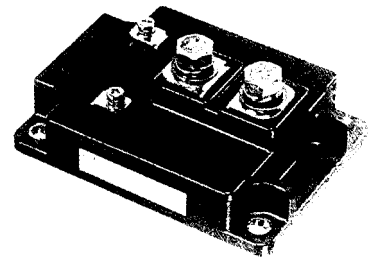


1MBI600PX-120



IGBT Module P-Series

1200V / 600A 1 in one-package



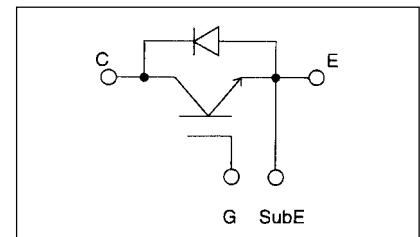
■ Features

- Small temperature dependence of the turn-off switching loss
- Easy to connect in parallel
- Wide RBSOA (square up to 2 time of rated current) and high short-circuit withstand capability
- Low loss and soft-switching (reduction of EMI noise)

■ Applications

- General purpose inverter
- AC and DC Servo drive amplifier
- Uninterruptible power supply

■ Equivalent Circuit Schematic



■ Maximum ratings and characteristics

● Absolute maximum ratings (at Tc=25°C unless otherwise specified)

Absolute Maximum Ratings (at TA = 25°C unless otherwise specified)						
Item		Symbol	Conditions	Rating	Unit	
Collector-Emitter voltage		VCES		1200	V	
Gate-Emitter voltage		VGES		±20	V	
Collector current		Ic	Continuous	Tc=25°C	800	A
				Tc=80°C	600	
		Ic pulse	1ms	Tc=25°C	1600	
				Tc=80°C	1200	
		-Ic	Continuous	600		
		-Ic pulse	1ms	1200		
Collector Power Dissipation		Pc		4100	W	
Junction temperature		Tj		+150	°C	
Storage temperature		Tstg		-40 to +125		
Isolation voltage between terminal and copper base *1		Viso	AC:1min.	2500	VAC	
Screw Torque	Mounting *2			4.5	N·m	
	Terminals *3			11.0		
	*4			1.7		

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

Recommendable value : *2 4.0±0.5 N·m(M6), *3 10.0±1.0 N·m(M8), *4 1.50±0.2 N·m(M4)

