

2SC2979

Silicon NPN Triple Diffused

HITACHI

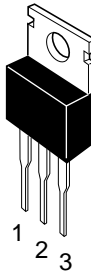
ADE-208-890 (Z)
1st. Edition
Sep. 2000

Application

High voltage, high speed and high power switching

Outline

TO-220AB



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

Absolute Maximum Ratings (T_a = 25°C)

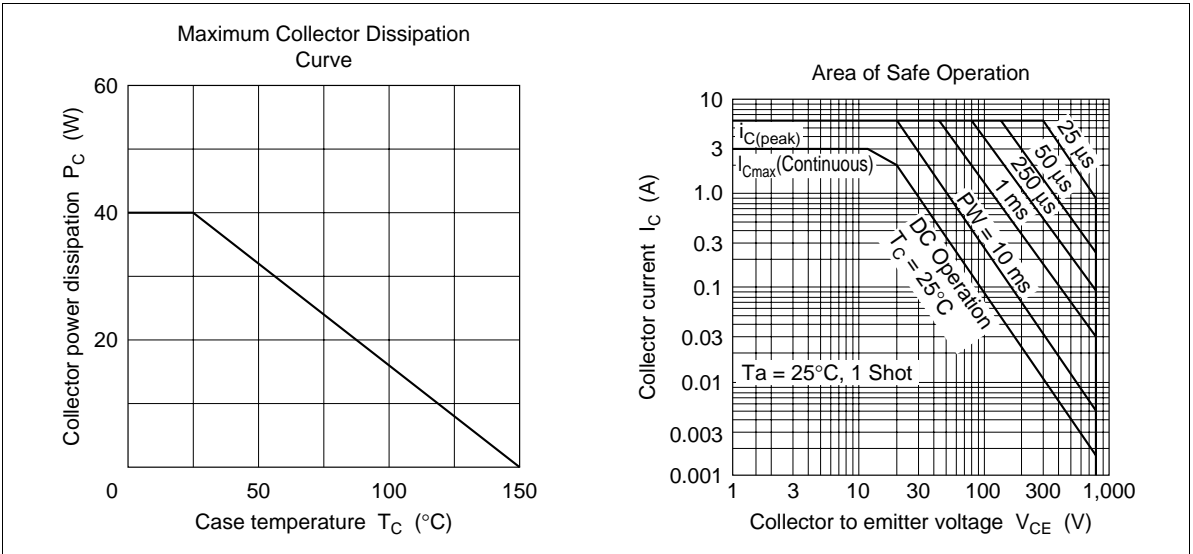
| Item | Symbol | Ratings | Unit |
|------------------------------|----------------------|-------------|------|
| Collector to base voltage | V _{CBO} | 900 | V |
| Collector to emitter voltage | V _{CEO} | 800 | V |
| Emitter to base voltage | V _{EBO} | 7 | V |
| Collector current | I _C | 3 | A |
| Collector peak current | I _{C(peak)} | 6 | A |
| Base current | I _B | 1.5 | A |
| Collector power dissipation | P _C *1 | 40 | W |
| Junction temperature | T _j | 150 | °C |
| Storage temperature | T _{stg} | -55 to +150 | °C |

