

TOSHIBA Transistor Silicon NPN Triple Diffused Type

## 2SC5949

### Power Amplifier Applications

- Complementary to 2SA2121
- Recommended for audio frequency amplifier output stage.

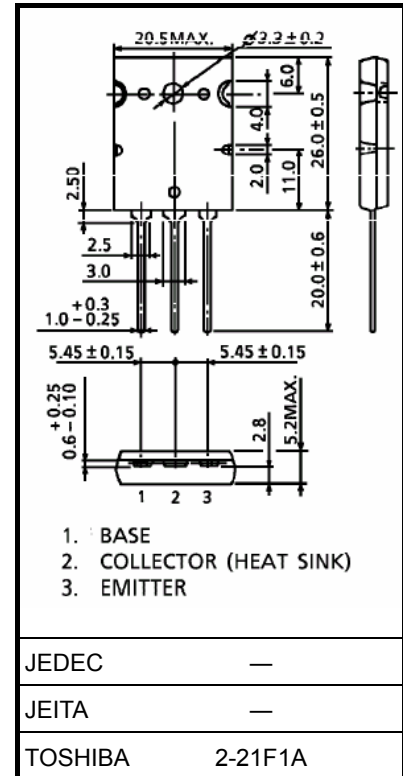
### Absolute Maximum Ratings (T<sub>c</sub> = 25°C)

| Characteristic              | Symbol           | Rating     | Unit |
|-----------------------------|------------------|------------|------|
| Collector-base voltage      | V <sub>CBO</sub> | 200        | V    |
| Collector-emitter voltage   | V <sub>CEO</sub> | 200        | V    |
| Emitter-base voltage        | V <sub>EBO</sub> | 5          | V    |
| Collector current           | I <sub>C</sub>   | 15         | A    |
| Base current                | I <sub>B</sub>   | 1.5        | A    |
| Collector power dissipation | P <sub>C</sub>   | 220        | W    |
| Junction temperature        | T <sub>j</sub>   | 150        | °C   |
| Storage temperature range   | T <sub>stg</sub> | -55 to 150 | °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).

Unit: mm



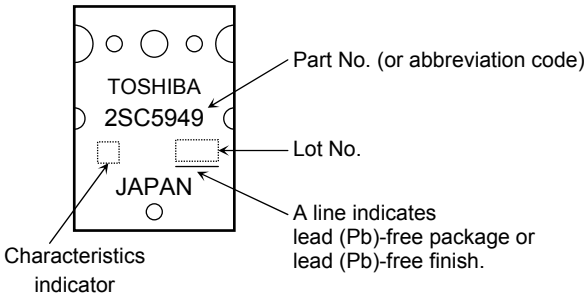
Weight: 9.75 g (typ.)

