

2SD1559

Silicon NPN Triple Diffused

HITACHI

ADE-208-914 (Z)

1st. Edition

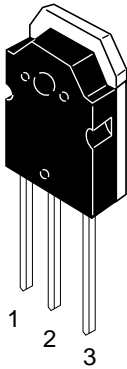
Sep. 2000

Application

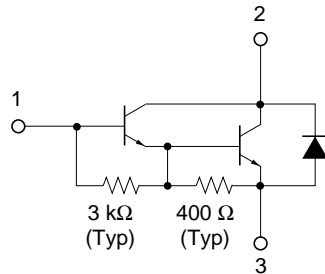
Low frequency power amplifier complementary pair with 2SB1079

Outline

TO-3P



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



Absolute Maximum Ratings (Ta = 25°C)

| Item | Symbol | Ratings | Unit |
|------------------------------|---------------|-------------|------|
| Collector to base voltage | V_{CBO} | 100 | V |
| Collector to emitter voltage | V_{CEO} | 100 | V |
| Emitter to base voltage | V_{EBO} | 7 | V |
| Collector current | I_C | 20 | A |
| Collector peak current | $I_{C(peak)}$ | 30 | A |
| Base current | I_B | 3 | A |
| Collector power dissipation | P_C^{*1} | 100 | W |
| Junction temperature | T_j | 150 | °C |
| Storage temperature | T_{stg} | -55 to +150 | °C |

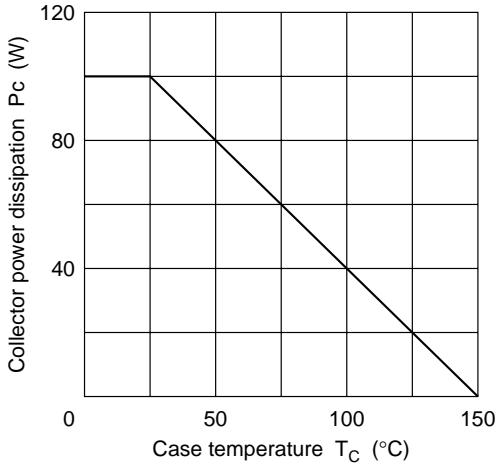
Note: 1. Value at $T_C = 25^\circ\text{C}$.

Electrical Characteristics (Ta = 25°C)

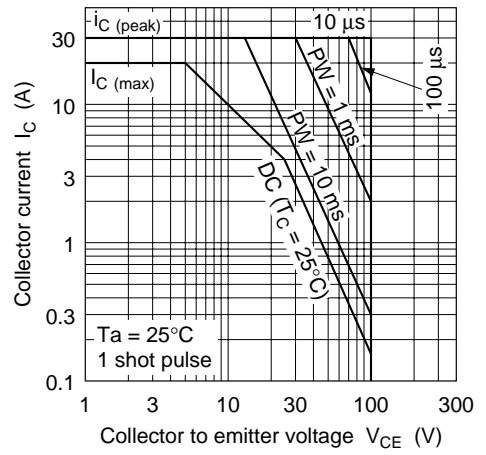
| Item | Symbol | Min | Typ | Max | Unit | Test conditions |
|---|----------------|------|-----|-------|---------------|--|
| Collector to base breakdown voltage | $V_{(BR)CBO}$ | 100 | — | — | V | $I_C = 0.1 \text{ mA}, I_E = 0$ |
| Collector to emitter breakdown voltage | $V_{(BR)CEO}$ | 100 | — | — | V | $I_C = 25 \text{ mA}, R_{BE} = \infty$ |
| Collector to emitter sustain voltage | $V_{CEO(sus)}$ | 100 | — | — | V | $I_C = 200 \text{ mA}, R_{BE} = \infty^{*1}$ |
| Emitter to base breakdown voltage | $V_{(BR)EBO}$ | 7 | — | — | V | $V_{EB} = 50 \text{ mA}, I_C = 0$ |
| Collector cutoff current | I_{CBO} | — | — | 100 | μA | $V_{CB} = 100 \text{ V}, I_E = 0$ |
| | I_{CEO} | — | — | 1.0 | mA | $V_{CE} = 80 \text{ V}, R_{BE} = \infty$ |
| DC current transfer ratio | h_{FE} | 1000 | — | 20000 | | $V_{CE} = 3 \text{ V}, I_C = 10 \text{ A}^{*1}$ |
| Collector to emitter saturation voltage | $V_{CE(sat)1}$ | — | — | 2.0 | V | $I_C = 10 \text{ A}, I_B = 20 \text{ mA}^{*1}$ |
| Base to emitter saturation voltage | $V_{BE(sat)1}$ | — | — | 2.5 | V | |
| Collector to emitter saturation voltage | $V_{CE(sat)2}$ | — | — | 3.0 | V | $I_C = 20 \text{ A}, I_B = 200 \text{ mA}^{*1}$ |
| Base to emitter saturation voltage | $V_{BE(sat)2}$ | — | — | 3.5 | V | |
| Turn on time | t_{on} | — | 1.0 | — | μs | $I_C = 10 \text{ A}, I_{B1} = -I_{B2} = 20 \text{ mA}$ |
| Storage time | t_{stg} | — | 9.0 | — | μs | |
| Fall time | t_f | — | 3.0 | — | μs | |

