

2MBI100PC-140

IGBT Modules

IGBT Modules P series

1400V / 100A 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)

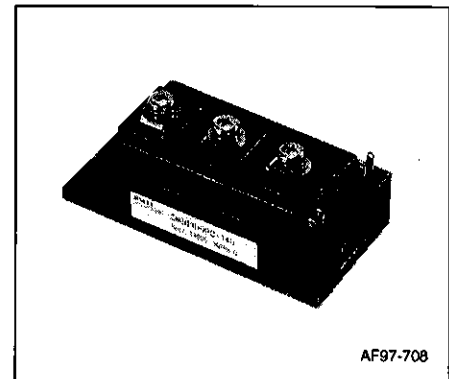
■ Applications

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

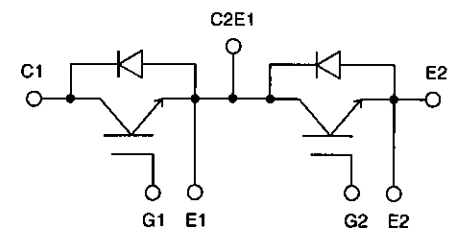
■ Maximum ratings and characteristics

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

Item			Symbol	Rating	Unit
Collector-Emitter voltage			V _{CES}	1400	V
Gate-Emitter voltage			V _{GES}	±20	V
Collector current	Continuous	T _c =25°C	I _C	150	A
		T _c =80°C		100	
	1ms	T _c =25°C	I _C pulse	300	
		T _c =80°C		200	
	Continuous		-I _C	100	
	1ms		-I _C pulse	200	
Max power dissipation			P _C	780	W
Operating temperature			T _J	+150	°C
Storage temperature			T _{stg}	-40 to +125	°C
Isolation voltage			V _{is}	2500 AC (1min.)	V
Screw torque	Mounting *			3.5	N·m
	Terminals *			3.5	



■ Equivalent circuit



Recommendable value
* 2.5 to 3.5 N·m (M5)

● Electrical ratings and characteristics (T_J =25°C unless otherwise specified)

