

# SPECIFICATION

Device Name : IGBT Module

Type Name : 6MBI100S-120-01

Spec. No. : MS5F 4848

Date : Jun. - 02 - 2000

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Fuji Electric Co., Ltd.  
Matsumoto Factory

		DATE	NAME	APPROVED	Fuji Electric Co., Ltd.		
DRAWN	Jun. - 2 - '00		<i>J. Kobayashi</i>		DWG NO	MS5F 4848	1 / 8
CHECKED	June - 2 - 00		<i>S. Kato</i>	<i>T. Miyasaka</i>			



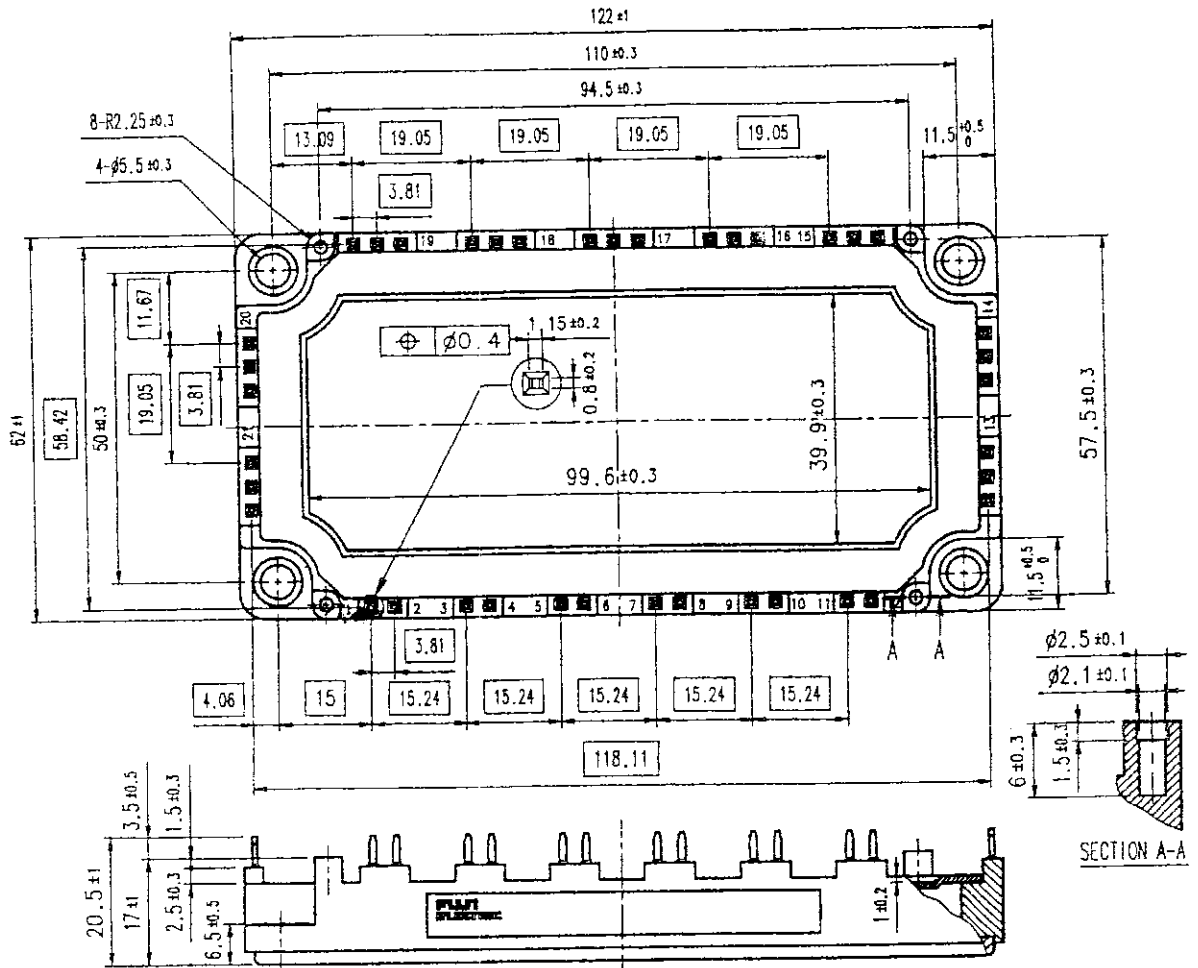
# Revised Records

Date	Classi- fication	Ind.	Content	Applied date	Drawn	Checked	Approved
Jun. - 2 '60	enactment	—	—	Issued date	—	S. Miyata	T. Miyasaka

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6MBI100S-120-01

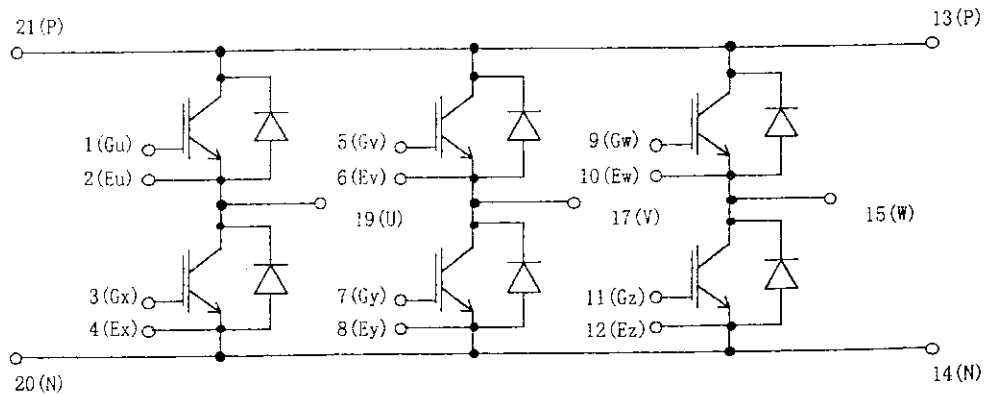
1. Outline Drawing ( Unit : mm )



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□ shows theoretical dimension.

2. Equivalent circuit



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3. Absolute Maximum Ratings ( at Tc= 25C 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> =25C	150	A
			T <sub>c</sub> =80C	100	
	I <sub>c</sub> pulse	1ms	T <sub>c</sub> =25C	300	
			T <sub>c</sub> =80C	200	
	-I <sub>c</sub>			100	
-I <sub>c</sub> pulse		1ms	200		
Collector Power Dissipation	P <sub>c</sub>	1 device	700		W
Junction temperature	T <sub>j</sub>		150		C
Storage temperature	T <sub>stg</sub>		-40~ +125		C
Isolation voltage <sup>(*)</sup>	Viso	AC : 1min.	2500		V
Mounting Screw Torque <sup>(*)</sup>			3.5		Nm

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

(\*2) Recommendable Value : 2.5~3.5 Nm (M5)

