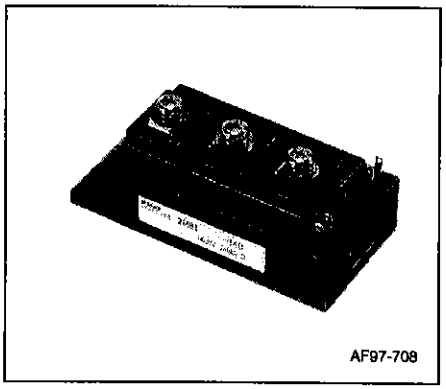
2MBI150PC-140

IGBT Modules P series

1400V / 150A 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

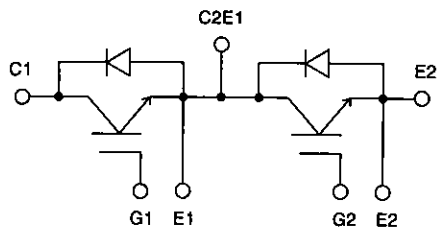
- General purpose inverters
- AC servo systems (Drive unit)
- UPS (Uninterruptible Power Supply)

■ Maximum ratings and characteristics

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

Item			Symbol	Rating	Unit
Collector-Emitter voltage			VCES	1400	V
Gate-Emitter voltage			VGES	±20	V
Collector current	Continuous	Tc=25°C	IC	200	A
		Tc=80°C		150	
	1ms	Tc=25°C	IC pulse	400	
		Tc=80°C		300	
	Continuous		-IC	150	
	1ms		-IC pulse	300	
Max power dissipation			Pc	1100	W
Operating temperature			Tj	+150	°C
Storage temperature			Tstg	-40 to +125	°C
Isolation voltage			Vis	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** (Tj =25°C unless otherwise specified)

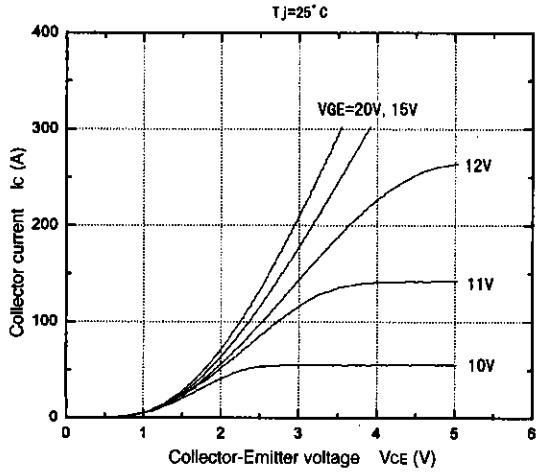
Item	Symbol	Characteristics			Conditions	Unit
		Min.	Typ.	Max.		
Zero gate voltage collector current	ICES	–	–	2.0	VGE=0V, VCE=1400V	mA
Gate-Emitter leakage current	IGES	–	–	400	VCE=0V, VGE=±20V	nA
Gate-Emitter threshold voltage	VGE (th)	6.0	8.0	9.0	VCE=20V, IC=150mA	V
Collector-Emitter saturation voltage	VCE (sat)	–	2.7	3.0	Tj=25°C, VGE=15V, IC=150A	V
		–	3.3	–	Tj=125°C, VGE=15V, IC=150A	
Input capacitance	Cies	–	15000	–	VGE=0V	pF
Output capacitance	Coes	–	2000	–	VCE=10V	
Reverse tranfer capacitance	Cres	–	1000	–	f=1MHz	
Turn-on time	ton	–	–	1.20	VCC=600V	µs
	tr	–	–	0.60	IC=150A	
Turn-off time	toff	–	–	1.00	VGE=±15V	
	tf	–	–	0.30	RG=5.6Ω	
Diode forward on voltage	VF	–	2.4	3.3	IF=150A, VGE=0V	V
Reverse recovery time	trr	–	–	0.35	IF=150A	µs

● **Thermal resistance characteristics**

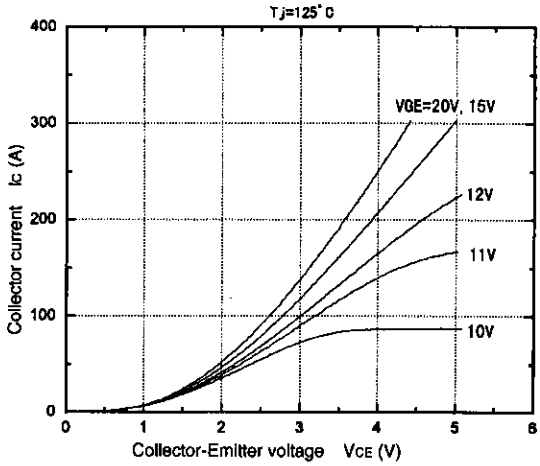
Item	Symbol	Characteristics			Conditions	Unit
		Min.	Typ.	Max.		
Thermal resistance	Rth (j-c)	–	–	0.11	IGBT	°C/W
	Rth (j-c)	–	–	0.24	Diode	
	Rth (c-f)*	–	0.025	–	the base to cooling fin	

