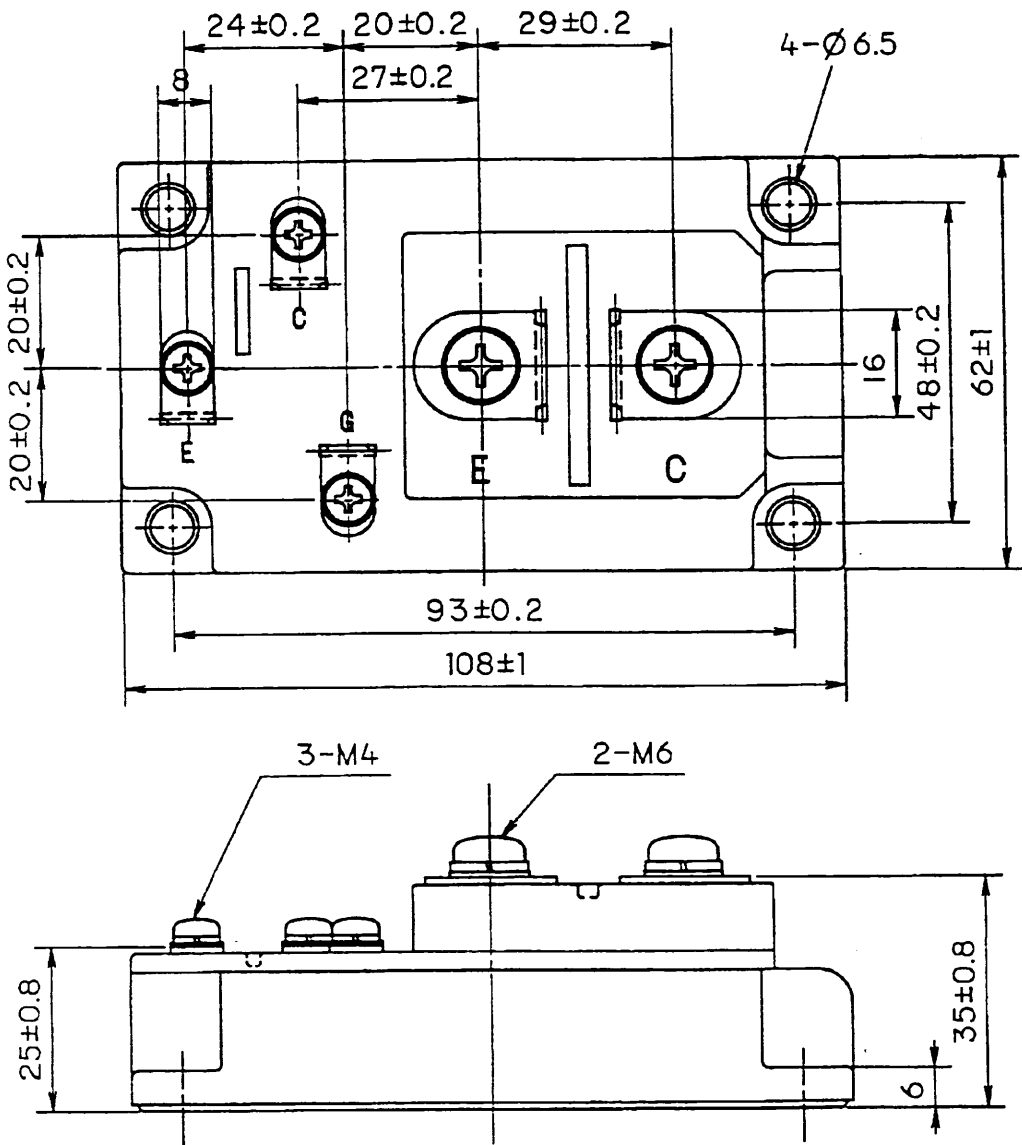
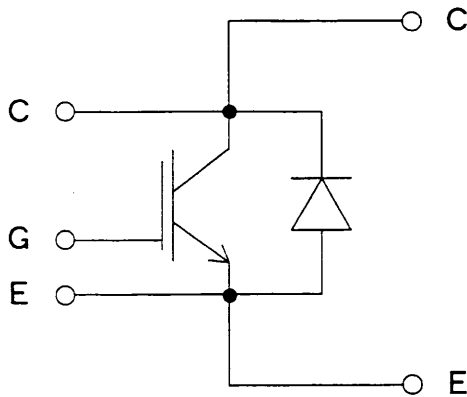


