SPECIFICATION

Device Name	:	IGBT Module
Type Name	:	6MBI100S-120-01
Spec. No.	:	MS5F 4848
Date	:	Jun. - 02 - 2000

Fuji Electric Co., Ltd.
Matsumoto Factory

	DATE	NAME	APPROVED
DRAWN	Jun. - 2 - '00	J. Kobayashi	
CHECKED	June - 2 - 00	S. Ishida	T. Miyasaka

Fuji Electric Co.,Ltd.

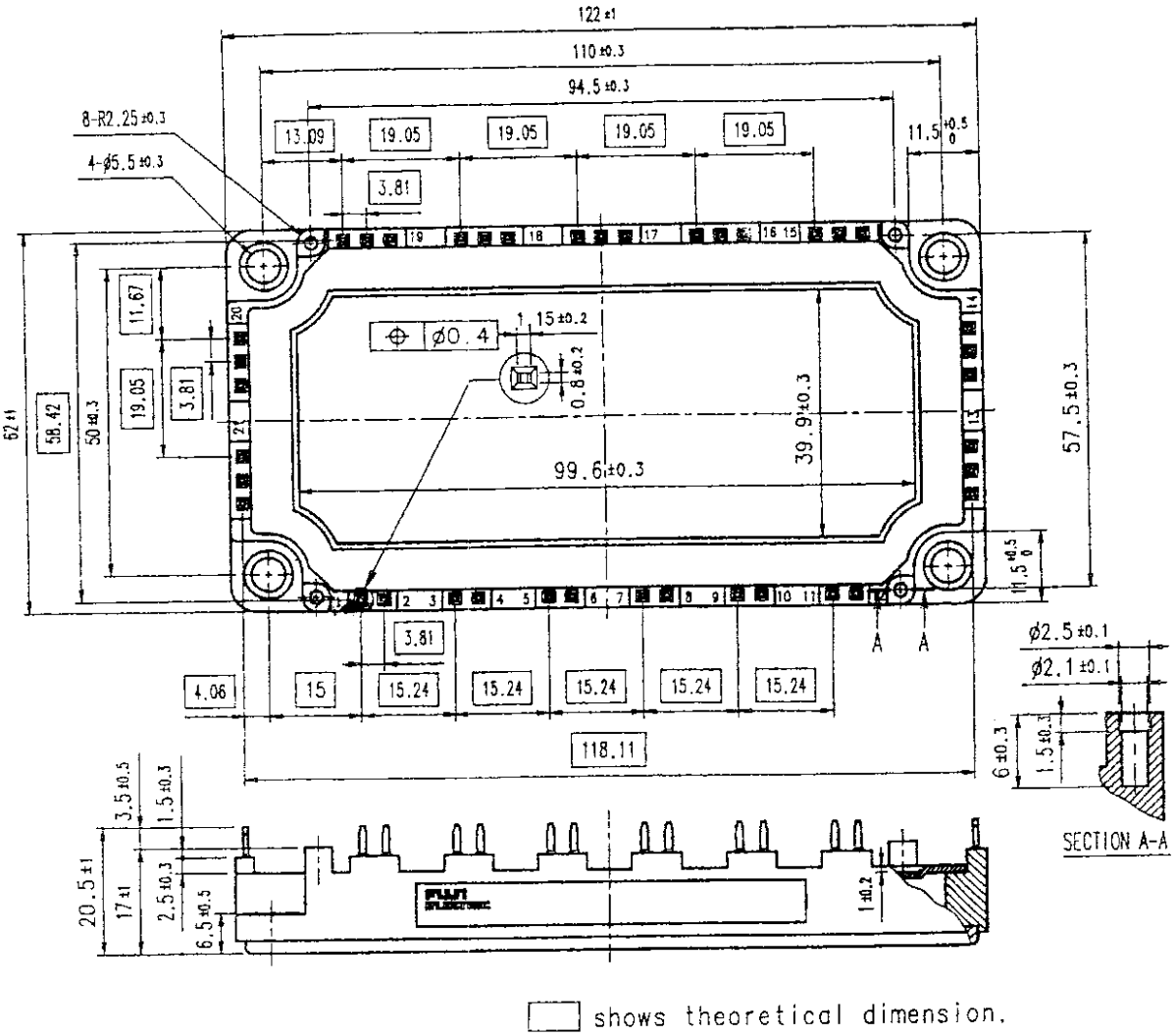
DWG.NO. MS5F 4848 1/8

H04-004-05

Revised Records

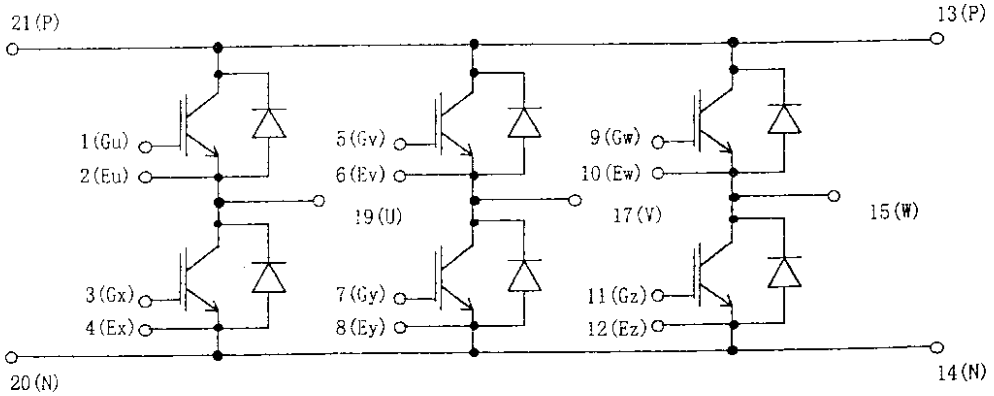
Date	Classi-fication	Ind.	Content	Applied date	Drawn	Checked	Approved
Jun.-2-'00	enactment	—	—	Issued date	—	S. Miyata	T. Hayasaka

1. Outline Drawing (Unit : mm)



shows theoretical dimension.

2. Equivalent circuit



3. Absolute Maximum Ratings (at Tc= 25C unless otherwise specified)

Items	Symbols	Conditions		Maximum Ratings	Units
Collector-Emitter voltage	VCES			1200	V
Gate-Emitter voltage	VGES			+-20	V
Collector current	Ic	Continuous	Tc=25C	150	A
			Tc=80C	100	
	Ic pulse	1ms	Tc=25C	300	
			Tc=80C	200	
	-Ic			100	
	-Ic pulse	1ms		200	
Collector Power Dissipation	Pc	1 device		700	W
Junction temperature	Tj			150	C
Storage temperature	Tstg			-40~ +125	C
Isolation voltage(*1)	Viso	AC : 1min.		2500	V
Mounting Screw Torque (*2)				3.5	Nm

(*1) All terminals should be connected together when isolation test will be done.

(*2) Recommendable Value : 2.5~3.5 Nm (M5)

