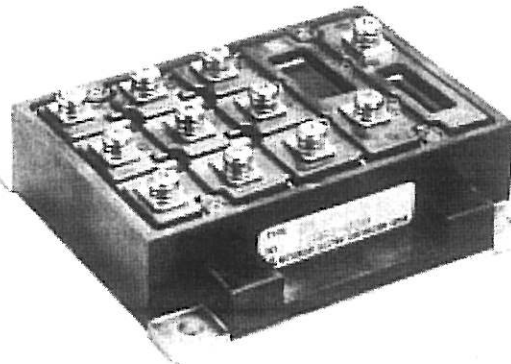


# QM100TX1-HB

## HIGH POWER SWITCHING USE INSULATED TYPE

**QM100TX1-HB**



- **IC** Collector current ..... **100A**
- **V<sub>CEX</sub>** Collector-emitter voltage ..... **600V**
- **h<sub>FE</sub>** DC current gain ..... **750**
- **Insulated Type**
- **UL Recognized**

Yellow Card No. E80276 (N)

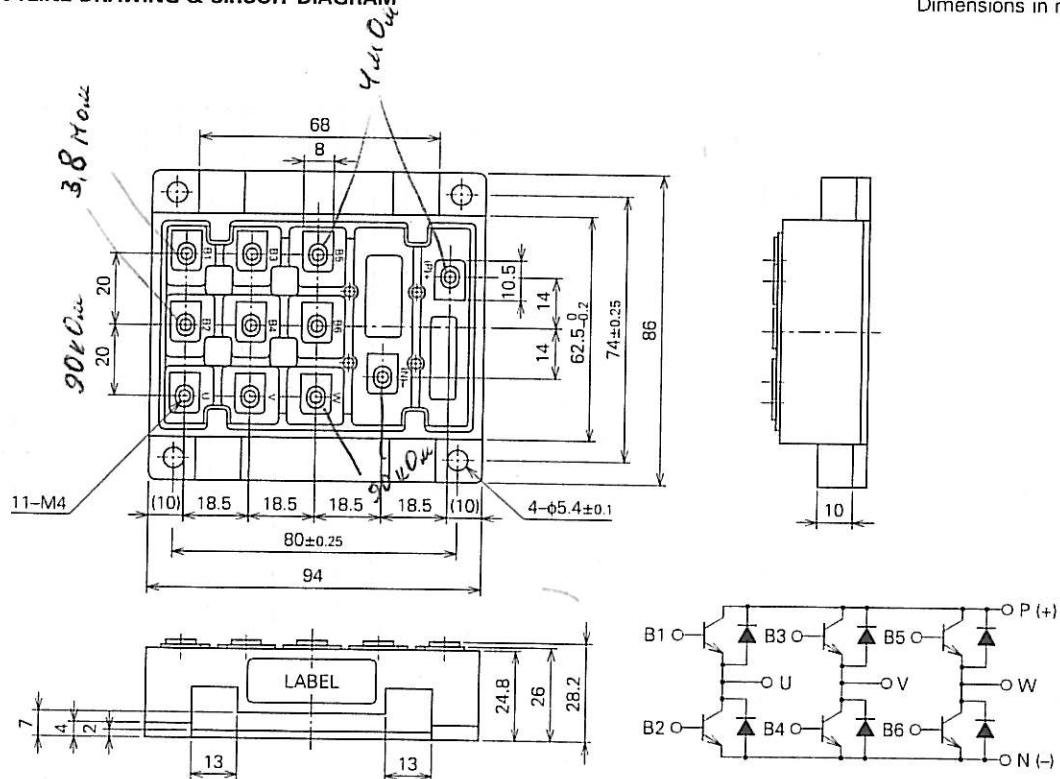
File No. E80271

## APPLICATION

Inverters, Servo drives, UPS, DC motor controllers, NC equipment, Welders

### OUTLINE DRAWING & CIRCUIT DIAGRAM

Dimensions in mm



# QM100TX1-HB

HIGH POWER SWITCHING USE  
INSULATED TYPE

## ABSOLUTE MAXIMUM RATINGS (T<sub>j</sub>=25°C, unless otherwise noted)

| Symbol                 | Parameter                                               | Conditions                                  | Ratings   | Unit  |
|------------------------|---------------------------------------------------------|---------------------------------------------|-----------|-------|
| V <sub>CEX</sub> (SUS) | Collector-emitter voltage                               | I <sub>C</sub> =1A, V <sub>EB</sub> =2V     | 600       | V     |
| V <sub>CEX</sub>       | Collector-emitter voltage                               | V <sub>EB</sub> =2V                         | 600       | V     |
| V <sub>CBO</sub>       | Collector-base voltage                                  | Emitter open                                | 600       | V     |
| V <sub>EBO</sub>       | Emitter-base voltage                                    | Collector open                              | 7         | V     |
| I <sub>C</sub>         | Collector current                                       | DC                                          | 100       | A     |
| -I <sub>C</sub>        | Collector reverse current                               | DC (forward diode current)                  | 350       | A     |
| P <sub>C</sub>         | Collector dissipation                                   | T <sub>C</sub> =25°C                        | 4.5       | W     |
| I <sub>B</sub>         | Base current                                            | DC                                          | 100       | A     |
| -I <sub>CSM</sub>      | Surge collector reverse current (forward diode current) | Peak value of one cycle of 60Hz (half wave) | 1000      | A     |
| T <sub>j</sub>         | Junction temperature                                    |                                             | -40~+150  | °C    |
| T <sub>stg</sub>       | Storage temperature                                     |                                             | -40~+125  | °C    |
| V <sub>iso</sub>       | Isolation voltage                                       | Charged part to case, AC for 1 minute       | 2500      | V     |
| —                      | Mounting torque                                         | Main terminal screw M4                      | 0.98~1.47 | N·m   |
|                        |                                                         |                                             | 10~15     | kg·cm |
|                        |                                                         | Mounting screw M5                           | 1.47~1.96 | N·m   |
|                        |                                                         |                                             | 15~20     | kg·cm |
|                        |                                                         | B(E) terminal screw M4                      | 0.98~1.47 | N·m   |
