

**TOSHIBA** SEMICONDUCTOR  
TECHNICAL DATA

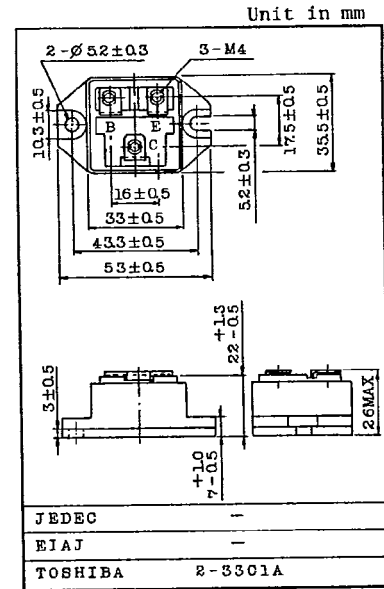
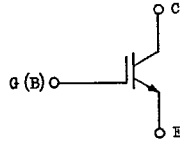
TOSHIBA GTR MODULE  
MG50H1BS1  
SILICON N CHANNEL IGBT

HIGH POWER SWITCHING APPLICATIONS.  
MOTOR CONTROL APPLICATIONS.

FEATURES:

- . High Input Impedance
- . High Speed :  $t_f=1.0\mu s$ (Max.)
- . Low Saturation Voltage :  $V_{CE(sat)}=5.0V$ (Max.)
- . Enhancement-Mode
- . The Electrodes are Isolated from Case.

EQUIVALENT CIRCUIT



Weight : 86g

MAXIMUM RATINGS (Ta=25°C)

| CHARACTERISTIC                        | SYMBOL     | RATING              | UNIT  |
|---------------------------------------|------------|---------------------|-------|
| Collector-Emitter Voltage             | $V_{CES}$  | 500                 | V     |
| Gate-Emitter Voltage                  | $V_{GES}$  | ±20                 | V     |
| Collector Current                     | DC         | $I_C$               | 50    |
|                                       | 1ms        | $I_{CP}$            | 100   |
| Collector Power Dissipation (Tc=25°C) | $P_C$      | 150                 | 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 (Terminal/Mounting)      | -          | 20/30               | kg·cm |

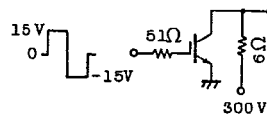
EGA-MG50H1BS1-1  
1986-9-1  
TOSHIBA CORPORATION