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

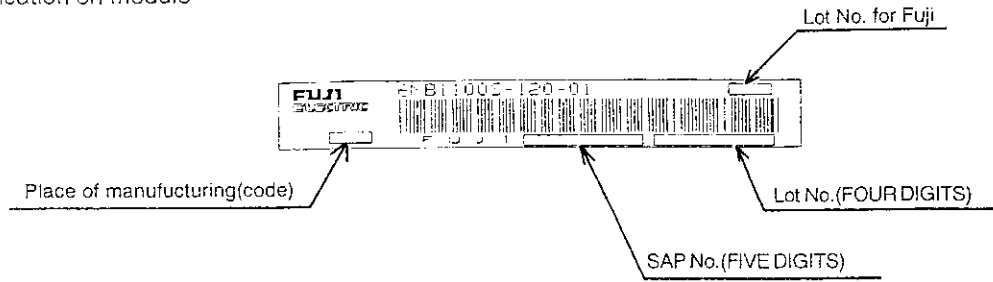
Items	Symbols	Conditions	Characteristics			Units
			min.	typ.	Max.	
Zero gate voltage Collector current	ICES	V <sub>GE</sub> 0 V, V <sub>CE</sub> 1200 V			1.0	mA
Gate-Emitter leakage current	IGES	V <sub>CE</sub> 0 V, V <sub>GE</sub> +-20 V			200	nA
Gate-Emitter threshold voltage	V <sub>GE(th)</sub>	V <sub>CE</sub> 20 V, I <sub>c</sub> = 100 mA	5.5	7.2	8.5	V
Collector-Emitter saturation voltage	V <sub>CE(sat)</sub>	V <sub>GE</sub> 15 V I <sub>c</sub> = 100 A	T <sub>j</sub> = 25 C	2.3	2.6	V
			T <sub>j</sub> = 125 C	2.8		
Input capacitance	C <sub>ies</sub>	V <sub>GE</sub> 0 V		12000		pF
Output capacitance	C <sub>oes</sub>	V <sub>CE</sub> 10 V		2500		
Reverse transfer capacitance	C <sub>res</sub>	f = 1 MHz		2200		
Turn-on time	ton	V <sub>cc</sub> = 600 V		0.35	1.2	us
	tr	I <sub>c</sub> = 100 A		0.25	0.6	
	tr(0)	V <sub>GE</sub> +-15 V		0.1		
Turn-off time	toff	R <sub>G</sub> = 12 ohm		0.45	1.0	us
	tf			0.08	0.3	
Forward on voltage	V <sub>F</sub>	I <sub>F</sub> = 100 A	T <sub>j</sub> = 25 C	2.5	3.3	V
			T <sub>j</sub> = 125 C	2.0		
Reverse recovery time	trr	I <sub>F</sub> = 100 A			0.35	us

5. Thermal resistance characteristics

Items	Symbols	Conditions	Characteristics			Units
			min.	typ.	Max.	
Thermal resistance (1 device)	R <sub>th(j-c)</sub>	IGBT			0.18	C/W
		FWD			0.36	
Contact Thermal resistance	R <sub>th(c-f)</sub>	with Thermal Compound <sup>(*)</sup>		0.05		

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

6. Indication on module



7. Applicable category

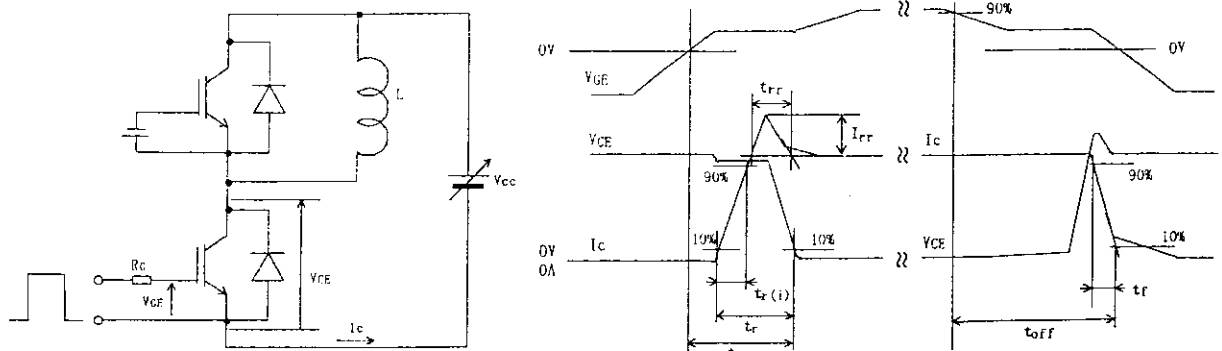
This specification is applied to IGBT Module named 6MBI100S-120-01.