4. Electrical characteristics (at Tj= 25C unless otherwise specified)

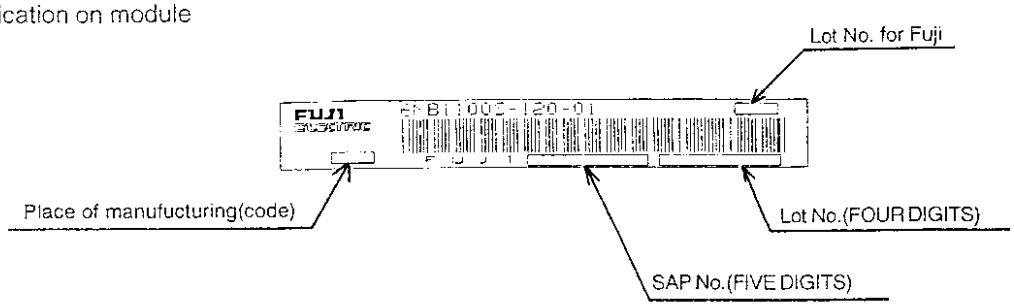
Items	Symbols	Conditions		Characteristics min.	typ.	Max.	Units
Zero gate voltage Collector current	ICES	VGE 0 V, VCE 1200 V				1.0	mA
Gate-Emitter leakage current	IGES	VCE 0 V, VGE +-20 V				200	nA
Gate-Emitter threshold voltage	VGE(th)	VCE 20 V, Ic = 100 mA		5.5	7.2	8.5	V
Collector-Emitter saturation voltage	VCE(sat)	VGE 15 V	Tj = 25 C		2.3	2.6	V
		Ic = 100 A	Tj = 125 C		2.8		
Input capacitance	Cies	VGE 0 V			12000		pF
Output capacitance	Coes	VCE 10 V			2500		
Reverse transfer capacitance	Cres	f = 1 MHz			2200		
Turn-on time	ton	Vcc = 600 V			0.35	1.2	us
	tr	Ic = 100 A			0.25	0.6	
	$tr_{(i)}$	VGE +-15 V			0.1		
Turn-off time	toff	RG = 12 ohm			0.45	1.0	
	tf				0.08	0.3	
Forward on voltage	VF	IF = 100 A	Tj = 25 C		2.5	3.3	V
			Tj = 125 C		2.0		
Reverse recovery time	trr	IF = 100 A				0.35	us

5. Thermal resistance characteristics

Items	Symbols	Conditions	Characteristics min.	typ.	Max.	Units
Thermal resistance (1 device)	Rth(j-c)	IGBT			0.18	C/W
		FWD			0.36	
Contact Thermal resistance	Rth(c-f)	with Thermal Compound (*)		0.05		

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

6. Indication on module



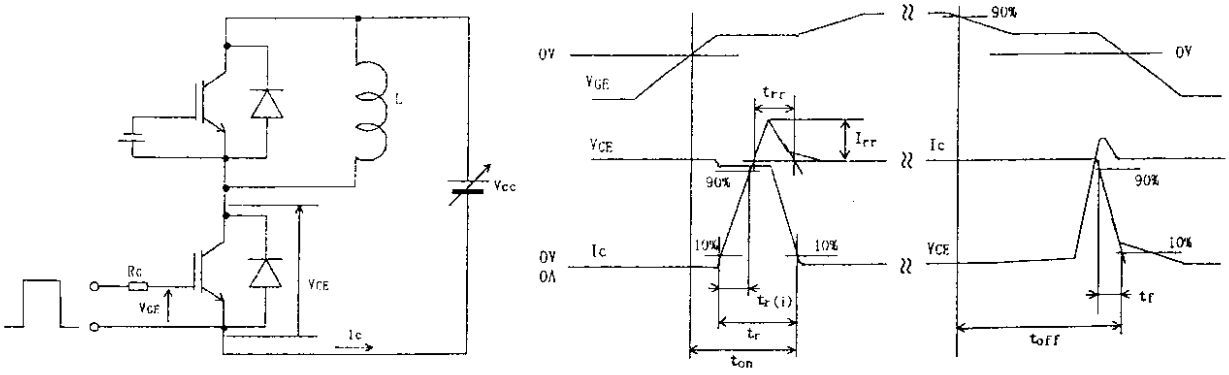
7. Applicable category

This specification is applied to IGBT Module named 6MBI100S-120-01.