Target Specification of 1MBI400SA-120

1. Outline Drawing (Unit : mm)



2. Equivalent circuit



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REVISIONS	DATE	NAME	APPROVED	Fuji Electric Co., Ltd.	
	DRAWN Feb - 11 - 99	N. Arikawa		DWG. NO.	MT 5 F 9 7 7 9
	CHECKED Feb - 11 - 99	S. Arikawa			1 / 5

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

Items	Symbols	Conditions		Maximum Ratings	Units
Collector-Emitter voltage	V _{CES}			1200	V
Gate-Emitter voltage	V _{GES}			± 20	V
Collector current	I _c	Continuous	T _c =25℃	600	A
			T _c =80℃	400	
	I _c pulse	1ms	T _c =25℃	1200	
			T _c =80℃	800	
	-I _c			400	
	-I _c pulse	1ms		800	
Collector Power Dissipation	P _c	1 device		2500	W
Junction temperature	T _j			150	℃
Storage temperature	T _{stg}			-40 ~ +125	℃
Isolation voltage ^(※1)	Viso	AC : 1min.		2500	V
Screw Torque	Mounting ^(※2)			3. 5	N · m
	Terminals ^(※3)			4. 5	
	Terminals ^(※4)			1. 7	

(*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) Recommendable Value : 1.3~1.7 N · m (M4)

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

Items	Symbols	Conditions	Characteristics			Units
			min.	typ.	Max.	
Zero gate voltage Collector current	I _{CES}	V _{GE} = 0 V, V _{CE} = 1200 V			4.0	mA
Gate-Emitter leakage current	I _{GES}	V _{CE} = 0 V, V _{GE} = ±20 V			0.8	μA
Gate-Emitter threshold voltage	V _{GE(th)}	V _{CE} = 20 V, I _c = 400 mA	5.5	7.2	8.5	V
Collector-Emitter saturation voltage	V _{CE(sat)}	V _{GE} = 15 V, T _j = 25℃		2.3	2.6	V
		I _c = 400 A, T _j = 125℃		2.8		
Input capacitance	C _{ies}	V _{GE} = 0 V		48000		pF
Output capacitance	C _{oes}	V _{CE} = 10 V		10000		
Reverse transfer capacitance	C _{res}	f = 1 MHz		8800		
Turn-on time	t _{on}	V _{cc} = 600 V			1.2	μs
	t _r	I _c = 400 A			0.6	
	t _{r(l)}	V _{GE} = ±15 V		0.1		
Turn-off time	t _{off}	RG = 1.8 Ω			1.0	
	t _f			0.08	0.3	
Forward on voltage	V _F	IF = 400 A, T _j = 25℃		2.4	3.3	V
		T _j = 125℃		2.0		
Reverse recovery time	t _{rr}	IF = 400 A			0.35	μs