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

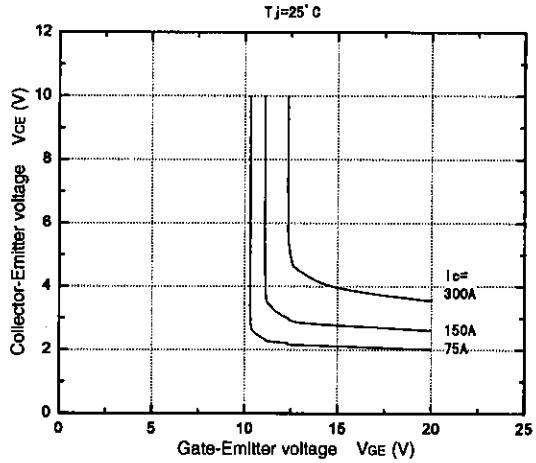
■ Characteristics



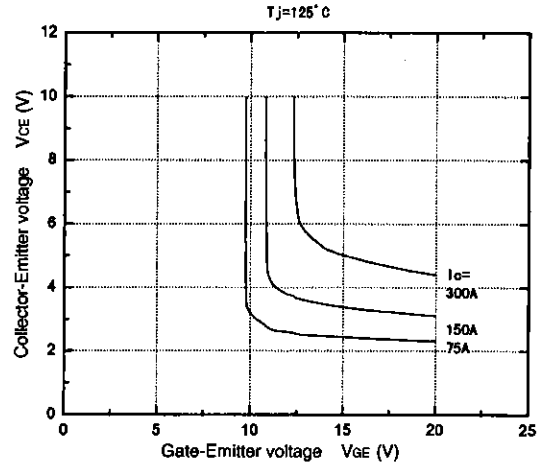
Collector current vs. Collector-Emitter voltage



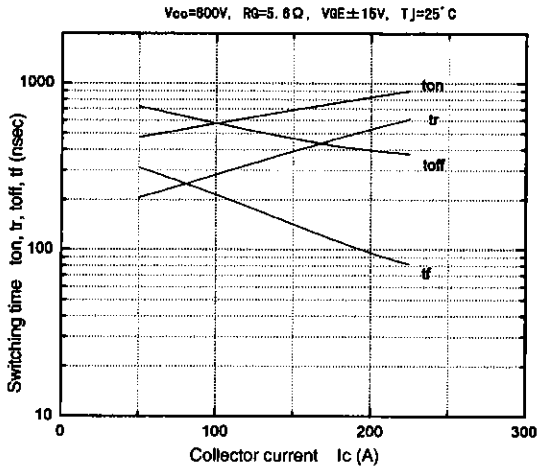
Collector current vs. Collector-Emitter voltage



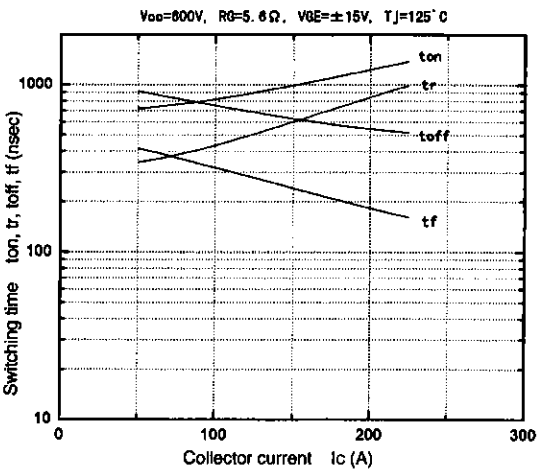
Collector-Emitter voltage vs. Gate-Emitter voltage



