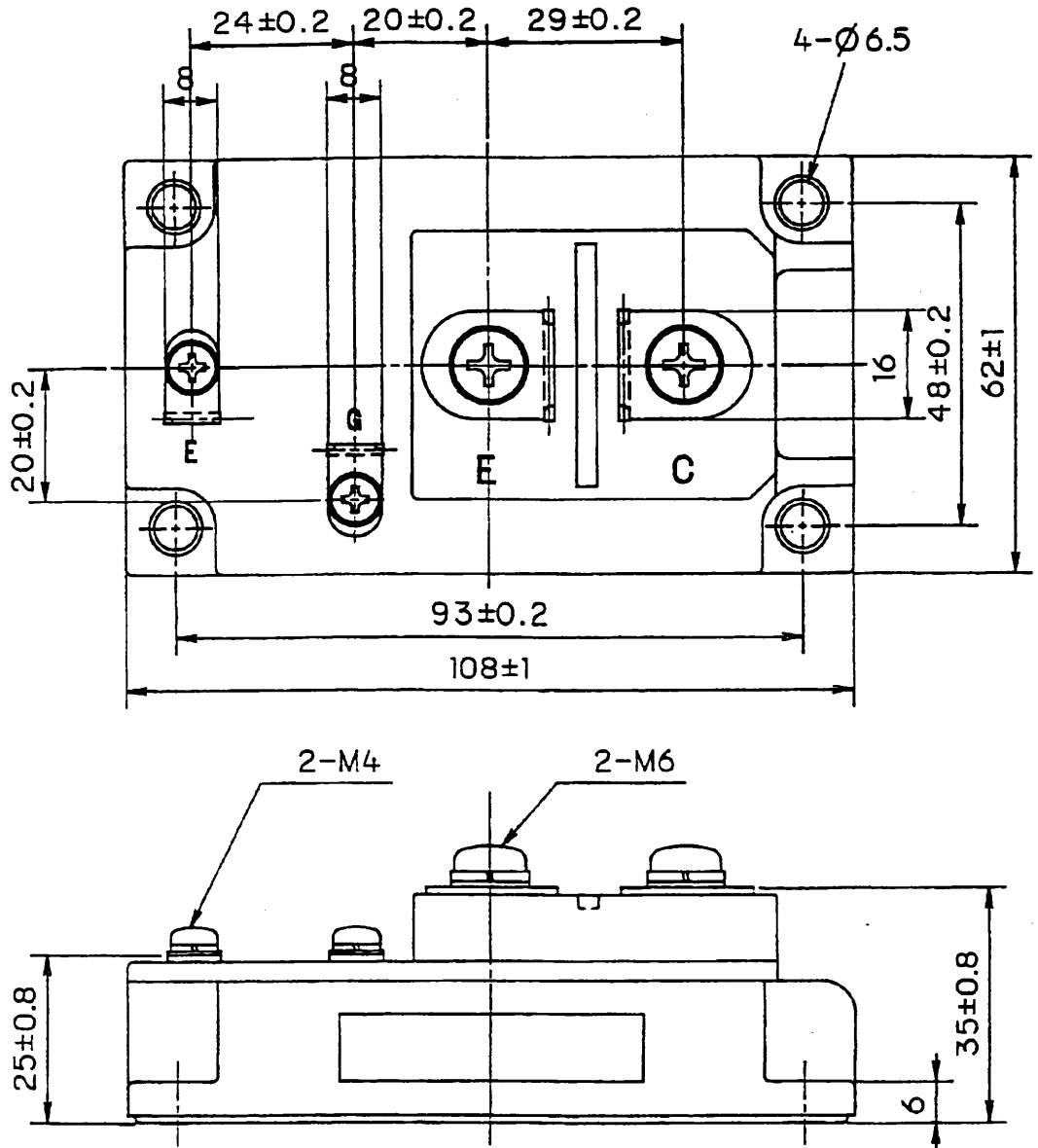
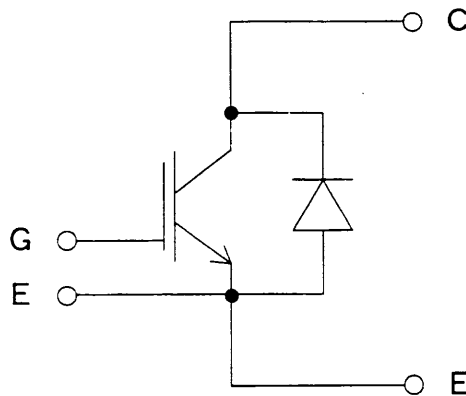


