

TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT Process)

# 2SC2705

## Audio Frequency Amplifier Applications

- Small collector output capacitance:  $C_{ob} = 1.8 \text{ pF}$  (typ.)
- High transition frequency:  $f_T = 200 \text{ MHz}$  (typ.)
- Complementary to 2SA1145.

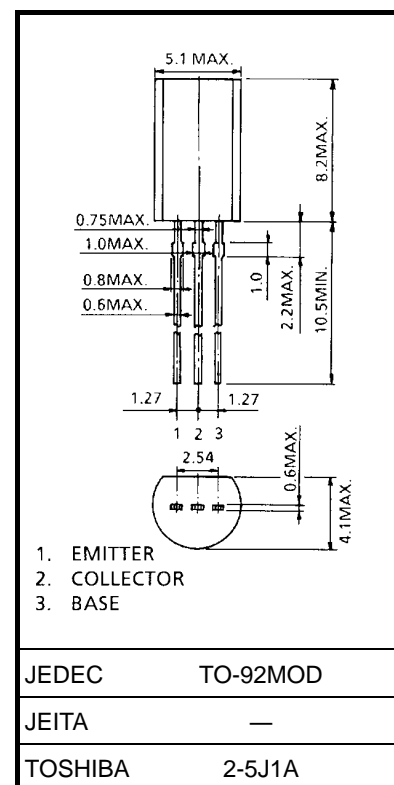
### Absolute Maximum Ratings (Ta = 25°C)

| Characteristics             | Symbol    | Rating     | Unit |
|-----------------------------|-----------|------------|------|
| Collector-base voltage      | $V_{CBO}$ | 150        | V    |
| Collector-emitter voltage   | $V_{CEO}$ | 150        | V    |
| Emitter-base voltage        | $V_{EBO}$ | 5          | V    |
| Collector current           | $I_C$     | 50         | mA   |
| Base current                | $I_B$     | 5          | mA   |
| Collector power dissipation | $P_C$     | 800        | 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).

Unit: mm



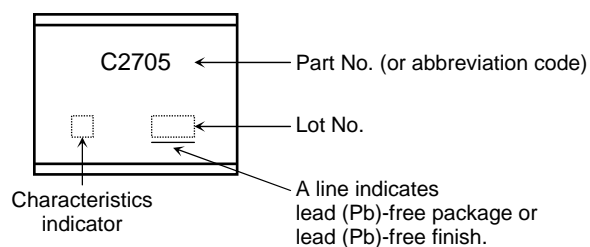
Weight: 0.36 g (typ.)

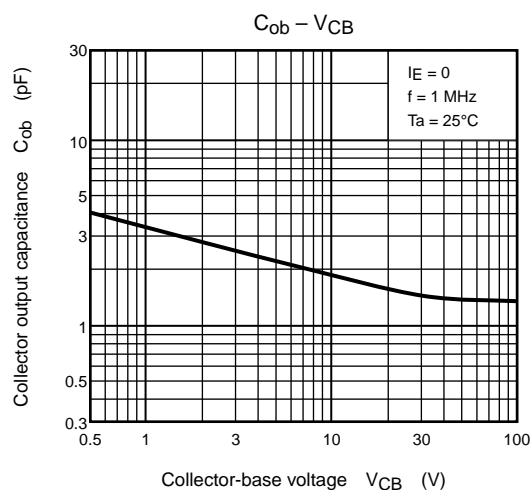
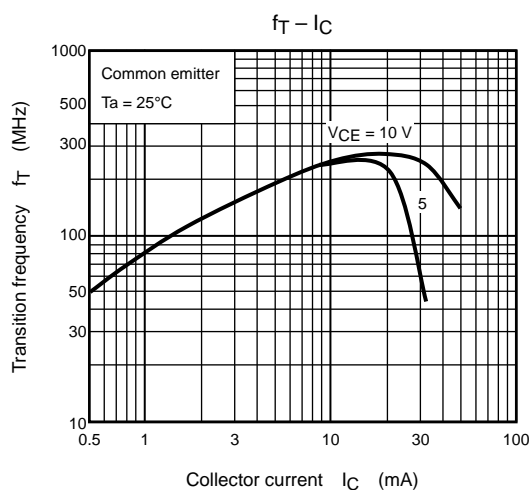
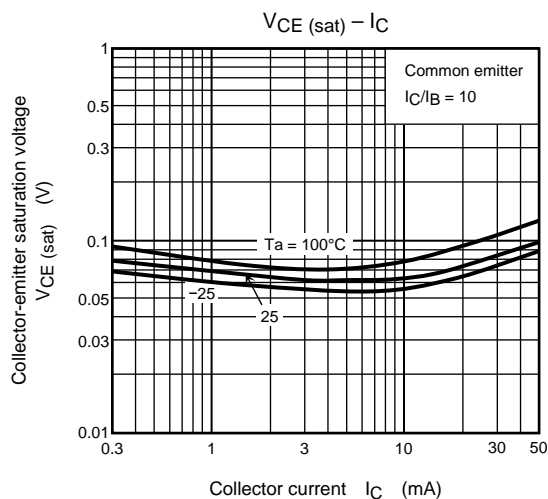
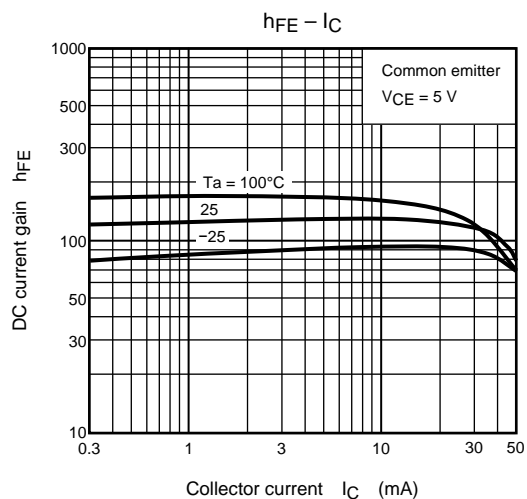
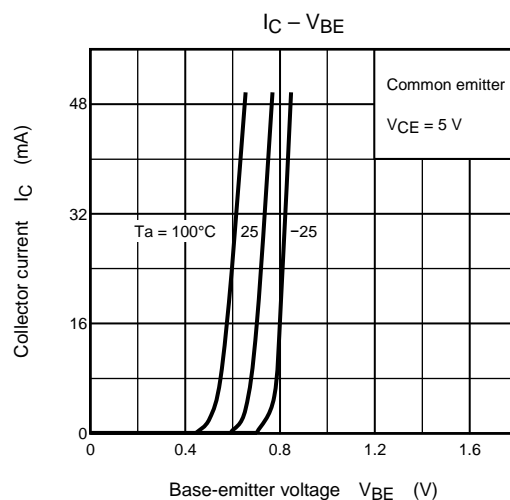
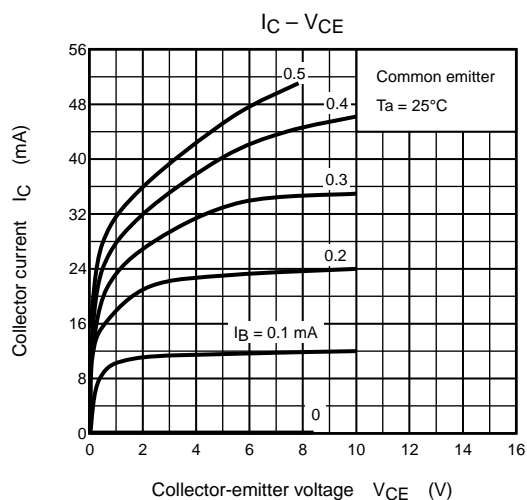
## Electrical Characteristics (Ta = 25°C)