5. Thermal resistance characteristics

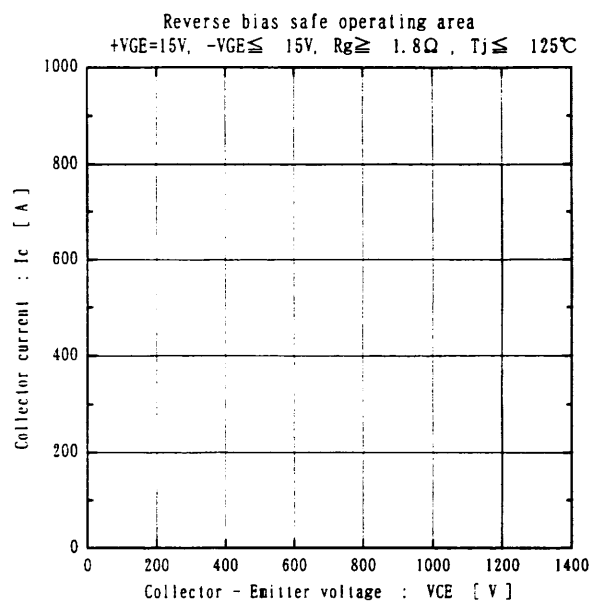
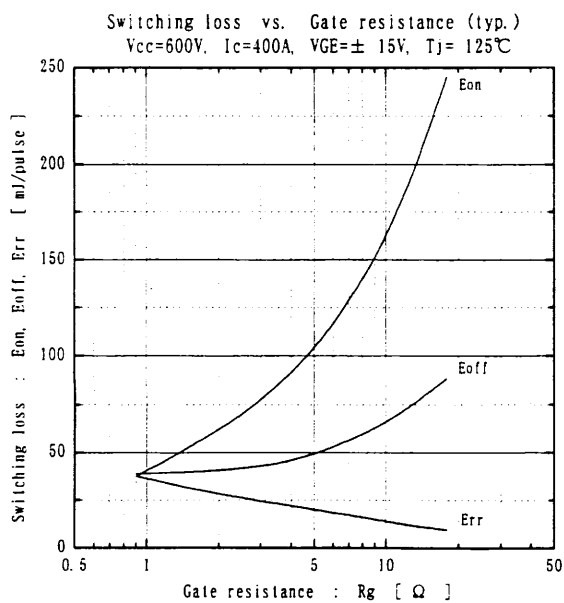
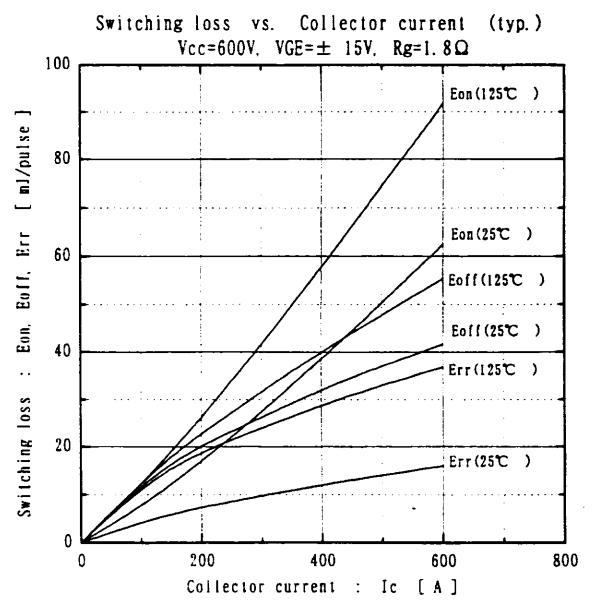
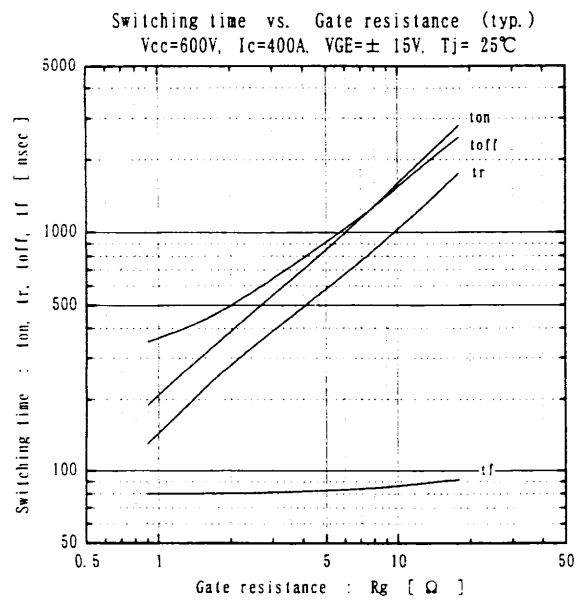
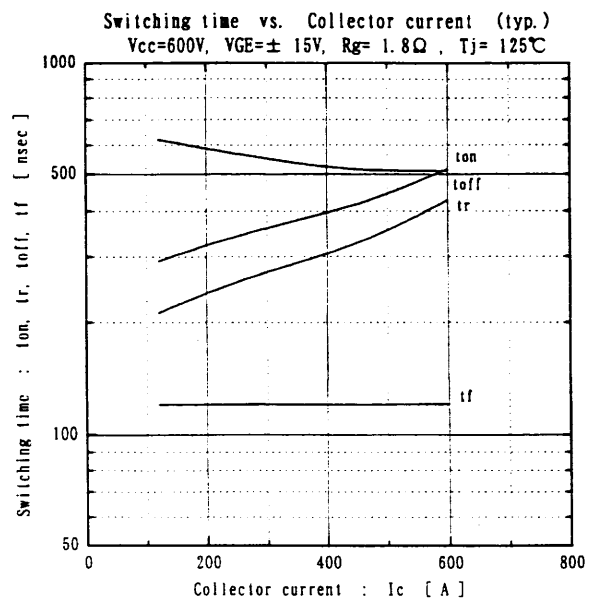