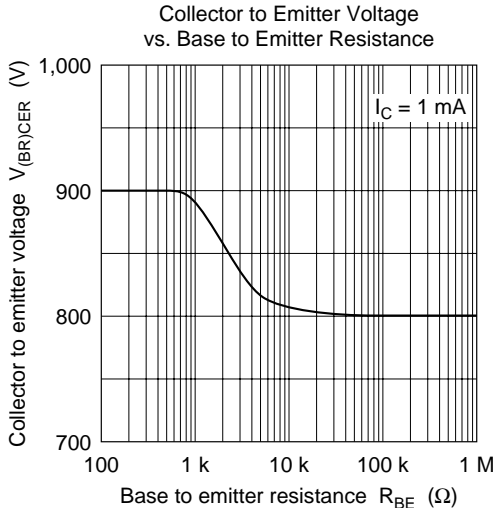
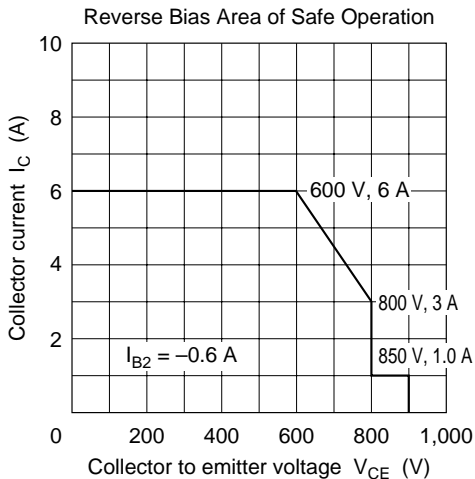
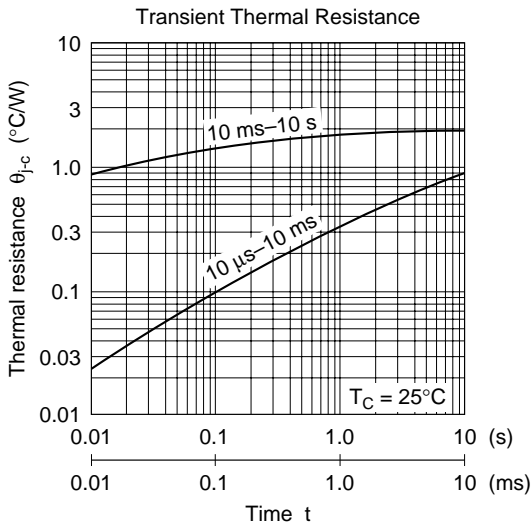
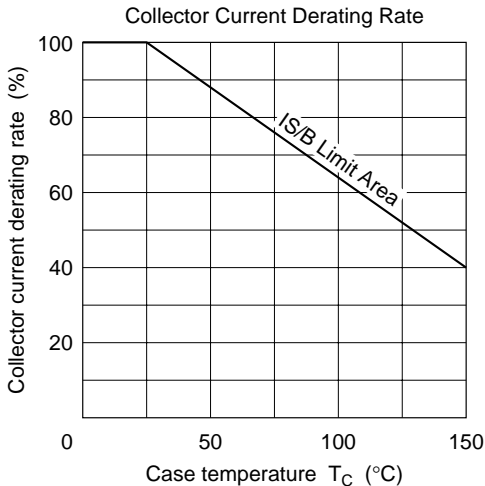
Note: 1. Value at T_c = 25°C.

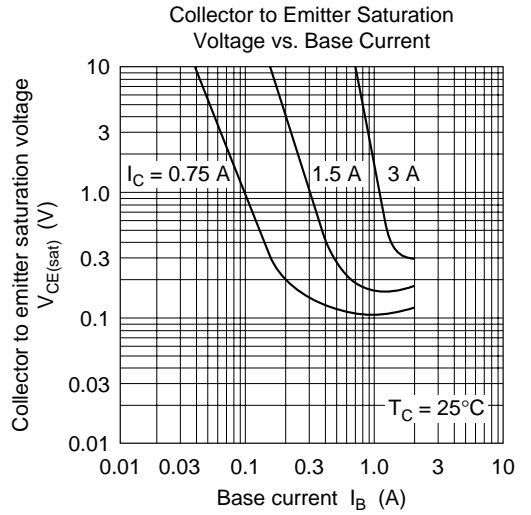
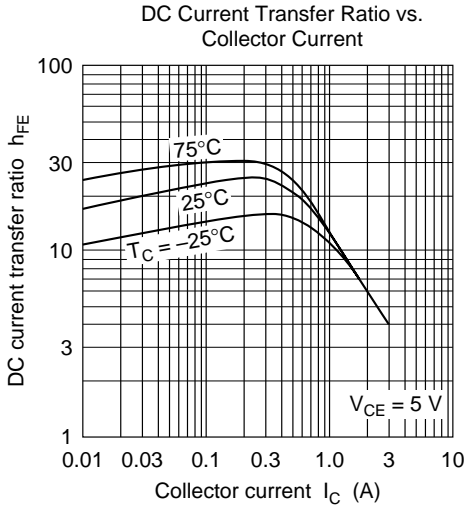
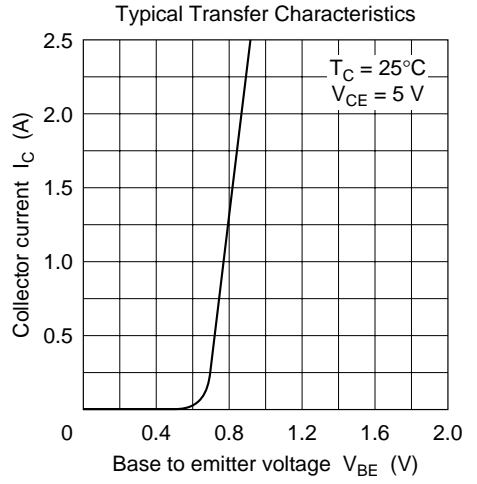
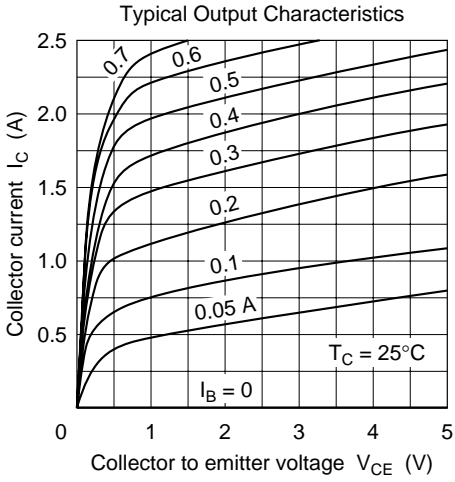
Electrical Characteristics (Ta = 25°C)

