

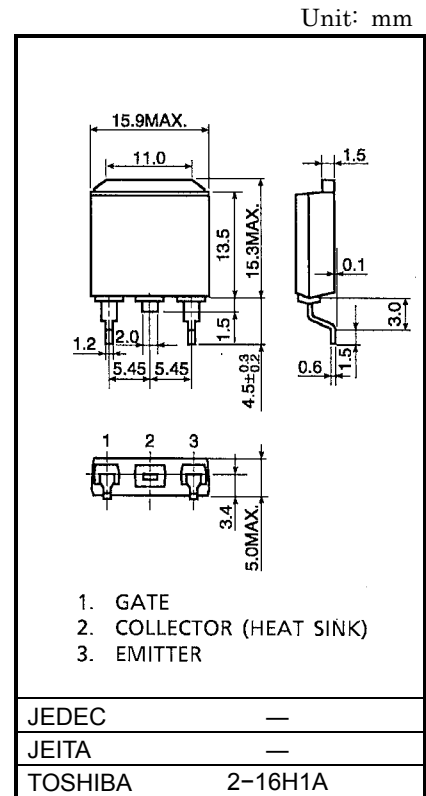
GT10J311

HIGH POWER SWITCHING APPLICATIONS
MOTOR CONTROL APPLICATIONS

- The 3rd Generation
- Enhancement-Mode
- High Speed : $t_f = 0.30\mu s$ (Max.)
- Low Saturation Voltage : $V_{CE(sat)} = 2.7V$ (Max.)
- FRD included between Emitter and Collector

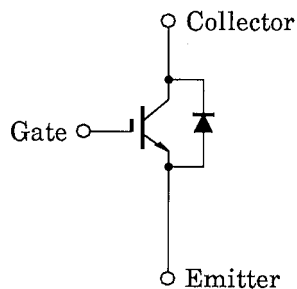
MAXIMUM RATINGS (Ta = 25°C)

| CHARACTERISTIC | SYMBOL | RATING | UNIT |
|---|-----------|----------|------|
| Collector-Emitter Voltage | V_{CES} | 600 | V |
| Gate-Emitter Voltage | V_{GES} | ± 20 | V |
| Collector Current | DC | I_C | 10 A |
| | 1ms | I_{CP} | 20 A |
| Emitter-Collector Forward Current | DC | I_F | 10 A |
| | 1ms | I_{FM} | 20 A |
| Collector Power Dissipation (Tc = 25°C) | P_C | 80 | W |
| Junction Temperature | T_j | 150 | °C |
| Storage Temperature Range | T_{stg} | -55~150 | °C |



Weight: 3.65g

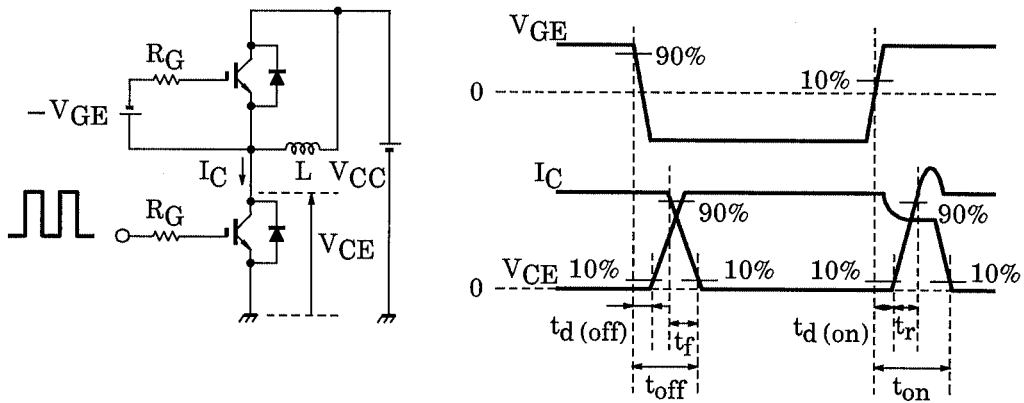
EQUIVALENT CIRCUIT



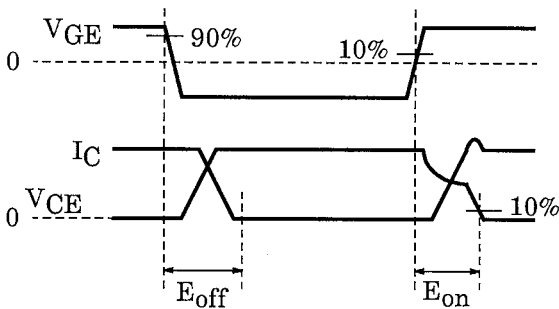
ELECTRICAL CHARACTERISTICS (Ta = 25°C)

