

SPECIFICATION

Device Name : IGBT Module

Type Name : 6MBI100S-120-01

Spec. No. : MS5F 4848

Date : Jun. - 02 - 2000

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.

Fuji Electric Co., Ltd.
Matsumoto Factory

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

H04-004-05

Revised Records

[illegible]

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.

Fuji Electric Co., Ltd.

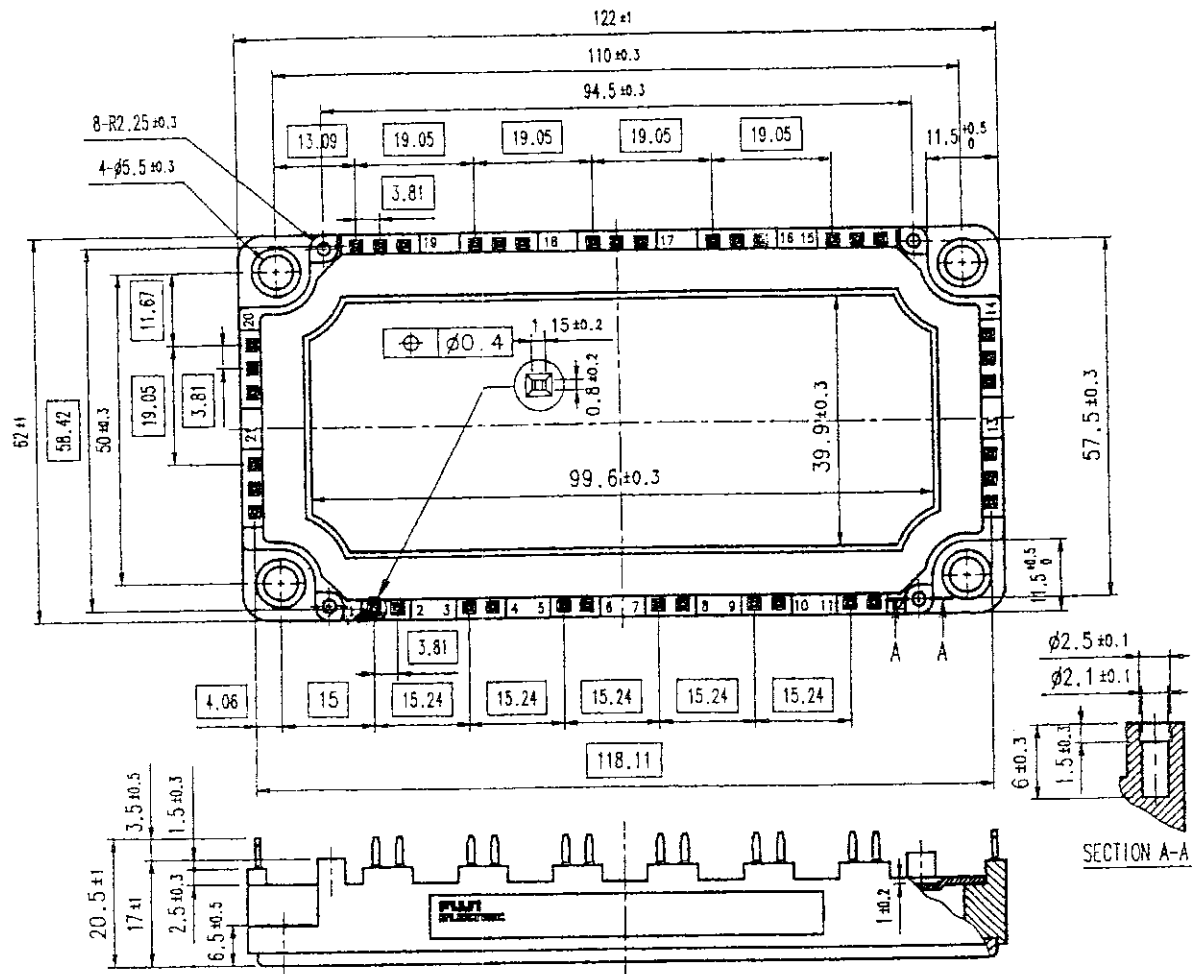
DWG. NO.

