

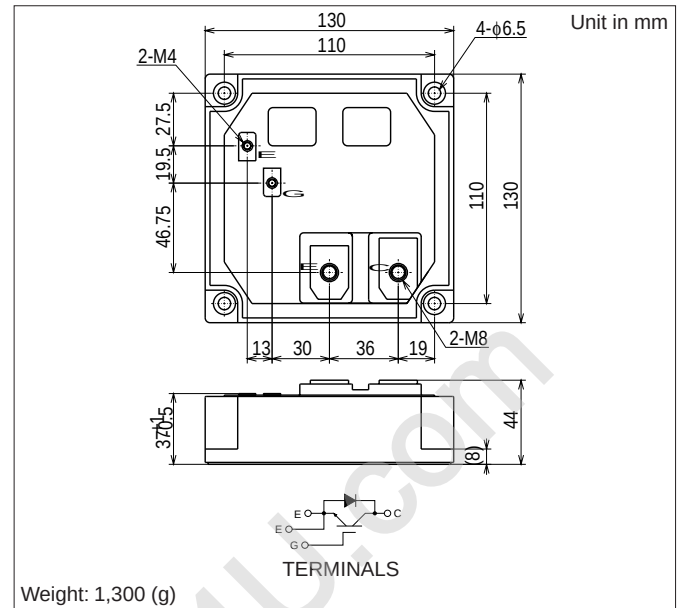
MBN1200GS12AW

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 (Tc=25°C)

Item		Symbol	Unit	MBN1200GS12AW
Collector Emitter Voltage		V_{CES}	V	1,200
Gate Emitter Voltage		V_{GES}	V	±20
Collector Current	DC	I_C	A	1,200
	1ms	I_{CP}		2,400
Forward Current	DC	I_F	A	1,200 (1)
	1ms	I_{FM}		2,400
Collector Power Dissipation		P_C	W	5,600
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	-	N.m (kgf.cm)	1.37(14)/7.84(80) (2)
	Mounting	-		2.94(30) (3)

Notes:(1)RMS Current of Diode 360Arms max.

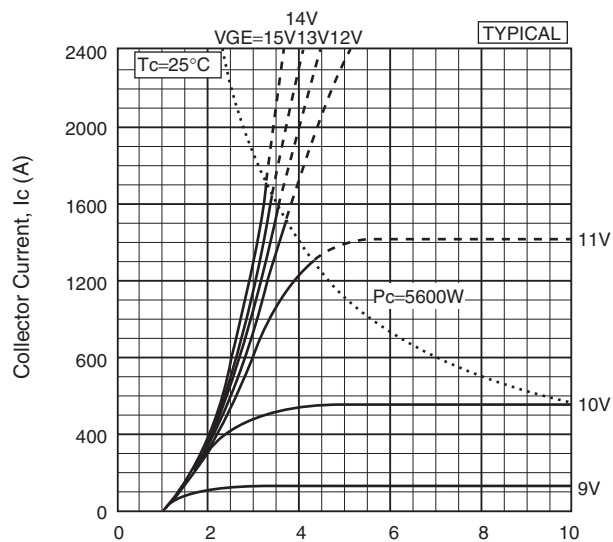
(2)Recommended Value 1.18/7.35N.m(12/75kgf.cm)

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

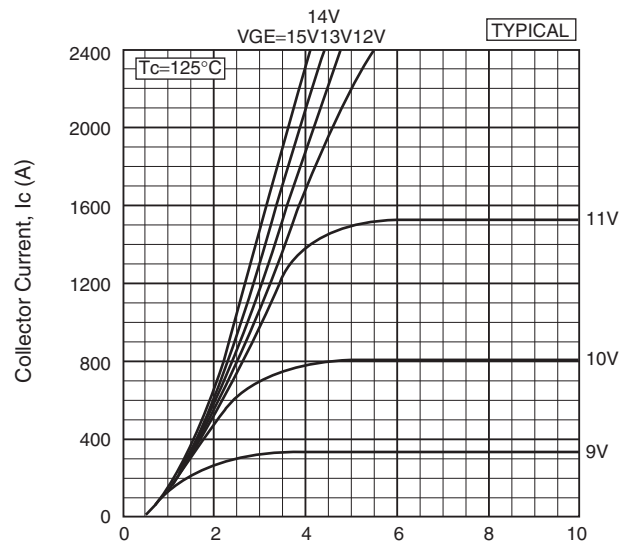
CHARACTERISTICS (Tc=25°C)

