

2MBI100S-120

IGBT Modules

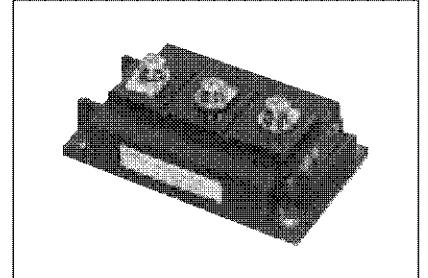
IGBT MODULE (S series) 1200V / 100A / 2 in one package

■ Features

- High speed switching
- Voltage drive
- Low Inductance module structure

■ Applications

- Inverter for Motor Drive
- AC and DC Servo Drive Amplifier
- Uninterruptible Power Supply
- Industrial machines, such as Welding machines



■ Maximum Ratings and Characteristics

● Absolute Maximum Ratings (at Tc=25°C unless otherwise specified)

Items	Symbols	Conditions		Maximum ratings	Units
Collector-Emitter voltage	V _{CES}			1200	V
Gate-Emitter voltage	V _{GES}			±20	V
Collector current	I _c	Continuous	T _c =25°C	150	A
			T _c =80°C	100	
	I _c pulse	1ms	T _c =25°C	300	
			T _c =80°C	200	
	-I _c			100	
	-I _c pulse	1ms		200	
Collector power dissipation	P _c	1 device		780	W
Junction temperature	T _j			150	°C
Storage temperature	T _{stg}			-40 to +125	°C
Isolation voltage (*1)	V _{iso}	AC : 1min.		2500	V
Screw torque	Mounting (*2)			3.5	N·m
	Terminals (*2)			4.5	

Note *1: All terminals should be connected together when isolation test will be done.

Note *2: Recommendable value : Mounting : 2.5-3.5 N·m (M5 or M6), Terminals : 3.5-4.5 N·m (M6)

● Electrical characteristics (at Tj= 25°C unless otherwise specified)

