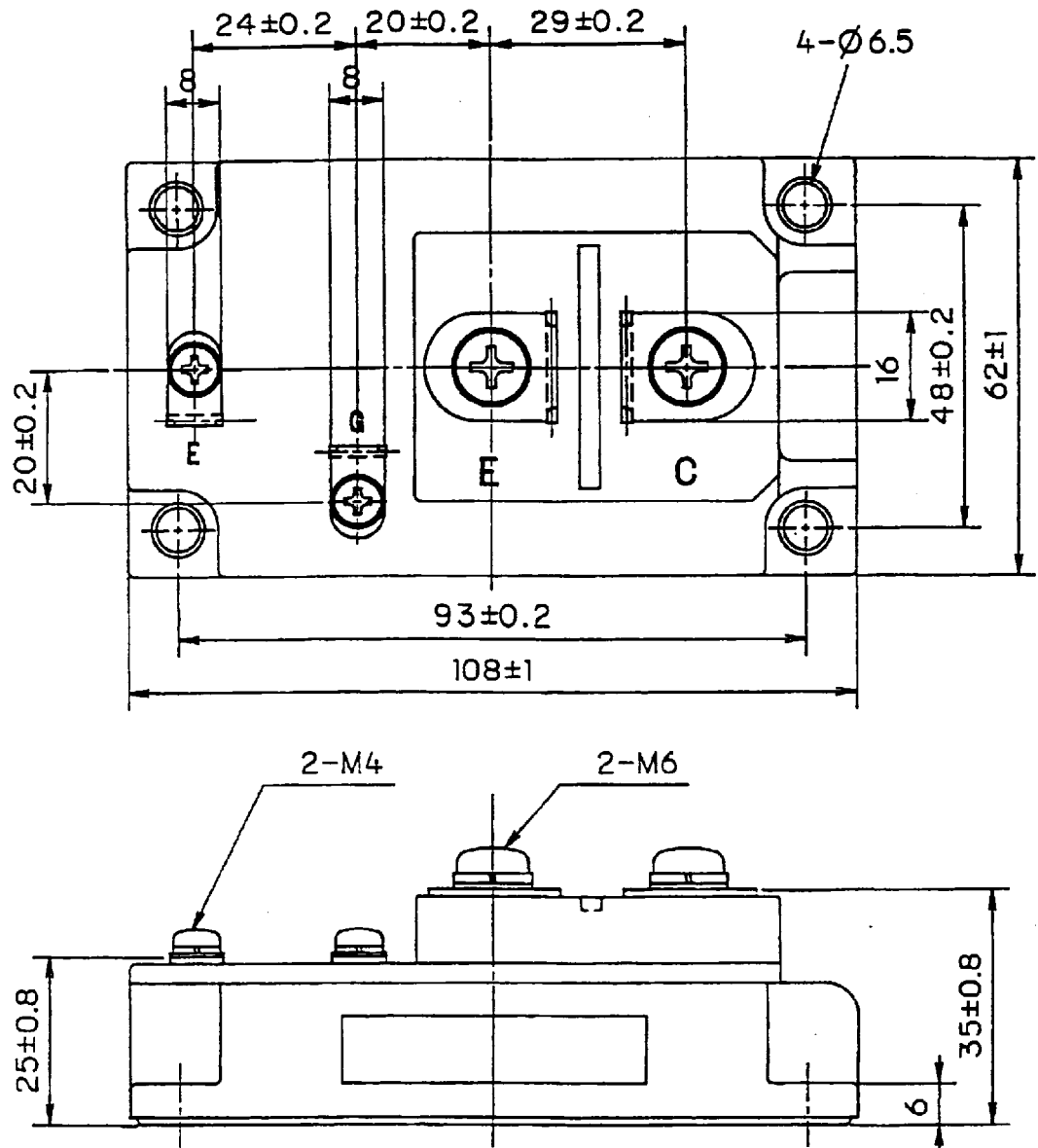
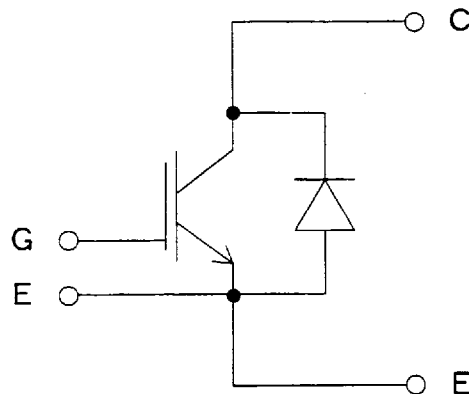