Note: 1. Pulse test.

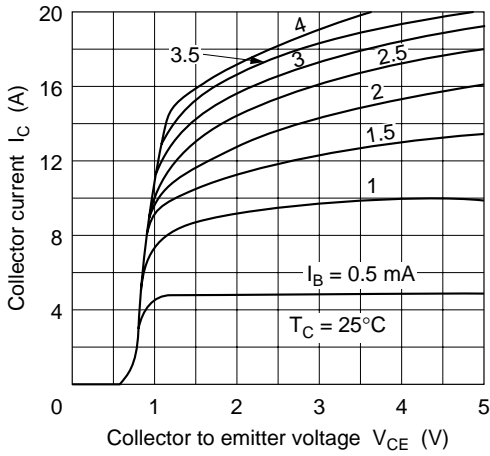
Maximum Collector Dissipation Curve



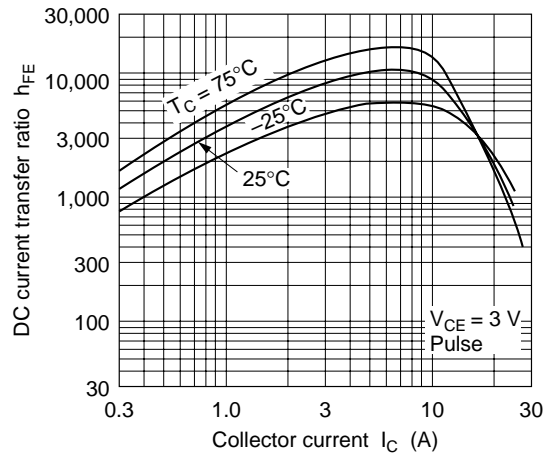
Area of Safe Operation

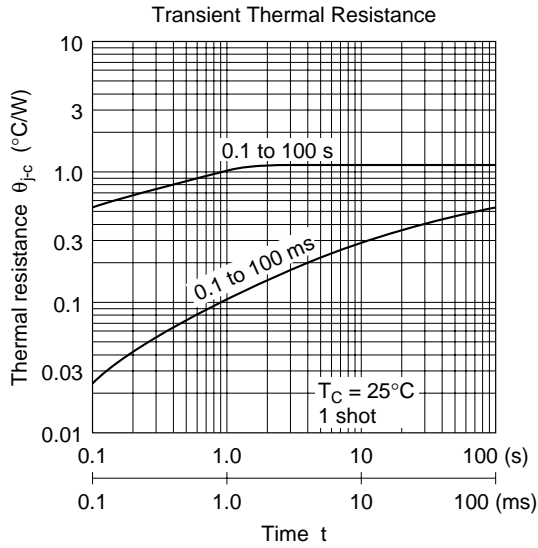
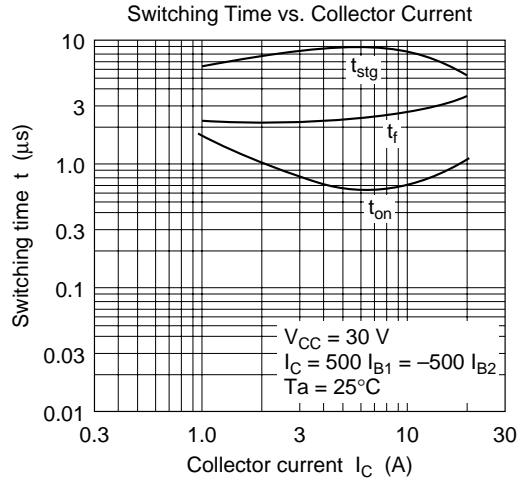
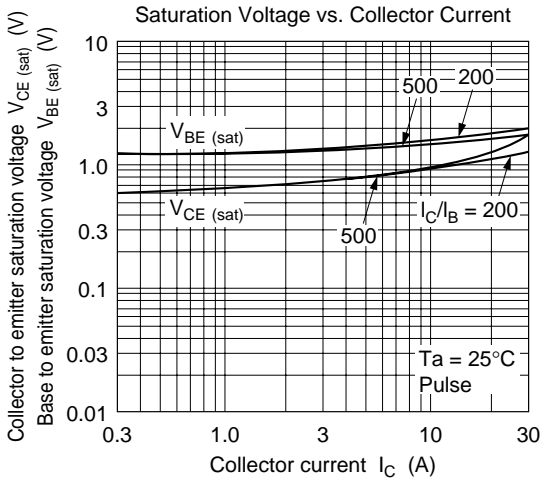


Typical Output Characteristics



