

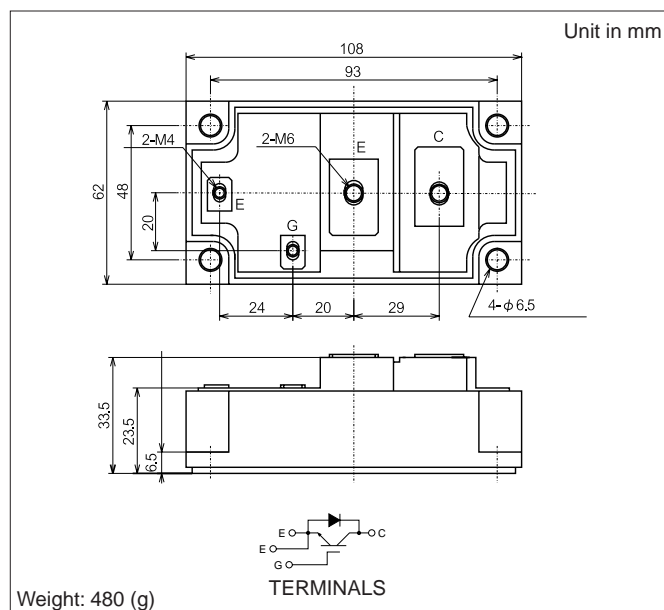
MBN400GS12BW

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	MBN400GS12BW
Collector Emitter Voltage	V _{CES}	V	1,200
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	2,000
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	-	1.37(14)/2.94(30) (2)
	Mounting	-	2.94(30) (3)

Notes:(1)RMS Current of Diode 180Arms max.