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

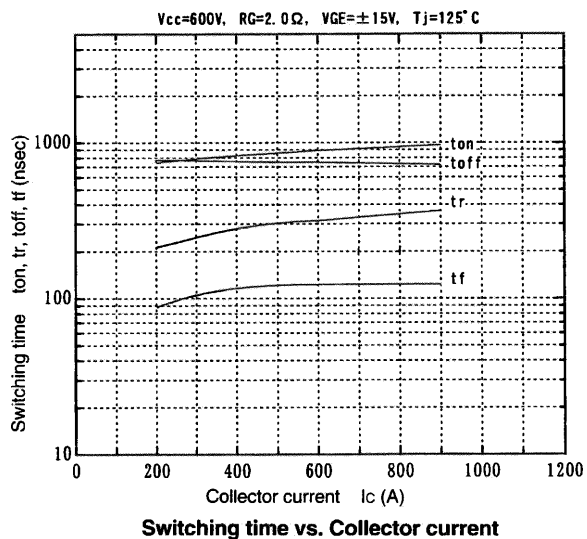
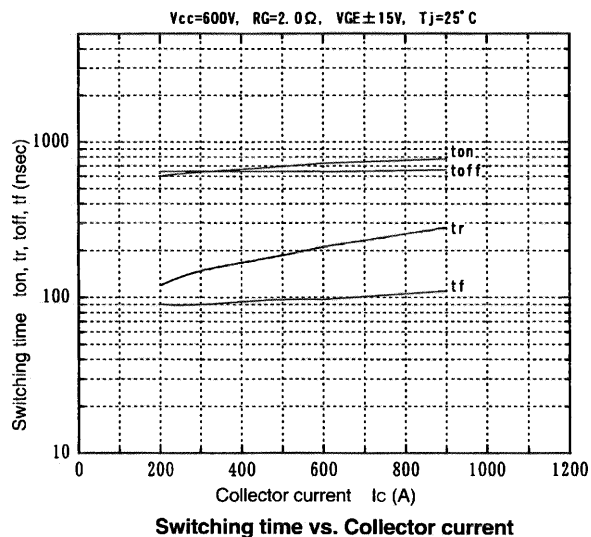
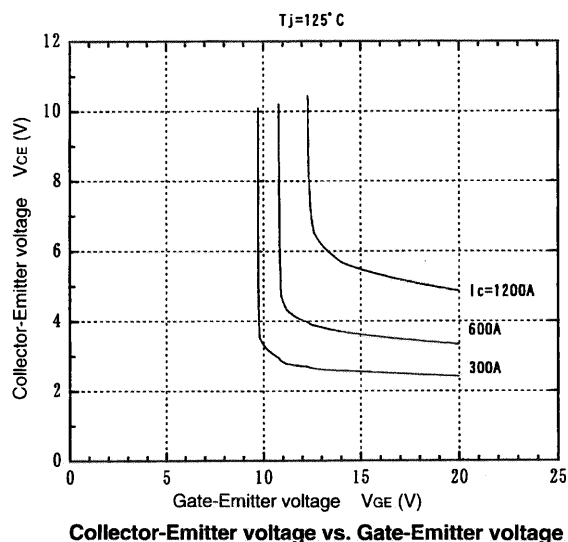
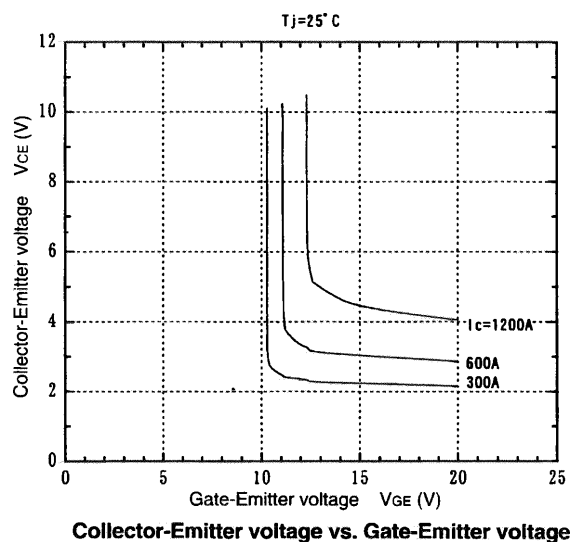
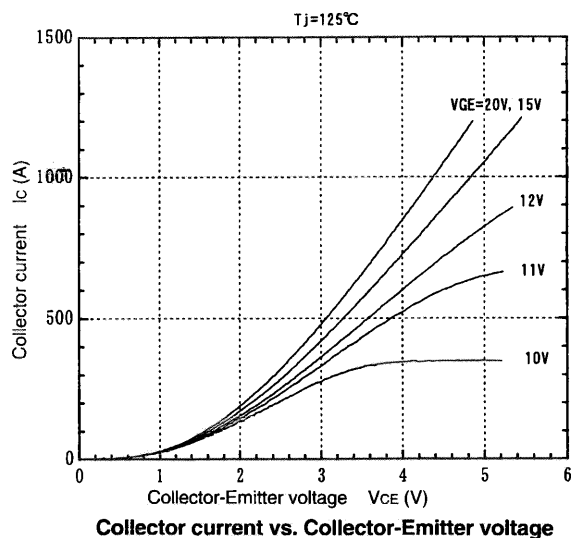
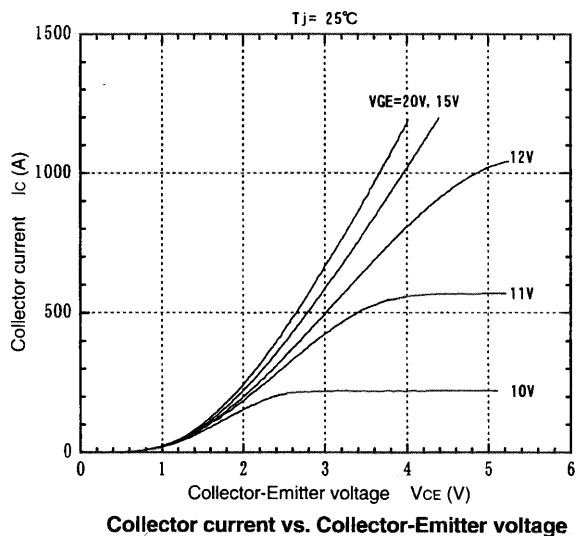
Item	Symbols	Conditions	Characteristics			Unit
			Min.	Typ.	Max.	
Zero gate voltage collector current	I _{CES}	V _{GE} =0V, V _{CE} =1200V	—	—	2.0	mA
Gate-Emitter leakage current	I _{GES}	V _{CE} =0V, V _{GE} =±20V	—	—	0.5	μA
Gate-Emitter threshold voltage	V _{GE(th)}	V _{CE} =20V, I _c =600mA	6.0	8.0	9.0	V
Collector-Emitter saturation voltage	V _{CE(sat)}	V _{GE} =15V, I _c =600A, T _j =25°C	—	2.85	3.2	V
Input capacitance	C _{ies}	V _{CE} =10V	—	60	—	nF
Output capacitance	C _{oes}	V _{GE} =0V	—	9	—	
Reverse transfer capacitance	C _{res}	f=1MHz	—	4	—	
Turn-on time	t _{on}	V _{CC} =600V	—	0.75	1.20	μs
	t _r	I _c =600A	—	0.2	0.60	
Turn-off time	t _{off}	V _{GE} =±15V	—	0.65	1.00	
	t _f	R _G =2.0 Ω	—	0.10	0.30	
Diode forward on voltage	V _F	I _F =600A, V _{GE} =0V	—	—	3.4	V
Reverse recovery time	t _{rr}	I _F =600A	—	—	0.35	μs

