

# TOSHIBA

## INSULATED GATE BIPOLAR TRANSISTOR

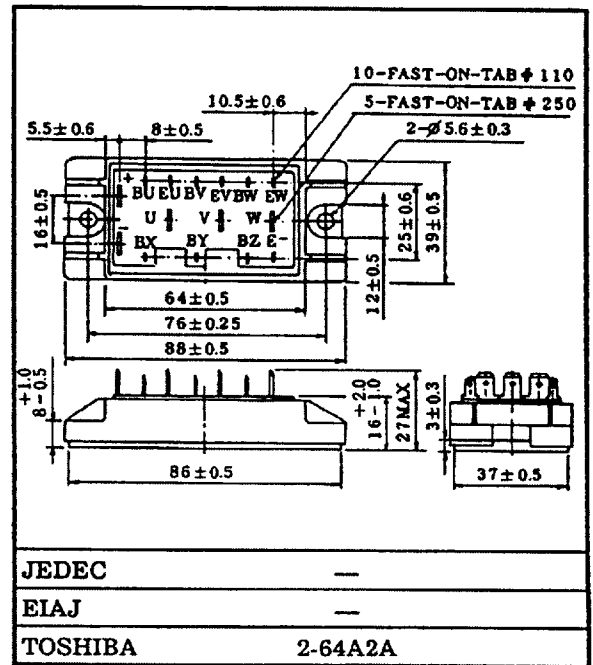
MG8J6ES1

Unit in mm

### High Power Switching Applications

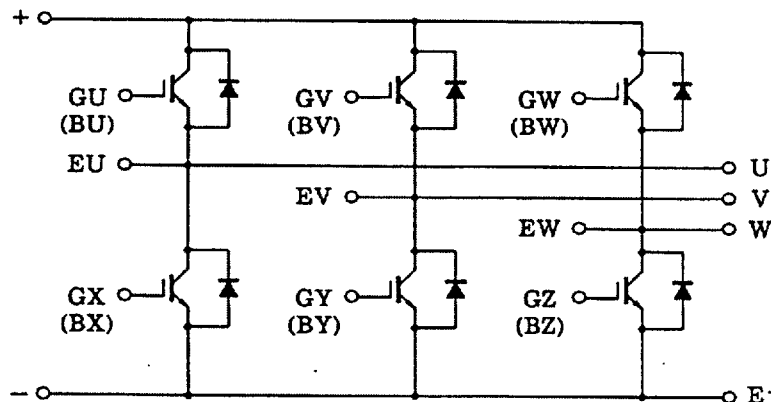
#### Motor Control Applications

- The Electrodes are Isolated from Case.
- 6 IGBTs are Built Into 1 Package.
- Enhancement-Mode
- Low Saturation Voltage
  - :  $V_{CE(sat)} = 4.0V$  (Max.)
- High Speed
  - :  $t_f = 0.35\mu s$  (Max.)
  - :  $t_{rr} = 0.25\mu s$  (Max.)



Weight : 152g

### Equivalent Circuit



The information contained here is subject to change without notice.

The information contained herein is presented only as guide for the applications of our products. No responsibility is assumed by TOSHIBA for any infringements of patents or other rights of the third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of TOSHIBA or others. These TOSHIBA products are intended for usage in general electronic equipments (office equipment, communication equipment, measuring equipment, domestic electrification, etc.) Please make sure that you consult with us before you use these TOSHIBA products in equipments which require high quality and/or reliability, and in equipments which could have major impact to the welfare of human life (atomic energy control, spaceship, traffic signal, combustion control, all types of safety devices, etc.). TOSHIBA cannot accept liability to any damage which may occur in case these TOSHIBA products were used in the mentioned equipments without prior consultation with TOSHIBA.

