

SPECIFICATION

(TENTATIVE)

Product Name : IGBT Module (Power Integrated Module)

Type Name : 6MBR10PD120

Spec. No. : **MT6M1815**

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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 | | Fuji Electric Co., Ltd. |
| CHECKED | Mar. - 6 - 97 | S. Myohta | | |
| REVISIONS | | | S.K. | DWG. NO. MT6M1815 1/5 |

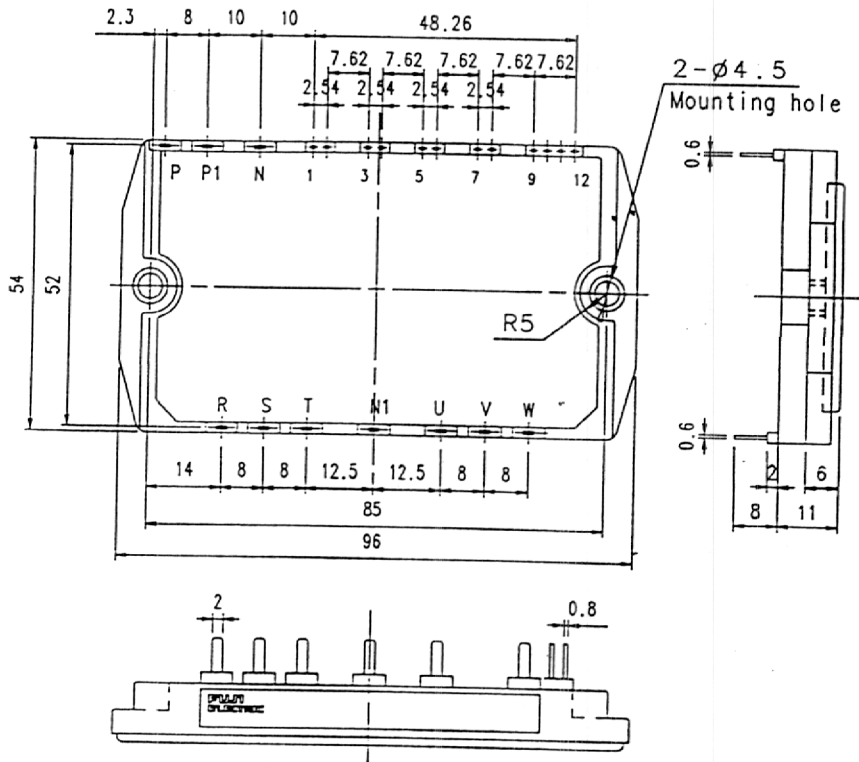
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(TENTATIVE)

1. Outline Drawing

Unit : mm

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

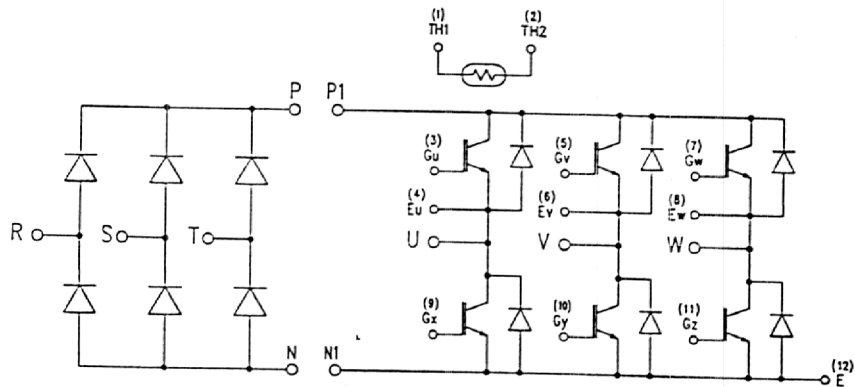


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2. Equivalent Circuit of Module

[Converter]

[Inverter]



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DWG. NO.

MT6M1815

2/5

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 | 10 | A |
| | | I _{CP} | 1ms | 20 | A |
| | | -I _C | | 10 | A |
| Collector Power Dissipation | P _C | 1 device | 80 | W | |
| 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, ^{8.3} 10ms | 286 | A |
| | I ² t (Non-Repetitive) | | Tj=150°C, ^{8.3} 10ms | 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 | $V_{GE(th)}$ | $V_{CE} = 20V$ $I_C = 10mA$ | 6.0 | 9.0 | V |
| | Collector-emitter saturation Voltage | $V_{CE(sat)}$ | $V_{GE} = 15V$ $I_C = 10A$ | | 3.0 | V |
| | Collector-Emitter Voltage | $-V_{CE}$ | $-I_C = 10A$ | | 3.0 | |
| | Input capacitance | C_{ies} | $V_{GE} = 0V$ $V_{CE} = 10V$ $f = 1MHz$ | | 1400 (typ.) | pF |
| | 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 Recovery Time of FRD | t_{rr} | $I_F = 10A$ | | 350 | ns | |
| Converter | Forward Voltage | V_{FM} | $I_F = 25A$ | | 1.5 | V |
| | Reverse Current | I_{RRM} | $V_R = 1600V$ | | 1 | mA |
| Thermistor | | | | | | |
| | | | | | | |

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5. Thermal Characteristics

| Characteristics | Symbols | Conditions | min. | max. | Units |
|-------------------------------|----------|-----------------------|-------|------|-------|
| Thermal Resistance (1 device) | Rth(j-c) | Inverter IGBT | | 1.67 | °C/W |
| | | Inverter FRD | | 3.30 | |
| | | Converter Diode | | 1.5 | |
| Contact Thermal Resistance | Rth(c-f) | With Thermal Compound | (typ) | 0.05 | |

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MT6M1815

5/5

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