

IGBT Modules P series

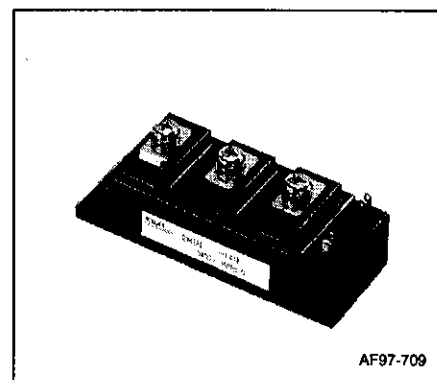
1400V / 50A 2 in one-package

■ 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)



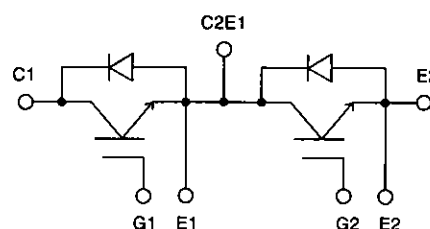
AF97-709

■ Maximum ratings and characteristics

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

Absolute maximum ratings (at 25 °C unless otherwise specified)					
Item		Symbol	Rating	Unit	
Collector-Emitter voltage		V _{CE}	1400	V	
Gate-Emitter voltage		V _{GE}	±20	V	
Collector current	Continuous	T _C =25°C	I _C	75	A
		T _C =80°C		50	
	1ms	T _C =25°C	I _C pulse	150	
		T _C =80°C		100	
	Continuous		-I _C	50	
	1ms		-I _C pulse	100	
Max power dissipation		P _C	400	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)

