

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)

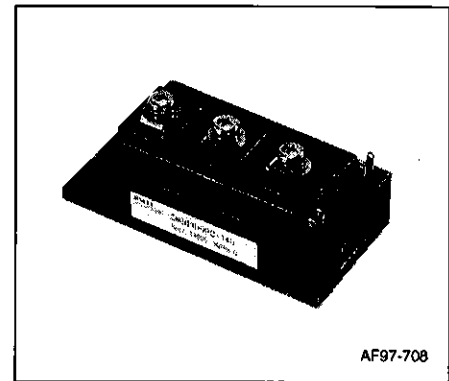
■ Applications

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

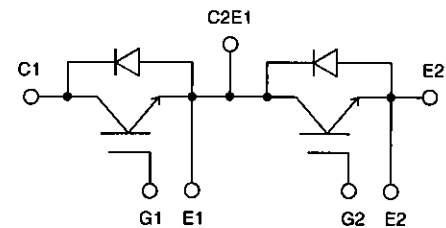
■ Maximum ratings and characteristics

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

Item	Symbol	Rating	Unit		
Collector-Emitter voltage	V _{CE} S	1400	V		
Gate-Emitter voltage	V _{GE} S	±20	V		
Collector current	Continuous	Tc=25°C	I _c	150	A
		Tc=80°C		100	
	1ms	Tc=25°C	I _c pulse	300	
		Tc=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)

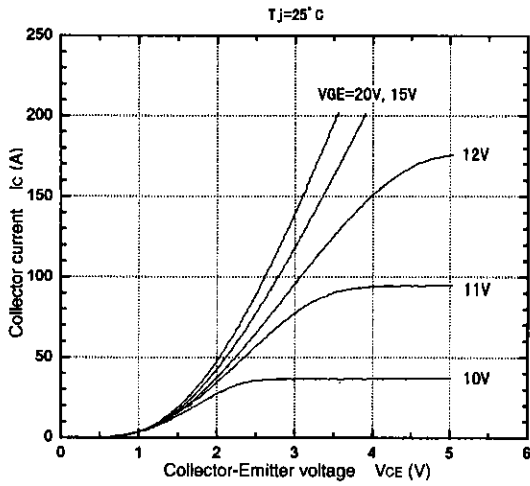
Item	Symbol	Characteristics			Conditions	Unit
		Min.	Typ.	Max.		
Zero gate voltage collector current	I _{CES}	-	-	2.0	V _{GE} =0V, V _{CE} =1400V	mA
Gate-Emitter leakage current	I _{GES}	-	-	400	V _{CE} =0V, V _{GE} =±20V	nA
Gate-Emitter threshold voltage	V _{GE} (th)	6.0	8.0	9.0	V _{CE} =20V, I _c =100mA	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	ton	-	-	1.20	V _{CC} =600V	μs
	tr	-	-	0.60	I _c =100A	
Turn-off time	toff	-	-	1.00	V _{GE} =±15V	μs
	tf	-	-	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

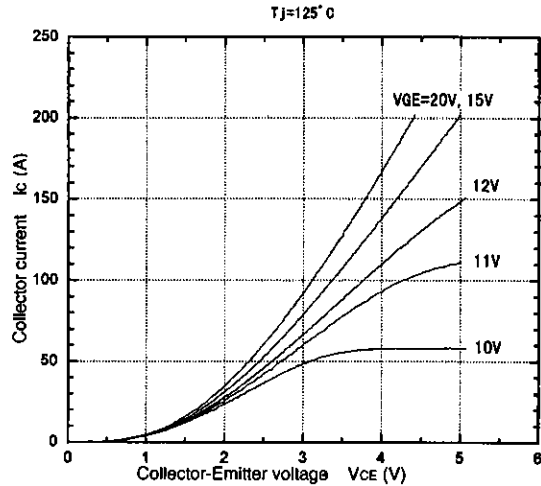
Item	Symbol	Characteristics			Conditions	Unit
		Min.	Typ.	Max.		
Thermal resistance	R _{th} (j-c)	-	-	0.16	IGBT	°C/W
	R _{th} (j-c)	-	-	0.33	Diode	
	R _{th} (c-f)*	-	0.025	-	the base to cooling fin	

