

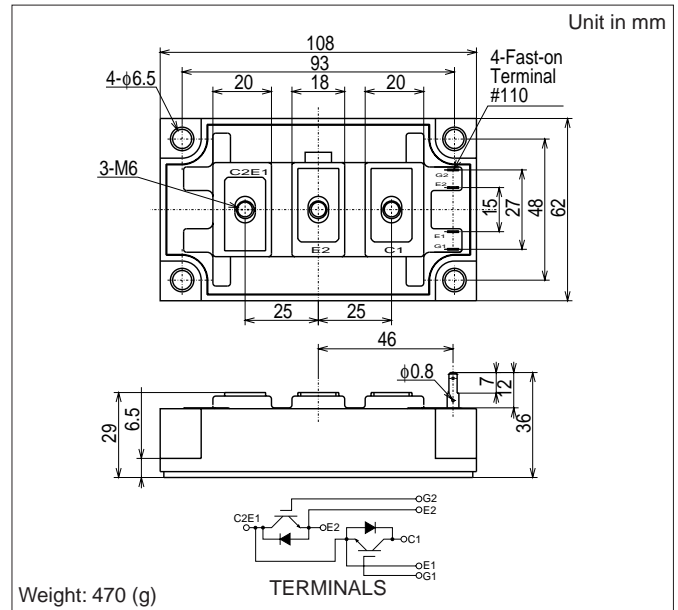
MBM400JS6AW

Silicon N-channel IGBT

OUTLINE DRAWING

FEATURES

- * High speed and low saturation voltage.
- * low noise due to built-in free-wheeling diode - ultra soft fast recovery diode(USFD).
- * Isolated head sink (terminal to base).



ABSOLUTE MAXIMUM RATINGS (T_c=25°C)

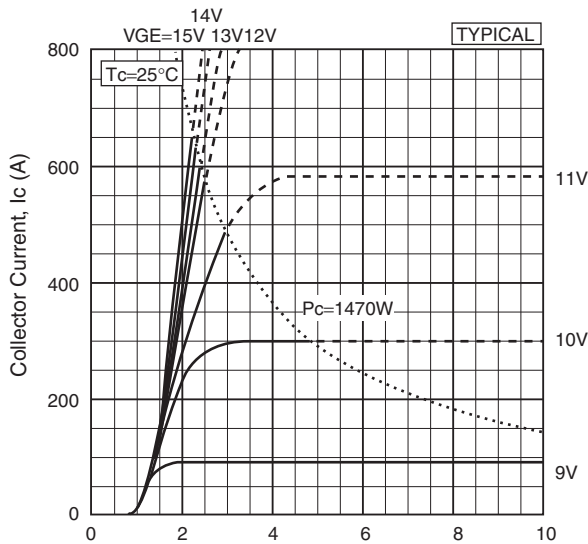
Item	Symbol	Unit	MBM400JS6AW	
Collector Emitter Voltage	V _{CES}	V	600	
Gate Emitter Voltage	V _{GES}	V	±20	
Collector Current	DC	I _C	400	
	1ms	I _{Cp}	800	
Forward Current	DC	I _F	400 (1)	
	1ms	I _{FM}	800	
Collector Power Dissipation	P _c	W	1,470	
Junction Temperature	T _j	°C	-40 ~ +150	
Storage Temperature	T _{stg}	°C	-40 ~ +125	
Isolation Voltage	V _{ISO}	V _{RMS}	2,500(AC 1 minute)	
Screw Torque	Terminals	-	2.94(30)	(2)
	Mounting	-	2.94(30)	(3)

Notes:(1)RMS Current of Diode 120Arms max.
 (2)(3)Recommended Value 2.45N.m(25kgf.cm)

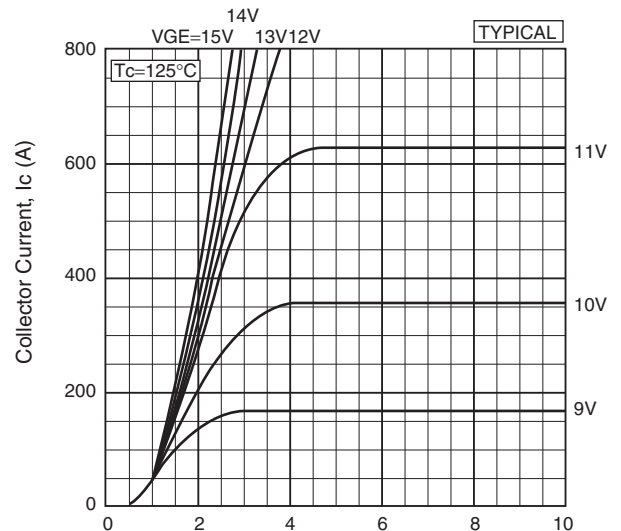
CHARACTERISTICS (T_c=25°C)