8. Storage and transportation notes

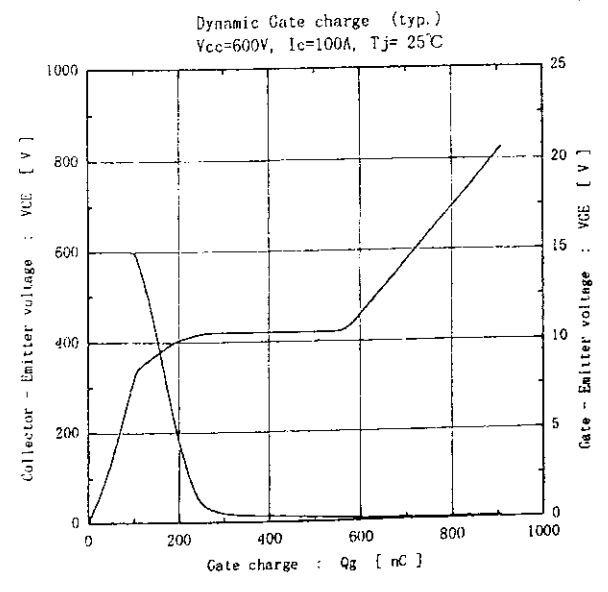
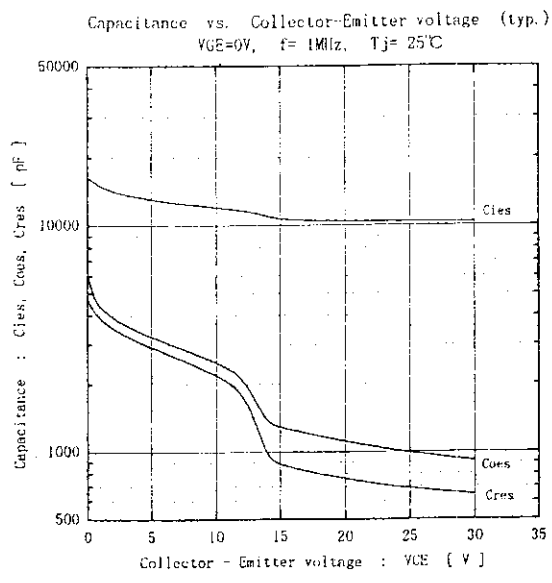
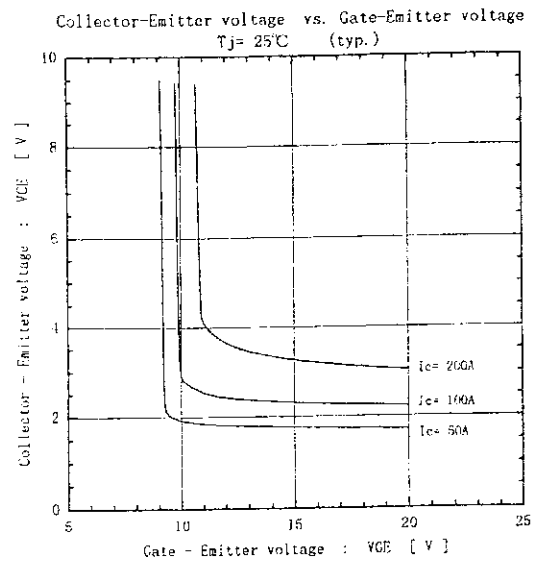
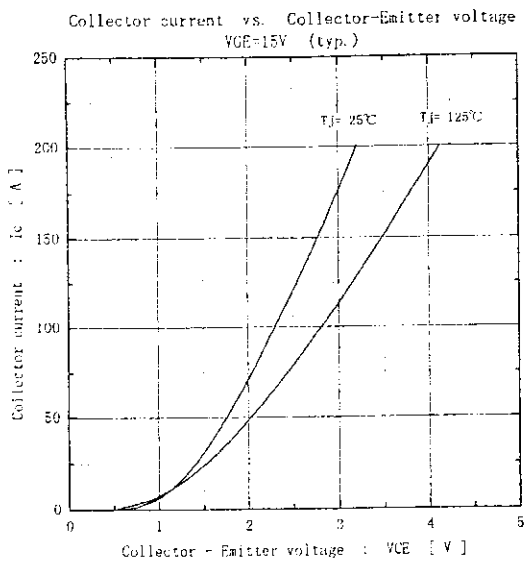
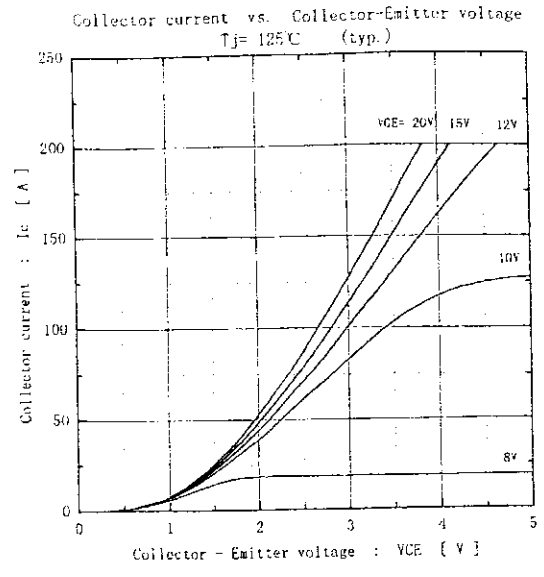
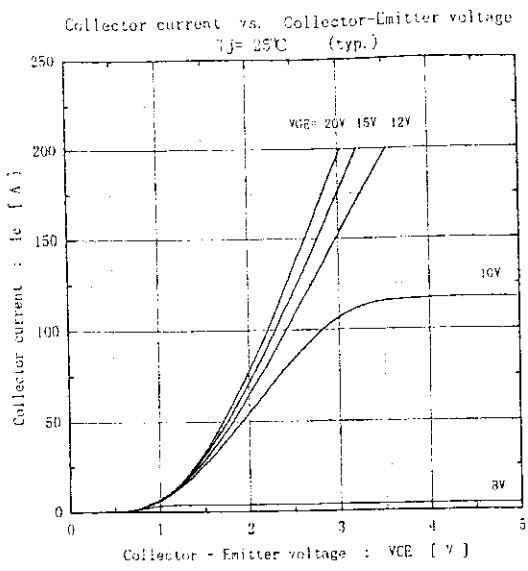
- The module should be stored at a standard temperature of 5 to 35°C and humidity of 45 to 75% .
- Store modules in a place with few temperature changes in order to avoid condensation on the module surface.
- Avoid exposure to corrosive gases and dust.
- Avoid excessive external force on the module.
- Store modules with unprocessed terminals.
- Do not drop or otherwise shock the modules when transporting.
- Please connect adequate fuse or protector of circuit between three-phase line and this product to prevent the equipment from causing secondary destruction.