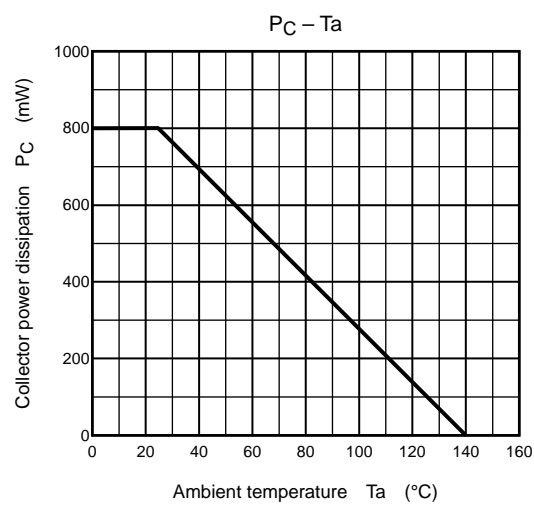
| Characteristics                      | Symbol             | Test Condition                                    | Min | Typ. | Max | Unit          |
|--------------------------------------|--------------------|---------------------------------------------------|-----|------|-----|---------------|
| Collector cut-off current            | $I_{CBO}$          | $V_{CB} = 150\text{ V}, I_E = 0$                  | —   | —    | 0.1 | $\mu\text{A}$ |
| Emitter cut-off current              | $I_{EBO}$          | $V_{EB} = 5\text{ V}, I_C = 0$                    | —   | —    | 0.1 | $\mu\text{A}$ |
| Collector-emitter breakdown voltage  | $V_{(BR) CEO}$     | $I_C = 1\text{ mA}, I_B = 0$                      | 150 | —    | —   | V             |
| DC current gain                      | $h_{FE}$<br>(Note) | $V_{CE} = 5\text{ V}, I_C = 10\text{ mA}$         | 80  | —    | 240 |               |
| Collector-emitter saturation voltage | $V_{CE(sat)}$      | $I_C = 10\text{ mA}, I_B = 1\text{ mA}$           | —   | —    | 1.0 | V             |
| Base-emitter voltage                 | $V_{BE(sat)}$      | $V_{CE} = 5\text{ V}, I_C = 10\text{ mA}$         | —   | —    | 0.8 | V             |
| Transition frequency                 | $f_T$              | $V_{CE} = 5\text{ V}, I_C = 10\text{ mA}$         | —   | 200  | —   | MHz           |
| Collector output capacitance         | $C_{ob}$           | $V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$ | —   | 1.8  | —   | pF            |

Note:  $h_{FE}$  classification O: 80 to 160, Y: 120 to 240

## Marking







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