Item	Symbol	Units	Min.	Typ.	Max.	Test Conditions	
Collector Emitter Cut-Off Current	I _{CES}	mA	-	-	1.0	V _{CE} =600V, 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	-	1.9	2.4	I _C =400A, V _{GE} =15V	
Gate Emitter Threshold Voltage	V _{GE(TO)}	V	-	-	10	V _{CE} =5V, I _C =400mA	
Input Capacitance	C _{ies}	pF	-	24,000	-	V _{CE} =10V, V _{GE} =0V, f=1MHz	
Switching Times	Rise Time	t _r	-	0.25	0.5	V _{CC} =300V R _L =0.75Ω R _G =6.2Ω V _{GE} =±15V (4)	
	Turn On Time	t _{on}	-	0.35	0.7		
	Fall Time	t _f	-	0.25	0.35		
	Turn Off Time	t _{off}	-	0.8	1.1		
Peak Forward Voltage Drop	V _{FM}	V	-	2.2	3.0	I _F =400A, V _{GE} =0V	
Reverse Recovery Time	t _{rr}	μs	-	-	0.3	I _F =400A, V _{GE} =-10V, di/dt=400A/μs	
Thermal Impedance	IGBT	R _{th(j-c)}	°C/W	-	-	0.085	Junction to case
	FWD	R _{th(j-c)}	°C/W	-	-	0.22	

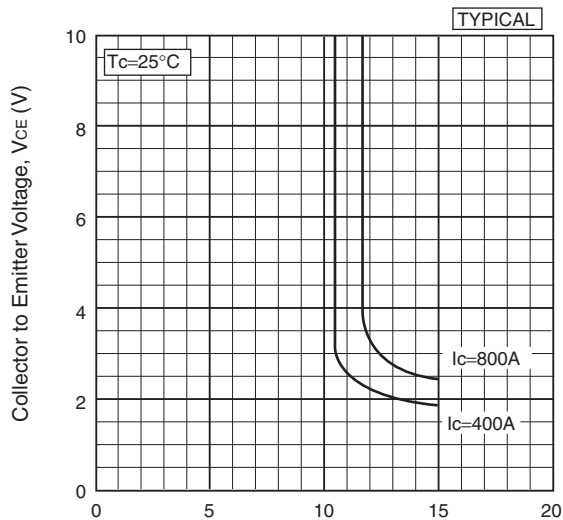
Notes:(4) R_G value is the test condition's value for decision of the switching times, not recommended value.
 Determine the suitable R_G value after the measurement of switching waveforms (overshoot voltage, etc.) with appliance mounted



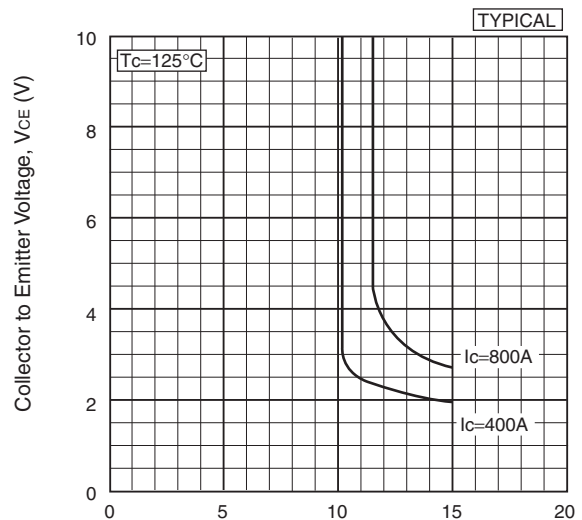
Collector current vs. Collector to Emitter voltage



