

SPECIFICATION

Device Name : IGBT Module
Type Name : 1MB1600PX - 120 - 01
Spec. No. : MS5F4405

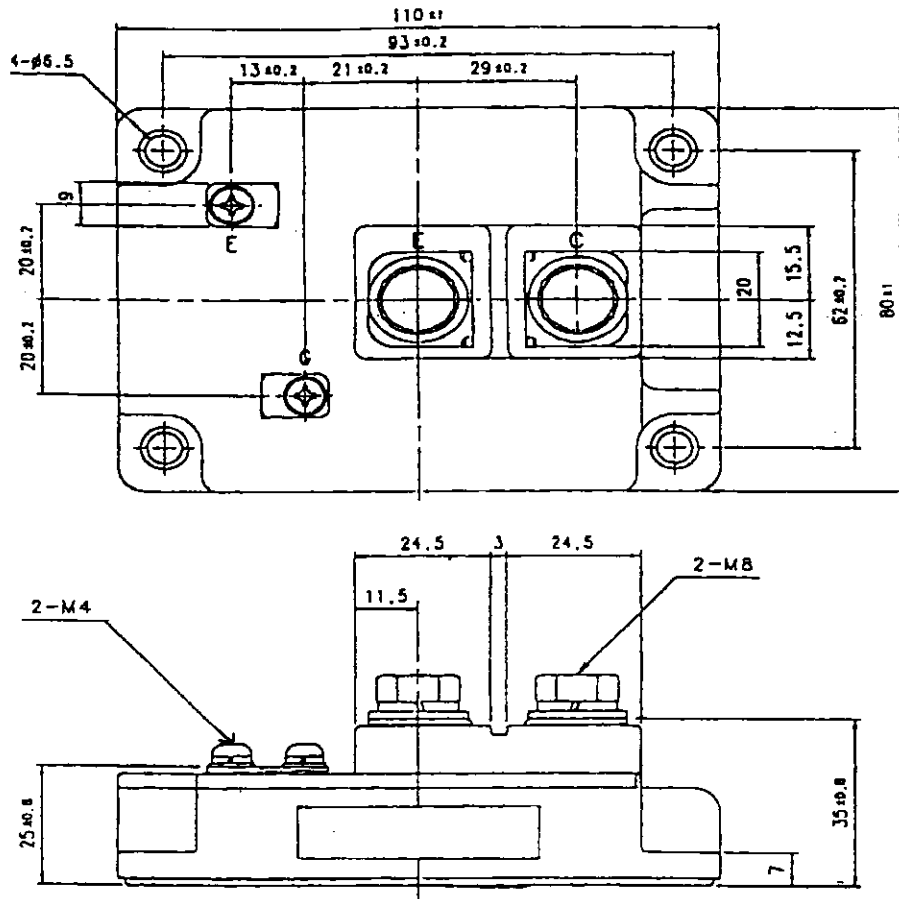
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 Matsumoto Factory

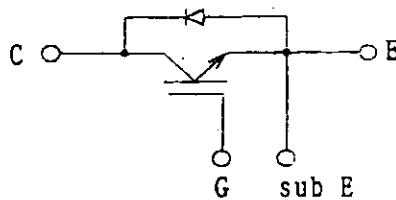
	DATE	NAME	APPROVED	Fuji Electric Co., Ltd.	
DRAWN	Sep. 9, '98	S. Tashiro		DWG. NO.	MS5F4405
CHECKED	Sep. 9, '98	S. Miyata	T. Hosen		

1MBI600PX-120-01

1. Outline Drawing
Unit : mm



2. Equivalent circuit



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H04-004-03

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

Items		Symbols	Ratings	Units
Collector-Emitter voltage		V _{CE}	1200	V
Gate-Emitter voltage		V _{GE}	±20	V
Collector current	Continuous	Tc=25°C	I _c	800
		Tc=80°C		600
	1ms	Tc=25°C	I _c pulse	1600
		Tc=80°C		1200
			-I _c	600
	1ms		-I _c pulse	1200
Max. power dissipation		P _C	4100	W
Operating temperature		T _j	+150	°C
Storage temperature		T _{stg}	-40~+125	°C
Isolation voltage		V _{is}	AC 2500 (1min.)	V
Screw torque		Mounting #1	4.5	N·m
		Terminals #2	11.0	
		Terminals #3	1.7	

Note : #1 Recommendable value : 4.0±0.5 N·m (M6)

Note : #2 Recommendable value : 10.0±1.0 N·m (M8)

Note : #3 Recommendable value : 1.50±0.2 N·m (M4)

