

# SPECIFICATION

Device Name : IGBT Module

Type Name : 6MBI75S-120-01

Spec. No. : MS5F 4847

Date : Jun. - 02 - 2000

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Fuji Electric Co., Ltd.  
Matsumoto Factory

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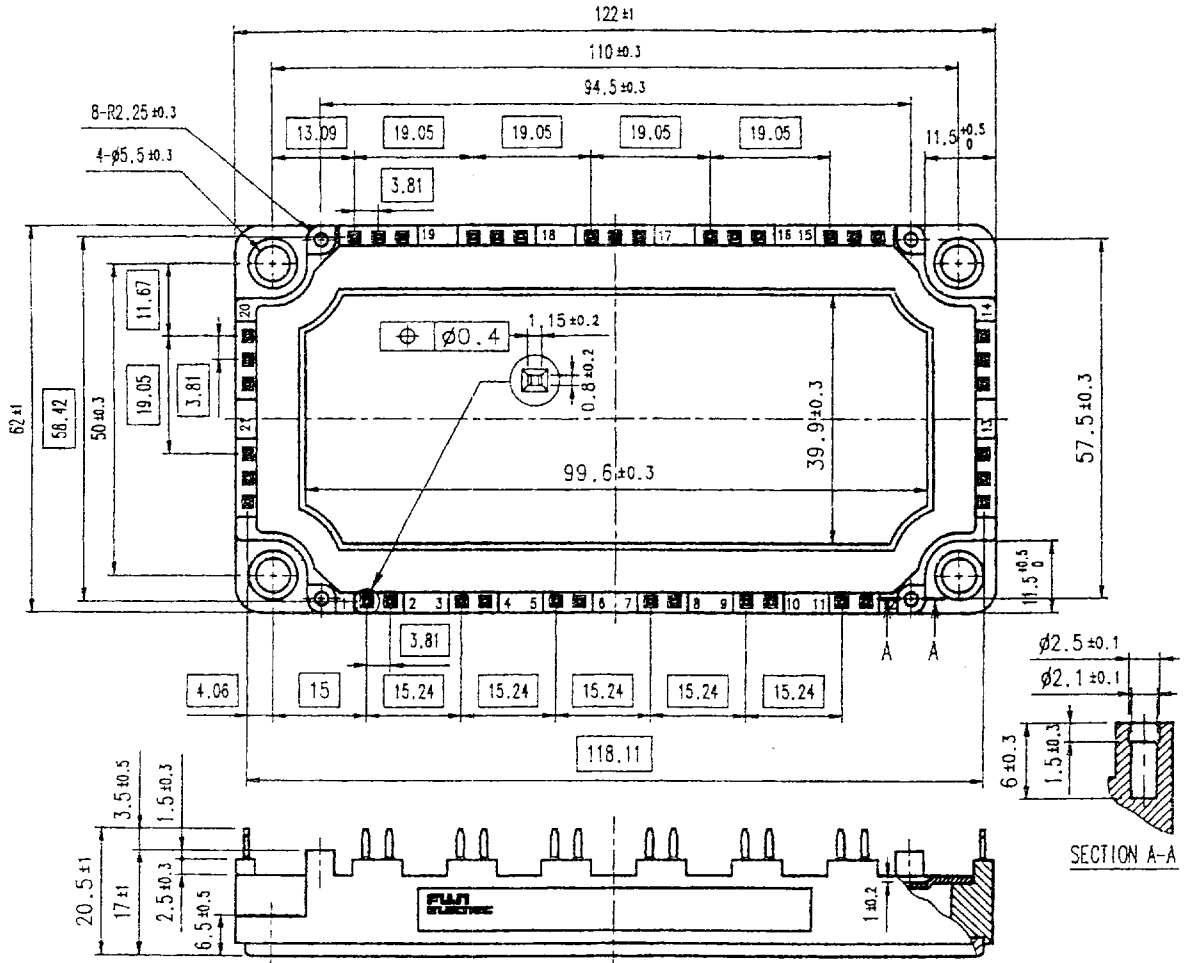