Target Specification of 1MBI200S-120

1. Outline Drawing ( Unit : mm )



2. Equivalent circuit



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REVISIONS	
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DATE	NAME	APPROVED
DRAWN Feb -11 -99	N. Arikawa	
CHECKED Feb -11 -99	S. Kiyota	T. Hiyasaka

<b>Fuji Electric Co., Ltd.</b>	
DWG. NO.	MT5F 9781 1/5

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

Items	Symbols	Conditions	Maximum Ratings		Units
Collector-Emitter voltage	V <sub>CES</sub>		1200		V
Gate-Emitter voltage	V <sub>GES</sub>		±20		V
Collector current	I <sub>c</sub>	Continuous	T <sub>c</sub> =25°C	300	A
			T <sub>c</sub> =80°C	200	
	I <sub>c</sub> pulse	1ms	T <sub>c</sub> =25°C	600	
			T <sub>c</sub> =80°C	400	
			-I <sub>c</sub>	200	
-I <sub>c</sub> pulse	1ms	400			
Collector Power Dissipation	P <sub>c</sub>	1 device	1300		W
Junction temperature	T <sub>j</sub>		150		°C
Storage temperature	T <sub>stg</sub>		-40~+125		°C
Isolation voltage <sup>(*1)</sup>	V <sub>iso</sub>	AC : 1min.	2500		V
Screw Torque	Mounting <sup>(*2)</sup>		3.5		N·m
	Terminals <sup>(*3)</sup>		4.5		
	Terminals <sup>(*4)</sup>		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 T<sub>j</sub>= 25°C unless otherwise specified)

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

5. Thermal resistance characteristics

Items	Symbols	Conditions	Characteristics			Units
			min.	typ.	Max.	
Thermal resistance (1 device)	R <sub>th(j-c)</sub>	IGBT			0.096	°C/W
		FWD			0.260	
Contact Thermal resistance	R <sub>th(c-f)</sub>	with Thermal Compound <sup>(*)</sup>		0.0125		

