

TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT process)

# 2SC2458(L)

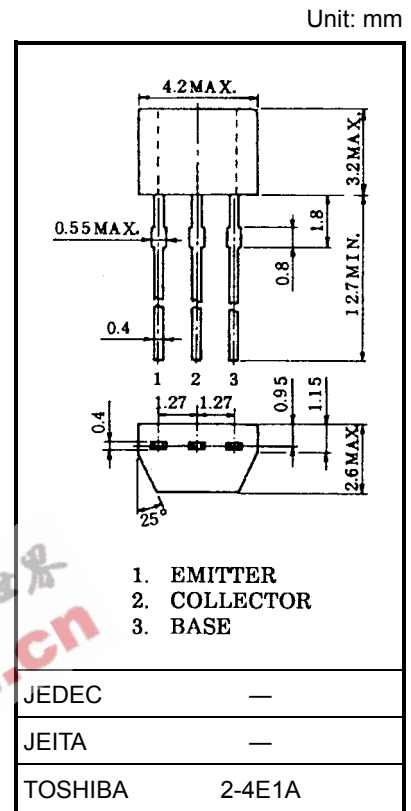
## Audio Amplifier Applications

### Low Noise Audio Amplifier Applications

- High current capability:  $I_C = 150 \text{ mA}$  (max)
- High DC current gain:  $h_{FE} = 70\sim 700$
- Excellent  $h_{FE}$  linearity:  $h_{FE}(I_C = 0.1 \text{ mA})/h_{FE}(I_C = 2 \text{ mA}) = 0.95$  (typ.)
- Low noise:  $NF(2) = 0.2\text{dB}$  (typ.),  $3\text{dB}$  (max)
- Complementary to 2SA1048 (L).
- Small package.

### 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           | $I_C$     | 150     | mA               |
| Base current                | $I_B$     | 50      | mA               |
| Collector power dissipation | $P_C$     | 200     | mW               |
| Junction temperature        | $T_j$     | 125     | $^\circ\text{C}$ |
| Storage temperature range   | $T_{stg}$ | -55~125 | $^\circ\text{C}$ |

