

# 2SC2898

Silicon NPN Triple Diffused

# HITACHI

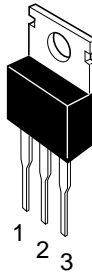
ADE-208-888 (Z)  
1st. Edition  
Sep. 2000

## Application

High voltage, high speed and high power switching

## Outline

TO-220AB



1. Base
2. Collector (Flange)
3. Emitter

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

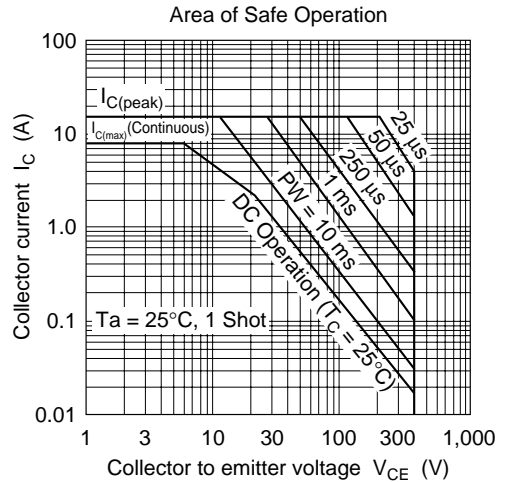
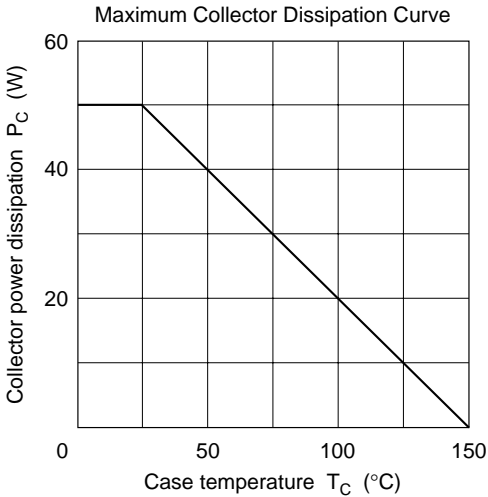
| Item                         | Symbol               | Ratings     | Unit |
|------------------------------|----------------------|-------------|------|
| Collector to base voltage    | V <sub>CBO</sub>     | 500         | V    |
| Collector to emitter voltage | V <sub>CEO</sub>     | 400         | V    |
| Emitter to base voltage      | V <sub>EBO</sub>     | 7           | V    |
| Collector current            | I <sub>C</sub>       | 8           | A    |
| Collector peak current       | I <sub>C(peak)</sub> | 16          | A    |
| Base current                 | I <sub>B</sub>       | 4           | A    |
| Collector power dissipation  | P <sub>C</sub> *1    | 50          | W    |
| Junction temperature         | T <sub>j</sub>       | 150         | °C   |
| Storage temperature          | T <sub>stg</sub>     | -55 to +150 | °C   |

