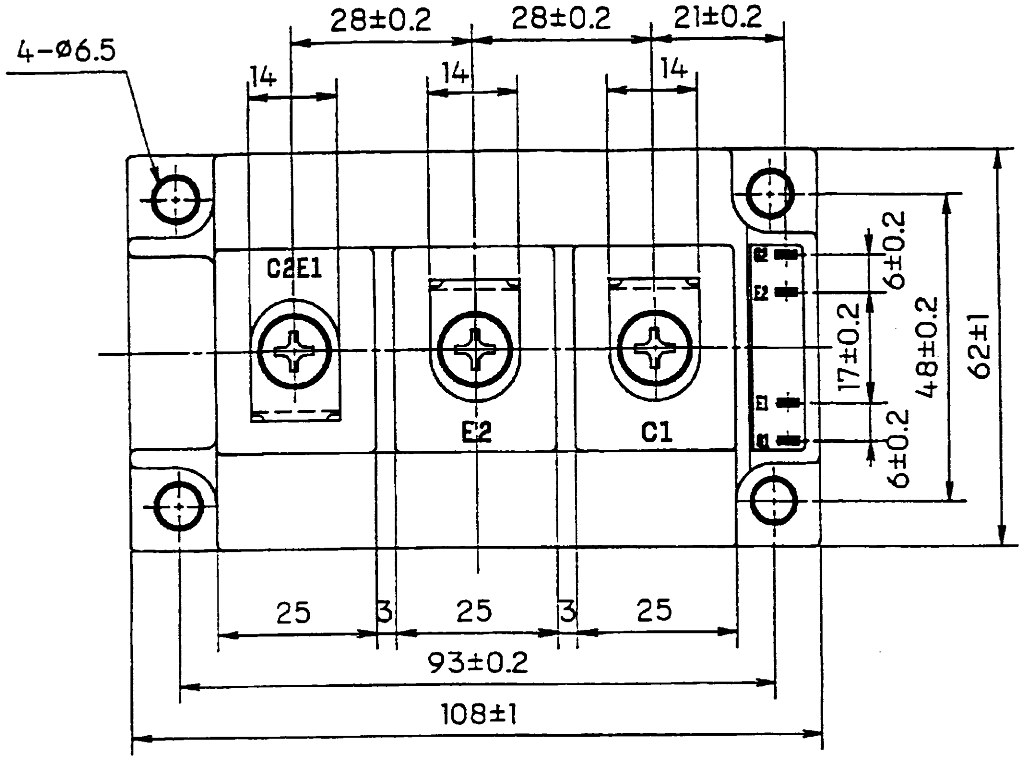
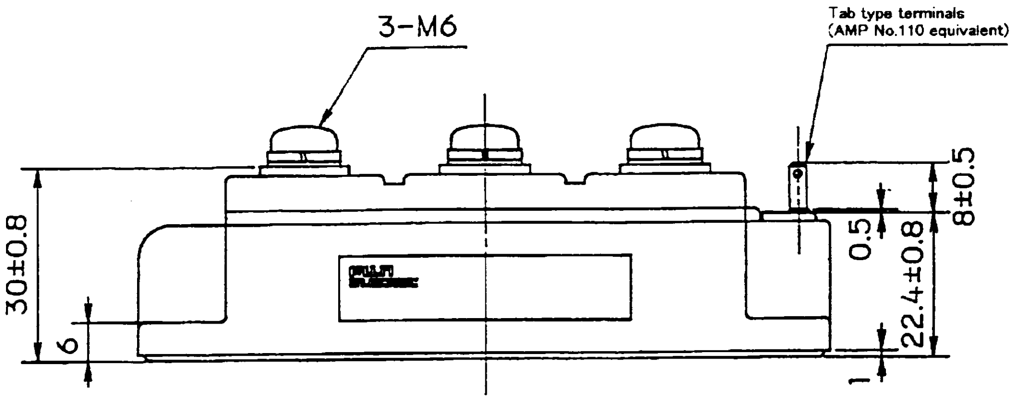
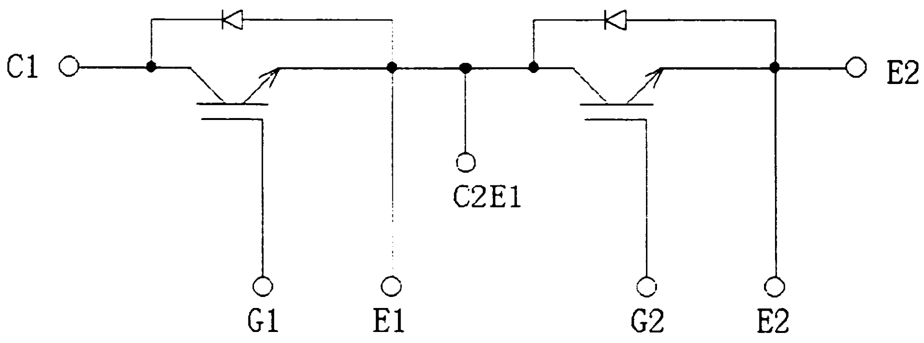
Target Specification of 2MBI150S-120