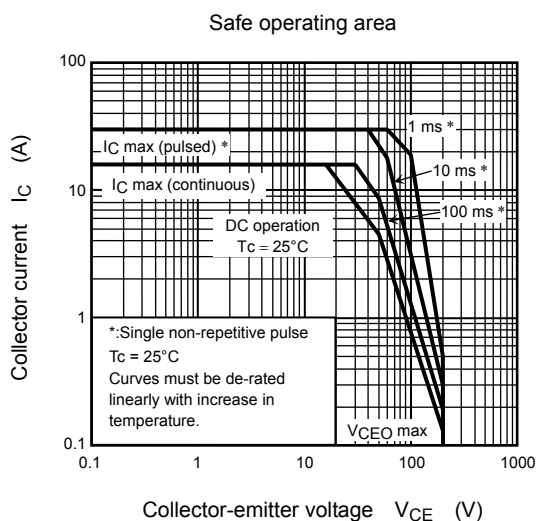
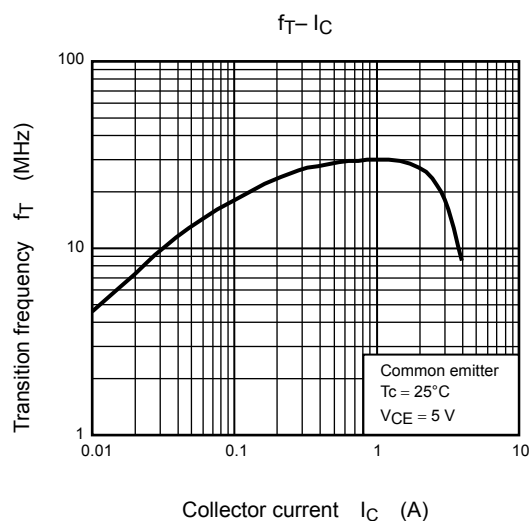
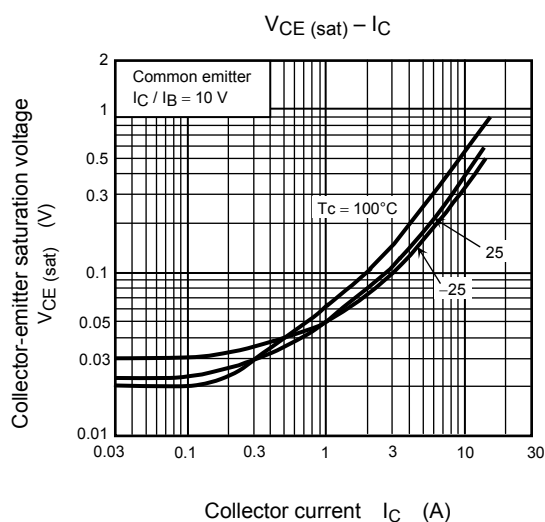
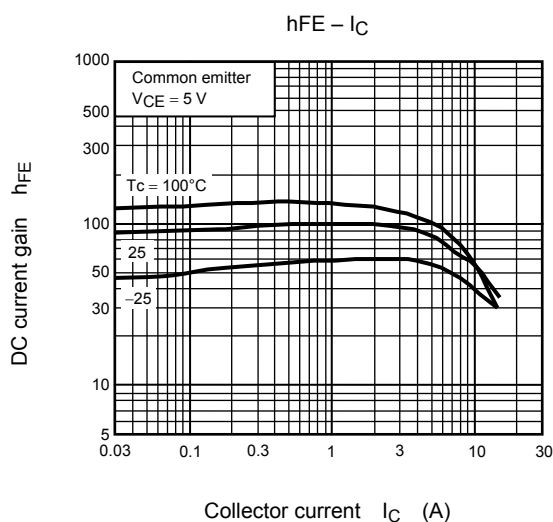
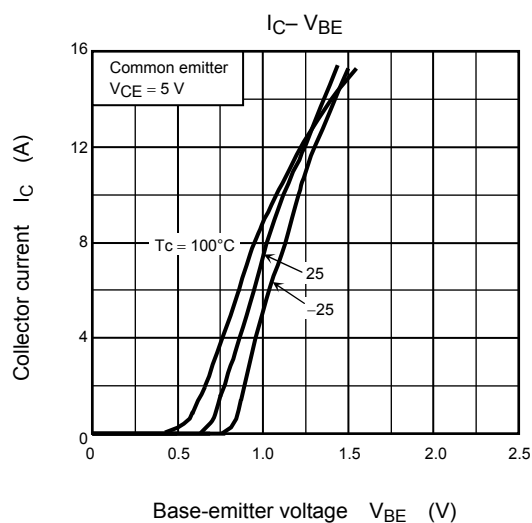
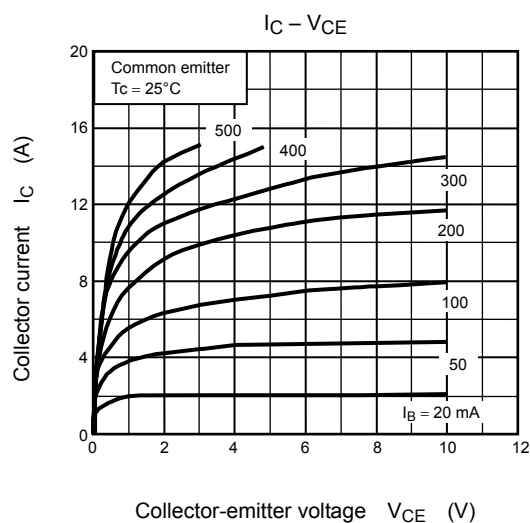
Electrical Characteristics (Tc = 25°C)

| Characteristic                       | Symbol                          | Test Conditions                                       | Min | Typ. | Max | Unit |
|--------------------------------------|---------------------------------|-------------------------------------------------------|-----|------|-----|------|
| Collector cut-off current            | ICBO                            | V <sub>CB</sub> = 200 V, I <sub>E</sub> = 0           | —   | —    | 5.0 | μA   |
| Emitter cut-off current              | IEBO                            | V <sub>EB</sub> = 5 V, I <sub>C</sub> = 0             | —   | —    | 5.0 | μA   |
| Collector-emitter breakdown voltage  | V (BR) CEO                      | I <sub>C</sub> = 50 mA, I <sub>B</sub> = 0            | 200 | —    | —   | V    |
| DC current gain                      | h <sub>FE</sub> (1)<br>(Note 1) | V <sub>CE</sub> = 5 V, I <sub>C</sub> = 1 A           | 55  | —    | 160 |      |
|                                      | h <sub>FE</sub> (2)             | V <sub>CE</sub> = 5 V, I <sub>C</sub> = 8 A           | 35  | 60   | —   |      |
| Collector-emitter saturation voltage | V <sub>CE</sub> (sat)           | I <sub>C</sub> = 10 A, I <sub>B</sub> = 1 A           | —   | 0.4  | 3.0 | V    |
| Base-emitter voltage                 | V <sub>BE</sub>                 | V <sub>CE</sub> = 5 V, I <sub>C</sub> = 8 A           | —   | 1.0  | 1.5 | V    |
| Transition frequency                 | f <sub>T</sub>                  | V <sub>CE</sub> = 5 V, I <sub>C</sub> = 1 A           | —   | 30   | —   | MHz  |
| Collector output capacitance         | C <sub>ob</sub>                 | V <sub>CB</sub> = 10 V, I <sub>E</sub> = 0, f = 1 MHz | —   | 270  | —   | pF   |

Note 1: h<sub>FE</sub>(1) classification R: 55 to 110, O: 80 to 160

Marking





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20070701-EN

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