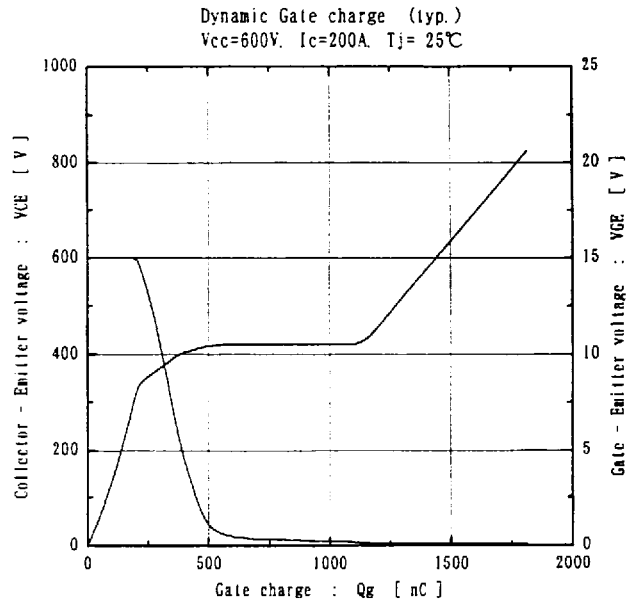
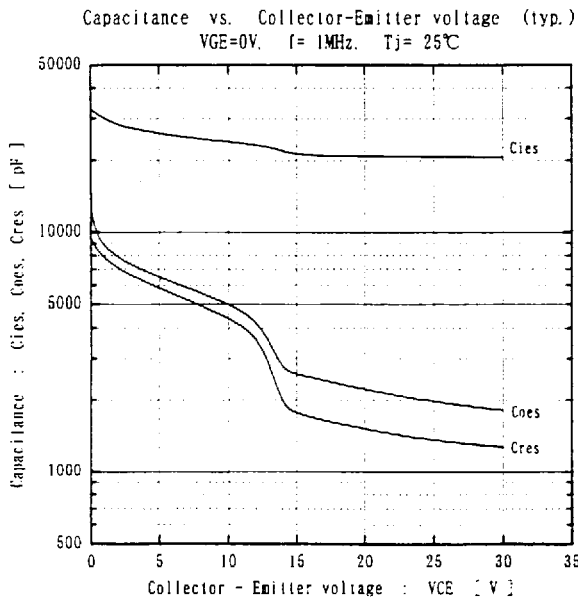
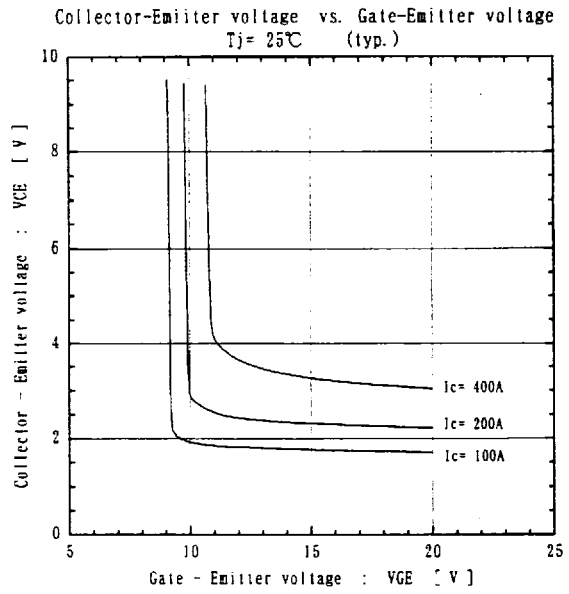
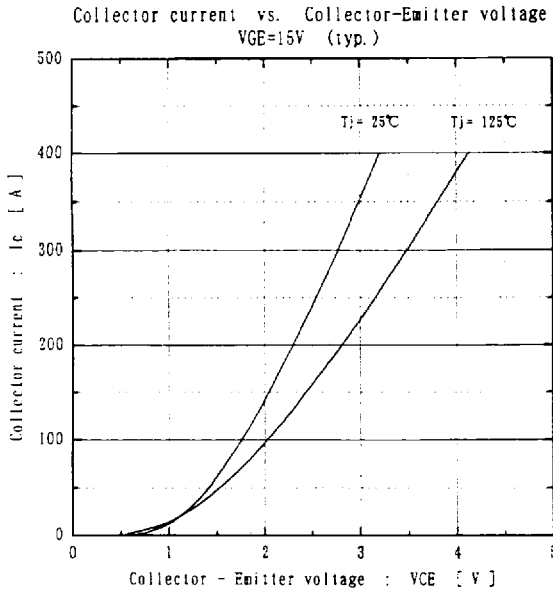
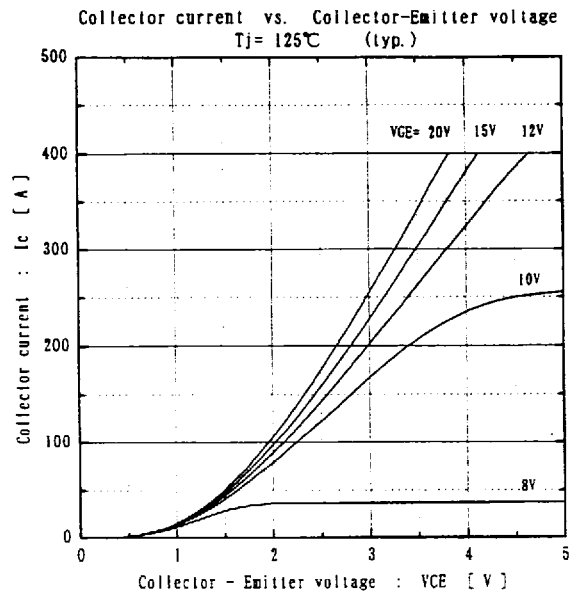
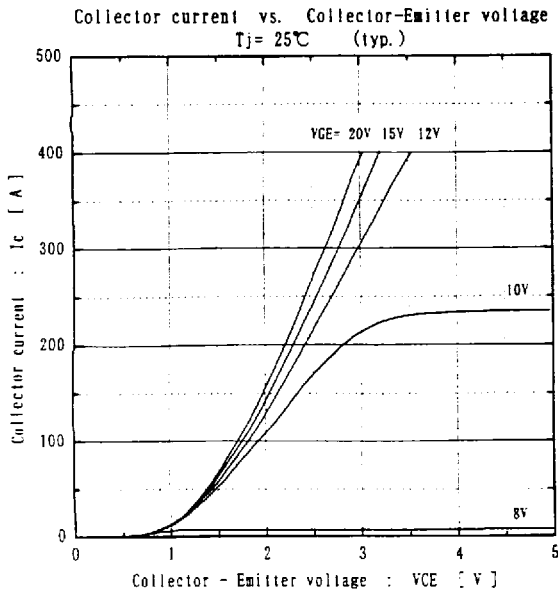
※ This is the value which is defined mounting on the additional cooling fin with thermal compound.