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

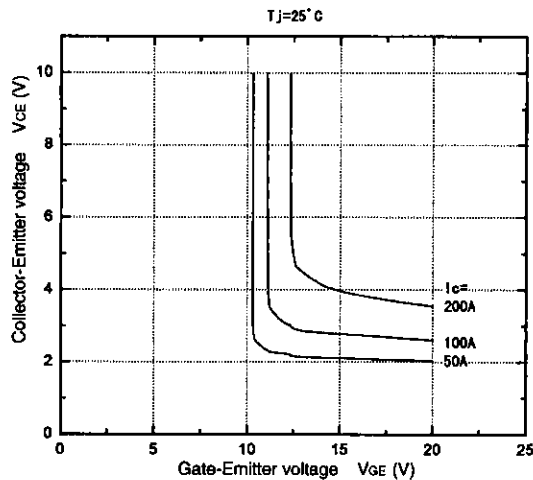
■ Characteristics



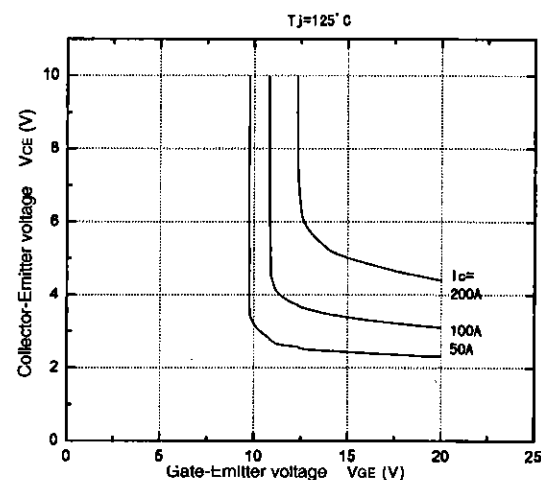
Collector current vs. Collector-Emitter voltage



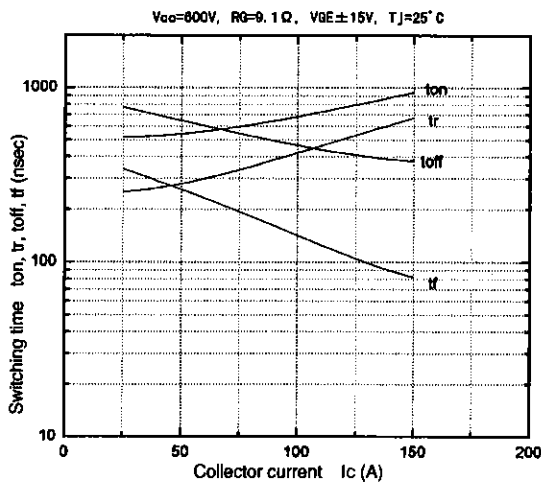
Collector current vs. Collector-Emitter voltage



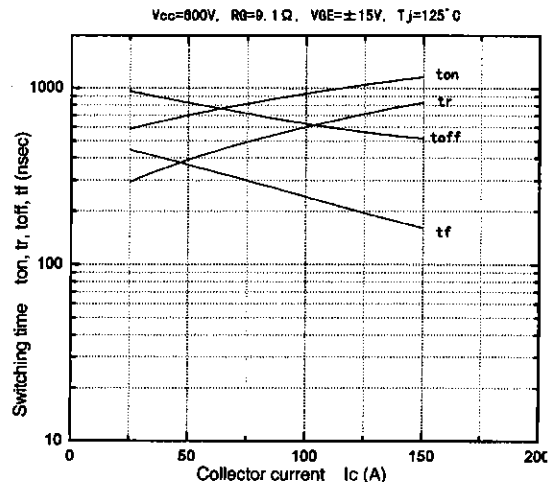
Collector-Emitter voltage vs. Gate-Emitter voltage



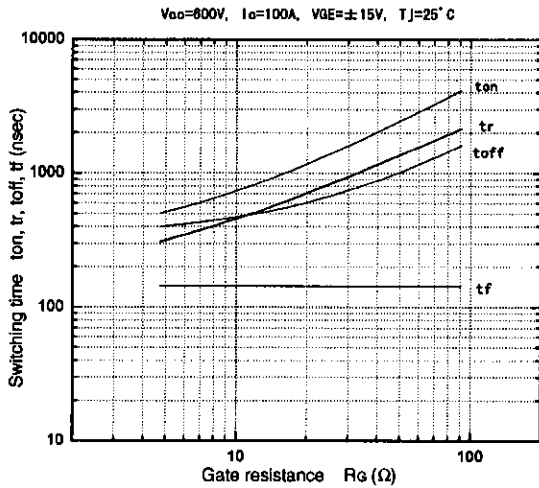
Collector-Emitter voltage vs. Gate-Emitter voltage