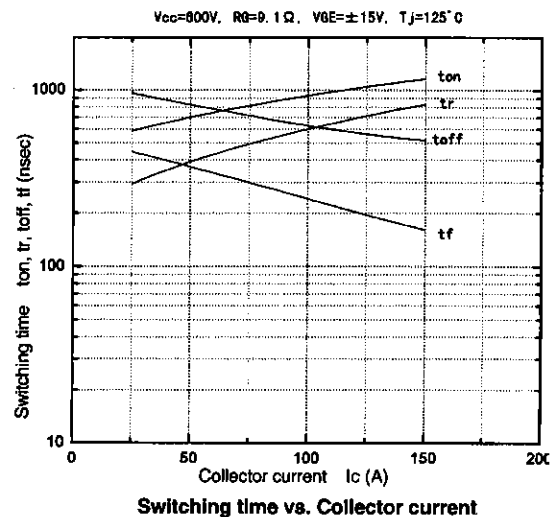
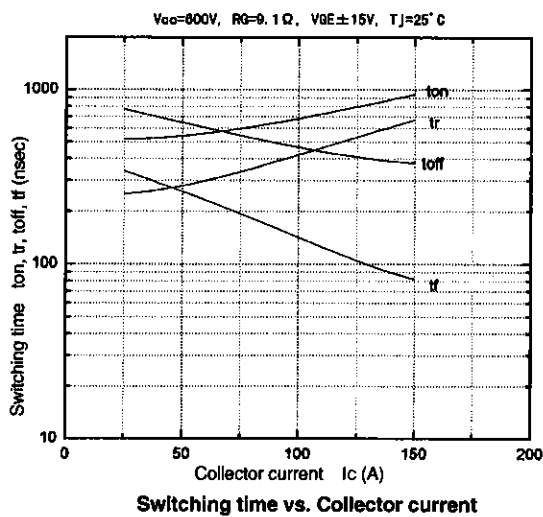
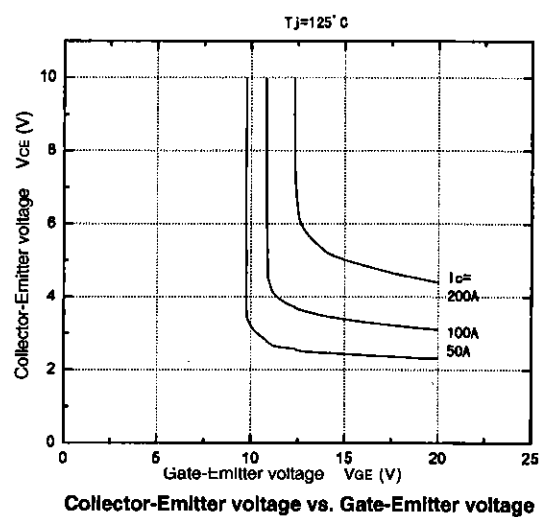
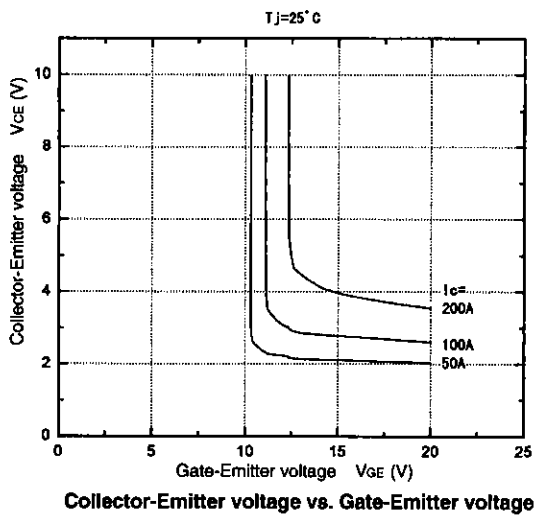
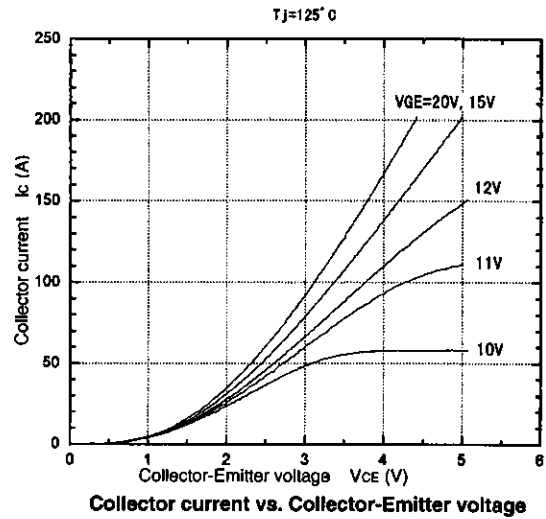
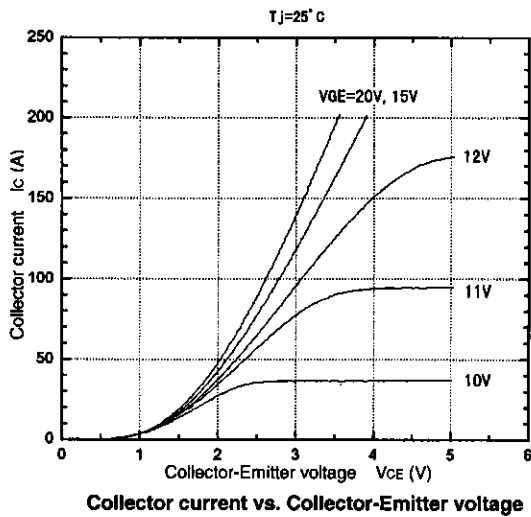
Item	Symbol	Characteristics			Conditions	Unit
		Min.	Typ.	Max.		
Zero gate voltage collector current	I _{CES}	—	—	2.0	V _{GE} =0V, V _{CE} =1400V	mA
Gate-Emitter leakage current	I _{GES}	—	—	400	V _{CE} =0V, V _{GE} =±20V	nA
Gate-Emitter threshold voltage	V _{GE} (th)	6.0	8.0	9.0	V _{CE} =20V, I _C =100mA	V
Collector-Emitter saturation voltage	V _{CE} (sat)	—	2.7	3.0	T _J =25°C, V _{GE} =15V, I _C =100A	V
		—	3.3	—	T _J =125°C, V _{GE} =15V, I _C =100A	
Input capacitance	C _{ies}	—	10000	—	V _{GE} =0V	pF
Output capacitance	C _{oes}	—	1500	—	V _{CE} =10V	
Reverse transfer capacitance	C _{res}	—	650	—	f=1MHz	
Turn-on time	t _{on}	—	—	1.20	V _{CC} =600V	μs
	t _r	—	—	0.60	I _C =100A	
Turn-off time	t _{off}	—	—	1.00	V _{GE} =±15V	
	t _f	—	—	0.30	R _G =9.1Ω	
Diode forward on voltage	V _F	—	2.4	3.3	I _F =100A, V _{GE} =0V	V
Reverse recovery time	t _{rr}	—	—	0.35	I _F =100A	μs

