

TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT process)

2SC4117

Audio Frequency General Purpose Amplifier Applications

- AEC-Q101 Qualified (Note1)
- High voltage: $V_{CE0} = 120\text{ V}$
- Excellent h_{FE} linearity: $h_{FE}(I_C = 0.1\text{ mA})/h_{FE}(I_C = 2\text{ mA}) = 0.95$ (typ.)
- High h_{FE} : $h_{FE} = 200$ to 700
- Low noise: $NF = 1\text{ dB}$ (typ.), 10 dB (max)
- Complementary to 2SA1587
- Small package

Note1: For detail information, please contact our sales.

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

| Characteristics | Symbol | Rating | Unit |
|-----------------------------|--------------------|------------|------|
| Collector-base voltage | V_{CBO} | 120 | V |
| Collector-emitter voltage | V_{CEO} | 120 | V |
| Emitter-base voltage | V_{EBO} | 5 | V |
| Collector current | I_C | 100 | mA |
| Base current | I_B | 20 | mA |
| Collector power dissipation | P_C (Note 2, 4) | 200 | mW |
| | P_C (Note 3) | 100 | |
| Junction temperature | T_j (Note 2) | 150 | °C |
| | T_j (Note 3) | 125 | |
| Storage temperature range | T_{stg} (Note 2) | -55 to 150 | °C |
| | T_{stg} (Note 3) | -55 to 125 | |

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.

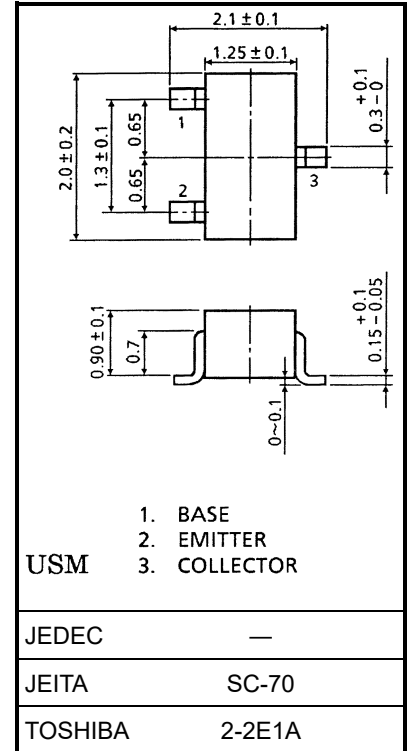
Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

Note 2: For devices with the ordering part number ending in LF(T).

Note 3: For devices with the ordering part number in other than LF(T).

Note 4: Mounted on a FR4 board. (25.4 mm × 25.4 mm × 1.6 mm, Cu pad: 0.5 mm² × 3)

Unit: mm



Weight: 0.006 g (typ.)

Start of commercial production
1987-01

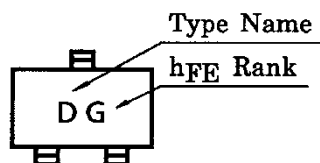
Electrical Characteristics (Ta = 25°C)

| Characteristics | Symbol | Test Condition | Min | Typ. | Max | Unit |
|--------------------------------------|---------------------------|--|-----|------|-----|------|
| Collector cut-off current | ICBO | V _{CB} = 120 V, I _E = 0 A | — | — | 0.1 | μA |
| Emitter cut-off current | IEBO | V _{EB} = 5 V, I _C = 0 A | — | — | 0.1 | μA |
| DC current gain | h _{FE} (Note) | V _{CE} = 6 V, I _C = 2 mA | 200 | — | 700 | — |
| Collector-emitter saturation voltage | V _{CE (sat)} | I _C = 10 mA, I _B = 1 mA | — | — | 0.3 | V |
| Transition frequency | f _T | V _{CE} = 6 V, I _C = 1 mA | — | 100 | — | MHz |
| Collector output capacitance | C _{ob} | V _{CB} = 10 V, I _E = 0 A, f = 1 MHz | — | 3.0 | — | pF |
| Noise figure | NF | V _{CE} = 6 V, I _C = 0.1 mA, f = 1 kHz, R _G = 10 kΩ | — | 1.0 | 10 | dB |