Target Specification of 1MBI200S-120

1. Outline Drawing (Unit : mm)



2. Equivalent circuit



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DATE	NAME	APPROVED
DRAWN Feb -11 -99	N. Arakawa	
CHECKED Feb -11 -99	S. Hata	T. Miyazaki

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3. Absolute Maximum Ratings (at Tc= 25°C 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	Tc=25°C	300	A
			Tc=80°C	200	
	I _c pulse	1ms	Tc=25°C	600	
			Tc=80°C	400	
			-I _c	200	
-I _c pulse	1ms	400			
Collector Power Dissipation	P _c	1 device	1300	W	
Junction temperature	T _j		150	°C	
Storage temperature	T _{stg}		-40~ +125	°C	
Isolation voltage ^(#1)	V _{iso}	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°C unless otherwise specified)

Items	Symbols	Conditions	Characteristics			Units
			min.	typ.	Max.	
Zero gate voltage Collector current	ICES	V _{GE} = 0 V, V _{CE} = 1200 V			4.0	mA
Gate-Emitter leakage current	IGES	V _{CE} = 0 V, V _{GE} = ±20 V			0.8	μA
Gate-Emitter threshold voltage	V _{GE(th)}	V _{CE} = 20 V, I _c = 200 mA	5.5	7.2	8.5	V
Collector-Emitter saturation voltage	V _{CE(sat)}	V _{GE} = 15 V I _c = 200 A	T _j = 25 °C	2.3	2.6	V
			T _j = 125 °C	2.8		
Input capacitance	C _{ies}	V _{GE} = 0 V		24000		pF
Output capacitance	C _{oes}	V _{CE} = 10 V		5000		
Reverse transfer capacitance	C _{res}	f = 1 MHz		4400		
Turn-on time	t _{on}	V _{cc} = 600 V			1.2	μs
	t _r	I _c = 200 A			0.6	
	t _{r(1)}	V _{GE} = ±15 V		0.1		
Turn-off time	t _{off}	R _G = 4.7 Ω			1.0	μs
	t _f			0.08	0.3	
Forward on voltage	V _F	I _F = 200 A	T _j = 25 °C	2.4	3.3	V
			T _j = 125 °C	2.0		
Reverse recovery time	t _{rr}	I _F = 200 A			0.35	μs