TOSHIBA CORPORATION

9097250 0021890 307

PW03260796

1/5

# MG8J6ES1

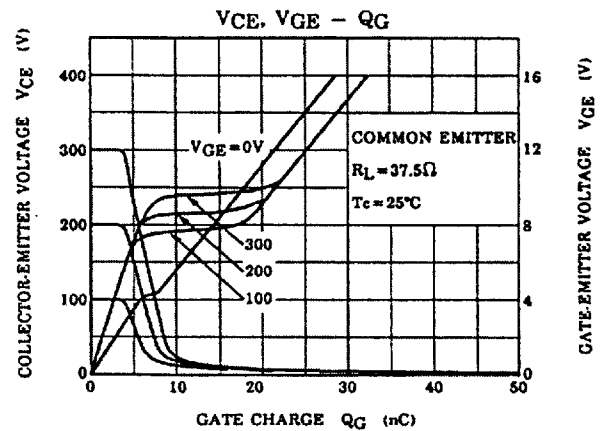
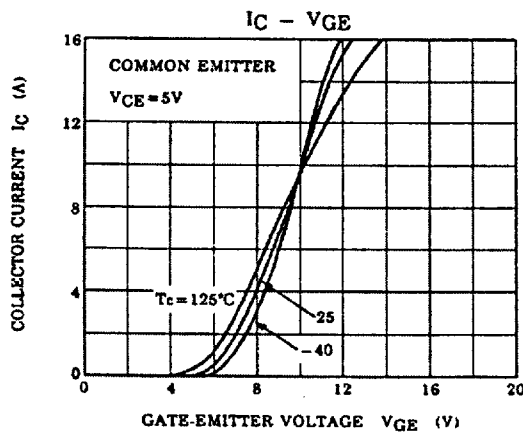
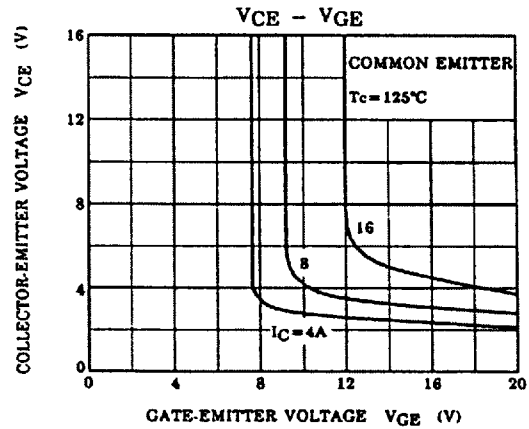
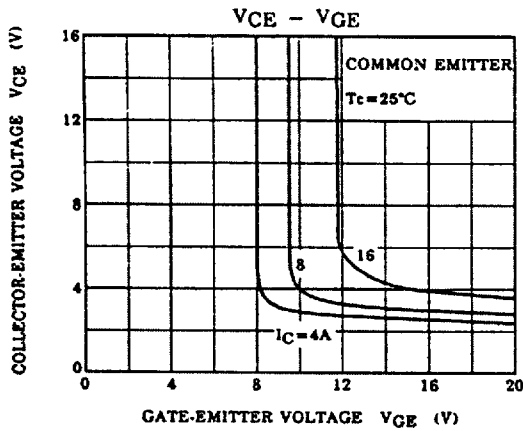
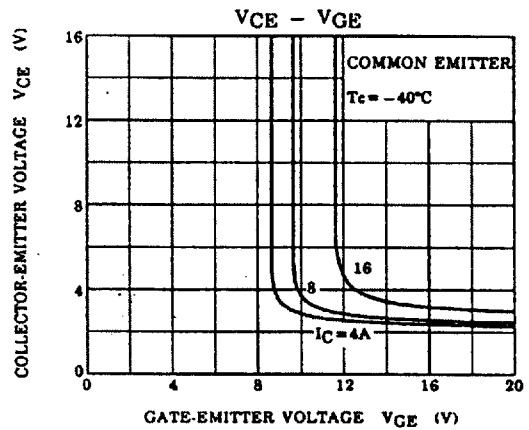
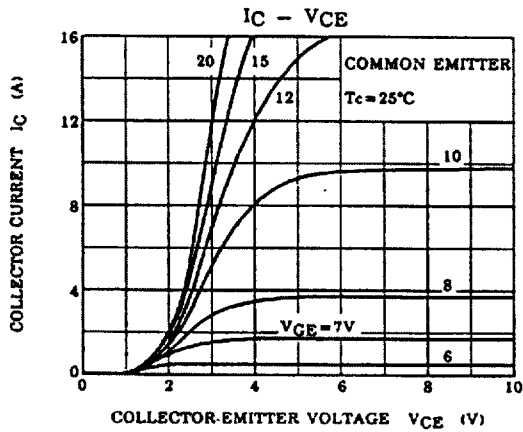
## Maximum Ratings (Ta = 25°C)

| CHARACTERISTIC                          |     | SYMBOL     | RATINGS            | UNIT |
|---|-----|------------|--------------------|------|
| Collector-Emitter Voltage               |     | $V_{CES}$  | 600                | V    |
| Gate-Emitter Voltage                    |     | $V_{GES}$  | ±20                | V    |
| Collector Current                       | DC  | $I_C$      | 8                  | A    |
|   | 1ms | $I_{CP}$   | 16                 |      |
| Forward Current                         | DC  | $I_F$      | 8                  | A    |
|   | 1ms | $I_{FM}$   | 16                 |      |
| Collector Power Dissipation (Tc = 25°C) |     | $P_C$      | 50                 | W    |
| Junction Temperature                    |     | $T_j$      | 150                | °C   |
| Storage Temperature Range               |     | $T_{stg}$  | -40 ~ 125          | °C   |
| Isolation Voltage                       |     | $V_{isol}$ | 2500 (AC 1 minute) | V    |
| Screw Torque                            |     | -          | 3                  | N•m  |

