

TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT process)

2SC3326

For Muting and Switching Applications

Unit: mm

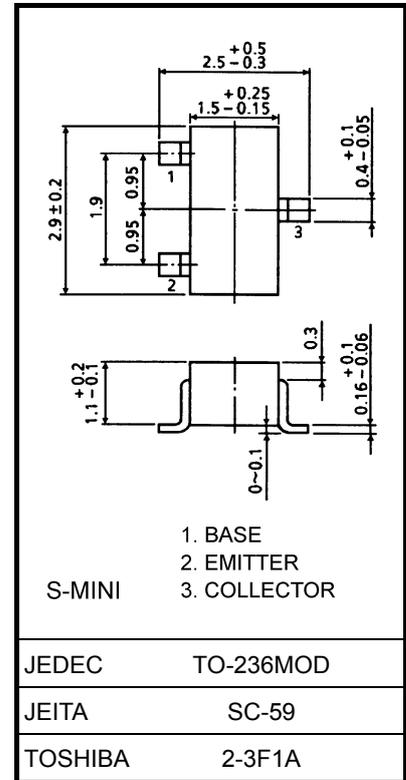
- High emitter-base voltage: $V_{EBO} = 25 \text{ V (min)}$
- High reverse h_{FE} : Reverse $h_{FE} = 150 \text{ (typ.)}$ ($V_{CE} = -2 \text{ V}$, $I_C = -4 \text{ mA}$)
- Low on resistance: $R_{ON} = 1 \ \Omega \text{ (typ.)}$ ($I_B = 5 \text{ mA}$)
- High DC current gain: $h_{FE} = 200\sim 1200$
- 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} | 20 | V |
| Emitter-base voltage | V_{EBO} | 25 | V |
| Collector current | I_C | 300 | mA |
| Base current | I_B | 60 | mA |
| Collector power dissipation | P_C | 150 | mW |
| Junction temperature | T_j | 125 | $^\circ\text{C}$ |
| Storage temperature range | T_{stg} | -55~125 | $^\circ\text{C}$ |

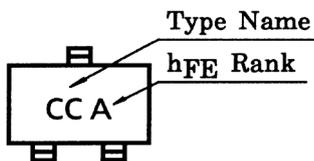
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.)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



Weight: 0.012 g (typ.)