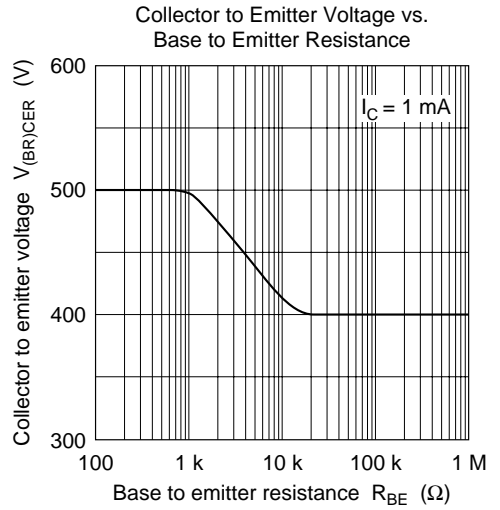
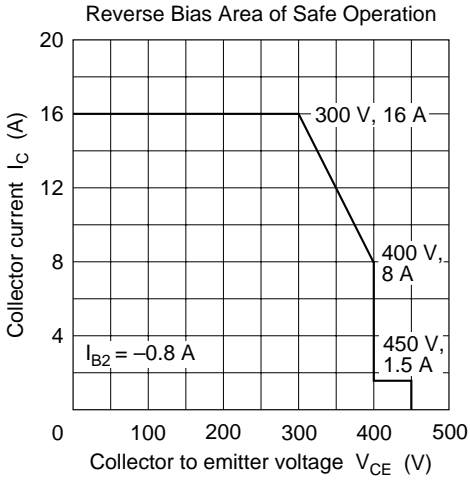
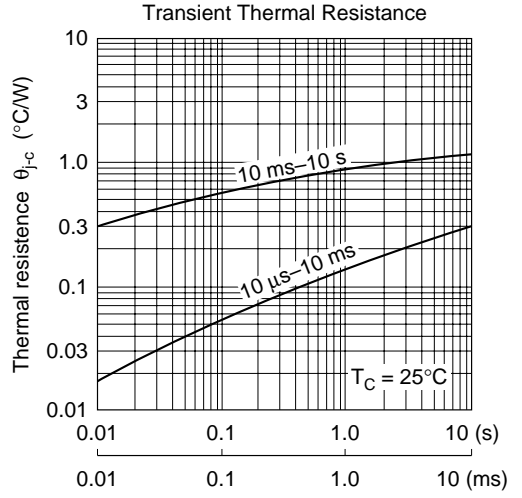
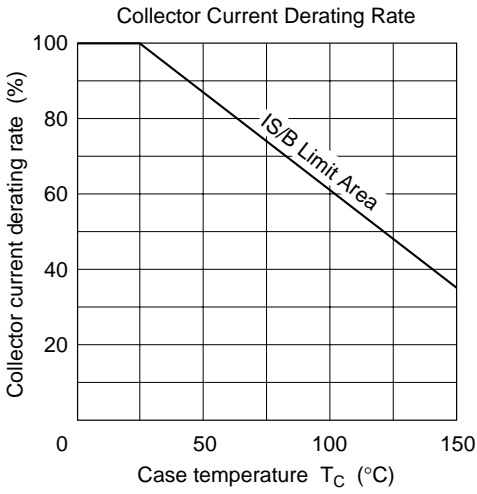
Note: 1. Value at T<sub>c</sub> = 25°C.

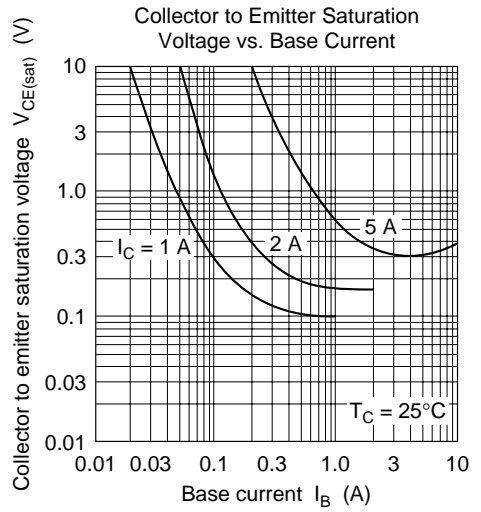
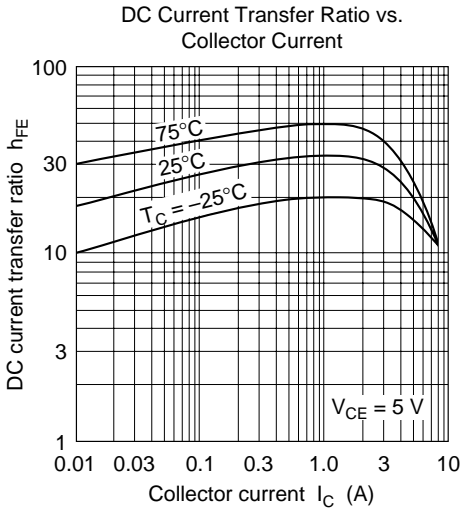
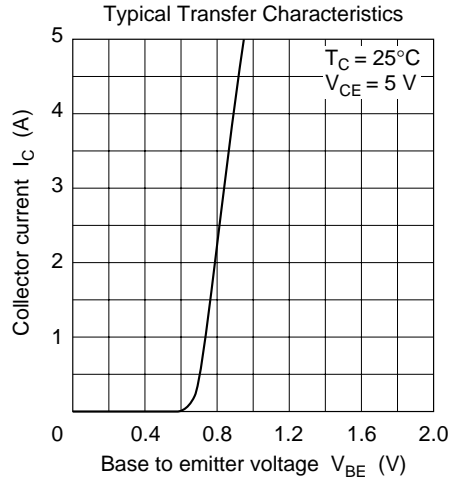
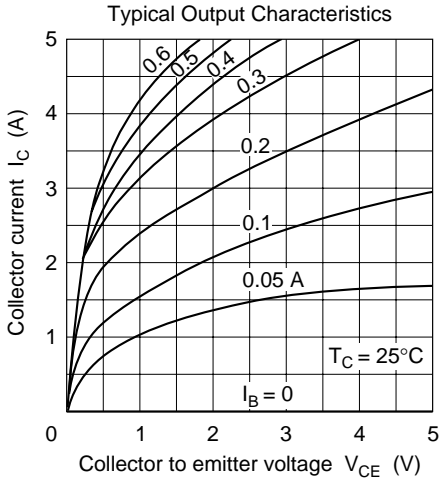
## Electrical Characteristics (Ta = 25°C)