1. Outline Drawing (Unit : mm)





2. Equivalent circuit



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CHECKED	Feb-11-'99	S. Miyota	
REVISIONS			

Fuji Electric Co.,Ltd.

DWG.NO. MT5F 9775 1/5

3. Absolute Maximum Ratings (at Tc= 25℃ 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=25℃	200	A
			Tc=80℃	150	
	Ic pulse	1ms	Tc=25℃	400	
			Tc=80℃	300	
	-Ic			150	
	-Ic pulse	1ms		300	
Collector Power Dissipation	Pc	1 device		1000	W
Junction temperature	Tj			150	℃
Storage temperature	Tstg			-40～ +125	℃
Isolation voltage(*1)	Viso	AC : 1min.		2500	V
Screw Torque	Mounting(*2)			3.5	N・m
	Terminals(*3)			4.5	

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

(*2) Recommendable Value : 2.5～3.5 N・m (M5) or (M6)

(*3) Recommendable Value : 3.5～4.5 N・m (M6)

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

Items	Symbols	Conditions		Characteristics min.	typ.	Max.	Units
Zero gate voltage Collector current	ICES	VGE = 0 V, VCE = 1200 V				2.0	mA
Gate-Emitter leakage current	IGES	VCE = 0 V, VGE = ±20 V				0.4	μA
Gate-Emitter threshold voltage	VGE(th)	VCE = 20 V, Ic = 150 mA		5.5	7.2	8.5	V
Collector-Emitter saturation voltage	VCE(sat)	VGE = 15 V	Tj = 25 ℃		2.3	2.6	V
		Ic = 150 A	Tj = 125 ℃		2.8		
Input capacitance	Cies	VGE = 0 V			18000		pF
Output capacitance	Coes	VCE = 10 V			3750		
Reverse transfer capacitance	Cres	f = 1 MHz			3300		
Turn-on time	ton	Vcc = 600 V				1.2	μs
	tr	Ic = 150 A				0.6	
	$tr_{(i)}$	VGE = ±15 V			0.1		
Turn-off time	toff	RG = 5.6 Ω				1.0	
	tf				0.08	0.3	
Forward on voltage	VF	IF = 150 A	Tj = 25 ℃		2.5	3.3	V
			Tj = 125 ℃		2.1		
Reverse recovery time	trr	IF = 150 A				0.35	μs