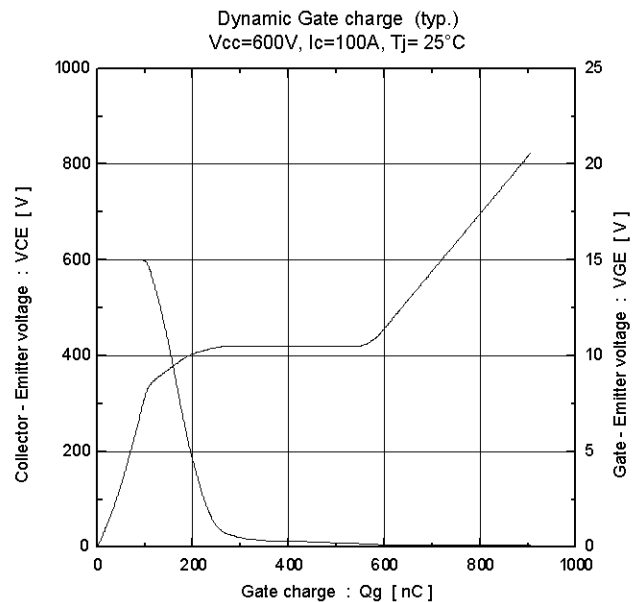
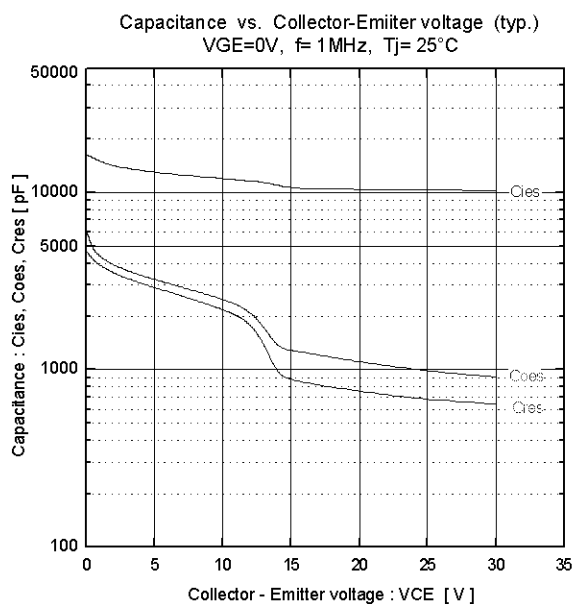
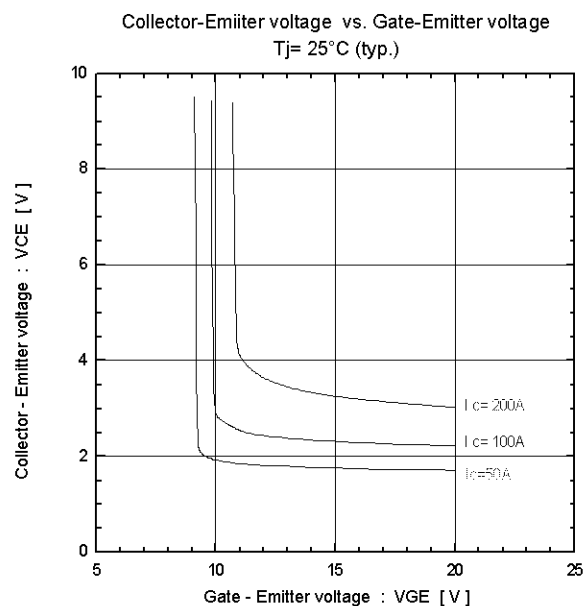
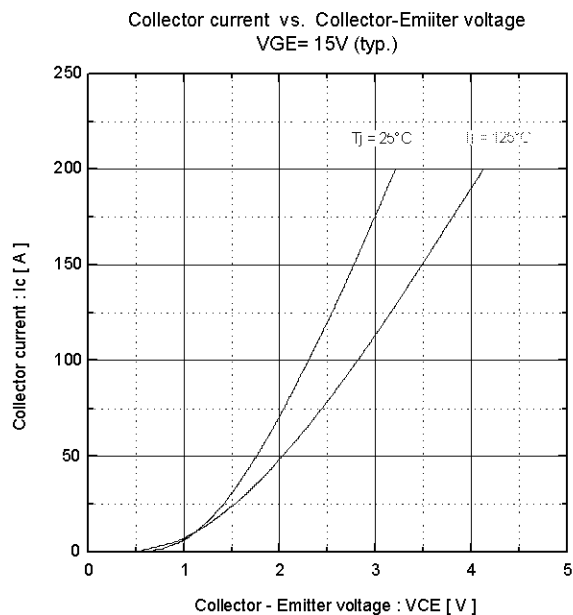
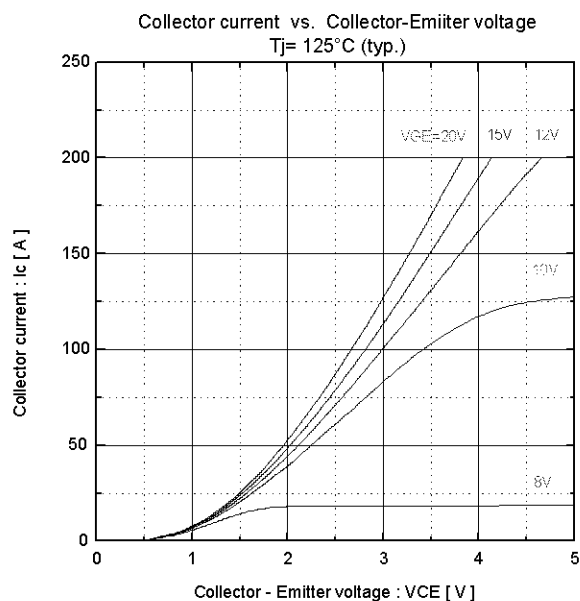
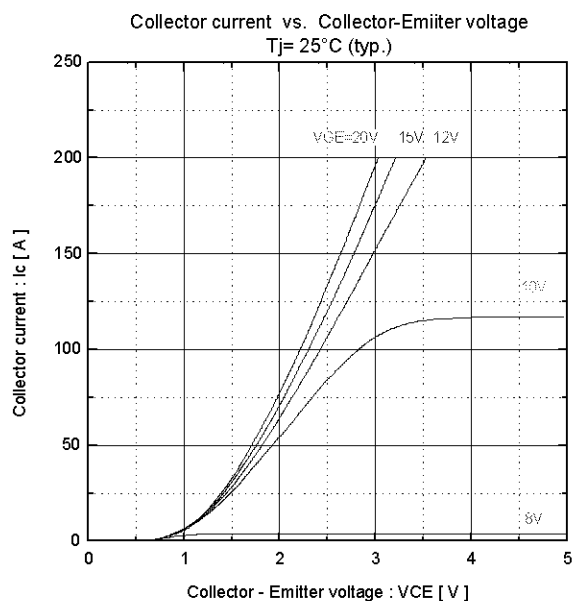
Items	Symbols	Conditions	Characteristics			Units
			min.	typ.	max.	
Zero gate voltage collector current	I_{CES}	$V_{GE} = 0V, V_{CE} = 1200V$	-	-	2.0	mA
Gate-Emitter leakage current	I_{GES}	$V_{CE} = 0V, V_{GE} = \pm 20V$	-	-	0.4	μA
Gate-Emitter threshold voltage	$V_{GE(th)}$	$V_{CE} = 20V, I_c = 100mA$	5.5	7.2	8.5	V
Collector-Emitter saturation voltage	$V_{CE(sat)}$	$V_{GE} = 15V$ $I_c = 100A$	Tj=25°C	2.3	2.6	V
			Tj=125°C	2.8	-	
Input capacitance	Cies	$V_{GE} = 0V$	-	12000	-	pF
Output capacitance	Coes	$V_{CE} = 10V$	-	2500	-	
Reverse transfer capacitance	Cres	f = 1MHz	-	2200	-	
Turn-on time	ton	$V_{CC} = 600V$ $I_c = 100A$	-	0.35	1.2	μs
	tr		-	0.25	0.6	
	tr (i)		-	0.1	-	
Turn-off time	toff	$V_{GE} = \pm 15V$ $R_{\theta} = 9.1\Omega$	-	0.45	1.0	μs
	tf		-	0.08	0.3	
			-			
Forward on voltage	V_f	$I_f = 100A$	Tj=25°C	2.3	3.0	V
			Tj=125°C	2.0	-	
Reverse recovery time	trr	$I_f = 100A$	-	-	0.35	μs

