

TOSHIBA Transistor Silicon NPN Triple Diffused Type

# 2SC5198

## Power Amplifier Applications

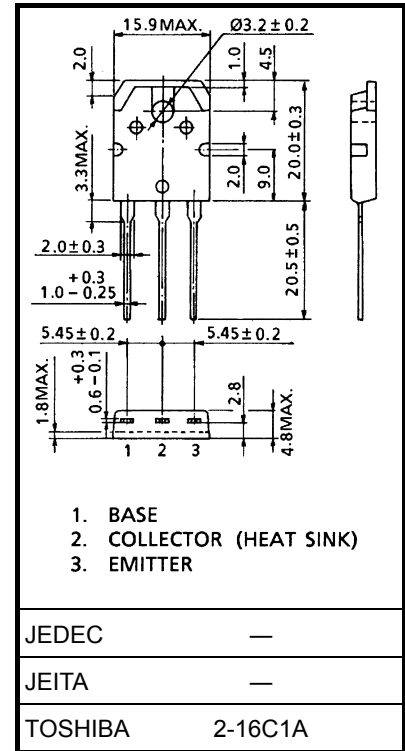
- High breakdown voltage:  $V_{CEO} = 140\text{ V (min)}$
- Complementary to 2SA1941
- Suitable for use in 70-W high fidelity audio amplifier's output stage

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

| Characteristics   | Symbol    | Rating     | Unit             |
|---|-----------|------------|------------------|
| Collector-base voltage                                      | $V_{CBO}$ | 140        | V                |
| Collector-emitter voltage                                   | $V_{CEO}$ | 140        | V                |
| Emitter-base voltage  | $V_{EBO}$ | 5          | V                |
| Collector current   | $I_C$     | 10         | A                |
| Base current  | $I_B$     | 1          | A                |
| Collector power dissipation<br>( $T_c = 25^\circ\text{C}$ ) | $P_C$     | 100        | W                |
| 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).

Unit: mm



Weight: 4.7 g (typ.)

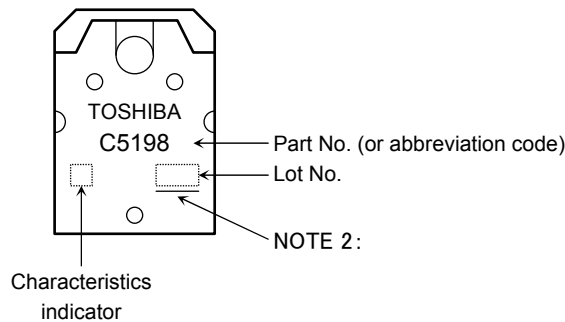
Start of commercial production  
1994-06

## Electrical Characteristics (T<sub>a</sub> = 25°C)

| Characteristics                      | Symbol                        | Test Condition  | Min | Typ. | Max | Unit |
|--------------------------------------|-------------------------------|---|-----|------|-----|------|
| Collector cut-off current            | I <sub>CBO</sub>              | V <sub>CB</sub> = 140 V, I <sub>E</sub> = 0           | —   | —    | 5.0 | μA   |
| Emitter cut-off current              | I <sub>EBO</sub>              | V <sub>EB</sub> = 5 V, I <sub>C</sub> = 0             | —   | —    | 5.0 | μA   |
| Collector-emitter breakdown voltage  | V <sub>(BR) CEO</sub>         | I <sub>C</sub> = 50 mA, I <sub>B</sub> = 0            | 140 | —    | —   | V    |
| DC current gain                      | h <sub>FE</sub> (1)<br>(Note) | 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> = 5 A           | 35  | 83   | —   |      |
| Collector-emitter saturation voltage | V <sub>CE (sat)</sub>         | I <sub>C</sub> = 7 A, I <sub>B</sub> = 0.7 A          | —   | 0.3  | 2.0 | V    |
| Base-emitter voltage                 | V <sub>BE</sub>               | V <sub>CE</sub> = 5 V, I <sub>C</sub> = 5 A           | —   | 0.9  | 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 | —   | 170  | —   | pF   |

