

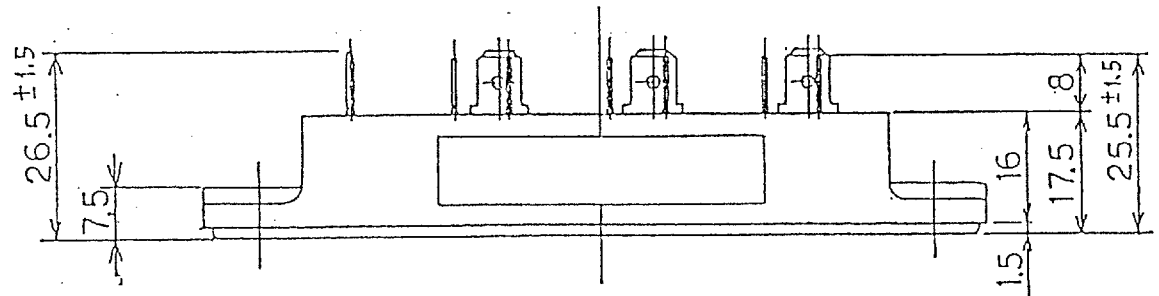
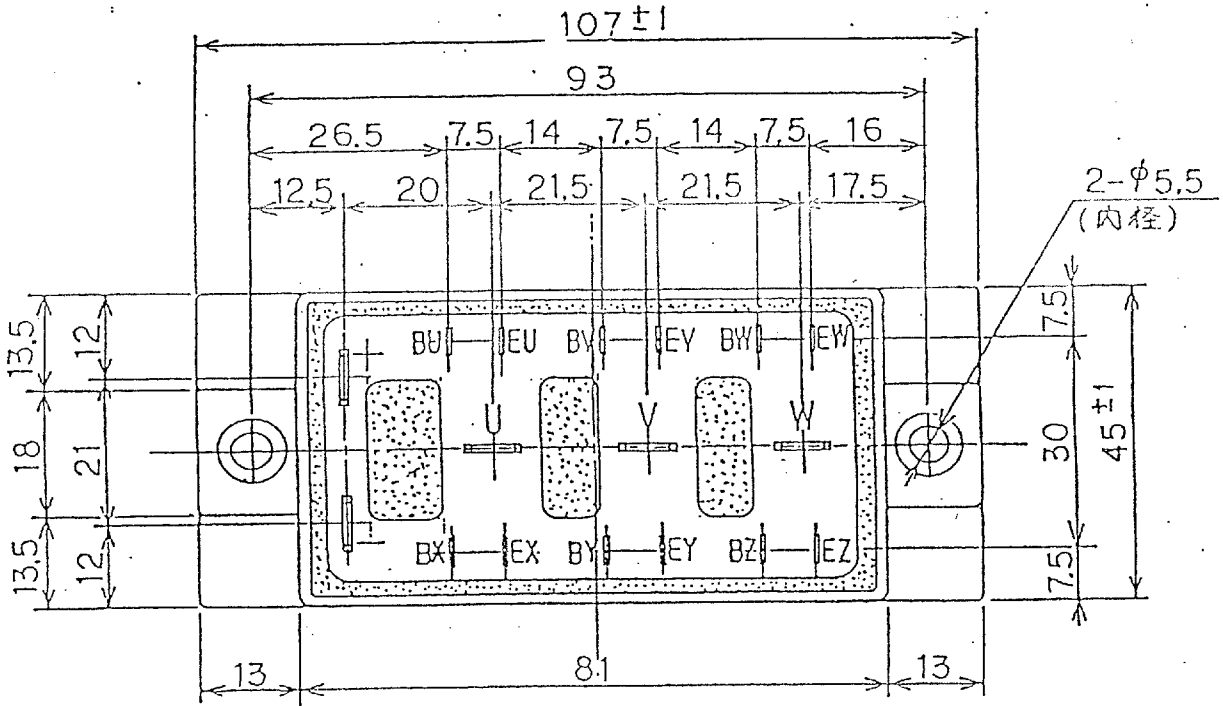
6MBI25J-120 (TENTATIVE)

1. Outline Drawing

Unit : mm

* Isolation Voltage : AC 2500 V 1 minute

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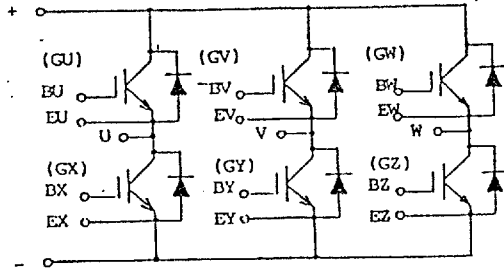
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| DRAWN | Apr - 5 - '93 | A. Yamaguchi | |
| CHECKED | Apr - 5 - '93 | T. Miyasaka | <i>[Signature]</i> |

