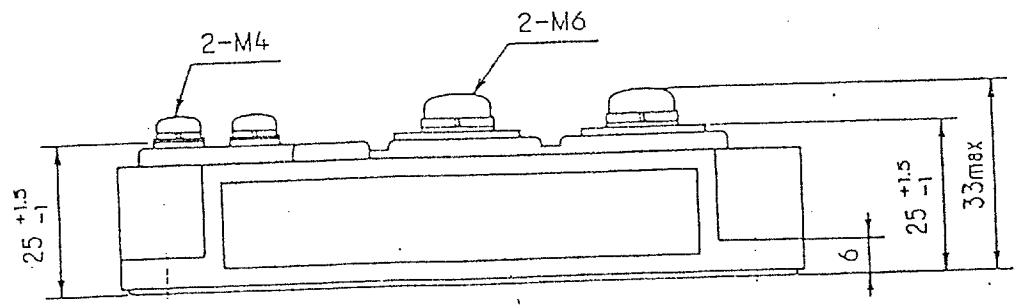
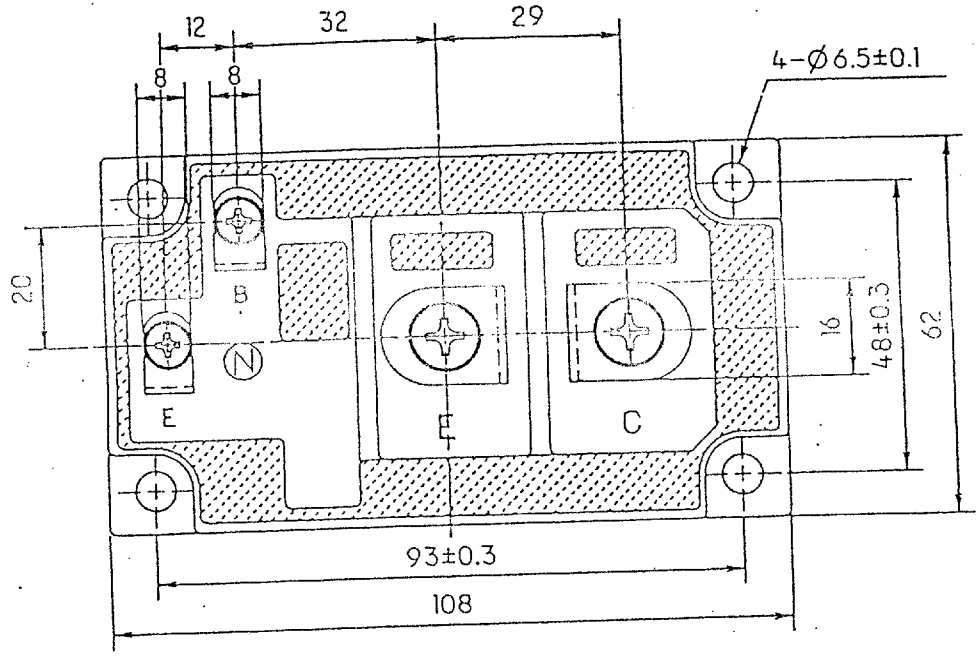


1MBI300JN-120 (TENTATIVE)

1. Outline Drawing

Unit : mm

\* Isolation Voltage : AC 2500 V 1 minute



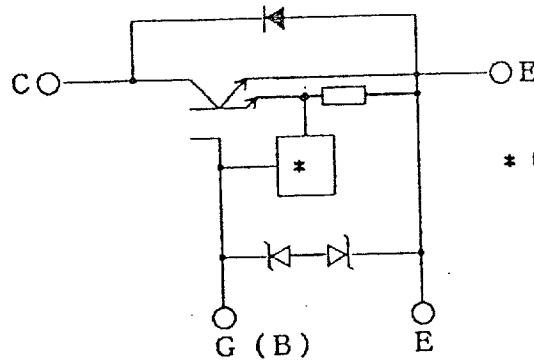
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② Revised page 2-4 and added page 4-11, Apr. 5-'93 A. Yamaguchi, ZL