6MBI75S-120-01

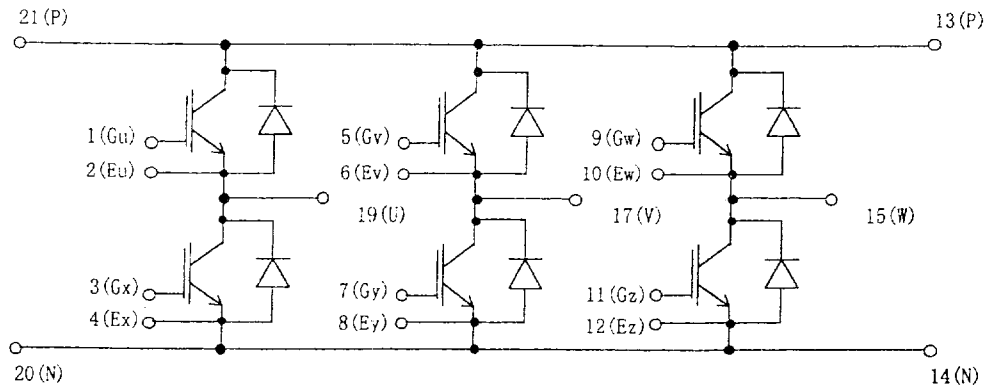
1. Outline Drawing ( Unit : mm )

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shows theoretical dimension.

2. Equivalent circuit



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

Items	Symbols	Conditions	Maximum Ratings		Units
			min.	Max.	
Collector-Emitter voltage	VCES		120		V
Gate-Emitter voltage	VGES		+20		V
Collector current	Ic	Continuous	Tc=25C	100	A
			Tc=80C	75	
	Ic pulse	1ms	Tc=25C	200	
			Tc=80C	150	
	-Ic			75	
-Ic pulse	1ms		150		
Collector Power Dissipation	Pc	1 device	520		W
Junction temperature	Tj		150		C
Storage temperature	Tstg		-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	VGE 0 V, VCE 1200 V			1.0	mA
Gate-Emitter leakage current	IGES	VCE 0 V, VGE +20 V			200	nA
Gate-Emitter threshold voltage	VGE(th)	VCE 20 V, Ic = 75 mA	5.5	7.2	8.5	V
Collector-Emitter saturation voltage	VCE(sat)	VGE 15 V, Tj = 25 C		2.3	2.6	V
		Ic = 75 A, Tj = 125 C		2.8		
Input capacitance	Cies	VGE 0 V		9000		pF
Output capacitance	Coes	VCE 10 V		1875		
Reverse transfer capacitance	Cres	f = 1 MHz		1650		
Turn-on time	ton	Vcc = 600 V		0.35	1.2	us
	tr	Ic = 75 A		0.25	0.6	
	tr(0)	VGE +15 V		0.1		
Turn-off time	toff	RG = 16 ohm		0.45	1.0	us
	tf			0.08	0.3	
Forward on voltage	VF	IF = 75 A, Tj = 25 C		2.5	3.3	V
		Tj = 125 C		2.0		
Reverse recovery time	trr	IF = 75 A			0.35	us

5. Thermal resistance characteristics

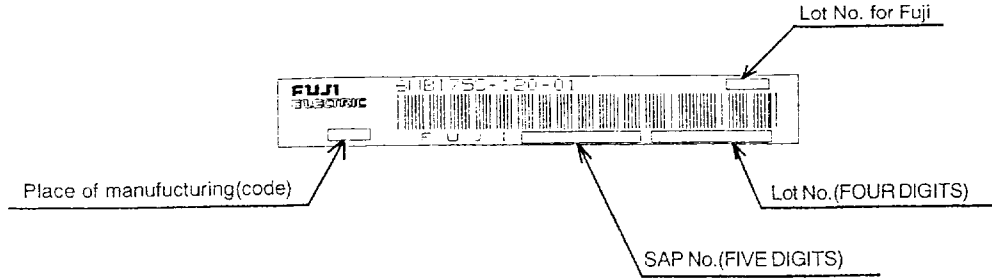
Items	Symbols	Conditions	Characteristics			Units
			min.	typ.	Max.	
Thermal resistance (1 device)	Rth(j-c)	IGBT			0.24	C/W
		FWD			0.50	
Contact Thermal resistance	Rth(c-f)	with Thermal Compound <sup>(*)</sup>		0.05		