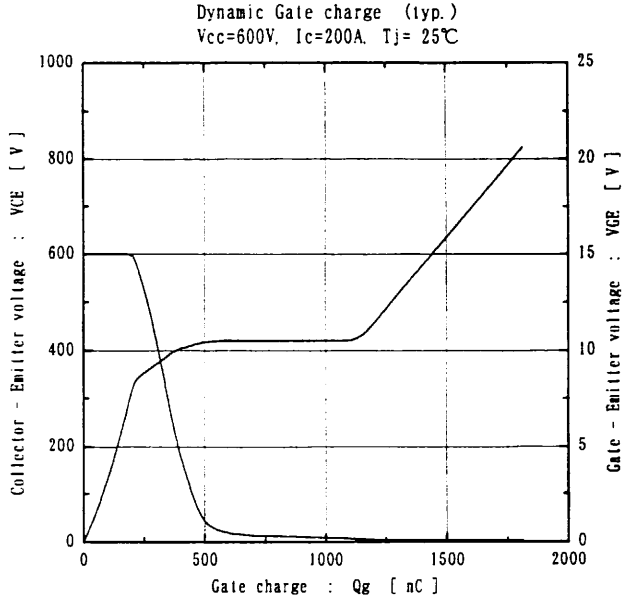
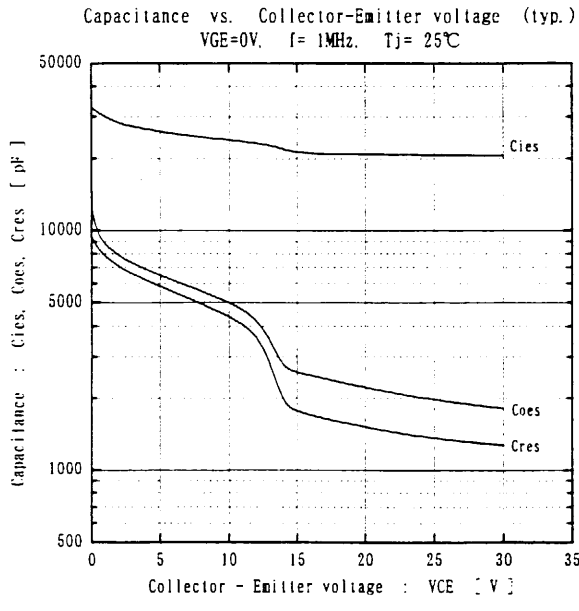
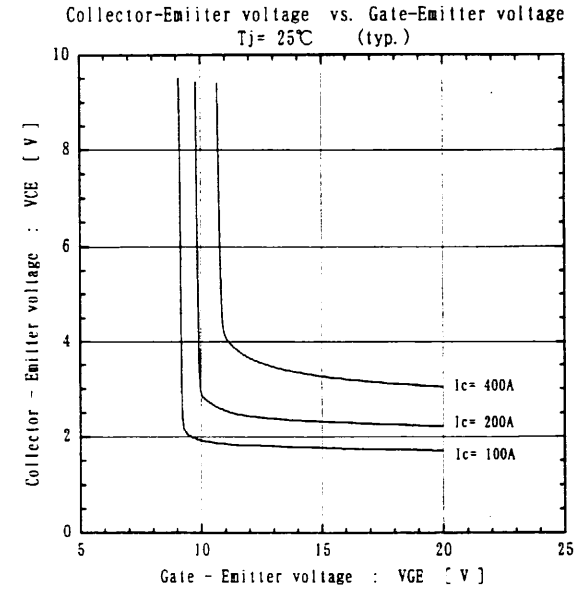
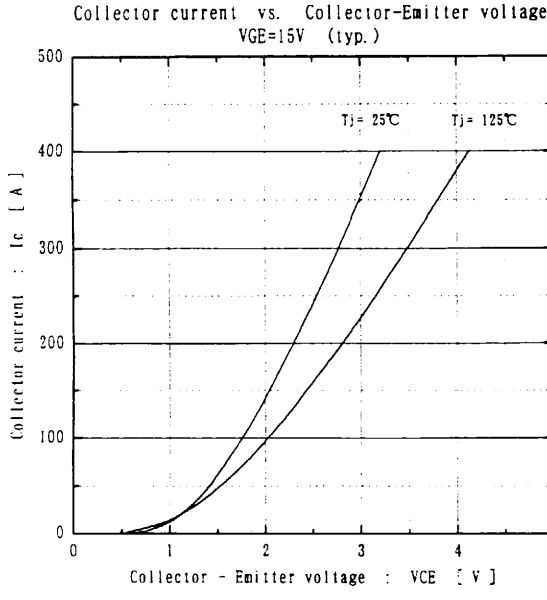
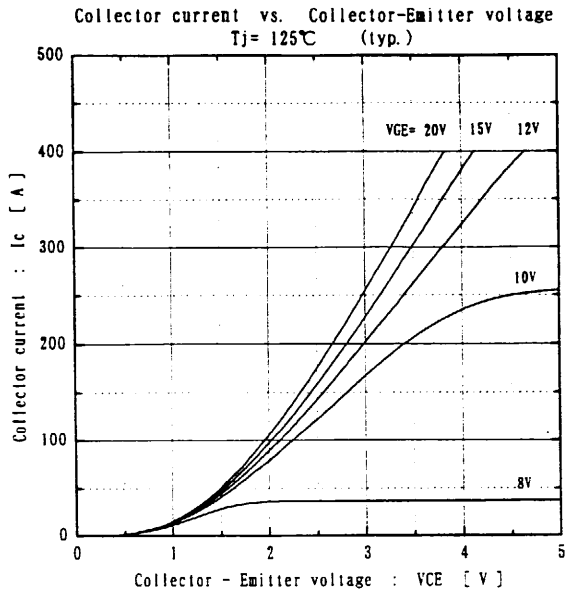
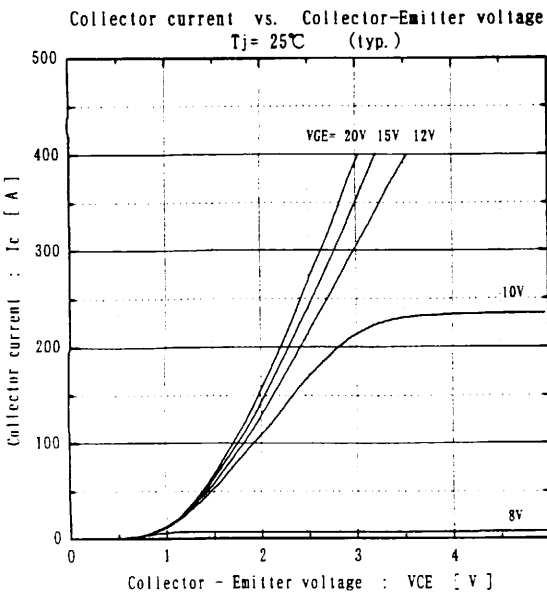
5. Thermal resistance characteristics