Note :

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

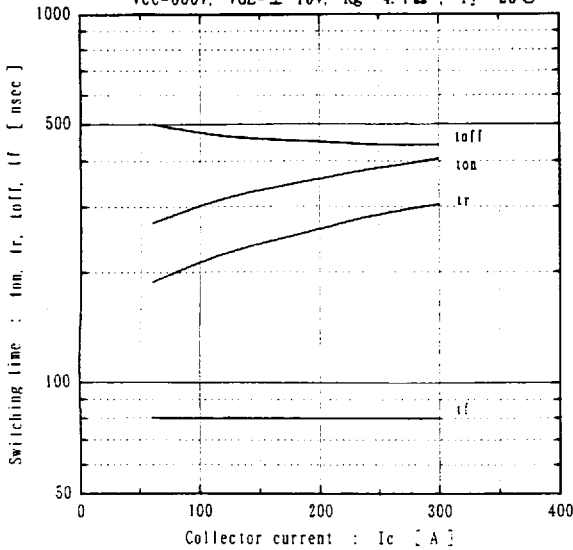
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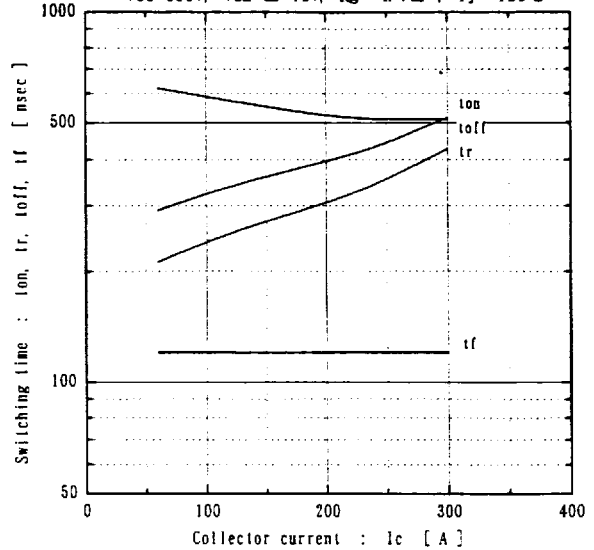