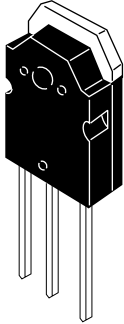
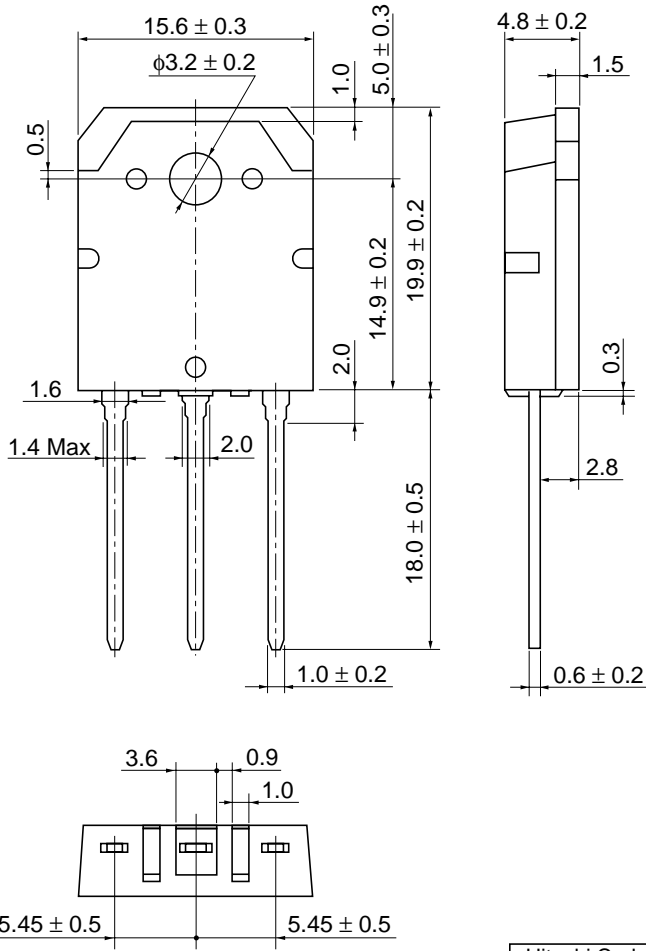
DC Current Transfer Ratio vs. Collector Current





Package Dimensions

Unit: mm



| | |
|------------------------|----------|
| Hitachi Code | TO-3P |
| JEDEC | — |
| EIAJ | Conforms |
| Mass (reference value) | 5.0 g |

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