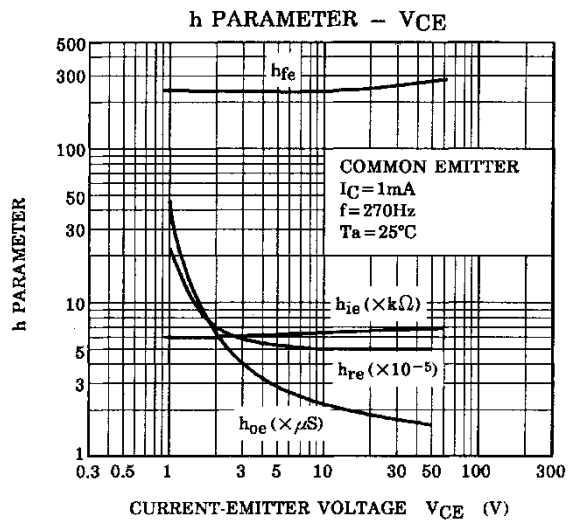
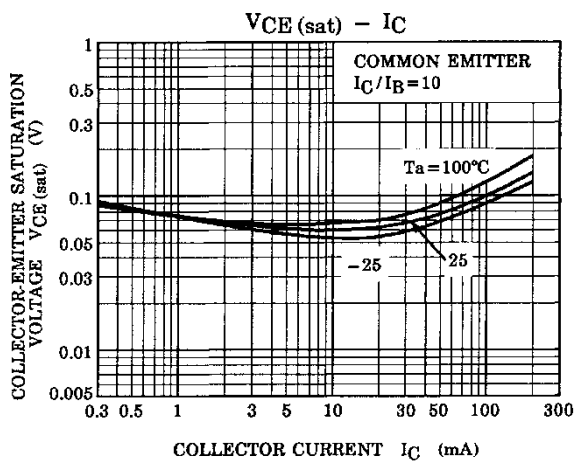
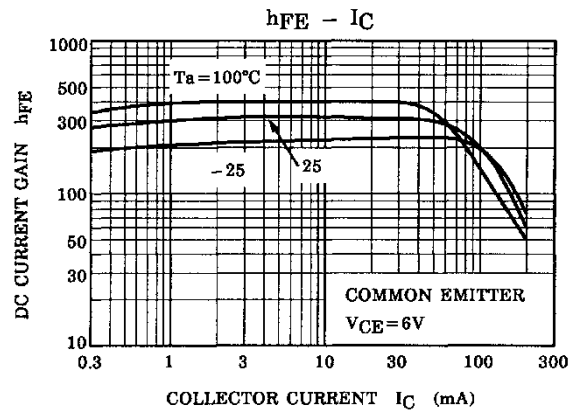
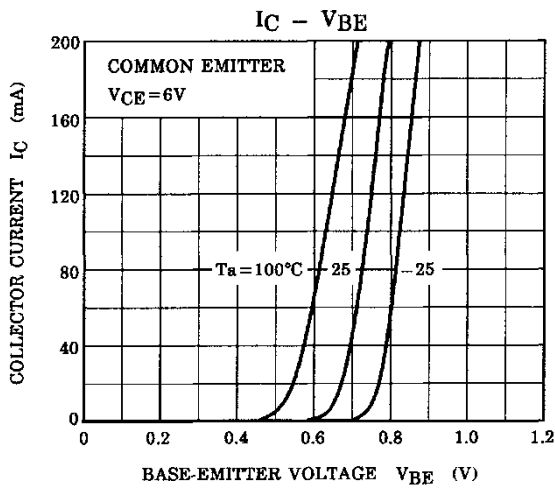
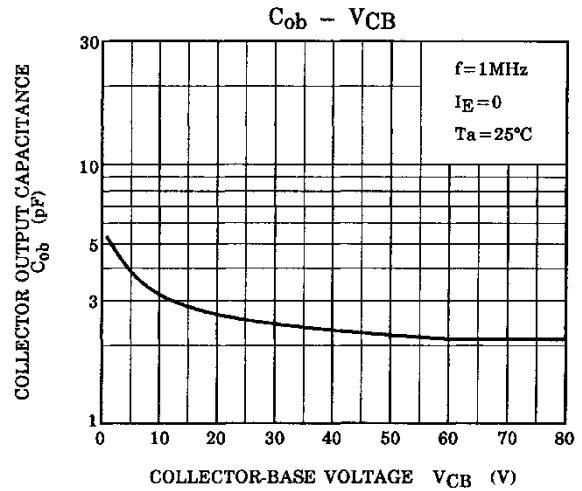
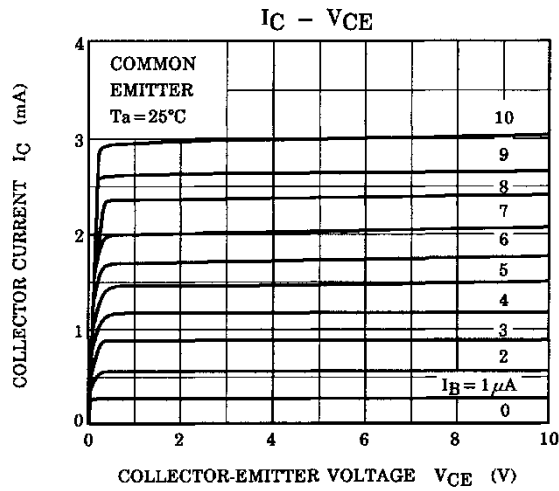
Note: h_{FE} classification GR (G): 200 to 400, BL (L): 350 to 700