REVISIONS			DATE		NAME		APPROVED		Fuji Electric Co., Ltd.		
			Jan-11-'92	N. Arikawa				DWG. NO.		MT5 F 5034 1/1	
			Dec-15-'92	T. Miyasaka							

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## 2. Equivalent Circuit



\* Current Control Circuit

## 3. Absolute Maximum Ratings (T<sub>j</sub>=25°C)

Items		Symbols	Ratings	Units
Collector-emitter voltage		V <sub>CEs</sub>	1 2 0 0	V
Gate-emitter voltage		V <sub>GES</sub>	± 2 0	V
Collector current	Continuous	I <sub>c</sub>	3 0 0	A
	1 ms	I <sub>c</sub> pulse	6 0 0	
		- I <sub>c</sub>	3 0 0	
	1 ms	- I <sub>c</sub> pulse	6 0 0	
Max. power dissipation		P <sub>C</sub>	1 6 0 0	W
Operating temperature		T <sub>j</sub>	+ 1 5 0	°C
Storage temperature		T <sub>stg</sub>	- 4 0 ~ + 1 2 5	°C
Isolation voltage		V <sub>is</sub>	AC 2 5 0 0 (1min)	V
Screw Torque		Mounting #1	3. 5	N · m
		Terminals #2	4. 5	
		Terminals #3	1. 7	

Note : #1 Recommendable Value : 2.5 ~ 3.5 N · m ( M5 ) or ( M6 )  
 Note : #2 Recommendable Value : 3.5 ~ 4.5 N · m ( M6 )  
 Note : #3 Recommendable Value : 1.3 ~ 1.7 N · m ( M4 )

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4. Static electrical characteristics ( at  $T_j=25^\circ\text{C}$  unless otherwise specified )

Items	Symbols	Characteristics			Conditions		Units
		min.	typ.	max.			
Zero gate voltage collector current	$I_{CES}$			4.0	$T_j = 25^\circ\text{C}$	$V_{GE} = 0\text{V}$	mA
					$T_j = 125^\circ\text{C}$	$V_{CE} = 1200\text{V}$	mA
Gate-emitter leakage current	$I_{GES}$			60	$V_{CE} = 0\text{V}$	$V_{GE} = \pm 20\text{V}$	$\mu\text{A}$
Gate-emitter threshold voltage	$V_{GE(EN)}$		5.0		$V_{CE} = 20\text{V}$	$I_C = 300\text{mA}$	V
Collector-emitter saturation voltage	$V_{CE(SAT)}$		2.2		$V_{GE} = 15\text{V}$	$I_C = 300\text{A}$	V

5. Dynamic ratings ( at  $T_j=25^\circ\text{C}$  unless otherwise specified )

Items	Symbols	Characteristics			Conditions	Units
		min.	typ.	max.		
Input capacitance	$C_{ies}$		36000		$V_{GE} = 0\text{V}$	pF
Output capacitance	$C_{oes}$		—		$V_{CE} = 10\text{V}$	
Reverse transfer capacitance	$C_{res}$		—		$f = 1\text{MHz}$	
Turn-on time	$t_{on}$		0.95		$V_{CC} = 600\text{V}$ $I_C = 300\text{A}$ $V_{GE} = \pm 15\text{V}$ $R_G = 2.7\Omega$	$\mu\text{s}$
	$t_r$		0.30			
Turn-off time	$t_{off}$		1.15			
	$t_f$		0.20			

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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> = 300A V <sub>GE</sub> = 0V	V
Reverse recovery time	t <sub>rr</sub>			350	I <sub>F</sub> = 300A -di/dt = 900A/μs	ns

7. Thermal resistance characteristics

Items	Symbols	Characteristics			Conditions	Units
		min.	typ.	max.		
Thermal resistance	R <sub>th(j-c)</sub>			0.078	IGBT(MBT)	°C/W
	R <sub>th(j-c)</sub>			0.150	Diode	
	※ R <sub>th(c-f)</sub>		0.0125		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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