

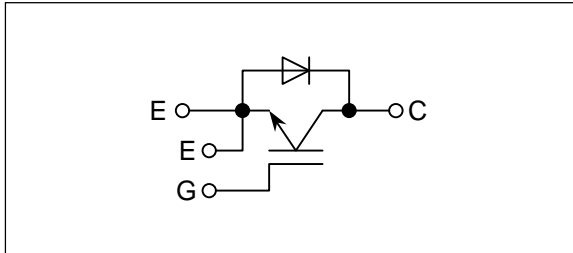
MBN400GR12A

[Rated 400A/1200V, Single-pack type]

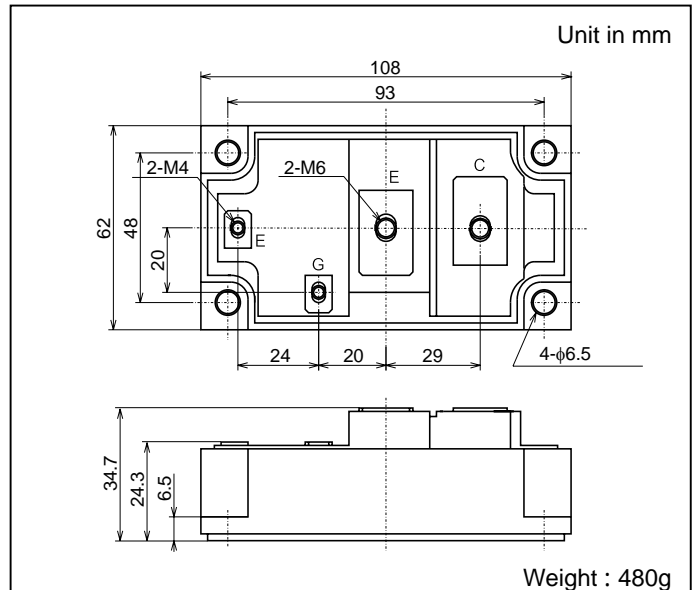
FEATURES

- 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	400
	1ms	I _{CP}	800
Forward Current	DC	I _F	400 ^{*1}
	1ms	I _{FM}	800
Collector Power Dissipation	P _C	W	2500
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(M4/M6)	—	1.37 / 2.94 ^{*2}
	Mounting		2.94 ^{*3}