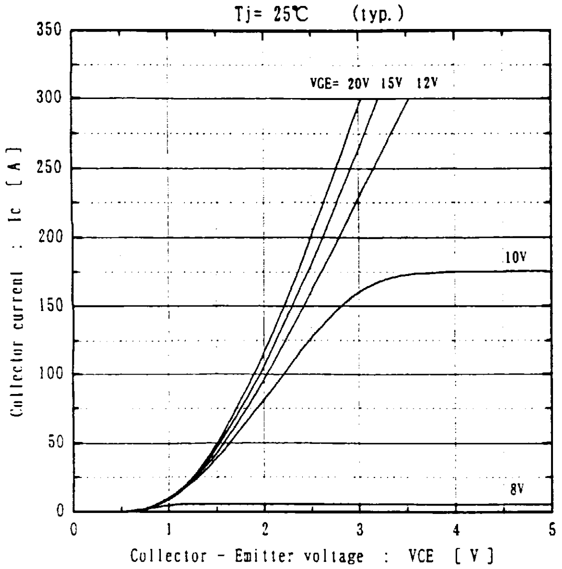
5. Thermal resistance characteristics

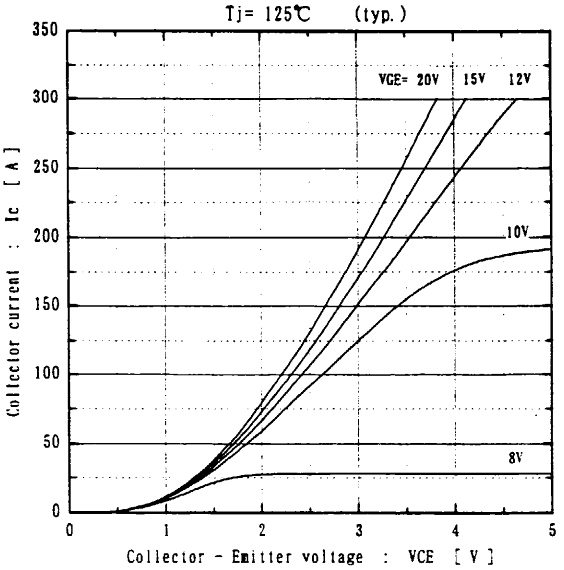
Items	Symbols	Conditions	Characteristics min.	typ.	Max.	Units
Thermal resistance (1 device)	Rth(j-c)	IGBT			0.125	℃/W
		FWD			0.36	
Contact Thermal resistance	Rth(c-f)	with Thermal Compound (※)		0.025		

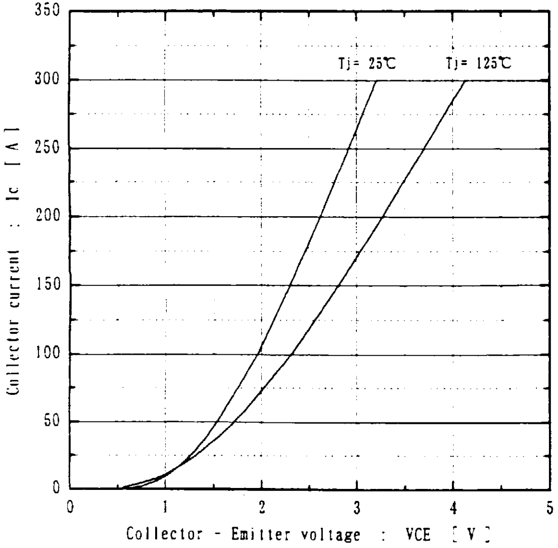
※ This is the value which is defined mounting on the additional cooling fin with thermal compound.

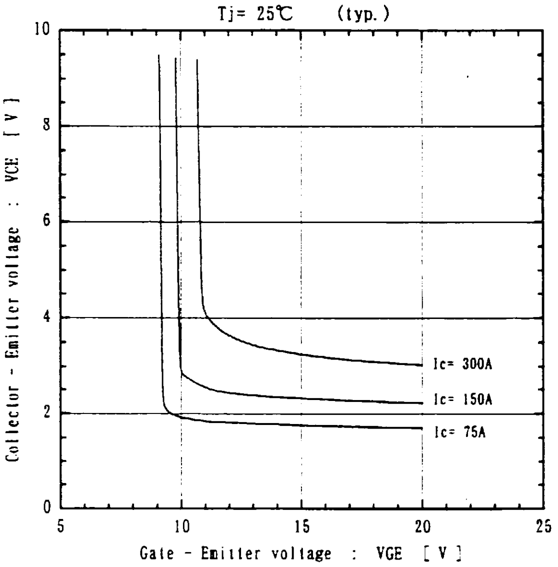
Note :

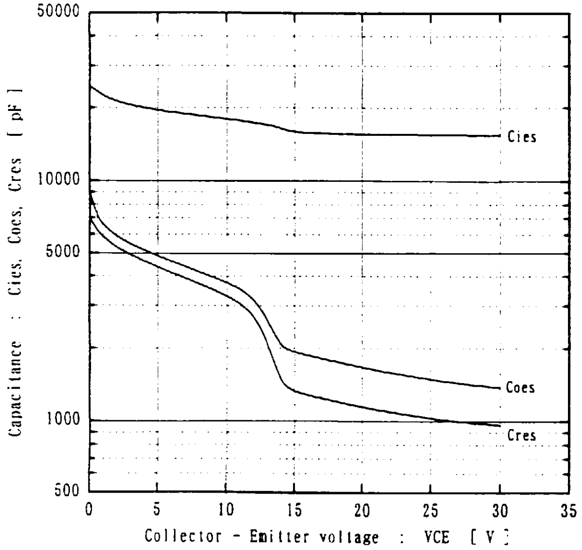
- *This specification is only for technical considerations, and not for contract.*
- *This specification is subject to be changed without notices.*