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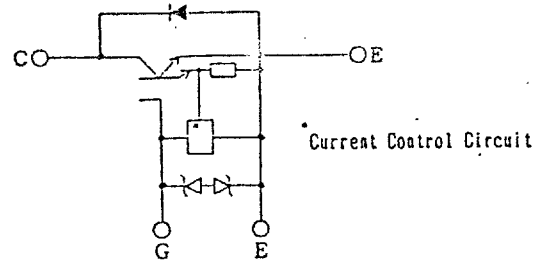
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2. Equivalent Circuit



3. Equivalent Circuit



4. Absolute Maximum Ratings (T_j=25 °C)

| Items | | Symbols | Ratings | Units |
|---------------------------|------------|-----------------------|-----------------|-------|
| Collector-emitter voltage | | V _{CEs} | 1 2 0 0 | V |
| Gate -emitter voltage | | V _{GES} | ± 2.0 | V |
| Collector current | Continuous | I _c | 2 5 | A |
| | 1 ms | I _c pulse | 5 0 | |
| | | -I _c | 2 5 | |
| | 1 ms | -I _c pulse | 5 0 | |
| Max.power dissipation | | PC | 1 6 0 | W |
| Operating temperature | | T _j | + 1 5 0 | °C |
| Storage temperature | | T _{stg} | -40 ~ +125 | °C |
| Isolation voltage | | V _{is} | AC 2500 (1 min) | V |
| Screw Torque | | Mounting * 1 | 3. 5 | N · m |

Note : *1 Recommendable Value : 2.5 ~ 3.5 N · m (M5)

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5. Static electrical characteristics (at $T_j=25^\circ\text{C}$ unless otherwise specified)

| Items | Symbols | Characteristics | | | Conditions | | Units |
|--------------------------------------|---------------|-----------------|------|------|---------------------------|---------------------------|---------------|
| | | min. | typ. | max. | | | |
| Zero gate voltage collector current | I_{CES} | | | 1.0 | $T_j = 25^\circ\text{C}$ | $V_{GE} = 0\text{V}$ | mA |
| | | | | | $T_j = 125^\circ\text{C}$ | $V_{CE} = 1200\text{V}$ | mA |
| Gate-emitter leakage current | I_{GES} | | | 15 | $V_{CE} = 0\text{V}$ | $V_{GE} = \pm 20\text{V}$ | μA |
| Gate-emitter threshold voltage | $V_{GE(th)}$ | | 5.0 | | $V_{CE} = 20\text{V}$ | $I_C = 25\text{mA}$ | V |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | | 2.2 | | $V_{GE} = 15\text{V}$ | $I_C = 25\text{A}$ | V |

6. Dynamic ratings (at $T_j=25^\circ\text{C}$ unless otherwise specified)

| Items | Symbols | Characteristics | | | Conditions | Units |
|------------------------------|-----------|-----------------|------|------|---|---------------|
| | | min. | typ. | max. | | |
| Input capacitance | C_{ies} | | 3000 | | $V_{GE} = 0\text{V}$ | pF |
| Output capacitance | C_{oes} | | — | | $V_{CE} = 10\text{V}$ | |
| Reverse transfer capacitance | C_{res} | | — | | $f = 1\text{MHz}$ | |
| Turn-on time | t_{on} | | 0.65 | | $V_{CC} = 600\text{V}$ $I_C = 25\text{A}$ $V_{GE} = \pm 15\text{V}$ $R_G = 50\Omega$ | μs |
| | t_r | | 0.30 | | | |
| Turn-off time | t_{off} | | 0.90 | | | |
| | t_f | | 0.20 | | | |

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7. Characteristics of reverse diode (at $T_j=25\text{ }^\circ\text{C}$ unless otherwise specified)

| Items | Symbols | Characteristics | | | Conditions | Units |
|-----------------------------|----------|-----------------|------|------|---|-------|
| | | min. | typ. | max. | | |
| Diode forward on-voltage | V_F | | 2.5 | | $I_F=25\text{A}$ $V_{GE}=0\text{V}$ | V |
| Reverse recovery time | t_{rr} | | | 350 | $I_F=25\text{A}$ $-di/dt=75\text{A}/\mu\text{s}$ | ns |

8. Thermal resistance characteristics

| Items | Symbols | Characteristics | | | Conditions | Units |
|-----------------------|---------------------------|-----------------|------|-------|----------------------------|---------------------------|
| | | min. | typ. | max. | | |
| Thermal resistance | $R_{th(j-c)}$ | | | 0.781 | IGBT | $^\circ\text{C}/\text{W}$ |
| | $R_{th(j-c)}$ | | | 1.870 | Diode | |
| | \times $R_{th(c-f)}$ | | 0.05 | | the base to cooling fin | |

\times This is the value which is defined mounting on the additional cooling fin with thermal compound.

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