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

Items	Symbols	Characteristics			Conditions	Units
		min.	typ.	max.		
Zero gate voltage Collector current	I _{CE}			2.0	V _{GE} =0V, V _{CE} =1200V	mA
Gate-Emitter leakage current	I _{GES}			±0.5	V _{CE} =0V, V _{GE} =±20V	μA
Gate-Emitter threshold voltage	V _{GE(th)}	6.0	8.0	9.0	V _{CE} =20V, I _c =600mA	V
Collector-Emitter saturation voltage	V _{CE(sat)}	2.5	2.85	3.0	V _{GE} =15V, I _c =600A	V
Input capacitance	C _{ies}		60		V _{GE} =0V	nF
Output capacitance	C _{oes}		9		V _{CE} =10V	
Reverse transfer capacitance	C _{res}		4		f=1MHz	
Turn-on time	t _{on}		750	1200	V _{CE} =600V	ns
	t _r		200	600	I _c =600A	
Turn-off time	t _{off}		650	1000	V _{CE} =±15V	
	t _f		100	300	R _G =2.0Ω	
Diode forward on voltage	V _F	2.0		3.4	I _F =600A, V _{CE} =0V	V
Reverse recovery time	t _{rr}			350	I _F =600A	ns

5. Thermal resistance characteristics

Items	Symbols	Characteristics			Conditions	Units
		min.	typ.	max.		
Thermal resistance	R _{th(j-c)}			0.03	IGBT	°C/W
	R _{th(j-c)}			0.06	Diode	
	※		0.0063		the base to cooling fin	
	R _{th(c-f)}					

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

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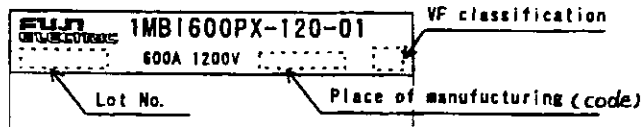
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6. VF class