Items	Symbols	Conditions	Characteristics			Units
			min.	typ.	Max.	
Thermal resistance (1 device)	R _{th(j-c)}	IGBT			0.096	°C/W
		FWD			0.260	
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.

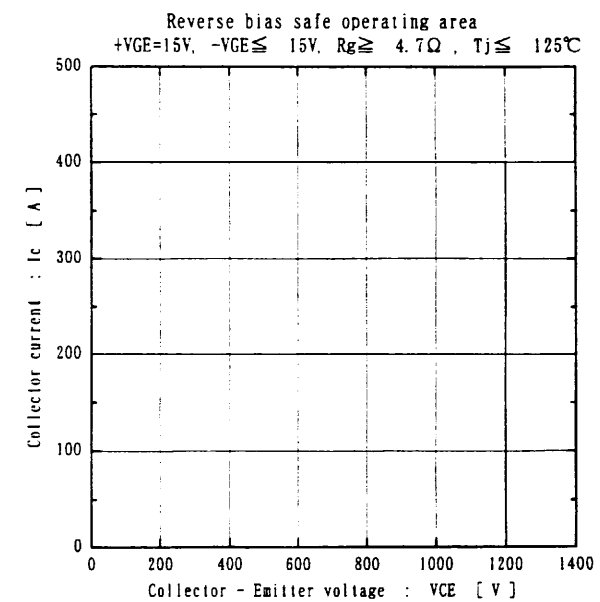