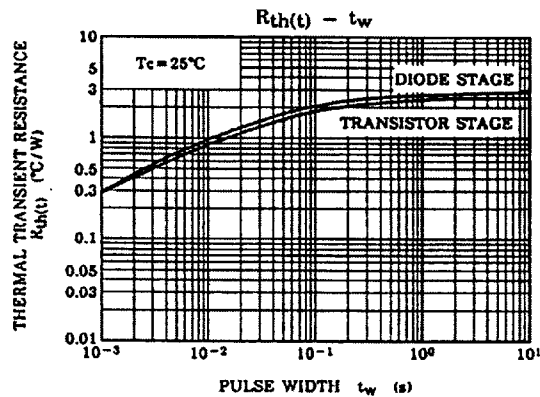
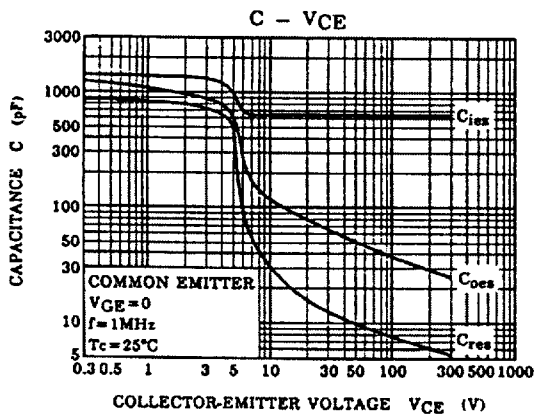
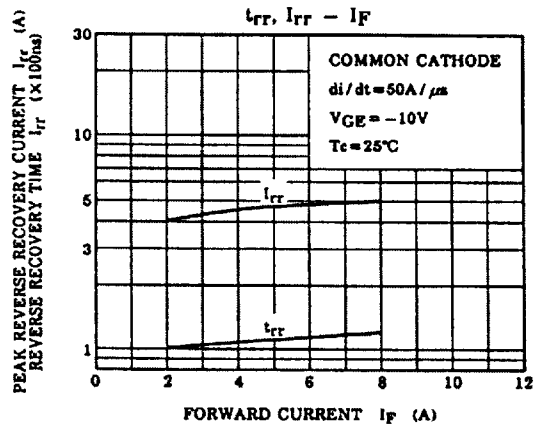
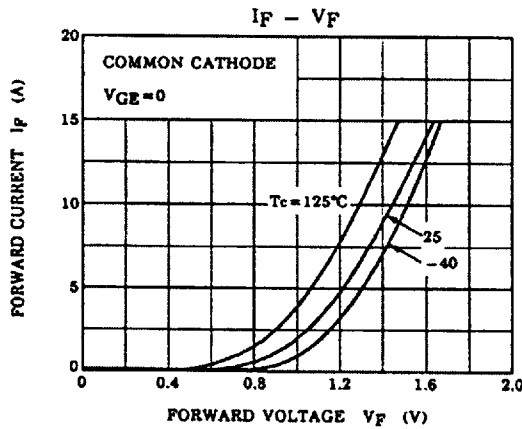
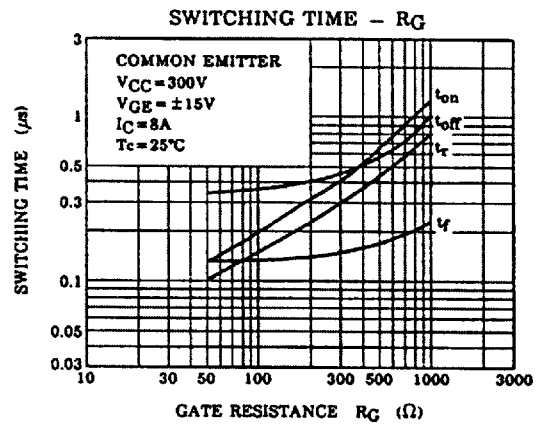
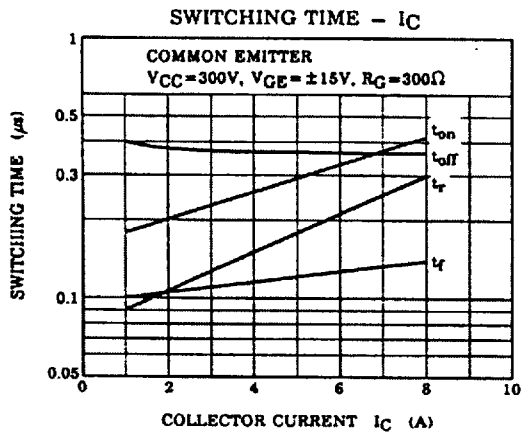
## Electrical Characteristics (Ta = 25°C)

