

# 2MBI200PB-140

IGBT Modules

## IGBT Modules P series

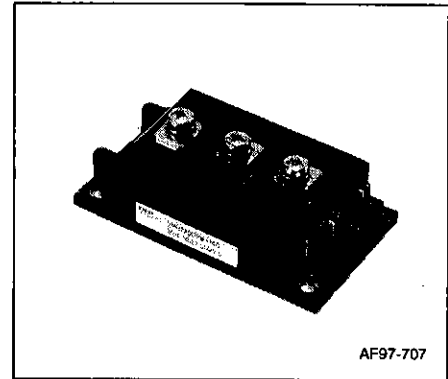
1400V / 200A 2 in one-package

### ■ Features

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

### ■ Applications

- General purpose inverters
- AC servo systems (Drive unit)
- UPS (Uninterruptible Power Supply)

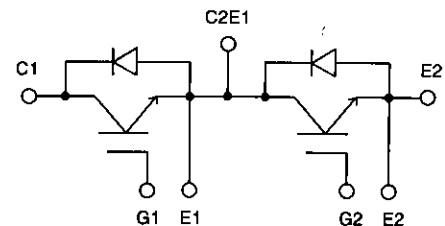


### ■ Maximum ratings and characteristics

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

Item	Symbol	Rating	Unit	
Collector-Emitter voltage	V <sub>CEs</sub>	1400	V	
Gate-Emitter voltage	V <sub>GEs</sub>	±20	V	
Collector current	Continuous	T <sub>c</sub> =25°C	I <sub>c</sub> 300	A
		T <sub>c</sub> =80°C	200	
	1ms	T <sub>c</sub> =25°C	I <sub>c</sub> pulse 600	
		T <sub>c</sub> =80°C	400	
	Continuous	-I <sub>c</sub>	200	
1ms	-I <sub>c</sub> pulse	400		
Max power dissipation	P <sub>c</sub>	1500	W	
Operating temperature	T <sub>j</sub>	+150	°C	
Storage temperature	T <sub>stg</sub>	-40 to +125	°C	
Isolation voltage	V <sub>is</sub>	2500 AC (1min.)	V	
Screw torque	Mounting *1	3.5	N·m	
	Terminals *2	4.5		

### ■ Equivalent circuit



Recommendable value

\*1 2.5 to 3.5 N·m (M5 or M6)

\*2 3.5 to 4.5 N·m (M6)

● Electrical ratings and characteristics (T<sub>j</sub> =25°C unless otherwise specified)

