

# 2SD2122(L)/(S), 2SD2123(L)/(S)

Silicon NPN Epitaxial

# HITACHI

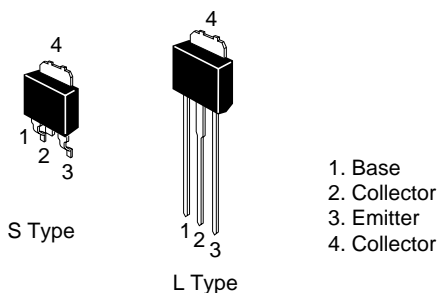
ADE-208-926 (Z)  
1st. Edition  
Sep. 2000

## Application

Low frequency power amplifier complementary pair with 2SB1409(L)/(S)

## Outline

DPAK



# 2SD2122(L)/(S), 2SD2123(L)/(S)

## Absolute Maximum Ratings (Ta = 25°C)

| Item                         | Symbol        | Ratings        |                | Unit |
|------------------------------|---------------|----------------|----------------|------|
|                              |               | 2SD2122(L)/(S) | 2SD2123(L)/(S) |      |
| Collector to base voltage    | $V_{CBO}$     | 180            | 180            | V    |
| Collector to emitter voltage | $V_{CEO}$     | 120            | 160            | V    |
| Emitter to base voltage      | $V_{EBO}$     | 5              | 5              | V    |
| Collector current            | $I_C$         | 1.5            | 1.5            | A    |
| Collector peak current       | $I_{C(peak)}$ | 3              | 3              | A    |
| Collector power dissipation  | $P_C^{*1}$    | 18             | 18             | W    |
| Junction temperature         | Tj            | 150            | 150            | °C   |
| Storage temperature          | Tstg          | -55 to +150    | -55 to +150    | °C   |

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

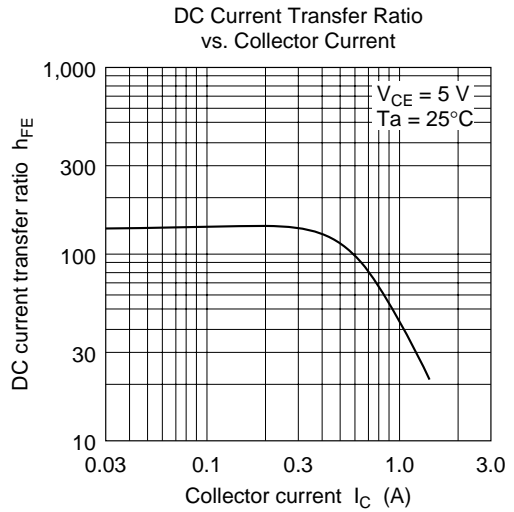
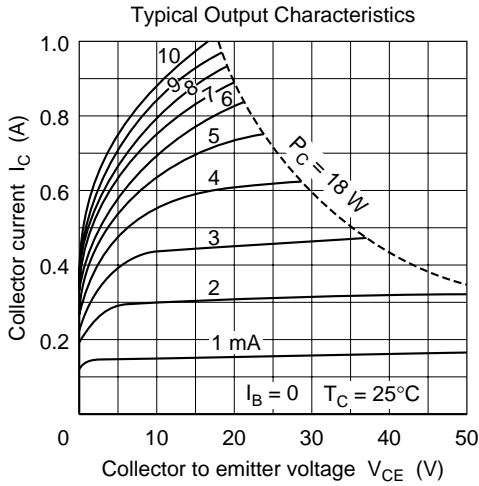
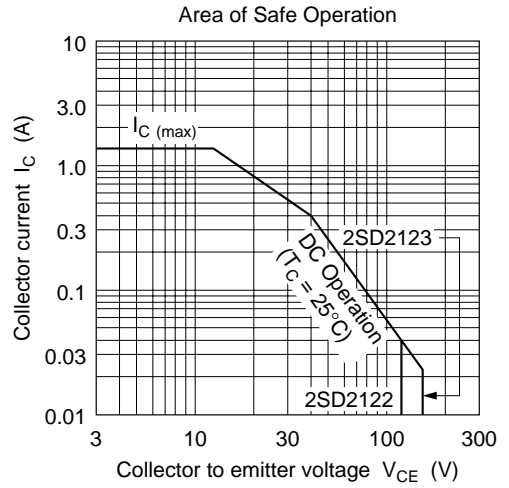
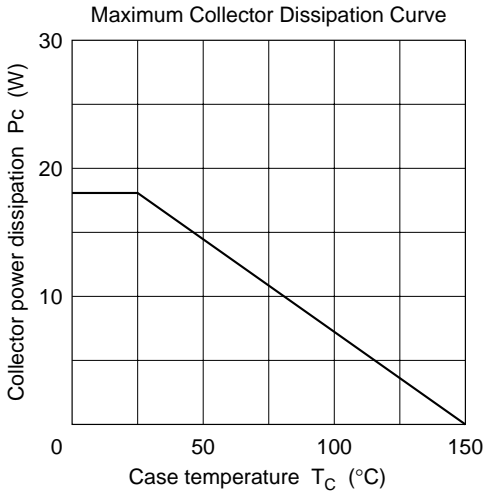
## Electrical Characteristics (Ta = 25°C)

