

TOSHIBA Transistor Silicon PNP Epitaxial Type (PCT Process)

HN1A01F

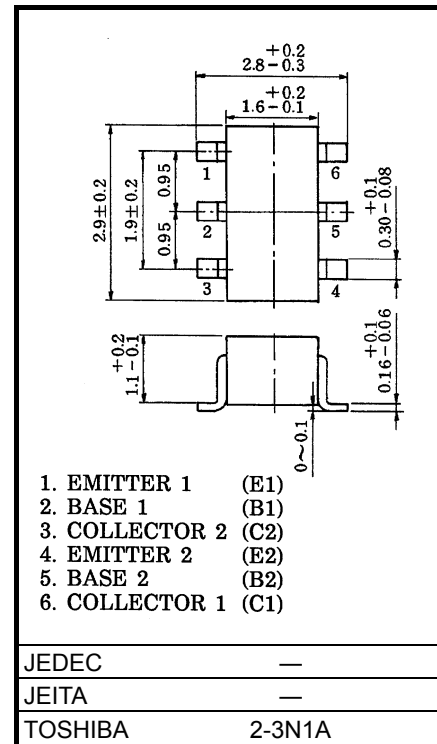
Audio-Frequency General-Purpose Amplifier Applications

Unit: mm

- Small package (dual type)
- High voltage and high current
: $V_{CEO} = -50\text{ V}$, $I_C = -150\text{ mA}$ (max)
- High h_{FE} : $h_{FE} = 120\sim 400$
- Excellent h_{FE} linearity
: $h_{FE}(I_C = -0.1\text{ mA}) / h_{FE}(I_C = -2\text{ mA}) = 0.95$ (typ.)

Absolute Maximum Ratings (Ta = 25°C) (Q1, Q2 Common)

| Characteristic | 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 | -30 | mA |
| Collector power dissipation | P_C^* | 300 | mW |
| Junction temperature | T_j | 125 | °C |
| Storage temperature range | T_{stg} | -55~125 | °C |



Weight: 0.015 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).

*Total rating

Electrical Characteristics (Ta = 25°C) (Q1, Q2 Common)

| Characteristic | Symbol | Test Circuit | Test Condition | Min | Typ. | Max | Unit |
|--------------------------------------|-----------------|--------------|---|-----|------|------|---------------|
| Collector cut-off current | I_{CBO} | — | $V_{CB} = -50\text{ V}$, $I_E = 0$ | — | — | -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) | — | $V_{CE} = -6\text{ V}$, $I_C = -2\text{ mA}$ | 120 | — | 400 | — |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | — | $I_C = -100\text{ mA}$, $I_B = -10\text{ mA}$ | — | -0.1 | -0.3 | V |
| Transition frequency | f_T | — | $V_{CE} = -10\text{ V}$, $I_C = -1\text{ mA}$ | 80 | — | — | MHz |
| Collector output capacitance | C_{ob} | — | $V_{CB} = -10\text{ V}$, $I_E = 0$, $f = 1\text{ MHz}$ | — | 4 | 7 | pF |

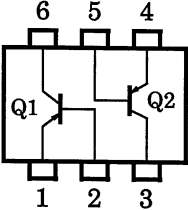
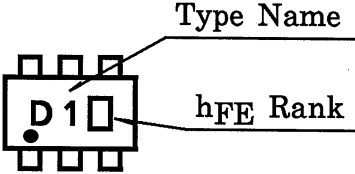
Note:hFE Classification

