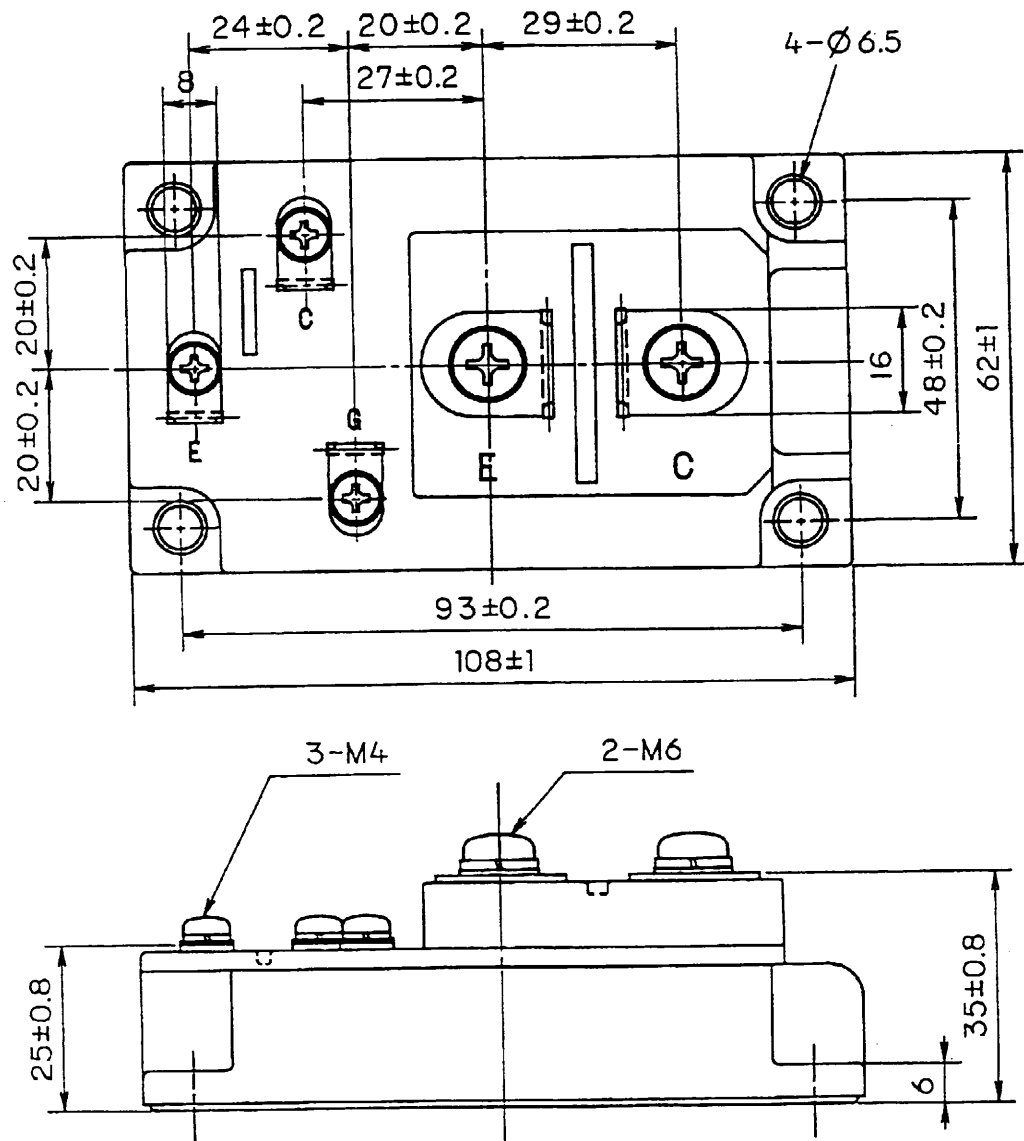
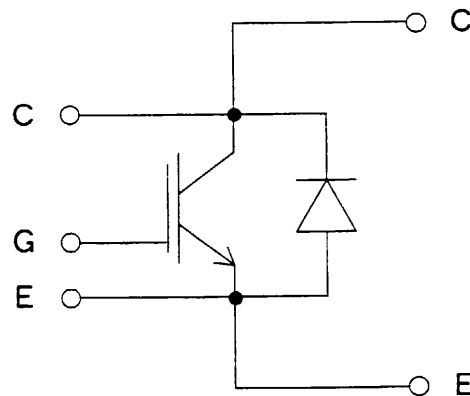


Target Specification of 1MBI200SA-120

1. Outline Drawing (Unit : mm)



2. Equivalent circuit



DATE

NAME

APPROVED

DRAWN Feb -11-99 N. Anikawa

CHECKED Feb -11-99 S. Miyata

T. Miyata

Fuji Electric Co., Ltd.