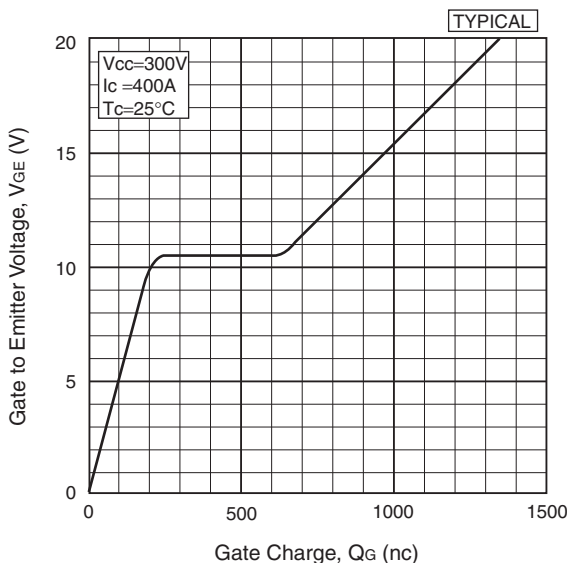
Collector current vs. Collector to Emitter voltage



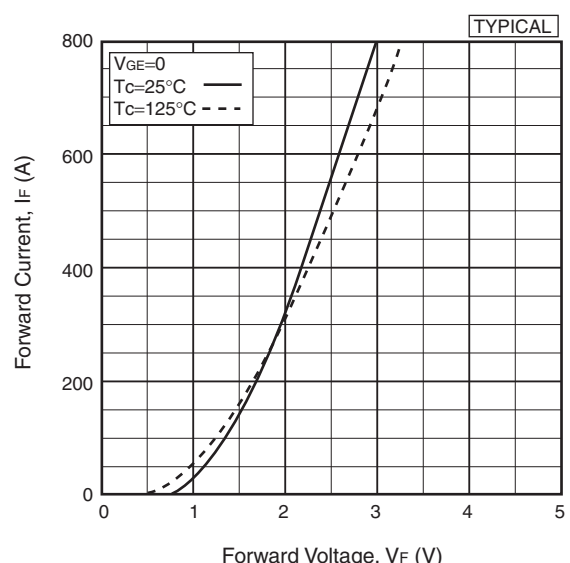
Collector to Emitter voltage vs. Gate to Emitter voltage