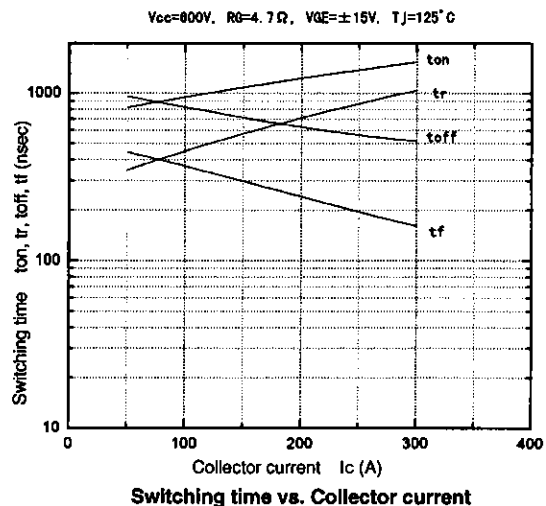
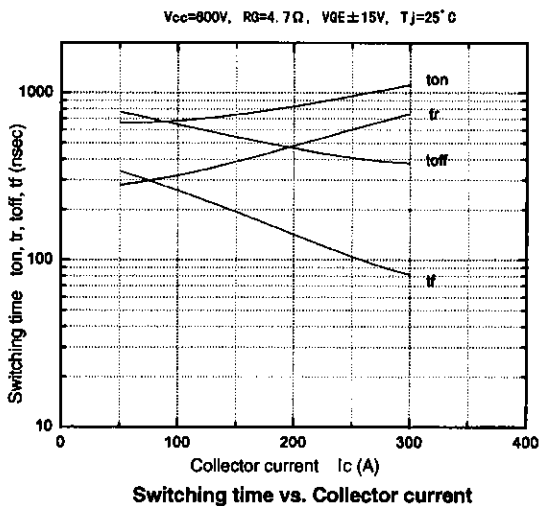
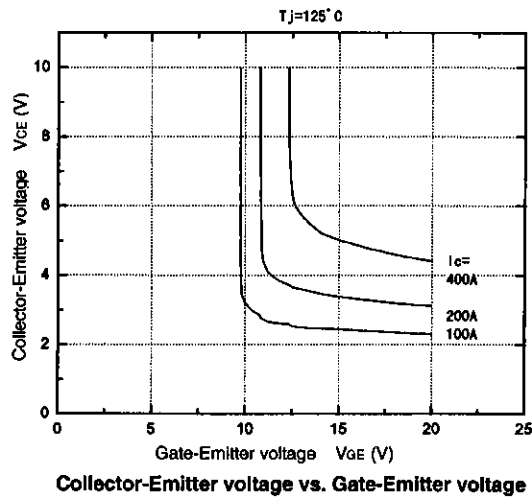
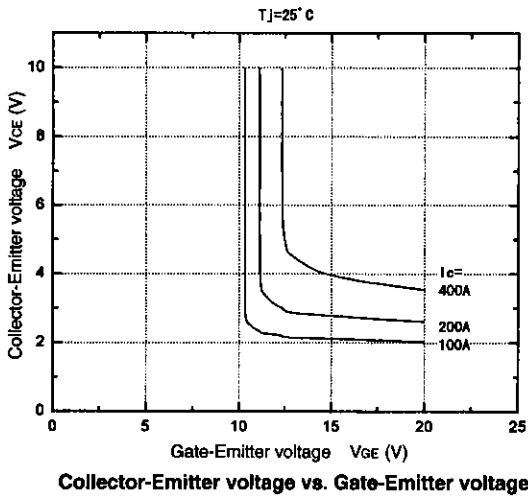
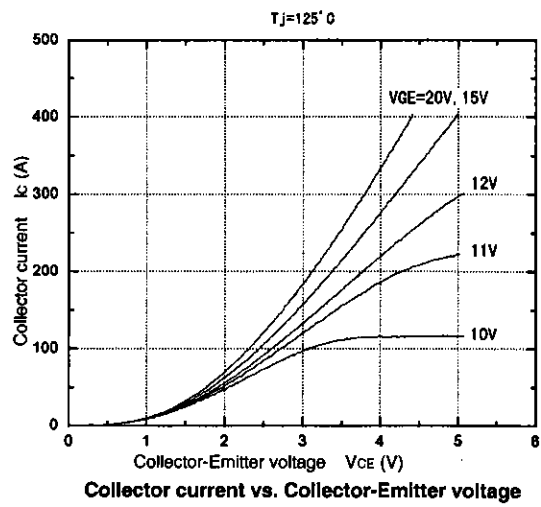
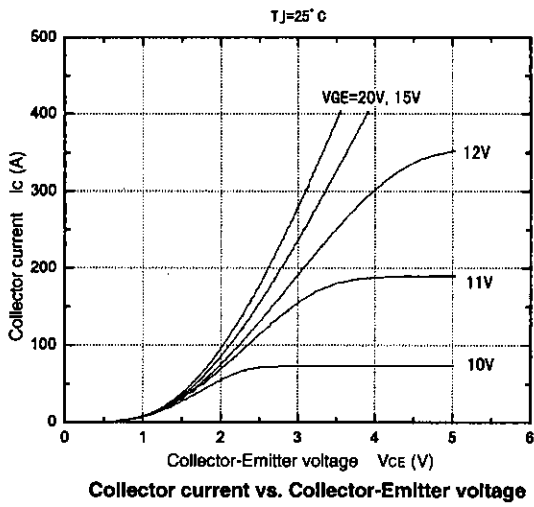
Item	Symbol	Characteristics			Conditions	Unit
		Min.	Typ.	Max.		
Zero gate voltage collector current	I <sub>CEs</sub>	-	-	2.0	V <sub>GE</sub> =0V, V <sub>CE</sub> =1400V	mA
Gate-Emitter leakage current	I <sub>GES</sub>	-	-	400	V <sub>CE</sub> =0V, V <sub>GE</sub> =±20V	nA
Gate-Emitter threshold voltage	V <sub>GE</sub> (th)	6.0	8.0	9.0	V <sub>CE</sub> =20V, I <sub>c</sub> =200mA	V
Collector-Emitter saturation voltage	V <sub>CE</sub> (sat)	-	2.7	3.0	T <sub>j</sub> =25°C, V <sub>GE</sub> =15V, I <sub>c</sub> =200A	V
		-	3.3	-	T <sub>j</sub> =125°C, V <sub>GE</sub> =15V, I <sub>c</sub> =200A	
Input capacitance	C <sub>ies</sub>	-	20000	-	V <sub>GE</sub> =0V	pF
Output capacitance	C <sub>oes</sub>	-	3000	-	V <sub>CE</sub> =10V	
Reverse transfer capacitance	C <sub>res</sub>	-	1300	-	f=1MHz	
Turn-on time	ton	-	-	1.20	V <sub>CC</sub> =600V	μs
	tr	-	-	0.60	I <sub>c</sub> =200A	
Turn-off time	toff	-	-	1.00	V <sub>GE</sub> =±15V	μs
	tf	-	-	0.30	R <sub>G</sub> =4.7Ω	
Diode forward on voltage	V <sub>F</sub>	-	2.4	3.3	I <sub>F</sub> =200A, V <sub>GE</sub> =0V	V
Reverse recovery time	t <sub>rr</sub>	-	-	0.35	I <sub>F</sub> =200A	μs