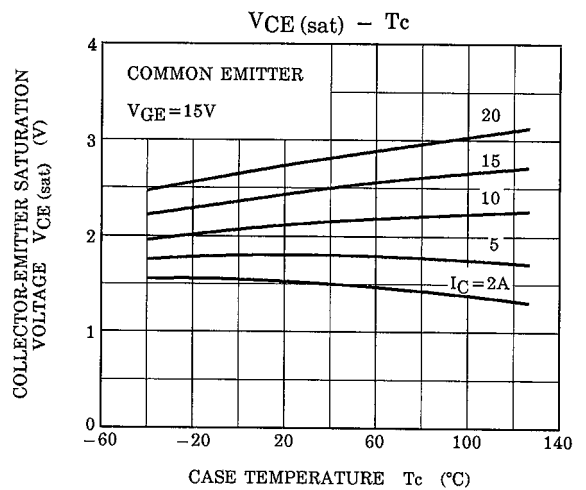
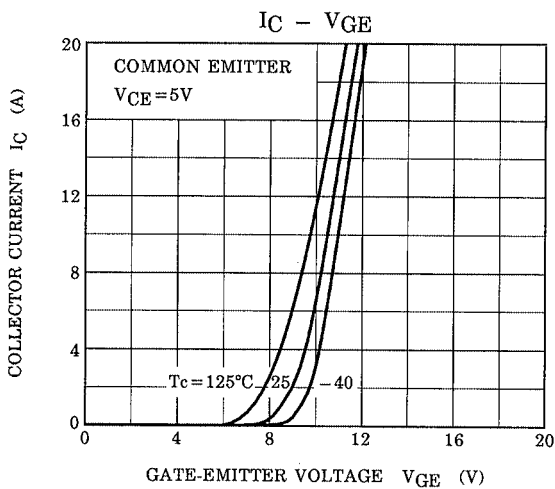
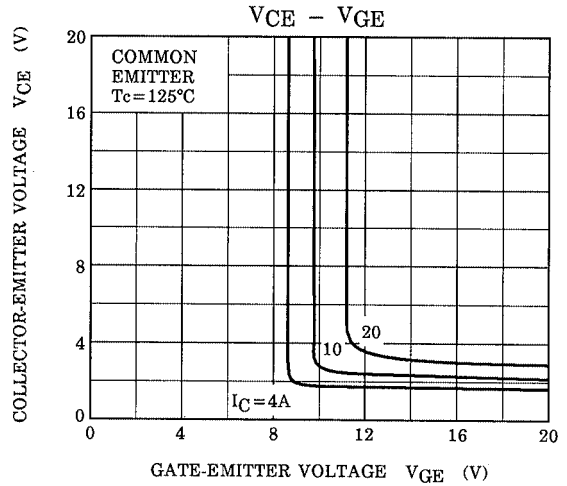
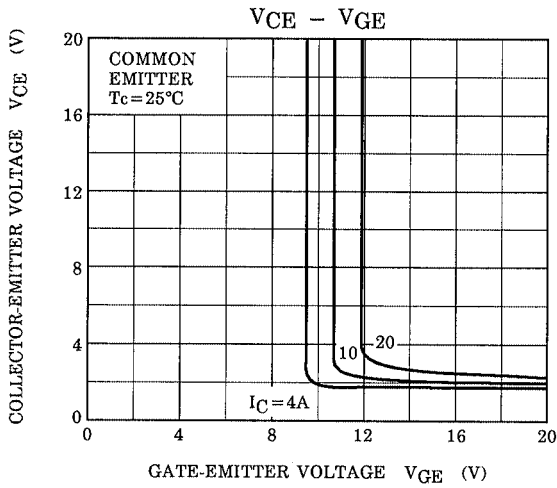
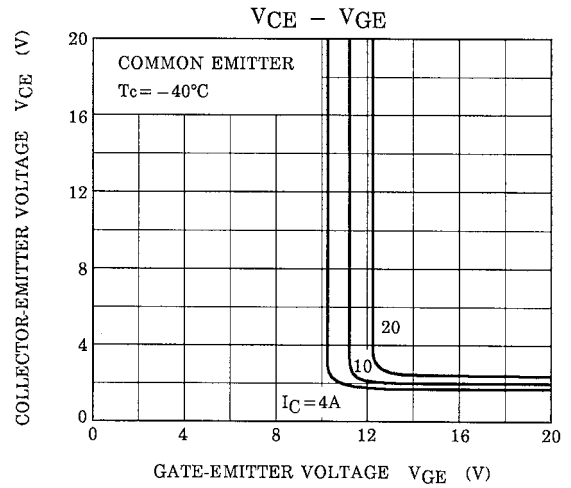
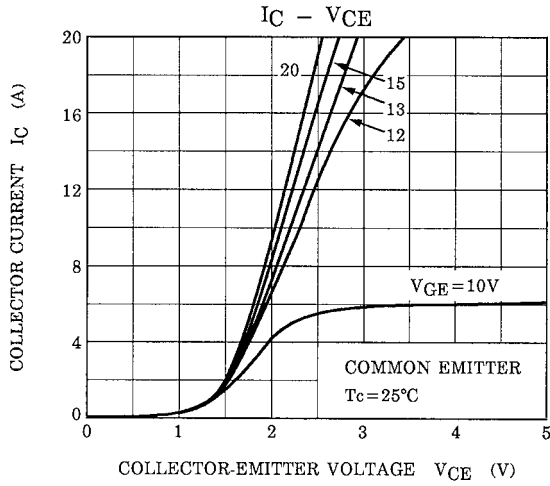
| CHARACTERISTIC | | SYMBOL | TEST CONDITION | MIN | TYP. | MAX | UNIT |
|--------------------------------------|---------------|----------------|---|-----|------|------|---------|
| Gate Leakage Current | | I_{GES} | $V_{GE} = \pm 20V, V_{CE} = 0$ | — | — | 500 | nA |
| Collector Cut-Off Current | | I_{CES} | $V_{CE} = 600V, V_{GE} = 0$ | — | — | 1.0 | mA |
| Gate-Emitter Cut-Off Voltage | | $V_{GE (OFF)}$ | $I_C = 1mA, V_{CE} = 5V$ | 5.0 | — | 8.0 | V |
