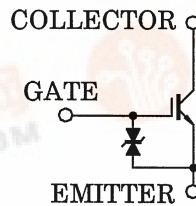


TOSHIBA INSULATED GATE BIPOLAR TRANSISTOR SILICON N CHANNEL IGBT

GT8G103

STROBE FLASH APPLICATIONS

- 3rd Generation
- Enhancement-Mode
- Low Saturation Voltage: $V_{CE(sat)} = 8\text{ V (Max.)}$ (@ $I_C = 150\text{ A}$)
- 4.5 V Gate Drive



Unit: mm

ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

| CHARACTERISTIC | SYMBOL | RATING | UNIT |
|-----------------------------|--------------------------|----------------|------------------|
| Collector-Emitter Voltage | V_{CES} | 400 | V |
| Gate-Emitter Voltage | DC | V_{GES} | ± 6 V |
| | Pulse | V_{GES} | ± 8 V |
| Collector Current | DC | I_C | 8 A |
| | 1 ms | I_{CP} | 150 A |
| Collector Power Dissipation | $T_a = 25^\circ\text{C}$ | P_C | 1.3 W |
| | $T_c = 25^\circ\text{C}$ | P_C | 20 W |
| Junction Temperature | T_j | 150 | $^\circ\text{C}$ |
| Storage Temperature Range | T_{stg} | $-55 \sim 150$ | $^\circ\text{C}$ |

Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings.

Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/Derating Concept and Methods) and individual reliability data (i.e. reliability test report and estimated failure rate, etc.).

| | | |
|-------------------------------|--|---|
| (A) | | |
| (B) | | |
| JEDEC | | — |
| JEITA | | — |
| TOSHIBA (A) 2-7B5C (B) 2-7B6C | | |

