SPECIFICATION

(TENTATIVE)

Product Name : IGBT Module (Power Integrated Module)

Type Name : 7MBR15PE120

Spec. No. : MT6M1816

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Fuji Electric Co.,Ltd. (Matsumoto Factory)

This specification is subject to change without notice.

	DATE	NAME	APPROVED
DRAWN	Mar - 4 - '97	Y. Arita	S.K.
CHECKED	Mar. - 6 - '97	S. Miyashita	

REVISIONS

Fuji Electric Co.,Ltd.

DWG.NO. MT6M1816 1/5

MA4LE

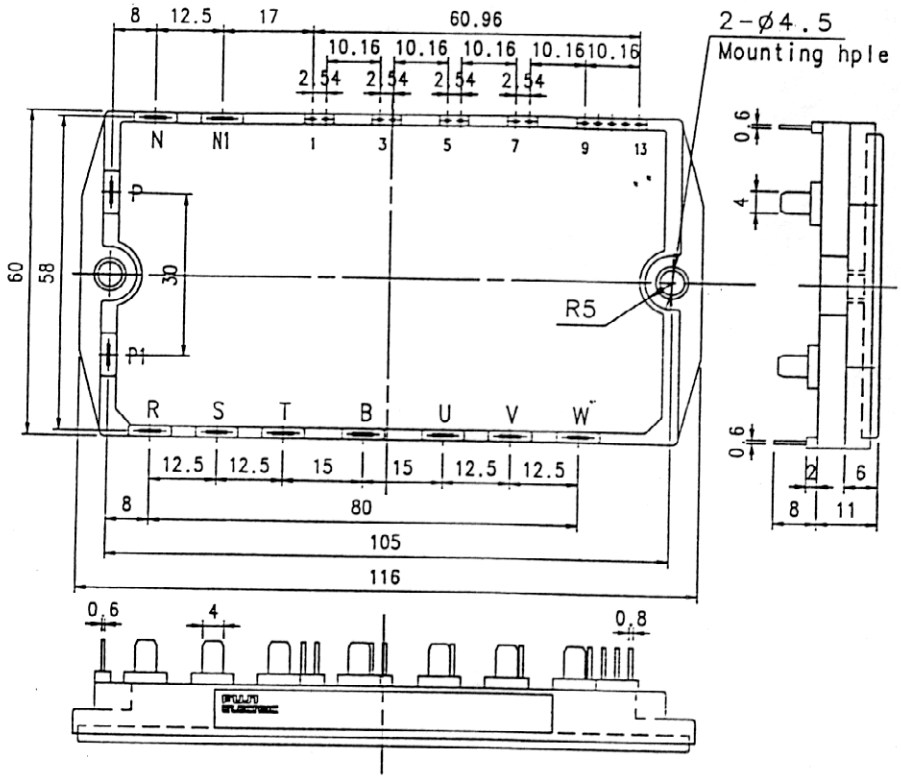
7MBR15PE120

(TENTATIVE)

1. Outline Drawing

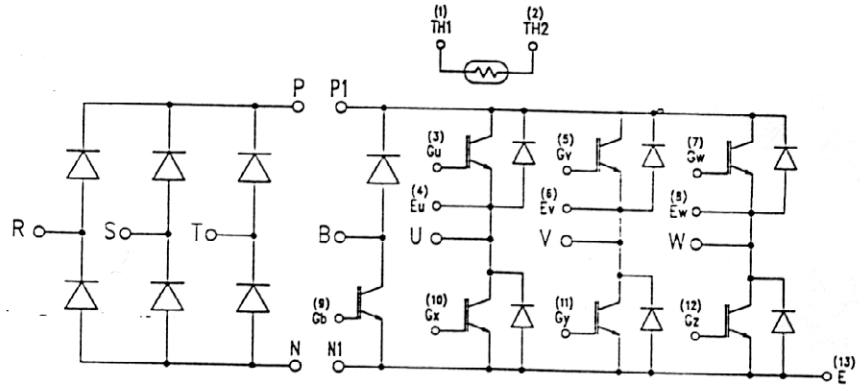
Unit : mm

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



2. Equivalent Circuit of Module

[Converter] [Brake] [Inverter]



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

Items		Symbols	Conditions	Maximum Ratings	Units
Inverter	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
		$-I_C$		15	A
	Collector Power Disspation	P_C	1 device	120	W
Brake	Collector-Emitter Voltage	V_{CES}		1200	V
	Gate-Emitter Voltage	V_{GES}		±20	V
	Collector Current	I_C	Continuous	10	A
		I_{CP}	1ms	20	A
	Collector power Disspation	Pc	1 device	80	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
	Average Output Current	Io		25	A
	Surge Current (Non-Repetitive)	I_{FSM}	Tj=150℃	286	A
	I^2t (Non-Repetitive)		Tj=150℃	340	A^2s
Operating Junction Temperature		Tj		+ 150	℃
Storage Temperature		Tstg		-40 ～ +125	℃
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 (Tj=25℃ 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		200	nA
	Gate-emitter threshold voltage	$V_{GE(th)}$	V_{CE}=20V Ic =15mA	6.0	9.0	V
	Collector-emitter saturation Voltage	$V_{CE(sat)}$	V_{GE}=15V Ic =15A		3.0	V
	Collector-Emitter Voltage	$-V_{CE}$	-Ic=15A		3.0	V
	Input capacitance	Cies	V_{GE}=0V V_{CE}=10V f=1MHz	2400 (typ.)		pF
	Switching Time	ton	V_{CC}= 600V Ic = 15A V_{GE}=±15V R_G = 82Ω		1.2	μs
		tr			0.6	
		toff			1.0	
		tf			0.3	
	Reverse Recovery Time of FRD	trr	I_F = 15A		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		200	nA
	Collector-emitter Saturation Voltage	$V_{CE(sat)}$	Ic = 10A V_{GE}=15V		3.0	V
	Switching Time	ton	V_{CC}= 600V Ic = 10A V_{GE}=±15V R_G =120Ω		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)	Rth(j-c)	Inverter IGBT		1.04	℃/W
		Inverter FRD		2.78	
		Brake IGBT		1.43	
		Converter Diode		1.5	
Contact Thermal Resistance	Rth(c-f)	With Thermal Compound	(typ)	0.05	

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