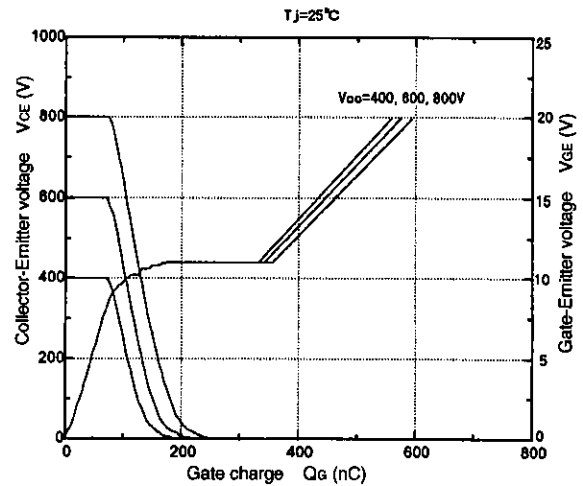
Switching time vs. Collector current



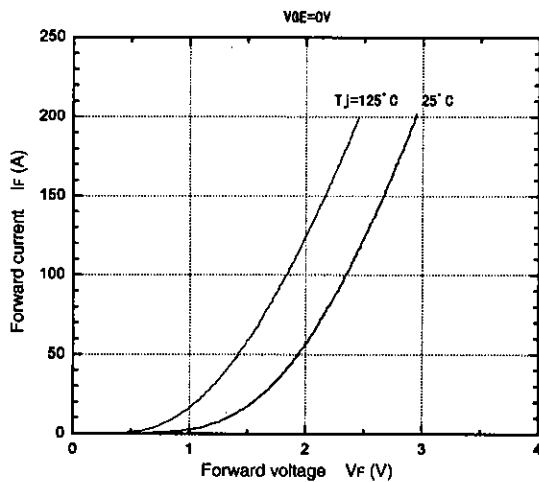
Switching time vs. Collector current



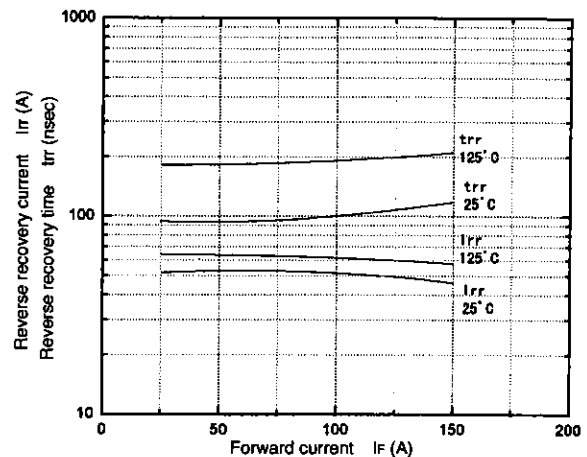
Switching time vs. Gate resistance



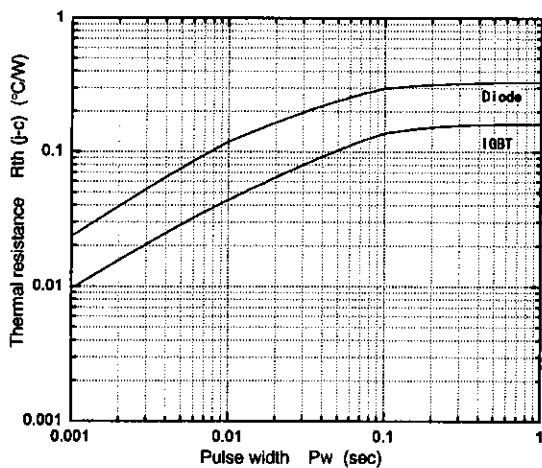
Dynamic input characteristics



