

TOSHIBA GTR Module Silicon N Channel IGBT

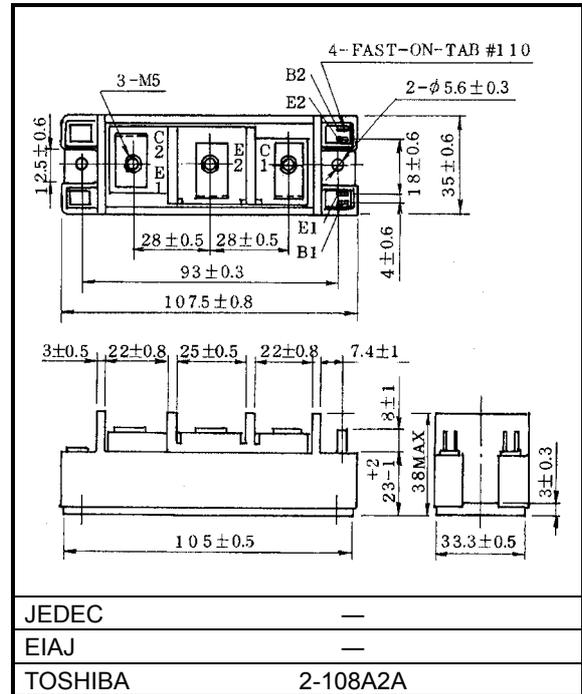
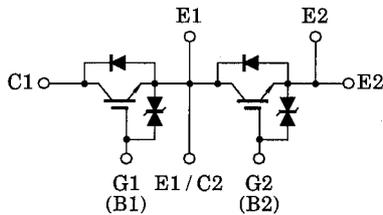
MG100Q2YS40

Unit: mm

High Power Switching applications
Motor Control Applications

- High input impedance
- High speed : $t_f = 0.5\mu s$ (Max)
 $t_{rr} = 0.5\mu s$ (Max)
- Low saturation voltage
: $V_{CE(sat)} = 4.0V$ (Max)
- Enhancement-mode
- Includes a complete half bridge in one package.
- The electrodes are isolated from case.

