

TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT process)

# 2SC3325

Audio Frequency Low Power Amplifier Applications

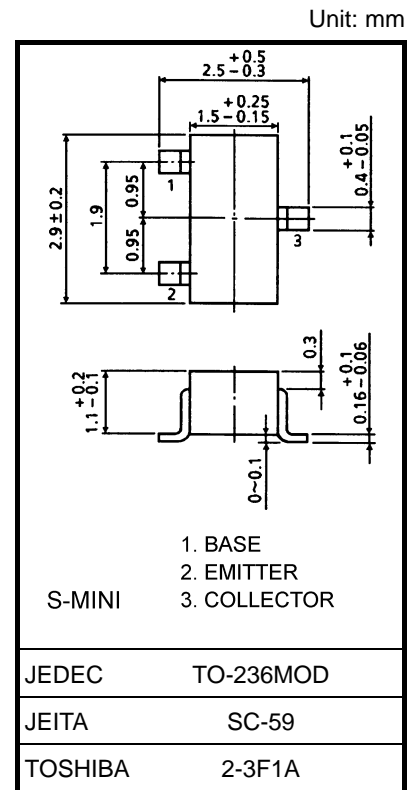
Driver Stage Amplifier Applications

Switching Applications

- Excellent hFE linearity:  $h_{FE}(2) = 25$  (min) ( $V_{CE} = 6$  V,  $I_C = 400$  mA)
- High voltage:  $V_{CEO} = 50$  V (min)
- Complementary to 2SA1313
- Small package

### Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

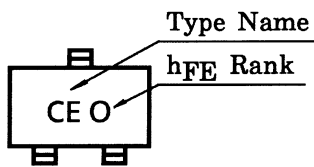
| Characteristics             | Symbol    | Rating  | Unit             |
|-----------------------------|-----------|---------|------------------|
| Collector-base voltage      | $V_{CBO}$ | 50      | V                |
| Collector-emitter voltage   | $V_{CEO}$ | 50      | V                |
| Emitter-base voltage        | $V_{EBO}$ | 5       | V                |
| Collector current           | $I_C$     | 500     | mA               |
| Base current                | $I_B$     | 50      | mA               |
| Collector power dissipation | $P_C$     | 200     | mW               |
| Junction temperature        | $T_j$     | 150     | $^\circ\text{C}$ |
| Storage temperature range   | $T_{stg}$ | -55-150 | $^\circ\text{C}$ |



Weight: 0.012 g (typ.)

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).

