

TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT process)

2SC5376CT

General Purpose Amplifier Applications
Switching and Muting Switch Applications

- Low saturation voltage: $V_{CE(sat)}(1) = 15 \text{ mV (typ.)}$
@ $I_C = 10 \text{ mA}/I_B = 0.5 \text{ mA}$
- Large collector current: $I_C = 400 \text{ mA (max)}$

Absolute Maximum Ratings (Ta = 25°C)

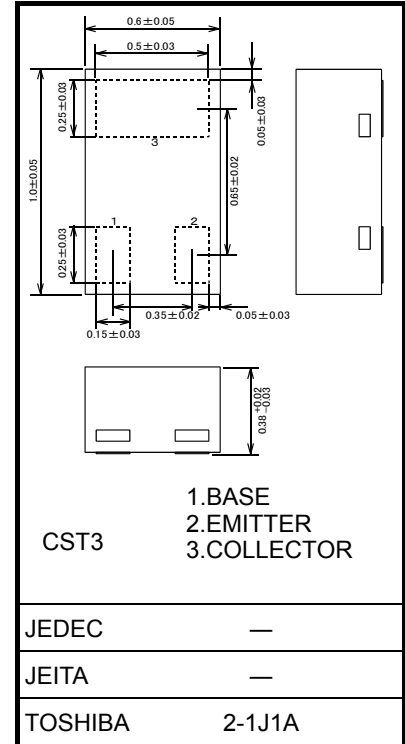
| Characteristics | Symbol | Rating | Unit |
|-----------------------------|---------------|------------|------|
| Collector-base voltage | V_{CBO} | 15 | V |
| Collector-emitter voltage | V_{CEO} | 12 | V |
| Emitter-base voltage | V_{EBO} | 5 | V |
| Collector current | I_C | 400 | mA |
| Base current | I_B | 50 | mA |
| Collector power dissipation | P_C (Note1) | 100 | mW |
| Junction temperature | T_j | 150 | °C |
| Storage temperature range | T_{stg} | -55 to 150 | °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).

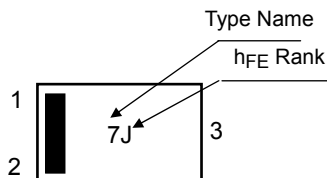
Note1 : Mounted on FR4 board (10 mm × 10 mm × 1 mm)

Unit: mm



Weight: 0.75 mg (typ.)

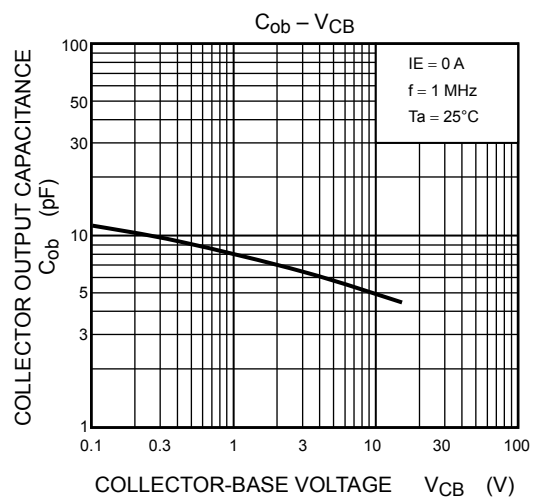
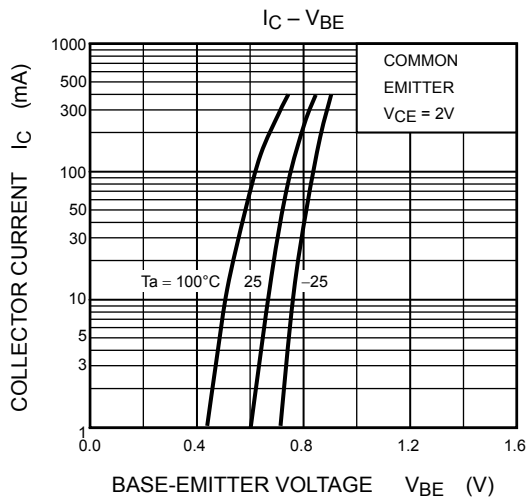
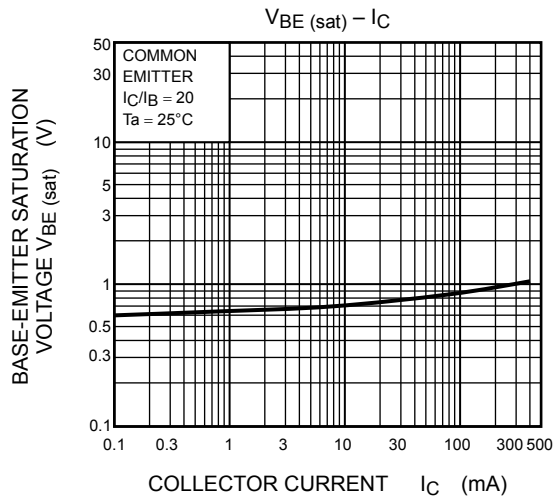
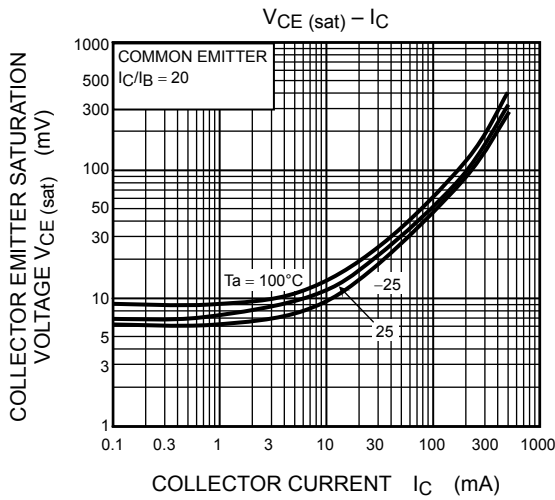
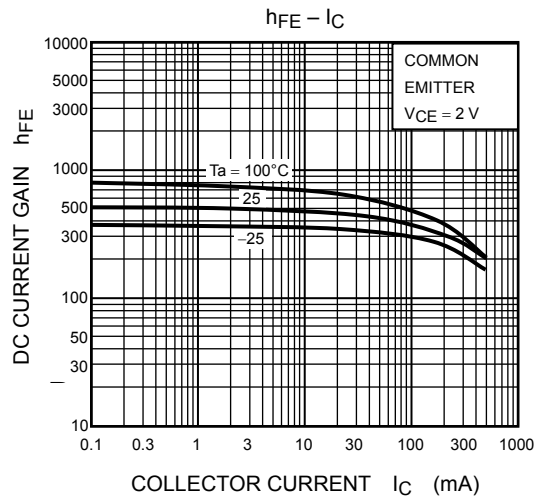
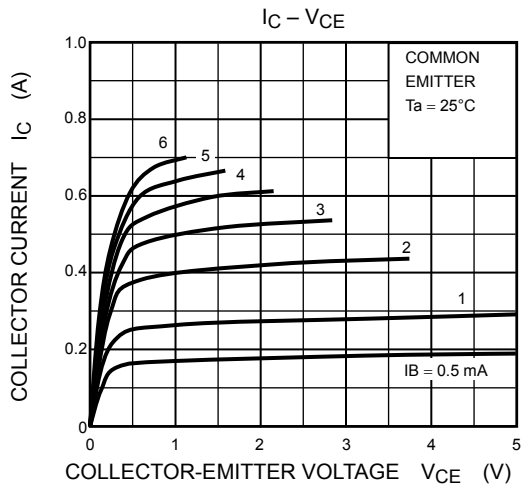
Marking