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

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### 6. Indication on module



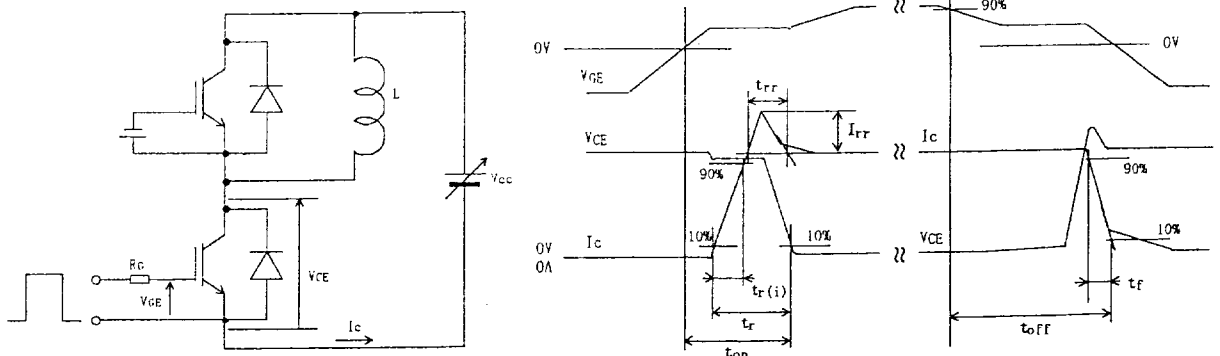
### 7. Applicable category

This specification is applied to IGBT Module named 6MBI75S-120-01.