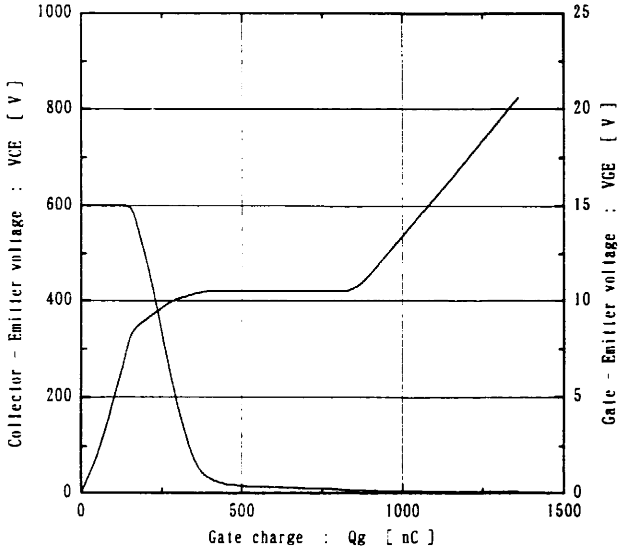

Collector current vs. Collector-Emitter voltage
Tj= 25℃ (typ.)


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

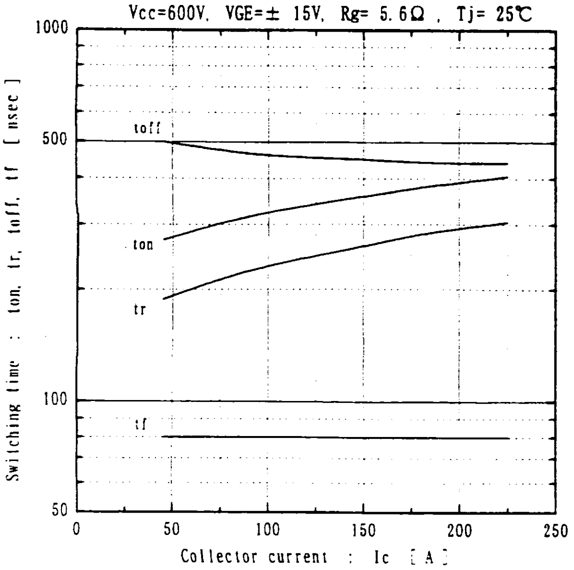

Collector current vs. Collector-Emitter voltage
VGE=15V (typ.)