DWG. NO.

MT5F 9777

1/5

REVISIONS

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

Items	Symbols	Conditions		Maximum Ratings	Units
Collector-Emitter voltage	V _{CE} S			1200	V
Gate-Emitter voltage	V _{GE} S			±20	V
Collector current	I _c	Continuous	T _c =25℃	300	A
			T _c =80℃	200	
	I _c pulse	1ms	T _c =25℃	600	
			T _c =80℃	400	
	-I _c			200	
	-I _c pulse	1ms	400		
Collector Power Dissipation	P _c	1 device		1300	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	ICES	VGE = 0 V, VCE = 1200 V			4.0	mA
Gate-Emitter leakage current	IGES	VCE = 0 V, VGE = ±20 V			0.8	μA
Gate-Emitter threshold voltage	VGE(th)	VCE = 20 V, Ic = 200 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 = 200 A, Tj = 125℃		2.8		
Input capacitance	Cies	VGE = 0 V		24000		pF
Output capacitance	Coes	VCE = 10 V		5000		
Reverse transfer capacitance	Cres	f = 1 MHz		4400		
Turn-on time	ton	Vcc = 600 V			1.2	μs
	tr	Ic = 200 A			0.6	
	tr(i)	VGE = ±15 V		0.1		
Turn-off time	toff	RG = 4.7 Ω			1.0	μs
	tf			0.08	0.3	
Forward on voltage	VF	IF = 200 A, Tj = 25℃		2.4	3.3	V
		Tj = 125℃		2.0		
Reverse recovery time	trr	IF = 200 A			0.35	μs

5. Thermal resistance characteristics

Items	Symbols	Conditions	Characteristics			Units
			min.	typ.	Max.	
Thermal resistance (1 device)	Rth(j-c)	IGBT			0.096	℃/W
		FWD			0.260	
Contact Thermal resistance	Rth(c-f)	with Thermal Compound (※)		0.0125		

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

Note :