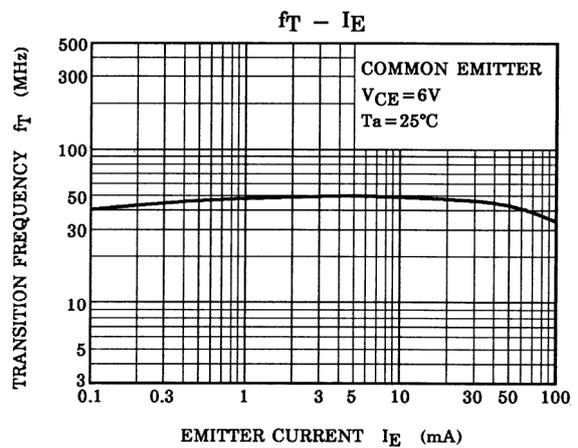
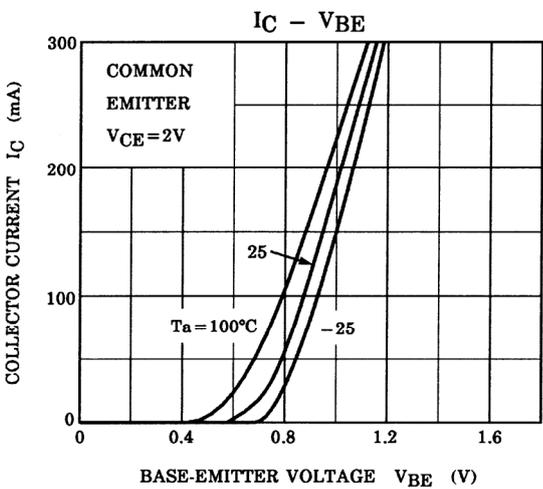
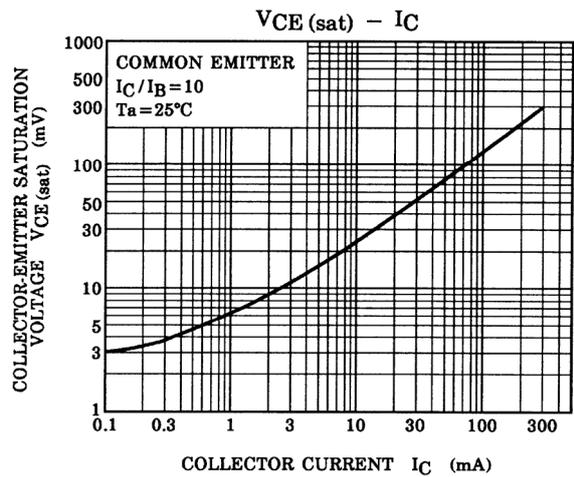
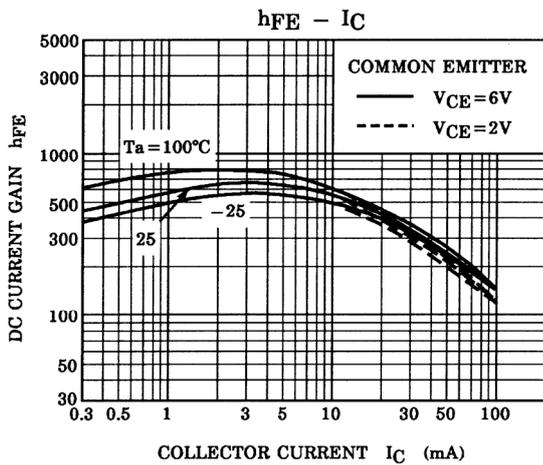
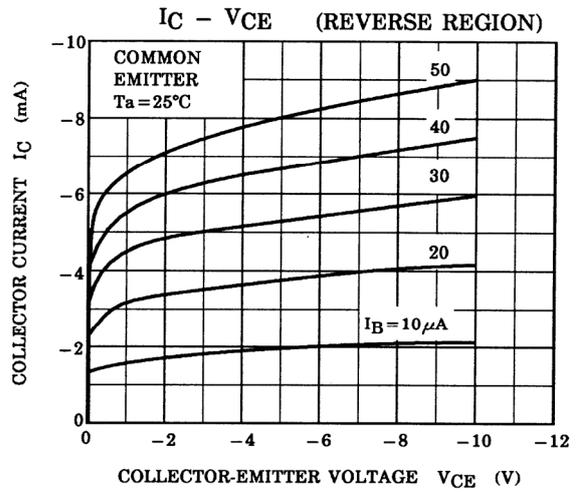
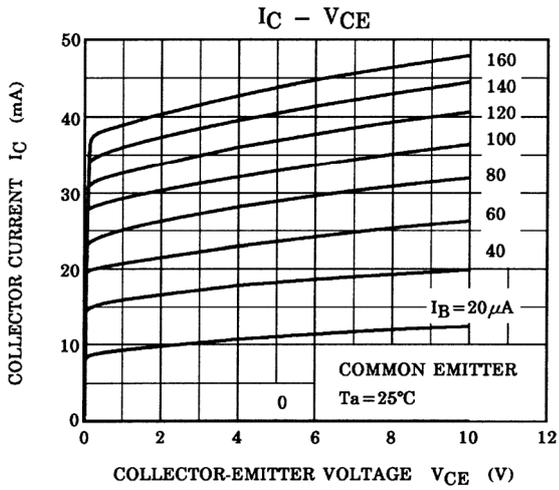
Marking

