

Ratings and characteristics of Fuji IGBT (MBT) Module

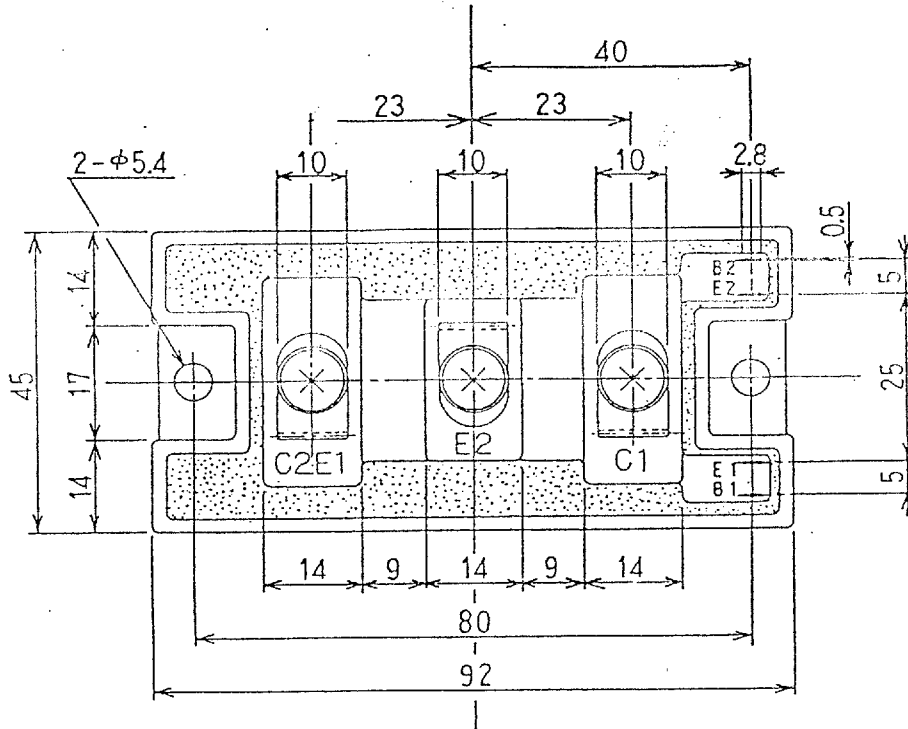
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2 M B I 7 5 J - 1 2 0 (TENTATIVE)