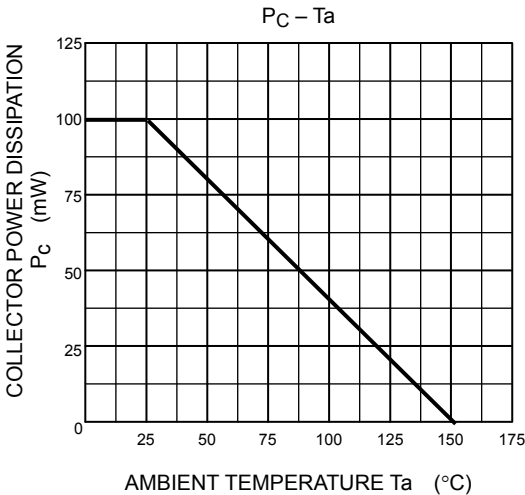


Electrical Characteristics (Ta = 25°C)

| Characteristics | | Symbol | Test Condition | Min | Typ. | Max | Unit |
|--------------------------------------|--------------|--------------------|--|-----|------|------|---------------|
| Collector cut-off current | | I_{CBO} | $V_{CB} = 15\text{ V}, I_E = 0$ | — | — | 0.1 | μA |
| Emitter cut-off current | | I_{EBO} | $V_{EB} = 5\text{ V}, I_C = 0$ | — | — | 0.1 | μA |
| DC current gain | | h_{FE} (Note) | $V_{CE} = 2\text{ V}, I_C = 10\text{ mA}$ | 300 | — | 1000 | |
| Collector-emitter saturation voltage | | $V_{CE(sat)}(1)$ | $I_C = 10\text{ mA}, I_B = 0.5\text{ mA}$ | — | 15 | 30 | mV |
| | | $V_{CE(sat)}(2)$ | $I_C = 200\text{ mA}, I_B = 10\text{ mA}$ | — | 101 | 250 | |
| Base-emitter saturation voltage | | $V_{BE(sat)}$ | $I_C = 200\text{ mA}, I_B = 10\text{ mA}$ | — | 0.88 | 1.2 | V |
| Transition frequency | | f_T | $V_{CE} = 2\text{ V}, I_C = 10\text{ mA}$ | 80 | 140 | — | MHz |
| Collector output capacitance | | C_{ob} | $V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$ | — | 3.5 | — | pF |
| Collector-emitter on resistance | | R_{on} | $I_B = 1\text{ mA}, V_{in} = 1\text{ V}_{rms}, f = 1\text{ kHz}$ | — | 1.1 | — | Ω |
| Switching time | Turn-on time | t_{on} | <p>Duty Cycle $\leq 2\%$ $I_{B1} = -I_{B2} = 5\text{ mA}$</p> | — | 70 | — | ns |
| | Storage time | t_{stg} | | — | 180 | — | |
| | Fall time | t_f | | — | 40 | — | |

Note: h_{FE} classification A(J): 300 to 600, B(K): 500 to 1000
 () Marking





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