

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.

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REVISIONS			S.K.	DWG. NO.	MT6M1816 1/5

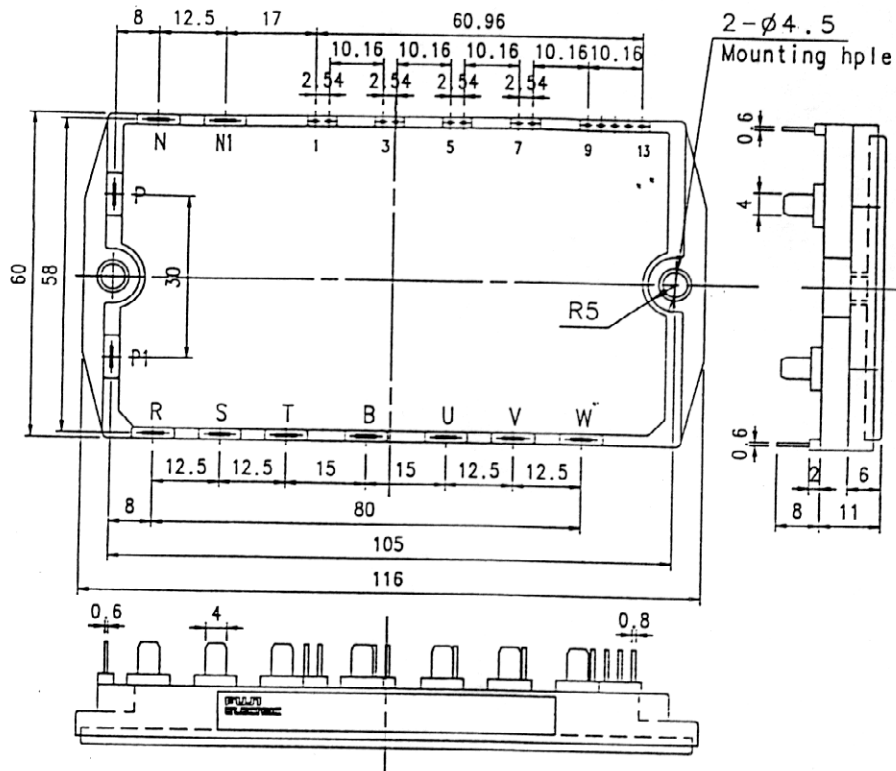
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(TENTATIVE)

1. Outline Drawing

Unit : mm

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



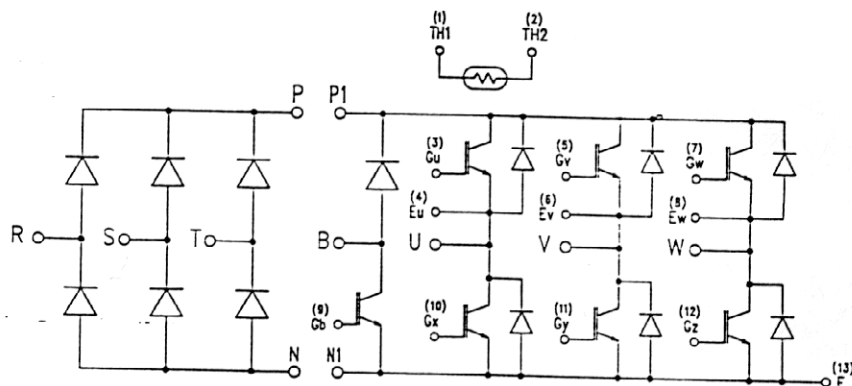
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2. Equivalent Circuit of Module

[Converter]

[Brake]

[Inverter]



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

Items		Symbols	Conditions	Maximum Ratings	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 Dissipation	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 Dissipation	P _C	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	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)

4. Electrical Characteristics (Tj=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		200	nA
	Gate-emitter threshold voltage	V _{GE(th)}	V _{CE} =20V I _C =15mA	6.0	9.0	V
	Collector-emitter saturation Voltage	V _{CE(sat)}	V _{GE} =15V I _C =15A		3.0	V
	Collector-Emitter Voltage	-V _{CE}	-I _C =15A		3.0	
	Input capacitance	C _{ies}	V _{GE} =0V V _{CE} =10V f=1MHz	2400 (typ.)		pF
	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 Recovery Time of FRD	trr	I _F = 15A		350	ns
Brake	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
	Collector-emitter Saturation Voltage	V _{CE(sat)}	I _C = 10A V _{GE} =15V		3.0	V
	Switching Time	ton	V _{CC} = 600V I _C = 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	°C/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		