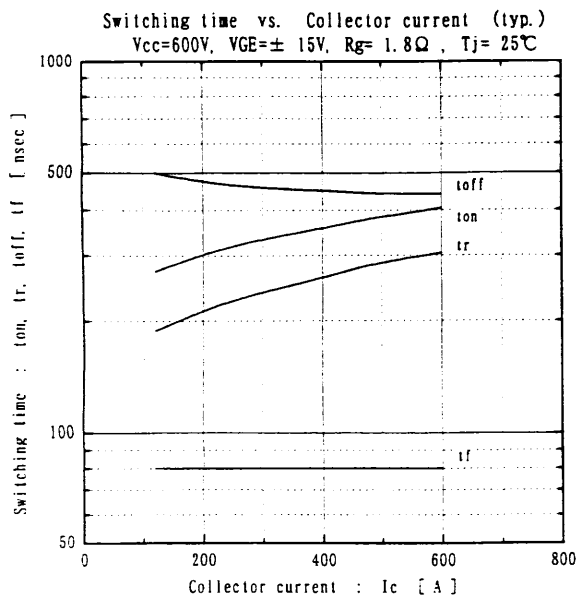
Items	Symbols	Conditions	Characteristics			Units
			min.	typ.	Max.	
Thermal resistance (1 device)	R _{th(j-c)}	IGBT			0.050	℃/W
		FWD			0.160	
Contact Thermal resistance	R _{th(c-f)}	with Thermal Compound (*)		0.0125		