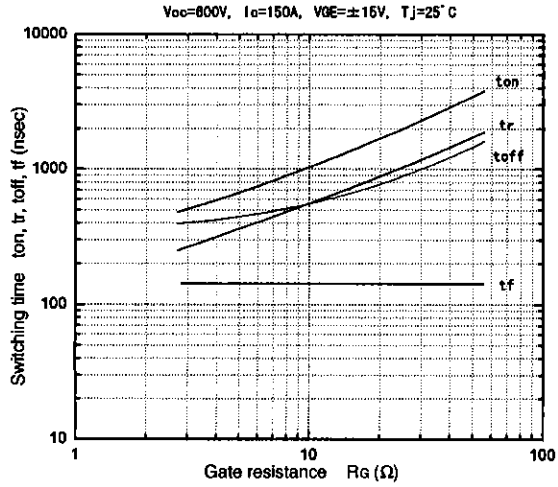
Collector-Emitter voltage vs. Gate-Emitter voltage



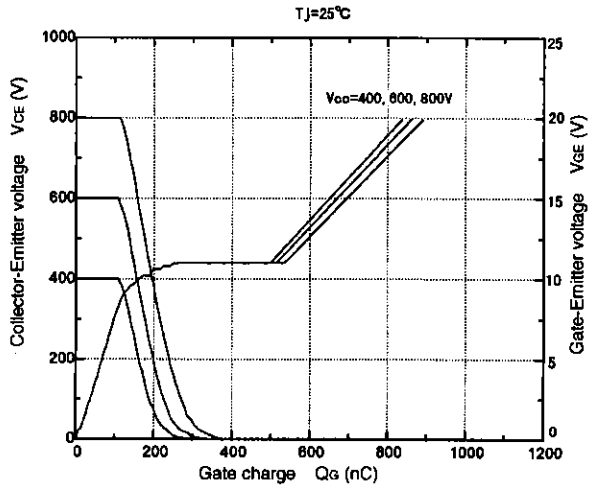
Switching time vs. Collector current



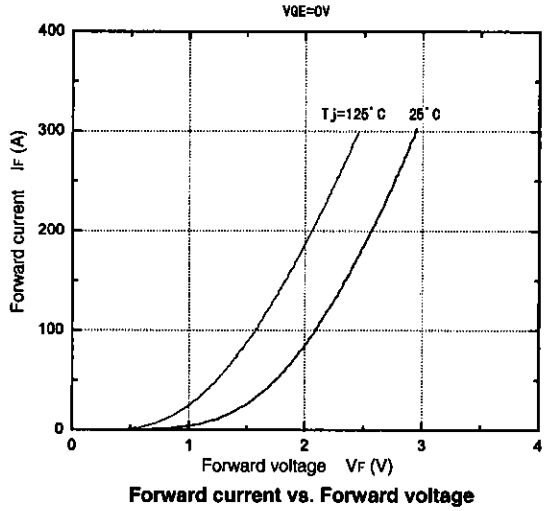
Switching time vs. Collector current



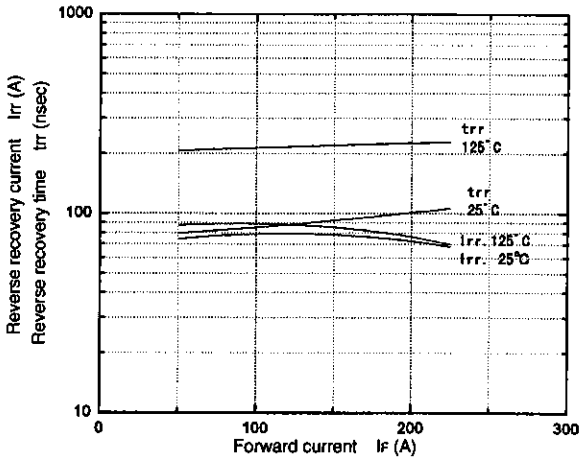
Switching time vs. Gate resistance



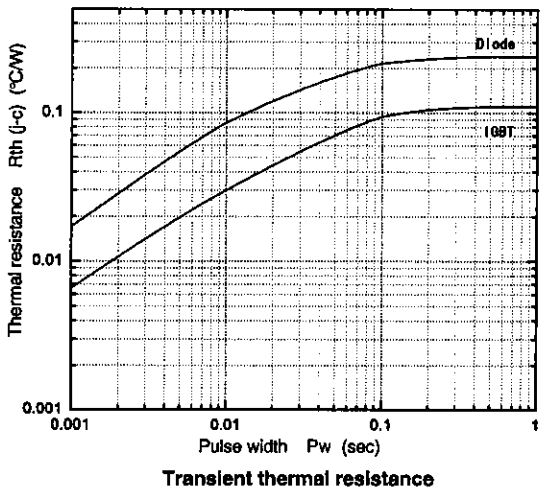
Dynamic input characteristics