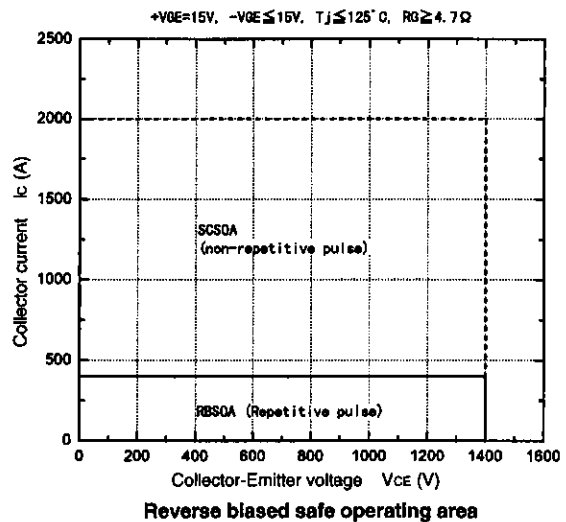
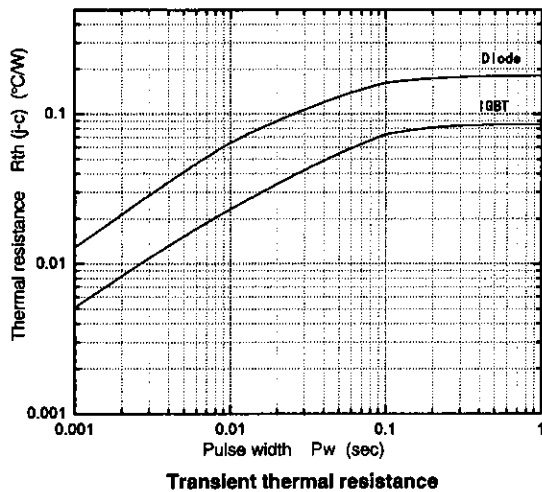
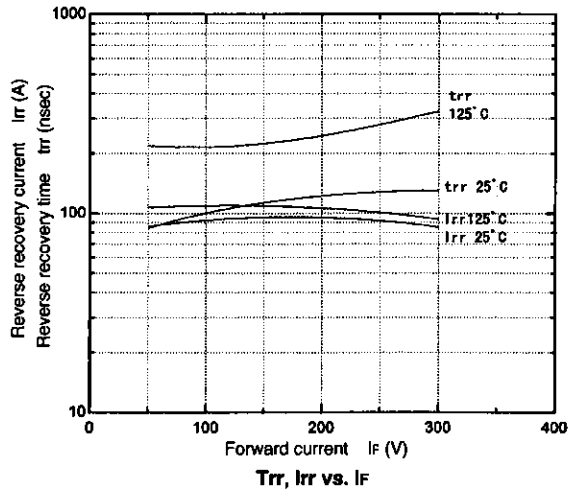
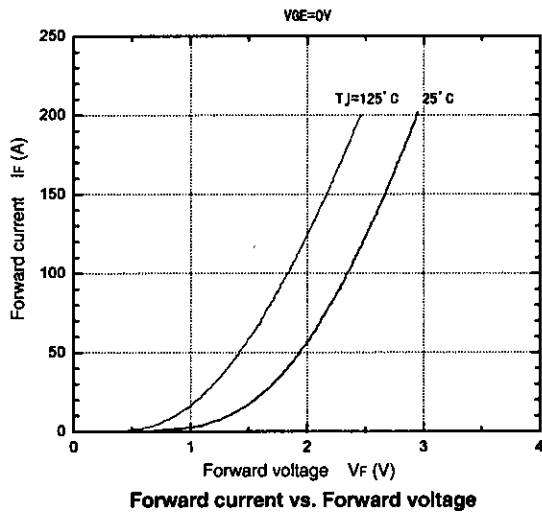
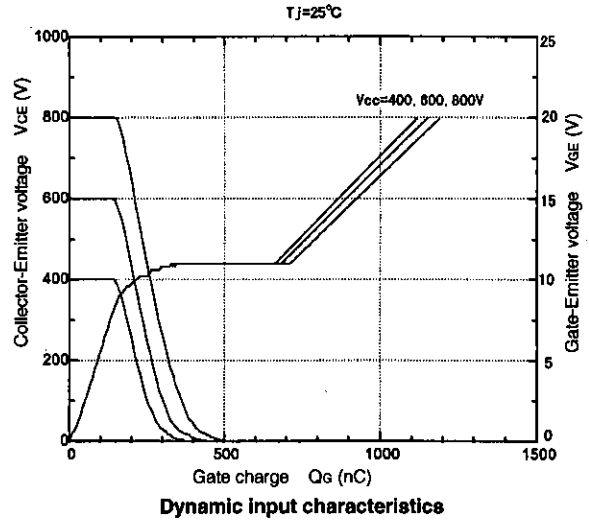
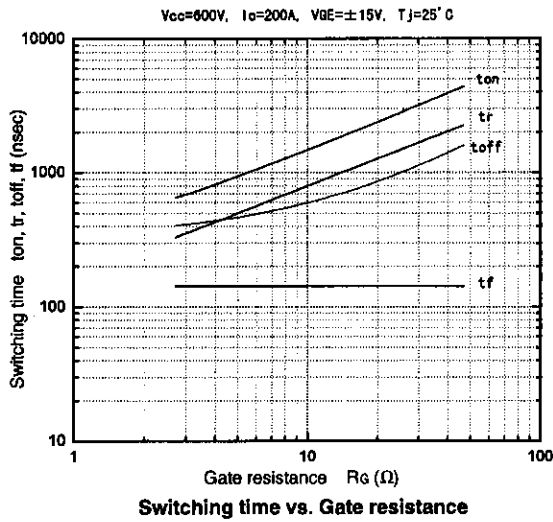
### ● Thermal resistance characteristics

