

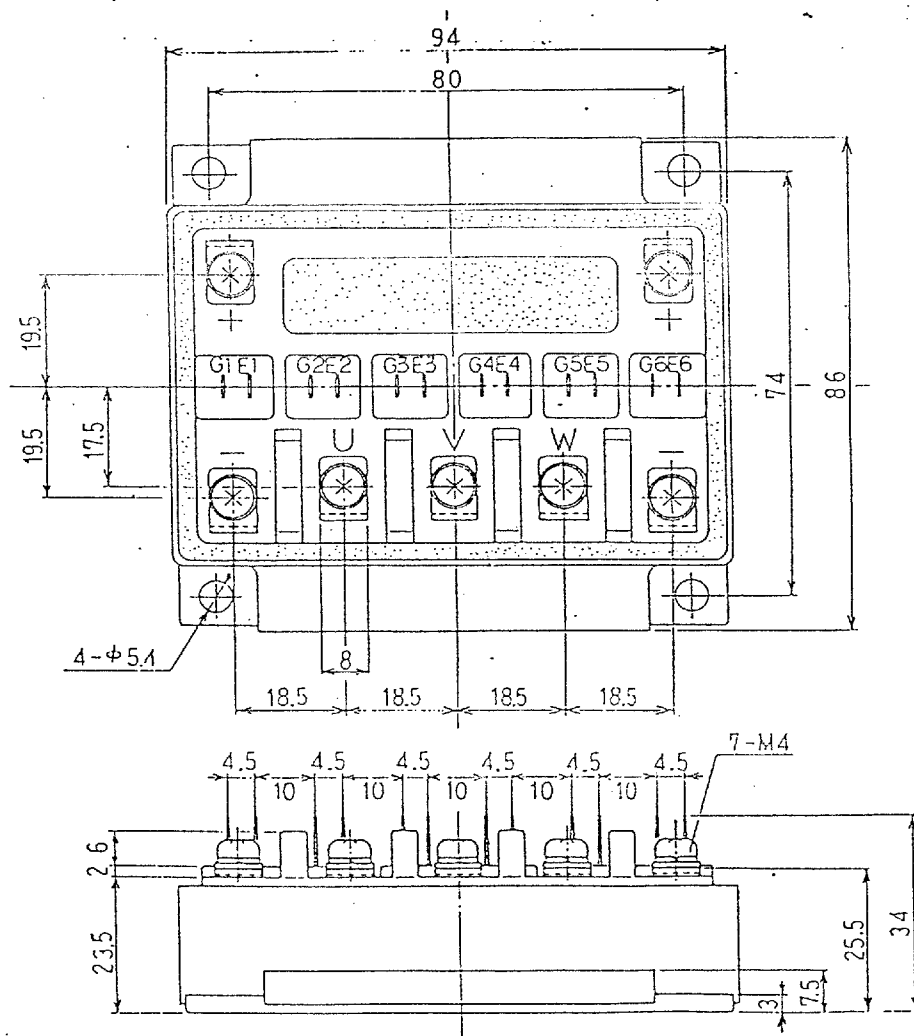
Ratings and characteristics of Fuji IGBT (M B I) Module

6 M B I 7 5 J - 0 6 0 (TENTATIVE)

1. Outline Drawing

Unit : mm

= Isolation Voltage : AC 2500 V 1 minute



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6) Revised page 2-11 and added page 4-11	Dec 15 '92	A. Yamaguchi
7) Revised page 7	Jan 21 '93	A. Yamaguchi
8) Revised page 1	Jun 21 '93	A. Yamaguchi
9) Revised page 2 4-11, 10	Apr 6 '93	A. Yamaguchi

