

SPECIFICATION

(TENTATIVE)

Product Name : IGBT Module (Power Integrated Module)

Type Name : 7MBR15PE120

Spec. No. : MT6M1816

Fuji Electric Co.,Ltd. (Matsumoto Factory)

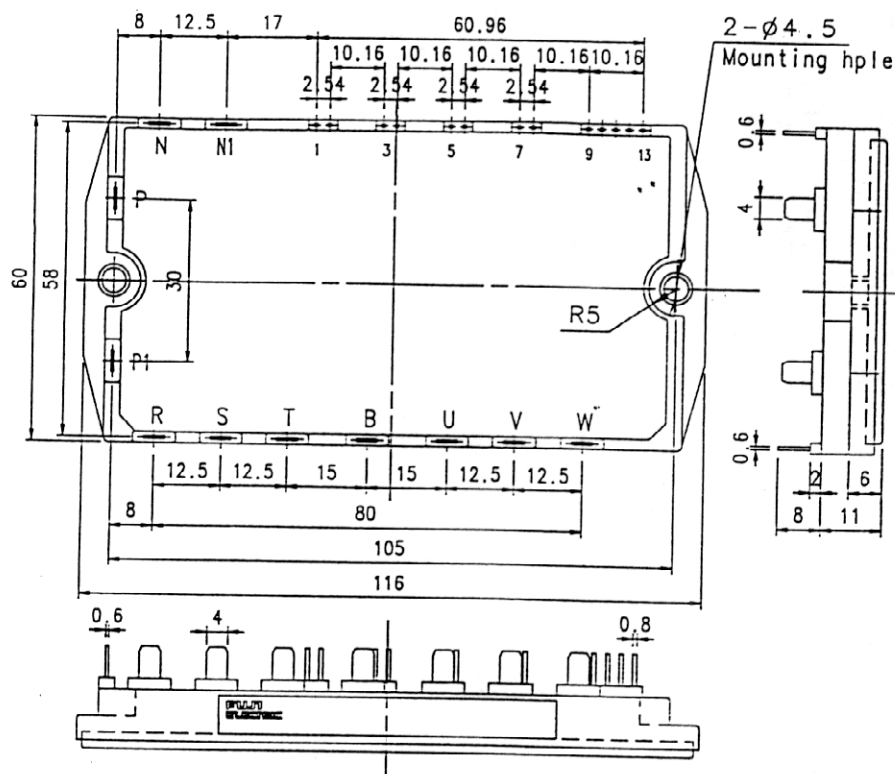
This specification is subject to change without notice.

	DATE	NAME	APPROVED	Fuji Electric Co.,Ltd.	
	DRAWN	Mr. - 4 - '97	Y. Arita		G.NO.
	CHECKED	Mr. - 6 - '97	S. Miyasaka		
REVISIONS					

(TENTATIVE)

Unit : mm

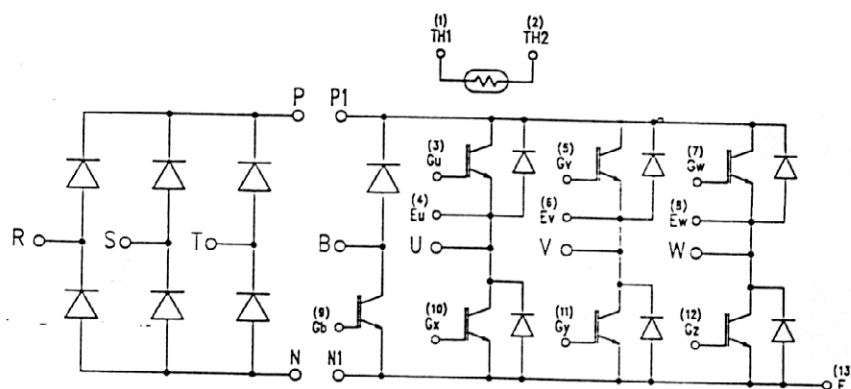
*Isolation Voltage (Terminal to Case) : AC 2500V 1 minute



[Converter]

[Brake]

[Inverter]



*This specification is changed without notes.

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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^2t (Non-Repetitive)		Tj=150°C	340	A ² s
Operating Junction Temperature		Tj		+ 150	°C
Storage Temperature		Tstg		-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 (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}	$V_{CE} = 0V$ $V_{GE} = \pm 20V$		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	t_{on}	$V_{CC} = 600V$ $I_C = 15A$ $V_{GE} = \pm 15V$ $R_G = 82\Omega$		1.2	μs
		t_r			0.6	
		t_{off}			1.0	
		t_f			0.3	
	Reverse Recovery Time of FRD	t_{rr}	$I_F = 15A$		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}	$V_{CE} = 0V$ $V_{GE} = \pm 20V$		200	nA
	Collector-emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 10A$ $V_{GE} = 15V$		3.0	V
	Switching Time	t_{on}	$V_{CC} = 600V$ $I_C = 10A$ $V_{GE} = \pm 15V$ $R_G = 120\Omega$		1.2	μs
		t_r			0.6	
		t_{off}			1.0	
		t_f			0.3	
	Reverse Current	I_{RRM}	$V_R = 1200V$		1	mA
	Reverse Recovery Time	t_{rr}			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		1.04	$^{\circ}C/W$
		Inverter FRD		2.78	
		Brake IGBT		1.43	
		Converter Diode		1.5	
Contact Thermal Resistance	$R_{th(c-f)}$	With Thermal Compound	(typ) 0.05		