

SPECIFICATION

(TENTATIVE)

Product Name : IGBT Module (Power Integrated Module)

Type Name : 7MBR25PE120

Spec. No. : **MT6M1817**

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Fuji Electric Co., Ltd. (Matsumoto Factory)

This specification is subject to change without notice.

REVISIONS		DATE	NAME	APPROVED	Fuji Electric Co., Ltd.	MT6M1817	1/5	
	DRAWN	Mar - 4 - 97	Y. Arita					
	CHECKED	Mar. - 6 - 97	S. Miyazaki		S.K.	DWG. NO.		

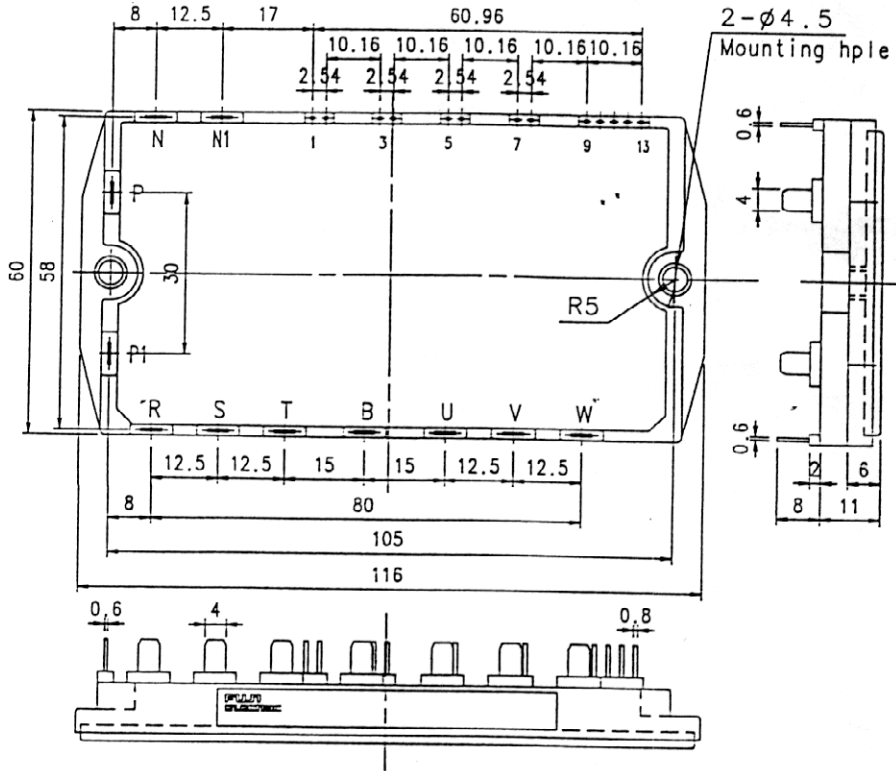
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(TENTATIVE)

1. Outline Drawing

Unit : mm

*Isolation Voltage (Terminal to Case) : AC 2500V 1 minute



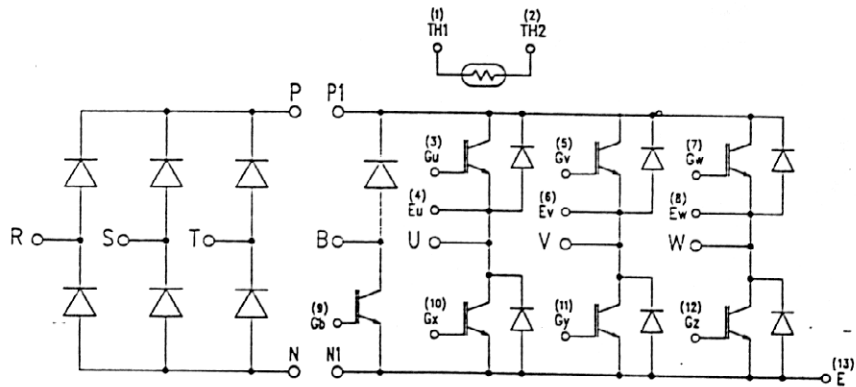
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2. Equivalent Circuit of Module

[Converter]

