

SPECIFICATION

(TENTATIVE)

Product Name : IGBT Module (Power Integrated Module)

Type Name : 7MBR10PE120

Spec. No. : **MT6M1918**

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Fuji Electric Co., Ltd. (Matsumoto Factory)

This specification is subject to change without notice.

a) Changed Ic, Top, - Ic, Ver(sat), - Ver, Aug-29-97 Y. Arita

REVISIONS		DATE	NAME	APPROVED	DWG. NO.	Fuji Electric Co., Ltd.	
						MT6M1918	1/5
	DRAWN	Jun - 23 - 97	Y. Arita				
	CHECKED	June - 23 - 97	S. Miyamoto				
				S. K.			

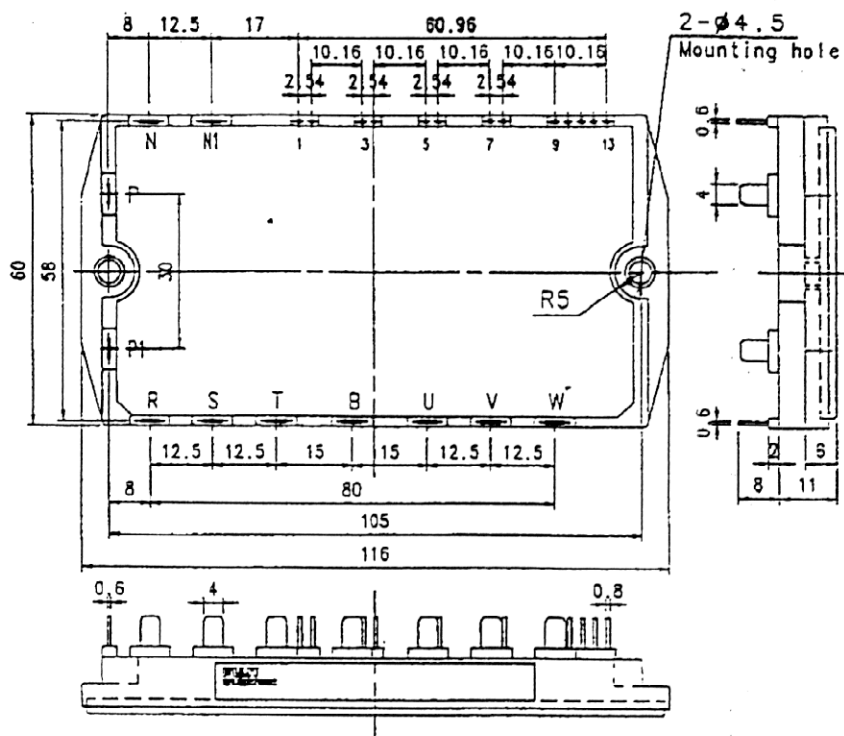
7 M B R 1 0 P E 1 2 0

(TENTATIVE)

1. Outline Drawing

Unit : mm

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

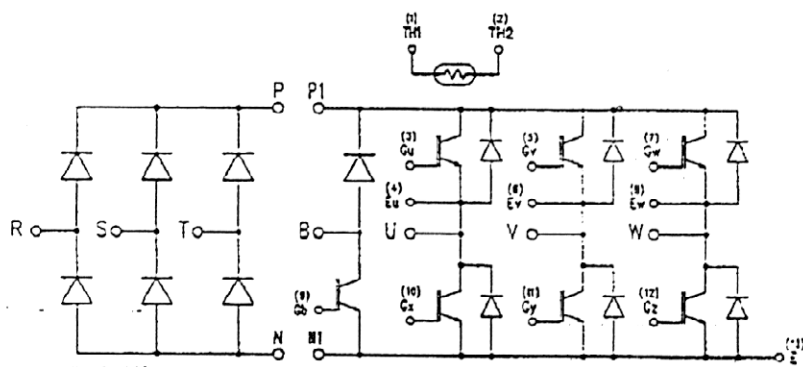


2. Equivalent Circuit of Module

[Converter]

[Brake]

[Inverter]



*This specification is changed without notes.

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MT6M1918

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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 ② 25 / 80°C	15/10 ②	A
		I _{CP}	1ms 25 / 80°C ②	30/20 ②	A
		-I _C	25 / 80°C ②	15/10 ②	A
	Collector Power Dissipation	P _C	1 device	100	W
Brake	Collector-Emitter Voltage	V _{CES}	—	1200	V
	Gate-Emitter Voltage	V _{GES}	—	±20	V
	Collector Current	I _C	Continuous ② 25 / 80°C	15/10 ②	A
		I _{CP}	1ms 25 / 80°C ②	30/20 ②	A
	Collector power Dissipation	P _C	1 device	100	W
	Repetitive peak Reverse Voltage	V _{RRM}	—	1200	V
Converter	Repetitive Peak Reverse Voltage	V _{RRM}	—	1600	V
	Average Output Current	I _O	—	10	A
	Surge Current (Non-Repetitive)	I _{FSM}	Tj=150°C, 8.3ms half sine wave	162	A
	I ² t (Non-Repetitive)	I ² t	Tj=150°C	110	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} =±20V		200	nA
	Gate-emitter threshold voltage	V _{GE (th)}	V _{CE} =20V I _C =10mA	6.0	9.0	V
	Collector-emitter saturation Voltage	V _{CE (sat)}	V _{GE} =15V I _C =10A		3.3	V
	Collector-Emitter Voltage	-V _{CE}	-I _C =15A		3.3	
	Input capacitance	C _{ies}	V _{GE} =0V V _{CE} =10V f=1MHz	1000 (typ.)		pF
	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 Recovery Time of FRD	trr	I _F = 10A		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		3.3	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}	$I_F = 10A$		1.5	V
	Reverse Current	I_{RRM}	$V_R = 1600V$		1	mA
Thermistor	Resistance	R	$T_j = 25^{\circ}C$	5 (typ.)		k Ω
	B value	B	$T_j = 25/50^{\circ}C$	3375 (typ.)		K

5. Thermal Characteristics

Characteristics	Symbols	Conditions	min.	max.	Units
Thermal Resistance (1 device)	$R_{th(j-c)}$	Inverter IGBT		1.25	$^{\circ}C/W$
		Inverter FRD		3.71	
		Brake IGBT		1.25	
		Converter Diode		2.61	
Contact Thermal Resistance	$R_{th(c-f)}$	With Thermal Compound	(typ) 0.05		