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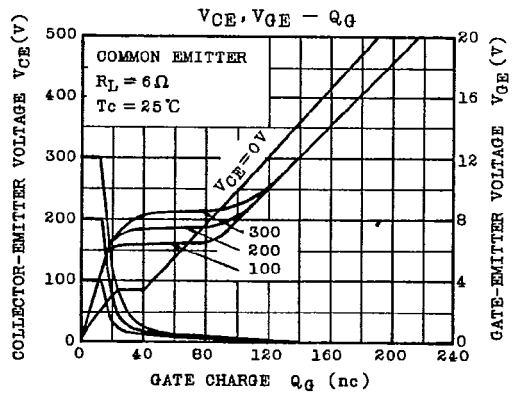
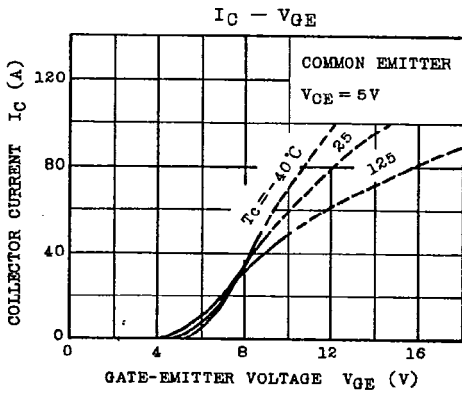
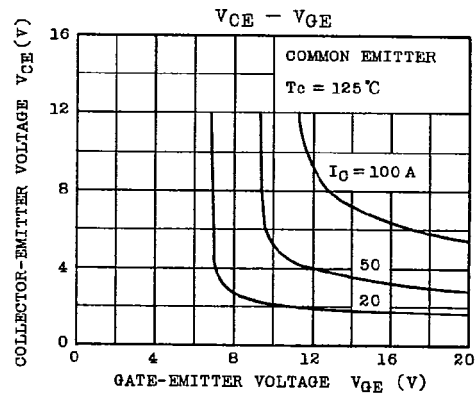
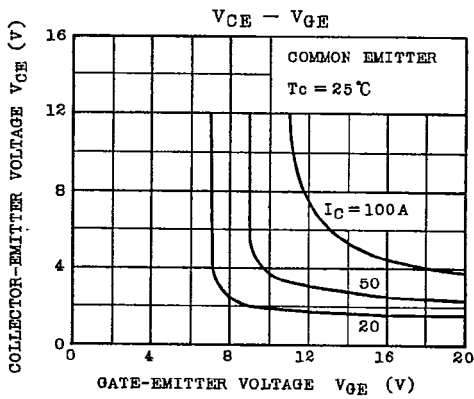
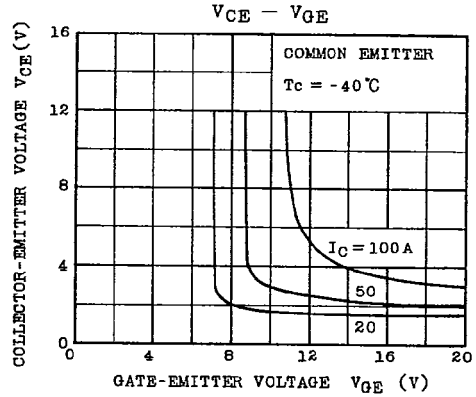
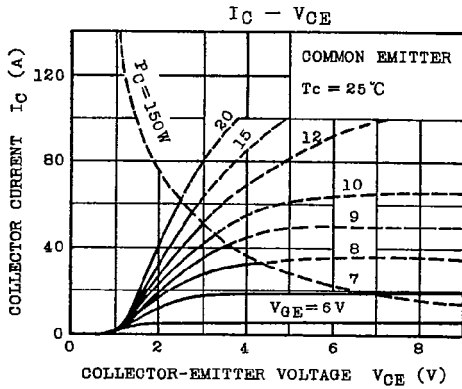
## ELECTRICAL CHARACTERISTICS (Ta=25°C)

| CHARACTERISTIC                       | SYMBOL        | TEST CONDITION         | MIN. | TYP. | MAX. | UNIT |
|--------------------------------------|---------------|------------------------|------|------|------|------|
| Gate Leakage Current                 | IGES          | VGE=±20V, VCE=0        | -    | -    | ±500 | nA   |
| Collector Cut-off Current            | ICES          | VCE=500V, VGE=0        | -    | -    | 1.0  | mA   |
| Collector-Emitter Breakdown Voltage  | V(BR)CES      | IC=10mA, VGE=0         | 500  | -    | -    | V    |
| Gate-Emitter Cut-off Voltage         | VCE(OFF)      | IC=50mA, VCE=5V        | 3.0  | -    | 6.0  | V    |
| Collector-Emitter Saturation Voltage | VCE(sat)      | IC=50A, VGE=15V        | -    | 3.0  | 5.0  | V    |
| Input Capacitance                    | Cies          | VCE=10V, VGE=0, f=1MHz | -    | 3000 | -    | pF   |
| Switching Time                       | Rise Time     | tr                     | -    | 0.5  | 1.0  | μs   |
|                                      | Turn-on Time  | ton                    | -    | 0.6  | 1.0  |      |
|                                      | Fall Time     | tf                     | -    | 0.4  | 1.0  |      |
|                                      | Turn-off Time | toff                   | -    | 0.9  | 1.5  |      |
| Thermal Resistance                   | Rth(j-c)      | -                      | -    | -    | 0.83 | °C/W |



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