Equivalent Circuit

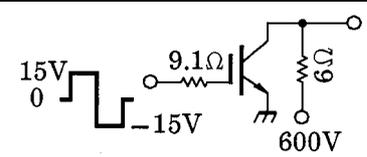


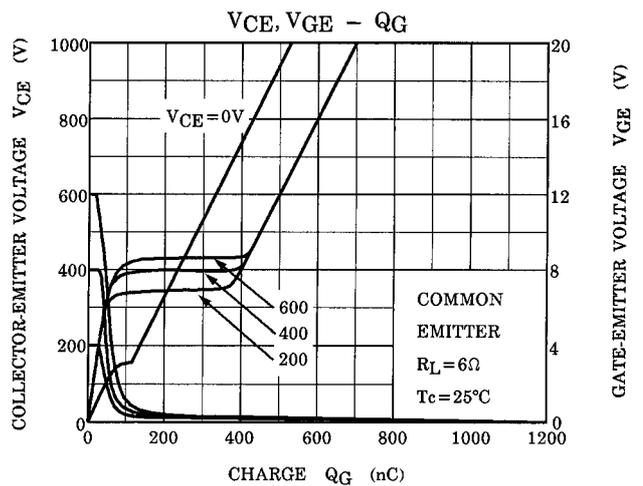
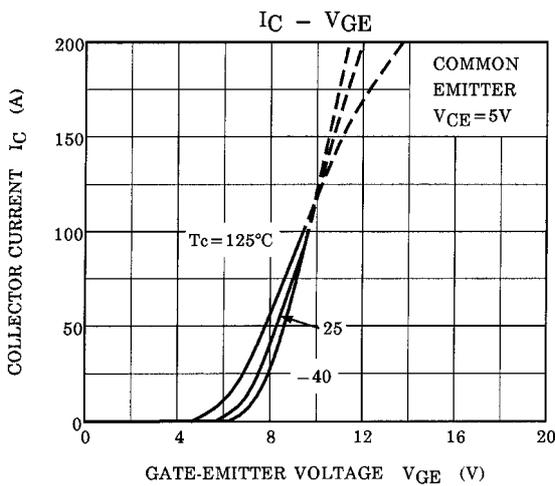
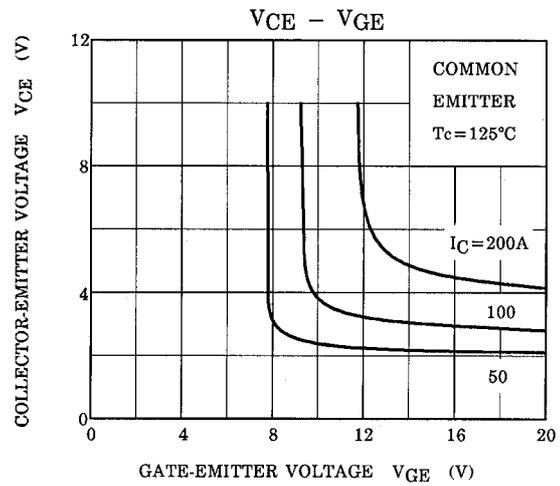
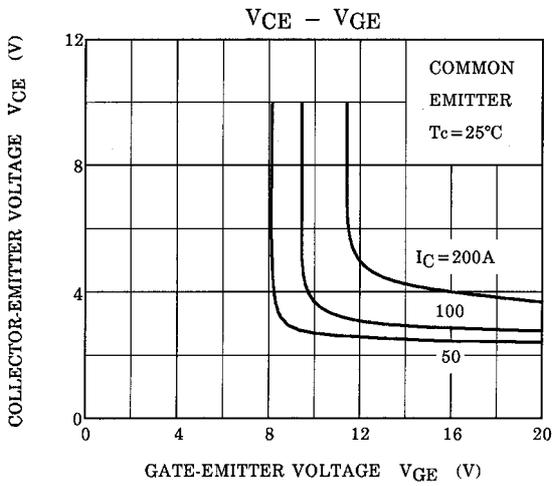
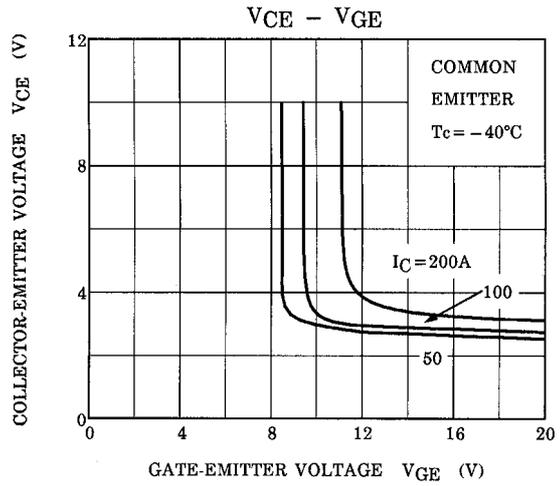
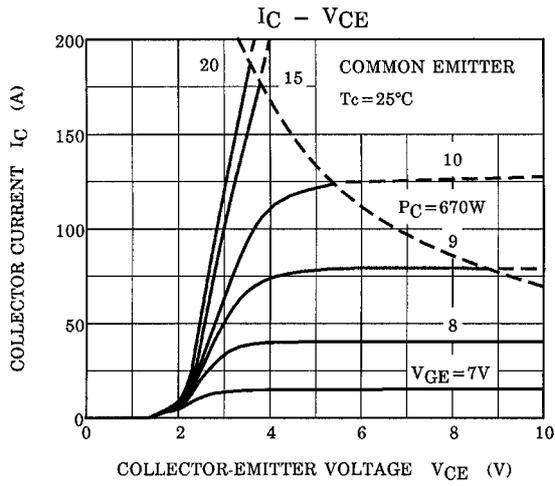
Weight: 240g