	DATE	NAME	APPROVED
DRAWN	Aug -31-'92	H. Arikawa	
CHECKED	Aug -31-'92	T. Hiyasaka	

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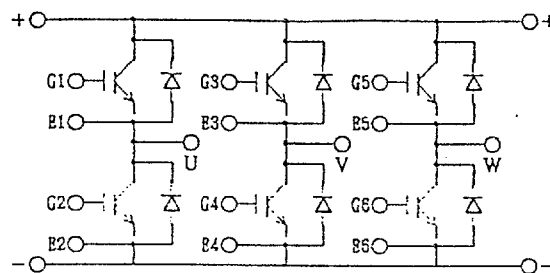
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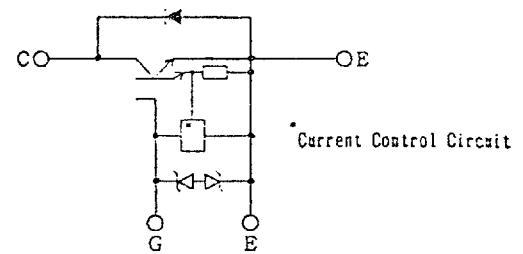
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2. Equivalent Circuit of Module



3. Equivalent Circuit



4. Absolute Maximum Ratings (Tj=25 °C)

Items		Symbols	Ratings	Units
Collector-emitter voltage		V_{CES}	600	V
Gate-emitter voltage		V_{GES}	±20	V
Collector current	Continuous	I_c	7.5	A
	1 ms	$I_{c \text{ pulse}}$	150	
		$-I_c$	7.5	
	1 ms	$-I_{c \text{ pulse}}$	150	
Max. power dissipation		PC	245	W
Operating temperature		Tj	+150	°C
Storage temperature		Tstg	-40 ~ +125	°C
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 $T_j=25^{\circ}\text{C}$ unless otherwise specified)

Items	Symbols	Characteristics			Conditions	Units
		min.	typ.	max.		
Zero gate voltage collector current	I_{CES}			1.0	$T_j = 25^{\circ}\text{C}$ $V_{GE} = 0\text{V}$	mA
					$T_j = 125^{\circ}\text{C}$ $V_{CE} = 600\text{V}$	mA
Gate-emitter leakage current	I_{GES}			15	$V_{CE} = 0\text{V}$ $V_{GE} = \pm 20\text{V}$	μA
Gate-emitter threshold voltage	$V_{GE(th)}$	3.5	5.0	6.5	$V_{CE} = 20\text{V}$ $I_C = 7.5\text{mA}$	V
Collector-emitter saturation voltage	$V_{CE(sat)}$		1.7	2.5	$V_{GE} = 15\text{V}$ $I_C = 7.5\text{A}$	V

6. Dynamic ratings (at $T_j=25^{\circ}\text{C}$ unless otherwise specified)

Items	Symbols	Characteristics			Conditions	Units
		min.	typ.	max.		
Input capacitance	C_{ies}		4800		$V_{GE} = 0\text{V}$ $V_{CE} = 10\text{V}$ $f = 1\text{MHz}$	pF
Output capacitance	C_{oes}					
Reverse transfer capacitance	C_{res}					
Turn-on time	t_{on}		0.6	1.2	$V_{CC} = 300\text{V}$ $I_C = 7.5\text{A}$ $V_{GE} = \pm 15\text{V}$ $R_G = 33\Omega$	μs
	t_r		0.2	0.6		
Turn-off time	t_{off}		0.8	1.5		
	t_f		0.15	0.35		

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7. 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		2.3	3.0	$I_F=75\text{A}$ $V_{GE}=0\text{V}$	V
Reverse recovery time	t_{rr}			300	$I_F=75\text{A}$ $di/dt=225\text{A}/\mu\text{s}$	ns

8. Thermal resistance characteristics

Items	Symbols	Characteristics			Conditions	Units
		min.	typ.	max.		
Thermal resistance	$R_{th(j-c)}$			0.51	IGBT	$^{\circ}\text{C}/\text{W}$
	$R_{th(j-c)}$			1.06	Diode	
	※ $R_{th(c-f)}$		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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