| Collector-Emitter Saturation Voltage | | $V_{CE (sat)}$ | $I_C = 10A, V_{GE} = 15V$ | — | 2.1 | 2.7 | V |
| Input Capacitance | | C_{ies} | $V_{CE} = 20V, V_{GE} = 0, f = 1MHz$ | — | 720 | — | pF |
| Switching Time | Rise Time | t_r | Inductive Load $V_{CC} = 300V, I_C = 10A$ $V_{GG} = \pm 15V, R_G = 100\Omega$ (Note) | — | 0.12 | — | μs |
| | Turn-On Time | t_{on} | | — | 0.40 | — | |
| | Fall Time | t_f | | — | 0.15 | 0.30 | |
| | Turn-Off Time | t_{off} | | — | 0.50 | — | |
| Peak Forward Voltage | | V_F | $I_F = 10A, V_{GE} = 0$ | — | — | 2.0 | V |
| Reverse Recovery Time | | t_{rr} | $I_F = 10A, di / dt = -100A / \mu s$ | — | — | 200 | ns |
| Thermal Resistance (IGBT) | | $R_{th (j-c)}$ | — | — | — | 1.56 | °C / W |
| Thermal Resistance (Diode) | | $R_{th (j-c)}$ | — | — | — | 3.13 | °C / W |