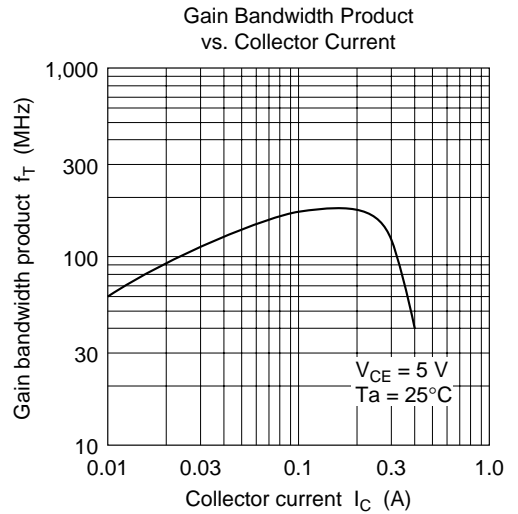
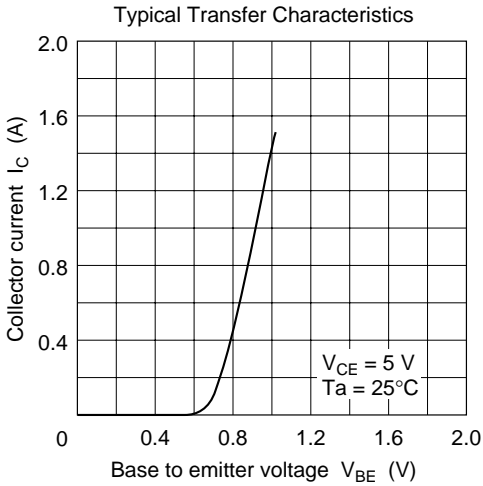
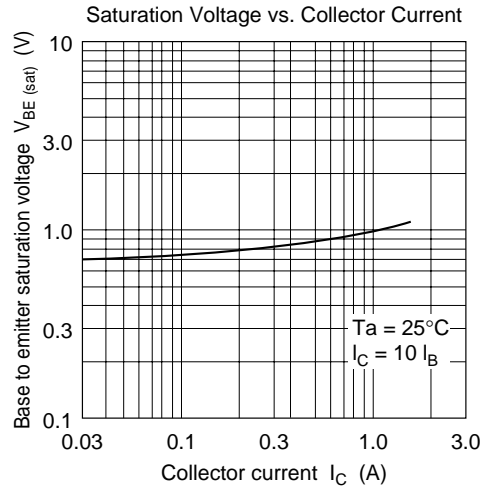
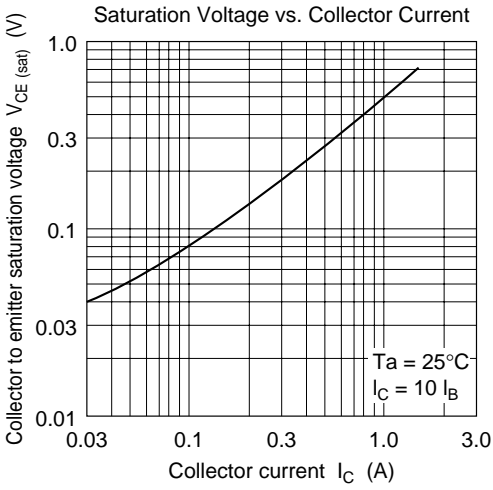
| Item                                    | Symbol         | 2SD2122(L)/(S) |     |     | 2SD2123(L)/(S) |     |     | Unit          | Test conditions                                     |
|---|----------------|----------------|-----|-----|----------------|-----|-----|---------------|---|
|   |                | Min            | Typ | Max | Min            | Typ | Max |               |   |
| Collector to base breakdown voltage     | $V_{(BR)CBO}$  | 180            | —   | —   | 180            | —   | —   | V             | $I_C = 1 \text{ mA}, I_E = 0$                       |
| Collector to emitter breakdown voltage  | $V_{(BR)CEO}$  | 120            | —   | —   | 160            | —   | —   | V             | $I_C = 10 \text{ mA}, R_{BE} = \infty$              |
| Emitter to base breakdown voltage       | $V_{(BR)EBO}$  | 5              | —   | —   | 5              | —   | —   | V             | $I_E = 1 \text{ mA}, I_C = 0$                       |