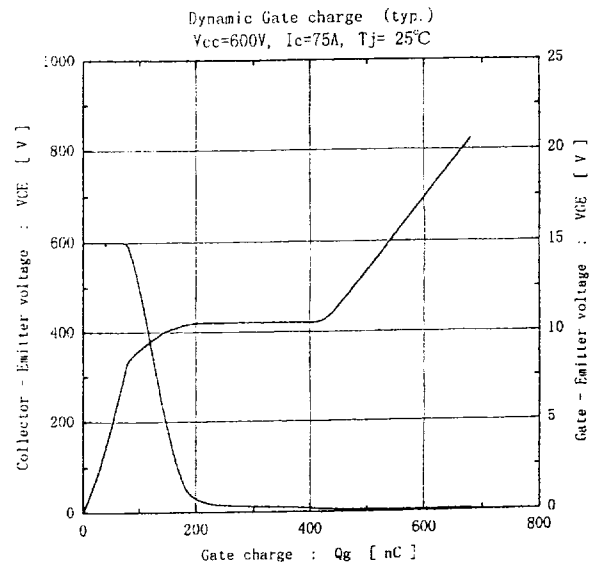
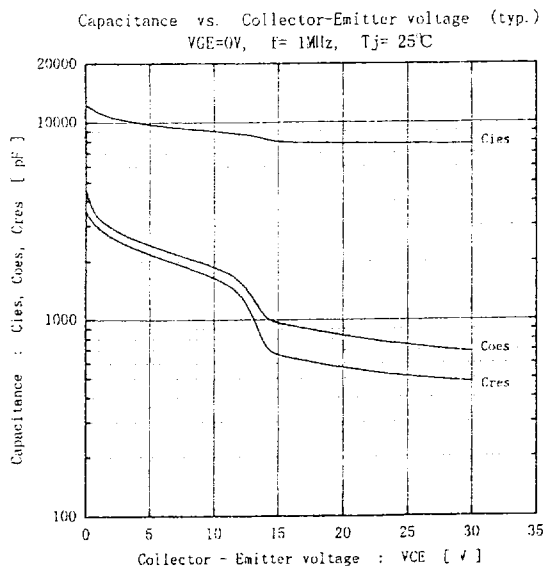
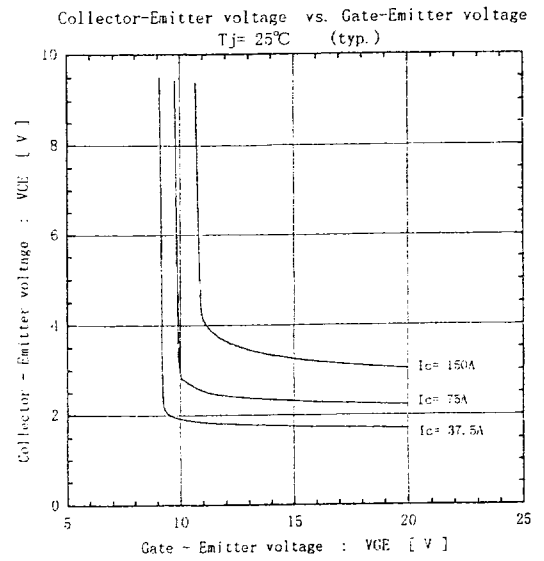
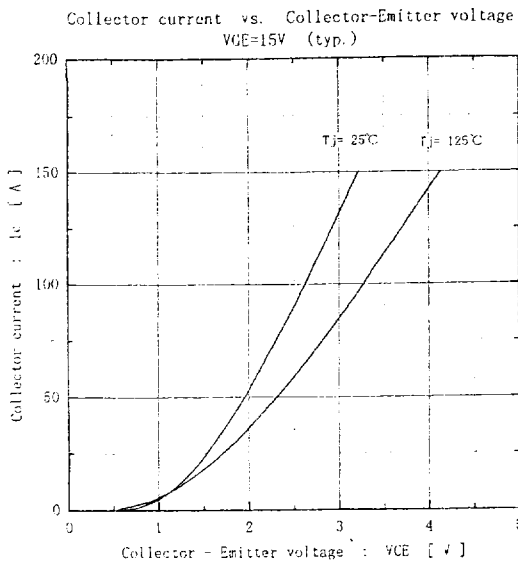
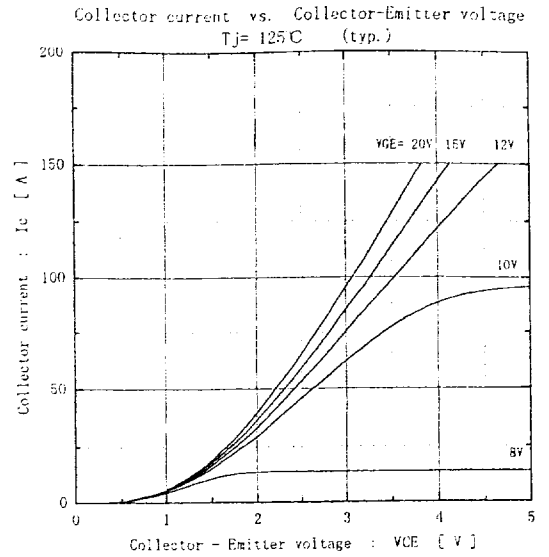
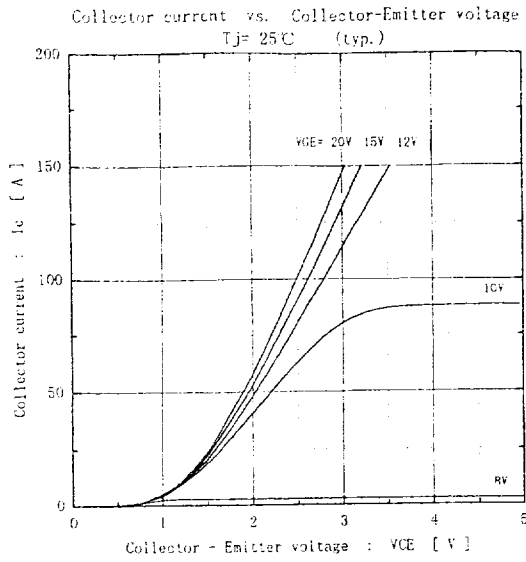
### 8. Storage and transportation notes

- 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.