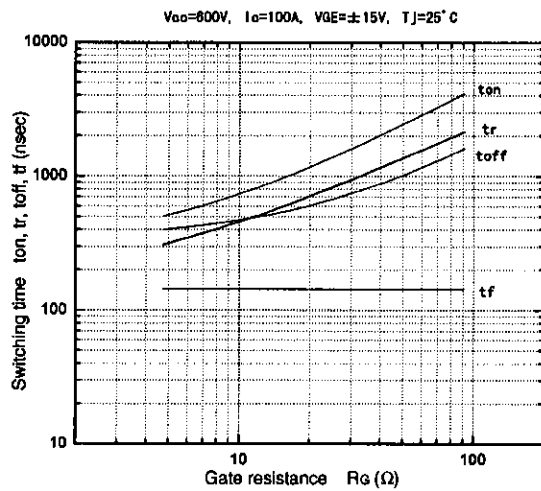
● Thermal resistance characteristics

Item	Symbol	Characteristics			Conditions	Unit
		Min.	Typ.	Max.		
Thermal resistance	R _{th} (j-c)	—	—	0.16	IGBT	°C/W
	R _{th} (j-c)	—	—	0.33	Diode	
	R _{th} (c-f)*	—	0.025	—	the base to cooling fin	

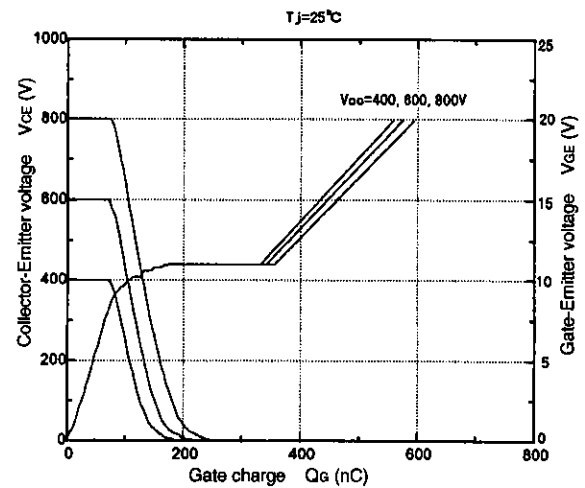
* This is the value which is defined mounting on the additional cooling fin with thermal compound.