| Collector cutoff current                | $I_{CBO}$      | —              | —   | 10  | —              | —   | 10  | $\mu\text{A}$ | $V_{CB} = 160 \text{ V}, I_E = 0$                   |
| DC current transfer ratio               | $h_{FE1}^{*2}$ | 60             | —   | 200 | 60             | —   | 200 | A             | $V_{CE} = 5 \text{ V}, I_C = 150 \text{ mA}^{*1}$   |
|   | $h_{FE2}$      | 30             | —   | —   | 30             | —   | —   |               | $V_{CE} = 5 \text{ V}, I_C = 500 \text{ mA}^{*1}$   |
| Collector to emitter saturation voltage | $V_{CE(sat)}$  | —              | —   | 1   | —              | —   | 1   | V             | $I_C = 500 \text{ mA}, I_B = 50 \text{ mA}^{*1}$    |
| Base to emitter voltage                 | $V_{BE}$       | —              | —   | 1.5 | —              | —   | 1.5 | V             | $V_{CE} = 5 \text{ V}, I_C = 150 \text{ mA}^{*1}$   |
| Gain bandwidth product                  | $f_T$          | —              | 180 | —   | —              | 180 | —   | MHz           | $V_{CE} = 5 \text{ V}, I_C = 150 \text{ mA}^{*1}$   |
| Collector output capacitance            | Cob            | —              | 14  | —   | —              | 14  | —   | pF            | $V_{CB} = 10 \text{ V}, I_E = 0, f = 1 \text{ MHz}$ |