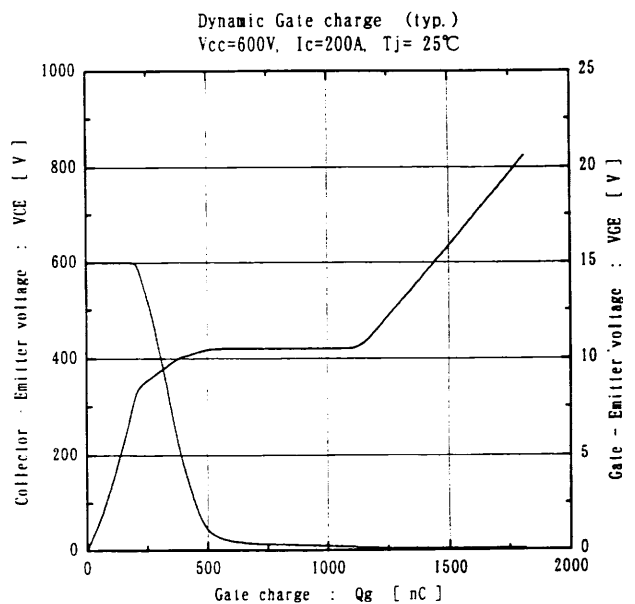
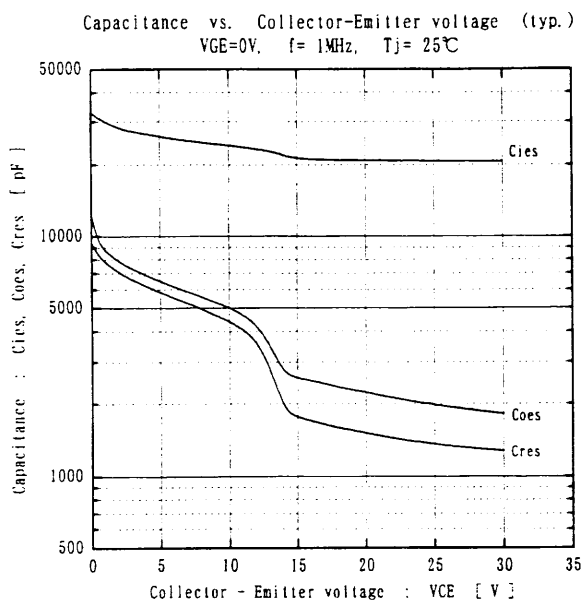
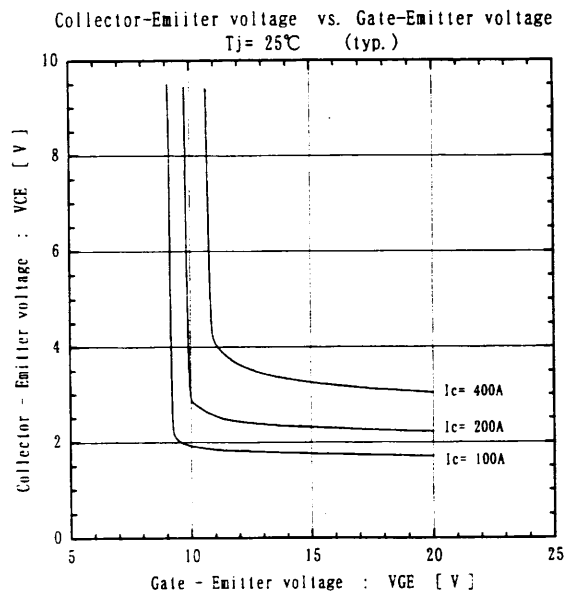
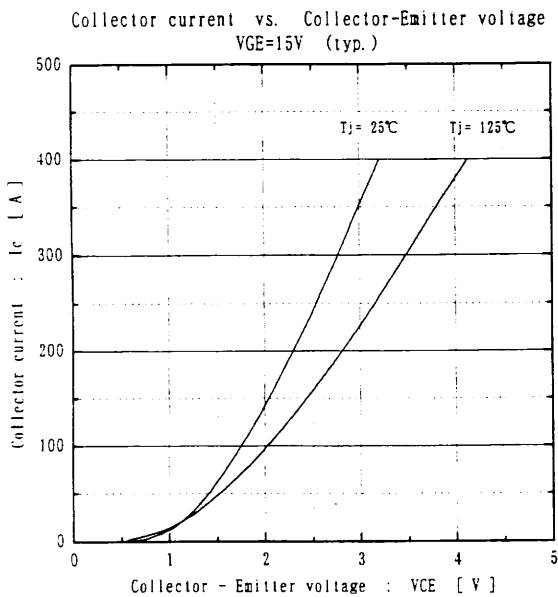
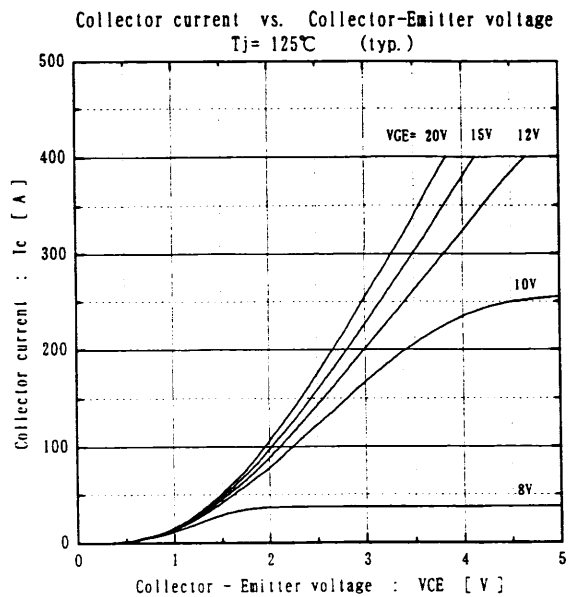
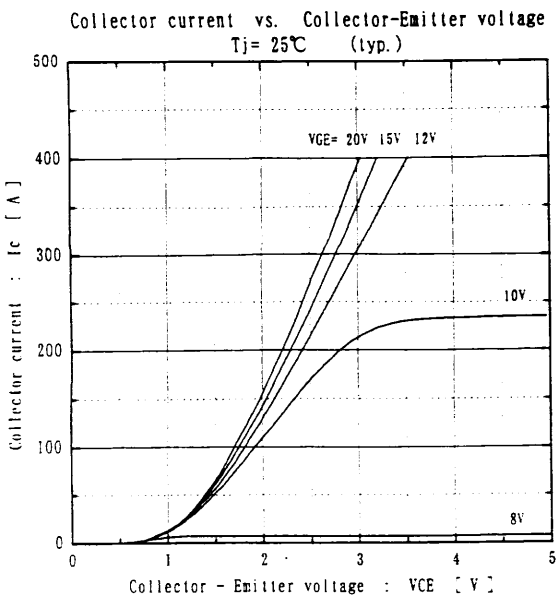
- This specification is only for technical considerations, and not for contract.
- This specification is subject to be changed without notices.