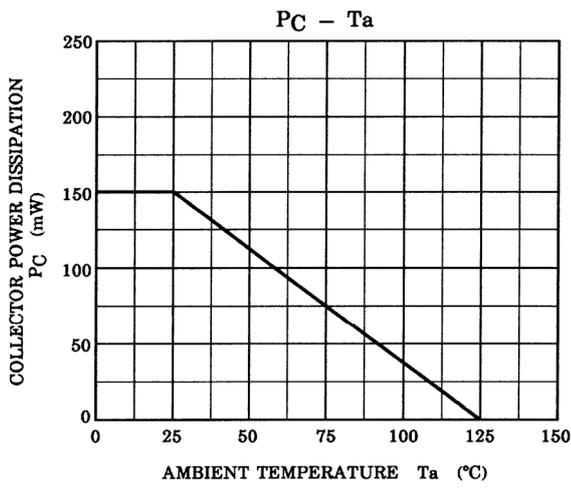
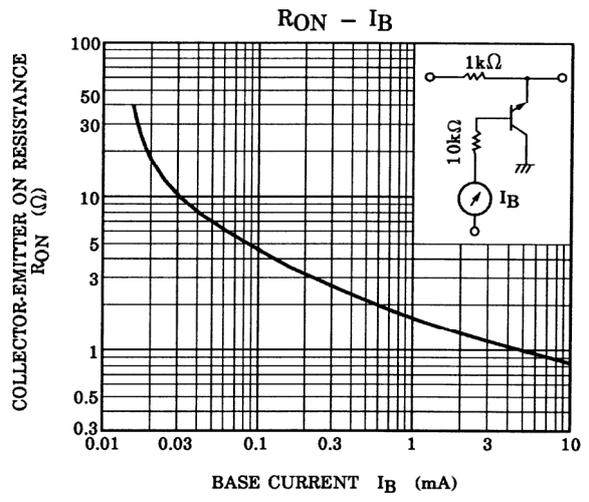
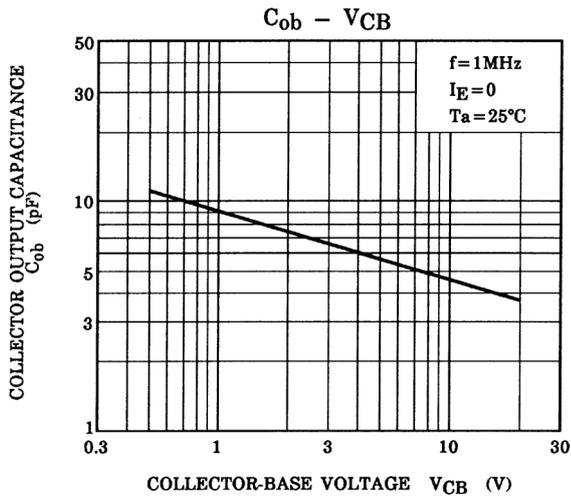


Electrical Characteristics (Ta = 25°C)

| Characteristics | | Symbol | Test Condition | Min | Typ. | Max | Unit |
|--------------------------------------|--------------|--------------------|---|-----|-------|------|---------------|
| Collector cut-off current | | I_{CBO} | $V_{CB} = 50\text{ V}, I_E = 0$ | — | — | 0.1 | μA |
| Emitter cut-off current | | I_{EBO} | $V_{EB} = 25\text{ V}, I_C = 0$ | — | — | 0.1 | μA |
| DC current gain | | h_{FE} (Note) | $V_{CE} = 2\text{ V}, I_C = 4\text{ mA}$ | 200 | — | 1200 | |
| Collector-emitter saturation voltage | | $V_{CE(sat)}$ | $I_C = 30\text{ mA}, I_B = 3\text{ mA}$ | — | 0.042 | 0.1 | V |
| Base-emitter voltage | | V_{BE} | $V_{CE} = 2\text{ V}, I_C = 4\text{ mA}$ | — | 0.61 | — | V |
| Transition frequency | | f_T | $V_{CE} = 6\text{ V}, I_C = 4\text{ mA}$ | — | 30 | — | MHz |
| Collector output capacitance | | C_{ob} | $V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$ | — | 4.8 | 7 | pF |
| Switching time | Turn-on time | t_{on} | <p>Duty cycle $\leq 2\%$</p> | — | 160 | — | ns |
| | Storage time | t_{stg} | | — | 500 | — | |
| | Fall time | t_f | | — | 130 | — | |

Note: h_{FE} classification A: 200~700, B: 350~1200





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20070701-EN GENERAL

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