Item		Symbol	Unit	Min.	Typ.	Max.	Test Conditions
Collector Emitter Cut-Off Current		I_{CES}	mA	-	-	2.0	$V_{CE}=1,200V, V_{GE}=0V$
Gate Emitter Leakage Current		I_{GES}	nA	-	-	±500	$V_{GE}=±20V, V_{CE}=0V$
Collector Emitter Saturation Voltage		$V_{CE(sat)}$	V	-	2.9	3.6	$I_C=1,200A, V_{GE}=15V$
Gate Emitter Threshold Voltage		$V_{GE(TH)}$	V	-	-	10	$V_{CE}=5V, I_C=1,200mA$
Input Capacitance		C_{ies}	nF	-	112	-	$V_{CE}=10V, V_{GE}=0V, f=1MHz$
Switching Times	Rise Time	t_r	μs	-	0.6	1.6	$V_{CC}=600V$
	Turn On Time	t_{on}		-	0.8	2.2	$R_L=0.5Ω$
	Fall Time	t_f		-	0.45	0.55	$R_G=3.3Ω$ (4)
	Turn Off Time	t_{off}		-	1.4	1.6	$V_{GE}=±15V$
Peak Forward Voltage Drop		V_{FM}	V	-	2.5	3.7	$I_F=1,200A, V_{GE}=0V$
Reverse Recovery Time		t_{rr}	μs	-	-	0.5	$I_F=1,200A, V_{GE}=10V, di/dt=1200A/μs$
Thermal Impedance	IGBT	$R_{th(j-c)}$	°C/W	-	-	0.022	Junction to case
	FWD	$R_{th(j-c)}$		-	-	0.05	

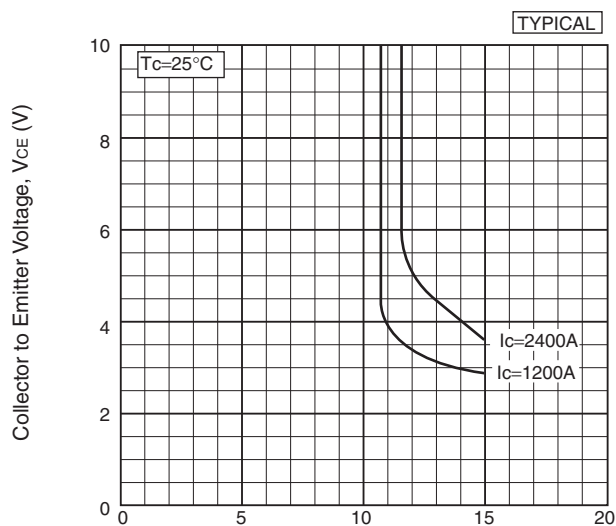
Notes:(4) R_G value is the test condition's value for decision of the switching times, not recommended value.Determine the suitable R_G value after the measurement of switching waveforms (overshoot voltage, etc.) with appliance mounted.



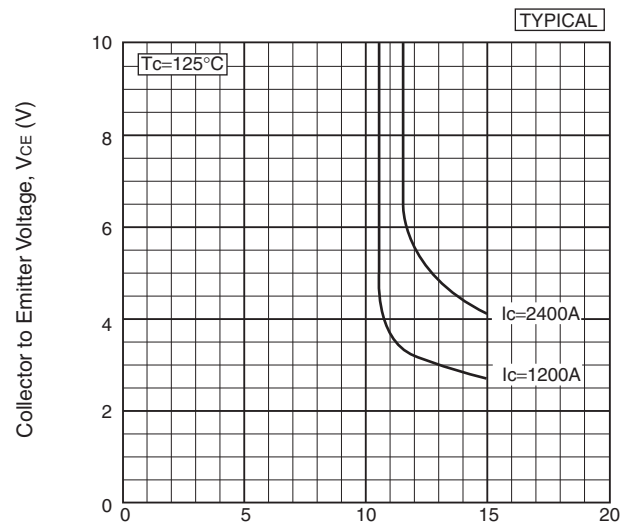
Collector current vs. Collector to Emitter voltage



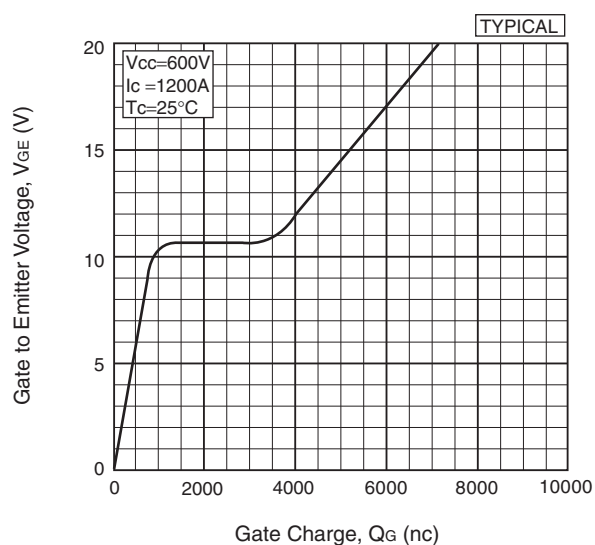
Collector current vs. Collector to Emitter voltage



