

TOSHIBA Transistor Silicon PNP Epitaxial (PCT process)

2SA1298

Low Frequency Power Amplifier Application
Power Switching Applications

- High DC current gain: $h_{FE} = 100$ to 320
- Low saturation voltage: $V_{CE(sat)} = -0.4\text{ V (max)}$
($I_C = -500\text{ mA}$, $I_B = -20\text{ mA}$)
- Suitable for driver stage of small motor
- Complementary to 2SC3265
- Small package

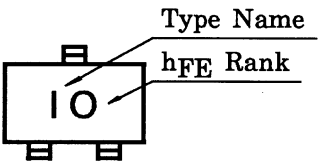
Absolute Maximum Ratings ($T_a = 25^{\circ}\text{C}$)

| Characteristics | Symbol | Rating | Unit |
|-----------------------------|-----------|------------|--------------------|
| Collector-base voltage | V_{CBO} | -30 | V |
| Collector-emitter voltage | V_{CEO} | -25 | V |
| Emitter-base voltage | V_{EBO} | -5 | V |
| Collector current | I_C | -800 | mA |
| Base current | I_B | -160 | mA |
| Collector power dissipation | P_C | 200 | mW |
| Junction temperature | T_j | 150 | $^{\circ}\text{C}$ |
| Storage temperature range | T_{stg} | -55 to 150 | $^{\circ}\text{C}$ |

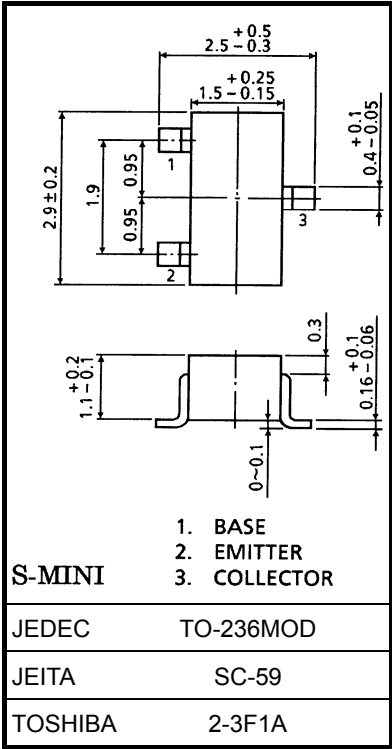
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) 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).