Y (Y): 120~240, GR (G): 200~400

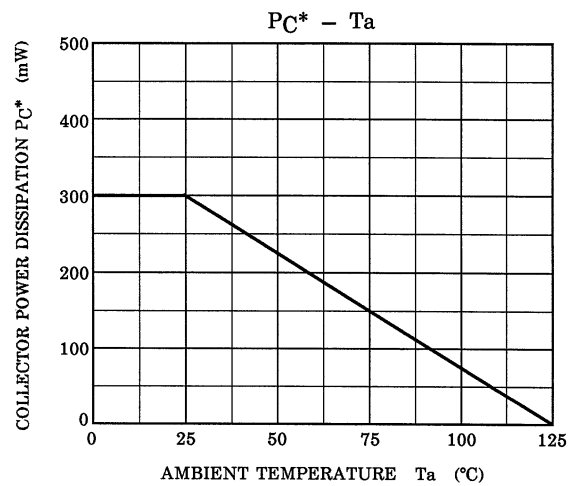
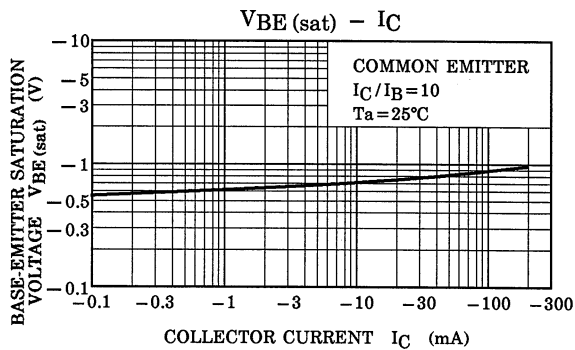
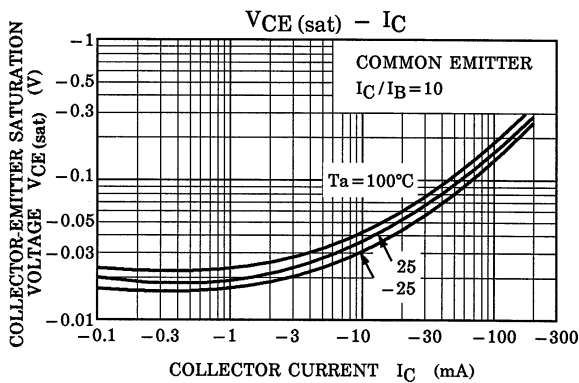
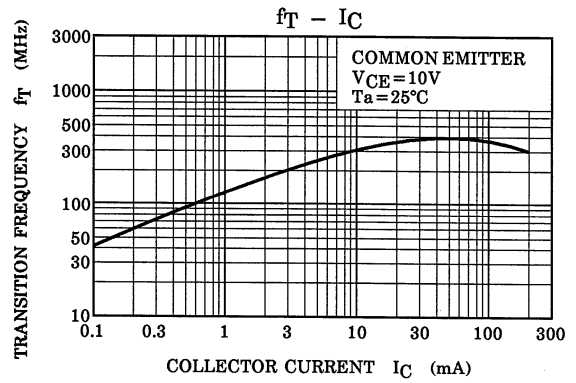
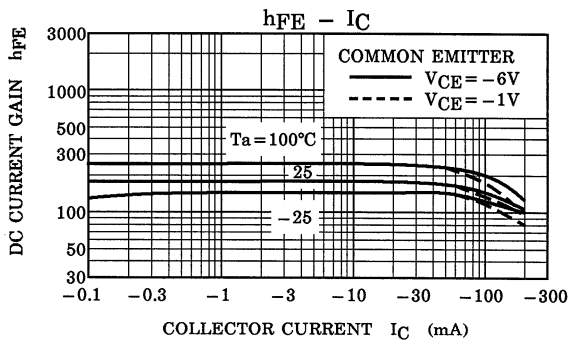
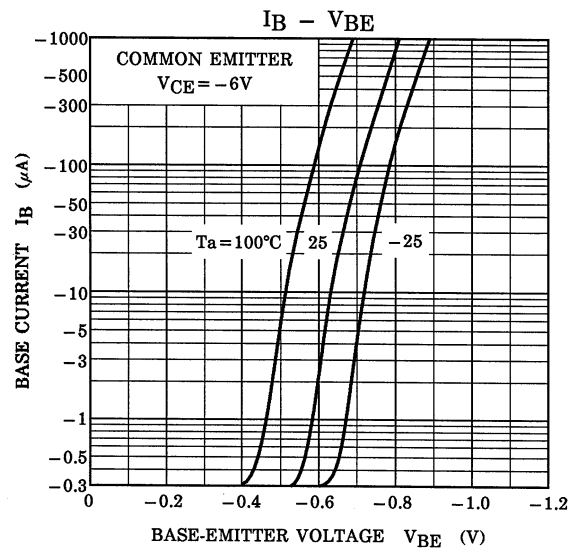
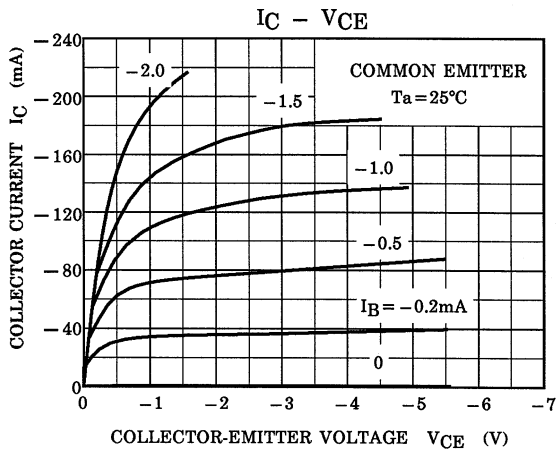
() Marking Symbol

Marking

Equivalent Circuit (Top View)



(Q1, Q2 Common)



* : Total Rating

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