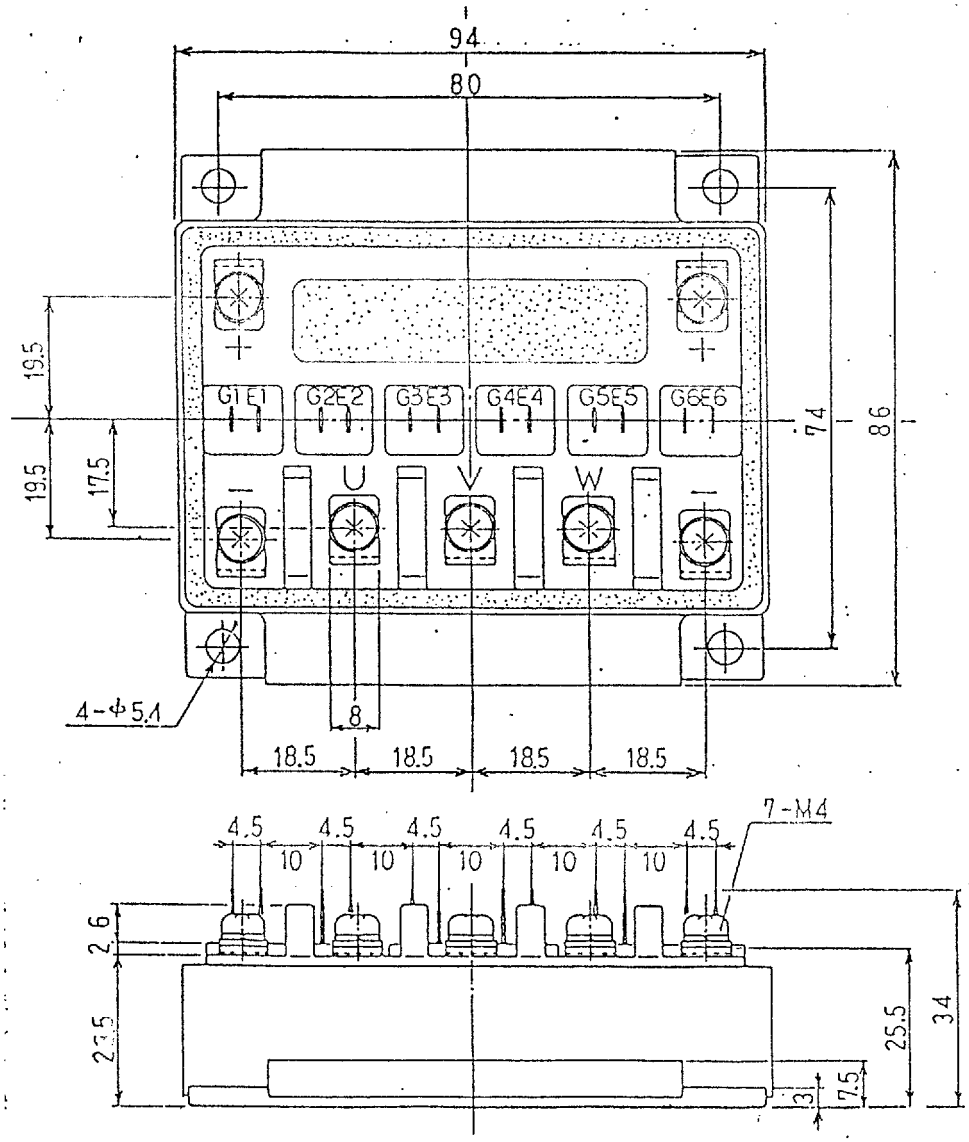
6MBI50J-120 (TENTATIVE)

1. Outline Drawing

Unit : mm

* Isolation Voltage : AC 2500 V 1 minute



REVISIONS	DATE	NAME	APPROVED
a) Revised page 2~11 Feb. 2 '93 A. Yamauchi			
b) Revised page 3, 7, 8 Apr. 5 '93 A. Yamauchi			
DRAWN	Dec-11-'92	H. Arikawa	
CHECKED	Dec-15-'92	T. Hizasaka	