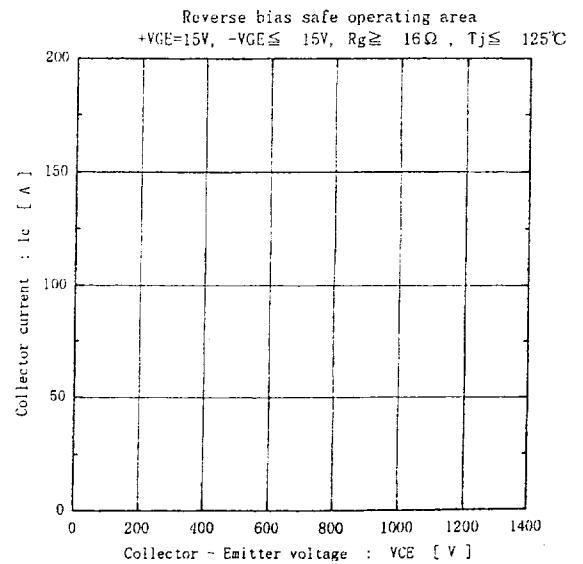
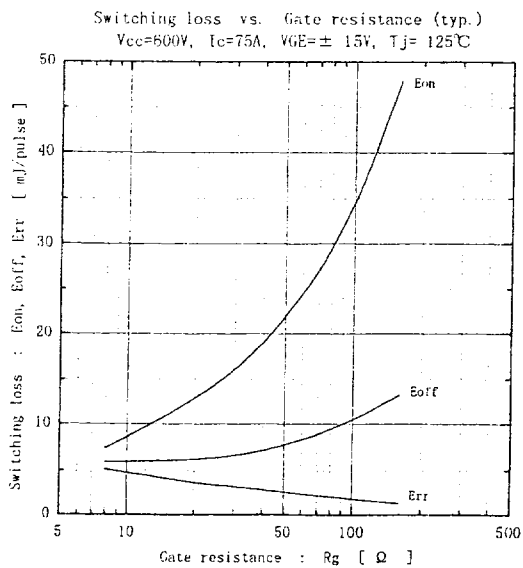
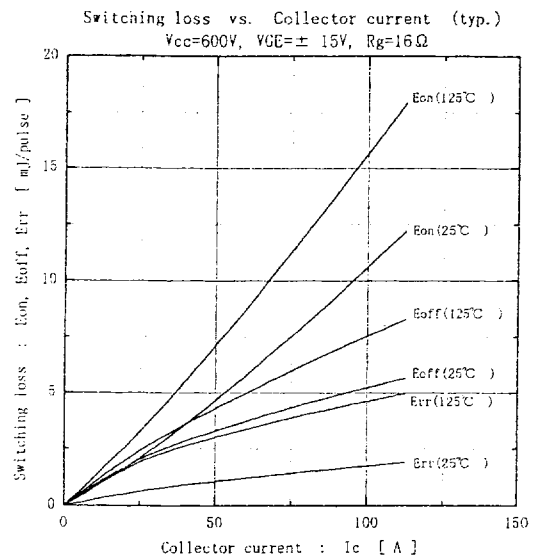
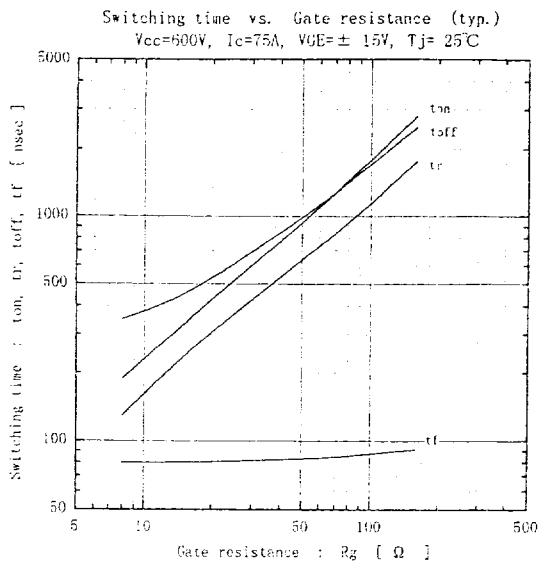
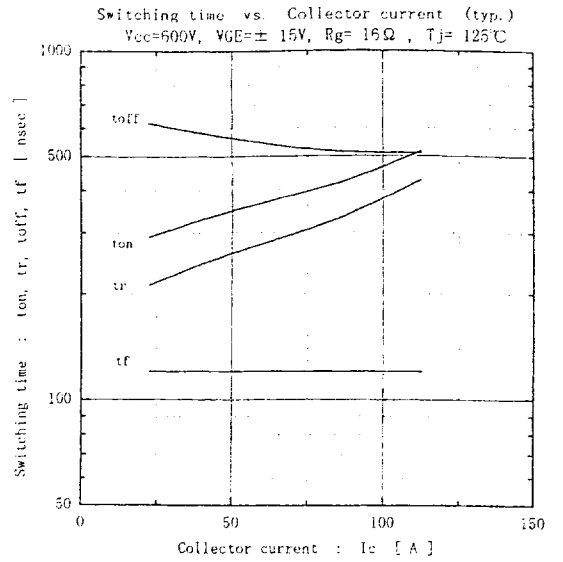
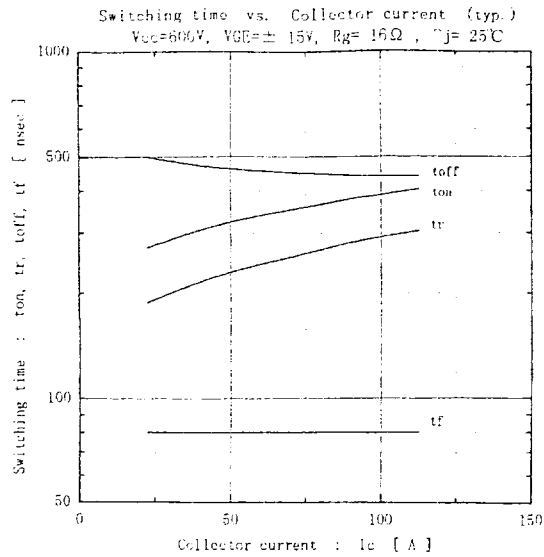
### 9. Definitions of switching time