| CHARACTERISTIC                       |               | SYMBOL        | TEST CONDITION                                   | MIN. | TYP. | MX.  | UNIT |
|--------------------------------------|---------------|---------------|--|------|------|------|------|
| Gate Leakage Current                 |               | $I_{GES}$     | $V_{GE} = \pm 20V, V_{CE} = 0$                   | -    | -    | ±500 | nA   |
| Collector Cut-off Current            |               | $I_{CES}$     | $V_{CE} = 600V, V_{GE} = 0$                      | -    | -    | 1.0  | mA   |
| Gate-Emitter Cut-off Voltage         |               | $V_{GE(OFF)}$ | $I_C = 8mA, V_{CE} = 5V$                         | 3.0  | -    | 6.0  | V    |
| Collector-Emitter Saturation Voltage |               | $V_{CE(sat)}$ | $I_C = 8A, V_{GE} = 15V$                         | -    | 3.0  | 4.0  | V    |
| Input Capacitance                    |               | $C_{ies}$     | $V_{CE} = 10V, V_{GE} = 0, f = 1MHz$             | -    | 650  | -    | pF   |
| Switching Time                       | Rise Time     | $t_r$         |  | -    | 0.3  | 0.6  | μs   |
|                                      | Turn-on Time  | $t_{on}$      |  | -    | 0.4  | 0.8  |      |
|                                      | Fall Time     | $t_f$         |  | -    | 0.15 | 0.35 |      |
|                                      | Turn-off Time | $t_{off}$     |  | -    | 0.5  | 1.0  |      |
| Forward Voltage                      |               | $V_F$         | $I_F = 8A, V_{GE} = 0$                           | -    | 1.5  | 2.5  | V    |
| Reverse Recovery Time                |               | $t_{rr}$      | $I_F = 8A, V_{GE} = -10V$<br>$di/dt = 50A/\mu s$ | -    | 0.15 | 0.25 | μs   |
| Thermal Resistance                   |               | $R_{th(j-c)}$ | Transistor                                       | -    | -    | 2.50 | °C/W |
|                                      |               |               | Diode  | -    | -    | 2.80 |      |

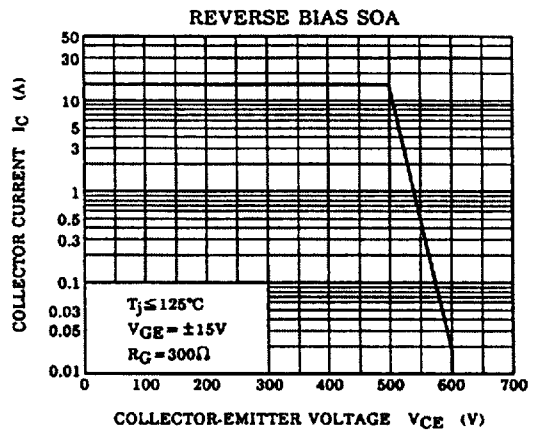
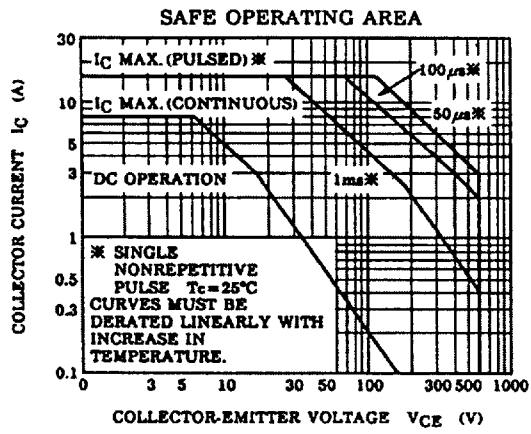
9097250 0021891 243



9097250 0021892 18T



9097250 0021893 016



9097250 0021894 T52