

2MBI300S-120

IGBT Module

1200V / 300A 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)

Item			Symbol	Rating	Unit
Collector-Emitter voltage			V _{CES}	1200	V
Gate-Emitter voltage			V _{GES}	±20	V
Collector current	Continuous	Tc=25°C	IC	400	A
		Tc=80°C		300	A
	1ms	Tc=25°C	IC pulse	800	A
		Tc=80°C		600	A
			-Ic	300	A
	1ms		-Ic pulse	600	A
Max. power dissipation			Pc	2500	W
Operating temperature			Tj	+150	°C
Storage temperature			Tstg	-40 to +125	°C
Isolation voltage *1			Vis	AC 2500 (1min.)	V
Screw torque			Mounting *2	3.5	N·m
			Terminals *2	4.5	N·m

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

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

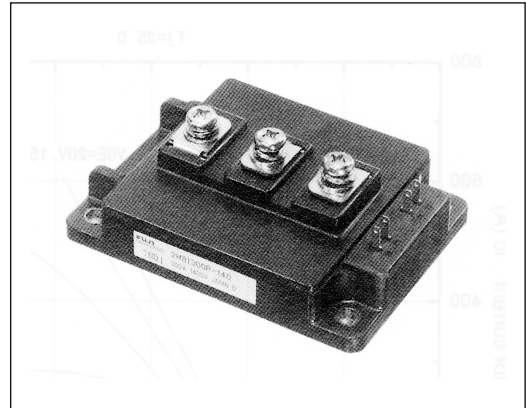
● Electrical characteristics (at Tj=25°C unless otherwise specified)

Item	Symbol	Characteristics			Conditions	Unit
		Min.	Typ.	Max.		
Zero gate voltage collector current	I _{CES}	—	—	3.0	V _{GE} =0V, V _{CE} =1200V	mA
Gate-Emitter leakage current	I _{GES}	—	—	0.6	V _{CE} =0V, V _{GE} =±20V	μA
Gate-Emitter threshold voltage	V _{GE(th)}	5.5	7.2	8.5	V _{CE} =20V, I _C =300mA	V
Collector-Emitter saturation voltage	V _{CE(sat)}	—	2.3	2.6	T _c =25°C V _{GE} =15V, I _C =300A	V
		—	2.8	—	T _c =125°C	
Input capacitance	C _{ies}	—	36000	—	V _{GE} =0V	pF
Output capacitance	C _{oes}	—	7500	—	V _{CE} =10V	
Reverse transfer capacitance	C _{res}	—	6600	—	f=1MHz	
Turn-on time	t _{on}	—	0.35	1.2	V _{CC} =600V	μs
	t _r	—	0.25	0.6	I _C =300A	
	t _{r(i)}	—	0.1	—	V _{GE} =±15V	
Turn-off time	t _{off}	—	0.45	1.0	R _G =2.7 ohm	
	t _f	—	0.08	0.3		
Forward on voltage	V _F	—	2.3	3.0	T _j =25°C I _F =300A, V _{GE} =0V	V
		—	2.0	—	T _j =125°C	
Reverse recovery time	t _{rr}	—	—	0.35	I _F =300A	μs

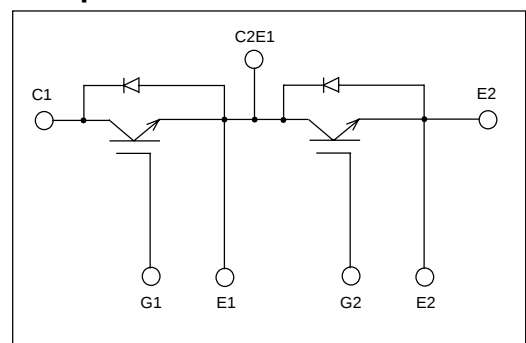
● Thermal resistance characteristics

Item	Symbol	Characteristics			Conditions	Unit
		Min.	Typ.	Max.		
Thermal resistance	R _{th(j-c)}	—	—	0.05	IGBT	°C/W
	R _{th(j-c)}	—	—	0.10	Diode	°C/W
	R _{th(c-f)*2}	—	0.0167	—	the base to cooling fin	°C/W