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

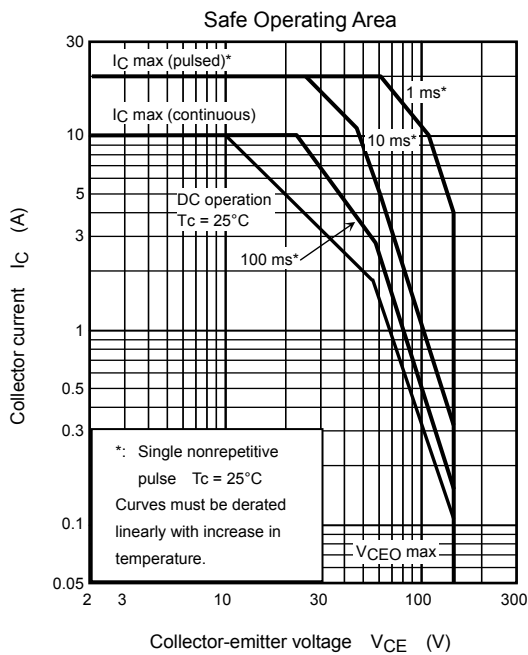
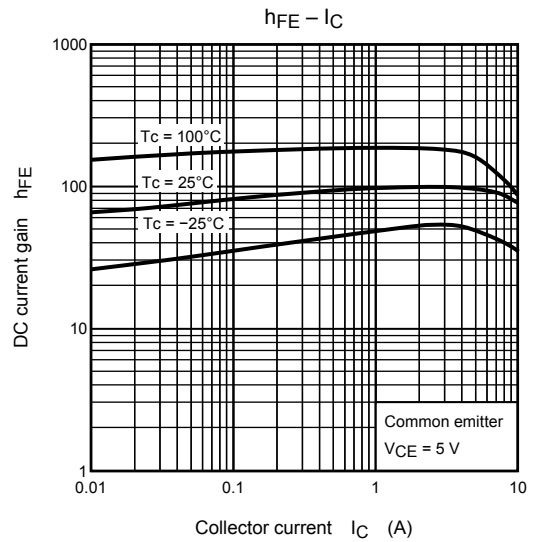
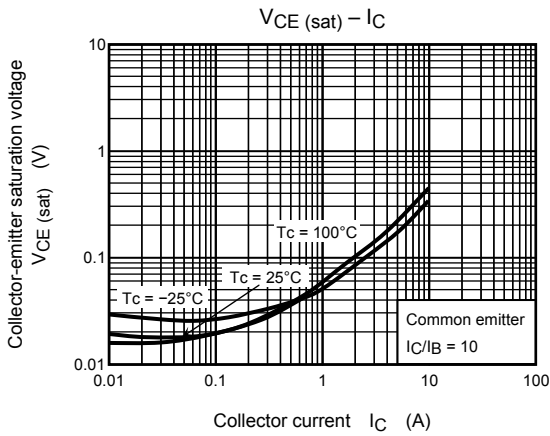
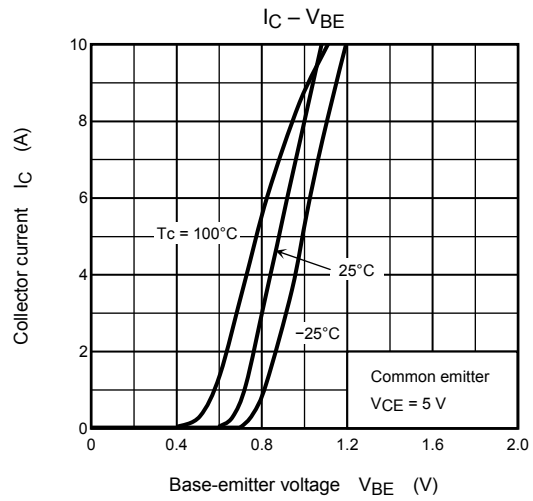
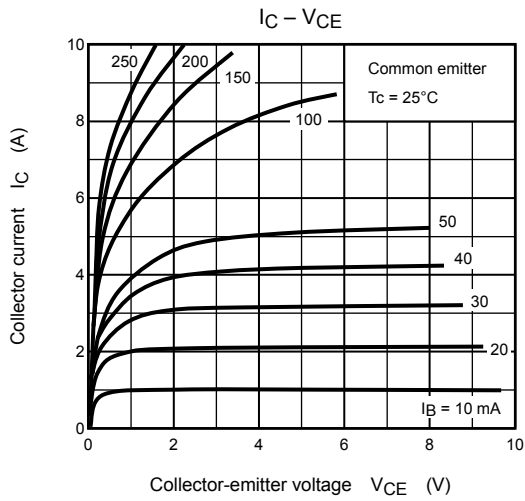
## Marking



Note 2 : A line under a Lot No. identifies the indication of product Labels.  
 [[G]]/RoHS COMPATIBLE or [[G]]/RoHS [[Pb]]

Please contact your TOSHIBA sales representative for details as to environmental matters such as the RoHS compatibility of Product.

The RoHS is the Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.



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