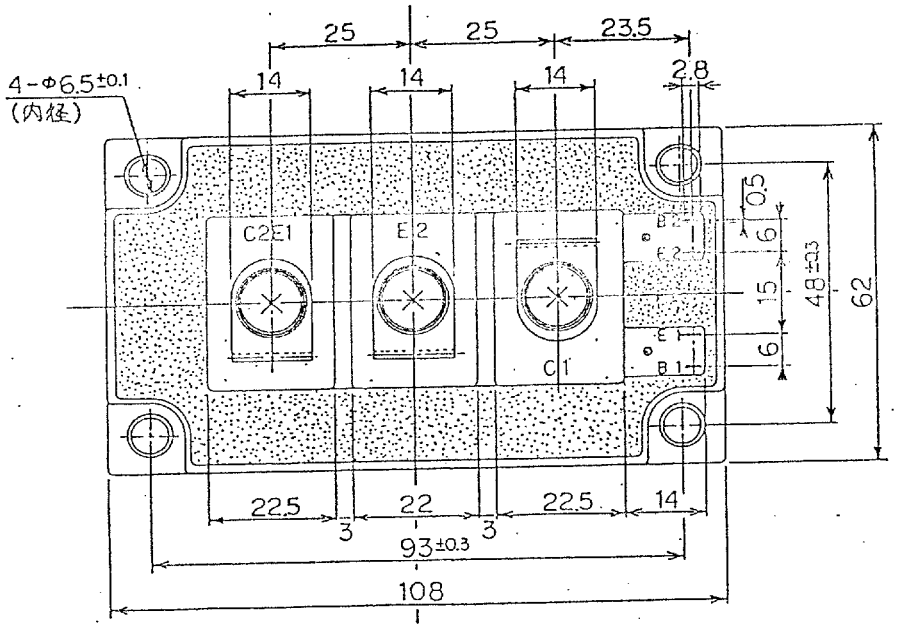
Ratings and characteristics of Fuji IGBT (MBT) Module

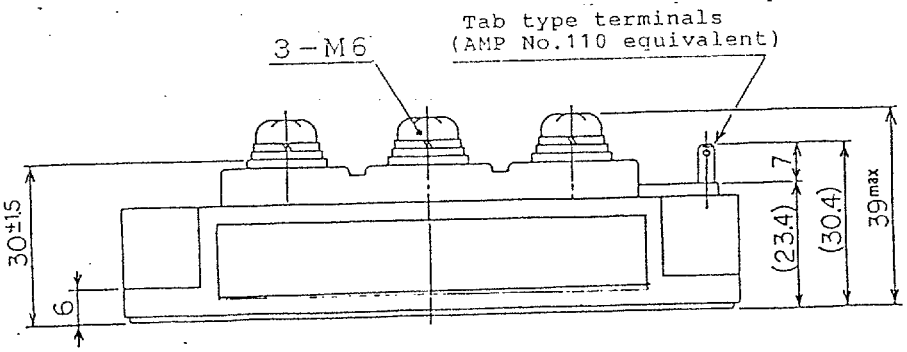
2MBI300J-060 (TENTATIVE)

1. Outline Drawing

Unit : mm

* Isolation Voltage : AC 2500 V 1 minute





REVISIONS		DATE	NAME	APPROVED
a) Revised page 3,4 and added page 4-11 Dec. 9 '92 A. Yamaguchi	DRAWN	Aug-31-'92	M. Arimura	
b) Revised page 2,4,9,10 Apr. 6 '93 A. Yamaguchi	CHECKED	Aug-31-'92	Y. Miyasaka	

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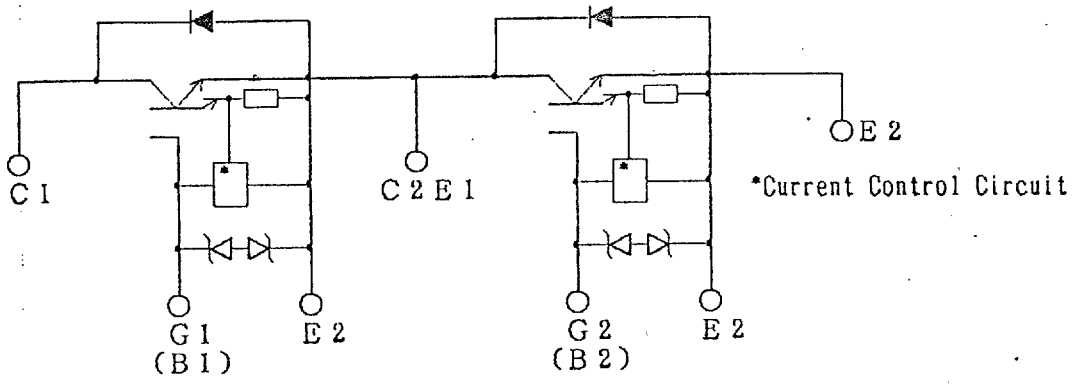
2. Equivalent Circuit



3. Absolute Maximum Ratings (Tj=25 ℃)

Items		Symbols	Ratings	Units
Collector-emitter voltage		V_{CES}	600	V
Gate -emitter voltage		V_{GES}	±20	V
Collector current	Continuous	I_C	300	A
	1 ms	$I_{C\ pulse}$	600	
		$-I_C$	300	
	1 ms	$-I_{C\ pulse}$	600	
Max. power dissipation		PC	900	W
Operating temperature		Tj	+150	℃
Storage temperature		Tstg	-40 ～ +125	℃
Isolation voltage	1min	Vis	AC 2500 (1 min)	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℃ unless otherwise specified)

Items	Symbols	Characteristics min.	typ.	max.	Conditions		Units
Zero gate voltage collector current	I_{CKS}			2.0	Tj= 25℃	V_{GR}= 0V	mA
					Tj=125℃	V_{CR} = 600V	mA
Gate-emitter leakage current	I_{GRS}			30	V_{GR}= 0V V_{GR}=±20V		μA
Gate-emitter threshold voltage	$V_{GE(th)}$	3.5	5.0	6.5	V_{CK}= 20V I_C = 300mA		V
Collector-emitter saturation voltage	$V_{CE(sat)}$		1.8	2.5	V_{GE}= 15V I_C = 300A		V

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

Items	Symbols	Characteristics min.	typ.	max.	Conditions	Units
Input capacitance	Cies		19200		V_{GR}= 0V V_{CK}= 10V f = 1MHz	pF
Output capacitance	Coes					
Reverse transfer capacitance	Cres					
Turn-on time	ton		0.6	1.2	V_{CC}=300V I_C =300A V_{GR}=±15V R_G =6.8Ω	μs
	tr		0.2	0.6		
Turn-off time	toff		0.8	1.5		
	tf		0.15	0.35		

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6. Characteristics of reverse diode (at Tj=25℃ unless otherwise specified)

Items	Symbols	Characteristics			Conditions	Units
		min.	typ.	max.		
Diode forward on-voltage	VF		2.3	3.0	IF=300A V_{GE}=0V	V
Reverse recovery time	trr			300	IF=300A -di/dt=900A/μs	ns

7. Thermal resistance characteristics

Items	Symbols	Characteristics			Conditions	Units
		min.	typ.	max.		
Thermal resistance	Rth(j-c)			0.139	IGBT	℃/W
	Rth(j-c)			0.267	Diode	
	※ Rth(c-f)		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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