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

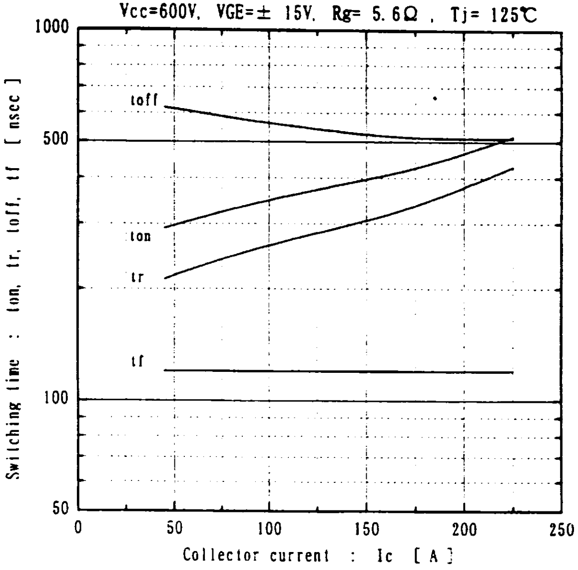

Capacitance vs. Collector-Emitter voltage (typ.)
VGE=0V, f= 1MHz, Tj= 25℃


Dynamic Gate charge (typ.)
Vcc=600V, Ic=150A, Tj= 25℃

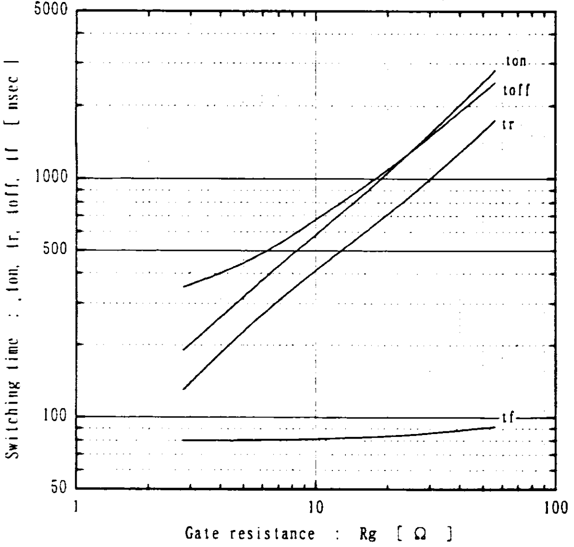
Switching time vs. Collector current (typ.)
Vcc=600V, VGE=± 15V, Rg= 5.6Ω , Tj= 25℃



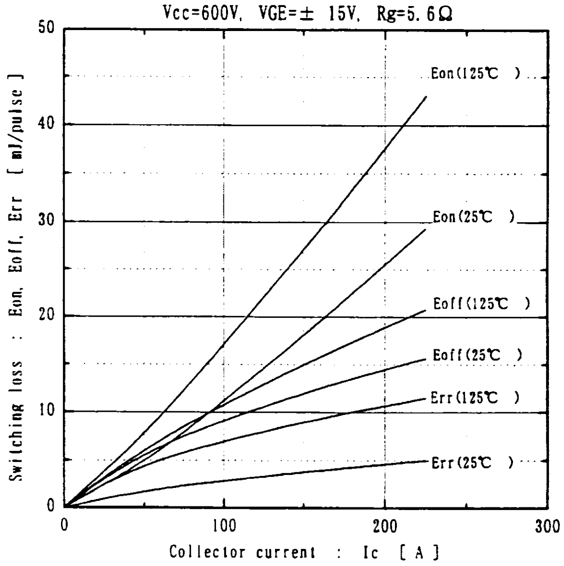
Switching time vs. Collector current (typ.)
Vcc=600V, VGE=± 15V, Rg= 5.6Ω , Tj= 125℃



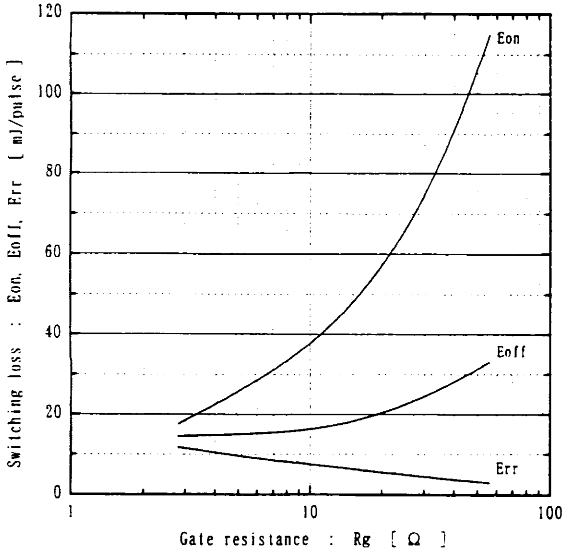
Switching time vs. Gate resistance (typ.)
Vcc=600V, Ic=150A, VGE=± 15V, Tj= 25℃



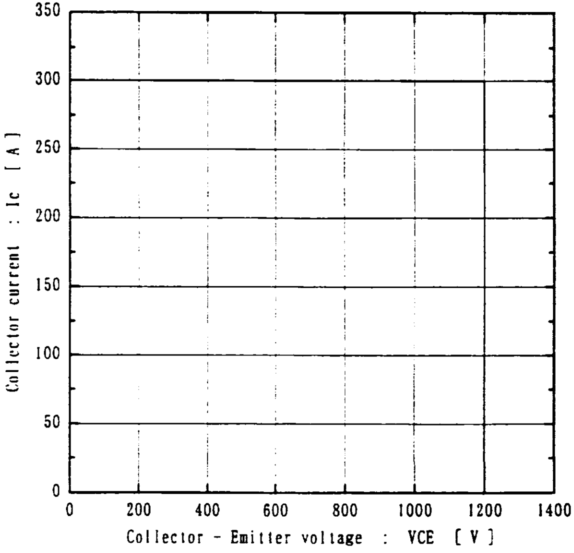
Switching loss vs. Collector current (typ.)
Vcc=600V, VGE=± 15V, Rg=5.6Ω