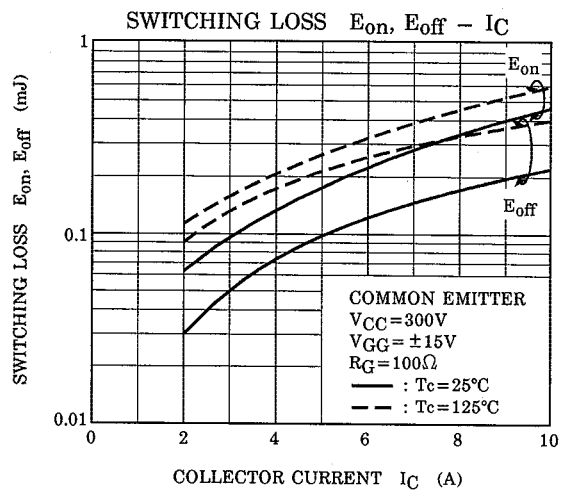
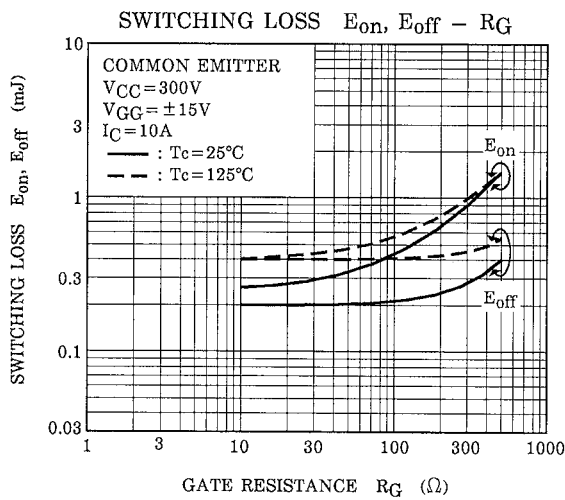
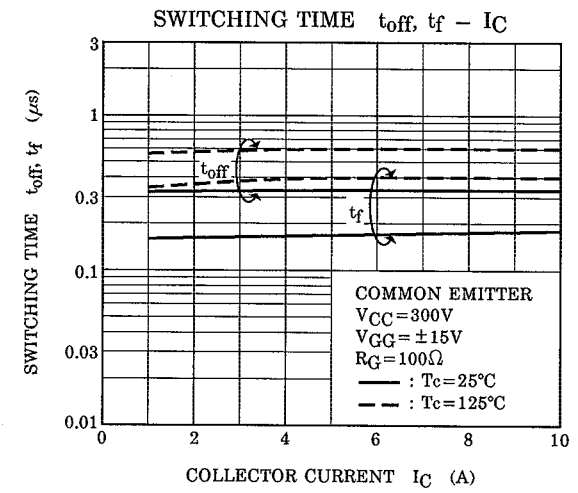
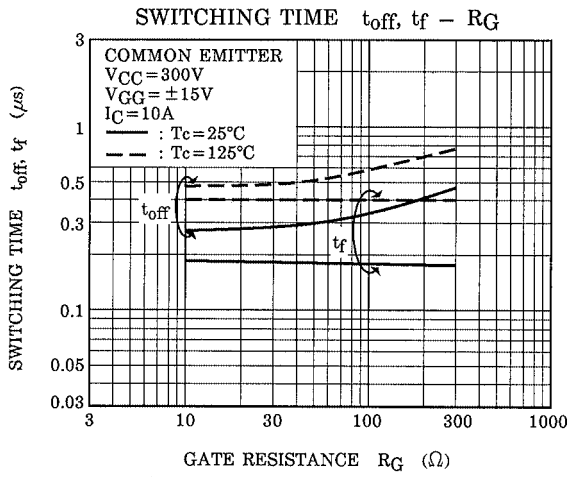
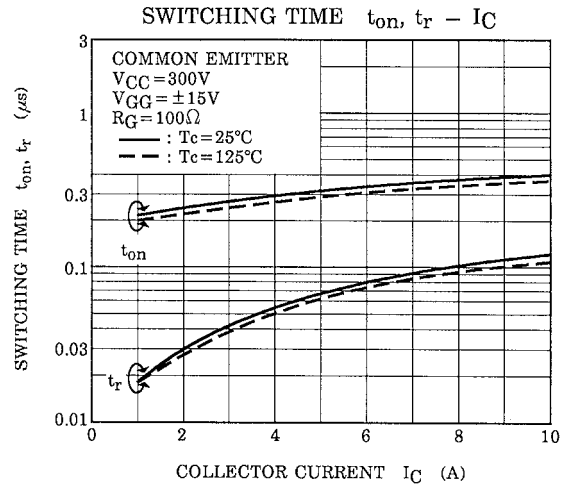
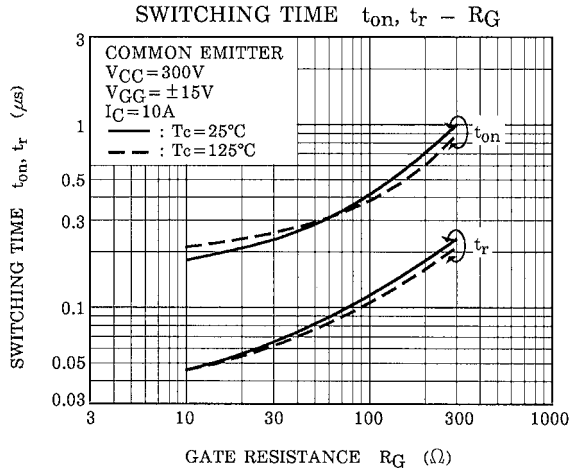
Note : Switching time measurement circuit and input / output waveforms