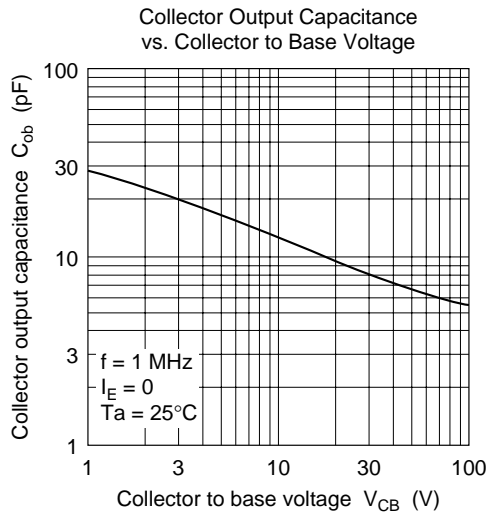
Notes: 1. Pulse test

2. The 2SD2122(L)/(S) and 2SD2123(L)/(S) are grouped by  $h_{FE1}$  as follows.

| B         | C          |
|-----------|------------|
| 60 to 120 | 100 to 200 |



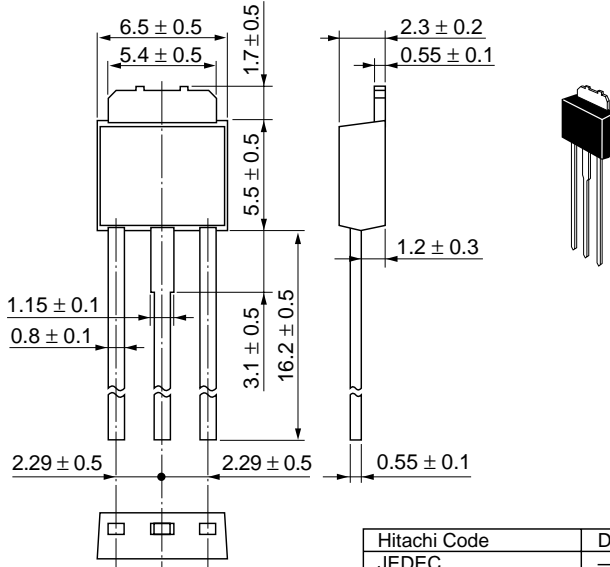




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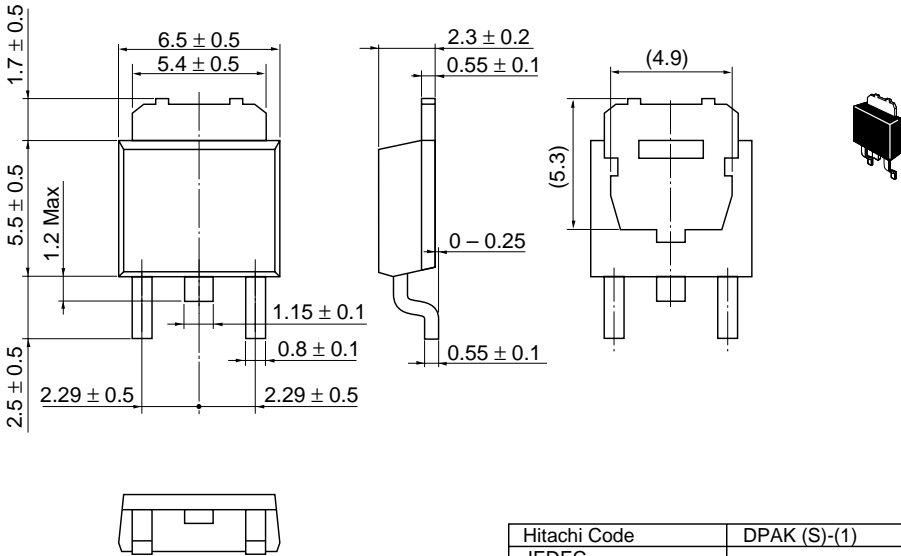
## Package Dimensions

Unit: mm



|                        |              |
|------------------------|--------------|
| Hitachi Code           | DPAK (L)-(1) |
| JEDEC                  | —            |
| EIAJ                   | Conforms     |
| Mass (reference value) | 0.42 g       |

Unit: mm



|                        |              |
|------------------------|--------------|
| Hitachi Code           | DPAK (S)-(1) |
| JEDEC                  | —            |
| EIAJ                   | Conforms     |
| Mass (reference value) | 0.28 g       |

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