| Item | Symbol | Min | Typ | Max | Unit | Test conditions |
|---|----------------|-----|-----|-----|---------------|--|
| Collector to emitter sustain voltage | $V_{CEO(sus)}$ | 800 | — | — | V | $I_C = 0.2 \text{ A}$, $R_{BE} = \infty$, $L = 100 \text{ mH}$ |
| | $V_{CEX(sus)}$ | 800 | — | — | V | $I_C = 3 \text{ A}$, $I_{B1} = 0.9 \text{ A}$, $I_{B2} = -0.6 \text{ A}$, $V_{BE} = -5.0 \text{ V}$, $L = 180 \mu\text{H}$, Clamped |
| Emitter to base breakdown voltage | $V_{(BR)EBO}$ | 7 | — | — | V | $I_E = 10 \text{ mA}$, $I_C = 0$ |
| Collector cutoff current | I_{CBO} | — | — | 100 | μA | $V_{CB} = 750 \text{ V}$, $I_E = 0$ |
| | I_{CEO} | — | — | 100 | μA | $V_{CE} = 650 \text{ V}$, $R_{BE} = \infty$ |
| DC current transfer ratio | h_{FE1} | 15 | — | — | | $V_{CE} = 5 \text{ V}$, $I_C = 0.3 \text{ A}^{*1}$ |
| | h_{FE2} | 7 | — | — | | $V_{CE} = 5 \text{ V}$, $I_C = 1.5 \text{ A}^{*1}$ |
| Collector to emitter saturation voltage | $V_{CE(sat)}$ | — | — | 1.0 | V | $I_C = 0.75 \text{ A}$, $I_B = 0.15 \text{ A}^{*1}$ |
| Base to emitter saturation voltage | $V_{BE(sat)}$ | — | — | 1.5 | V | |
| Turn on time | t_{on} | — | — | 1.0 | μs | $I_C = 1.5 \text{ A}$, $I_{B1} = 0.3 \text{ A}$, |
| Storage time | t_{stg} | — | — | 3.0 | μs | $I_{B2} = -0.75 \text{ A}$, $V_{CC} \cong 250 \text{ V}$ |
| Fall time | t_f | — | — | 1.0 | μs | |