|                        |                                                         |                                             | 10~15     | kg·cm |
| —                      | Weight                                                  | Typical value                               | 520       | g     |

## ELECTRICAL CHARACTERISTICS (T<sub>j</sub>=25°C, unless otherwise noted)

| Symbol                  | Parameter                                | Test conditions                                                                             | Limits |      |      | Unit |
|-------------------------|------------------------------------------|---------------------------------------------------------------------------------------------|--------|------|------|------|
|                         |                                          |                                                                                             | Min.   | Typ. | Max. |      |
| I <sub>CX</sub>         | Collector cutoff current                 | V <sub>CE</sub> =600V, V <sub>EB</sub> =2V                                                  | —      | —    | 1.0  | mA   |
| I <sub>CBO</sub>        | Collector cutoff current                 | V <sub>CB</sub> =600V, Emitter open                                                         | —      | —    | 1.0  | mA   |
| I <sub>EBO</sub>        | Emitter cutoff current                   | V <sub>EB</sub> =7V, Collector open                                                         | —      | —    | 150  | mA   |
| V <sub>CE</sub> (sat)   | Collector-emitter saturation voltage     | I <sub>C</sub> =100A, I <sub>B</sub> =150mA                                                 | —      | —    | 2.5  | V    |
| V <sub>BE</sub> (sat)   | Base-emitter saturation voltage          |                                                                                             | —      | —    | 3.0  | V    |
| -V <sub>CEO</sub>       | Collector-emitter reverse voltage        | I <sub>C</sub> =-100A (diode forward voltage)                                               | —      | —    | 1.8  | V    |
| h <sub>FE</sub>         | DC current gain                          | I <sub>C</sub> =100A, V <sub>CE</sub> =2.5V                                                 | 750    | —    | —    | —    |
| t <sub>on</sub>         | Switching time                           | V <sub>CC</sub> =300V, I <sub>C</sub> =100A, I <sub>B1</sub> =150mA, -I <sub>B2</sub> =2.0A | —      | —    | 2.0  | μs   |
| t <sub>s</sub>          |                                          |                                                                                             | —      | —    | 8.0  | μs   |
| t <sub>f</sub>          |                                          |                                                                                             | —      | —    | 3.0  | μs   |
| t <sub>t</sub>          |                                          |                                                                                             | —      | —    | —    | —    |
| R <sub>th</sub> (j-c) Q | Thermal resistance (junction to case)    | Transistor part (per 1/6 module)                                                            | —      | —    | 0.35 | °C/W |
| R <sub>th</sub> (j-c) R |                                          | Diode part (per 1/6 module)                                                                 | —      | —    | 1.3  | °C/W |
| R <sub>th</sub> (c-f)   | Contact thermal resistance (case to fin) | Conductive grease applied (per 1/6 module)                                                  | —      | —    | 0.2  | °C/W |