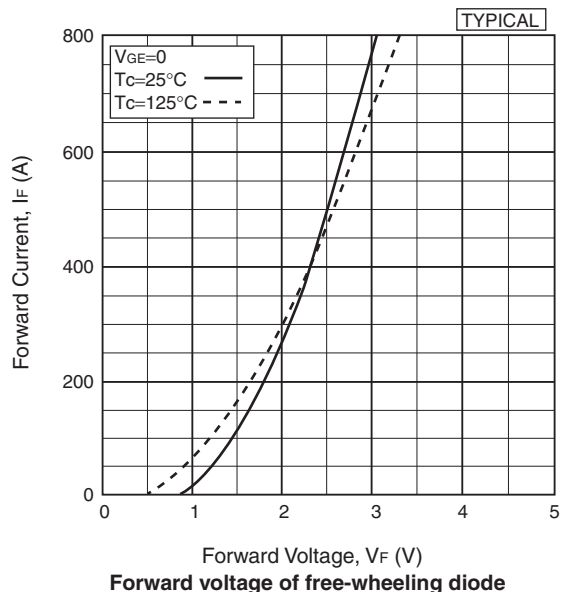
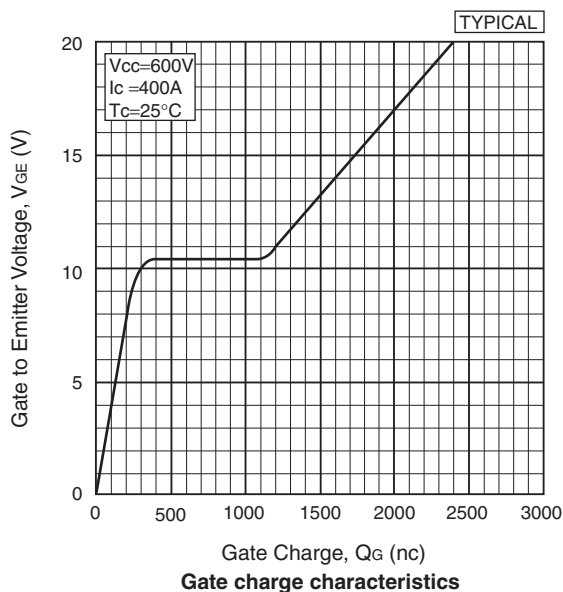
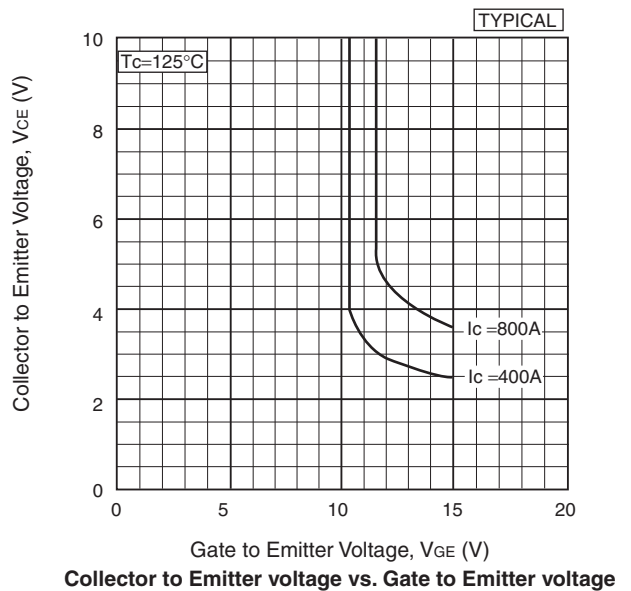
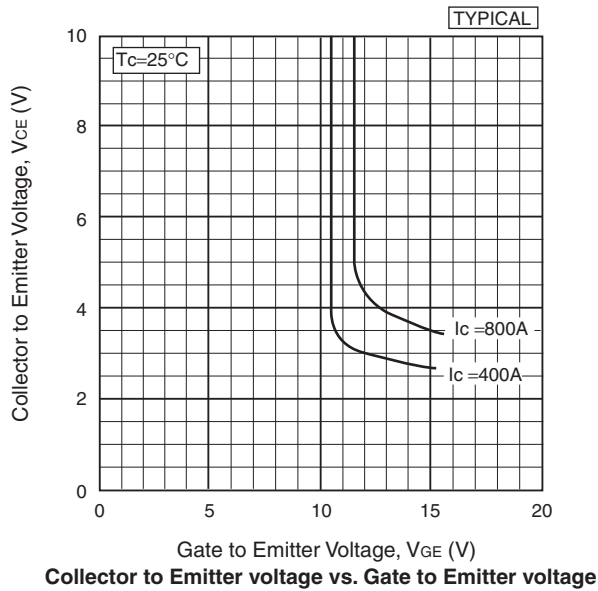
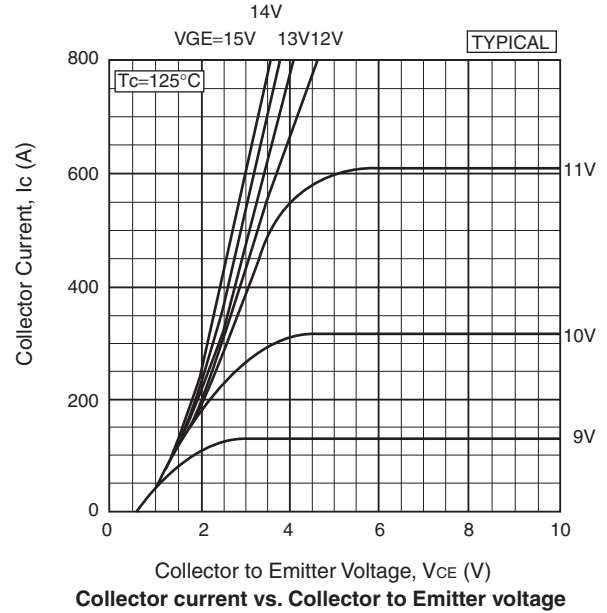
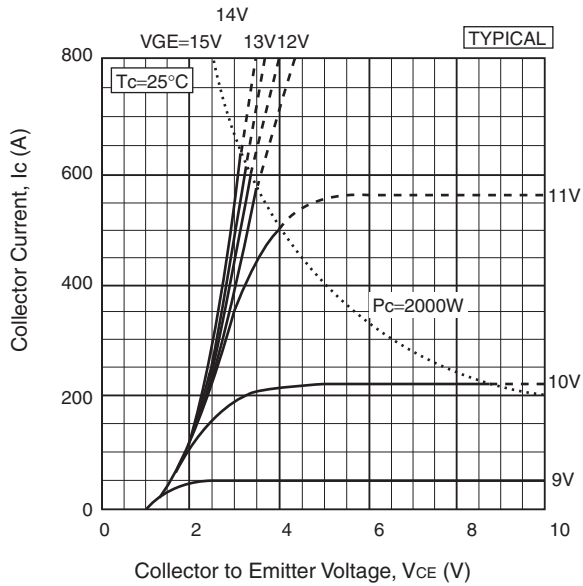
(2)Recommended Value 1.18/2.45N.m(12/25kgf.cm)