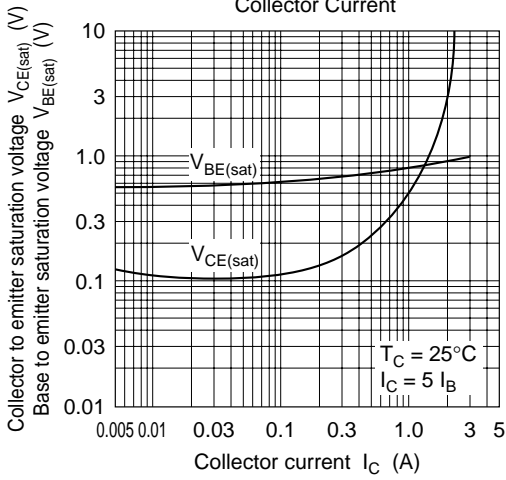
Note: 1. Pulse test



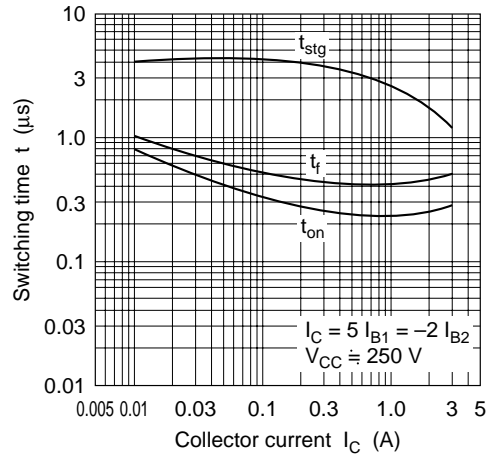




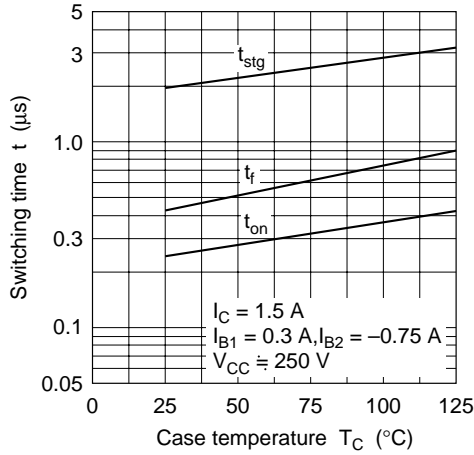
Saturation Voltage vs. Collector Current



Switching Time vs. Collector Current

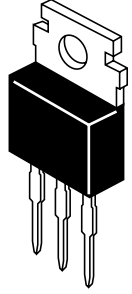
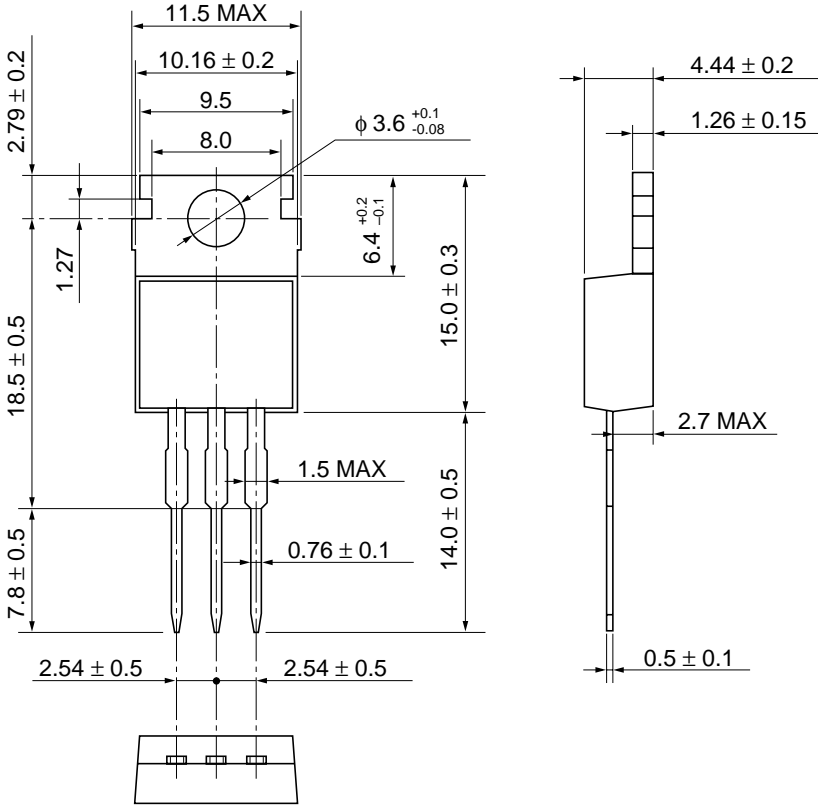


Switching Time vs. Case Temperature



Package Dimensions

Unit: mm



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

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