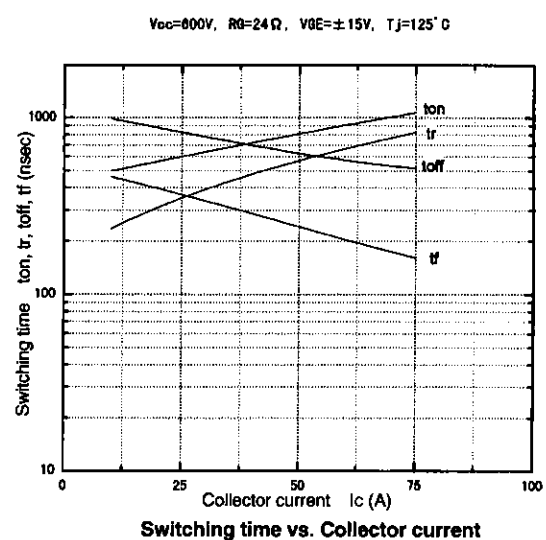
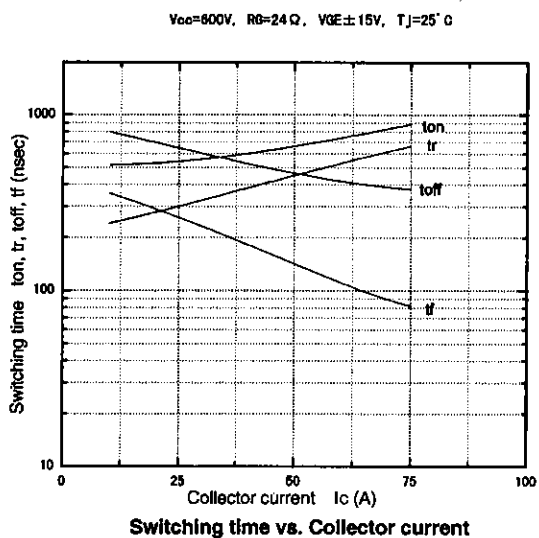
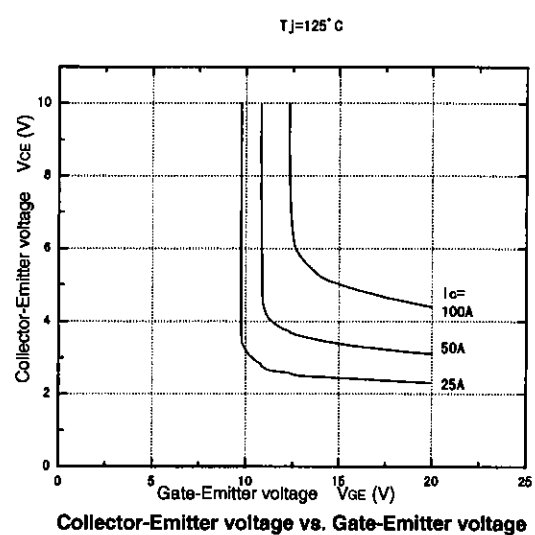
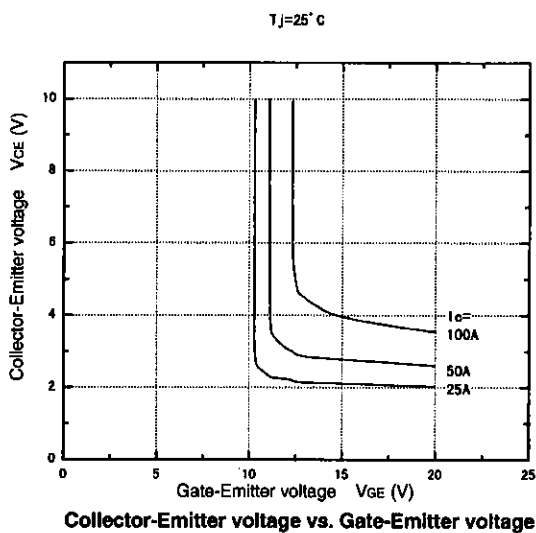
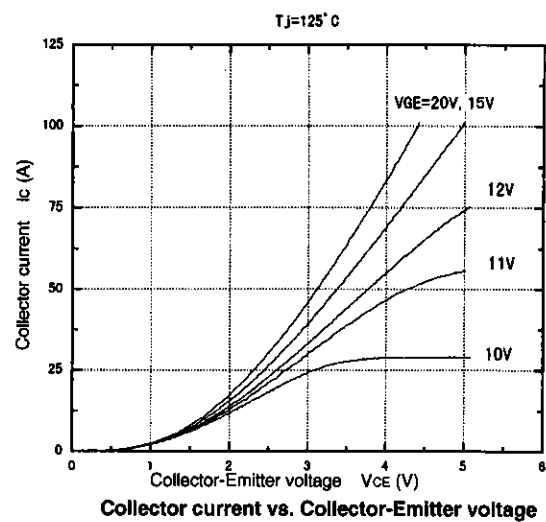
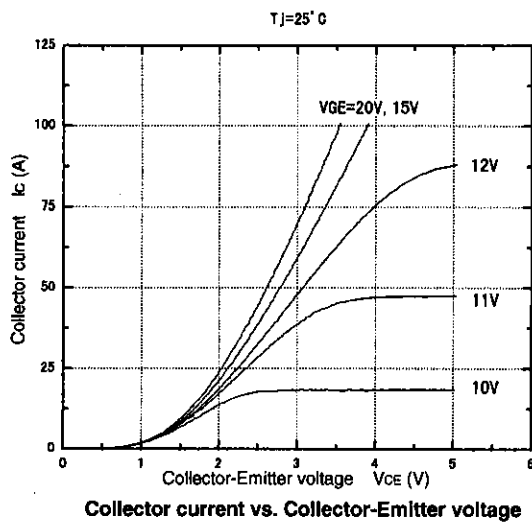
Item	Symbol	Characteristics			Conditions	Unit
		Min.	Typ.	Max.		
Zero gate voltage collector current	I _{CES}	—	—	1.0	V _{GE} =0V, V _{CE} =1400V	mA
Gate-Emitter leakage current	I _{GES}	—	—	200	V _{CE} =0V, V _{GE} =±20V	nA
Gate-Emitter threshold voltage	V _{GE} (th)	6.0	8.0	9.0	V _{CE} =20V, I _C =50mA	V
Collector-Emitter saturation voltage	V _{CE} (sat)	—	2.7	3.0	T _J =25°C, V _{GE} =15V, I _C =50A	V
		—	3.3	—	T _J =125°C, V _{GE} =15V, I _C =50A	
Input capacitance	C _{ies}	—	5000	—	V _{GE} =0V	pF
Output capacitance	C _{oes}	—	750	—	V _{CE} =10V	
Reverse transfer capacitance	C _{res}	—	330	—	f=1MHz	
Turn-on time	ton	—	—	1.20	V _{CC} =600V	μs
	tr	—	—	0.60	I _C =50A	
Turn-off time	toff	—	—	1.00	V _{GE} =±15V	μs
	tf	—	—	0.30	R _G =24Ω	
Diode forward on voltage	V _F	—	2.4	3.3	I _F =50A, V _{GE} =0V	V
Reverse recovery time	t _{rr}	—	—	0.35	I _F =50A	μs