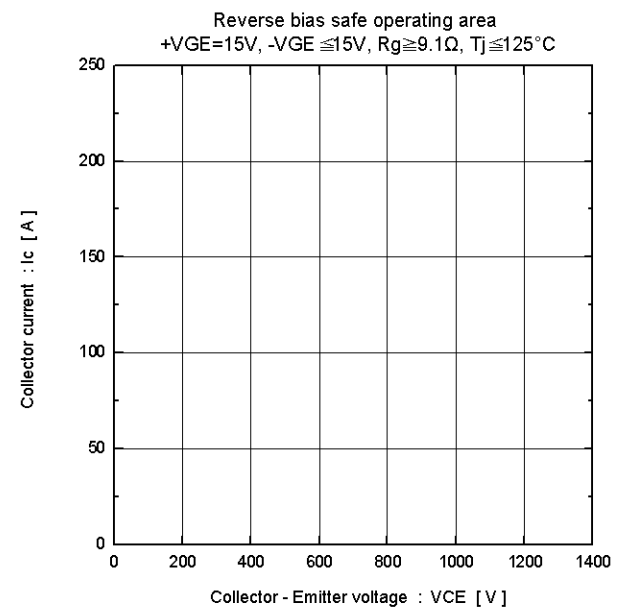
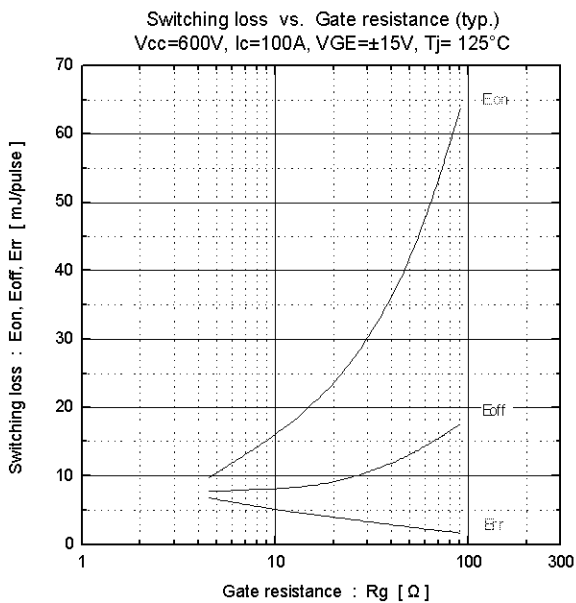
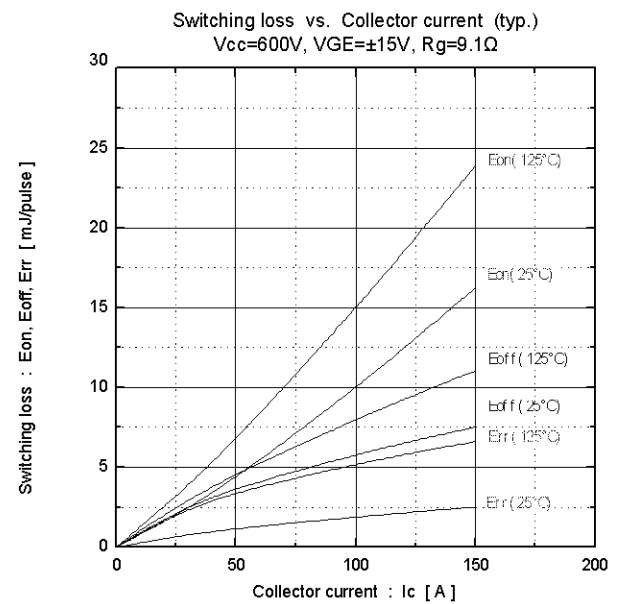
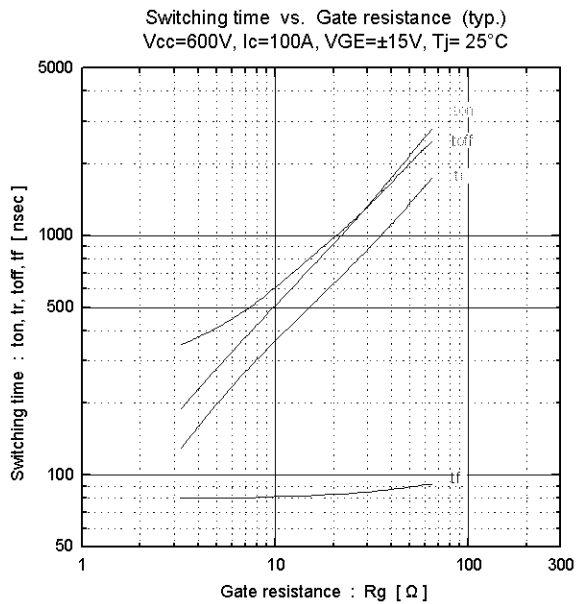
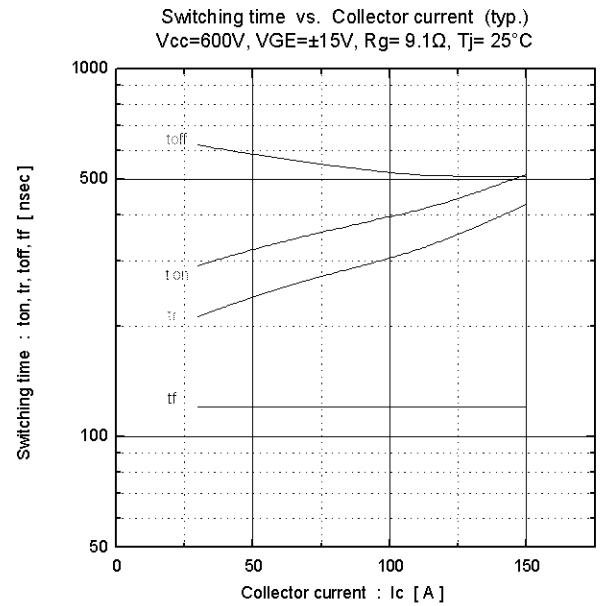
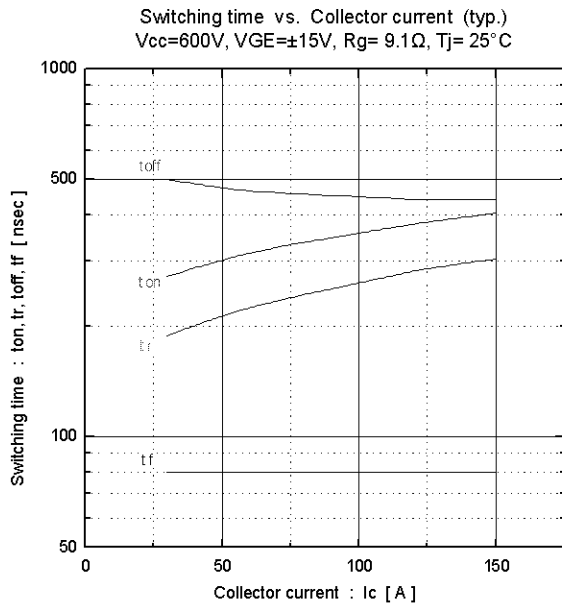
● Thermal resistance characteristics