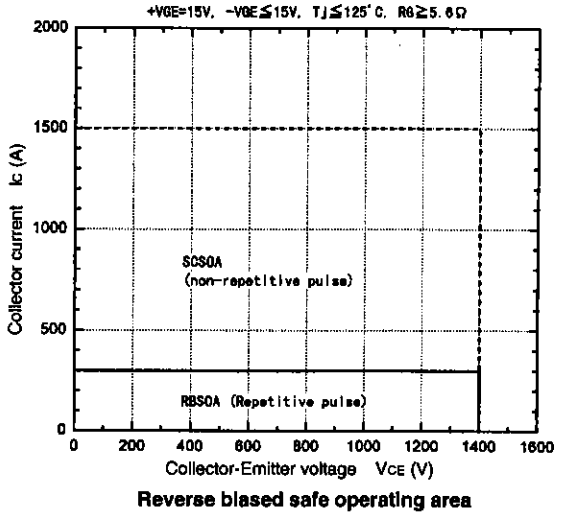
Forward current vs. Forward voltage



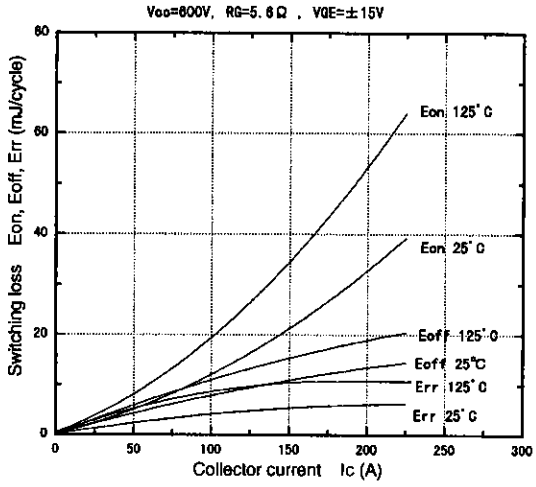
Trr, Irr vs. IF



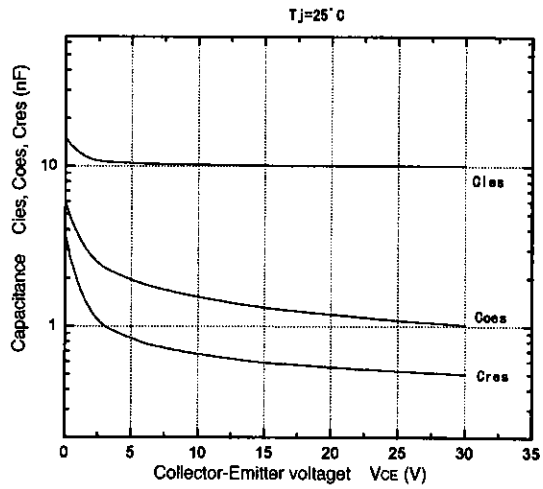
Transient thermal resistance



Reverse biased safe operating area



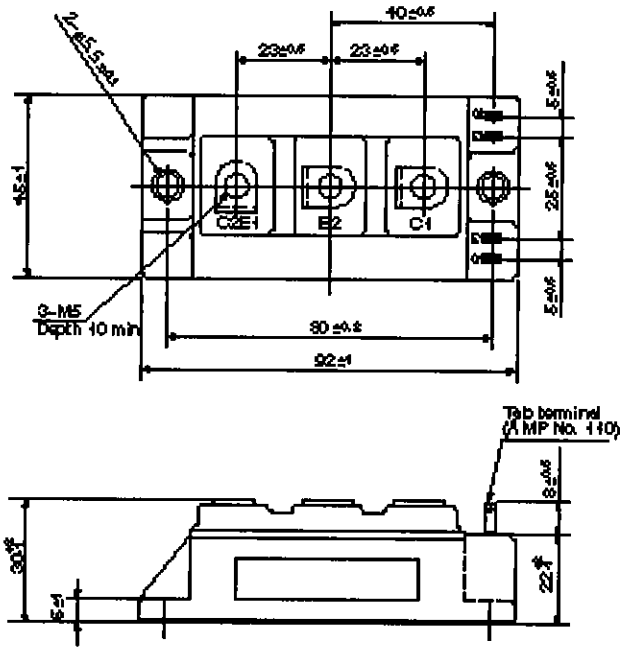
Switching loss vs. Collector current



Capacitance vs. Collector-Emitter voltage

■ Outline drawings, mm

M233



Mass : 240g