

TOSHIBA TRANSISTOR SILICON NPN EPITAXIAL TYPE (PCT PROCESS)

2SC3709A

HIGH CURRENT SWITCHING APPLICATIONS

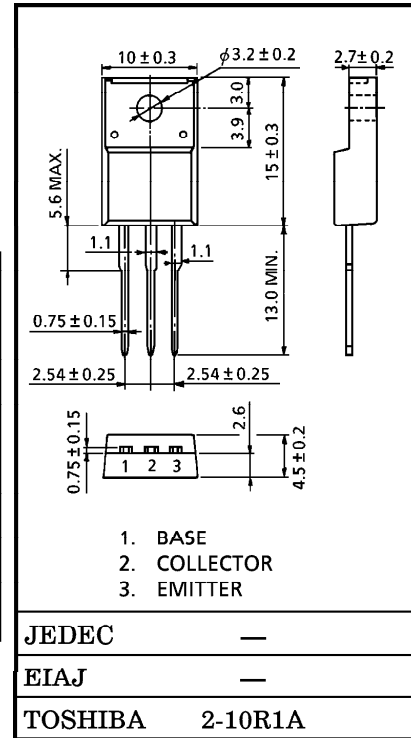
INDUSTRIAL APPLICATIONS

Unit in mm

- Low Collector Saturation Voltage : $V_{CE(sat)} = 0.4V$ (Max.)
- High Speed Switching Time : $t_{stg} = 1.0\mu s$ (Typ.)
- Complementary to 2SA1451A

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

| CHARACTERISTIC | SYMBOL | RATING | UNIT |
|---|-----------|---------|------------|
| Collector-Base Voltage | V_{CB0} | 60 | V |
| Collector-Emitter Voltage | V_{CE0} | 50 | V |
| Emitter-Base Voltage | V_{EB0} | 6 | V |
| Collector Current | I_C | 12 | A |
| Base Current | I_B | 2 | A |
| Collector Power Dissipation ($T_c = 25^\circ C$) | P_C | 30 | W |
| Junction Temperature | T_j | 150 | $^\circ C$ |
| Storage Temperature Range | T_{stg} | -55~150 | $^\circ C$ |



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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

| CHARACTERISTIC | SYMBOL | TEST CONDITION | MIN. | TYP. | MAX. | UNIT | |
|--------------------------------------|-----------------------|-----------------------------------|------|--|------|---------|---------|
| Collector Cut-off Current | I_{CBO} | $V_{CB} = 60V, I_E = 0$ | — | — | 10 | μA | |
| Emitter Cut-off Current | I_{EBO} | $V_{EB} = 6V, I_C = 0$ | — | — | 10 | μA | |
| Collector-Emitter Breakdown Voltage | $V_{(BR) CEO}$ | $I_C = 50mA, I_B = 0$ | 50 | — | — | V | |
| DC Current Gain | $h_{FE(1)}$ (Note) | $V_{CE} = 1V, I_C = 1A$ | 70 | — | 240 | | |
| | $h_{FE(2)}$ | $V_{CE} = 1V, I_C = 6A$ | 40 | — | — | | |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C = 6A, I_B = 0.3A$ | — | 0.25 | 0.4 | V | |
| Base-Emitter Saturation Voltage | $V_{BE(sat)}$ | $I_C = 6A, I_B = 0.3A$ | — | 0.9 | 1.2 | V | |
| Transition Frequency | f_T | $V_{CE} = 5V, I_C = 1A$ | — | 90 | — | MHz | |
| Collector Output Capacitance | C_{ob} | $V_{CB} = 10V, I_E = 0, f = 1MHz$ | — | 180 | — | pF | |
| Switching Time | Turn-on Time | t_{on} | | — | 0.2 | — | μs |
| | Storage Time | t_{stg} | | — | 1.0 | — | |
| | Fall Time | t_f | | $I_{B1} = -I_{B2} = 0.3A,$ $DUTY\ CYCLE \leq 1\%$ | — | 0.2 | |

(Note) $h_{FE(1)}$ Classification O : 70~140, Y : 120~240