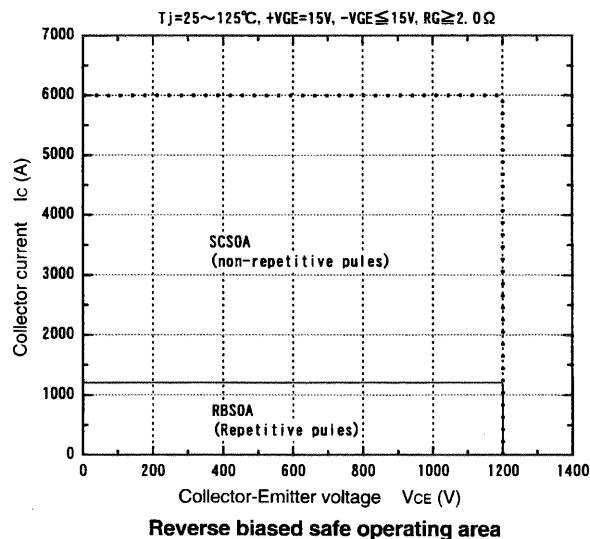
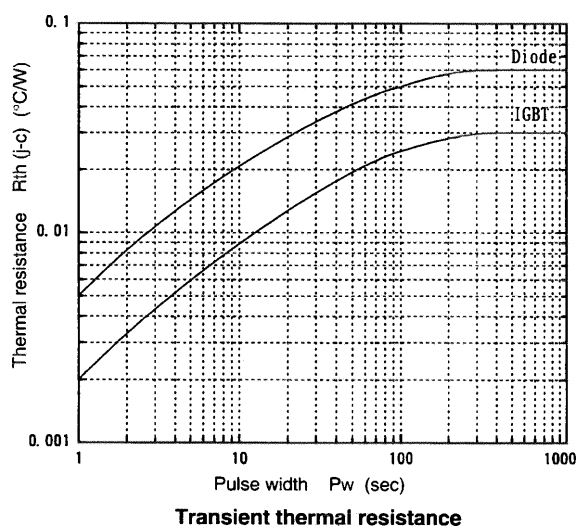
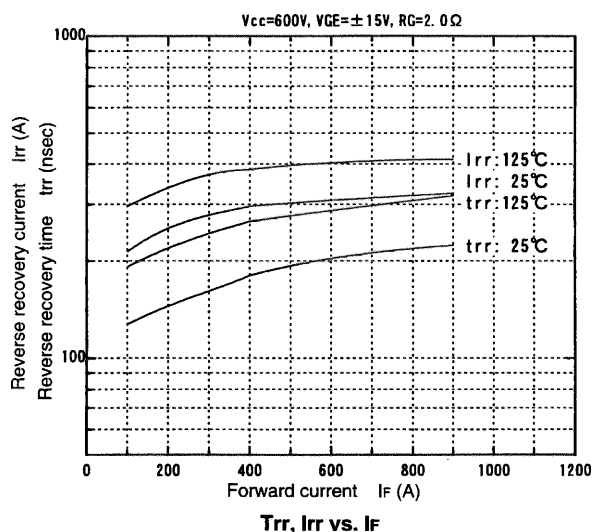
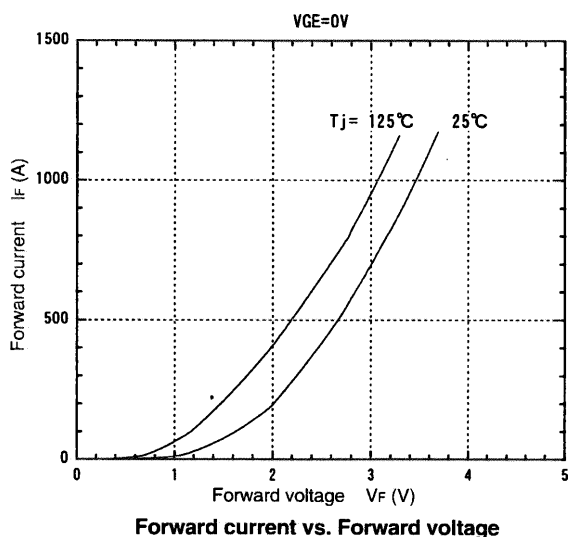
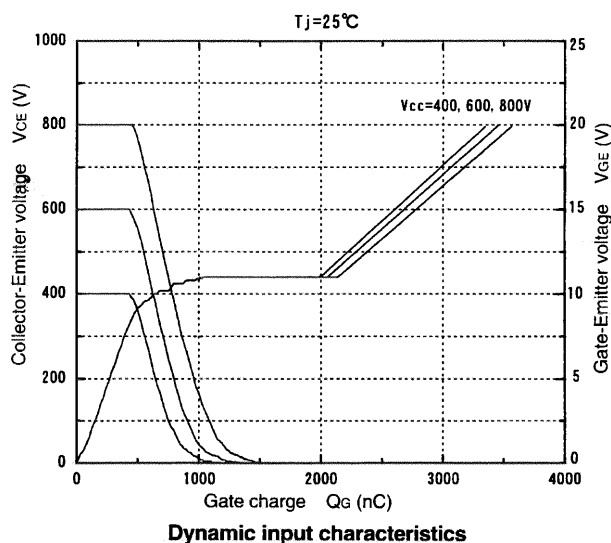
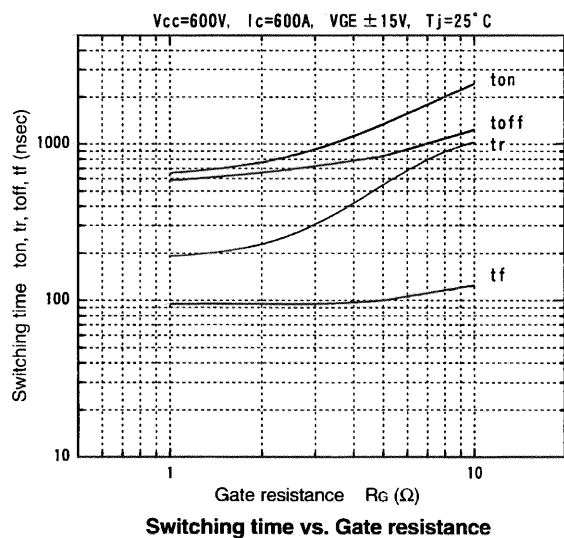
● Thermal resistance characteristics