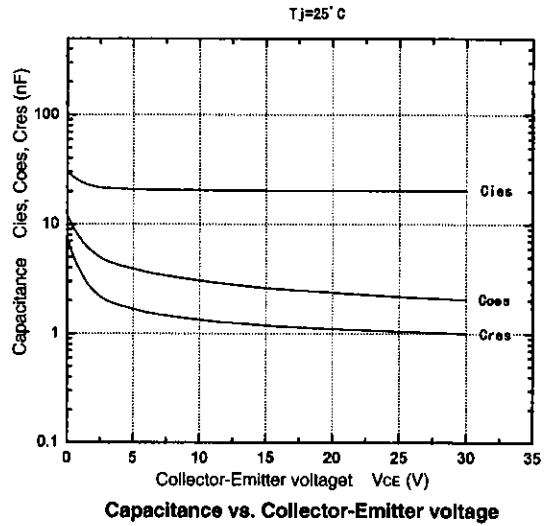
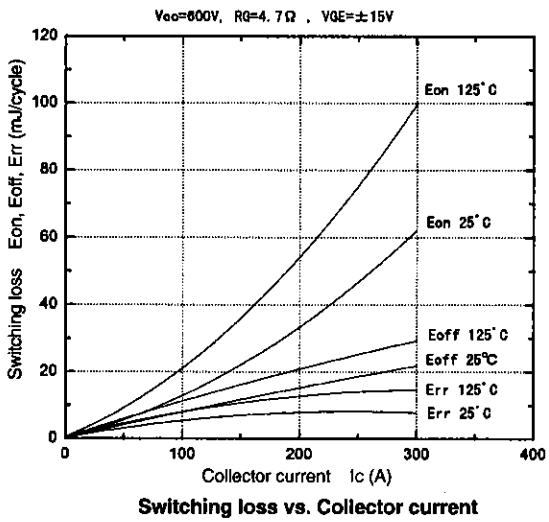
Item	Symbol	Characteristics			Conditions	Unit
		Min.	Typ.	Max.		
Thermal resistance	R <sub>th</sub> (j-c)	-	-	0.085	IGBT	°C/W
	R <sub>th</sub> (j-c)	-	-	0.180	Diode	
	R <sub>th</sub> (c-f)*	-	0.025	-	the base to cooling fin	

