

TOSHIBA TRANSISTOR SILICON PNP EPITAXIAL TYPE (PCT PROCESS)

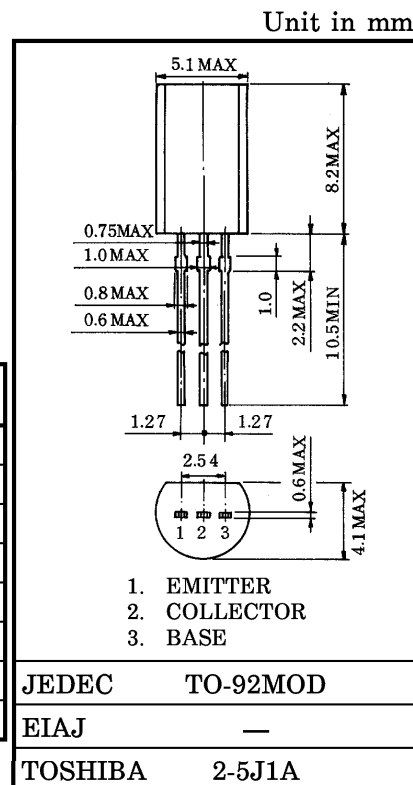
2SA1680

POWER AMPLIFIER APPLICATIONS.
POWER SWITCHING APPLICATIONS.

- Low Collector Saturation Voltage
: $V_{CE(sat)} = -0.5V$ (Max.) ($I_C = -1A$)
- High Collector Power Dissipation : $P_C = 900mW$ ($T_a = 25^\circ C$)
- High Speed Switching Time : $t_{stg} = 300ns$ (Typ.)
- Complementary to 2SC4408.

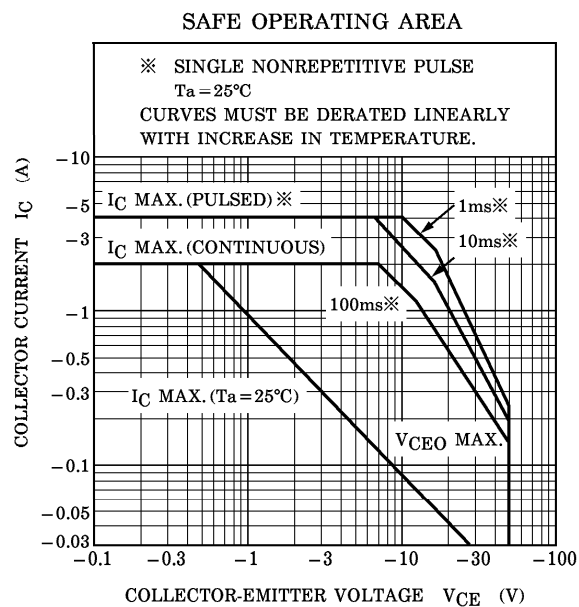
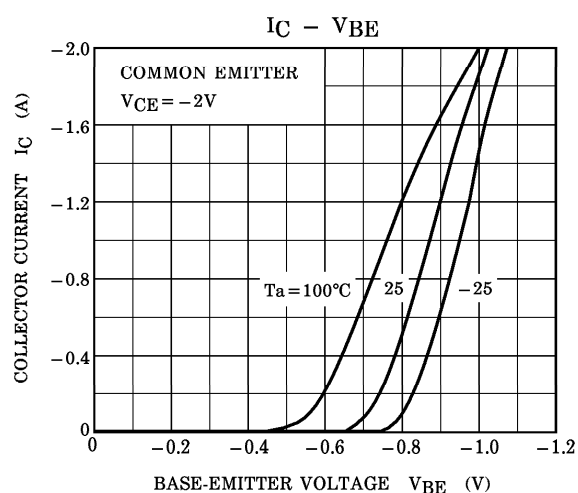
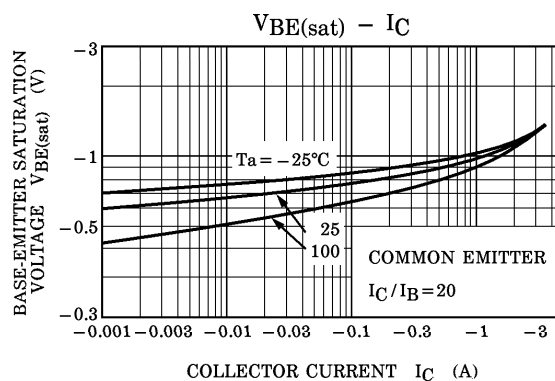
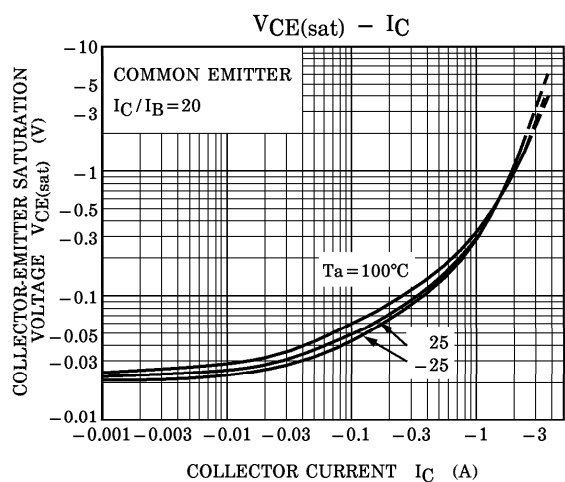
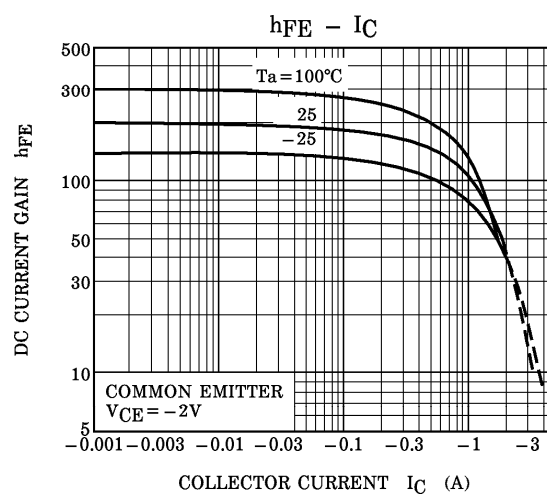
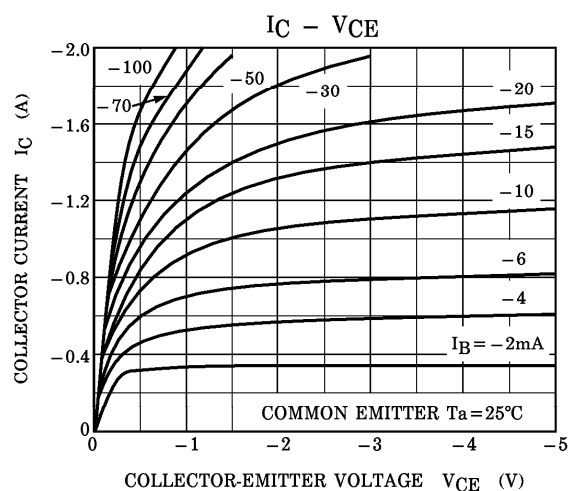
MAXIMUM RATINGS ($T_a = 25^\circ C$)