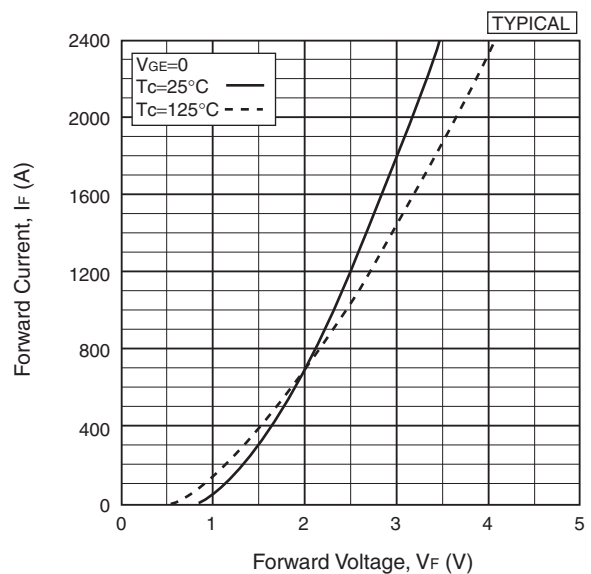
Collector to Emitter voltage vs. Gate to Emitter voltage



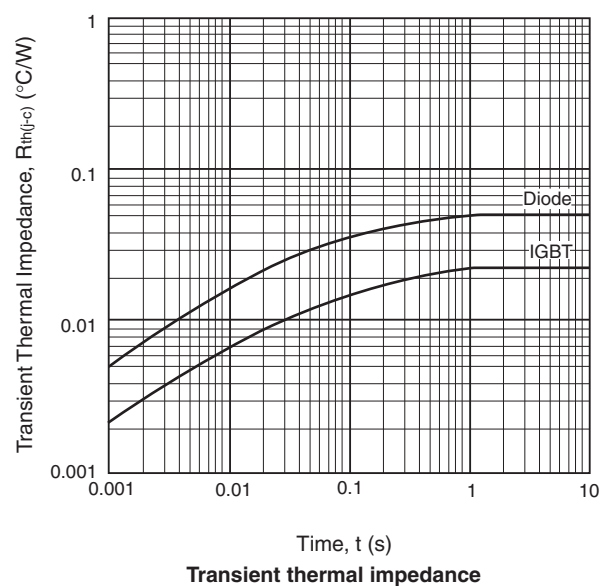
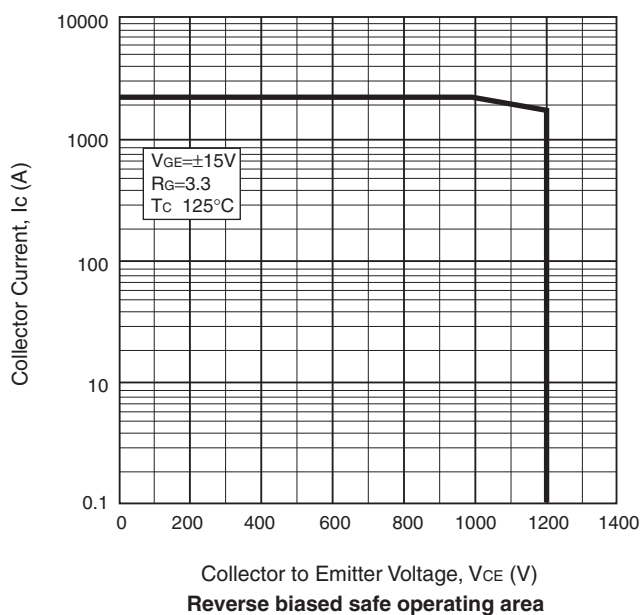
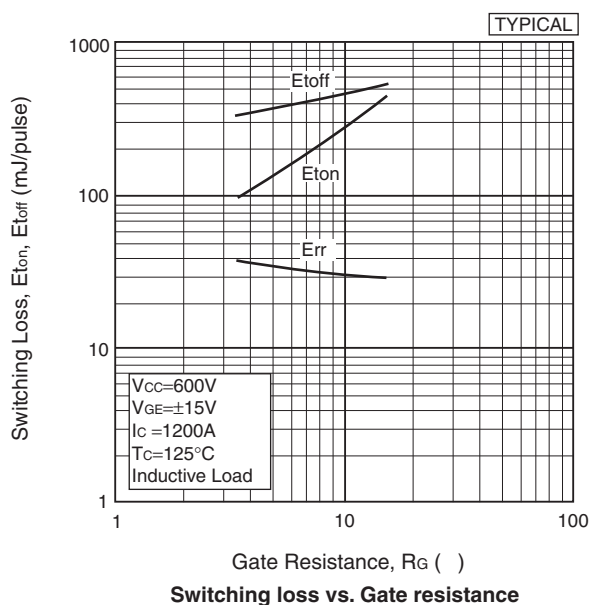
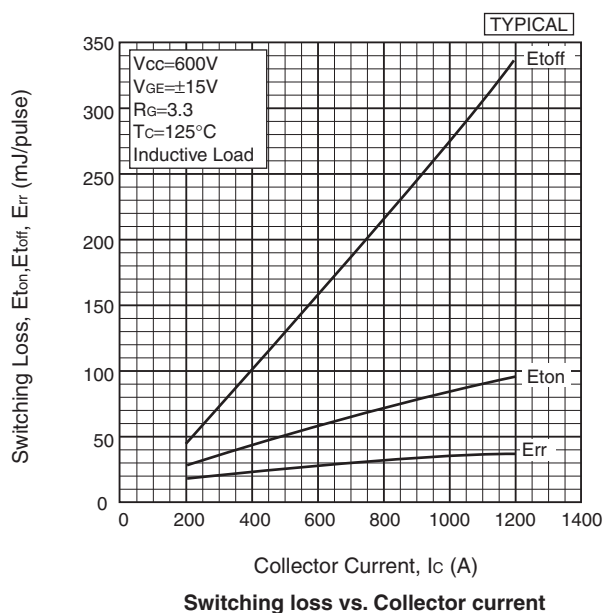