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

■ Characteristics

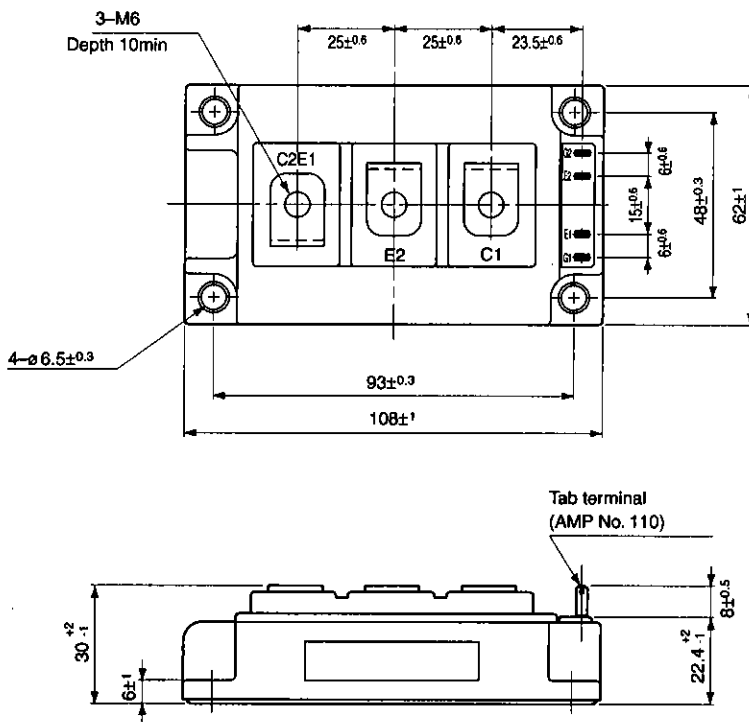






■ Outline drawings, mm

M235



Mass: 370g

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