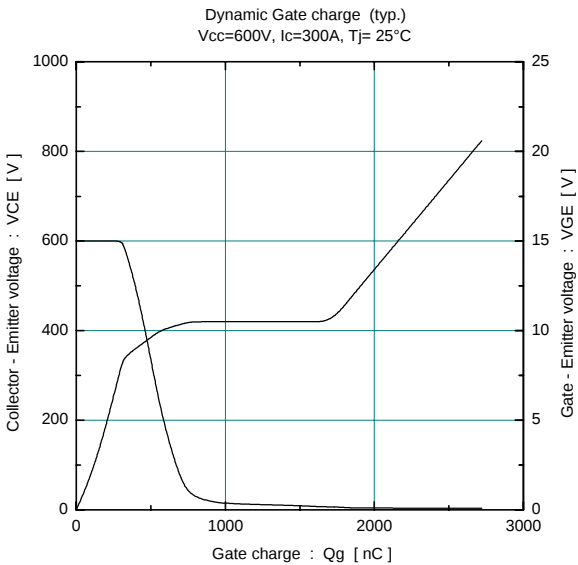
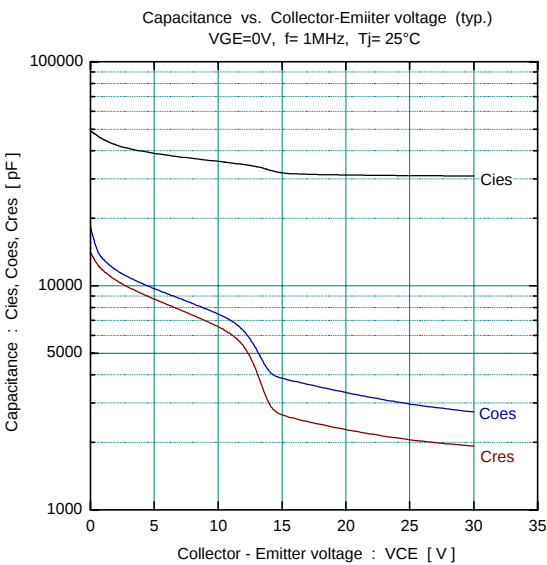
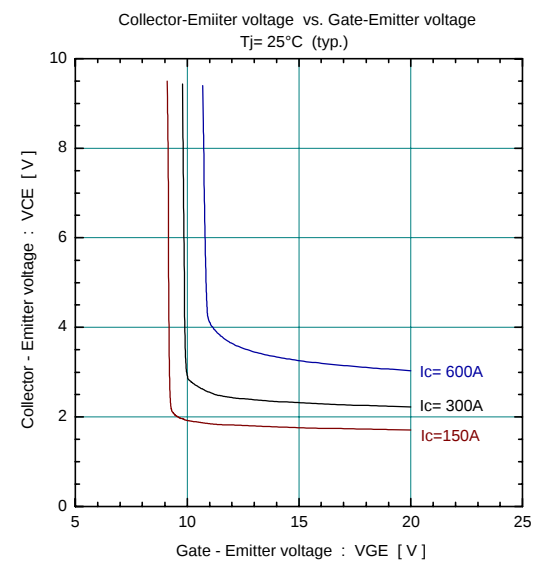
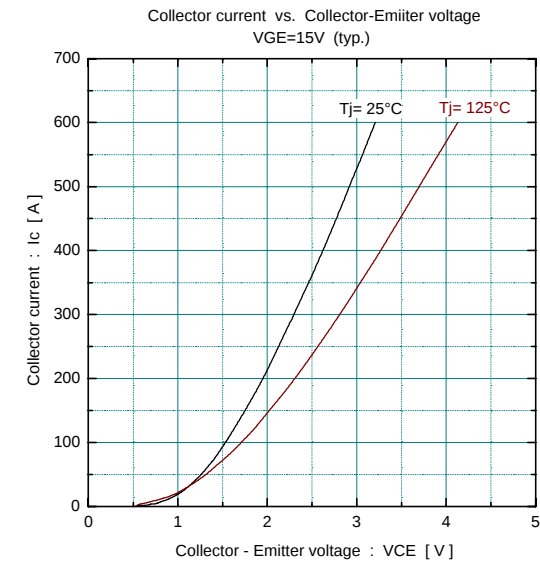