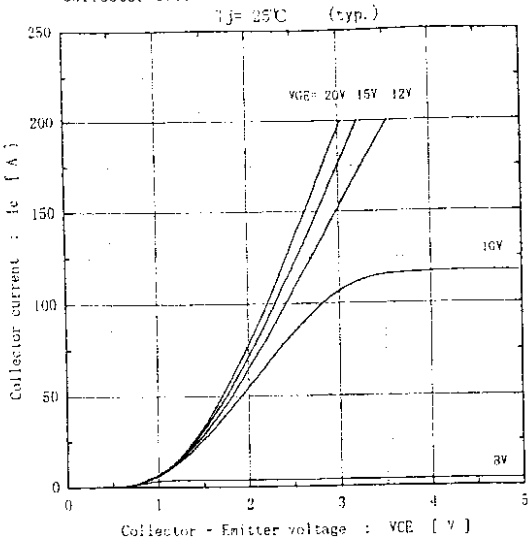
8. Storage and transportation notes

- The module should be stored at a standard temperature of 5 to 35℃ and humidity of 45 to 75% .
- Store modules in a place with few temperature changes in order to avoid condensation on the module surface.
- Avoid exposure to corrosive gases and dust.
- Avoid excessive external force on the module.
- Store modules with unprocessed terminals.
- Do not drop or otherwise shock the modules when tranporting.
- Please connect adequate fuse or protector of circuit between three-phase line and this product to prevent the equipment from causing secondary destruction.

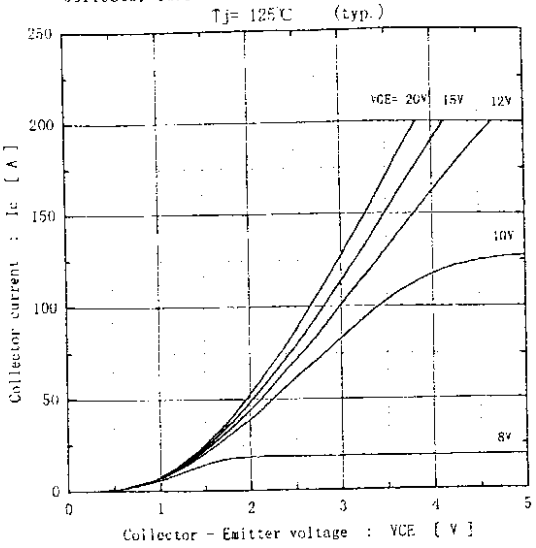
9. Definitions of switching time



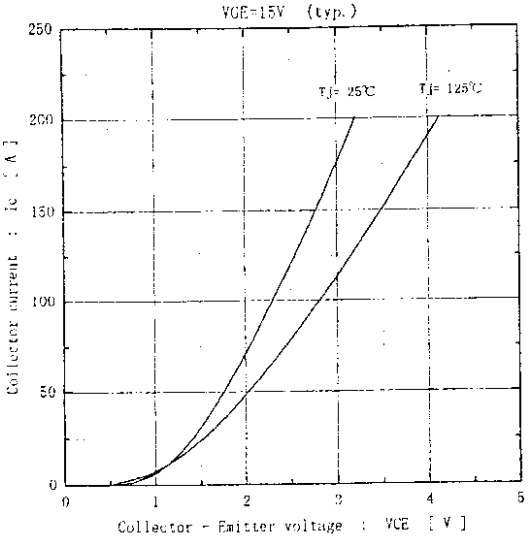
Collector current vs. Collector-Emitter voltage
Tj= 25℃ (typ.)



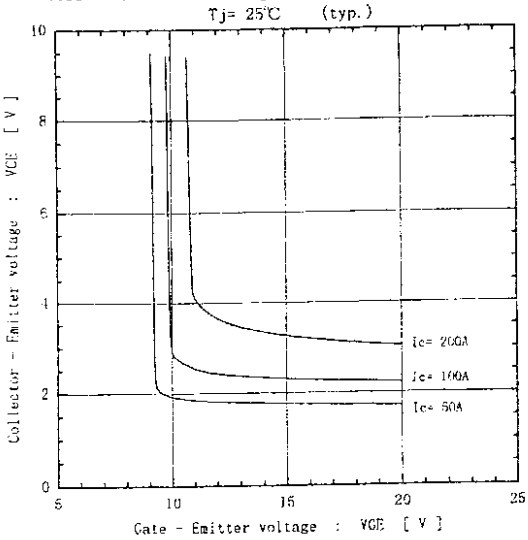
Collector current vs. Collector-Emitter voltage
Tj= 125℃ (typ.)