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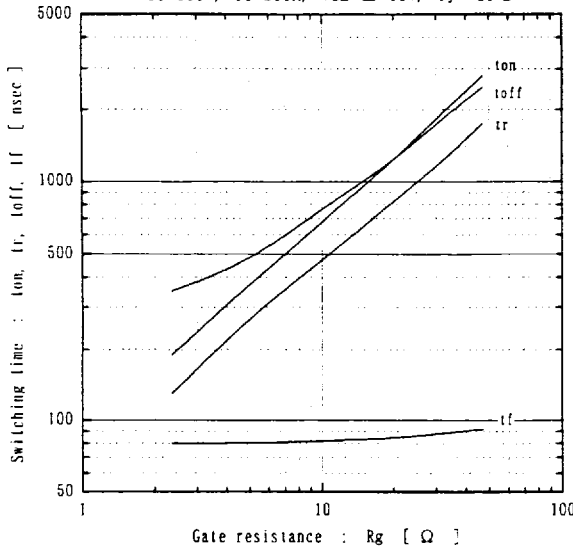
Switching time vs. Collector current (typ.)  
 $V_{CC}=600V, V_{GE}=\pm 15V, R_g=4.7\Omega, T_j=25^\circ C$



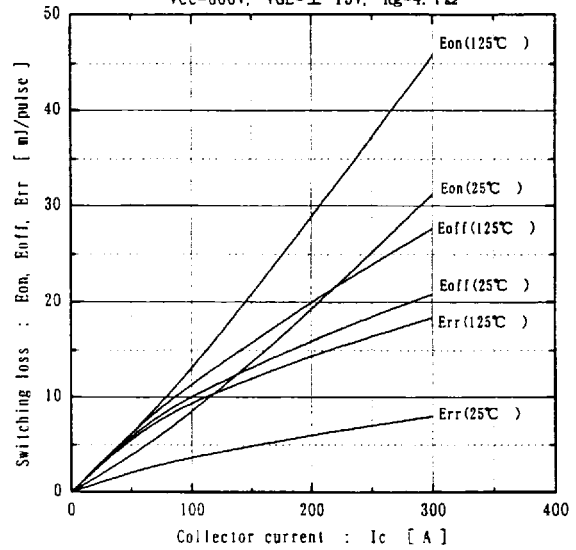
Switching time vs. Collector current (typ.)  
 $V_{CC}=600V, V_{GE}=\pm 15V, R_g=4.7\Omega, T_j=125^\circ C$



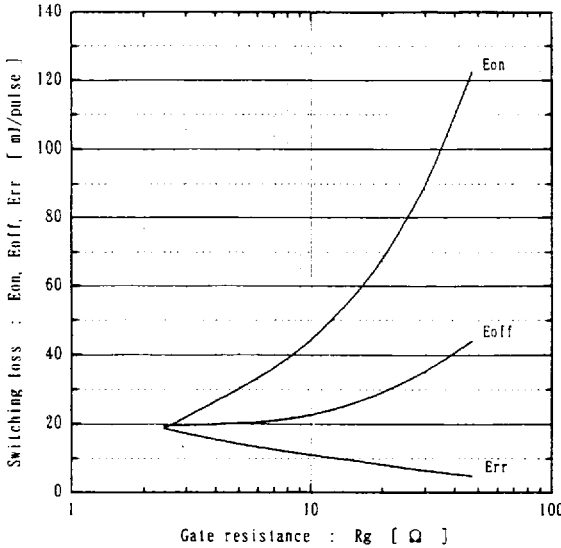
Switching time vs. Gate resistance (typ.)  
 $V_{CC}=600V, I_c=200A, V_{GE}=\pm 15V, T_j=25^\circ C$



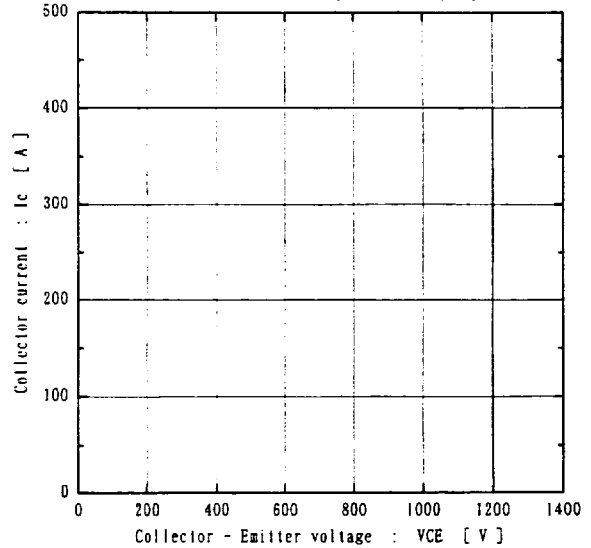
Switching loss vs. Collector current (typ.)  
 $V_{CC}=600V, V_{GE}=\pm 15V, R_g=4.7\Omega$



