

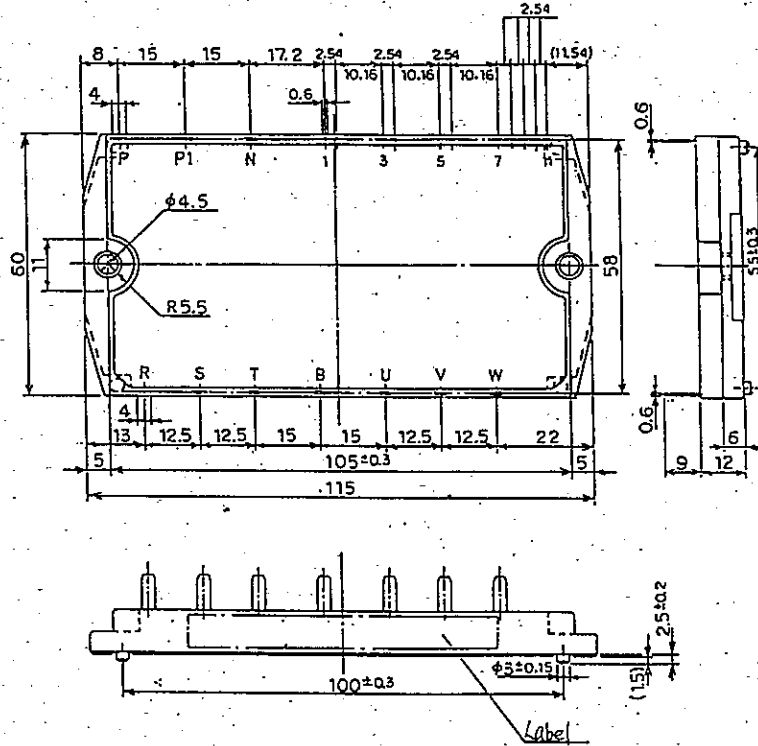
## Ratings and Characteristics of Fuji Inverter Module

### 7 M B R 2 5 L C 1 2 0 (TENTATIVE)

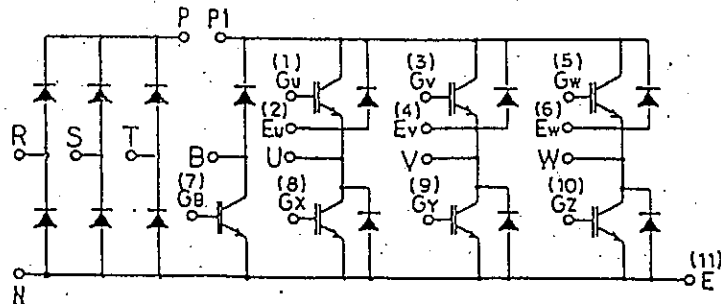
#### 1. Outline Drawing

Unit : mm

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



#### 2. Equivalent Circuit of Module



This material and the information herein is the property of Fuji Electric Co., Ltd. They shall be neither reproduced, copied, lent, or disclosed in any way whatsoever for the use of any third party nor used for the manufacturing purposes without the express written consent of Fuji Electric Co., Ltd.

REVISIONS			
-----------	--	--	--

	DATE	NAME	APPROVED
DRAWN	Mar-12-93	T. HOSEN	
CHECKED			

Fuji Electric Co., Ltd.	
DWG. NO.	MS6M0130 1/22

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

Item		Symbol	Condition	Maximum Ratings	Unit	
Inverter	Collector-Emitter Voltage	V <sub>CES</sub>		1200	V	
	Gate-Emitter Voltage	V <sub>GES</sub>		±20	V	
	Collector Current	DC	I <sub>c</sub>		25	A
		1ms	I <sub>CP</sub>		50	A
		DC	-I <sub>c</sub>		25	A
Collector Power Dissipation	One	P <sub>c</sub>		150	W	
Brake	Collector-Emitter Voltage	V <sub>CES</sub>		1200	V	
	Gate-Emitter Voltage	V <sub>GES</sub>		±20	V	
	Collector Current	DC	I <sub>c</sub>		15	A
		1ms	I <sub>CP</sub>		30	A
Collector Power Dissipation	One	P <sub>c</sub>		90	W	
Snubber	Repetitive peak Reverse Voltage			1200	V	
	Average Forward Current	I <sub>F(AV)</sub>		1	A	
	Surge Current	I <sub>FSM</sub>	10ms	50	A	
Converter	Repetitive Peak Reverse Voltage	V <sub>RRM</sub>		1600	V	
	Non-Repetitive Peak Reverse Voltage	V <sub>RSM</sub>		1700	V	
	Average Output Current	I <sub>o</sub>	50Hz/60Hz sine wave	25	A	
	Surge Current (Non-Repetitive)	I <sub>FSM</sub>	Tj=150°C, 10ms	320	A	
	I <sup>2</sup> t (Non-Repetitive)		Tj=150°C, 10ms	512	A <sup>2</sup> s	
Operating Junction Temperature	Tj		+ 150	°C		
Storage Temperature	Tstg		-30 ~ +125	°C		
Isolation Voltage	Viso	AC : 1 minute	AC 2500	V		
Mounting Screw Torque			*1 1.67	N · m		

\*1 Recommendable Value M4 : 1.27 ~ 1.67 N · m

This material and the information herein is the property of Fuji Electric Co., Ltd. They shall be neither reproduced, copied, lent, or disclosed in any way whatsoever for the use of any third party nor used for the manufacturing purposes without the express written consent of Fuji Electric Co., Ltd.