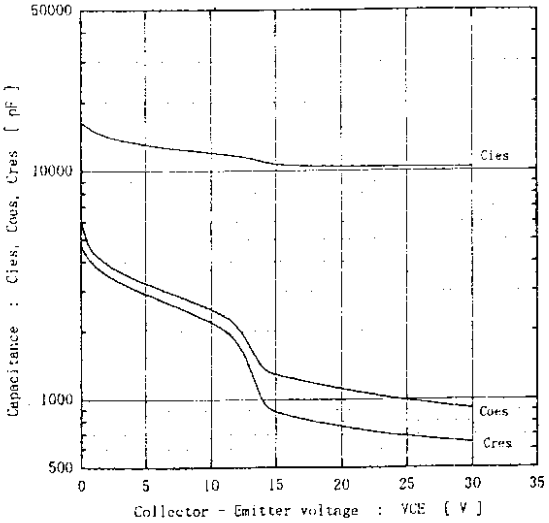
Collector current vs. Collector-Emitter voltage
VGE=15V (typ.)



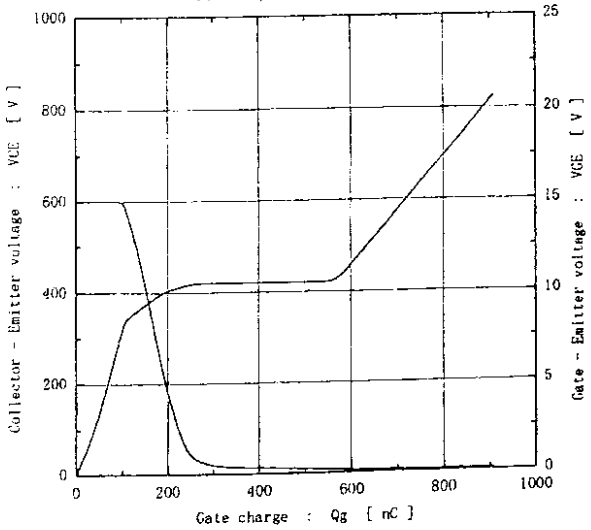
Collector-Emitter voltage vs. Gate-Emitter voltage
Tj= 25℃ (typ.)



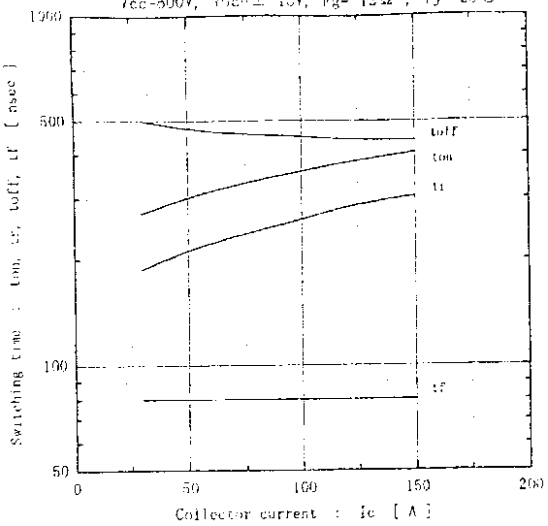
Capacitance vs. Collector-Emitter voltage (typ.)
VGE=0V, f= 1MHz, Tj= 25℃