MS5F 4848

$$\frac{2}{8}$$

H04-004-06

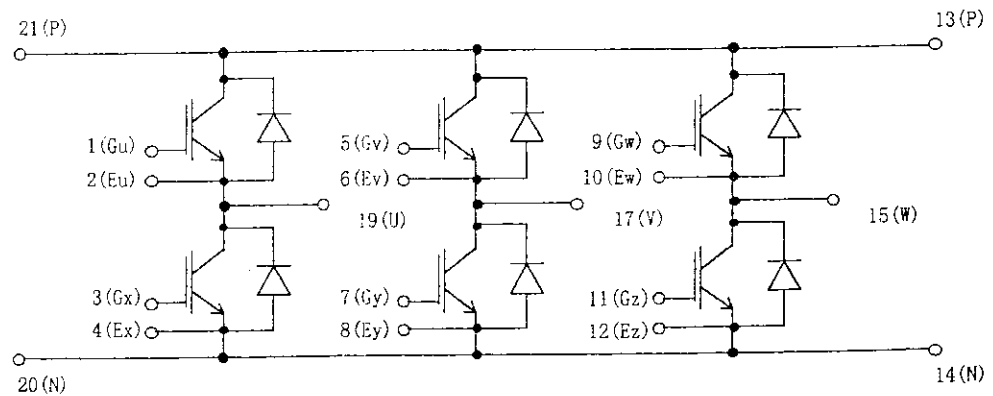
1. Outline Drawing (Unit : mm)



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.

□ shows theoretical dimension.

2. Equivalent circuit



Fuji Electric Co., Ltd.

DWG. NO.

MS5F 4848

3/8

H04-004-03

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

(*) 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)

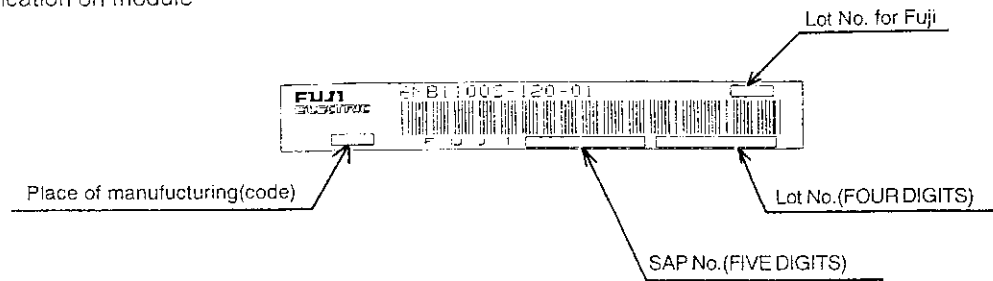
Items	Symbols	Conditions	Characteristics			Units
			min.	typ.	Max.	
Zero gate voltage Collector current	ICES	VGE 0 V, VCE 1200 V			1.0	mA
Gate-Emitter leakage current	IGES	VCE 0 V, VGE +20 V			200	nA
Gate-Emitter threshold voltage	VGE(th)	VCE 20 V, Ic = 100 mA	5.5	7.2	8.5	V
Collector-Emitter saturation voltage	VCE(sat)	VGE 15 V, Tj = 25 C		2.3	2.6	V
		Ic = 100 A, Tj = 125 C		2.8		
Input capacitance	Cies	VGE 0 V		12000		pF
Output capacitance	Coes	VCE 10 V		2500		
Reverse transfer capacitance	Cres	f = 1 MHz		2200		
Turn-on time	ton	Vcc = 600 V		0.35	1.2	us
	tr	Ic = 100 A		0.25	0.6	
	tr(0)	VGE +-15 V		0.1		
Turn-off time	toff	RG = 12 ohm		0.45	1.0	
	tf			0.08	0.3	
Forward on voltage	VF	IF = 100 A, Tj = 25 C		2.5	3.3	V
		Tj = 125 C		2.0		
Reverse recovery time	trr	IF = 100 A			0.35	us

5. Thermal resistance characteristics

Items	Symbols	Conditions	Characteristics			Units
			min.	typ.	Max.	
Thermal resistance (1 device)	Rth(j-c)	IGBT			0.18	C/W
		FWD			0.36	
Contact Thermal resistance	Rth(c-f)	with Thermal Compound ^(*)		0.05		