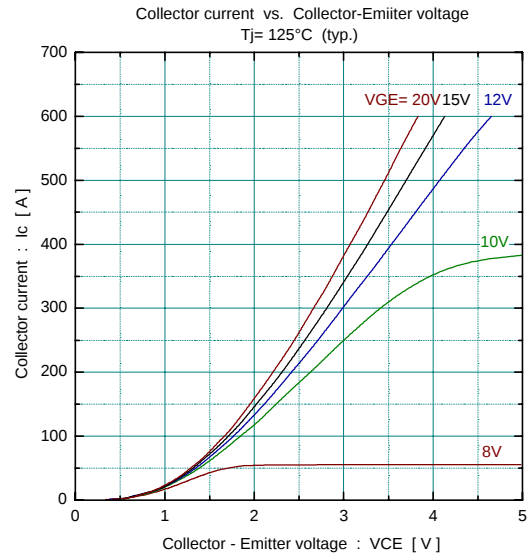
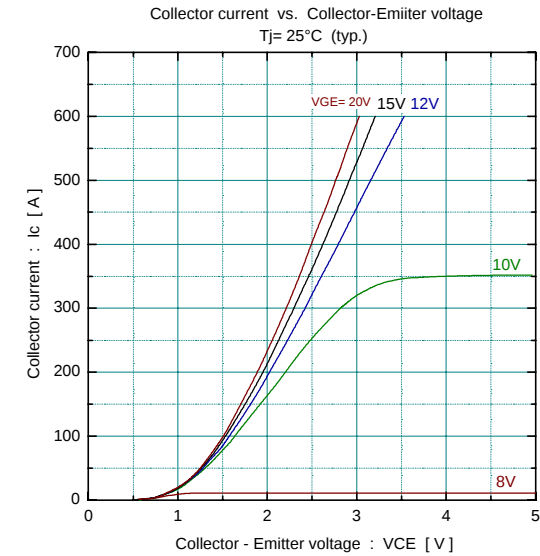
*2 : This is the value which is defined mounting on the additional cooling fin with thermal compound

