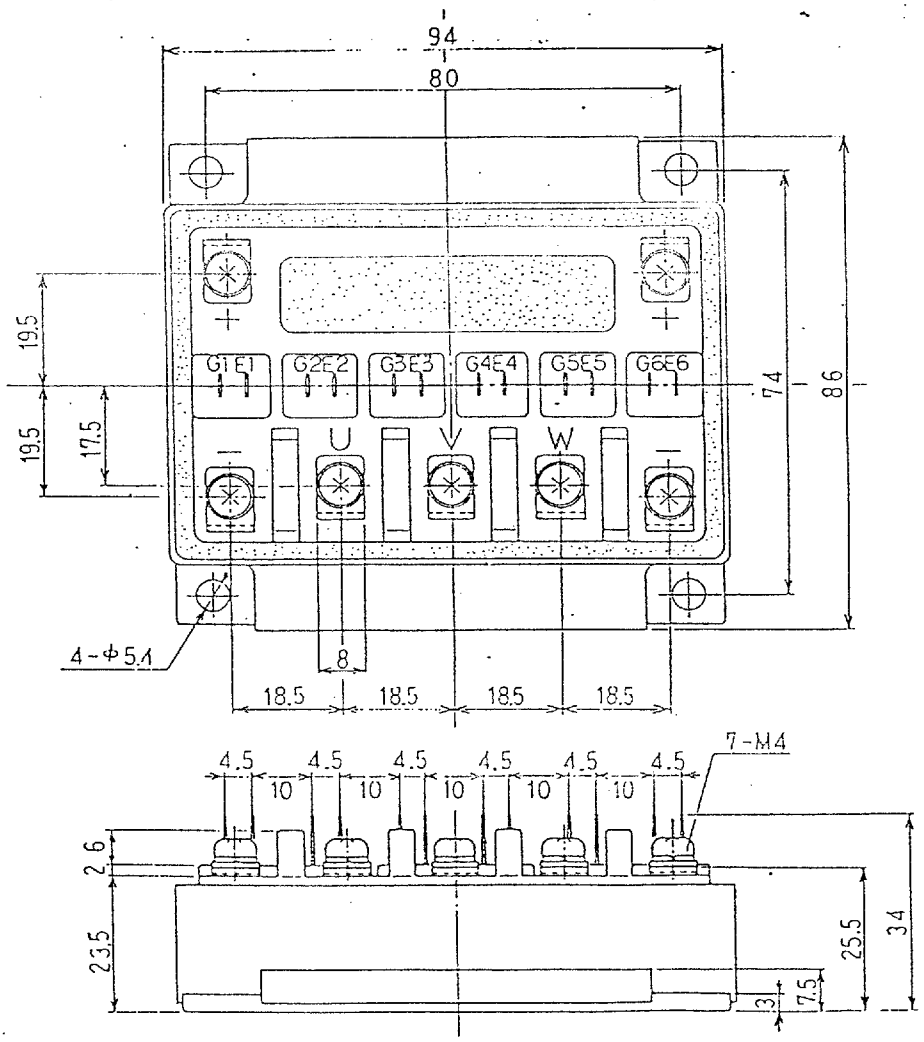
Ratings and characteristics of Fuji IGBT (MBI) Module

6MBI75J-060 (TENTATIVE)

1. Outline Drawing

Unit : mm

* Isolation Voltage : AC 2500 V 1 minute



REVISIONS		DATE	NAME	APPROVED
a) Revised page 2~4 and added page 4~11	DRAWN	Aug. -31-'93	M. Arikawa	
b) Revised page 7 Jan. 21 '93 A. Yamaguchi	CHECKED	Aug. 31-'93	T. Hiyoshi	
c) Revised page 3 Jan. 21 '93 A. Yamaguchi				
d) Revised page 2 4, 7, 10 Apr. 6 '93 A. Yamaguchi				

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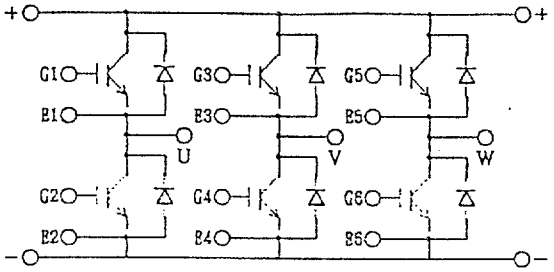
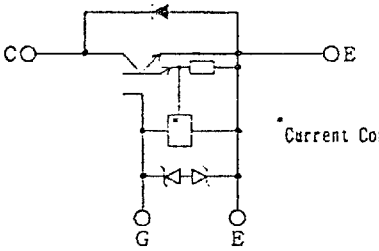
2. Equivalent Circuit of Module



3. Equivalent Circuit



4. Absolute Maximum Ratings (Tj=25 ℃)

Items		Symbols	Ratings	Units
Collector-emitter voltage		V_{CES}	600	V
Gate-emitter voltage		V_{GES}	±20	V
Collector current	Continuous	I_C	75	A
	1 ms	I_C pulse	150	
		$-I_C$	75	
	1 ms	$-I_C$ pulse	150	
Max.power dissipation		PC	245	W
Operating temperature		Tj	+150	℃
Storage temperature		Tstg	-40 ~ +125	℃
Isolation voltage		Vis	AC 2500 (1 min)	V
Screw Torque	Mounting *1		3.5	N・m
	Terminals *2		1.7	

Note : *1 Recommendable Value : 2.5 ~ 3.5 N・m (M5)
Note : *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			Conditions		Units
		min.	typ.	max.			
Zero gate voltage collector current	I_{CES}			1.0	Tj= 25℃	V_{GE}= 0V, V_{CE} = 600V	mA
					Tj=125℃		mA
Gate-emitter leakage current	I_{GES}			15	V_{CE}= 0V V_{GE}=±20V		μA
Gate-emitter threshold voltage	$V_{GE(th)}$	3.5	5.0	6.5	V_{CE}= 20V I_C = 75mA		V
Collector-emitter saturation voltage	$V_{CE(sat)}$		1.7	2.5	V_{GE}= 15V I_C = 75A		V

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

Items	Symbols	Characteristics			Conditions	Units
		min.	typ.	max.		
Input capacitance	Cies		4800		V_{GE}= 0V V_{CE}= 10V f = 1MHz	pF
Output capacitance	Coes					
Reverse transfer capacitance	Cres					
Turn-on time	ton		0.6	1.2	V_{CC}=300V I_C =75A V_{GE}=±15V R_G =33Ω	μs
	tr		0.2	0.6		
Turn-off time	toff		0.8	1.5		
	tf		0.15	0.35		

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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		2.3	3.0	IF=75A V_{GE}=0V	V
Reverse recovery time	trr			300	IF=75A -di/dt=225A/μs	ns

8. Thermal resistance characteristics

Items	Symbols	Characteristics			Conditions	Units
		min.	typ.	max.		
Thermal resistance	Rth(j-c)			0.51	IGBT	℃/W
	Rth(j-c)			1.06	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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