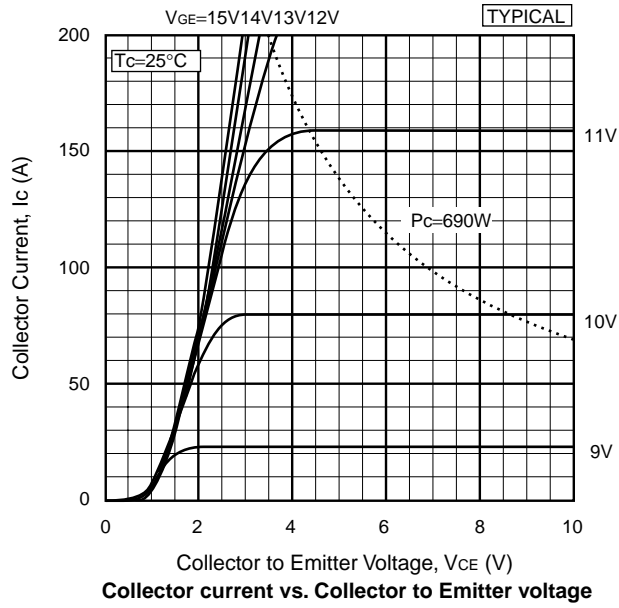
*2, *3 : Recommended value 1.67 N·m

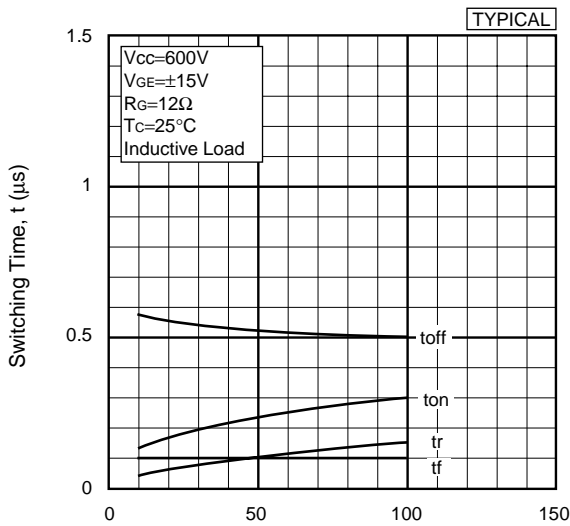
CHARACTERISTICS (T_C=25°C)

Item	Symbol	Unit	Min.	Typ.	Max.	Test Conditions	
Collector-Emitter Cut-Off Current	I _{CEs}	mA	—	—	1.0	V _{CE} =1200V, V _{GE} =0V	
Gate-Emitter Leakage Current	I _{GES}	nA	—	—	±500	V _{GE} =±20V, V _{CE} =0V	
Collector-Emitter Saturation Voltage	V _{CE(sat)}	V	—	2.2	2.8	I _C =100A, V _{GE} =15V	
Gate-Emitter Threshold Voltage	V _{GE(TO)}	V	—	—	10	V _{CE} =5V, I _C =100mA	
Input Capacitance	C _{ies}	pF	—	9000	—	V _{CE} =10V, V _{GE} =0V, f=1MHz	
Switching Times	Rise Time	t _r	—	0.15	0.3	V _{CC} =600V, I _C =100A R _G =12Ω ^{*4} V _{GE} =±15V Inductive Load I _F =100A	
	Turn-On Time	t _{on}	—	0.3	0.6		
	Fall Time	t _f	—	0.1	0.3		
	Turn-Off Time	t _{off}	—	0.5	1.0		
Reverse Recovery Time	t _{rr}	μs	—	0.2	0.4		
Peak Forward Voltage Drop	V _{FM}	V	—	2.5	3.5	I _F =100A, V _{GE} =0V	
Thermal Impedance	IGBT	R _{th(j-c)}	°C/W	—	—	0.18	Junction to case
	FWD	R _{th(j-c)}					

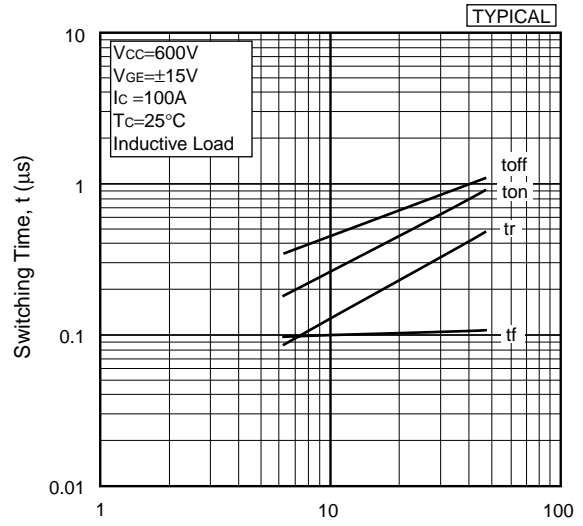
Notes; *4 : R_G value is the test condition's value for decision of the switching times, not recommended value, please determine the suitable R_G value after the measurement of switching waveforms (overshoot voltage, etc.) with appliance mounted.

