

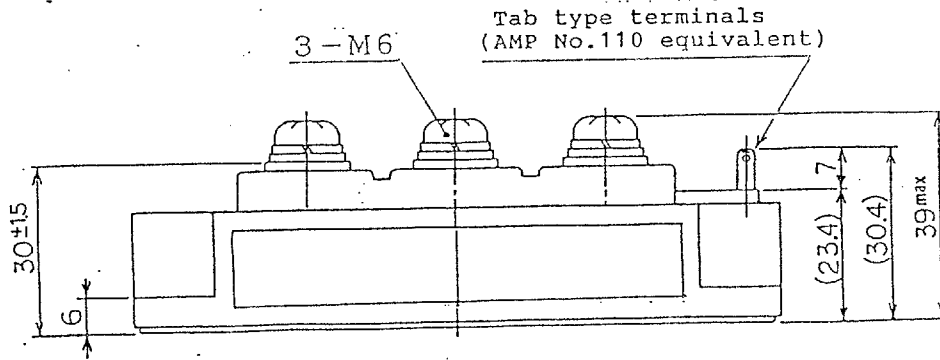
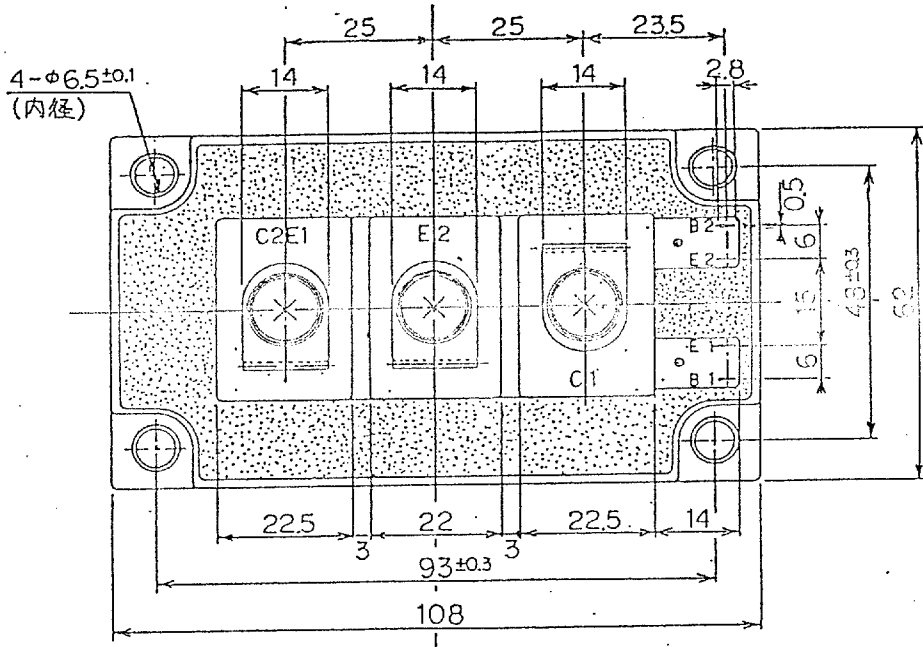
Ratings and characteristics of Fuji IGBT (MBT) Module

2MBI100J-120 (TENTATIVE)

1. Outline Drawing

Unit : mm

\* Isolation Voltage : AC 2500 V 1 minute



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① Revision 1, page 2-4 and added page 4-11, Apr. 5, '93 A. Yamaguchi, Z-1

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DRAWN	Dec-11-92	N. Shibata	
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Fuji Electric Co., Ltd.

DWG. NO.