| Item                                    | Symbol         | Min | Typ | Max | Unit          | Test conditions  |
|---|----------------|-----|-----|-----|---------------|--|
| Collector to emitter sustain voltage    | $V_{CEO(sus)}$ | 400 | —   | —   | V             | $I_C = 0.2 \text{ A}$ , $R_{BE} = \infty$ ,<br>$L = 100 \text{ mH}$  |
| Collector to emitter sustain voltage    | $V_{CEX(sus)}$ | 400 | —   | —   | V             | $I_C = 8 \text{ A}$ , $I_{B1} = 1.6 \text{ A}$ ,<br>$I_{B2} = -0.8 \text{ A}$ , $V_{BE} = -5 \text{ V}$ ,<br>$L = 180 \mu\text{H}$ , Clamped |
| Emitter to base breakdown voltage       | $V_{(BR)EBO}$  | 7   | —   | —   | V             | $I_E = 10 \text{ mA}$ , $I_C = 0$  |
| Collector cutoff current                | $I_{CBO}$      | —   | —   | 50  | $\mu\text{A}$ | $V_{CB} = 400 \text{ V}$ , $I_E = 0$   |
|   | $I_{CEO}$      | —   | —   | 50  | $\mu\text{A}$ | $V_{CE} = 350 \text{ V}$ , $R_{BE} = \infty$   |
| DC current transfer ratio               | $h_{FE1}$      | 15  | —   | —   |               | $V_{CE} = 5 \text{ V}$ , $I_C = 4 \text{ A}^{*1}$  |
|   | $h_{FE2}$      | 7   | —   | —   |               | $V_{CE} = 5 \text{ V}$ , $I_C = 8 \text{ A}^{*1}$  |
| Collector to emitter saturation voltage | $V_{CE(sat)}$  | —   | —   | 1.0 | V             | $I_C = 4 \text{ A}$ , $I_B = 0.8 \text{ A}^{*1}$   |
| Base to emitter saturation voltage      | $V_{BE(sat)}$  | —   | —   | 1.5 | V             |  |
| Turn on time                            | $t_{on}$       | —   | —   | 0.8 | $\mu\text{s}$ | $I_C = 8 \text{ A}$ , $I_{B1} = -I_{B2} = 1.6 \text{ A}$ ,   |
| Storage time                            | $t_{stg}$      | —   | —   | 2.0 | $\mu\text{s}$ | $V_{CC} \cong 150 \text{ V}$   |
| Fall time                               | $t_f$          | —   | —   | 0.8 | $\mu\text{s}$ |  |

