TOSHIBA Transistor Silicon PNP Triple Diffused Type

# 2SA1987

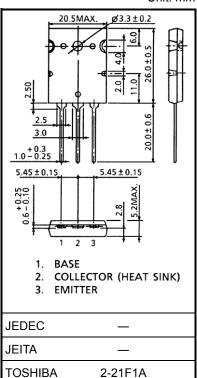
#### **Power Amplifier Applications**

• High breakdown voltage:  $V_{CEO} = -230 V (min)$ 

- Complementary to 2SC5359
- Recommended for 100-W high-fidelity audio frequency amplifier output stage.

|  | 1                |            |      |
|--|------------------|------------|------|
| Characteristics                            | Symbol           | Rating     | Unit |
| Collector-base voltage                     | V <sub>CBO</sub> | -230       | V    |
| Collector-emitter voltage                  | V <sub>CEO</sub> | -230       | V    |
| Emitter-base voltage                       | V <sub>EBO</sub> | -5         | V    |
| Collector current                          | ۱ <sub>C</sub>   | -15        | А    |
| Base current                               | ۱ <sub>B</sub>   | -1.5       | А    |
| Collector power dissipation<br>(Tc = 25°C) | P <sub>C</sub>   | 180        | W    |
| Junction temperature                       | Tj               | 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

Weight: 9.75 g (typ.)

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).

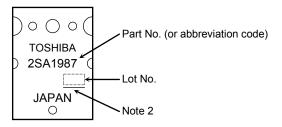
Unit: mm

Electrical Characteristics (Tc = 25°C)

| Characteristics                      | Symbol                          | Test Condition   | Min  | Тур. | Max  | Unit |
|--------------------------------------|---------------------------------|--|------|------|------|------|
| Collector cut-off current            | I <sub>CBO</sub>                | $V_{CB} = -230 \text{ V}, I_E = 0$                     | _    | _    | -5.0 | μA   |
| Emitter cut-off current              | I <sub>EBO</sub>                | $V_{EB} = -5 V, I_C = 0$                               | _    | _    | -5.0 | μA   |
| Collector-emitter breakdown voltage  | V (BR) CEO                      | I <sub>C</sub> = -50 mA, I <sub>B</sub> = 0            | -230 | _    | _    | V    |
| DC current gain                      | h <sub>FE (1)</sub><br>(Note 1) | V <sub>CE</sub> = -5 V, I <sub>C</sub> = -1 A          | 55   | -    | 160  |      |
|                                      | h <sub>FE (2)</sub>             | $V_{CE} = -5 V, I_C = -7 A$                            | 35   | 70   | _    |      |
| Collector-emitter saturation voltage | V <sub>CE (sat)</sub>           | I <sub>C</sub> = -8 A, I <sub>B</sub> = -0.8 A         | _    | -1.5 | -3.0 | V    |
| Base-emitter voltage                 | V <sub>BE</sub>                 | $V_{CE} = -5 V, I_C = -7 A$                            | _    | -1.0 | -1.5 | V    |
| Transition frequency                 | f <sub>T</sub>                  | $V_{CE} = -5 V, I_C = -1 A$                            | _    | 30   | _    | MHz  |
| Collector output capacitance         | C <sub>ob</sub>                 | V <sub>CB</sub> = -10 V, I <sub>E</sub> = 0, f = 1 MHz |      | 360  | _    | pF   |

Note 1:hFE (1) classification R: 55 to 110, O: 80 to 160

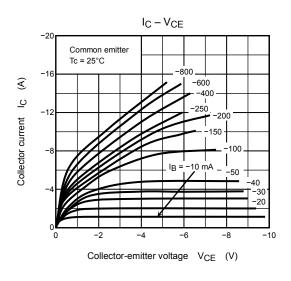
#### Marking

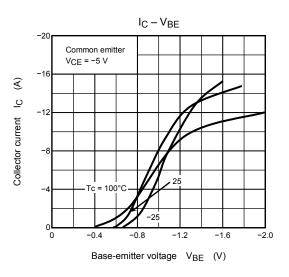


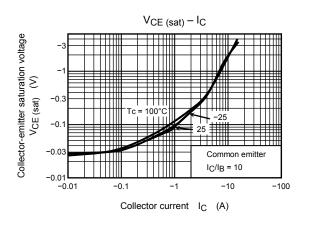
Note 2: A line under a Lot No. identifies the indication of product Labels. Not underlined : [[Pb]]/INCLUDES > MCV Underlined : [[G]]/RoHS COMPATIBLE or [[G]]/RoHS [[Pb]]

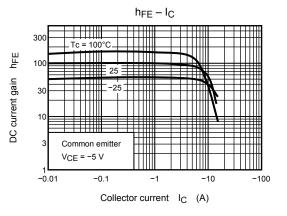
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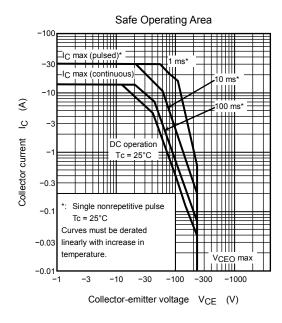
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