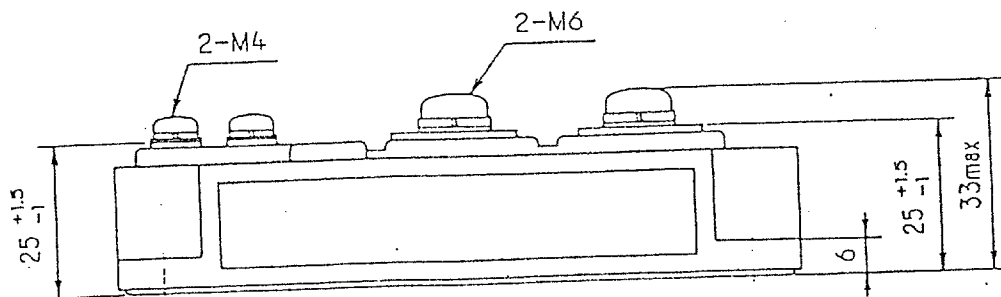
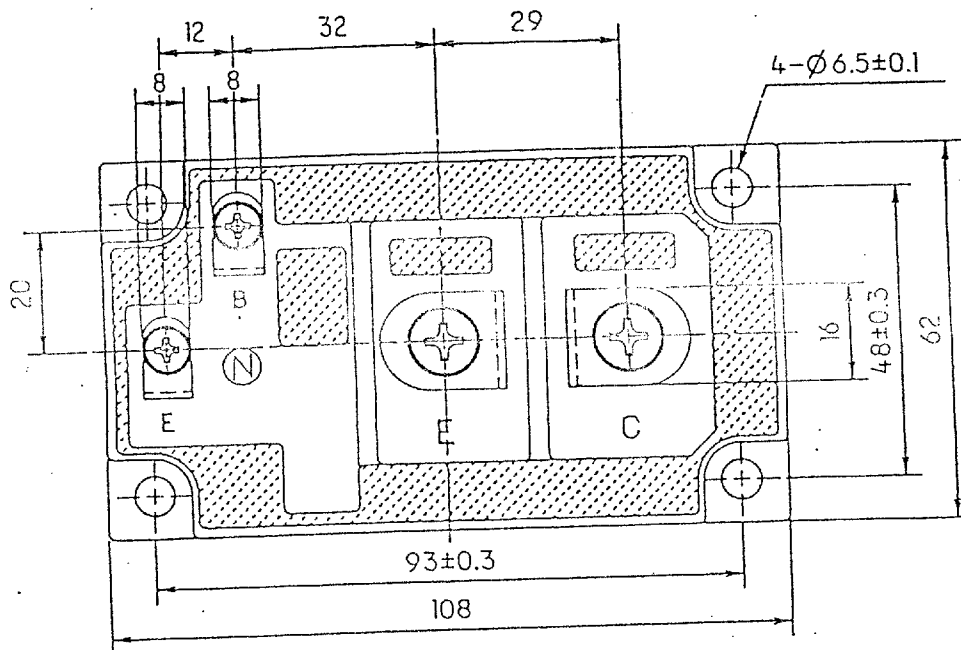


1MBI300JN-120 (TENTATIVE)

1. Outline Drawing

Unit : mm

* Isolation Voltage : AC 2500 V 1 minute



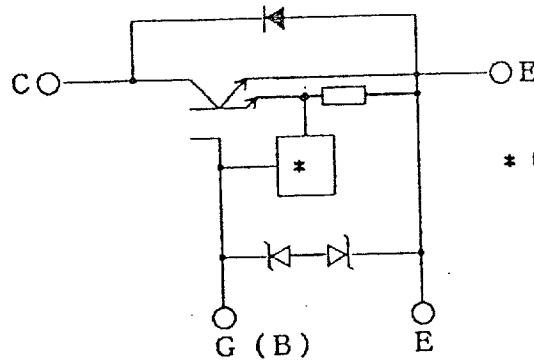
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Revised page 2-4 and added page 4-11, Apr. 5 '93 A. Yamaguchi, Z.

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



* Current Control 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
	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}	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 Tj=25°C unless otherwise specified)

Items	Symbols	Characteristics			Conditions		Units
		min.	typ.	max.			
Zero gate voltage collector current	I _{ces}			4.0	Tj= 25°C	V _{GE} =0V	m A
					Tj=125°C	V _{CE} =1200V	m A
Gate-emitter leakage current	I _{GES}			60	V _{CE} = 0 V V _{GE} = ±20V		μ A
Gate-emitter threshold voltage	V _{GE(LB)}		5.0		V _{CE} =20V I _C =300mA		V
Collector-emitter saturation voltage	V _{CE(sat)}		2.2		V _{GE} =15V I _C =300A		V

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

Items	Symbols	Characteristics			Conditions	Units
		min.	typ.	max.		
Input capacitance	C _{ies}		36000		V _{GE} = 0 V	p F
Output capacitance	C _{oes}		—		V _{CE} =10V	
Reverse transfer capacitance	C _{res}		—		f = 1 MHz	
Turn-on time	t _{on}		0.95		V _{CC} =600V I _C =300A V _{GE} = ±15V R _G =2.7Ω	μ 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_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	
	$\ast R_{th(c-f)}$		0.0125		the base to cooling fin	

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

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