Fuji Electric Co.,Ltd.

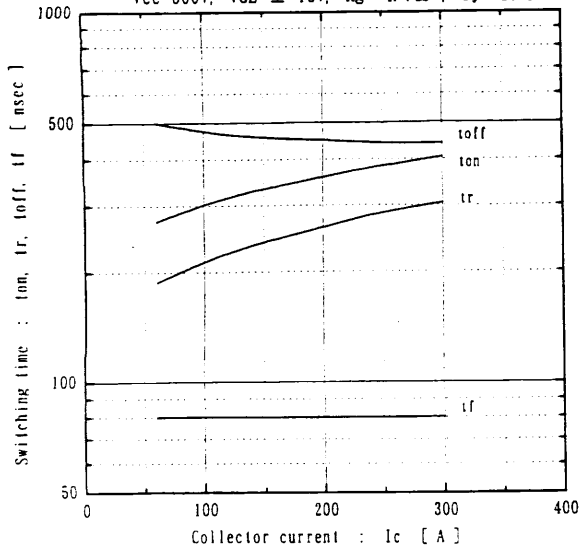
DWG.NO. MT5F 9777

2/5

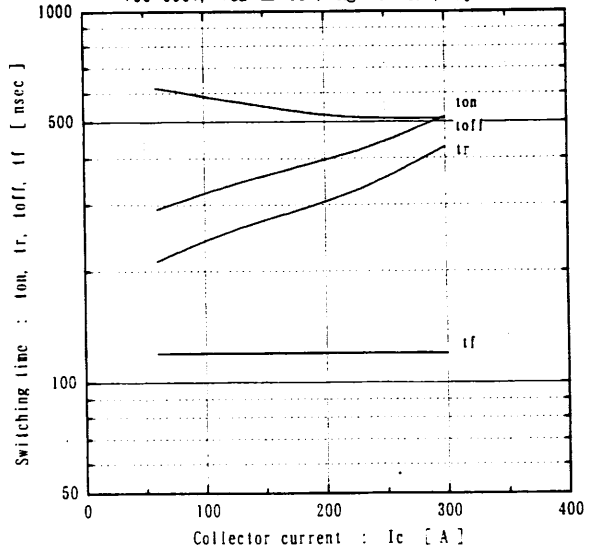
This material and the information herein is the property of Fuji Electric Co. Ltd. They shall be neither reproduced, copied, lent, or disclosed in any way whatsoever for the use of any third party nor used for the manufacturing purposes without the express written consent of Fuji Electric Co., Ltd.