class	VF range [V]
A	2.0 ~ 2.3
B	2.2 ~ 2.5
C	2.4 ~ 2.7
D	2.6 ~ 3.0
E	2.9 ~ 3.4

7. Indication module (モジュール表示)



8. Applicable category (適用範囲)

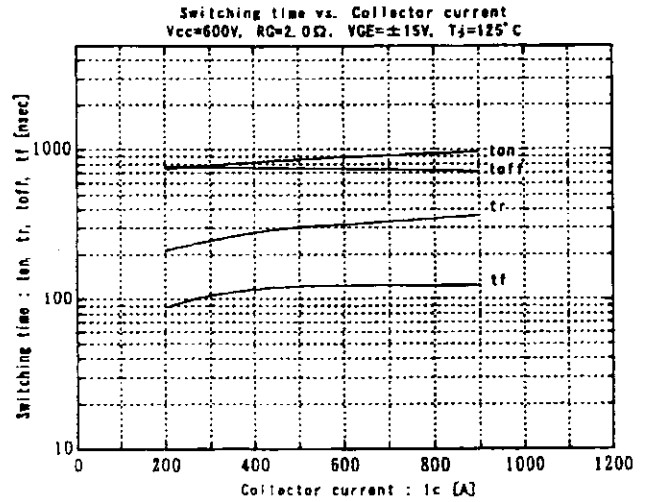
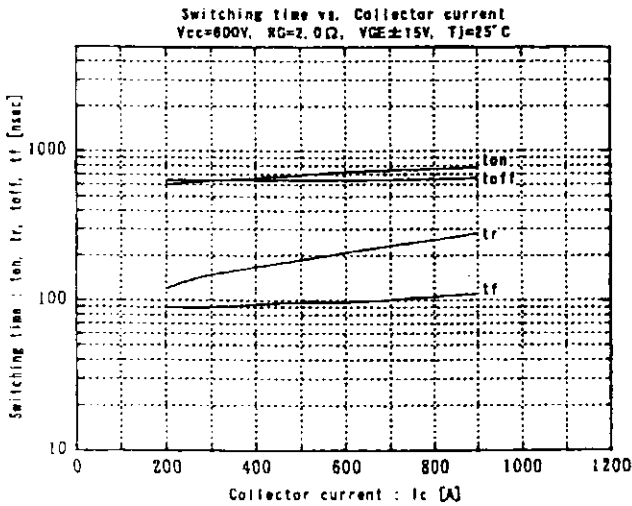
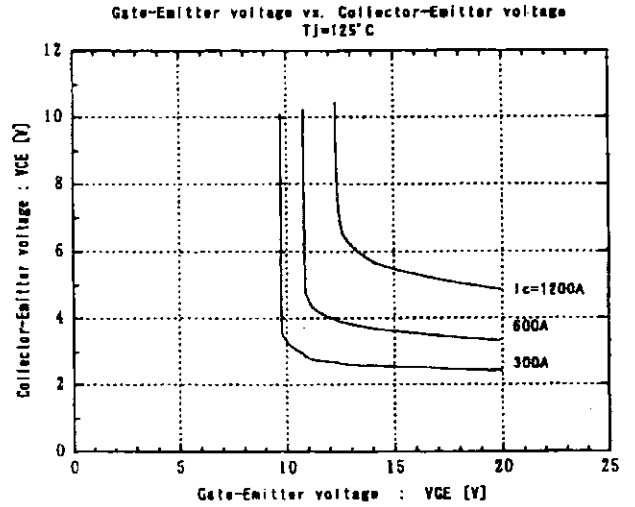
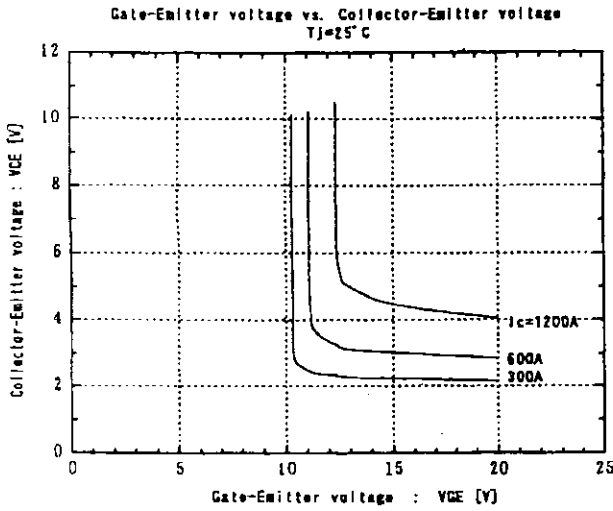
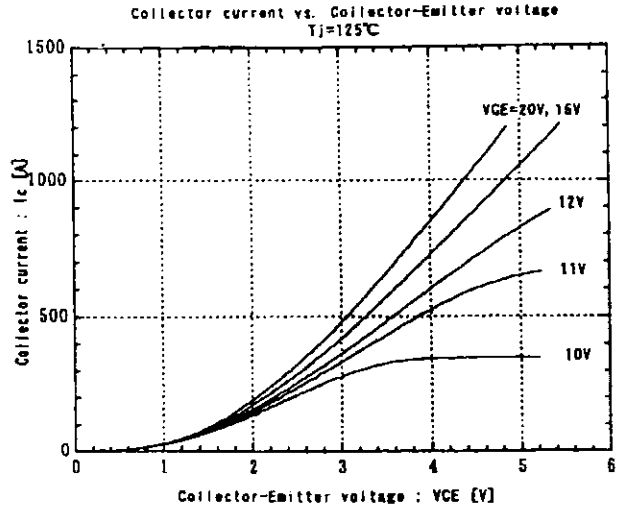
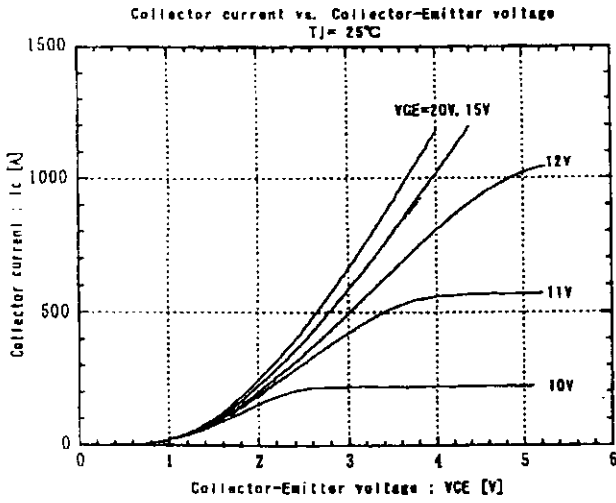
This specification is applied to IGBT module named IMBI600PX-120-01.
 本納入仕様書は、IGBTモジュール 1MBI600PX-120-01 に適用する。

9. Storage and transportation notes (保管, 運搬上の注意事項)

- This IGBT module should be stored at a standard temperature of 5 to 35°C and humidity of 45% to 75%.
 常温保存が望ましい。
- Store modules in a place with few temperature changes in order to avoid condensation on the module surface.
 急激な温度変化の無きこと。(モジュール表面が結露しないこと)
- Avoid exposure to corrosive gases and dust.
 腐蝕性ガスの発生場所、塵埃の多い場所は避けること。
- Avoid excessive external force on the module.
 製品に荷重がかからないように十分注意すること。
- Store modules with unprocessed terminals.
 モジュールの端子は未加工の状態での保管すること。
- Do not drop or otherwise shock the modules when transporting.
 製品の運搬時に衝撃を与えたり、落下させたりしないこと。