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

6. Indication on module



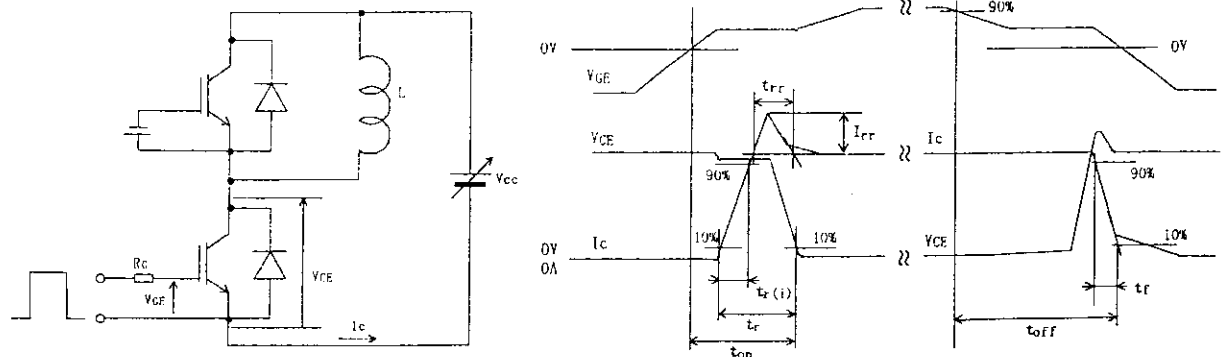
7. Applicable category

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.

9. Definitions of switching time



Fuji Electric Co., Ltd.