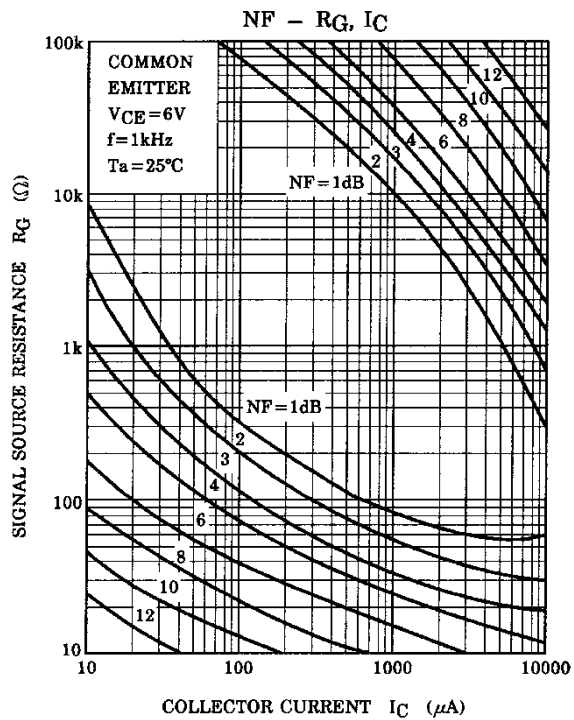
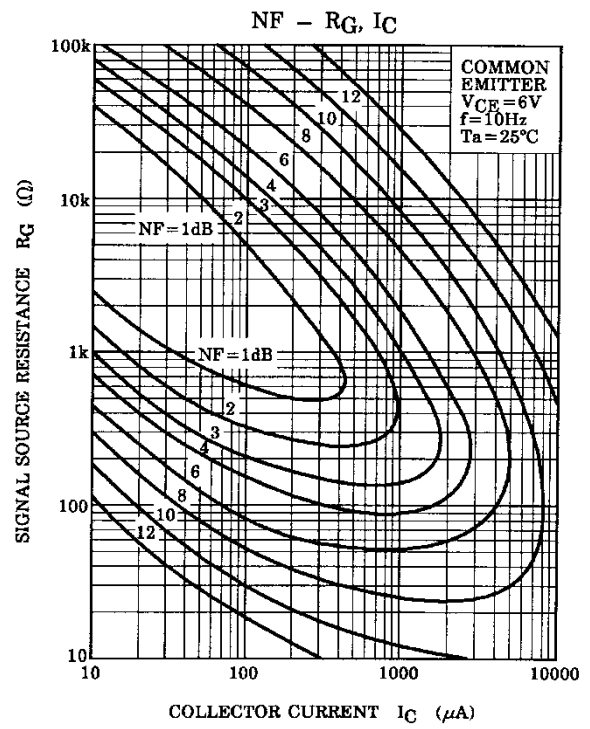
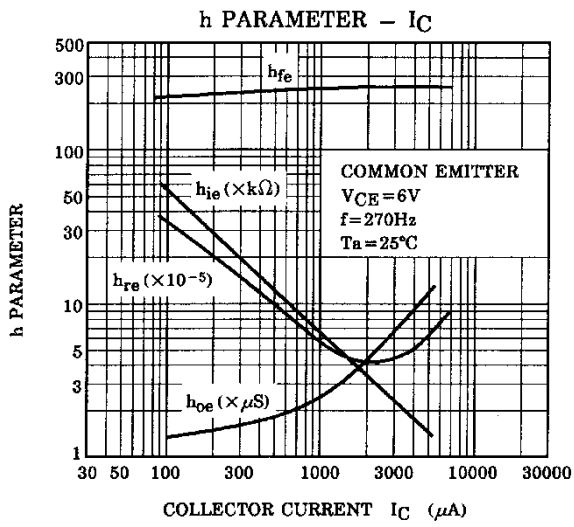
() marking symbol