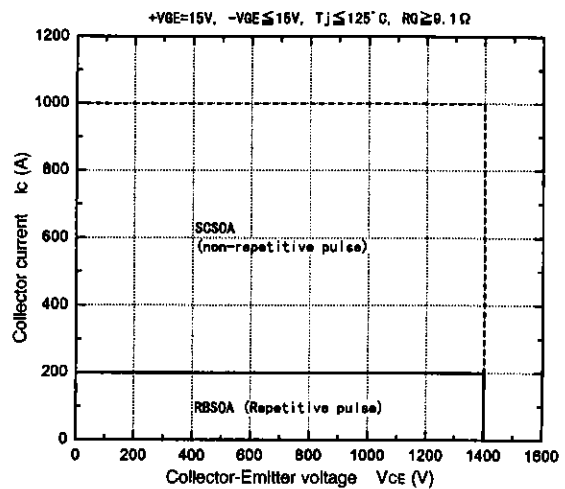
Forward current vs. Forward voltage



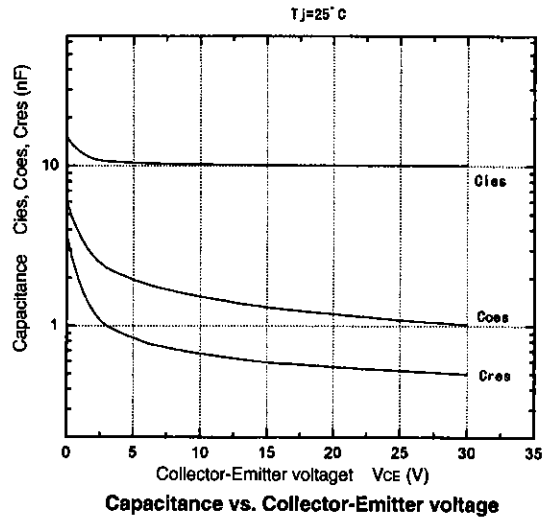
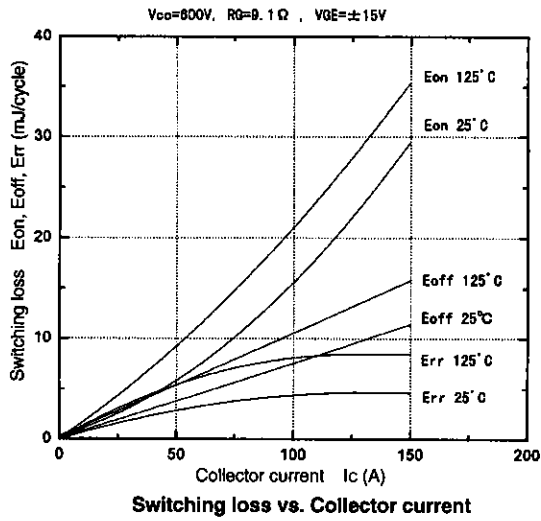
Trr, Irr vs. If



Transient thermal resistance

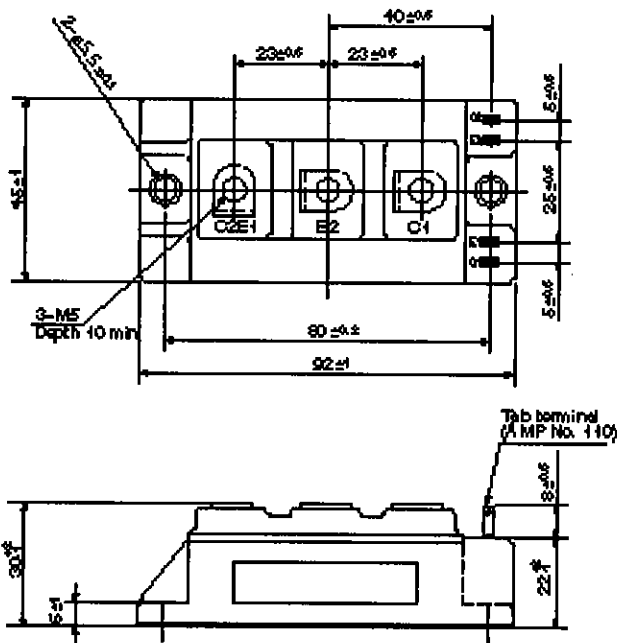


Reverse biased safe operating area



■ Outline drawings, mm

M233



Mass : 240g