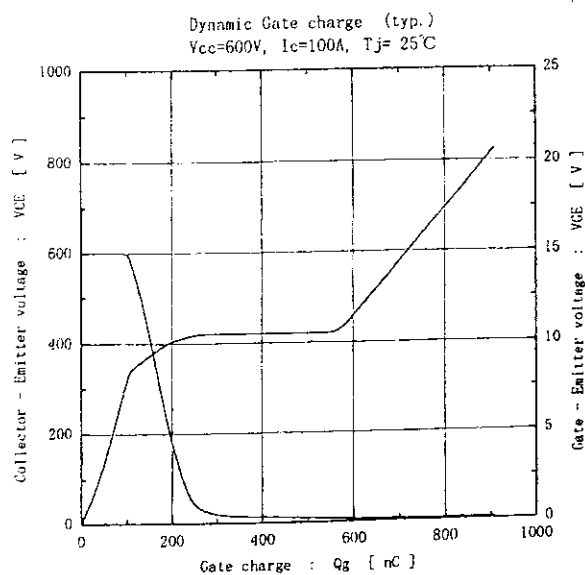
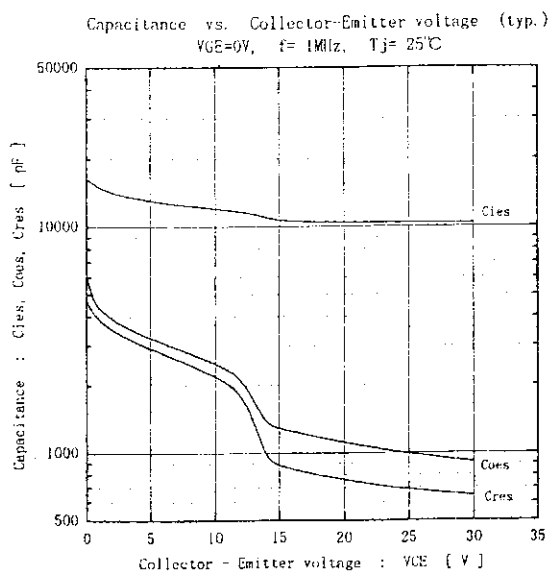
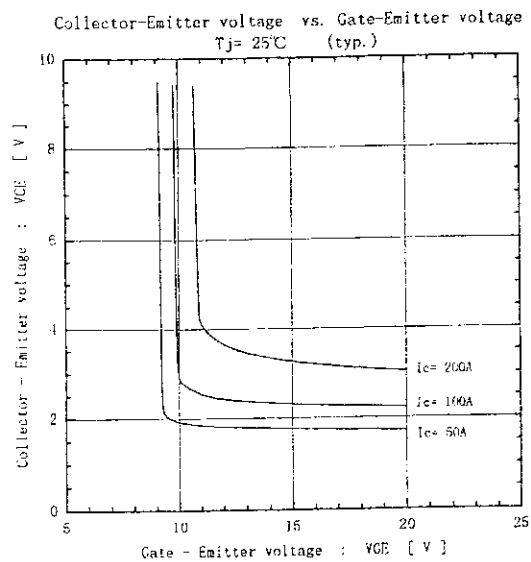
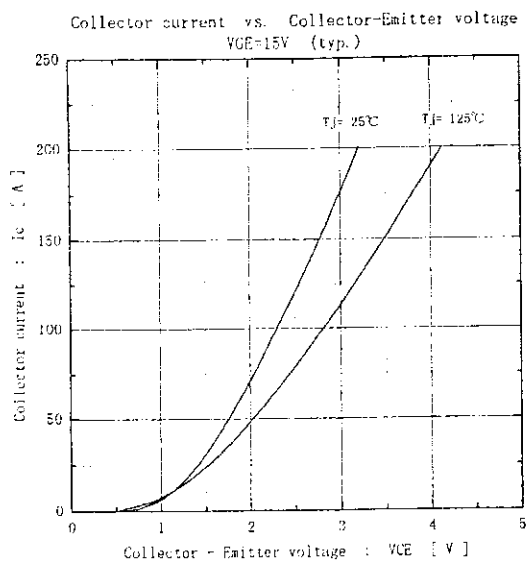
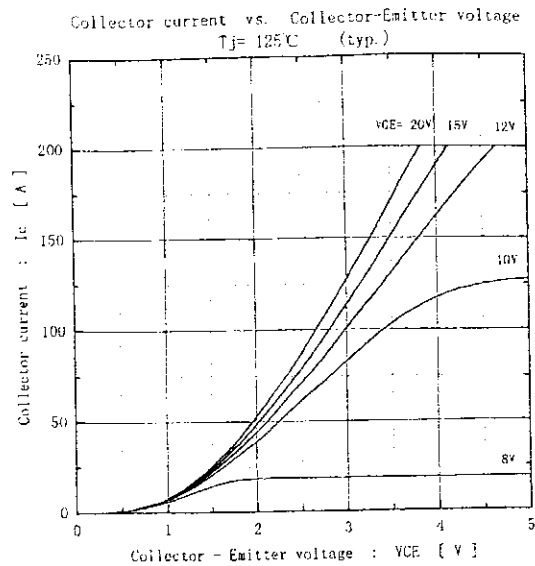
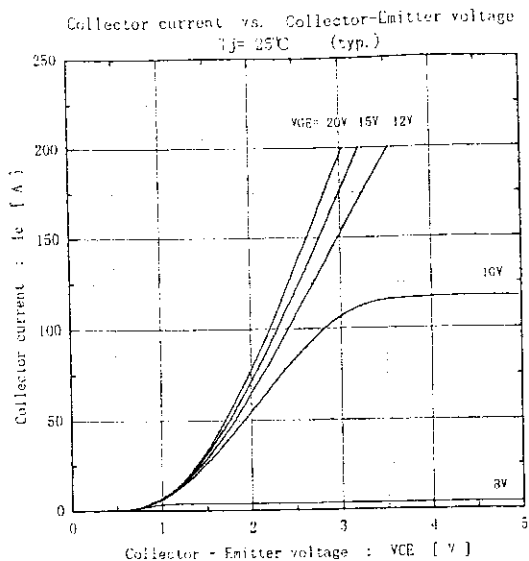
DWG. NO.

MS5F 4848

5 / 8

H04-004-03

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.



Fuji Electric Co., Ltd.