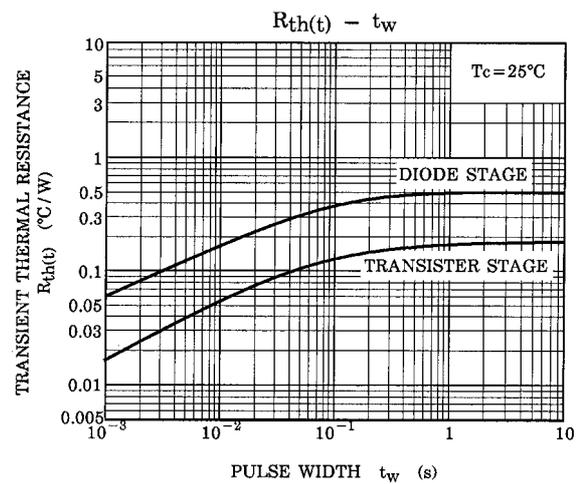
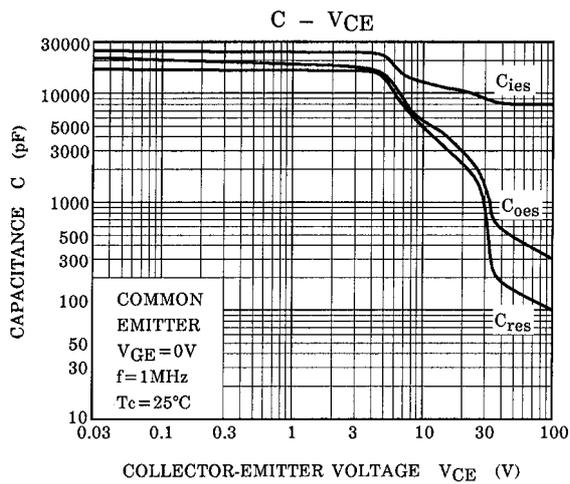
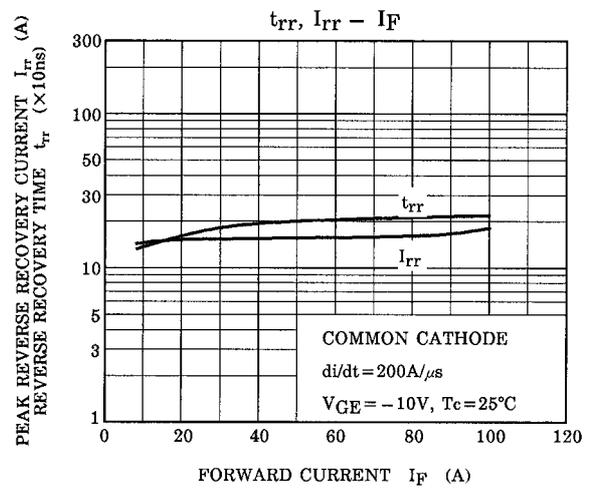
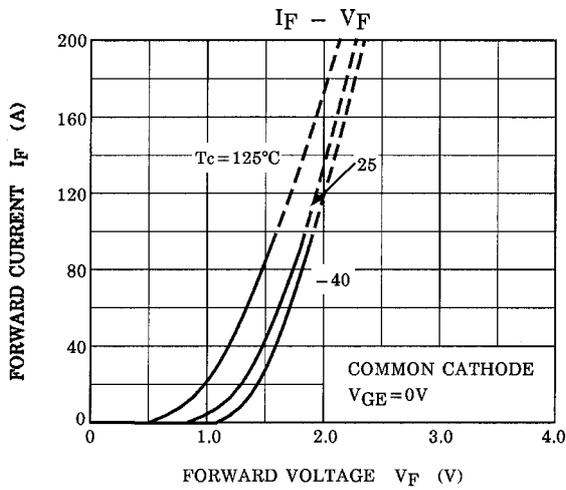
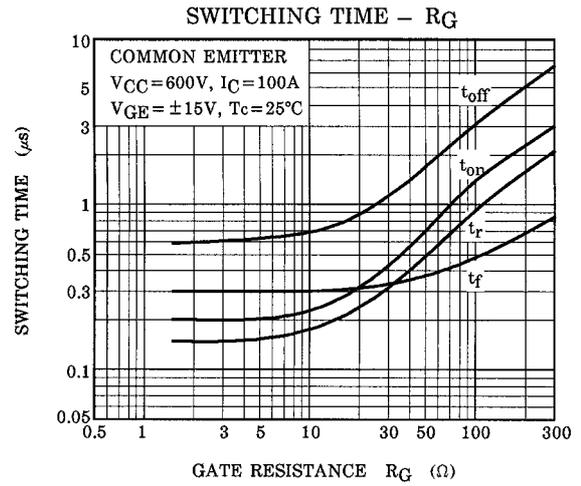
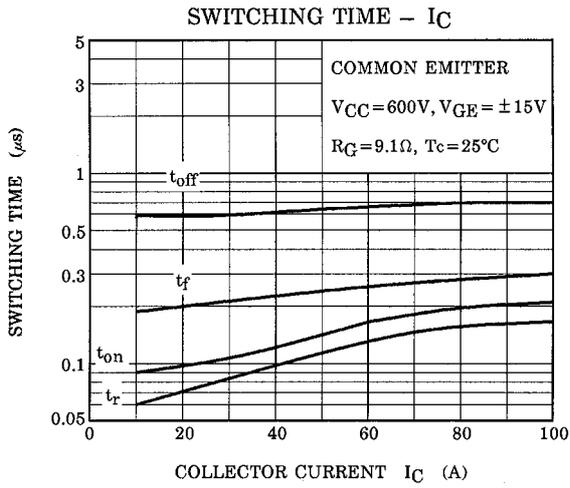
Maximum Ratings (Ta = 25°C)