Notes; *1 : RMS current of diode ≤ 120 Arms

*2 : Recommended value 1.18 / 2.45 N·m

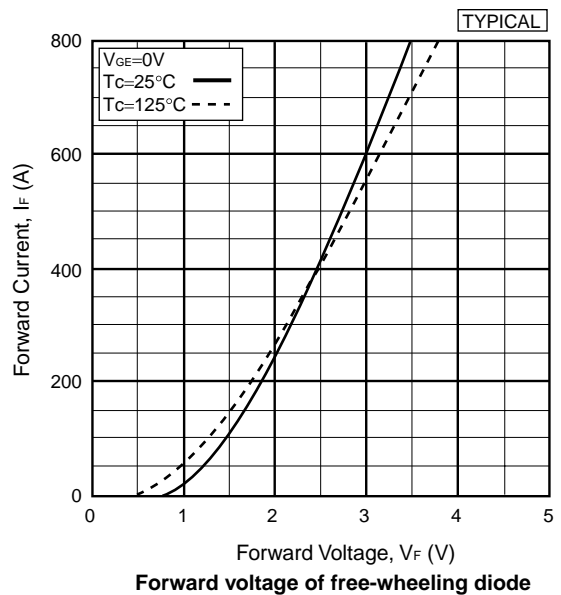
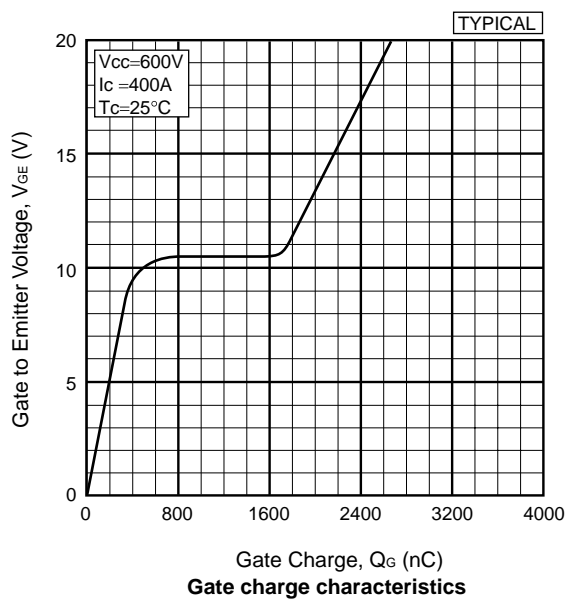
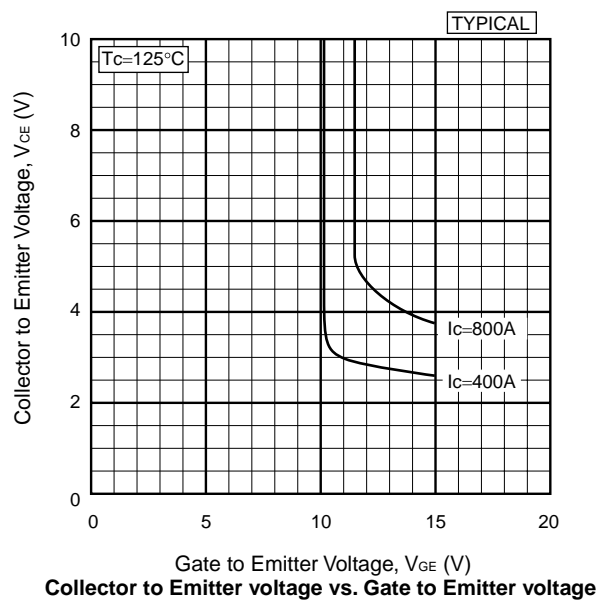
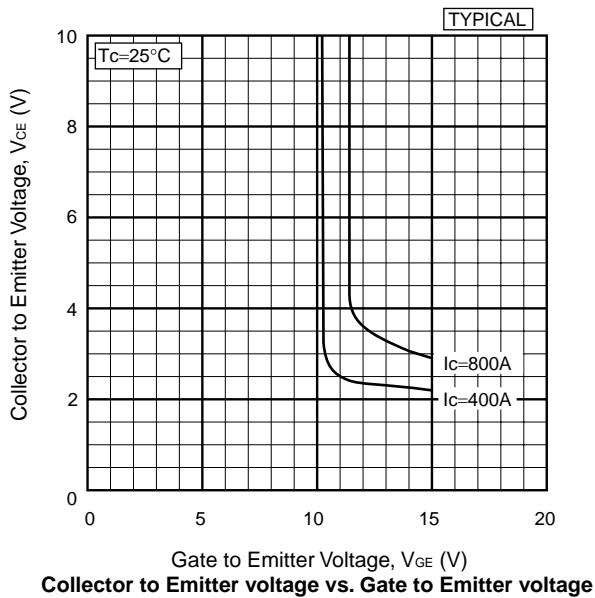
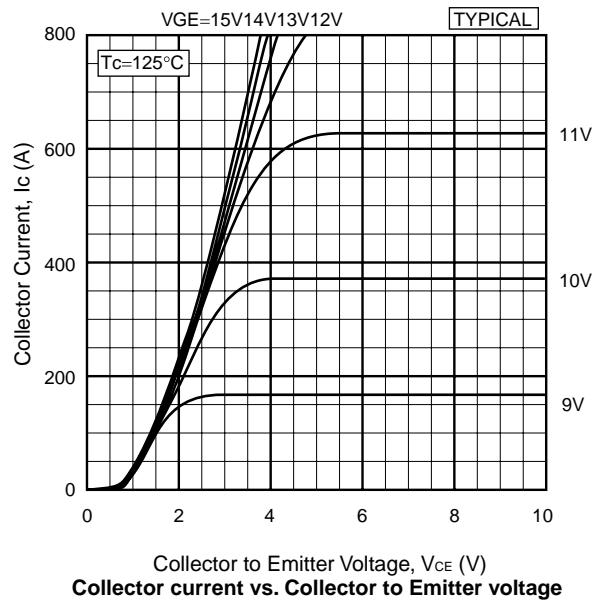
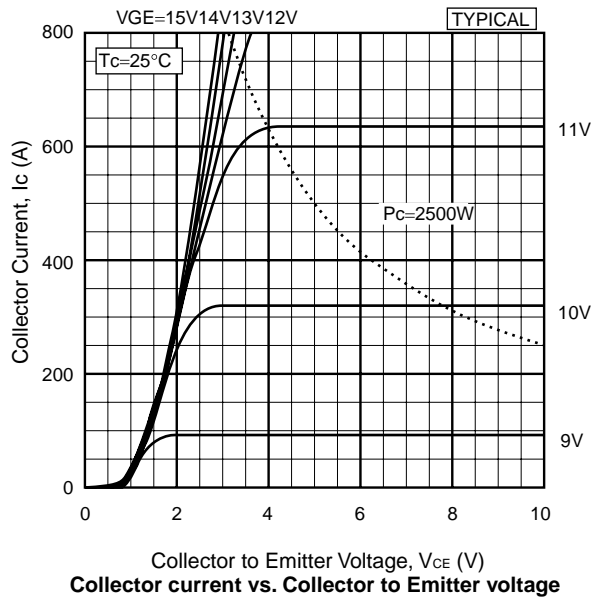
*3 : Recommended value 2.45 N·m