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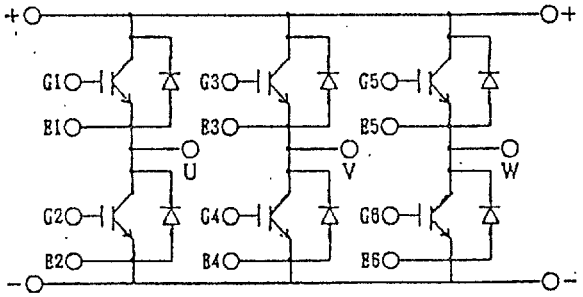
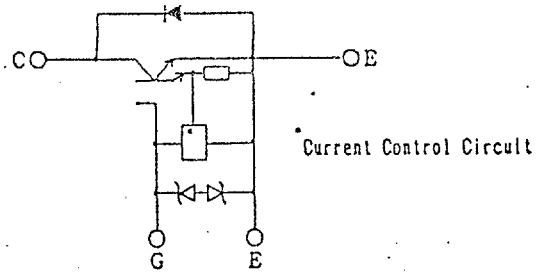
2. Equivalent Circuit of Module



3. Equivalent Circuit



4. Absolute Maximum Ratings (Tj=25℃)

Items		Symbols	Ratings	Units
Collector-emitter voltage		V_{CES}	1200	V
Gate -emitter voltage		V_{GES}	±20	V
Collector current	Continuous	I_C	50	A
	1 ms	I_C pulse	100	
		$-I_C$	50	
	1 ms	$-I_C$ pulse	100	
Max.power dissipation		PC	320	W
Operating temperature		Tj	+150	℃
Storage temperature		Tstg	−40～+125	℃
Isolation voltage		Vis	AC 2500 (1min)	V
Screw Torque		Mounting *1	3.5	N・m
		Terminals *2	1.7	

Note : *1 Recommendable Value : 2.5 ～ 3.5 N・m (M5)
*2 Recommendable Value : 1.3 ～ 1.7 N・m (M4)

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5. Static electrical characteristics (at Tj=25℃ unless otherwise specified)

Items	Symbols	Characteristics min.	Characteristics typ.	Characteristics max.	Conditions		Units
Zero gate voltage collector current	I_{CES}			1.0	Tj= 25℃	V_{GE}=0V, V_{CE} =1200V	mA
					Tj=125℃		mA
Gate-emitter leakage current	I_{GES}			15	V_{CE}= 0 V, V_{GE}=±20V		μA
Gate-emitter threshold voltage	$V_{GE(th)}$		5.0		V_{CE}=20V, I_C =50mA		V
Collector-emitter saturation voltage	$V_{CE(sat)}$		2.2		V_{GE}=15V, I_C =50A		V

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

Items	Symbols	Characteristics min.	Characteristics typ.	Characteristics max.	Conditions	Units
Input capacitance	Cies		6000		V_{GE}= 0 V, V_{CE}=10V, f = 1 MHz	pF
Output capacitance	Coes		—			
Reverse transfer capacitance	Cres		—			
Turn-on time	t on		0.70		V_{CC}=600V, I_C = 50A, V_{GE}=±15V, R_G = 24Ω	μs
	t r		0.30			
Turn-off time	t off		0.95			
	t f		0.20			

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

Items	Symbols	Characteristics			Conditions	Units
		min.	typ.	max.		
Diode forward on-voltage	VF		2.5		IF = 50A V_{GE} = 0V	V
Reverse recovery time	trr			350	IF = 50A -di/dt=150A/μs	ns

8. Thermal resistance characteristics

Items	Symbols	Characteristics			Conditions	Units
		min.	typ.	max.		
Thermal resistance	Rth(j-c)			0.391	IGBT(MBT)	℃/W
	Rth(j-c)			0.749	Diode	
	※ Rth(c-f)		0.05		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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