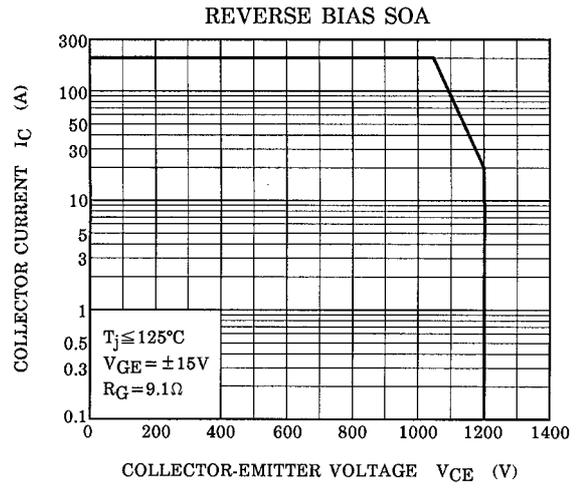
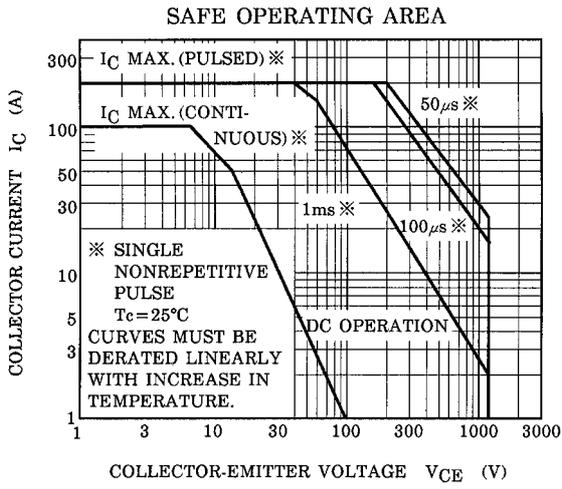
| Characteristic | Symbol | Rating | Unit |
|---|------------|------------------|------|
| Collector-emitter voltage | V_{CES} | 1200 | V |
| Gate-emitter voltage | V_{GES} | ±20 | V |
| Collector current | DC | I_C | 100 |
| | 1ms | I_{CP} | 200 |
| Forward current | DC | I_F | 100 |
| | 1ms | I_{FM} | 200 |
| Collector power dissipation (Tc = 25°C) | P_C | 670 | W |
| Junction temperature | T_j | 150 | °C |
| Storage temperature range | T_{stg} | -40 ~ 125 | °C |
| Isolation voltage | V_{Isol} | 2500 (AC 1 min.) | V |
| Screw torque (Terminal / mounting) | — | 3 / 3 | N·m |

Electrical Characteristics (Ta = 25°C)

| Characteristic | | Symbol | Test Condition | Min | Typ. | Max | Unit |
|--------------------------------------|---------------|----------------|--|-----|-------|----------|-----------------|
| Gate leakage current | | I_{GES} | $V_{GE} = \pm 20V, V_{CE} = 0$ | — | — | ± 10 | μA |
| Collector cut-off current | | I_{CES} | $V_{CE} = 1200V, V_{GE} = 0$ | — | — | 1.0 | mA |
| Gate-emitter cut-off voltage | | $V_{GE (off)}$ | $I_C = 100mA, V_{CE} = 5V$ | 3.0 | — | 6.0 | V |
| Collector-emitter saturation voltage | | $V_{CE (sat)}$ | $I_C = 100A, V_{GE} = 15V$ | — | 3.0 | 4.0 | V |
| Input capacitance | | C_{ies} | $V_{CE} = 10V, V_{GE} = 0, f = 1MHz$ | — | 12000 | — | 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 | | — | 0.2 | 0.5 | |
| | Turn-off time | t_{off} | | — | 0.8 | 1.5 | |
| Forward voltage | | V_F | $I_F = 100A, V_{GE} = 0$ | — | 2.0 | 3.0 | V |
| Reverse recovery time | | t_{rr} | $I_F = 100A, V_{GE} = -10V$ $di / dt = 200A / \mu s$ | — | 0.25 | 0.5 | μs |
| Thermal resistance | | $R_{th (j-c)}$ | Transistor | — | — | 0.19 | $^{\circ}C / W$ |
| | | | Diode | — | — | 0.5 | |







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