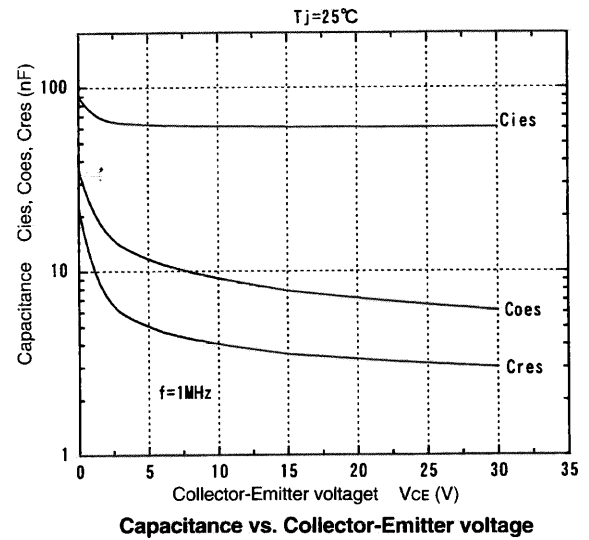
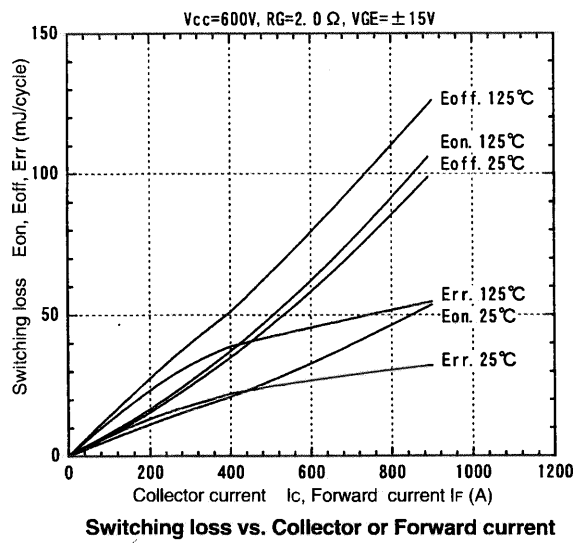
Items	Symbols	Conditions	Characteristics			Unit
			Min.	Typ.	Max.	
Thermal resistance	R _{th(j-c)}	IGBT	—	—	0.03	°C/W
	R _{th(j-c)}	Diode	—	—	0.06	°C/W
Contact Thermal resistance	R _{th(c-f)} *4	the base to cooling fin	—	0.0063	—	°C/W

