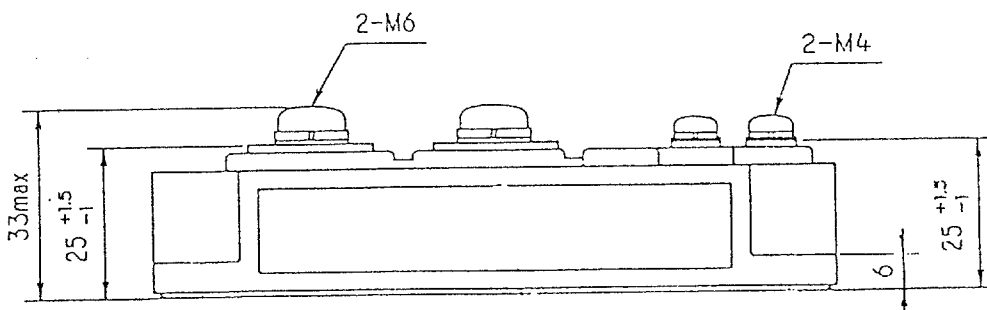
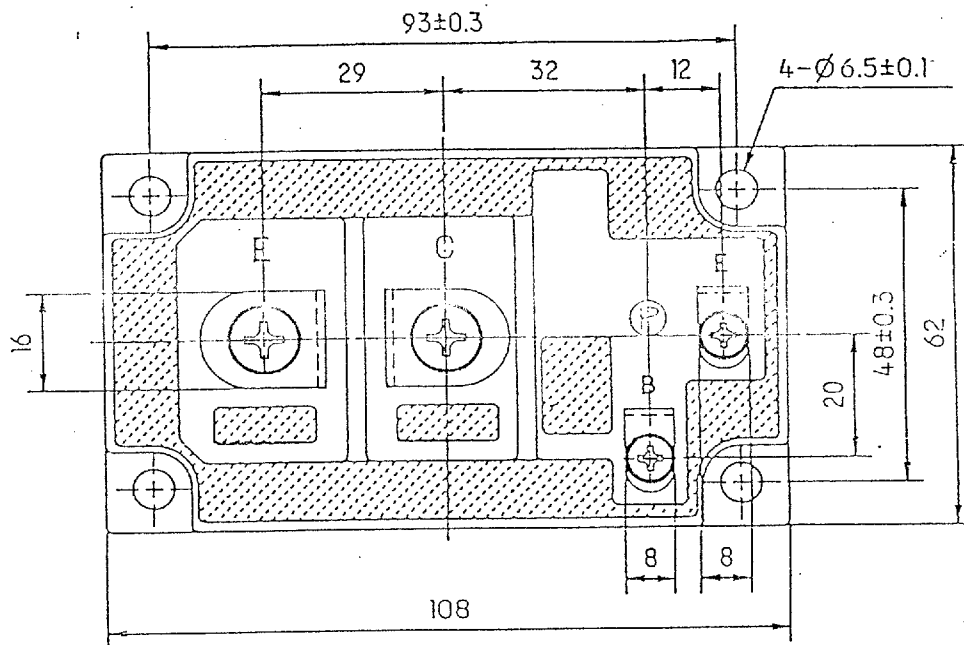


1MBI300JP-120 (TENTATIVE)

1. Outline Drawing

Unit : mm

* Isolation Voltage : AC 2500 V 1 minute



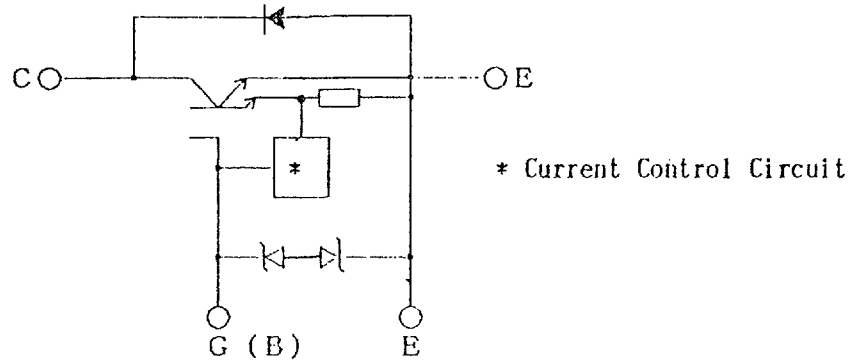
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10 Revised page 2-4 and added page 4-11, Apr 5 '93 A. Yamawuchi, T.M.

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DRAWN			Dec - 11 - 90			A. Yamawuchi			DWG. NO. MT5F5033 1/1		
CHECKED			Dec - 15 - 90			T. Miyasaka					
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2. Equivalent Circuit



3. Absolute Maximum Ratings (T_j=25°C)

Items		Symbols	Ratings	Units
Collector-emitter voltage		V _{CEs}	1 2 0 0	V
Gate-emitter voltage		V _{GEs}	± 2 0	V
Collector current	Continuous	I _c	3 0 0	A
	1 ms	I _c pulse	6 0 0	
		- I _c	3 0 0	
	1 ms	- I _c pulse	6 0 0	
Max.power dissipation		P _C	1 6 0 0	W
Operating temperature		T _j	+ 1 5 0	°C
Storage temperature		T _{stg}	- 4 0 ~ + 1 2 5	°C
Isolation voltage		V _{is}	A C 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	$V_{CE}=0\text{V}$	$V_{GE}=\pm 20\text{V}$	μA
Gate-emitter threshold voltage	$V_{GE(LH)}$		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_{ocs}		--		$V_{CE}=10\text{V}$	
Reverse transfer capacitance	C_{res}		--		$f=1\text{MHz}$	
Turn-on time	t_{on}		0.95		$V_{CC}=600\text{V}$ $I_C=300\text{A}$ $V_{GE}=\pm 15\text{V}$ $R_G=2.7\Omega$	μs
	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 Tj=25°C unless otherwise specified)

Items	Symbols	Characteristics			Conditions	Units
		min.	typ.	max.		
Diode forward on-voltage	VF		2.5		IF = 300A VGE = 0V	V
Reverse recovery time	t rr			350	IF = 300A -di/dt = 900A/μs	ns

7. Thermal resistance characteristics

Items	Symbols	Characteristics			Conditions	Units
		min.	typ.	max.		
Thermal resistance	Rth(j-c)			0.078	IGBT(MBT)	°C/W
	Rth(j-c)			0.150	Diode	
	* Rth(c-f)		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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