| CHARACTERISTIC | SYMBOL | RATING | UNIT |
|-----------------------------|-----------|---------|------------|
| Collector-Base Voltage | V_{CBO} | -60 | V |
| Collector-Emitter Voltage | V_{CEO} | -50 | V |
| Emitter-Base Voltage | V_{EBO} | -6 | V |
| Collector Current | I_C | -2 | A |
| Base Current | I_B | -0.2 | A |
| Collector Power Dissipation | P_C | 900 | mW |
| Junction Temperature | T_j | 150 | $^\circ C$ |
| Storage Temperature Range | T_{stg} | -55~150 | $^\circ C$ |

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

Weight : 0.36g

| CHARACTERISTIC | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT |
|--------------------------------------|---------------|------------------------------------|------|------|------|---------|
| Collector Cut-off Current | I_{CBO} | $V_{CB} = -60V, I_E = 0$ | — | — | -1.0 | μA |
| Emitter Cut-off Current | I_{EBO} | $V_{EB} = -6V, I_C = 0$ | — | — | -1.0 | μA |
| Collector-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C = -10mA, I_B = 0$ | -50 | — | — | V |
| DC Current Gain | $h_{FE(1)}$ | $V_{CE} = -2V, I_C = -100mA$ | 120 | — | 400 | |
| | $h_{FE(2)}$ | $V_{CE} = -2V, I_C = -1.5A$ | 40 | — | — | |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C = -1A, I_B = -0.05A$ | — | — | -0.5 | V |
| Base-Emitter Saturation Voltage | $V_{BE(sat)}$ | $I_C = -1A, I_B = -0.05A$ | — | — | -1.2 | V |
| Transition Frequency | f_T | $V_{CE} = -2V, I_C = -100mA$ | — | 100 | — | MHz |
| Collector Output Capacitance | C_{ob} | $V_{CB} = -10V, I_E = 0, f = 1MHz$ | — | 23 | — | pF |
| Switching Time | Turn-on Time | t_{on} | | | — | μs |
| | Storage Time | t_{stg} | | | — | |
| | Fall Time | t_f | | | — | |



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