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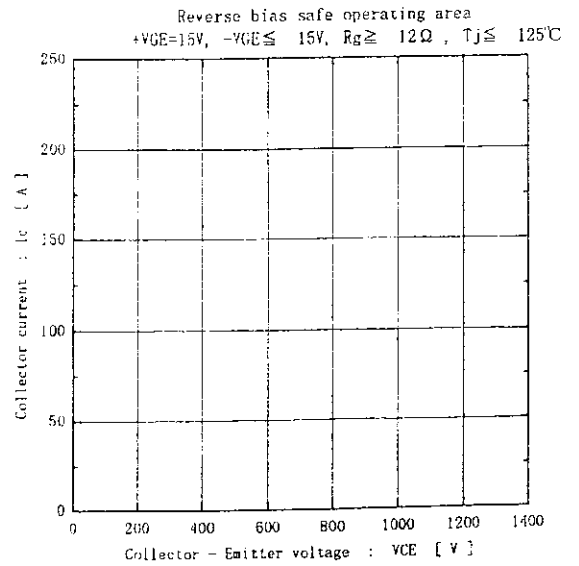
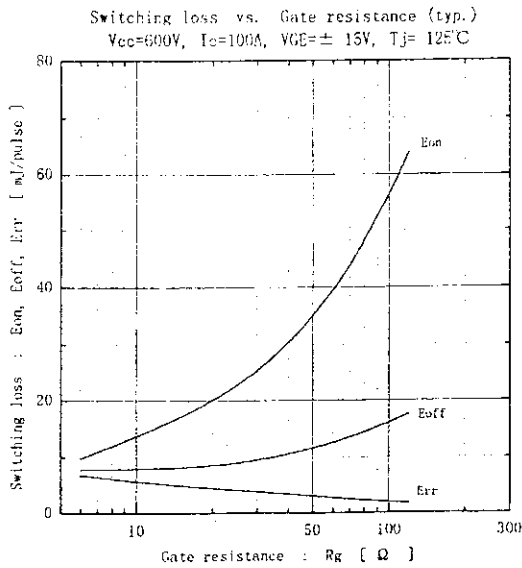
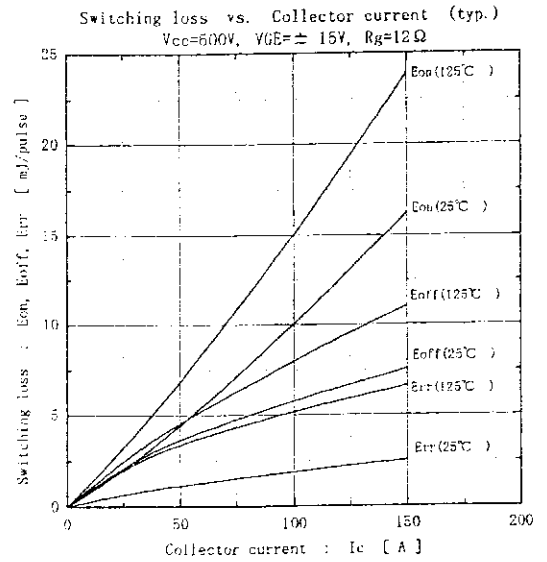
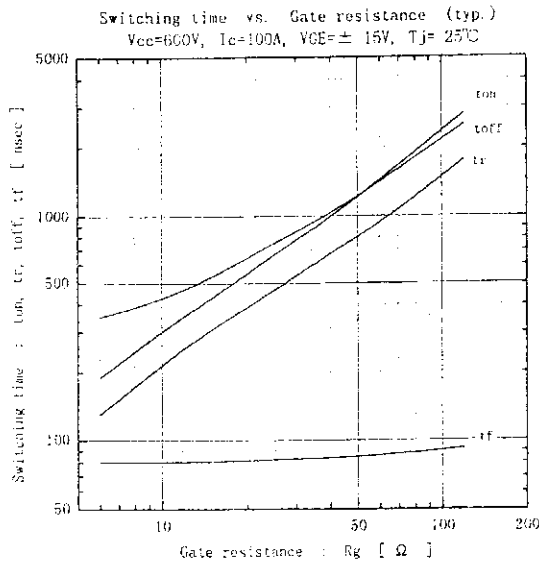
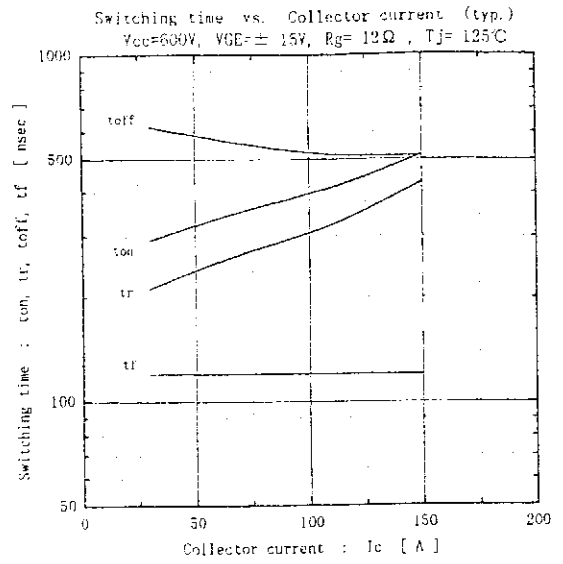
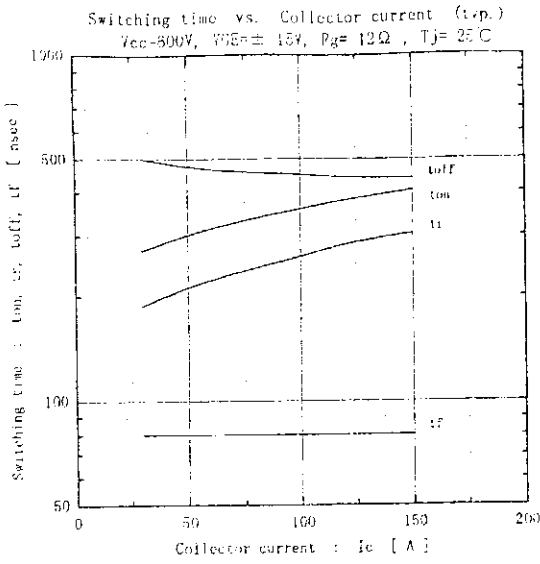
9. Definitions of switching time