Remark; For actual application, please confirm this spec. sheet is the newest revision.

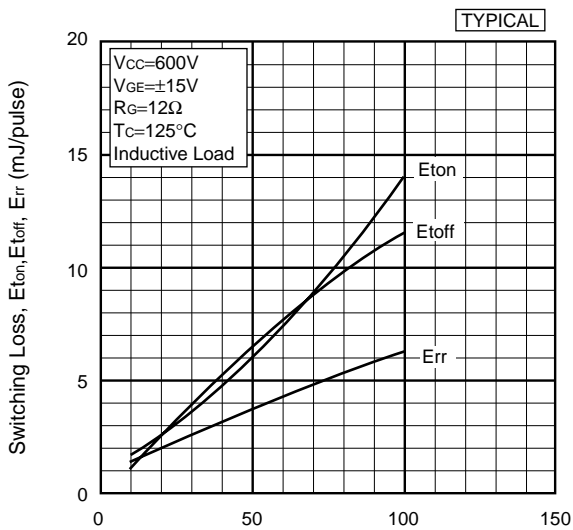




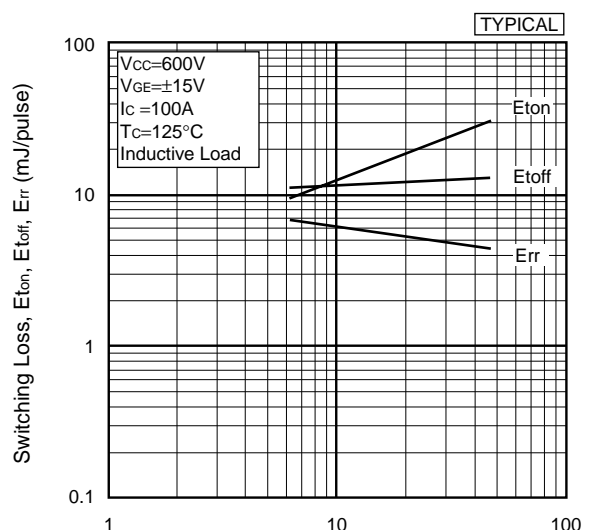
Switching time vs. Collector current



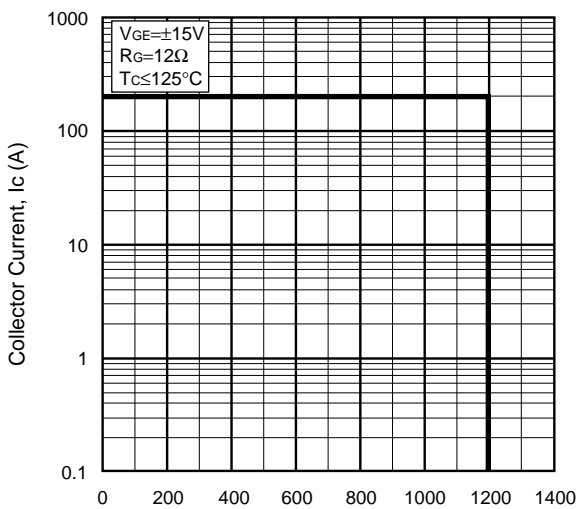
Switching time vs. Gate resistance



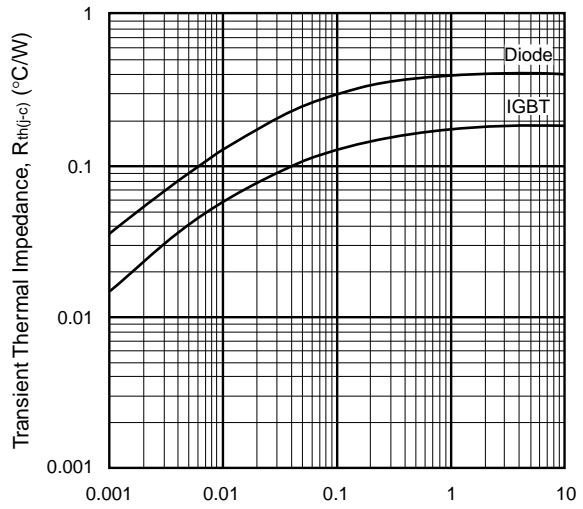
Switching loss vs. Collector current



Switching loss vs. Gate resistance



Reverse biased safe operating area



Transient thermal impedance

HITACHI POWER SEMICONDUCTORS

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