[Brake]

[Inverter]



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3. Absolute Maximum Ratings (Tc=25°C unless without specified)

Items		Symbols	Conditions	Maximum Ratings	Uni
Inverter	Collector-Emitter Voltage	V _{CES}		1200	V
	Gate-Emitter Voltage	V _{GES}		±20	V
	Collector Current	I _C	Continuous	25	A
		I _{CP}	1ms	50	A
		-I _C		25	A
Collector Power Dissipation	P _C	1 device	200	W	
Brake	Collector-Emitter Voltage	V _{CES}		1200	V
	Gate-Emitter Voltage	V _{GES}		±20	V
	Collector Current	I _C	Continuous	15	A
		I _{CP}	1ms	30	A
	Collector power Dissipation	P _C	1 device	120	W
	Repetitive peak Reverse Voltage	V _{RRM}		1200	V
	Average Forward Current	I _{F(AV)}		1	A
Surge Current	I _{FSM}	10ms	50	A	
Converter	Repetitive Peak Reverse Voltage	V _{RRM}		1600	V
	Output Current	I _O		25	A
	Surge Current (Non-Repetitive)	I _{FSM}	Tj=150°C	286	A
	I ² t (Non-Repetitive)		Tj=150°C	340	A ² s
Operating Junction Temperature		T _j		+ 150	°C
Storage Temperature		T _{stg}		-40 ~ +125	°C
Isolation Voltage		Viso	AC : 1 minute	AC 2500	V
Mounting Screw Torque (*1)				1.7	N·m

Note : (*1) Recommendable Value : 1.3 ~ 1.7 N·m (M4)

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4. Electrical Characteristics (T_j=25°C unless without specified)

Characteristics		Symbols	Conditions	min.	max.	Units
Inverter	Zero gate voltage collector current	I _{CEs}	V _{CE} =1200V V _{GE} = 0V		1.0	mA
	Gate-emitter leakage current	I _{GES}	V _{CE} = 0V V _{GE} =±20V		20	μA
	Gate-emitter threshold voltage	V _{GE(th)}	V _{CE} =20V I _C =25mA	6.0	9.0	V
	Collector-emitter saturation Voltage	V _{CE(sat)}	V _{GE} =15V I _C =25A		3.0	V
	Collector-Emitter Voltage	-V _{CE}	-I _C =25A		3.0	
	Input capacitance	C _{ies}	V _{GE} =0V V _{CE} =10V f=1MHz	4000 (typ.)		pF
	Switching Time	ton	V _{CC} = 600V I _C = 25A V _{GE} =±15V R _G = 51Ω		1.2	μs
		tr			0.6	
		toff			1.0	
		tf			0.3	
Reverse Recovery Time of FRD	trr	I _F = 25A		350	ns	
Brake	Zero gate voltage collector current	I _{CEs}	V _{CEs} =1200V V _{GE} = 0V		1.0	mA
	Gate-emitter leakage current	I _{GES}	V _{CE} = 0V V _{GE} =±20V		100	nA
	Collector-emitter Saturation Voltage	V _{CE(sat)}	I _C = 15A V _{GE} =15V		3.0	V
	Switching Time	ton	V _{CC} = 600V I _C = 15A V _{GE} =±15V R _G = 82Ω		1.2	μs
		tr			0.6	
		toff			1.0	
		tf			0.3	
Reverse Current	I _{RRM}	V _R =1200V		1	mA	
Reverse Recovery Time	trr			350	ns	

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Characteristics		Symbols	Conditions	min.	max.	Units
Converter	Forward Voltage	V_{FM}	$I_F = 25A$		1.5	V
	Reverse Current	I_{RRM}	$V_R = 1600V$		1	mA
Thermistor						

5. Thermal Characteristics

Characteristics	Symbols	Conditions	min.	max.	Units
Thermal Resistance (1 device)	$R_{th(j-c)}$	Inverter IGBT		0.63	$^{\circ}C/W$
		Inverter FRD		1.70	
		Brake IGBT		1.04	
		Converter Diode		1.50	
Contact Thermal Resistance	$R_{th(c-f)}$	With Thermal Compound	(typ)	0.05	

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