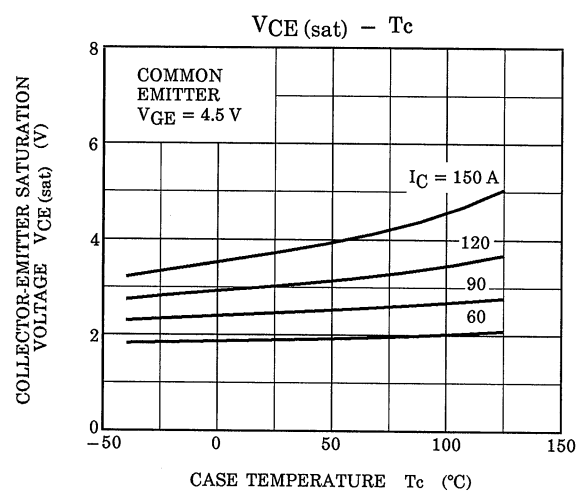
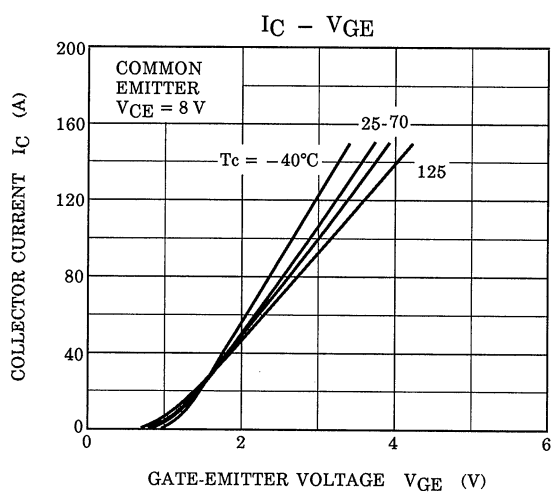
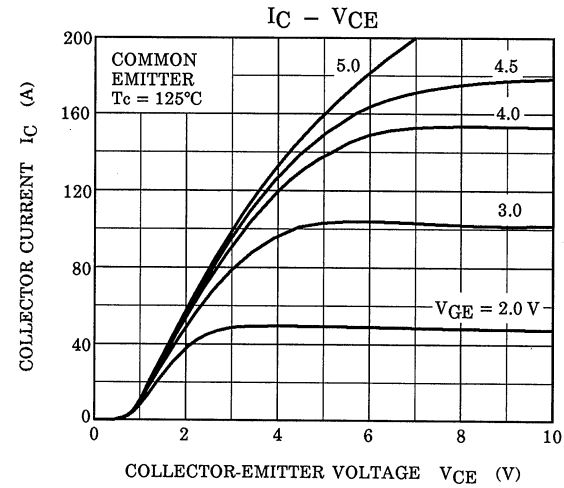
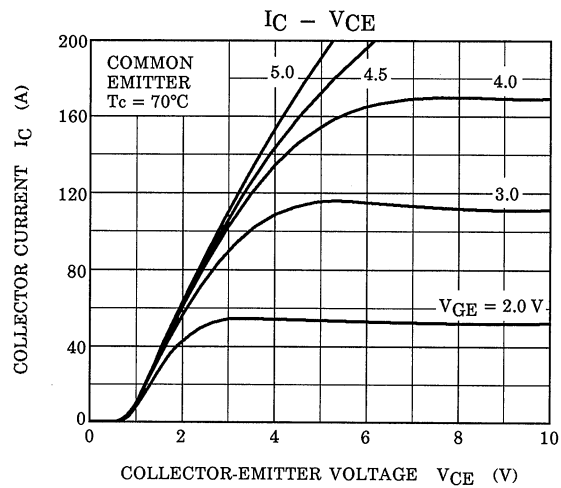
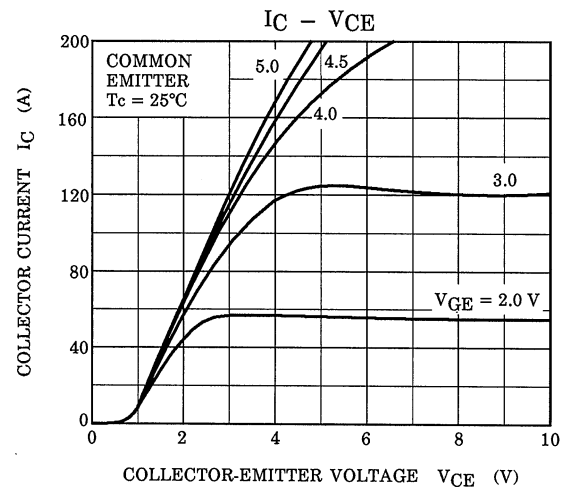
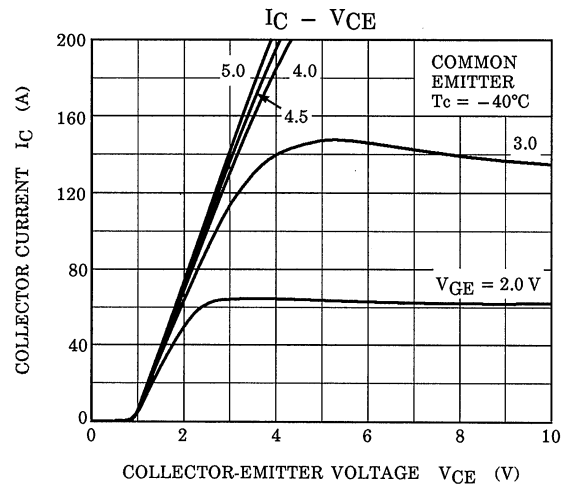
Weight: 0.36 g (typ.)

