

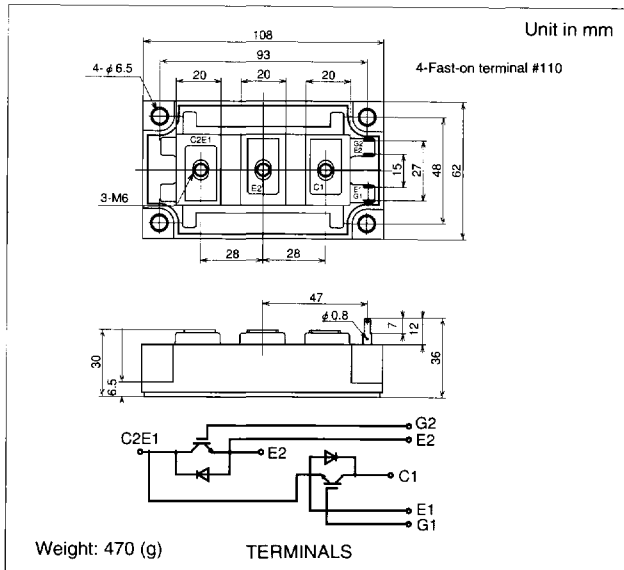
MBM200GS12EBW

Silicon N-channel IGBT

FEATURES

- High speed and low saturation voltage.
- Low noise due to built-in free-wheeling diode—ultra soft and fast recovery diode (USFD).
- Isolated heat sink (terminals to base).
- High reliability structure.

OUTLINE DRAWING



ABSOLUTE MAXIMUM RATINGS (T_c = 25°C)

Collector-Emitter Voltage		V _{CES}	V	1,200
Gate-Emitter Voltage		V _{GES}	V	± 20
Collector Current	DC	I _C	A	200
	1ms	I _{CP}		400
Forward Current	DC	I _F	A	200 ⁽¹⁾
	1ms	I _{FM}		400
Collector Power Dissipation		P _c	W	1,000
Junction Temperature		T _j	°C	-40 ~ +150
Storage Temperature		T _{stg}	°C	-40 ~ +125
Isolation Voltage		—	V _{RMS}	2,500 (AC 1 minute)
Screw Torque	Terminals	—	N·m (kgf·cm)	2.94 (30) ⁽²⁾
	Mounting	—		2.94 (30) ⁽³⁾

Notes: (1) RMS Current of Diode ≤ 90Arms

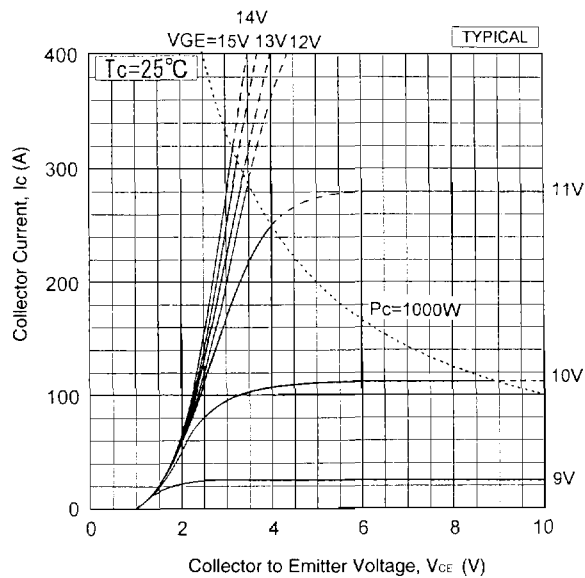
(2), (3) Recommended Value 2.45N·m (25kgf·cm)

CHARACTERISTICS (T_c = 25°C)

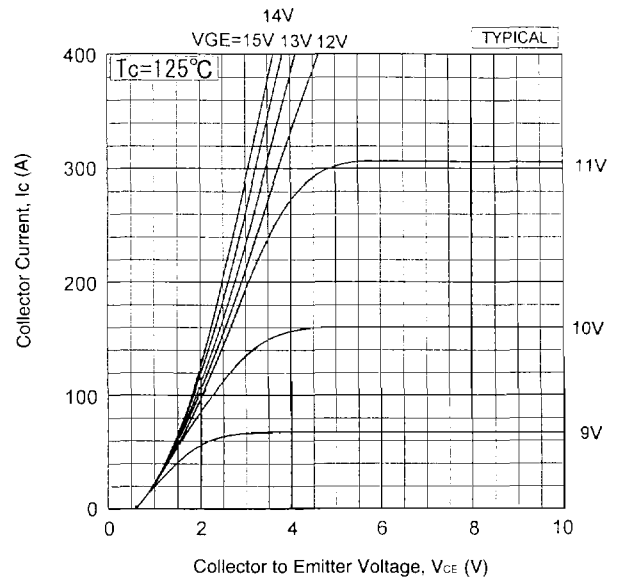
Collector-Emitter Cut-Off Current		I _{CES}	mA	—	—	1.0	V _{CE} = 1,200V, V _{GE} = 0V
Gate-Emitter Leakage Current		I _{GES}	nA	—	—	±500	V _{GE} = ±20V, V _{CE} = 0V
Collector-Emitter Saturation Voltage		V _{CE(sat)}	V	—	2.7	3.4	I _C = 200A, V _{GE} = 15V
Gate-Emitter Threshold Voltage		V _{GE(TH)}	V	—	—	10	V _{CE} = 5V, I _C = 200mA
Input Capacitance		C _{ies}	pF	—	19,000	—	V _{CE} = 10V, V _{GE} = 0V, f = 1MHz
Switching Times	Rise Time	t _r	μs	—	0.2	0.35	V _{CC} = 600V R _L = 3.0Ω R _G = 6.2Ω ⁽⁴⁾ V _{GE} = ±15V
	Turn-On Time	t _{on}		—	0.35	0.55	
	Fall Time	t _f		—	0.25	0.35	
	Turn-Off Time	t _{off}		—	0.55	1.0	
Peak Forward Voltage Drop		V _{FM}	V	—	—	3.0	I _F = 200A, V _{GE} = 0V
Reverse Recovery Time		t _{rr}	μs	—	—	0.35	I _F = 200A, V _{GE} = -10V, di/dt = 300A/μs
Thermal Impedance	IGBT	R _{th(j-c)}	°C/W	—	—	0.125	Junction to case
	FWD	R _{th(j-c)}		—	—	0.16	

