

TOSHIBA GTR MODULE SILICON N CHANNEL IGBT

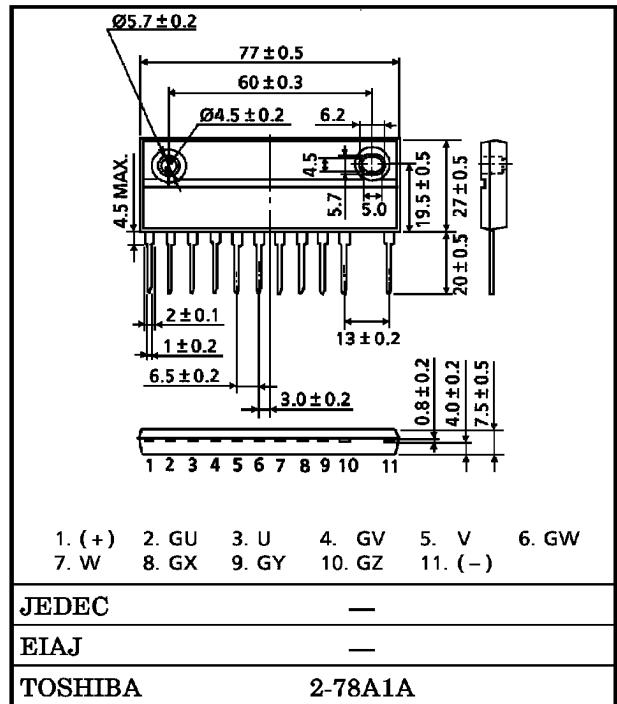
# MP6759

MOTOR CONTROL APPLICATIONS

HIGH POWER SWITCHING APPLICATIONS

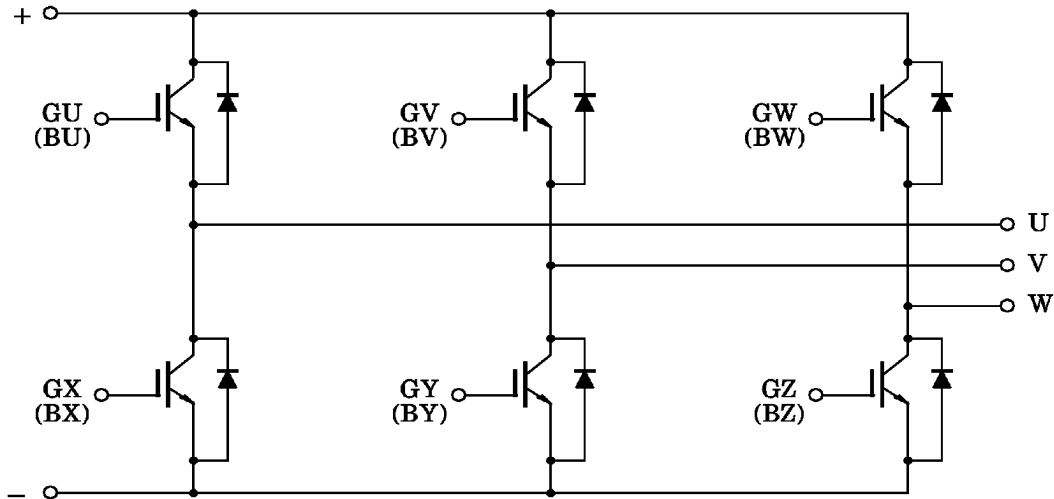
- The Electrodes are Isolated from Case.
- 6 IGBTs are Built Into 1 Package.
- Enhancement-Mode
- Low Saturation Voltage  
:  $V_{CE(sat)} = 2.7\text{ V (Max.) (I}_C = 10\text{ A)}$
- High Speed  
:  $t_f = 0.35\ \mu\text{s (Max.) (I}_C = 10\text{ A)}$

Unit in mm



Weight : 44 g (Typ.)

EQUIVALENT CIRCUIT



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MAXIMUM RATINGS (Ta = 25°C)

| CHARACTERISTIC                                      | SYMBOL            | RATING                | UNIT |
|---|-------------------|-----------------------|------|
| Collector-Emitter Voltage                           | V <sub>CES</sub>  | 600                   | V    |
| Gate-Emitter Voltage                                | V <sub>GES</sub>  | ±20                   | V    |
| Collector Current                                   | DC                | I <sub>C</sub>        | 10   |
|   | 1 ms              | I <sub>CP</sub>       | 20   |
| Forward Current                                     | DC                | I <sub>F</sub>        | 10   |
|   | 1 ms              | I <sub>FM</sub>       | 20   |
| Collector Power Dissipation (T <sub>c</sub> = 25°C) | P <sub>C</sub>    | 40                    | W    |
| Junction Temperature                                | T <sub>j</sub>    | 150                   | °C   |
| Storage Temperature Range                           | T <sub>stg</sub>  | -40~125               | °C   |
| Isolation Voltage                                   | V <sub>ISOL</sub> | 2500<br>(AC 1 minute) | V    |
| Screw Torque  | —                 | 1.5                   | N·m  |

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

| CHARACTERISTIC                       | SYMBOL                | TEST CONDITION   | MIN. | TYP. | MAX. | UNIT |    |
|--------------------------------------|-----------------------|--|------|------|------|------|----|
| Gate Leakage Current                 | I <sub>GES</sub>      | V <sub>GE</sub> = ±20 V, V <sub>CE</sub> = 0           | —    | —    | ±200 | nA   |    |
| Collector Cut-off Current            | I <sub>CES</sub>      | V <sub>CE</sub> = 600 V, V <sub>GE</sub> = 0           | —    | —    | 1    | mA   |    |
| Gate-Emitter Cut-off Voltage         | V <sub>GE (OFF)</sub> | I <sub>C</sub> = 1 mA, V <sub>CE</sub> = 5 V           | 5    | —    | 8    | V    |    |
| Collector-Emitter Saturation Voltage | V <sub>CE (sat)</sub> | I <sub>C</sub> = 10 A, V <sub>GE</sub> = 15 V          | —    | 2.1  | 2.7  | V    |    |
| Input Capacitance                    | C <sub>ies</sub>      | V <sub>CE</sub> = 10 V, V <sub>GE</sub> = 0, f = 1 MHz | —    | 720  | —    | pF   |    |
| Switching Time                       | Rise Time             | t <sub>r</sub>   |      | —    | 0.3  | —    | μs |
|                                      | Turn-on Time          | t <sub>on</sub>  |      | —    | 0.4  | —    |    |
|                                      | Fall Time             | t <sub>f</sub>   |      | —    | 0.2  | 0.35 |    |
|                                      | Turn-off Time         | t <sub>off</sub>                                       |      | —    | 0.4  | —    |    |
| Forward Voltage                      | V <sub>F</sub>        | I <sub>F</sub> = 10 A, V <sub>GE</sub> = 0             | —    | —    | 2.0  | V    |    |
| Reverse Recovery time                | t <sub>rr</sub>       | I <sub>F</sub> = 10 A, di/dt = -100 A/μs               | —    | —    | 200  | ns   |    |
| Thermal Resistance                   | R <sub>th (j-c)</sub> | Transistor   | —    | —    | 3.09 | °C/W |    |
|                                      |                       | Diode  | —    | —    | 4.77 |      |    |