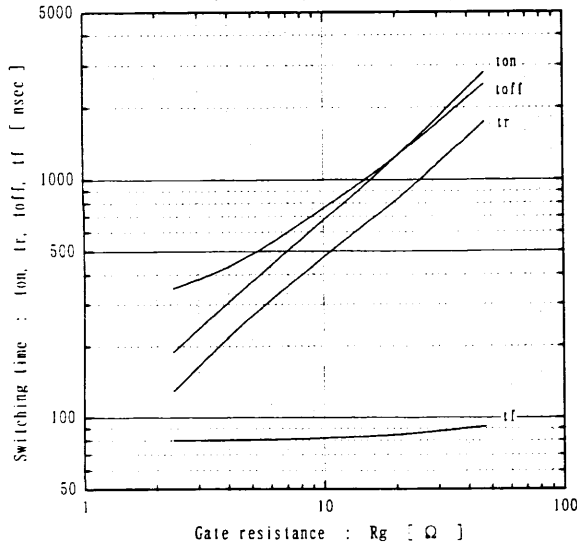
Switching time vs. Collector current (typ.)
 $V_{CC}=600V$, $V_{GE}=\pm 15V$, $R_g=4.7\Omega$, $T_j=25^\circ C$



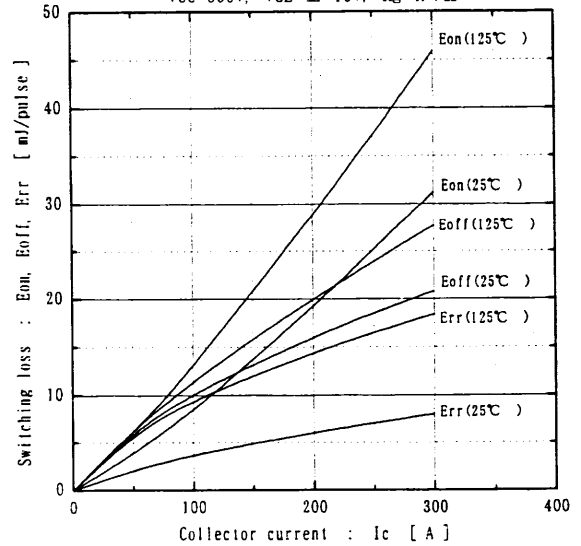
Switching time vs. Collector current (typ.)
 $V_{CC}=600V$, $V_{GE}=\pm 15V$, $R_g=4.7\Omega$, $T_j=125^\circ C$



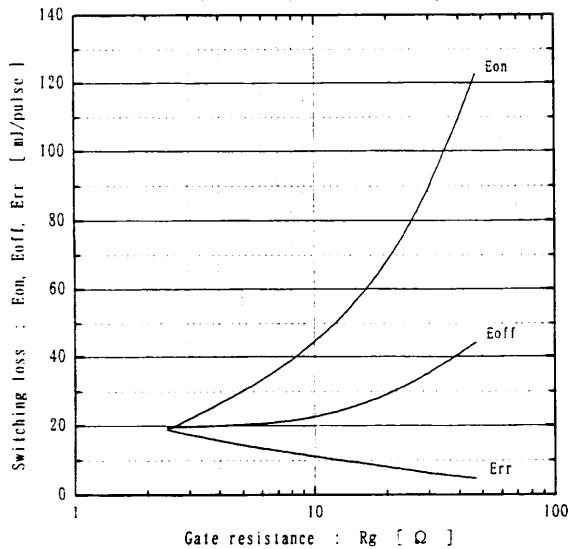
Switching time vs. Gate resistance (typ.)
 $V_{CC}=600V$, $I_c=200A$, $V_{GE}=\pm 15V$, $T_j=25^\circ C$



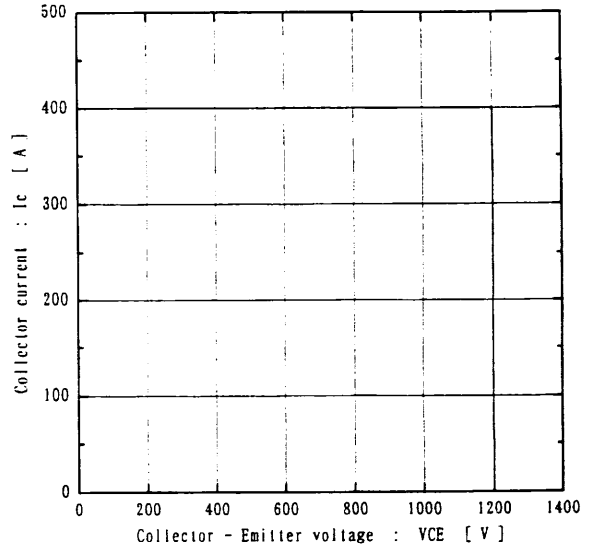
Switching loss vs. Collector current (typ.)
 $V_{CC}=600V$, $V_{GE}=\pm 15V$, $R_g=4.7\Omega$