Notes: (4) R_G value is the test condition's value for decision of the switching times, not recommended value.

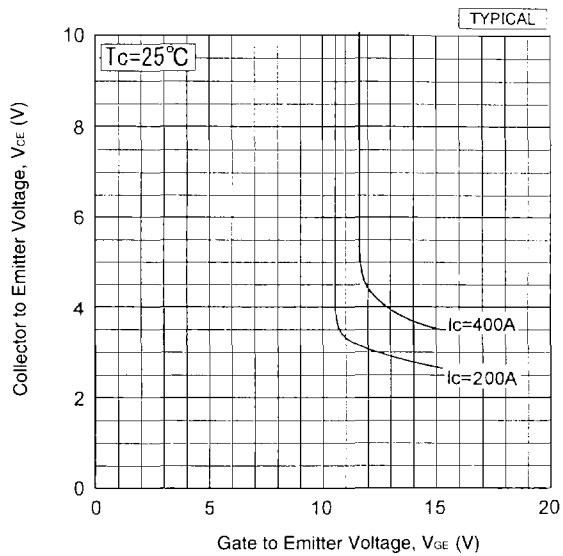
Determine the suitable R_G value after the measurement of switching waveforms (overshoot voltage, etc.) with appliance mounted.



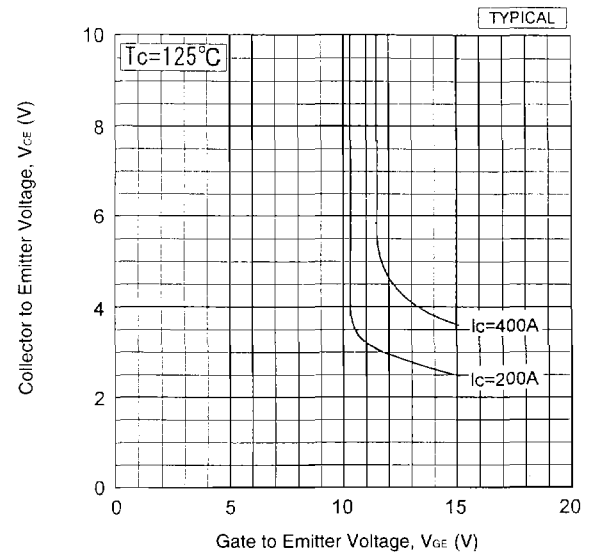
Collector current vs. Collector to Emitter voltage



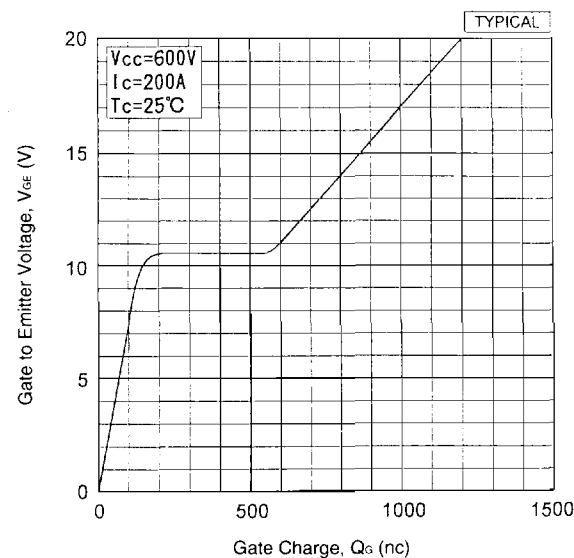
Collector current vs. Collector to Emitter voltage



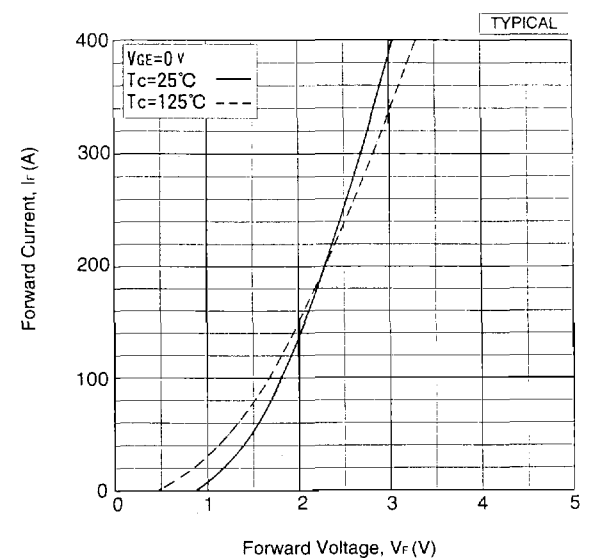
Collector to Emitter voltage vs. Gate to Emitter voltage



Collector to Emitter voltage vs. Gate to Emitter voltage



Gate charge characteristics



Forward voltage of free-wheeling diode