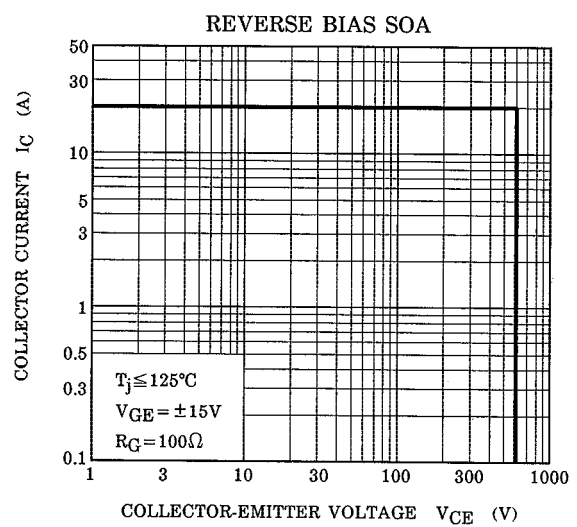
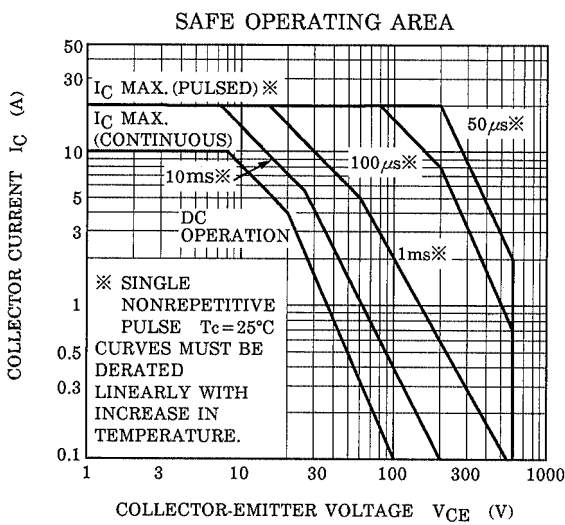
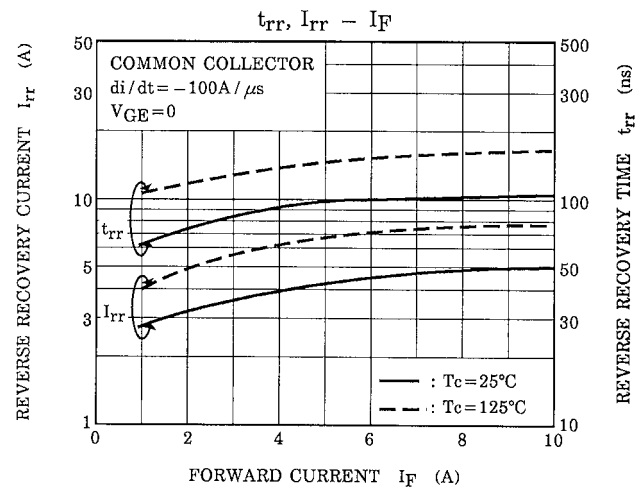
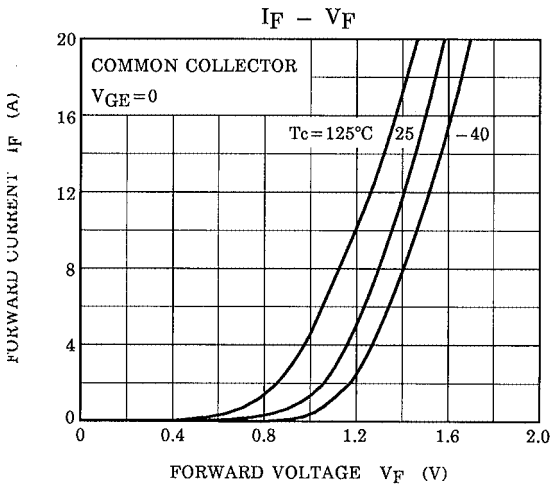
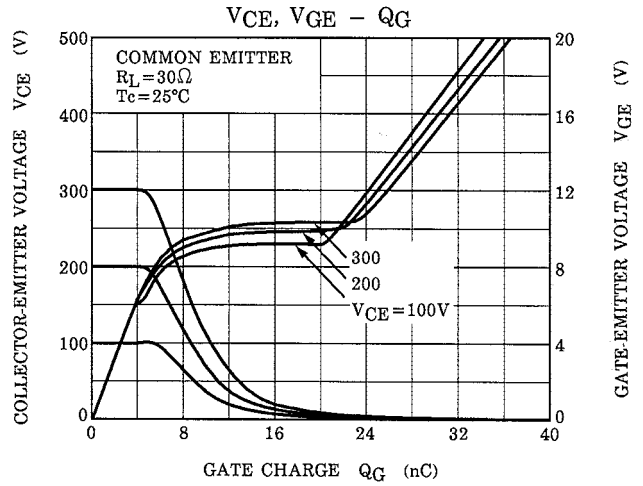
