To our customers,

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Renesas Electronics website: http://www.renesas.com

April 1st, 2010
Renesas Electronics Corporation



Issued by: Renesas Electronics Corporation (http://www.renesas.com)

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To all our customers

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Renesas Technology Corp.
Customer Support Dept.
April 1, 2003

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# 2SB1079

Silicon PNP Triple Diffused

ADE-208-866 (Z)
1st. Edition
September 2000

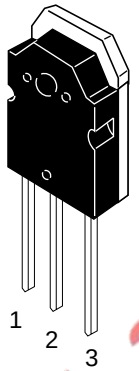


## Application

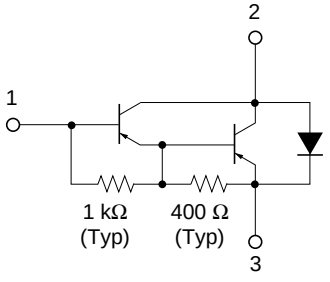
Low frequency power amplifier complementary pair with 2SD1559

## 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 | Tj | 150 | °C |
| Storage temperature | Tstg | –55 to +150 | °C |

Note: 1. Value at $T_C$ = 25°C.

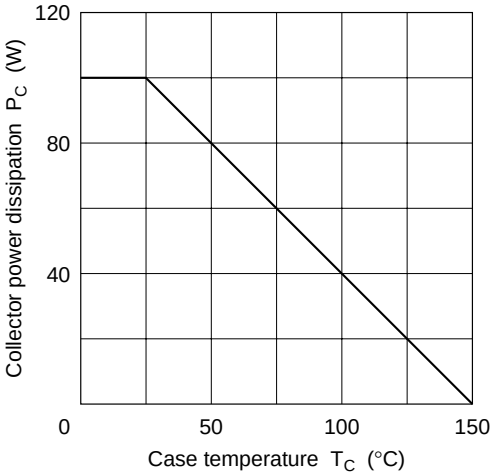


## Electrical Characteristics (Ta = 25°C)

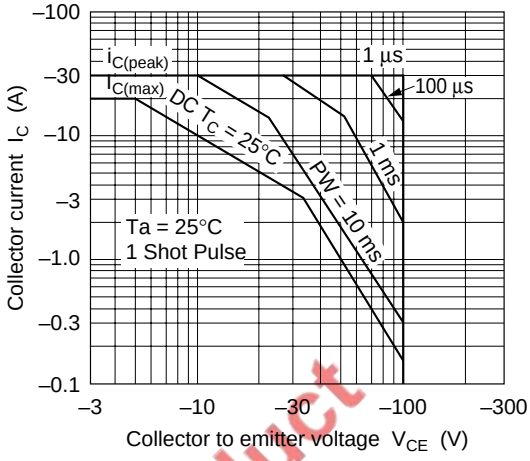
| Item | Symbol | Min | Typ | Max | Unit | Test conditions |
|---|---|---|---|---|---|---|
| Collector to base breakdown voltage | $V_{(BR)CBO}$ | –100 | — | — | V | $I_C$ = –0.1 mA, $I_E$ = 0 |
| Collector to emitter breakdown voltage | $V_{(BRCEO}$ | –100 | — | — | V | $I_C$ = –25 mA, $R_{BE}$ = ∞ |
| Collector to emitter sustain voltage | $V_{CEO(sus)}$ | –100 | — | — | V | $I_C$ = –200 mA, $R_{BE}$ = ∞*[1] |
| Emitter to base breakdown voltage | $V_{(BR)EBO}$ | –7 | — | — | V | $I_E$ = –50 mA, $I_C$ = 0 |
| Collector cutoff current | $I_{CBO}$ | — | — | –100 | µA | $V_{CB}$ = –100 V, $I_E$ = 0 |
| | $I_{CEO}$ | — | — | –1.0 | mA | $V_{CE}$ = –80 V, $R_{BE}$ = ∞ |
| DC current transfer ratio | $h_{FE}$ | 1000 | — | 20000 | | $V_{CE}$ = –3 V, $I_C$ = –10 A*[1] |
| Collector to emitter saturation voltage | $V_{CE(sat)1}$ | — | — | –2.0 | V | $I_C$ = –10 A, $I_B$ = –20 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 A, $I_B$ = –200 mA*[1] |
| Base to emitter saturation voltage | $V_{BE(sat)2}$ | — | — | –3.5 | V | |
| Turn on time | $t_{on}$ | — | 0.6 | — | µs | $I_C$ = –10 A, $I_{B1}$ = $-I_{B2}$ = –20 mA |
| Storage time | $t_{stg}$ | — | 3.5 | — | µs | |

Note: 1. Pulse Test.