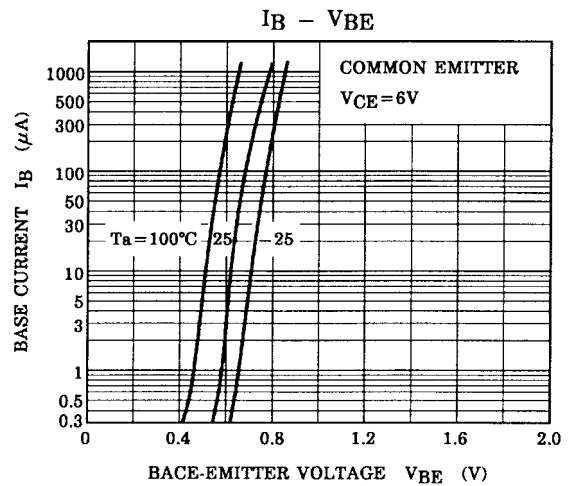
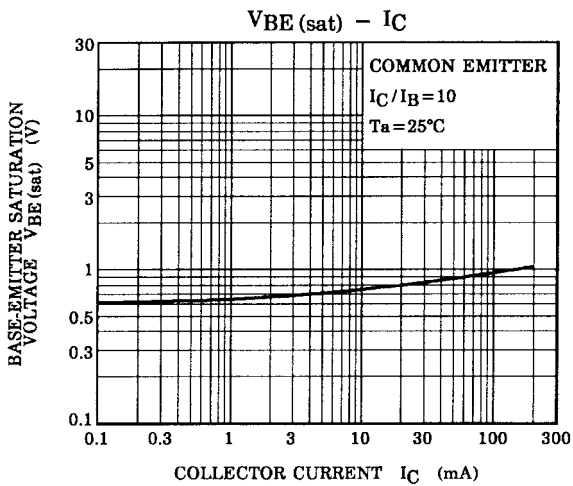
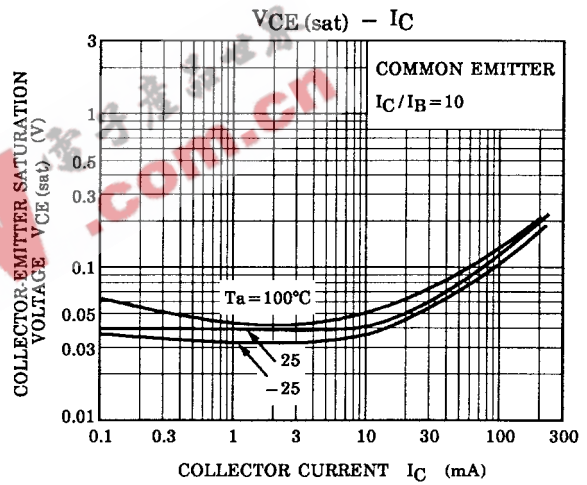
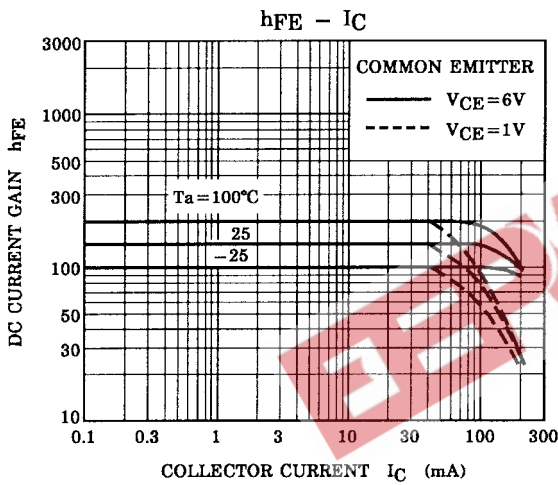
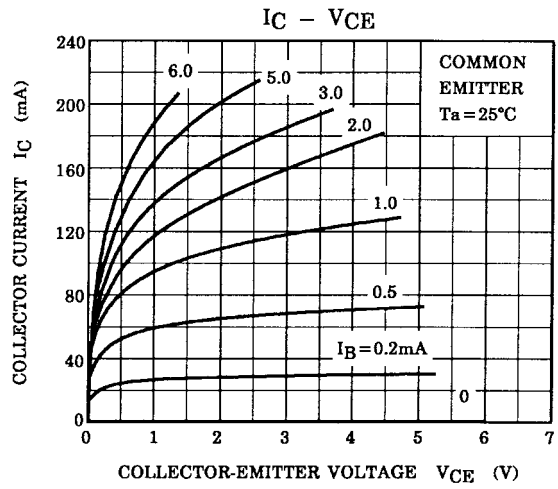
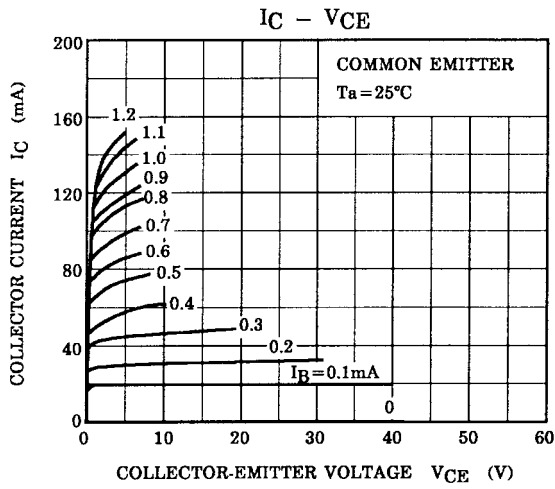