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

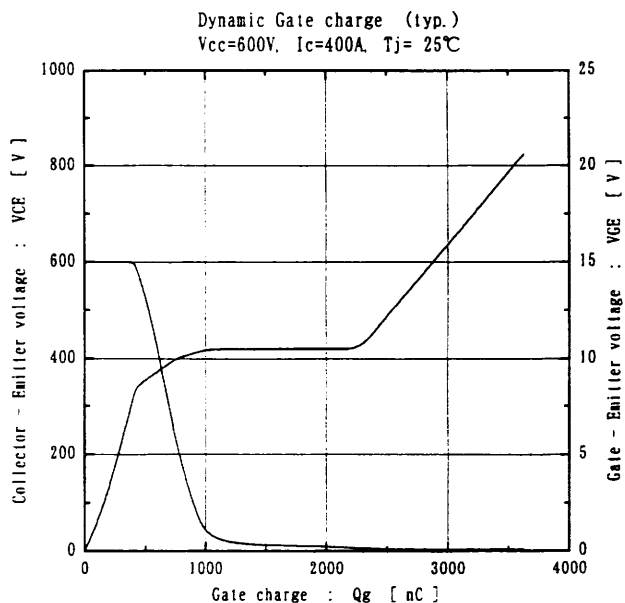
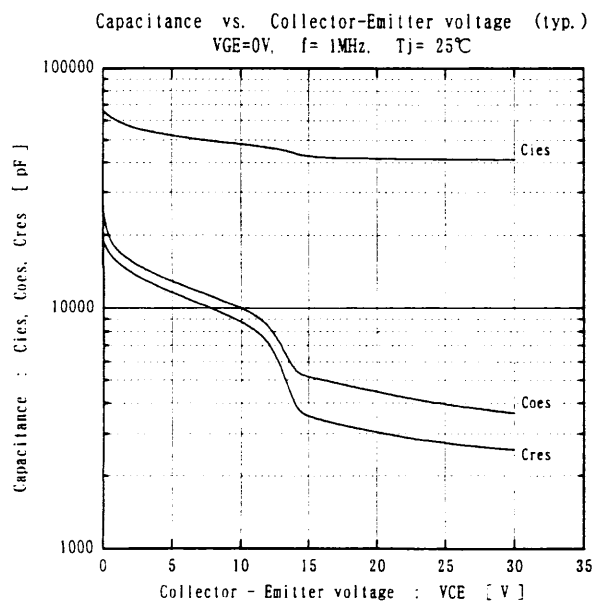
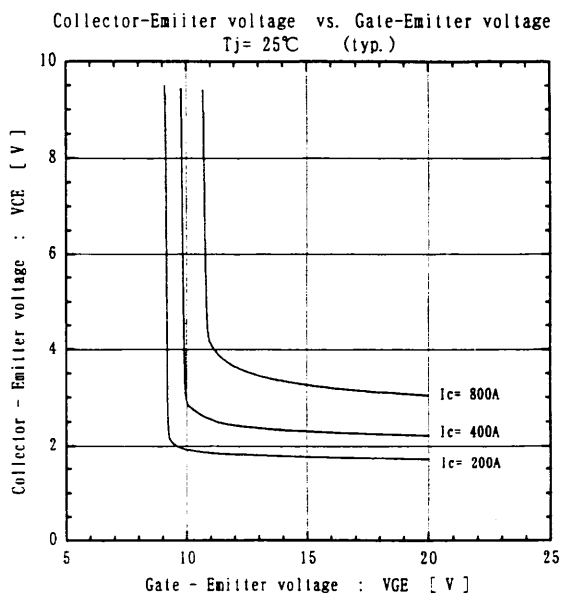
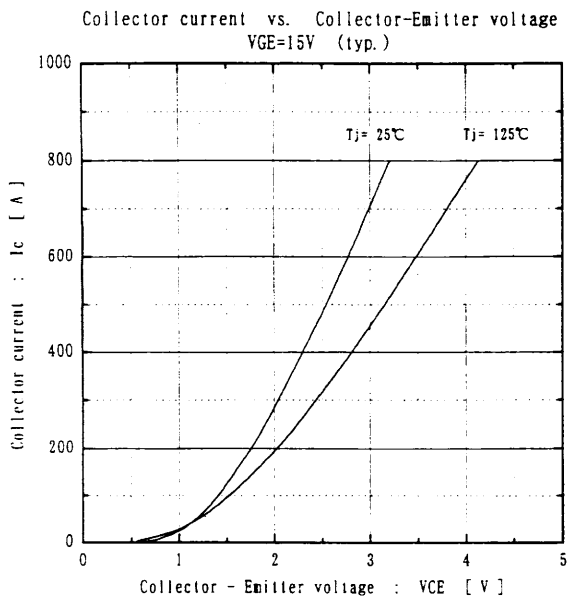
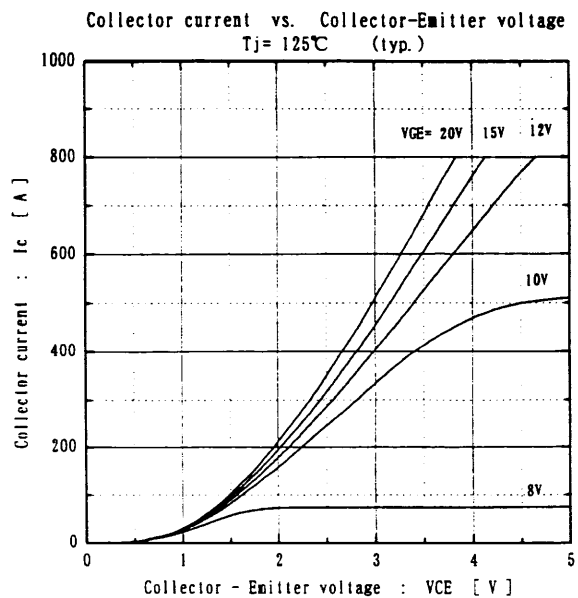
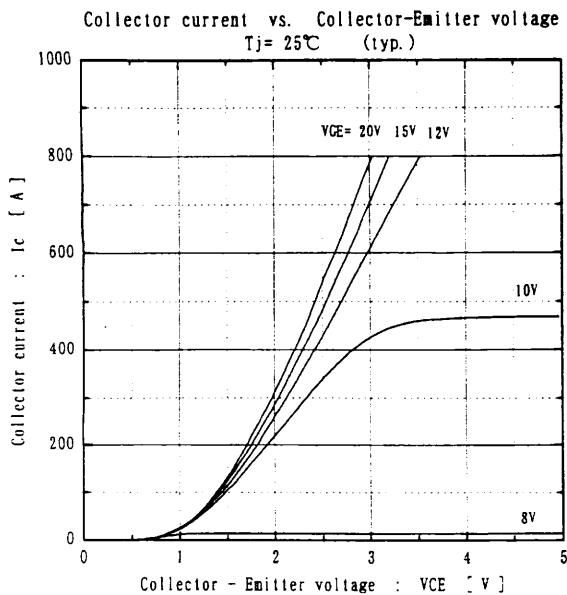
Note :