Marking



Unit: mm



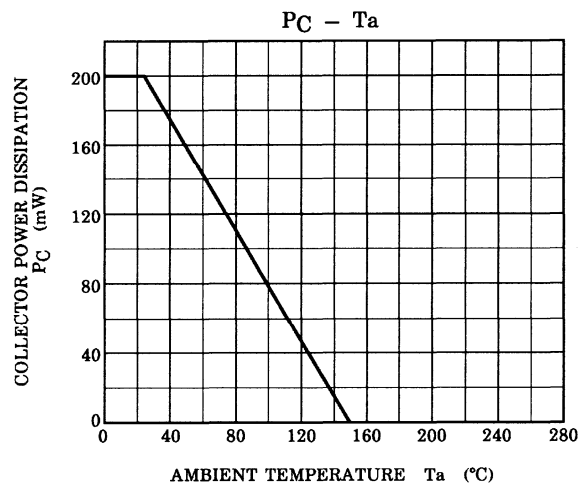
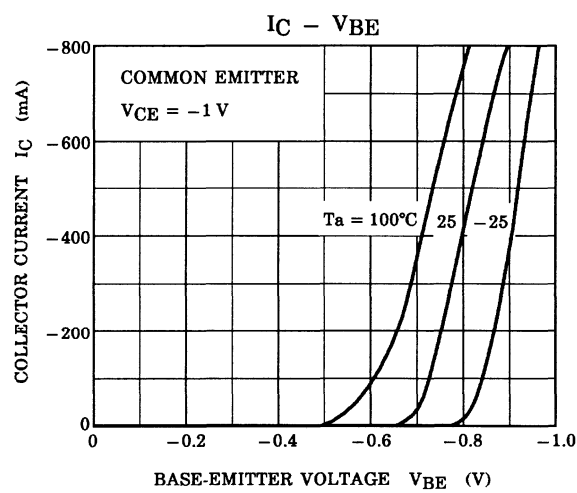
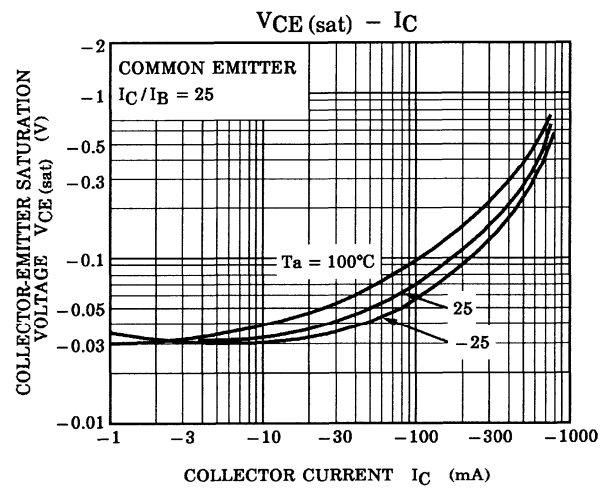
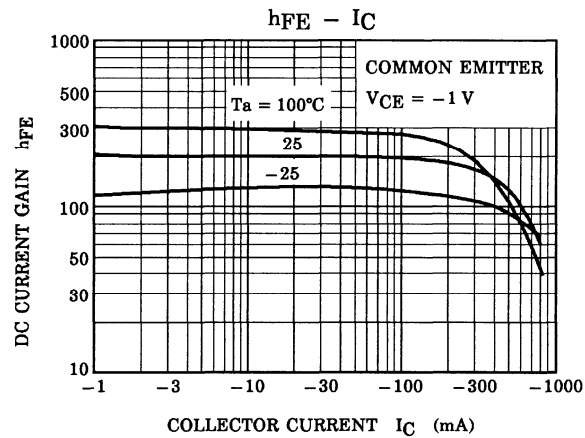
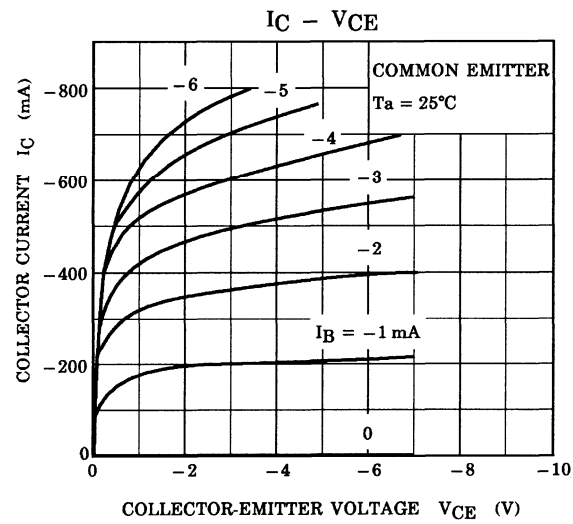
Weight: 0.012 g (typ.)

Start of commercial production
1982-10

Electrical Characteristics (Ta = 25°C)

| Characteristics | Symbol | Test Condition | Min | Typ. | Max | Unit |
|--------------------------------------|------------------------|--|------|------|------|---------------|
| Collector cut-off current | I_{CBO} | $V_{CB} = -30\text{ V}, I_E = 0$ | — | — | -0.1 | μA |
| Emitter cut-off current | I_{EBO} | $V_{EB} = -50\text{ V}, I_C = 0$ | — | — | -0.1 | μA |
| Collector-emitter breakdown voltage | $V_{(BR) CEO}$ | $I_C = -10\text{ mA}, I_B = 0$ | -25 | — | — | V |
| Emitter-base breakdown voltage | $V_{(BR) EBO}$ | $I_E = -0.1\text{ mA}, I_C = 0$ | -5 | — | — | V |
| DC current gain | $h_{FE (1)}$ (Note) | $V_{CE} = -1\text{ V}, I_C = -100\text{ mA}$ | 100 | — | 320 | |
| | $h_{FE (2)}$ | $V_{CE} = -1\text{ V}, I_C = -800\text{ mA}$ | 40 | — | — | |
| Collector-emitter saturation voltage | $V_{CE (sat)}$ | $I_C = -500\text{ mA}, I_B = -20\text{ mA}$ | — | — | -0.4 | V |
| Base-emitter voltage | V_{BE} | $V_{CE} = -1\text{ V}, I_C = -10\text{ mA}$ | -0.5 | — | -0.8 | V |
| Transition frequency | f_T | $V_{CE} = -5\text{ V}, I_C = -10\text{ mA}$ | — | 120 | — | MHz |
| Collector output capacitance | C_{ob} | $V_{CB} = -10\text{ V}, I_E = 0, f = 1\text{ MHz}$ | — | 13 | — | pF |

Note: $h_{FE (1)}$ classification O: 100 to 200, Y: 160 to 320



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