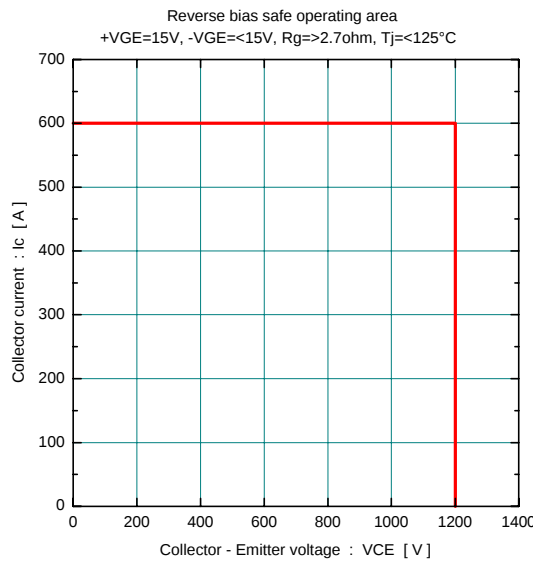
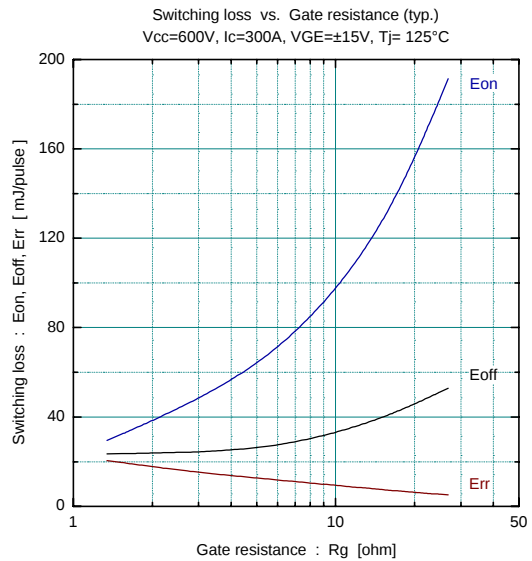
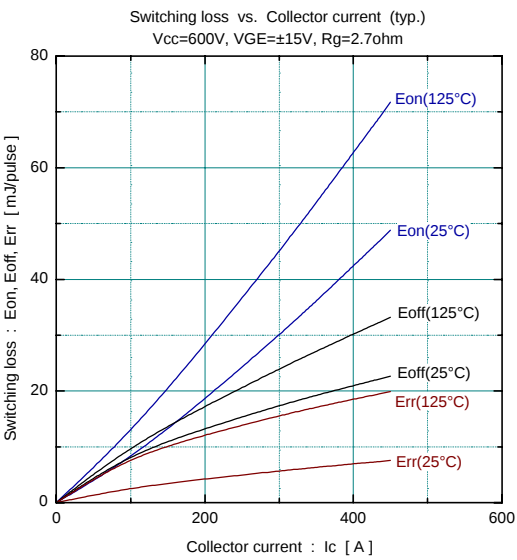
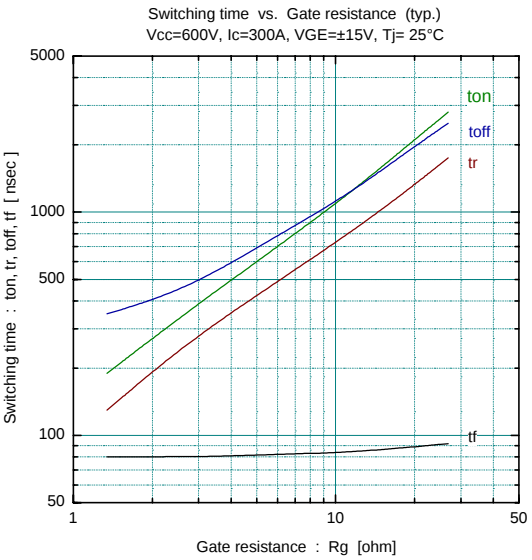
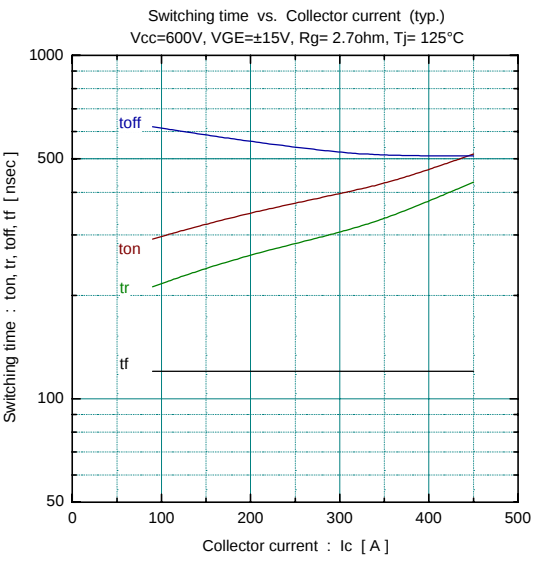
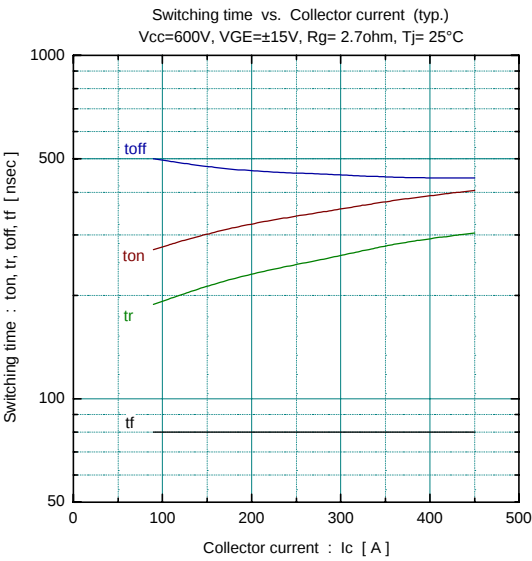