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

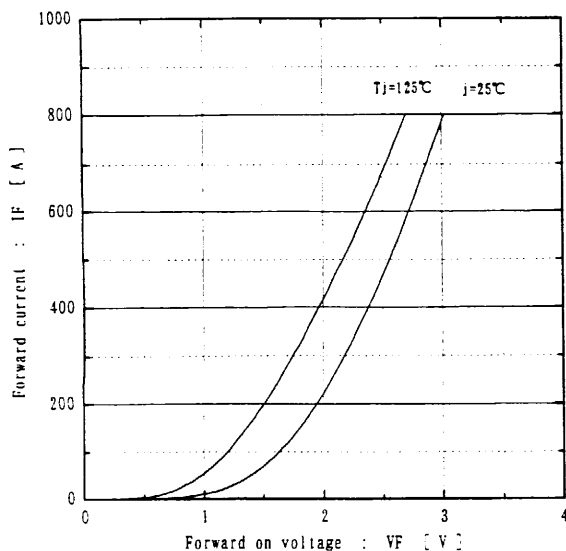
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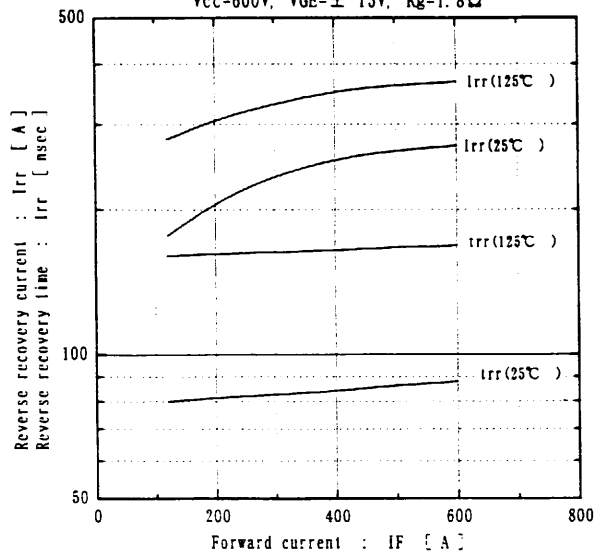


Forward current vs. Forward on voltage (typ.)

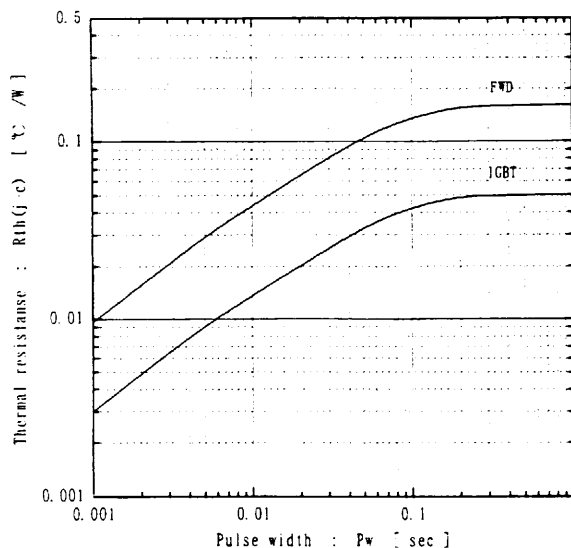


Reverse recovery characteristics (typ.)

$V_{CC}=600\text{V}$, $V_{GE}=\pm 15\text{V}$, $R_g=1.8\Omega$



Transient thermal resistance



Definitions of switching time