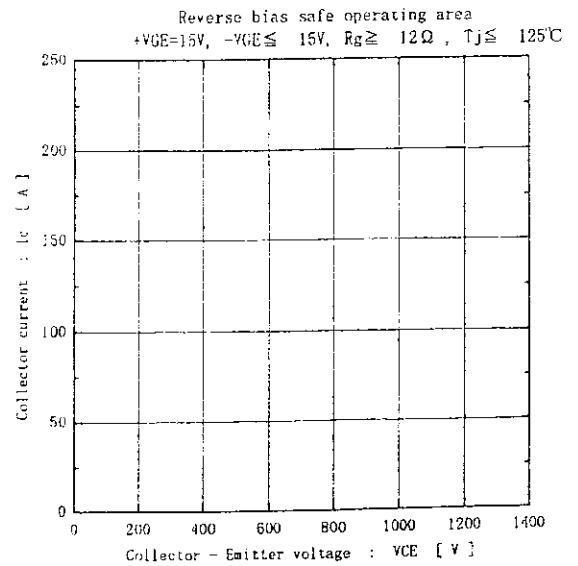
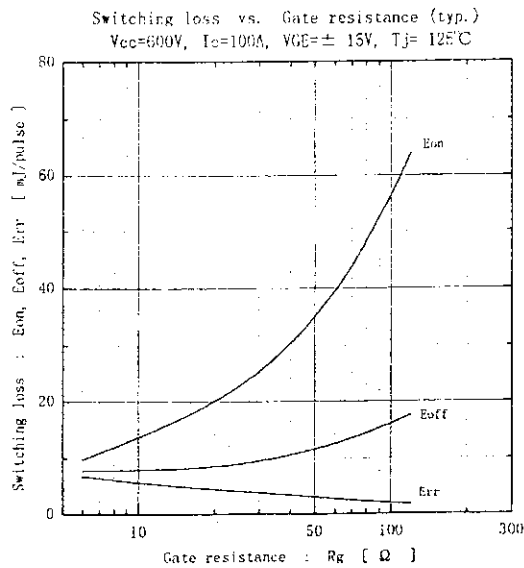
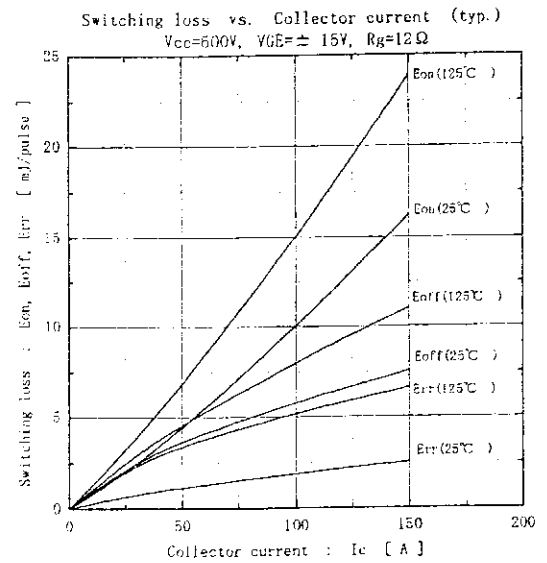
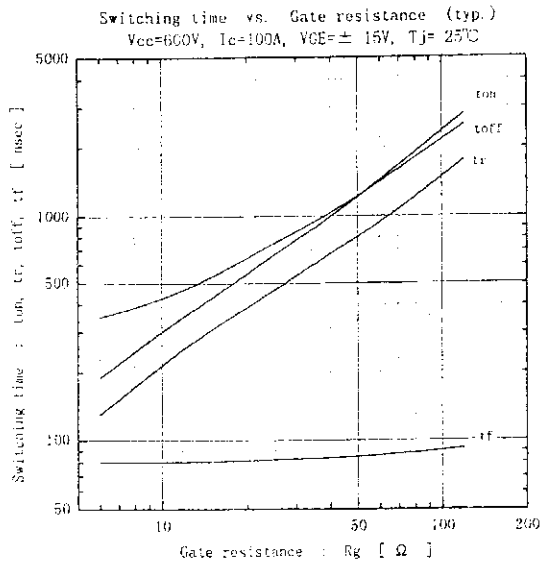
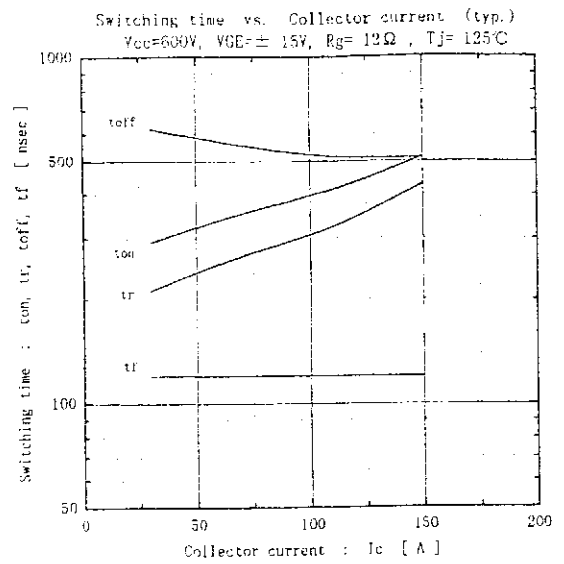
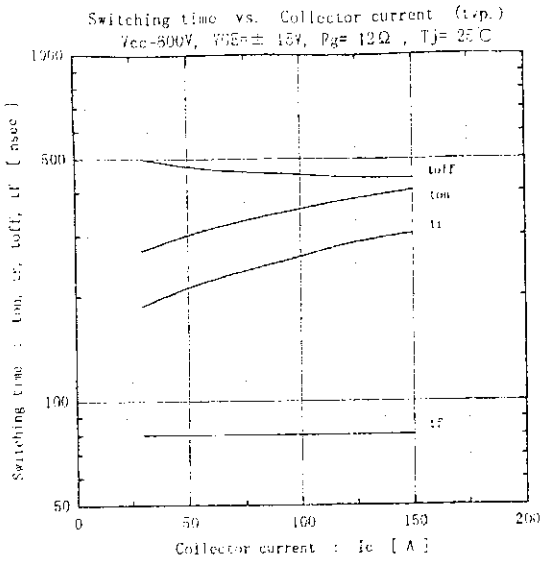
DWG. NO.