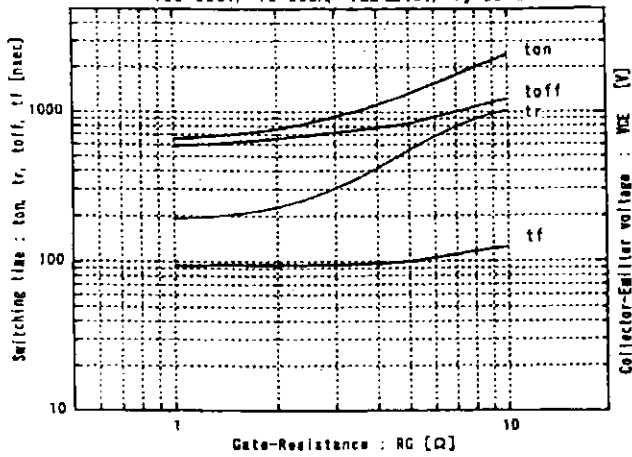
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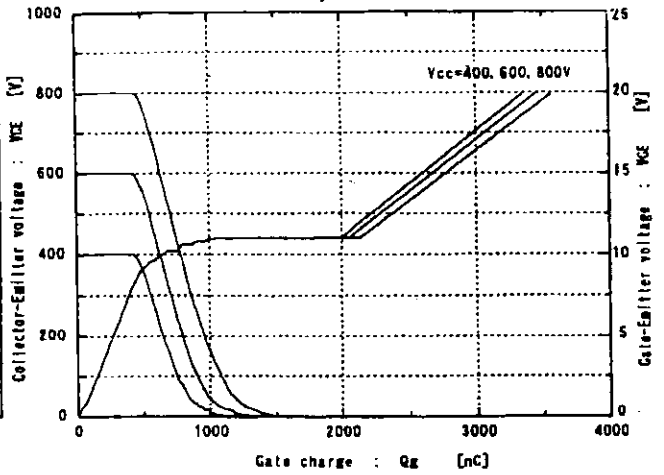


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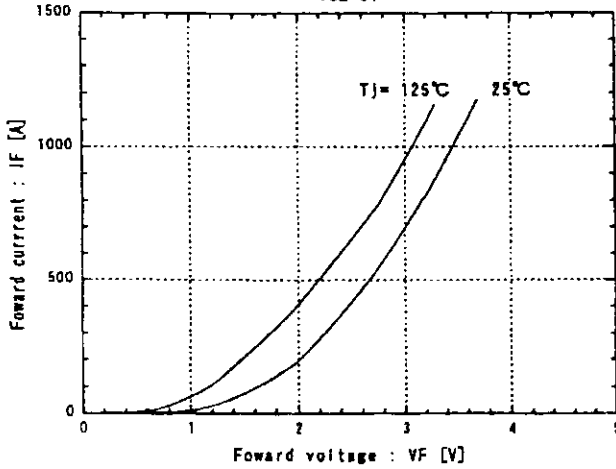
Switching time vs. Gate-Resistance
 $V_{cc}=600V, I_c=600A, V_{GE} \pm 15V, T_j=25^\circ C$



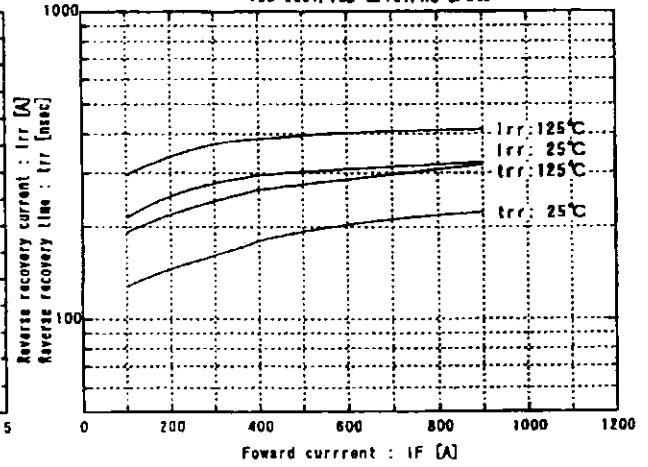
Dynamic input characteristics
 $T_j=25^\circ C$