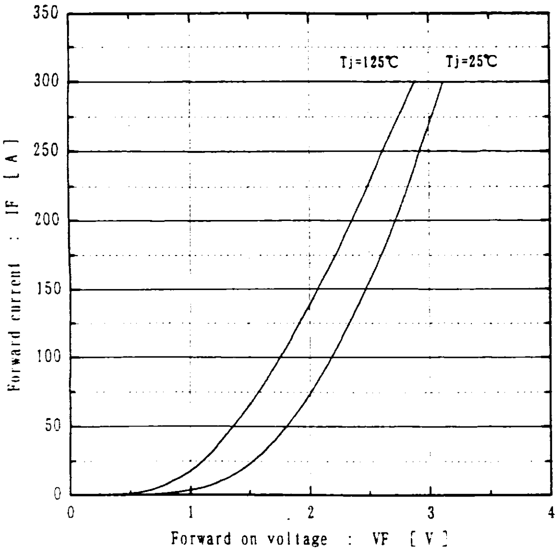
Switching loss vs. Gate resistance (typ.)
Vcc=600V, Ic=150A, VGE=± 15V, Tj= 125℃



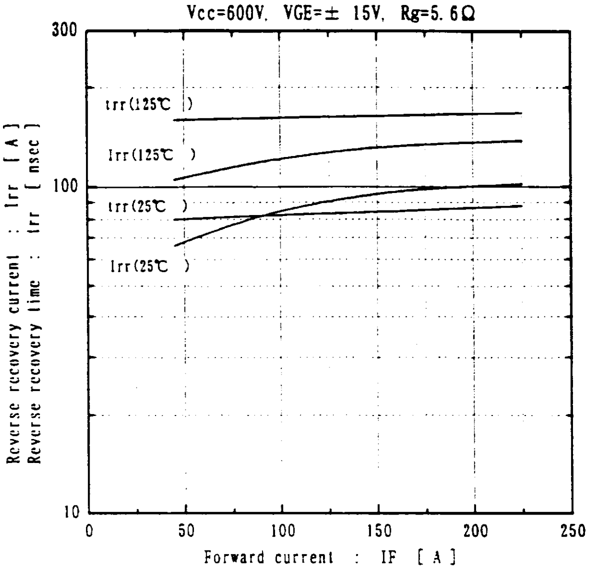
Reverse bias safe operating area
+VGE=15V, -VGE≦ 15V, Rg≧ 5.6Ω , Tj≦ 125℃



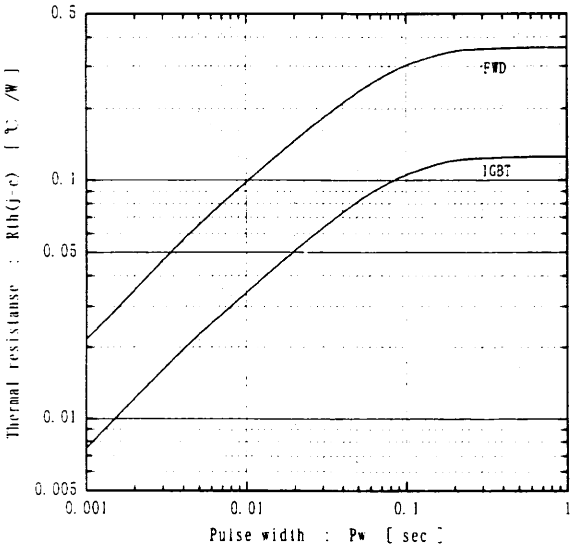
Forward current vs. Forward on voltage (typ.)



Reverse recovery characteristics (typ.)
Vcc=600V, VGE=± 15V, Rg=5.6Ω



Transient thermal resistance



Definitions of switching time