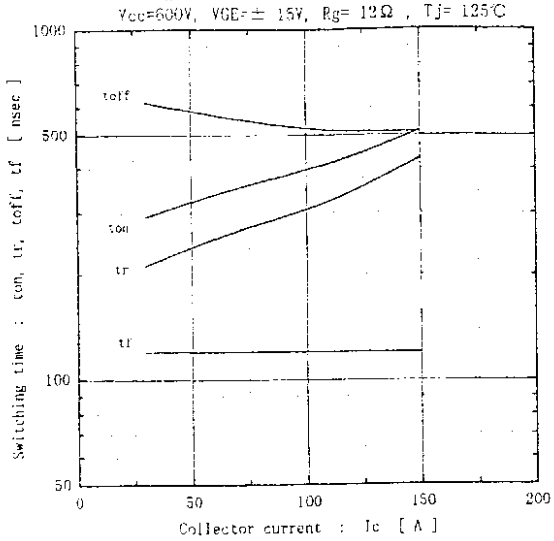
Dynamic Gate charge (typ.)
Vcc=600V, Ic=100A, Tj= 25℃



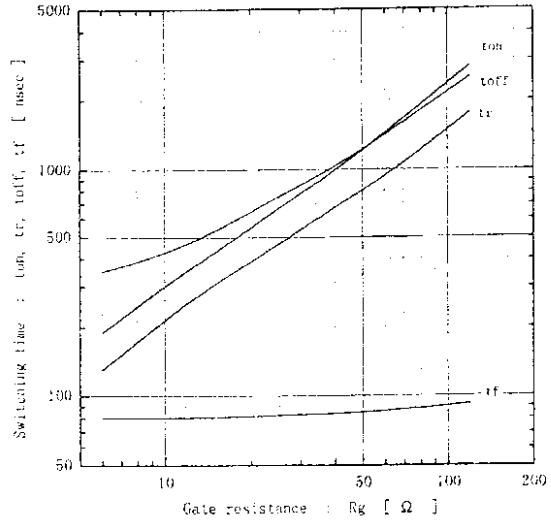
Switching time vs. Collector current (typ.)
Vcc=600V, VGE=± 15V, Rg= 12Ω , Tj= 25℃



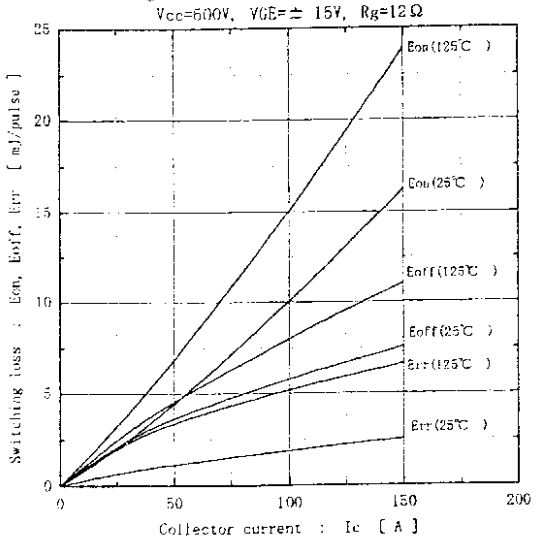
Switching time vs. Collector current (typ.)
Vcc=600V, VGE=± 15V, Rg= 12Ω , Tj= 125℃



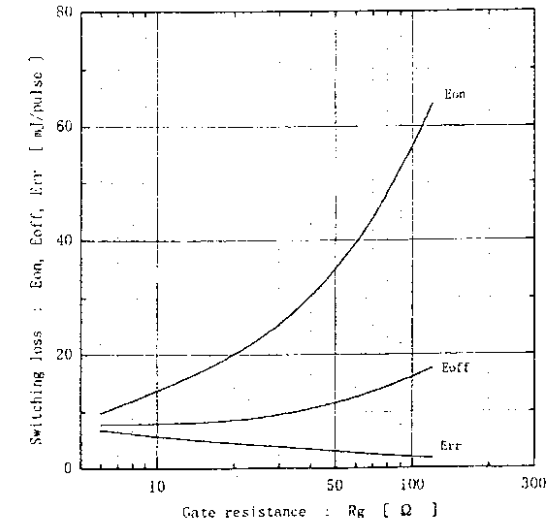
Switching time vs. Gate resistance (typ.)
Vcc=600V, Ic=100A, VGE=± 15V, Tj= 25℃