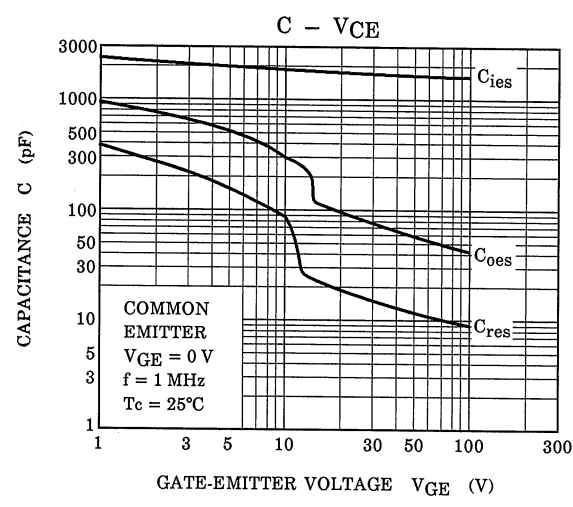
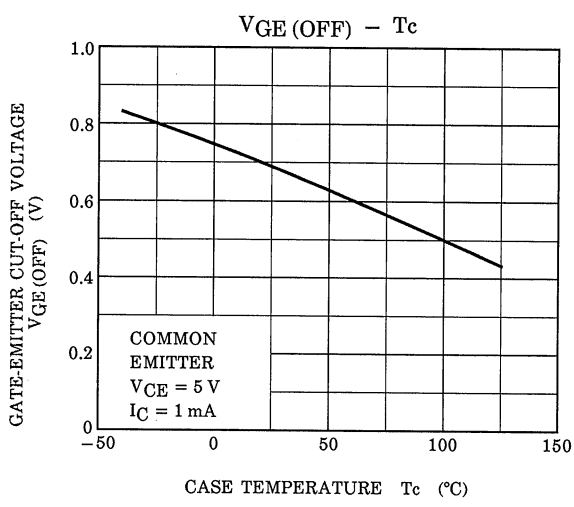
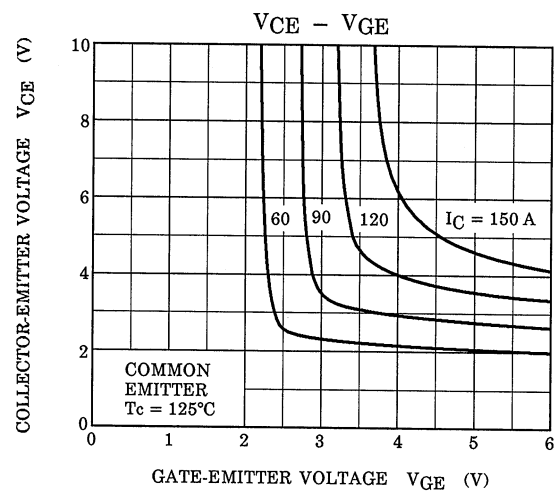
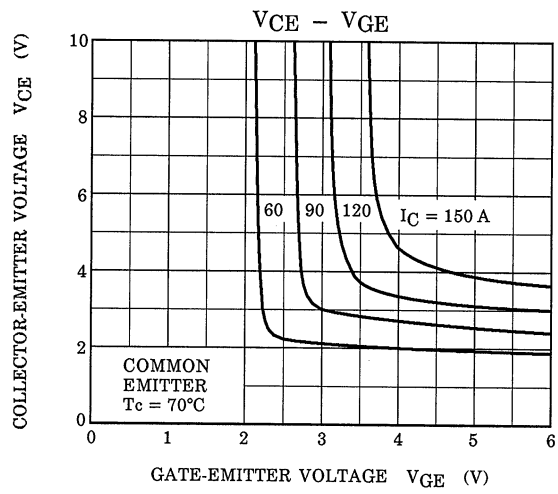
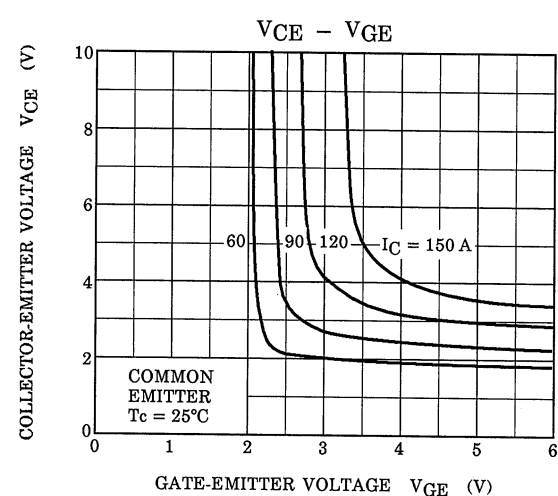
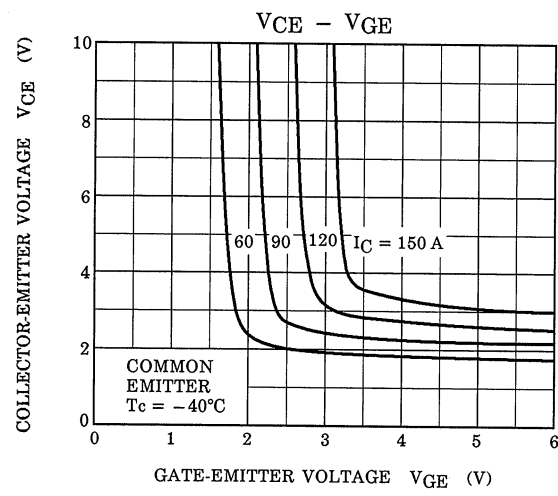
ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