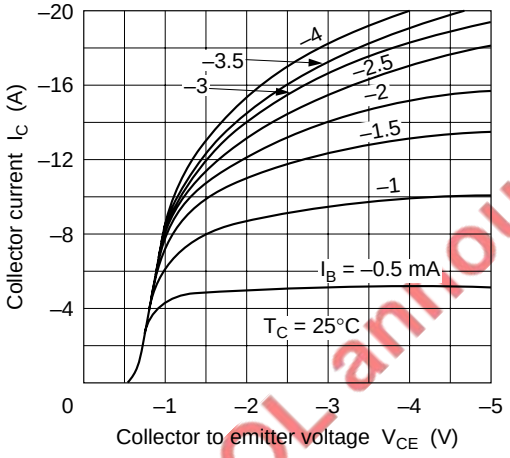
Maximum Collector Dissipation Curve



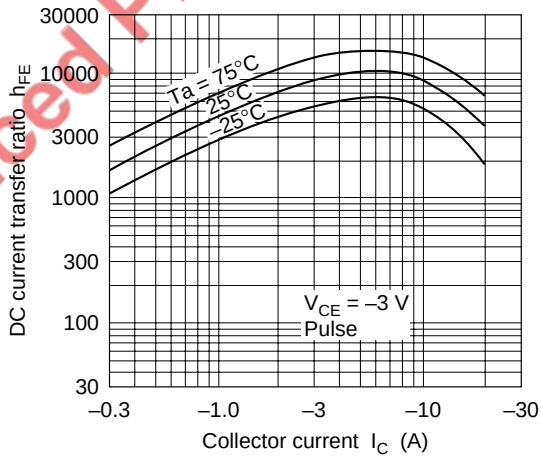

Area of Safe Operation



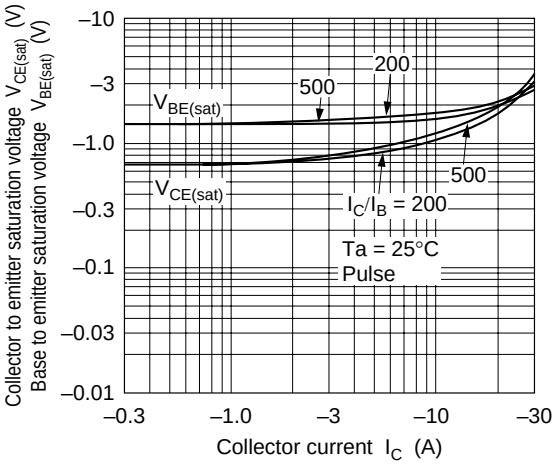

Typical Output Characteristics



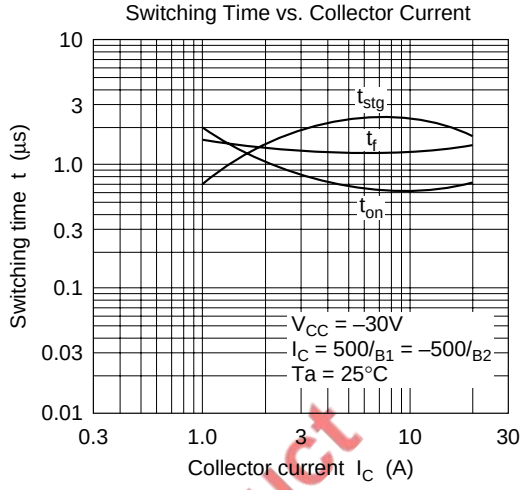

DC Current Transfer Ratio vs. Collector Current



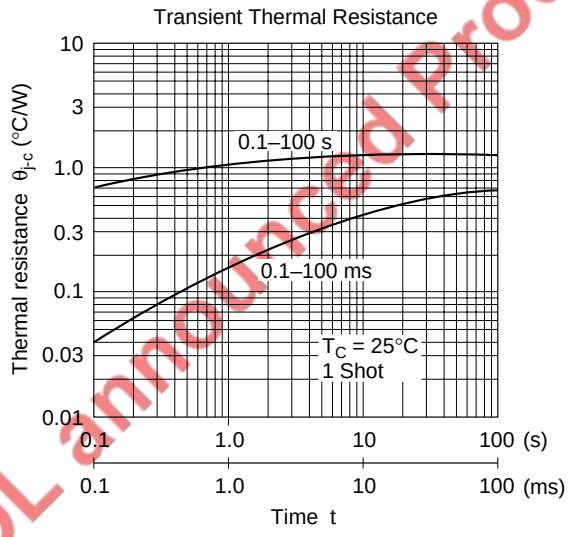
Saturation Voltage vs. Collector Current




Switching Time vs. Collector Current




Transient Thermal Resistance



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