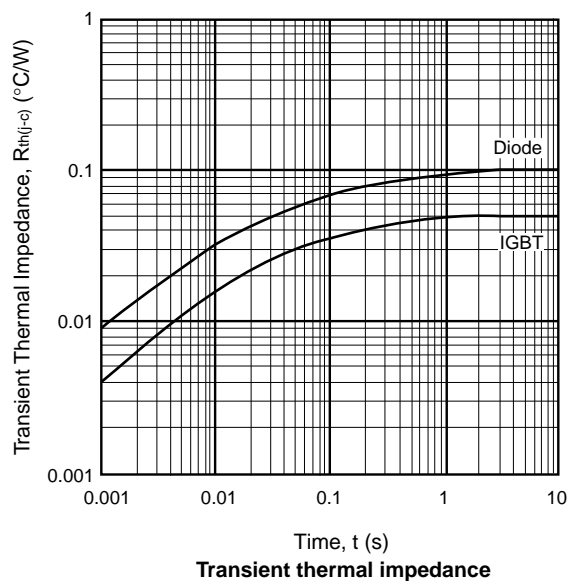
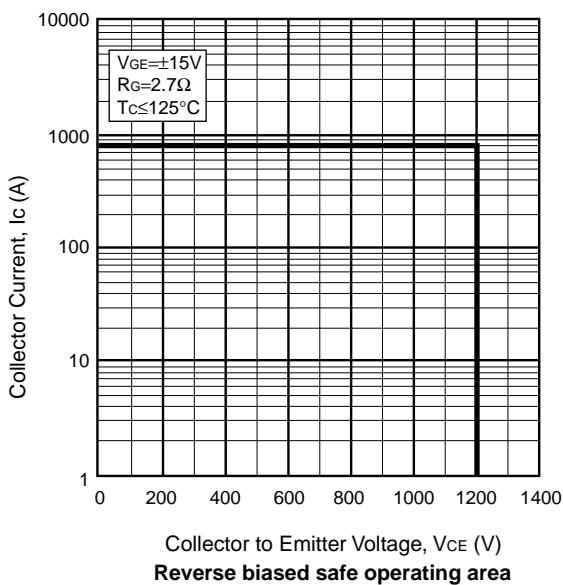
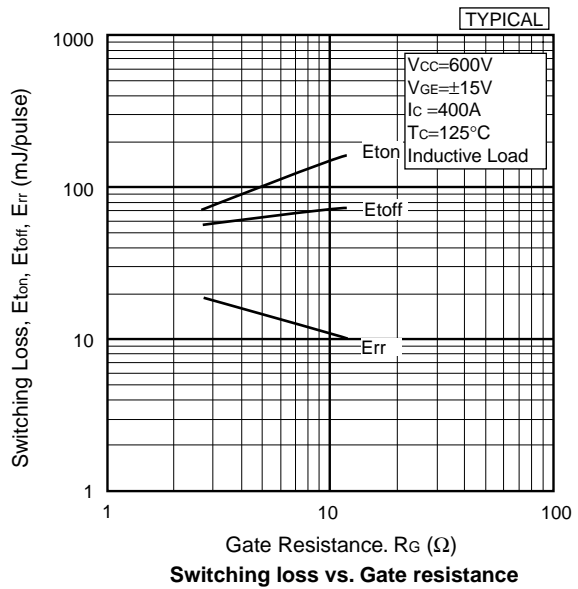
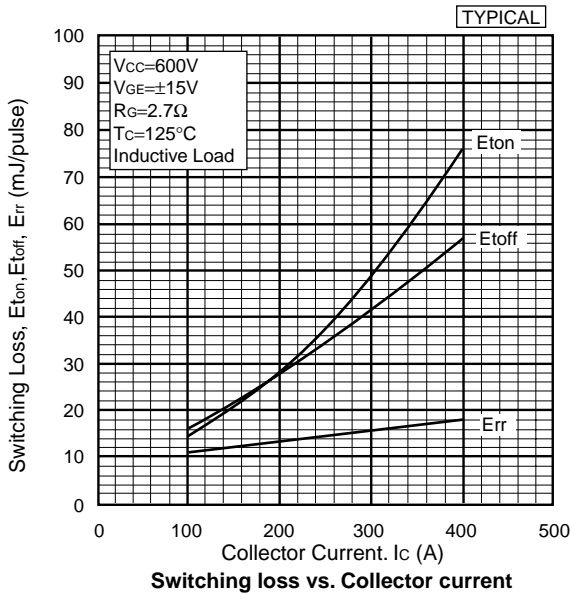
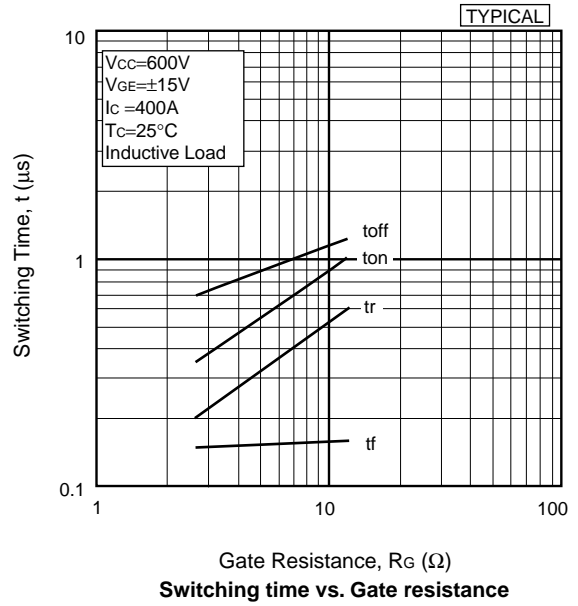
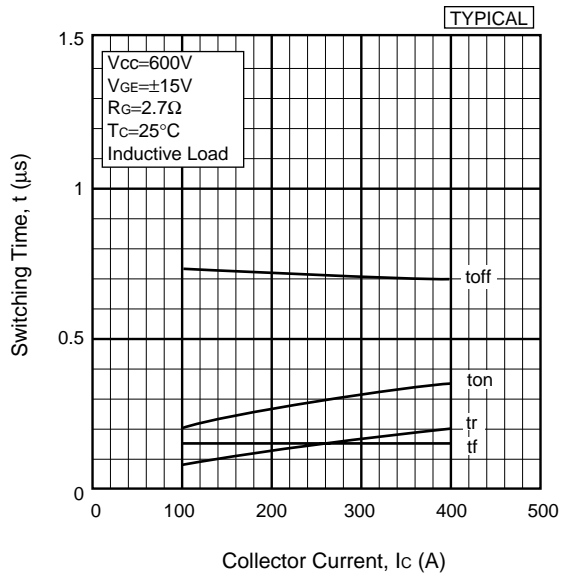
CHARACTERISTICS (T_c=25°C)

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 =400A, V _{GE} =15V	
Gate-Emitter Threshold Voltage	V _{GE(To)}	V	—	—	10	V _{CE} =5V, I _C =400mA	
Input Capacitance	C _{ies}	pF	—	36000	—	V _{CE} =10V, V _{GE} =0V, f=1MHz	
Switching Times	Rise Time	t _r	—	0.2	0.5	V _{CC} =600V, I _C =400A R _G =2.7Ω ^{*4} V _{GE} =±15V Inductive Load	
	Turn-On Time	t _{on}	—	0.35	0.7		
	Fall Time	t _f	—	0.15	0.3		
	Turn-Off Time	t _{off}	—	0.7	1.1		
Peak Forward Voltage Drop	V _{FM}	V	—	2.5	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	—	—	0.05	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.





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