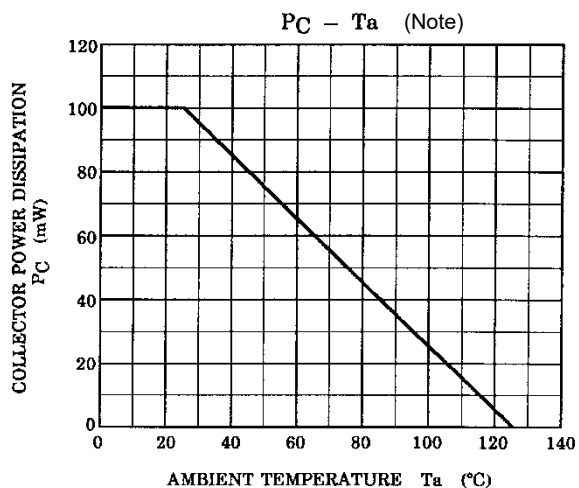
Marking



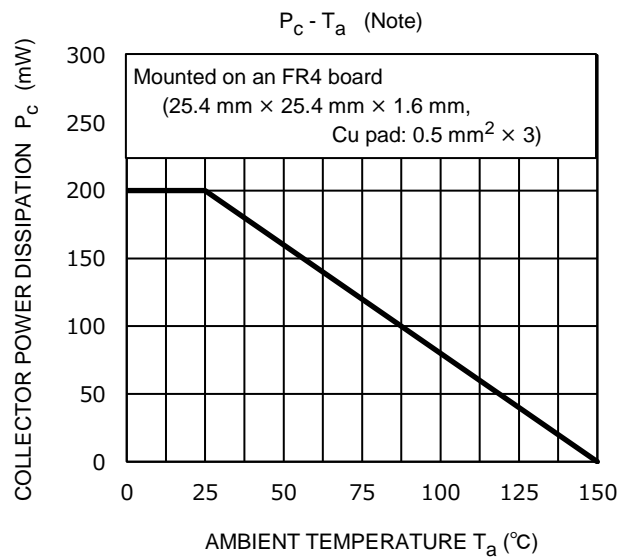
Characteristics Curves







Note: Reference only with T_j of 125 °C.



Note: Reference only with T_j of 150 °C.

The above characteristics curves are presented for reference only and not guaranteed by production test, unless otherwise noted.

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