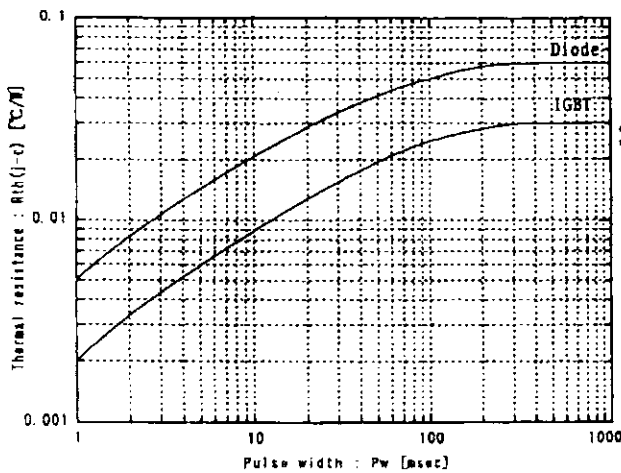
Forward current vs. Forward voltage
 $V_{GE}=0V$



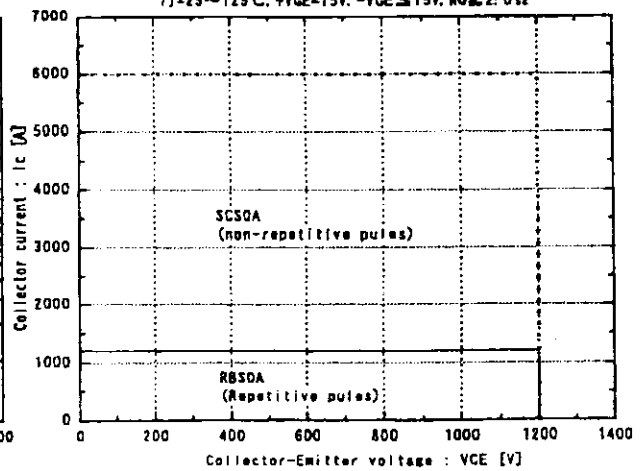
Reverse recovery characteristics (t_{rr}, I_{rr} vs. I_F)
 $V_{cc}=600V, V_{GE} \pm 15V, R_G=2.0\Omega$



Transient thermal resistance



Reverse biased safety operating area
 $T_j=25\sim 125^\circ C, +V_{GE}=15V, -V_{GE} \le 15V, R_G \ge 2.0\Omega$



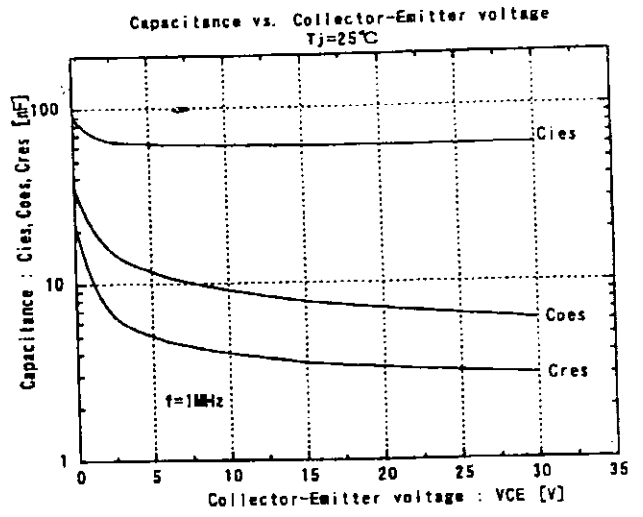
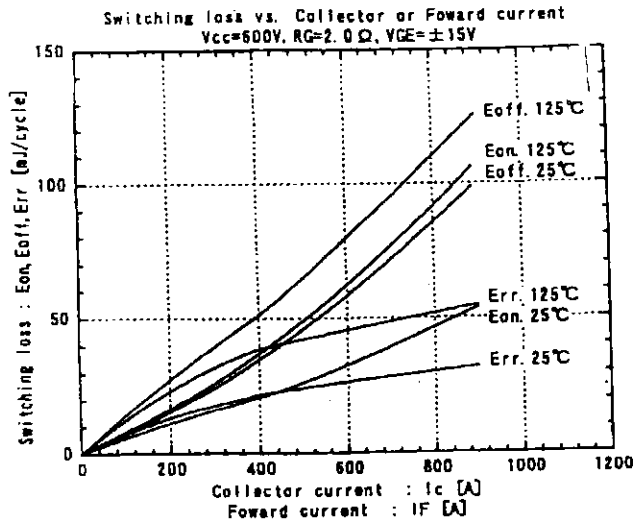
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