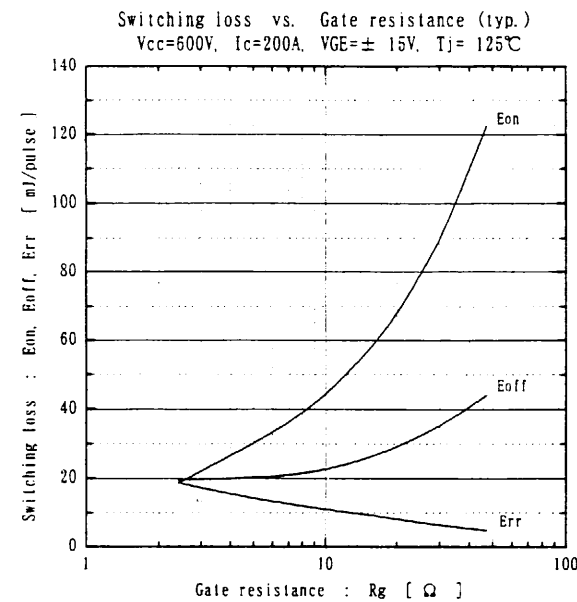
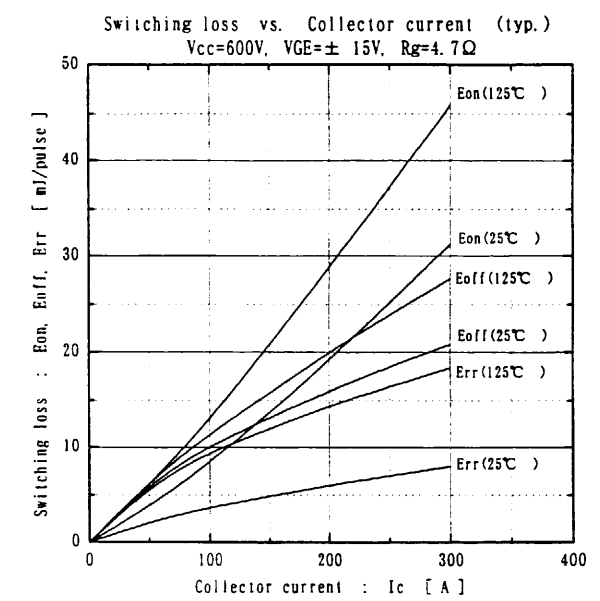
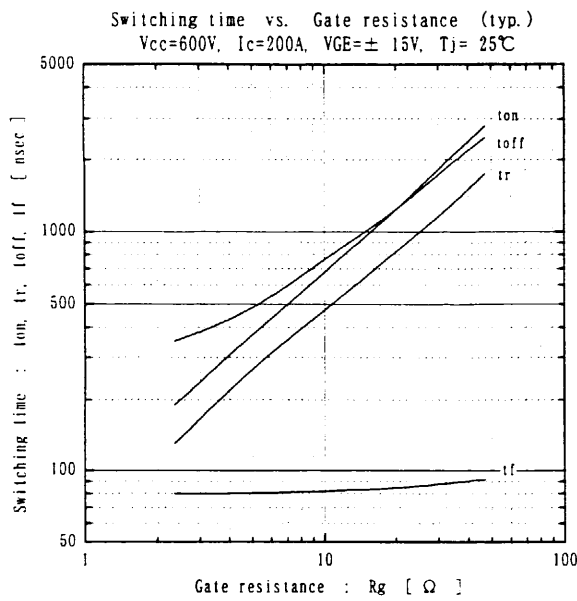
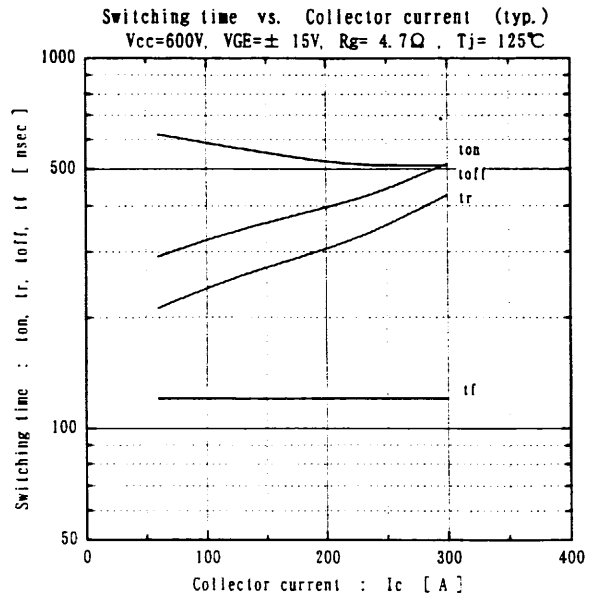
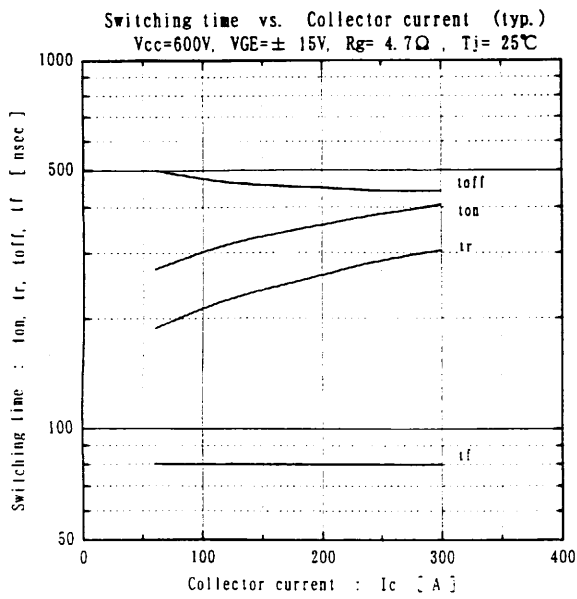
Note :