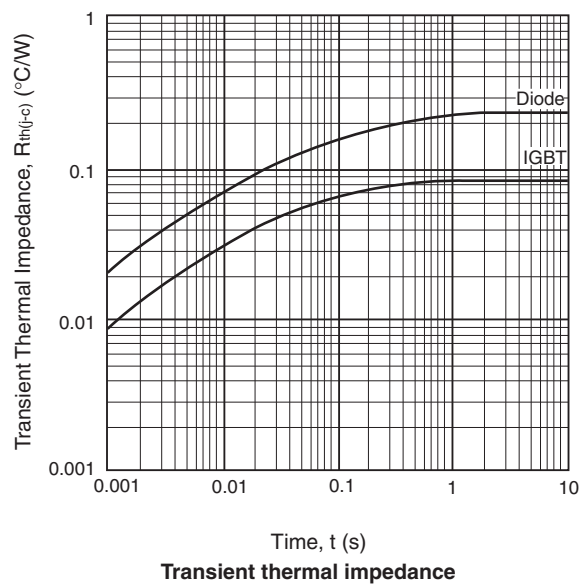
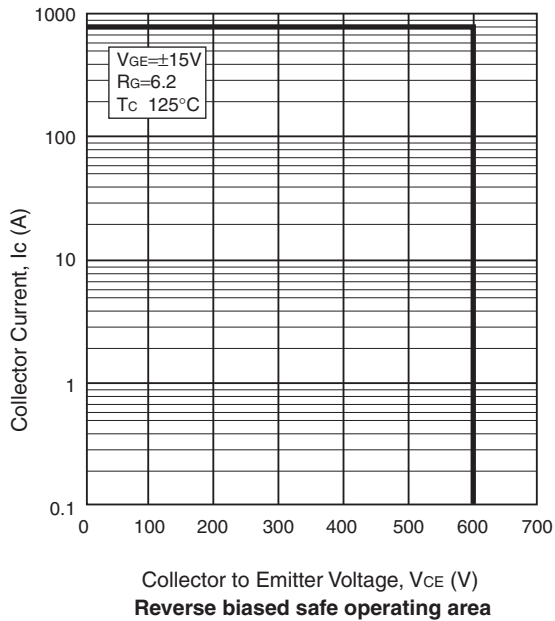
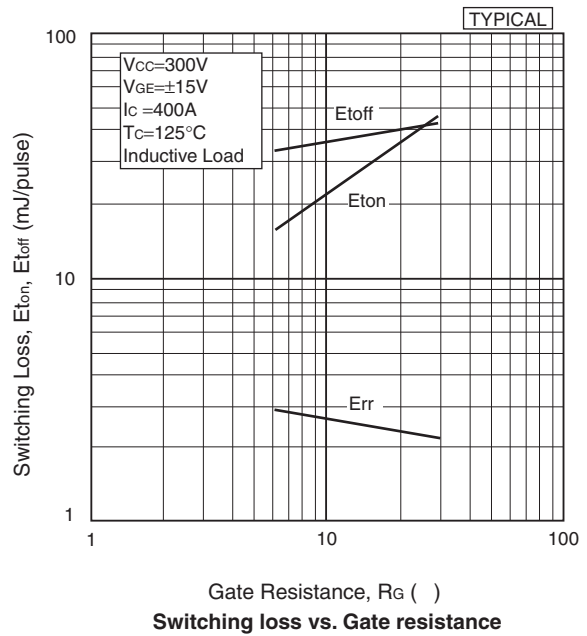
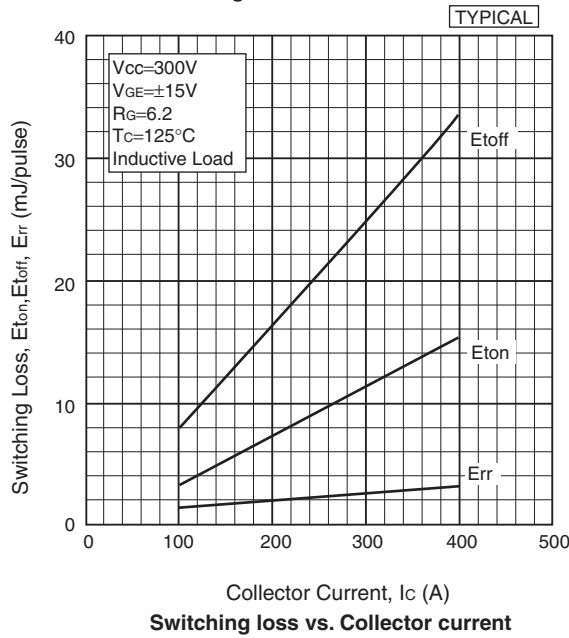
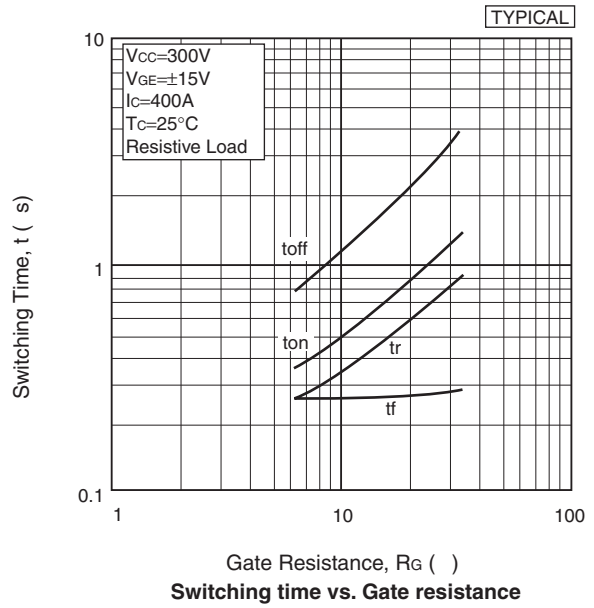
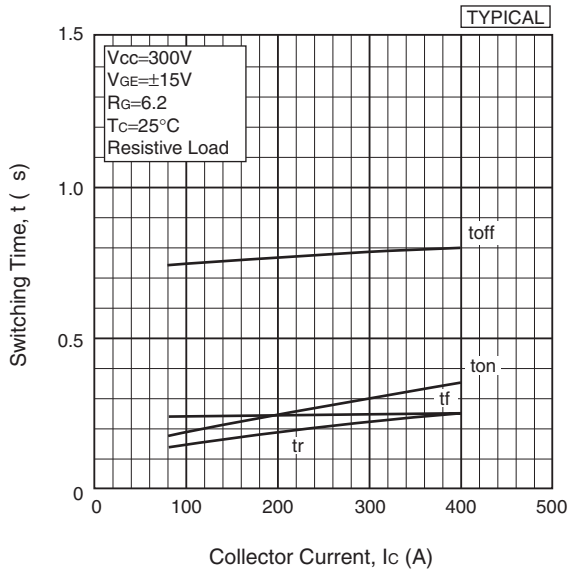
Collector to Emitter voltage vs. Gate to Emitter voltage



Gate charge characteristics



Forward voltage of free-wheeling diode



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