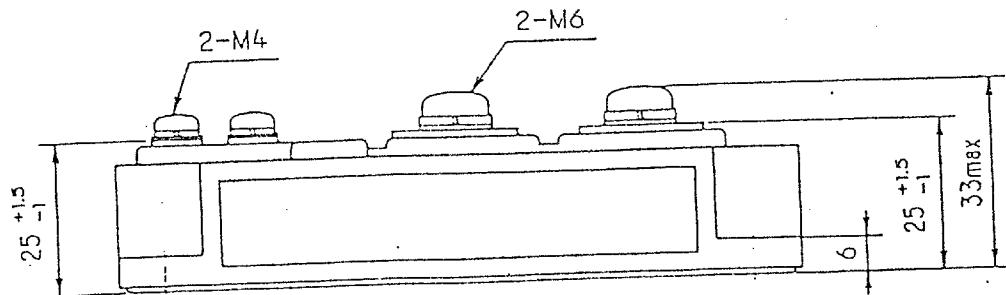
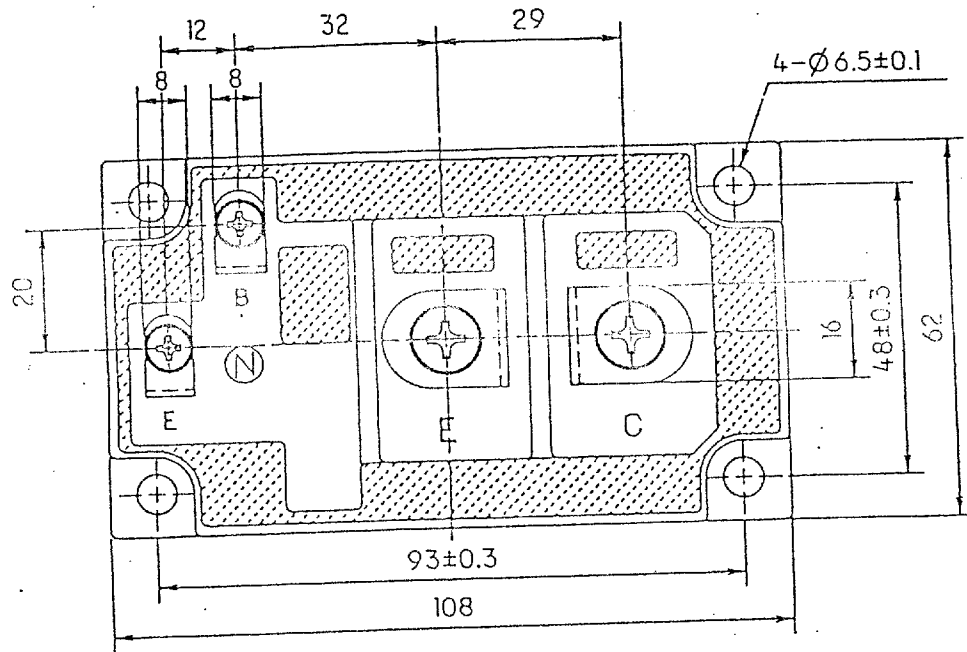


1MBI300JN-120 (TENTATIVE)

1. Outline Drawing

Unit : mm

* Isolation Voltage : AC 2500 V 1 minute



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Revised page 2-4 and added page 1-11, Apr. 5 '93 A. Yamaguchi, 72

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DRAWN	Jan - 11 - '92	N. Arikawa	
CHECKED	Dec - 15 - '92	T. Miyasaka	

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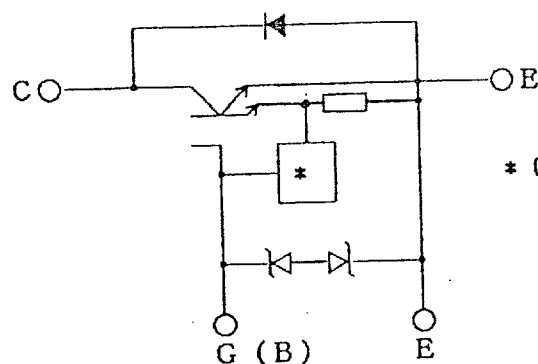
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2. Equivalent Circuit



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	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		PC	1 6 0 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	
		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	$V_{GE(th)}$		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		$V_{CC}=600\text{V}$ $I_C=300\text{A}$ $V_{GE}=\pm 15\text{V}$ $R_G=2.7\Omega$	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 $T_j=25^{\circ}\text{C}$ unless otherwise specified)

Items	Symbols	Characteristics			Conditions	Units
		min.	typ.	max.		
Diode forward on-voltage	V_F		2.5		$I_F = 300\text{A}$ $V_{GE} = 0\text{V}$	V
Reverse recovery time	t_{rr}			350	$I_F = 300\text{A}$ $-di/dt = 900\text{A}/\mu\text{s}$	ns

7. Thermal resistance characteristics

Items	Symbols	Characteristics			Conditions	Units
		min.	typ.	max.		
Thermal resistance	$R_{th(j-c)}$			0.078	IGBT(MBT)	$^{\circ}\text{C}/\text{W}$
	$R_{th(j-c)}$			0.150	Diode	
	※ $R_{th(c-f)}$		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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