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



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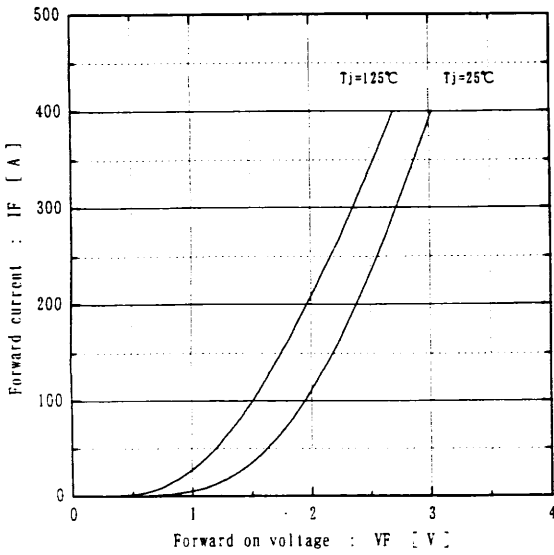
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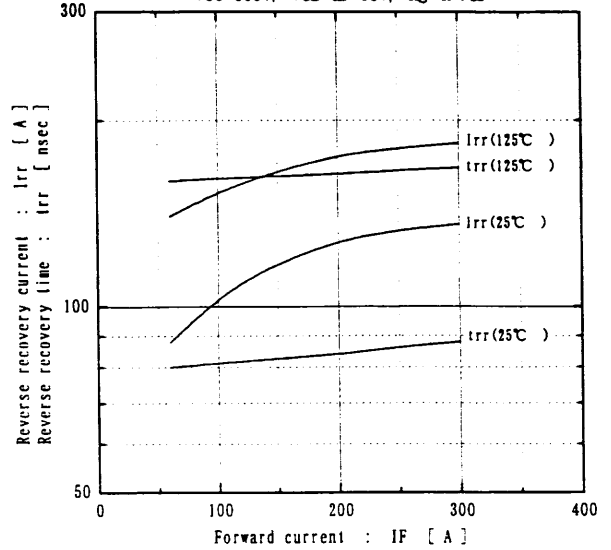
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Forward current vs. Forward on voltage (typ.)

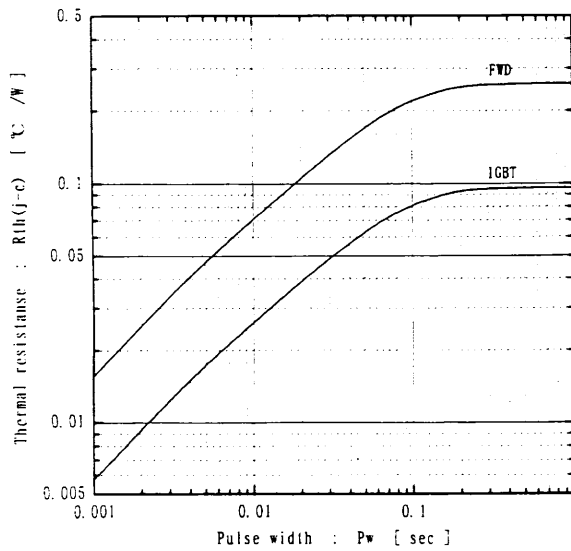


Reverse recovery characteristics (typ.)

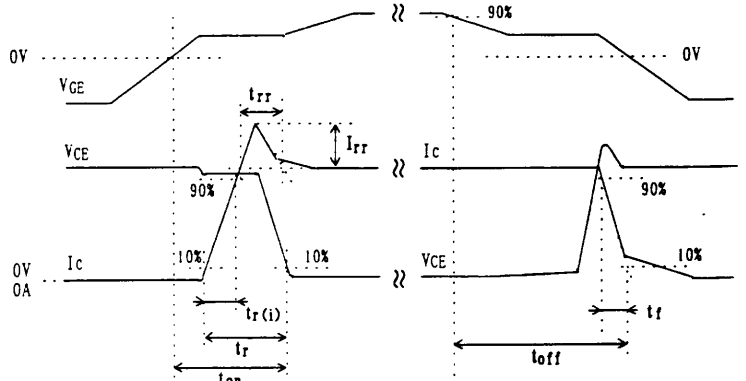
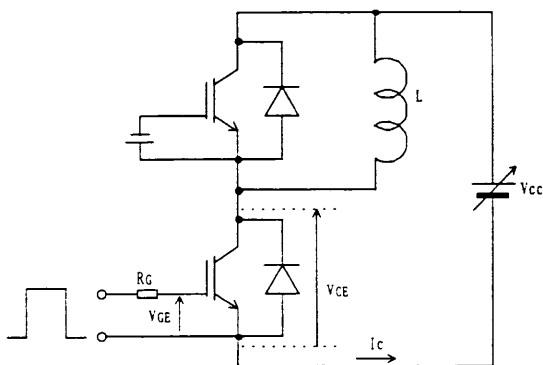
V_{cc}=600V, V_{GE}=±15V, R_g=4.7Ω



Transient thermal resistance



Definitions of switching time



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