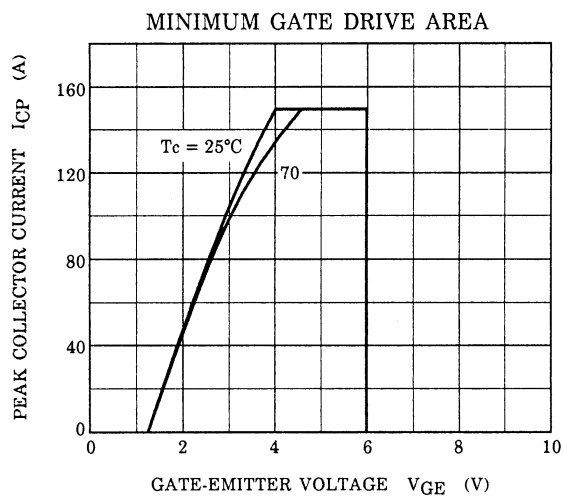
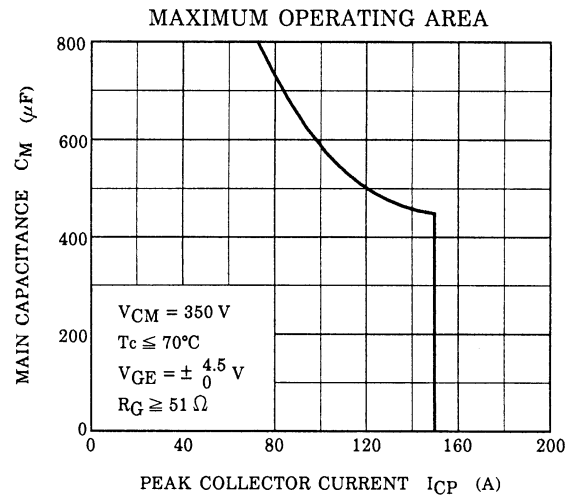
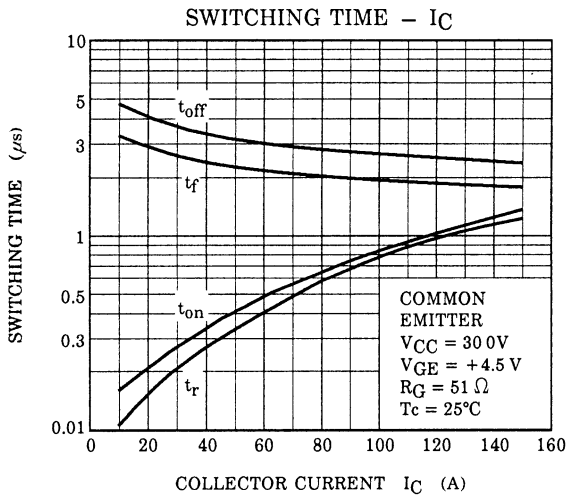
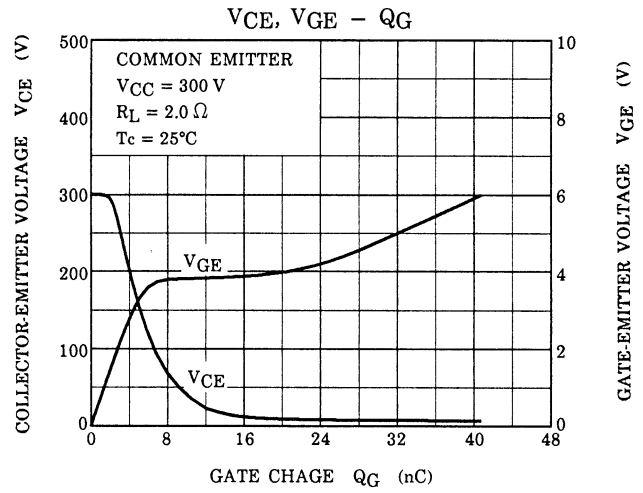
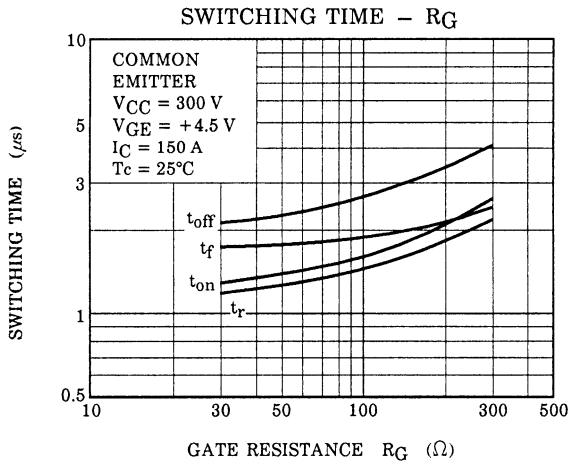
| CHARACTERISTIC | SYMBOL | TEST CONDITION | MIN | TYP. | MAX | UNIT |
|--------------------------------------|---------------|--|-----|------|------|--------------------|
| Gate Leakage Current | I_{GES} | $V_{GE} = 6\text{ V}, V_{CE} = 0$ | — | — | 10 | μA |
| Collector Cut-off Current | I_{CES} | $V_{CE} = 400\text{ V}, V_{GE} = 0$ | — | — | 10 | μA |
| Gate-Emitter Cut-off Voltage | $V_{GE(OFF)}$ | $I_C = 1\text{ mA}, V_{CE} = 5\text{ V}$ | 0.5 | — | 1.2 | V |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C = 150\text{ A}, V_{GE} = 4.5\text{ V (Pulsed)}$ | — | 5 | 8 | V |
| Input Capacitance | C_{ies} | $V_{CE} = 10\text{ V}, V_{GE} = 0, f = 1\text{ MHz}$ | — | 1900 | — | pF |
| Switching Time | Rise Time | | — | 1.2 | — | μs |
| | Turn-on Time | | — | 1.4 | — | |
| | Fall Time | | — | 1.8 | — | |
| | Turn-off Time | | — | 2.4 | — | |
| Thermal Resistance | $R_{th(j-c)}$ | — | — | — | 6.25 | $^\circ\text{C/W}$ |

These devices are MOS type. Users should follow proper ESD Handling Procedures.

Operating condition of turn-off dv/dt should be lower than $400\text{ V}/\mu\text{s}$.







RESTRICTIONS ON PRODUCT USE

20070701-EN

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