MS5F 4848

6/8

H04-004-03

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.



Fuji Electric Co., Ltd.

DWG NO

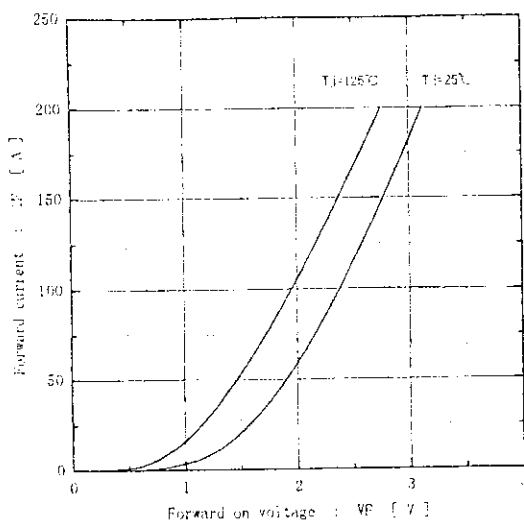
MS5F 4848

7/8

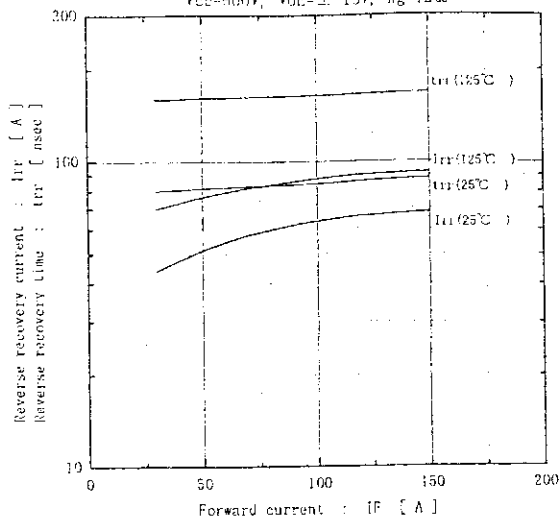
H04-004-03

This material and the information hereon 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.

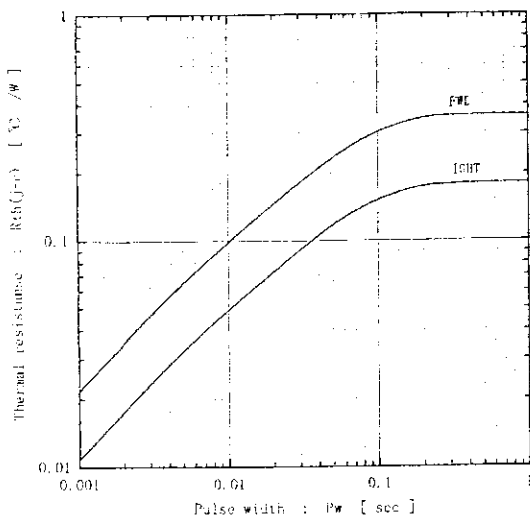
Forward current vs. Forward on voltage (typ.)



Reverse recovery characteristics (typ.)
 $V_{CE} = 50\text{V}$, $V_{GE} = \pm 15\text{V}$, $R_g = 12\Omega$



Transient thermal resistance



Fuji Electric Co., Ltd.

DWG. NO.

MS5F 4848

8/8

H04-004-03