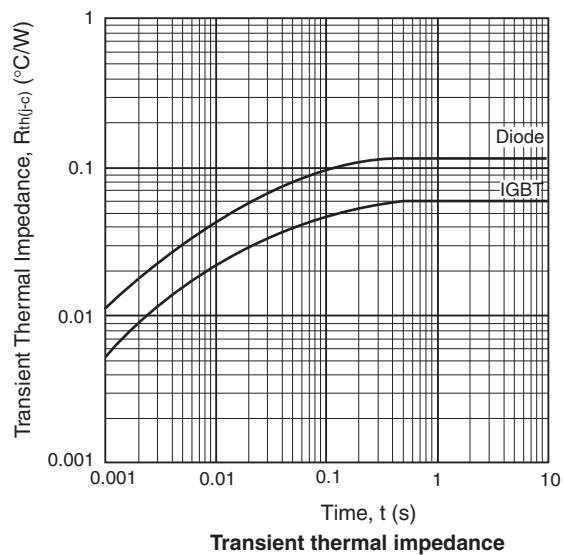
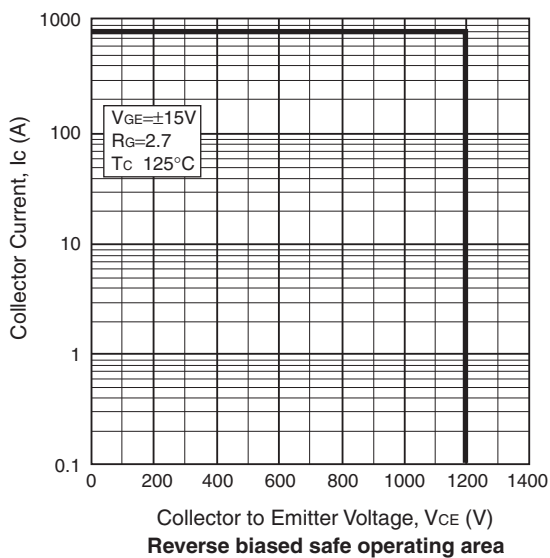
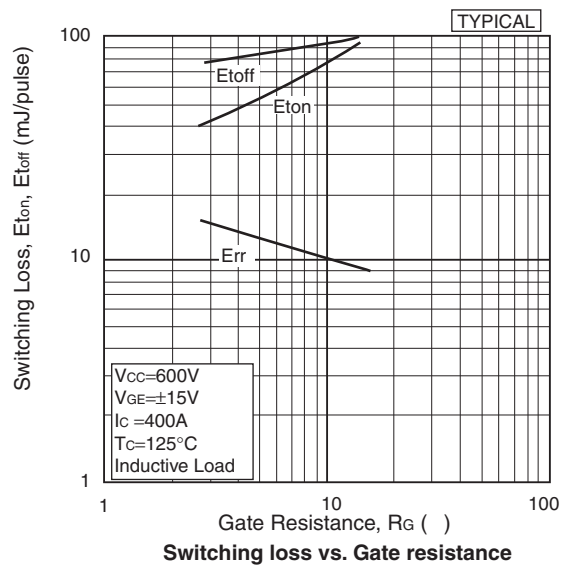
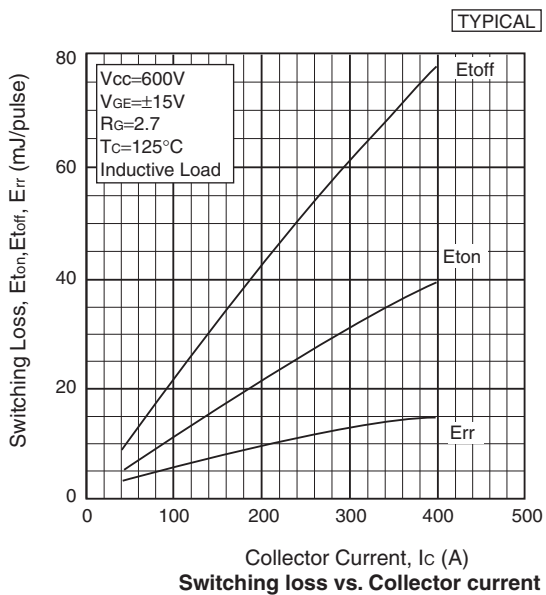
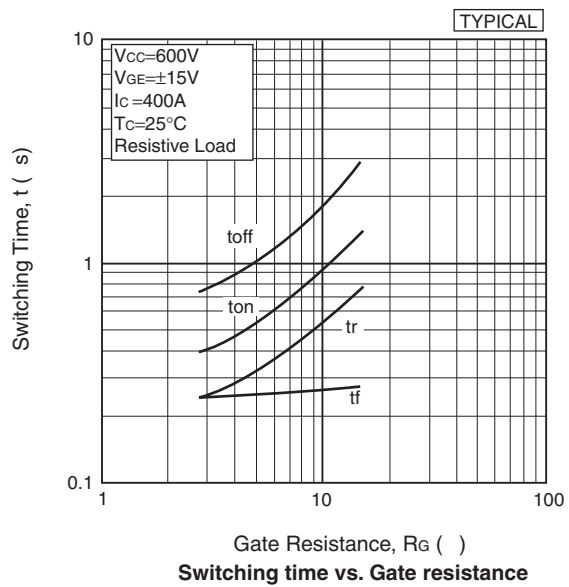
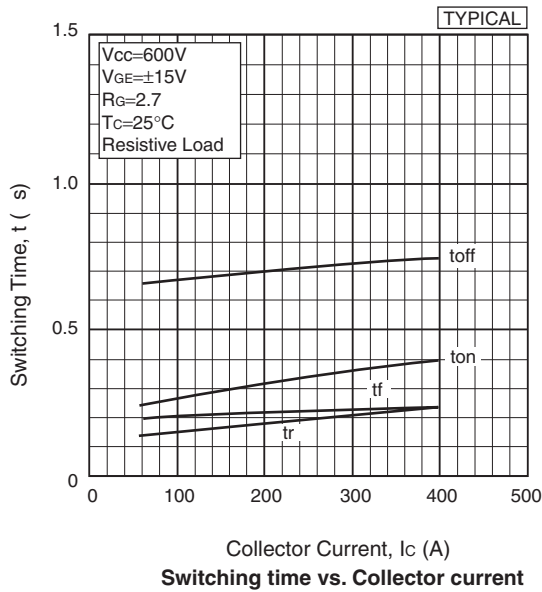
(3)Recommended Value 2.45N.m(25kgf.cm)

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} =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 =400A,V _{GE} =15V	
Gate Emitter Threshold Voltage	V _{GE(TO)}	V	-	-	10	V _{CE} =5V, I _C =400mA	
Input Capacitance	C _{ies}	pF	-	37,000	-	V _{CE} =10V,V _{GE} =0V,f=1MHz	
Switching Times	Rise Time	t _r	-	0.25	0.5	V _{CC} =600V R _L =1.5Ω R _G =2.7Ω V _{GE} =±15V (4)	
	Turn On Time	t _{on}	-	0.4	0.7		
	Fall Time	t _f	-	0.25	0.35		
	Turn Off Time	t _{off}	-	0.75	1.1		
Peak Forward Voltage Drop	V _{FM}	V	-	-	3.5	I _F =400A,V _{GE} =0V	
Reverse Recovery Time	t _{rr}	μs	-	-	0.4	I _F =400A,V _{GE} =-10V, di/dt=400A/μs	
Thermal Impedance	IGBT	R _{th(j-c)}	°C/W	-	-	0.06	Junction to case
	FWD	R _{th(j-c)}	°C/W	-	-	0.12	

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.





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