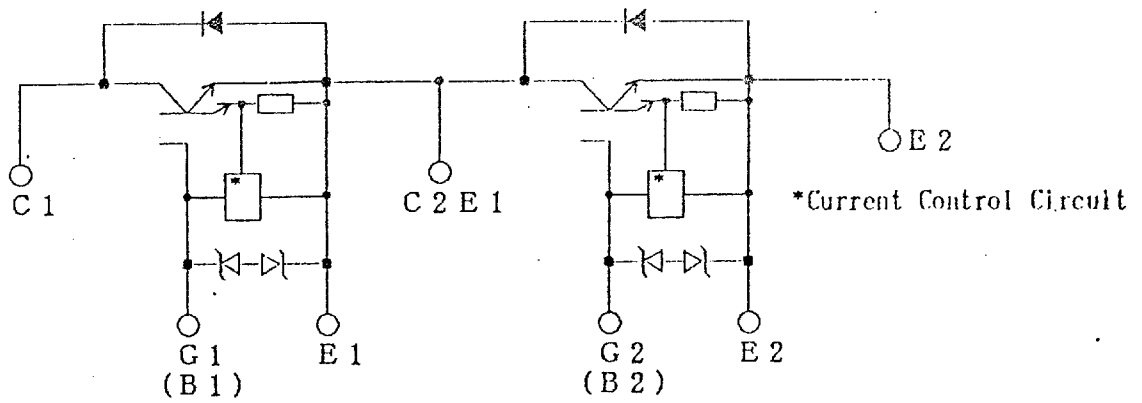
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## 2. Equivalent Circuit



## 3. Absolute Maximum Ratings (Tj=25°C)

Items		Symbols	Ratings	Units
Collector-emitter voltage		$V_{CES}$	1 2 0 0	V
Gate-emitter voltage		$V_{GES}$	$\pm 2 0$	V
Collector current	Continuous	$I_c$	1 0 0	A
	1 ms	$I_c$ pulse	2 0 0	
		$- I_c$	1 0 0	
	1 ms	$- I_c$ pulse	2 0 0	
Max.power dissipation		PC	6 4 0	W
Operating temperature		Tj	+ 1 5 0	°C
Storage temperature		Tstg	- 4 0 ~ + 1 2 5	°C
Isolation voltage		Vis	AC 2 5 0 0 (1min)	V
Screw Torque		Mounting * 1	3 . 5	N · m
		Terminals * 2	4 . 5	

Note : \*1 Recommendable Value : 2.5 ~ 3.5 N · m ( M5 )  
 \*2 Recommendable Value : 3.5 ~ 4.5 N · m ( M6 )

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

Items	Symbols	Characteristics			Conditions		Units
		min.	typ.	max.			
Zero gate voltage collector current	I <sub>CES</sub>			2.0	Tj= 25°C	V <sub>GE</sub> =0V	mA
					Tj=125°C	V <sub>CE</sub> =1200V	mA
Gate-emitter leakage current	I <sub>GES</sub>			30	V <sub>CE</sub> = 0 V V <sub>GE</sub> = ±20V		μA
Gate-emitter threshold voltage	V <sub>GE(LH)</sub>		5.0		V <sub>CE</sub> =20V I <sub>C</sub> = 100mA		V
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>		2.2		V <sub>GE</sub> =15V I <sub>C</sub> = 100A		V

5. Dynamic ratings ( at Tj=25°C unless otherwise specified )

Items	Symbols	Characteristics			Conditions	Units
		min.	typ.	max.		
Input capacitance	C <sub>ies</sub>		12000		V <sub>GE</sub> = 0 V	p F
Output capacitance	C <sub>oes</sub>		-		V <sub>CE</sub> =10V	
Reverse transfer capacitance	C <sub>res</sub>		-		f = 1 MHz	
Turn-on time	t <sub>on</sub>		0.8		V <sub>CC</sub> =600V I <sub>C</sub> = 100A V <sub>GE</sub> = ±15V R <sub>G</sub> = 9.1Ω	μ s
	t <sub>r</sub>		0.3			
Turn-off time	t <sub>off</sub>		1.0			
	t <sub>f</sub>		0.2			

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6. Characteristics of reverse diode ( at  $T_j=25^\circ\text{C}$  unless otherwise specified )

Items	Symbols	Characteristics			Conditions	Units
		min.	typ.	max.		
Diode forward on-voltage	V <sub>F</sub>		2.5		I <sub>F</sub> = 100A V <sub>GE</sub> = 0V	V
Reverse recovery time	t <sub>rr</sub>			350	I <sub>F</sub> = 100A -di/dt = 300A/ $\mu$ s	n s

7. Thermal resistance characteristics

Items	Symbols	Characteristics			Conditions	Units
		min.	typ.	max.		
Thermal resistance	R <sub>th(j-c)</sub>			0.195	IGBT(MBT)	°C/W
	R <sub>th(j-c)</sub>			0.375	Diode	
	※ R <sub>th(c-f)</sub>		0.025		the base to cooling fin	

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

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