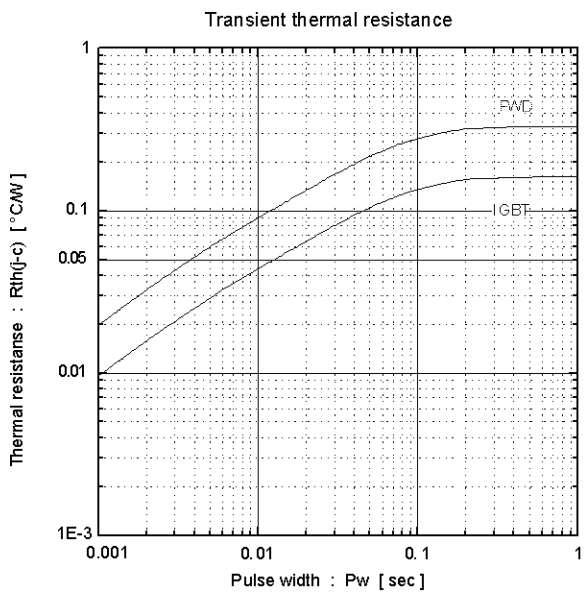
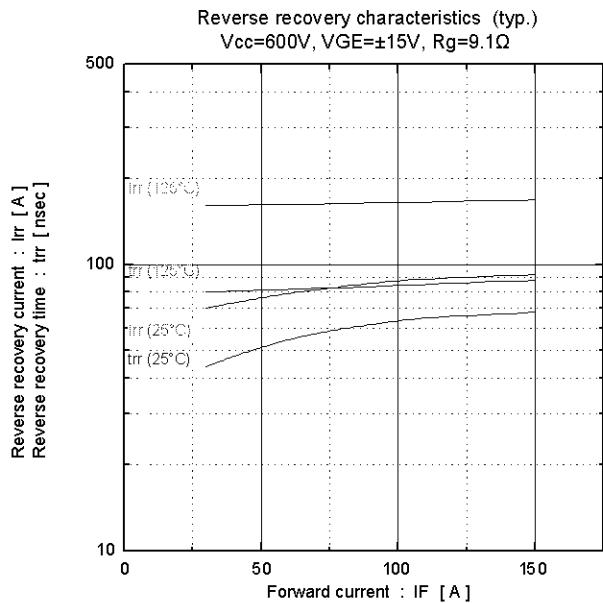
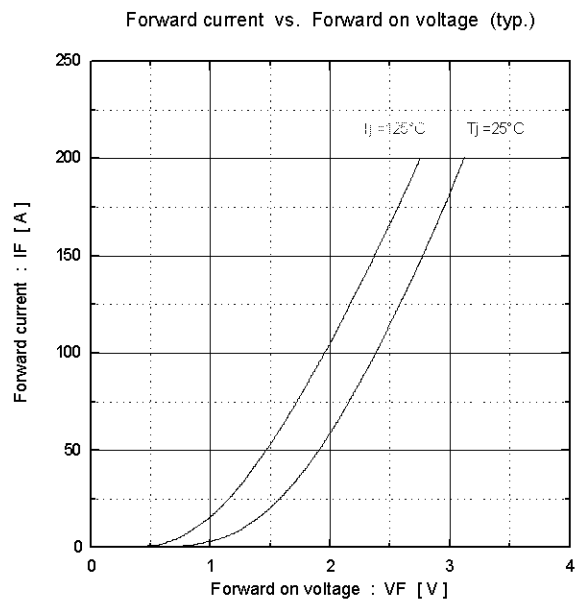
Items	Symbols	Conditions	Characteristics			Units
			min.	typ.	max.	
Thermal resistance (1device)	Rth(j-c)	IGBT	-	-	0.16	°C/W
		FWD	-	-	0.33	
Contact thermal resistance	Rth(c-f)	with Thermal Compound (*3)	-	0.025	-	