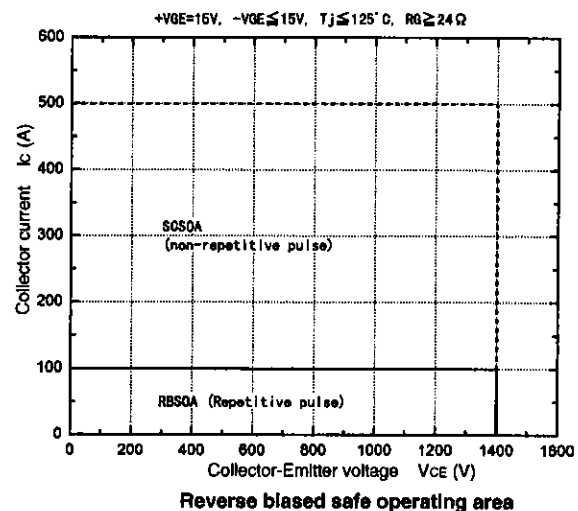
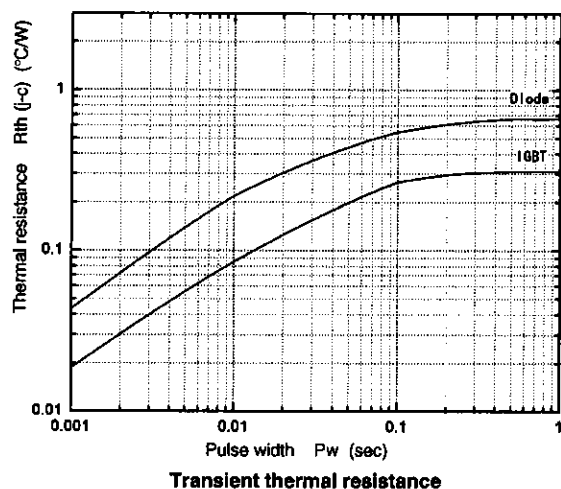
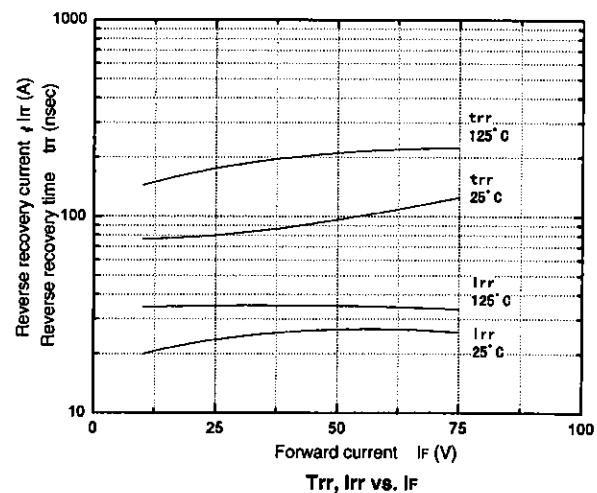
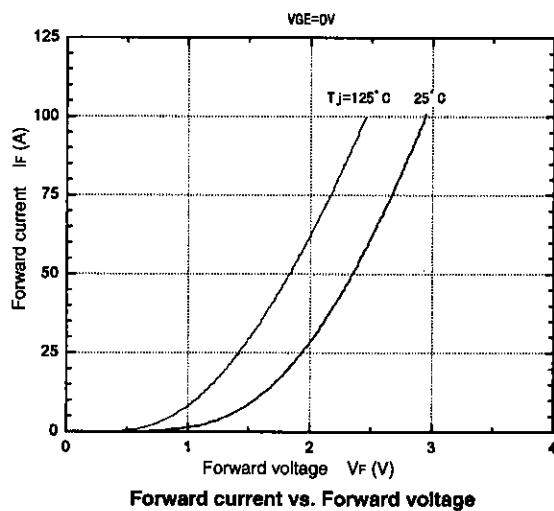
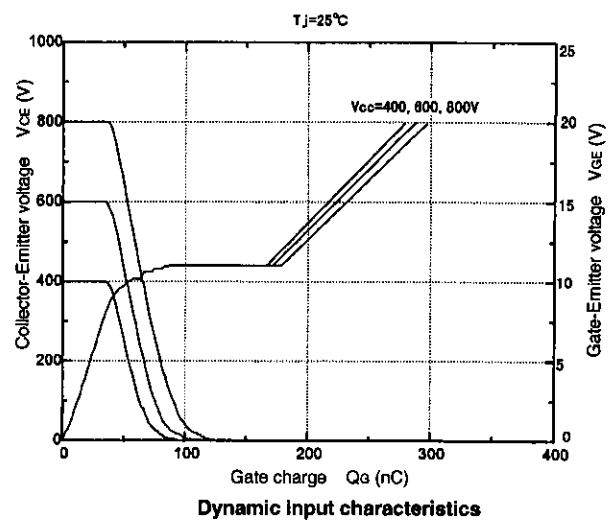
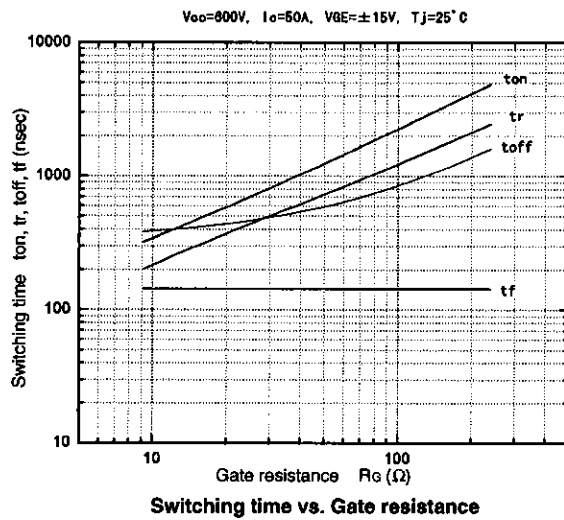
● Thermal resistance characteristics