REVISIONS			
-----------	--	--	--

DATE	NAME	APPROVED
DRAWN	- -	
CHECKED	- -	

Fuji Electric Co., Ltd.

MS6M0130

2/22

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

Characteristics		Symbol	Conditions		min.	max.	Unit
Inverter	Zero gate voltage collector current	I <sub>CES</sub>	Tj=25°C V <sub>CE</sub> =1200V V <sub>GE</sub> = 0V			1.0	mA
	Gate-emitter leakage current	I <sub>GES</sub>	V <sub>CE</sub> = 0V V <sub>GE</sub> =±20V			100	nA
	Gate-emitter threshold voltage	V <sub>GE(th)</sub>	V <sub>CE</sub> =20V I <sub>C</sub> =25mA		3.0	6.0	V
	Collector-emitter saturation Voltage	V <sub>CE(sat)</sub>	V <sub>GE</sub> =15V I <sub>C</sub> =25A	Chip		3.5	V
				Terminal		3.6	
	Collector-Emitter Voltage	-V <sub>CE</sub>	-I <sub>C</sub> = 25 A	Chip		2.5	V
				Terminal		2.6	
	Input capacitance	C <sub>ies</sub>	V <sub>GE</sub> =0V V <sub>CE</sub> =10V f=1MHz		4500 (typ.)		PF
Switching Time	ton	V <sub>CC</sub> = 600V I <sub>C</sub> = 25A			0.8	μs	
	toff	V <sub>GE</sub> =±15V R <sub>G</sub> = 50 Ω			1.5		
	tf				0.5		
Reverse Recovery Time of FRD	t <sub>rr</sub>	I <sub>F</sub> =25A V <sub>GE</sub> =-10V -di/dt= 75A/μs			350	ns	
Brake	Zero gate voltage collector current	I <sub>CES</sub>	V <sub>CE</sub> =1200V V <sub>GE</sub> = 0V			1.0	mA
	Gate-emitter leakage current	I <sub>GES</sub>	V <sub>CE</sub> = 0V V <sub>GE</sub> =±20V			100	nA
	Collector-emitter Saturation Voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> = 15A V <sub>GE</sub> =15V	Chip		3.5	V
				Terminal		3.6	
	Switching Time	ton	V <sub>CC</sub> = 600V I <sub>C</sub> = 15 A			0.8	μs
		toff	V <sub>GE</sub> =±15V R <sub>G</sub> = 82Ω			1.5	
tf					0.5		

This material and the information herein is the property of Fuji Electric Co., Ltd. They shall be neither reproduced, copied, lent, or disclosed in any way whatsoever for the use of any third party nor used for the manufacturing purposes without the express written consent of Fuji Electric Co., Ltd.

REVISIONS			
CHECKED	- -		
DRAWN	- -		

DATE	NAME	APPROVED

Fuji Electric Co., Ltd.

**MS6MO130** 3/22

DWG. NO. www.DataSheet4U.com

Characteristics		Symbol	Conditions	min.	max.	Unit
Snubber	Reverse Current	$I_{RRM}$	$V_R = V_{RRM}$		1	mA
	Reverse Recovery Time	$t_{rr}$			600	ns
Converter	Forward Voltage	$V_{FM}$	$I_F = 25A$	Chip	1.30	V
				Terminal	1.40	
	Reverse Current	$I_{RRM}$	$V_R = V_{RRM}$		1	mA

5. Thermal Characteristics

Characteristics	Symbol	Conditions	min.	max.	Unit
Thermal Resistance (1 chip)	$R_{th(j-c)}$	Inverter IGBT		0.84	°C/W
		Inverter FRD		1.25	
		Brake IGBT		1.39	
		Converter Diode		3.40	
Contact Thermal Resistance	$R_{th(c-f)}$	With Thermal Compound		(typ) 0.05	

This material and the information herein is the property of Fuji Electric Co., Ltd. They shall be neither reproduced, copied, lent, or disclosed in any way whatsoever for the use of any third party nor used for the manufacturing purposes without the express written consent of Fuji Electric Co., Ltd.

REVISIONS			

	DATE	NAME	APPROVED	Fuji Electric Co., Ltd.	
DRAWN	- -				
CHECKED	- -			DWG. NO.	MS6M0130
					4/22