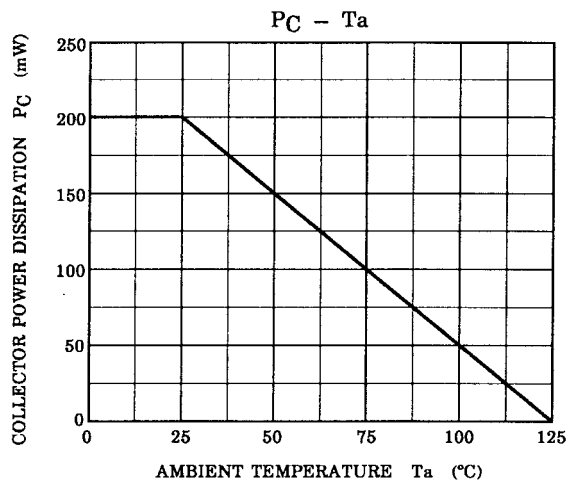
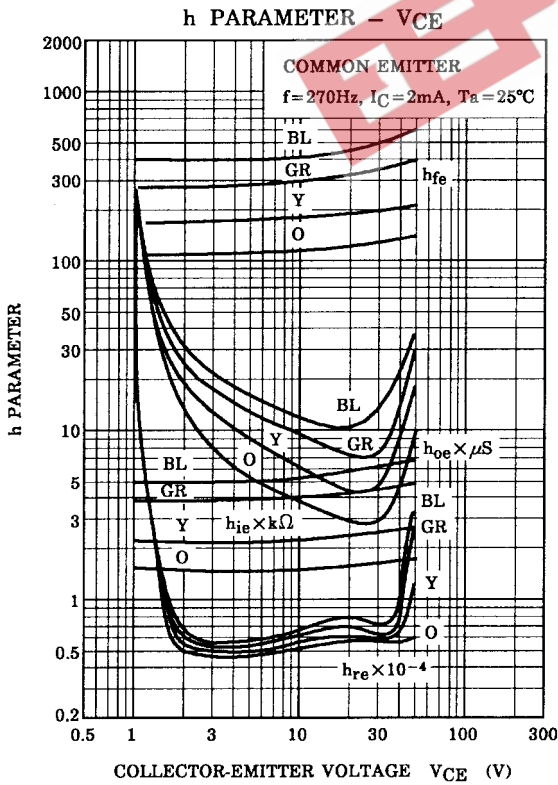
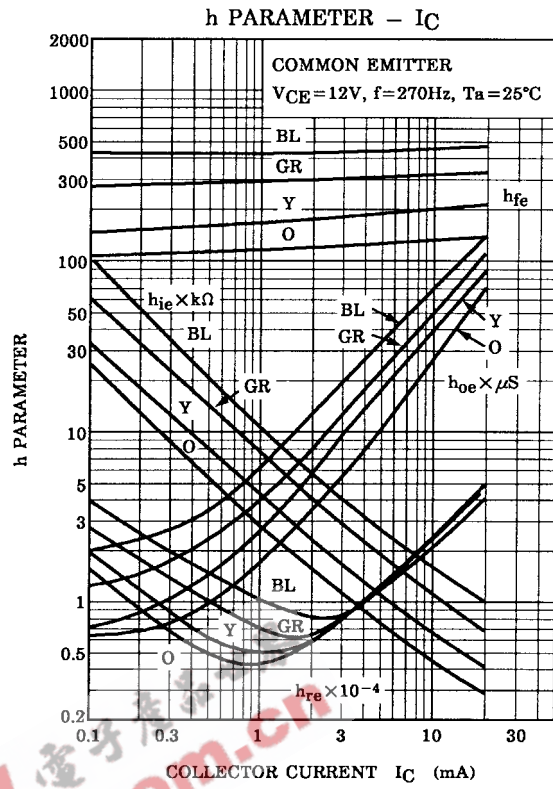
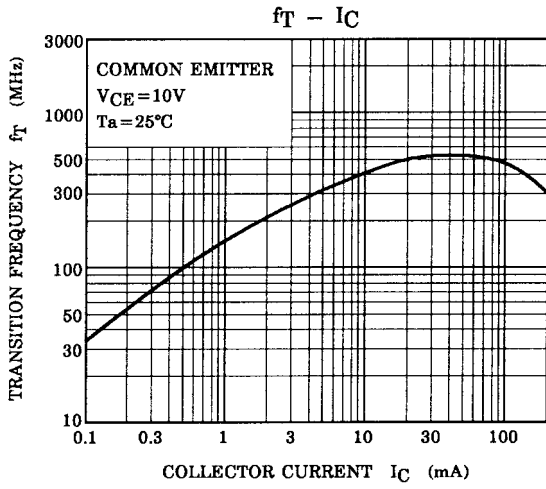
Weight: 0.13 g (typ.)

### Electrical Characteristics ( $T_a = 25^\circ\text{C}$ )

| 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                      | $h_{FE}$<br>(Note) | $V_{CE} = 6 \text{ V}, I_C = 2 \text{ mA}$   | 70  | —    | 700  |               |
| Collector-emitter saturation voltage | $V_{CE(sat)}$      | $I_C = 100 \text{ mA}, I_B = 10 \text{ mA}$  | —   | 0.1  | 0.25 | V             |
| Transition frequency                 | $f_T$              | $V_{CE} = 10 \text{ V}, I_C = 1 \text{ mA}$  | 80  | —    | —    | MHz           |
| Collector output capacitance         | $C_{ob}$           | $V_{CB} = 10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$  | —   | 2.0  | 3.5  | pF            |
| Noise figure                         | NF (1)             | $V_{CE} = 6 \text{ V}, I_C = 0.1 \text{ mA}, f = 100 \text{ Hz}, R_G = 10 \text{ k}\Omega$ | —   | 0.5  | 6    | dB            |
|                                      | NF (2)             | $V_{CE} = 6 \text{ V}, I_C = 0.1 \text{ mA}, f = 1 \text{ kHz}, R_G = 10 \text{ k}\Omega$  | —   | 0.2  | 3    |               |

Note:  $h_{FE}$  classification O: 70~140, Y: 120~240, GR: 200~400, BL: 350~700





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