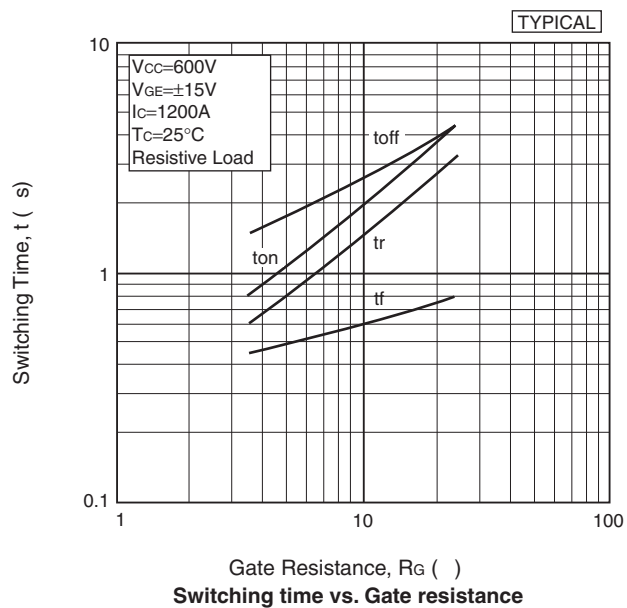
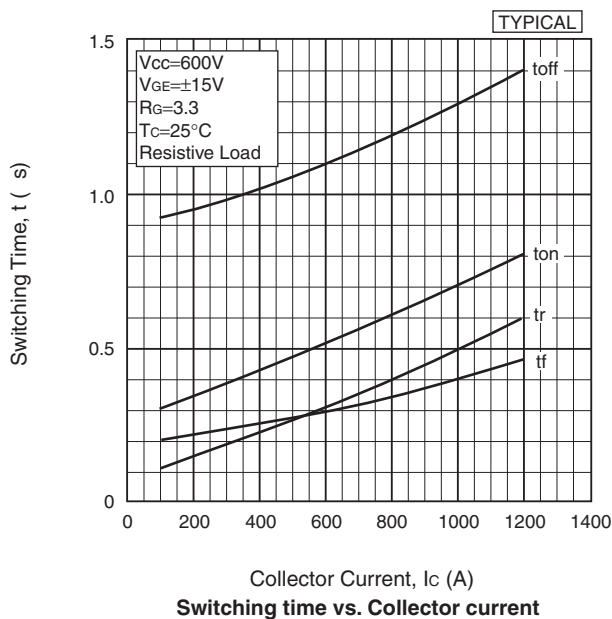
Collector to Emitter voltage vs. Gate to Emitter voltage



Gate charge characteristics



Forward voltage of free-wheeling diode



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