### Marking

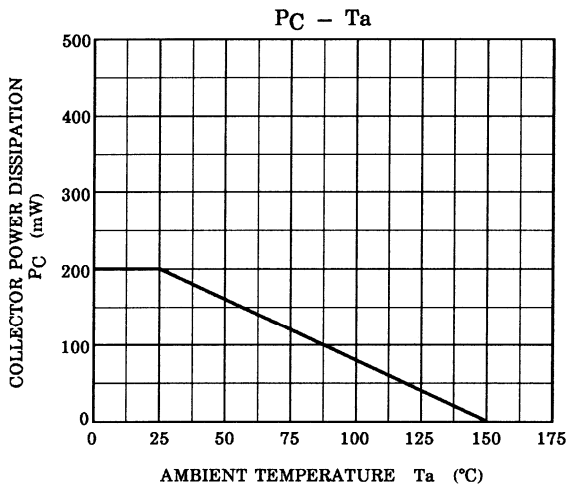
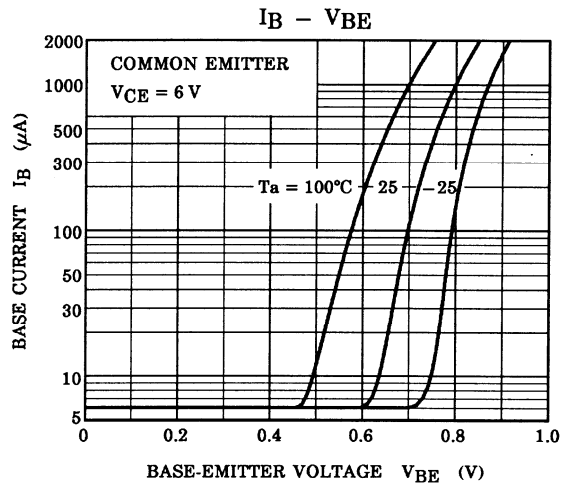
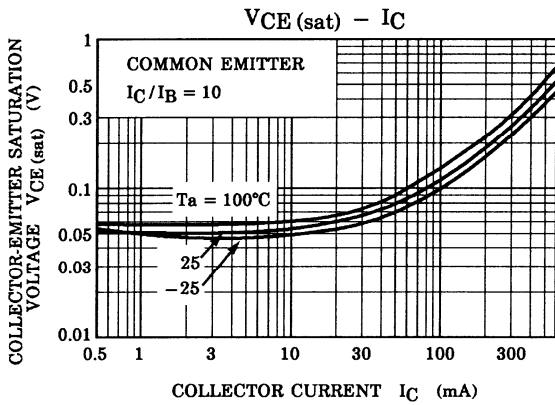
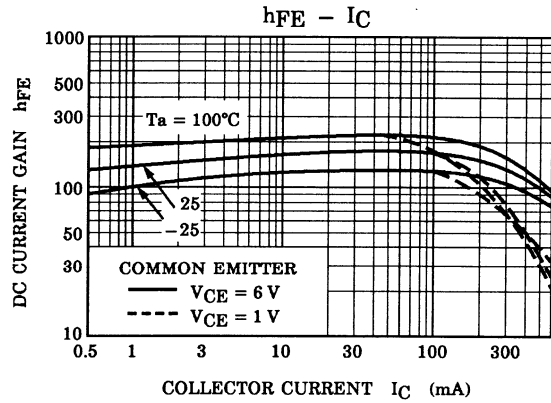
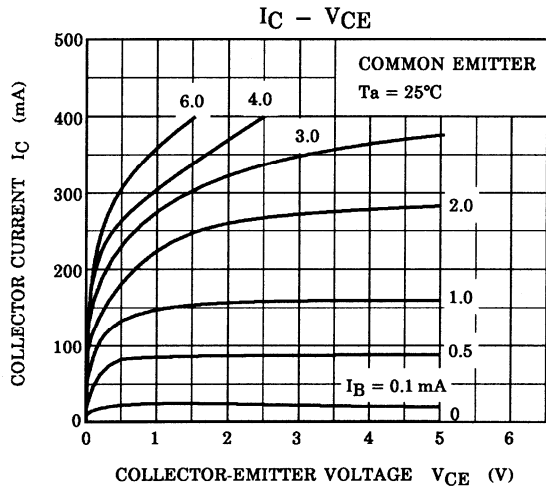


## Electrical Characteristics (Ta = 25°C)

| Characteristics                      | Symbol                | Test Condition                                   | Min | Typ. | Max  | Unit          |
|--------------------------------------|-----------------------|--------------------------------------------------|-----|------|------|---------------|
| Collector cut-off current            | $I_{CBO}$             | $V_{CB} = 50\text{ V}, I_E = 0$                  | —   | —    | 0.1  | $\mu\text{A}$ |
| Emitter cut-off current              | $I_{EBO}$             | $V_{EB} = 5\text{ V}, I_C = 0$                   | —   | —    | 0.1  | $\mu\text{A}$ |
| DC current gain                      | $h_{FE(1)}$<br>(Note) | $V_{CE} = 1\text{ V}, I_C = 100\text{ mA}$       | 70  | —    | 240  |               |
|                                      | $h_{FE(2)}$<br>(Note) | $V_{CE} = 6\text{ V}, I_C = 400\text{ mA}$       | 25  | —    | —    |               |
| Collector-emitter saturation voltage | $V_{CE(sat)}$         | $I_C = 100\text{ mA}, I_B = 10\text{ mA}$        | —   | 0.1  | 0.25 | V             |
| Base-emitter voltage                 | $V_{BE}$              | $V_{CE} = 1\text{ V}, I_C = 100\text{ mA}$       | —   | 0.8  | 1.0  | V             |
| Transition frequency                 | $f_T$                 | $V_{CE} = 6\text{ V}, I_C = 20\text{ mA}$        | —   | 300  | —    | MHz           |
| Collector output capacitance         | $C_{ob}$              | $V_{CB} = 6\text{ V}, I_E = 0, f = 1\text{ MHz}$ | —   | 7    | —    | pF            |

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

$h_{FE(2)}$  classification O: 25 (min), Y: 40 (min)



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