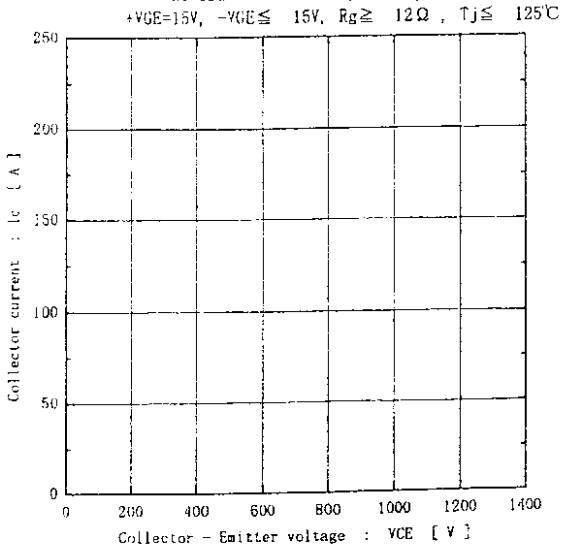
Switching loss vs. Collector current (typ.)
Vcc=600V, VGE=± 15V, Rg=12Ω



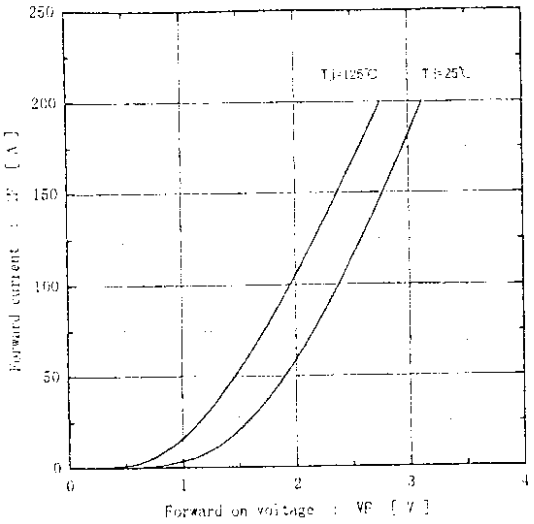
Switching loss vs. Gate resistance (typ.)
Vcc=600V, Ic=100A, VGE=± 15V, Tj= 125℃



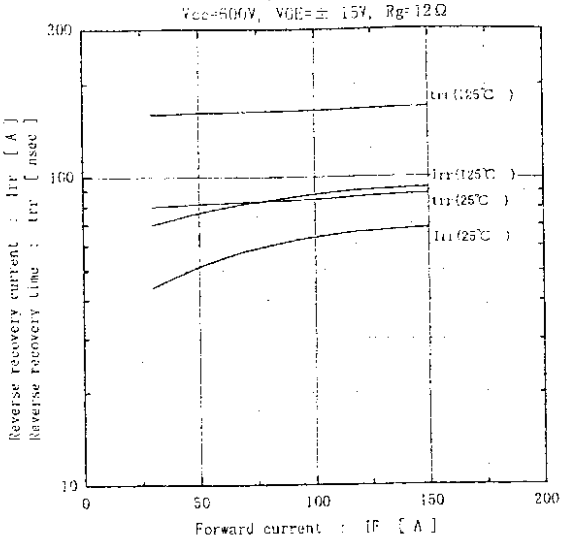
Reverse bias safe operating area
+VGE=15V, -VGE≦ 15V, Rg≧ 12Ω , Tj≦ 125℃



Forward current vs. Forward on voltage (typ.)



Reverse recovery characteristics (typ.)
Vcc=600V, VGE=± 15V, Rg=12Ω



Transient thermal resistance