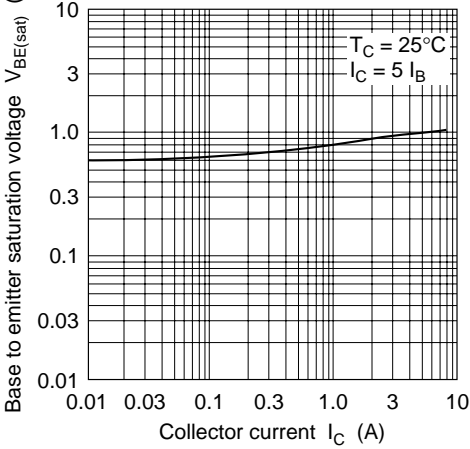
Note: 1. Pulse test



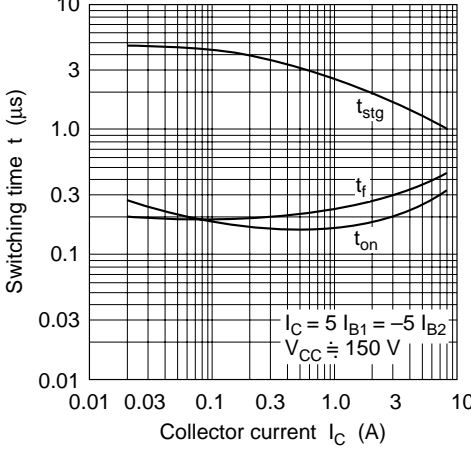




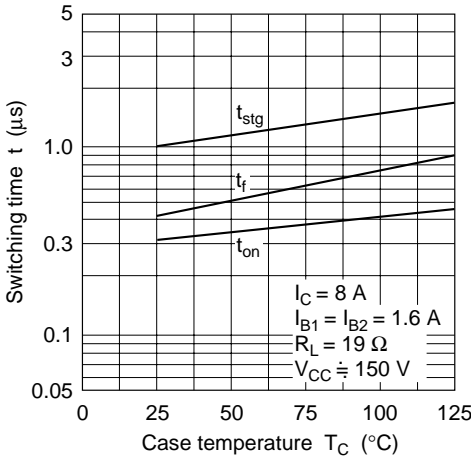
Base to Emitter Saturation Voltage vs. Collector Current



Switching Time vs. Collector Current

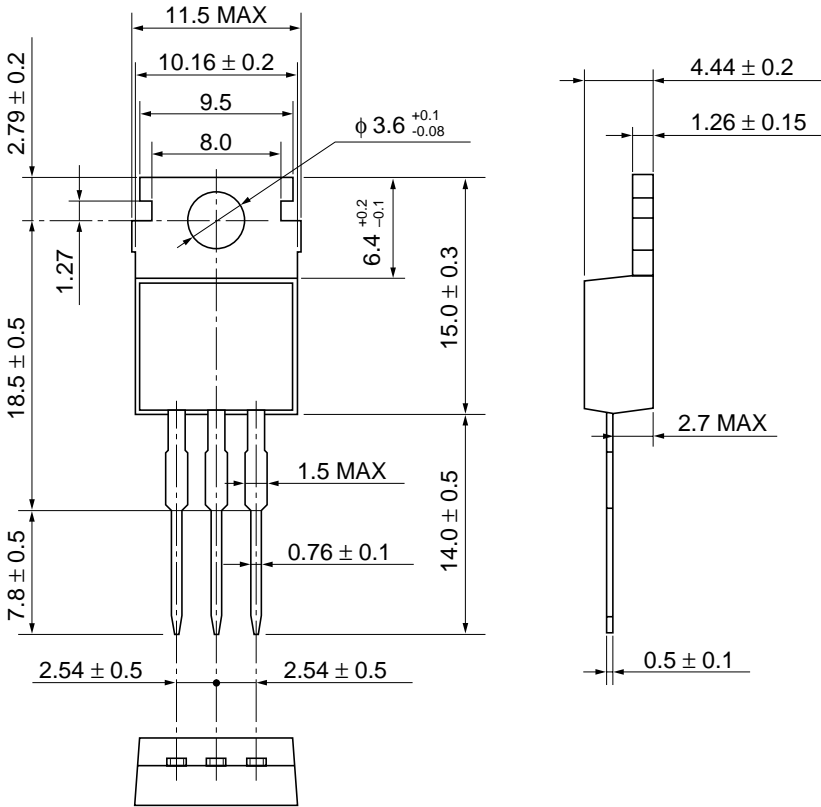


Switching Time vs. Case Temperature



Package Dimensions

Unit: mm



|                        |          |
|------------------------|----------|
| Hitachi Code           | TO-220AB |
| JEDEC                  | Conforms |
| EIAJ                   | Conforms |
| Mass (reference value) | 1.8 g    |

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