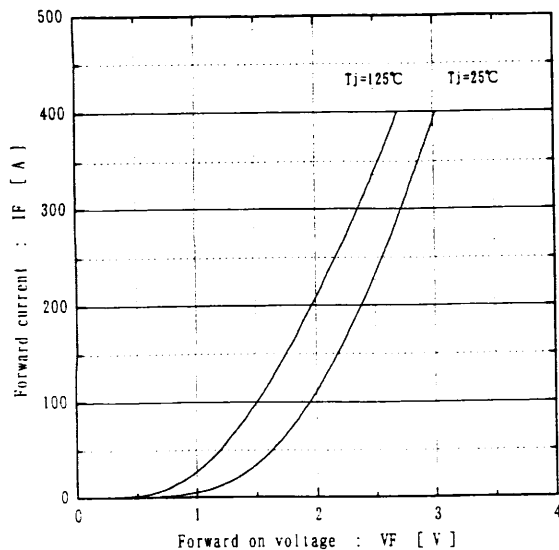
Switching loss vs. Gate resistance (typ.)
 $V_{CC}=600V$, $I_c=200A$, $V_{GE}=\pm 15V$, $T_j=125^\circ C$



Reverse bias safe operating area
 $+V_{GE}=15V$, $-V_{GE}\leq 15V$, $R_g\geq 4.7\Omega$, $T_j\leq 125^\circ C$

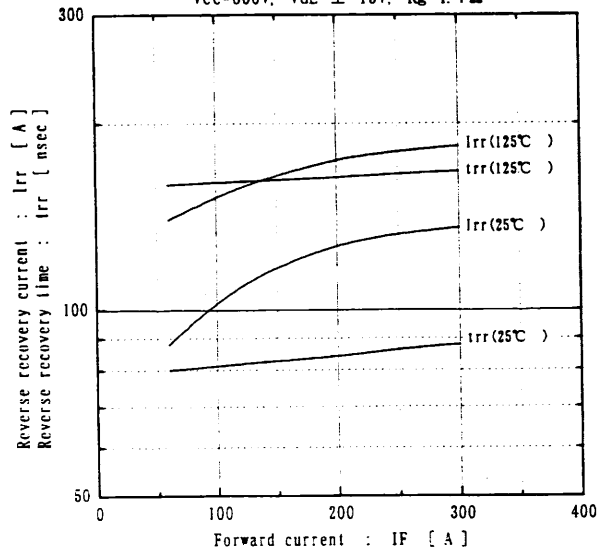


Forward current vs. Forward on voltage (typ.)

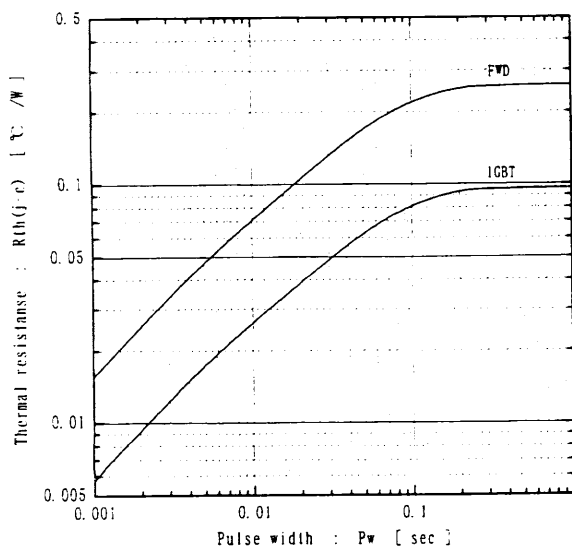


Reverse recovery characteristics (typ.)

$V_{CC} = 600\text{V}$, $V_{GE} = \pm 15\text{V}$, $R_g = 4.7\Omega$



Transient thermal resistance



Definitions of switching time