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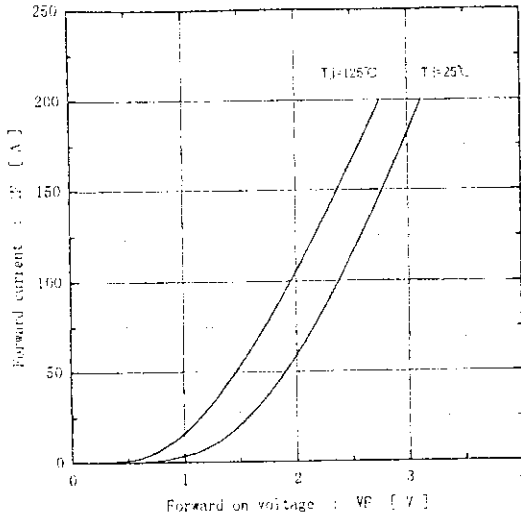


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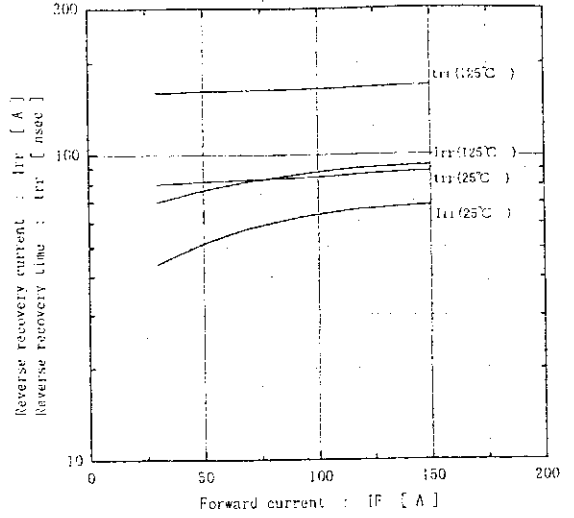


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Forward current vs. Forward on voltage (typ.)



Reverse recovery characteristics (typ.)  
Vce=60V, VDE=±15V, Rg=12Ω



Transient thermal resistance