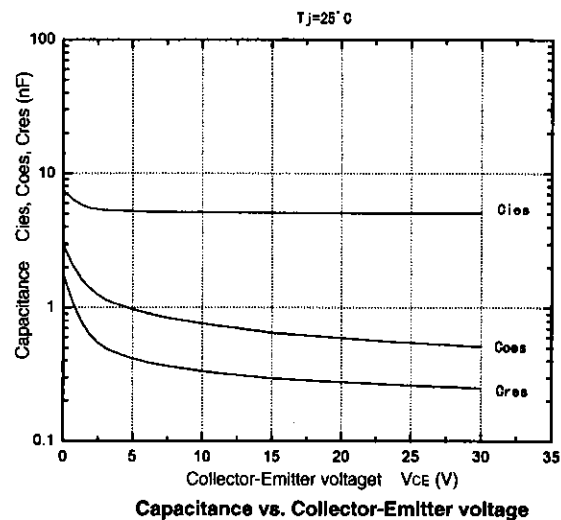
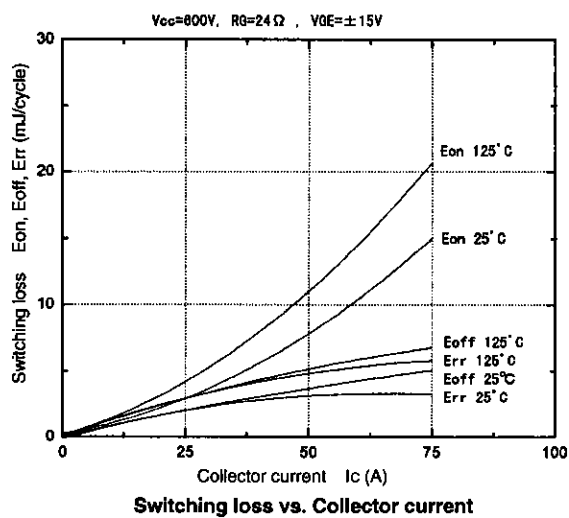
Item	Symbol	Characteristics			Conditions	Unit
		Min.	Typ.	Max.		
Thermal resistance	R _{th} (j-c)	—	—	0.31	IGBT	°C/W
	R _{th} (j-c)	—	—	0.66	Diode	
	R _{th} (c-f)*	—	0.05	—	the base to cooling fin	

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

Characteristics

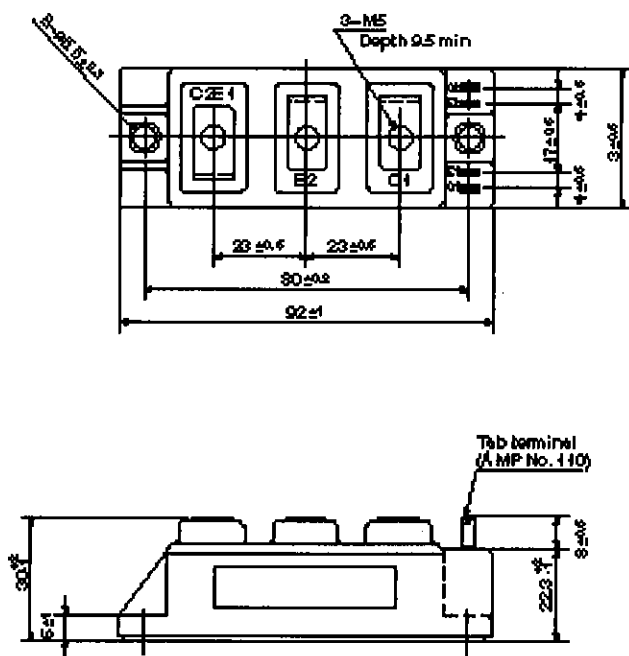






Outline drawings, mm

M232



Mass : 180g