Characteristics

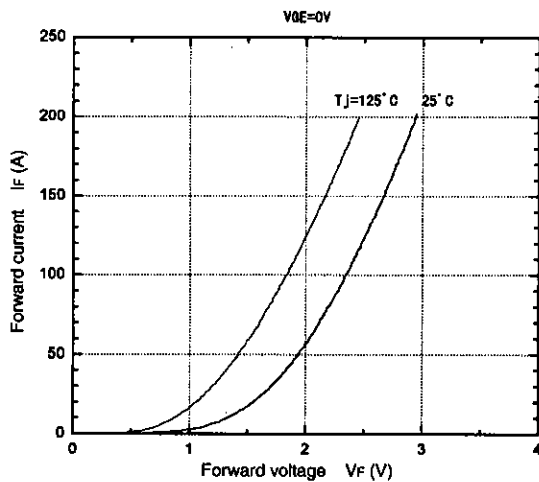




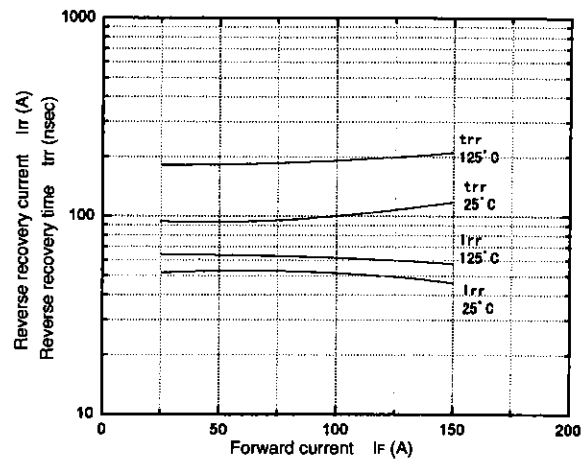
Switching time vs. Gate resistance



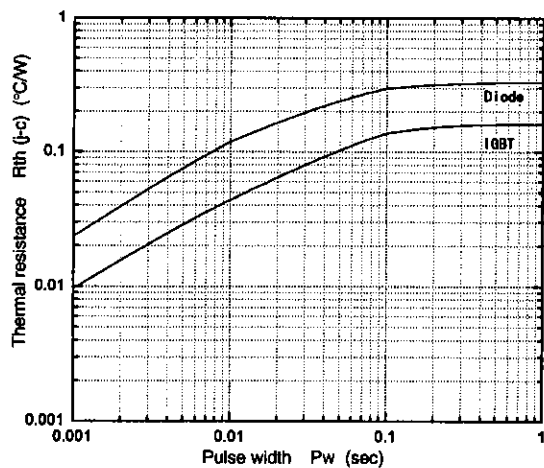
Dynamic input characteristics



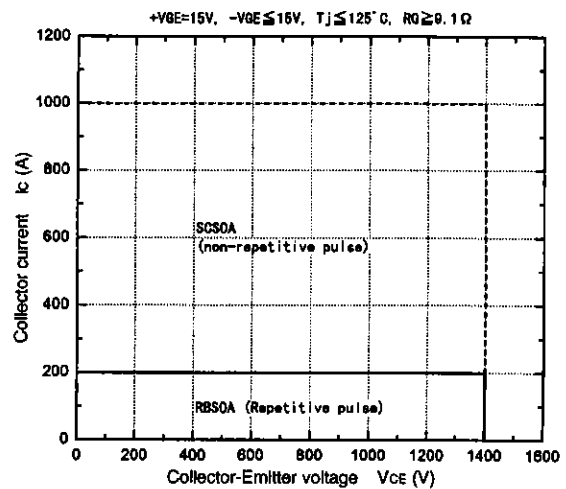
Forward current vs. Forward voltage



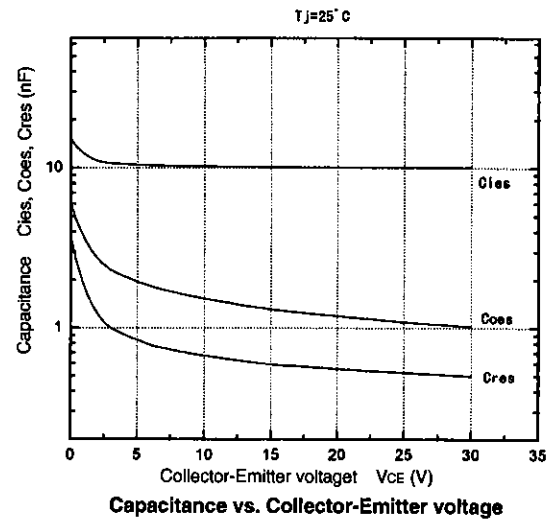
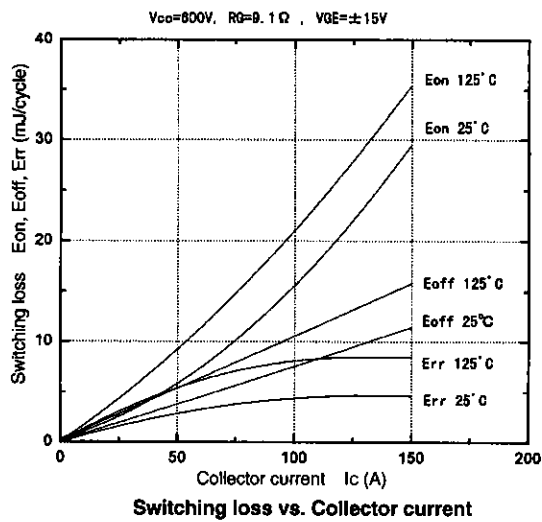
t_{rr}, I_{rr} vs. I_F



Transient thermal resistance

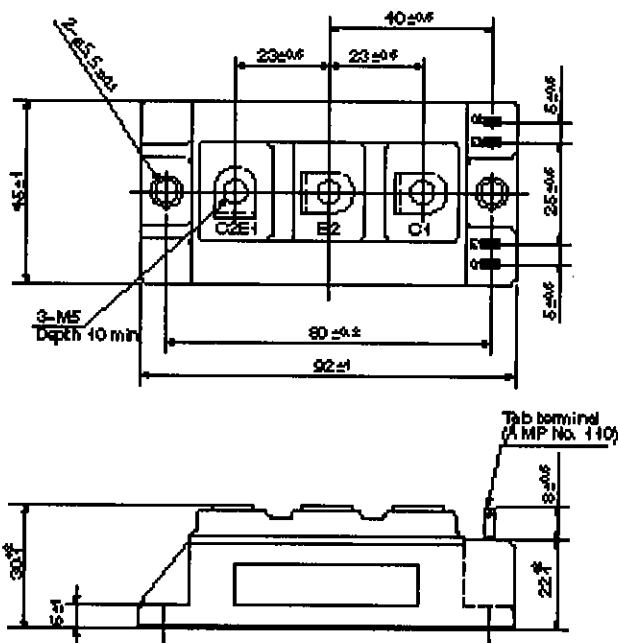


Reverse biased safe operating area



■ Outline drawings, mm

M233



Mass : 240g