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

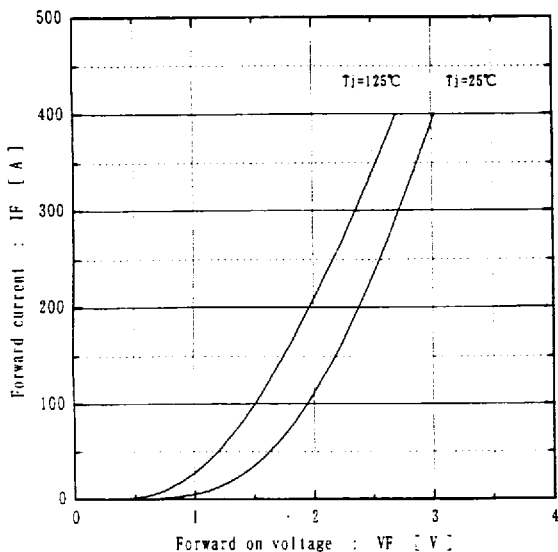


Reverse bias safe operating area  
 $+V_{GE}=15V, -V_{GE}\leq 15V, R_g\geq 4.7\Omega, T_j\leq 125^\circ C$



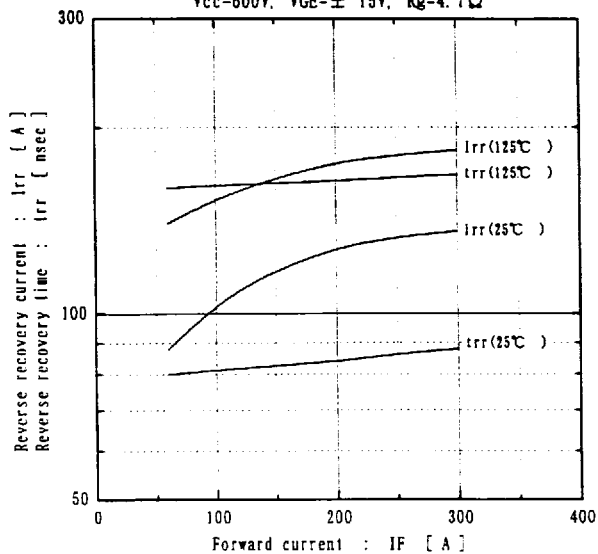
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Forward current vs. Forward on voltage (typ.)

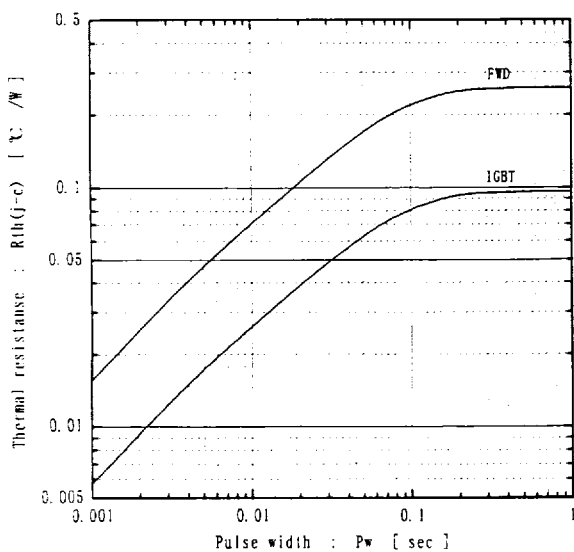


Reverse recovery characteristics (typ.)

Vcc=600V, VGE=±15V, Rg=4.7Ω



Transient thermal resistance



Definitions of switching time