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

■ Characteristics (Representative)

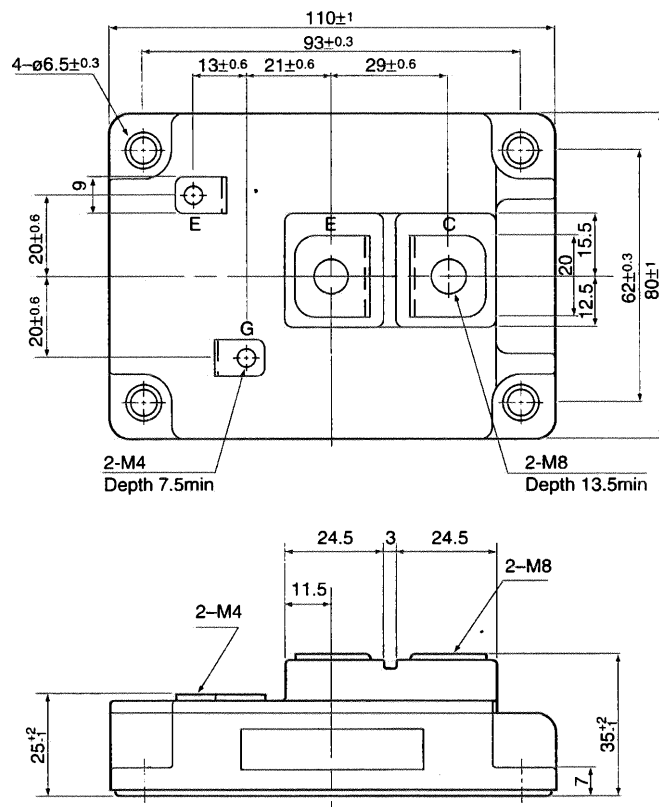






■ Outline Drawings, mm

M138



Mass : 530g