Note *3: This is the value which is defined mounting on the additional cooling fin with thermal compound.

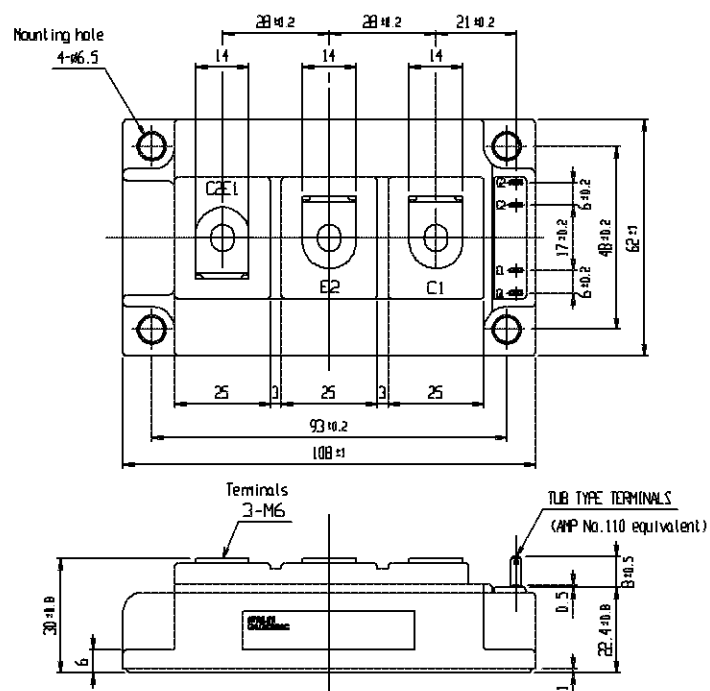
■ Characteristics (Representative)



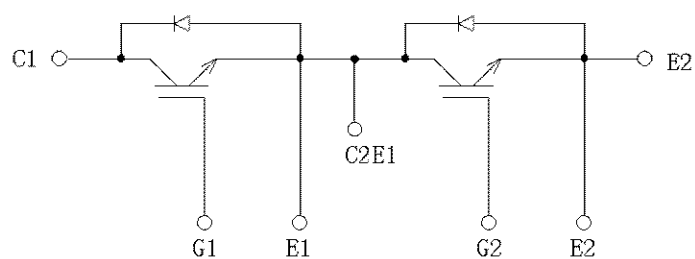




■ Outline Drawings, mm



■ Equivalent Circuit Schematic



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