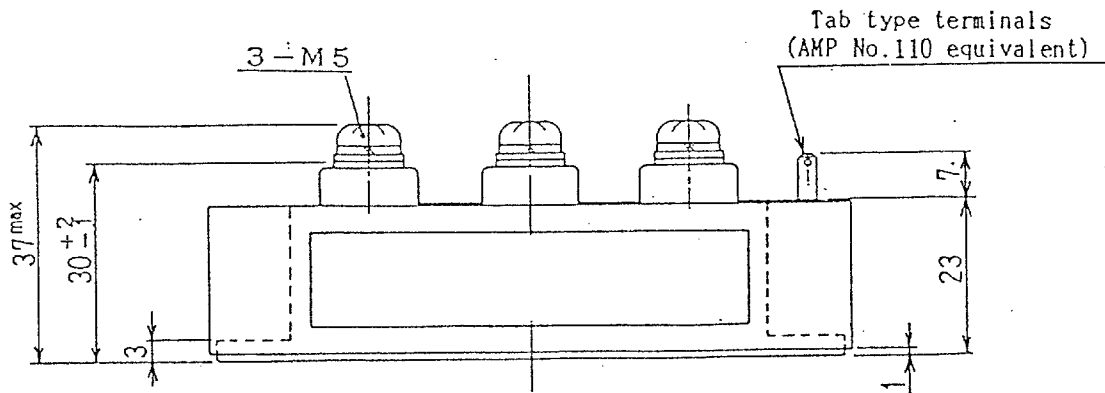
1. Outline Drawing

Unit : mm

\* Isolation Voltage : AC 2500 V 1 minute



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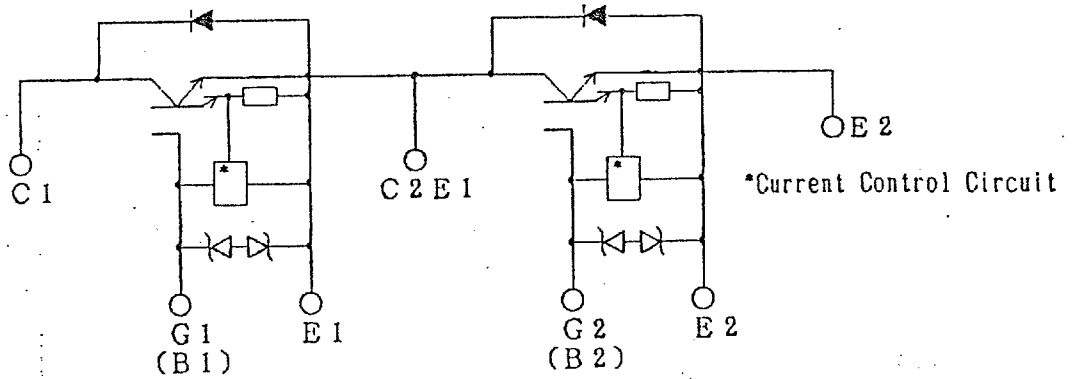
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2. Equivalent Circuit

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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	$I_c$	7 5	A
	1 ms	$I_c$ pulse	1 5 0	
		$-I_c$	7 5	
	1 ms	$-I_c$ pulse	1 5 0	
Max.power dissipation		PC	4 8 0	W
Operating temperature		Tj	+1 5 0	°C
Storage temperature		Tstg	-40 ~ +125	°C
Isolation voltage		Vis	AC 2500 (1 min)	V
Screw Torque		Mounting * 1	3 . 5	N · m
		Terminals * 1	3 . 5	

Note : \*1 Recommendable Value : 2.5 ~ 3.5 N · m (M5)

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4. Static electrical characteristics ( at Tj=25°C unless otherwise specified )

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Items	Symbols	Characteristics			Conditions	Units
		min.	typ.	max.		
Zero gate voltage collector current	I <sub>CEs</sub>			1.0	Tj= 25°C	m A
					V <sub>GE</sub> = 0V V <sub>CE</sub> = 1200V	
Gate-emitter leakage current	I <sub>GES</sub>			15	V <sub>CE</sub> = 0V V <sub>GE</sub> = ± 2.0V	μ A
Gate-emitter threshold voltage	V <sub>GE(th)</sub>		5.0		V <sub>CE</sub> = 2.0V I <sub>C</sub> = 7.5mA	V
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>		2.2		V <sub>GE</sub> = 1.5V I <sub>C</sub> = 7.5A	V

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

Items	Symbols	Characteristics			Conditions	Units
		min.	typ.	max.		
Input capacitance	C <sub>ies</sub>		9000		V <sub>GE</sub> = 0V	p F
Output capacitance	C <sub>oes</sub>		—		V <sub>CE</sub> = 1.0V	
Reverse transfer capacitance	C <sub>res</sub>		—		f = 1 MHz	
Turn-on time	t <sub>on</sub>		0.75		V <sub>CC</sub> =600V I <sub>C</sub> = 7.5A V <sub>GE</sub> = ±15V R <sub>G</sub> = 16Ω	μ s
	t <sub>r</sub>		0.30			
Turn-off time	t <sub>off</sub>		0.95			
	t <sub>f</sub>		0.20			

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6. Characteristics of reverse diode ( at  $T_j=25^\circ\text{C}$  unless otherwise specified )

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Items	Symbols	Characteristics			Conditions	Units
		min.	typ.	max.		
Diode forward on-voltage	V <sub>F</sub>		2.5		I <sub>F</sub> = 75A V <sub>GE</sub> = 0V	V
Reverse recovery time	t <sub>rr</sub>			350	I <sub>F</sub> = 75A -di/dt = 225A/μs	ns

7. Thermal resistance characteristics

Items	Symbols	Characteristics			Conditions	Units
		min.	typ.	max.		
Thermal resistance	R <sub>th(j-c)</sub>			0.260	IGBT	°C/W
	R <sub>th(j-c)</sub>			0.500	Diode	
	※ R <sub>th(c-f)</sub>		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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