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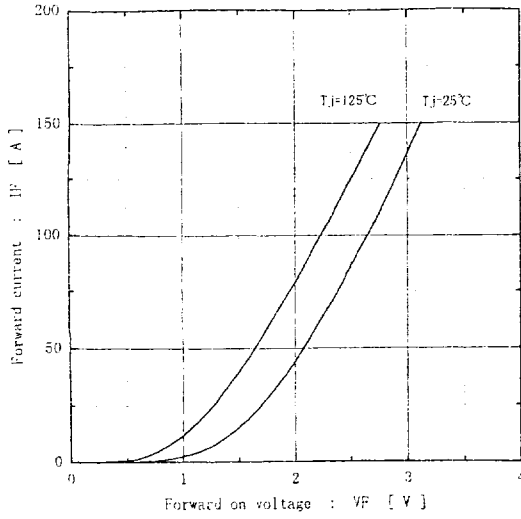


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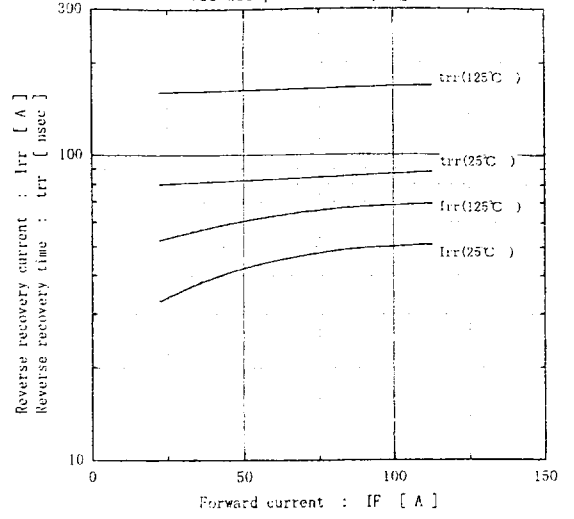


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Forward current vs. Forward on voltage (typ.)



Reverse recovery characteristics (typ.)  
Vce=600V, VGE=±15V, Rg=16Ω



Transient thermal resistance