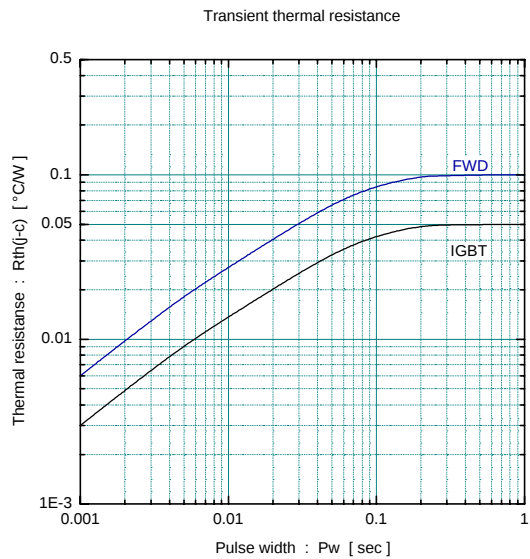
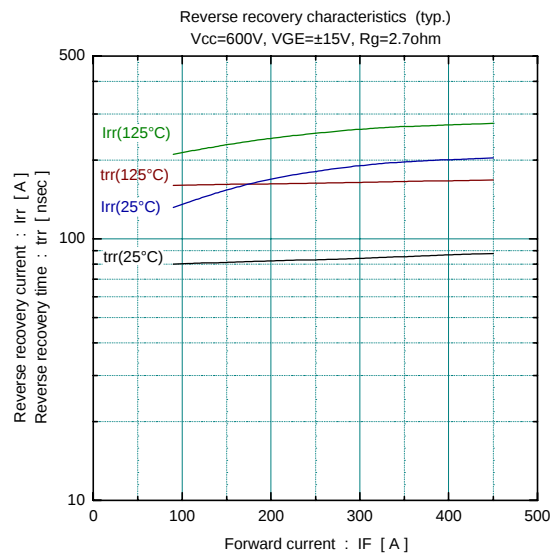
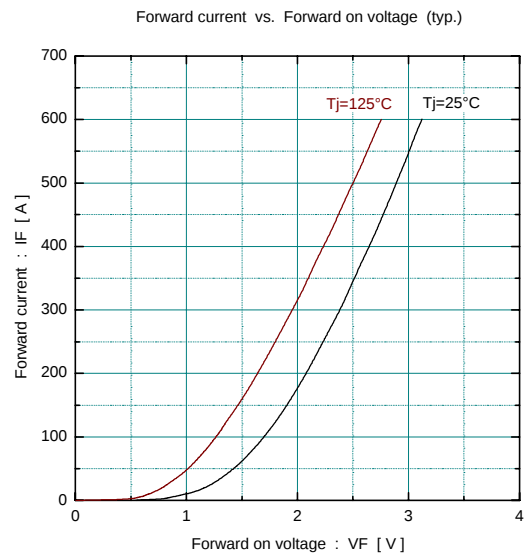
■ Equivalent Circuit Schematic



■ Characteristics (Representative)







■ Outline Drawings, mm

mass : 470g