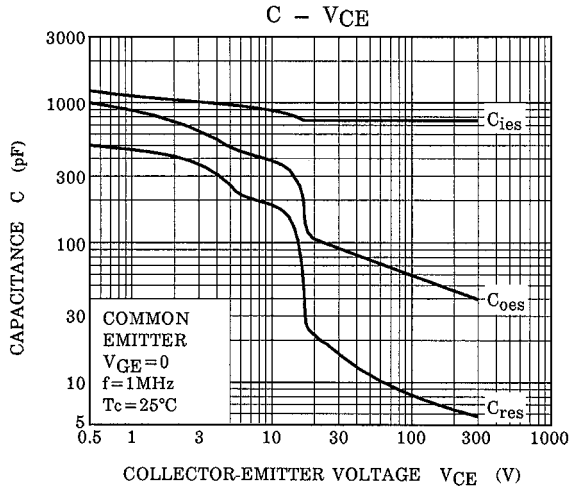


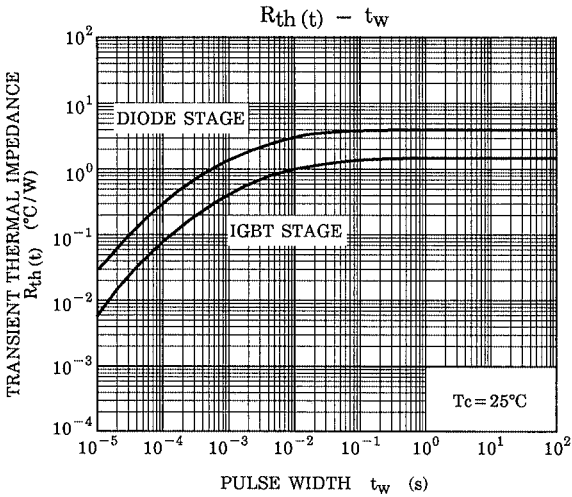
Switching loss measurement waveforms











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