# 2SB1025

## Silicon PNP Epitaxial

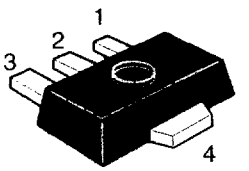
# HITACHI

## Application

- Low frequency power amplifier
- Complementary pair with 2SD1418

## Outline

UPAK




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

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

| Item | Symbol | Ratings | Unit |
|---|---|---|---|
| Collector to base voltage | $V_{CBO}$ | –120 | V |
| Collector to emitter voltage | $V_{CEO}$ | –80 | V |
| Emitter to base voltage | $V_{EBO}$ | –5 | V |
| Collector current | $I_C$ | –1 | A |
| Collector peak current | $i_{C(peak)}$ *1 | –2 | A |
| Collector power dissipation | $P_C$ *2 | 1 | W |
| Junction temperature | Tj | 150 | °C |
| Storage temperature | Tstg | –55 to +150 | °C |

Notes: 1. PW ≤ 10 ms, Duty cycle ≤ 20%
2. Value on the alumina ceramic board (12.5 × 20 × 0.7 mm)

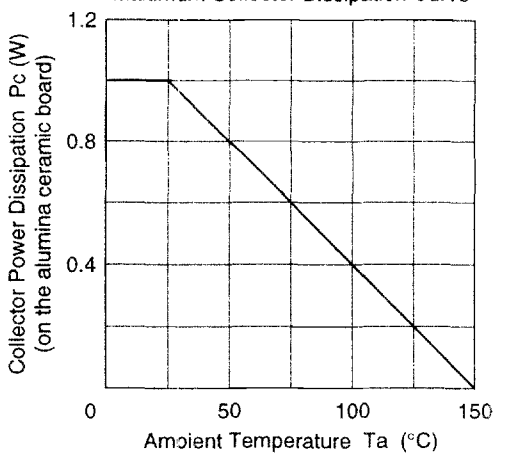
## Electrical Characteristics (Ta = 25°C)

| Item | Symbol | Min | Typ | Max | Unit | Test conditions |
|---|---|---|---|---|---|---|
| Collector to base breakdown voltage | $V_{(BR)CBO}$ | –120 | — | — | V | $I_C$ = –10 µA, $I_E$ = 0 |
| Collector to emitter breakdown voltage | $V_{(BR)CEO}$ | –80 | — | — | V | $I_C$ = –1 mA, $R_{BE}$ = ∞ |
| Emitter to base breakdown voltage | $V_{(BR)EBO}$ | –5 | — | — | V | $I_E$ = –10 µA, $I_C$ = 0 |
| Collector cutoff current | $I_{CBO}$ | — | — | –10 | µA | $V_{CB}$ = –100 V, $I_E$ = 0 |
| DC current transfer ratio | $h_{FE1}$ *1 | 60 | — | 320 | | $V_{CE}$ = –5 V, $I_C$ = –150 mA |
| | $h_{FE2}$ | 30 | — | — | | $V_{CE}$ = –5 V, $I_C$ = –500 mA (Pulse test) |
| Collector to emitter saturation voltage | $V_{CE(sat)}$ | — | — | –1 | V | $I_C$ = –500 mA, $I_B$ = –50 mA (Pulse test) |
| Base to emitter voltage | $V_{BE}$ | — | — | –0.9 | V | $V_{CE}$ = –5 V, $I_C$ = –150 mA |
| Gain bandwidth product | $f_T$ | — | 140 | — | MHz | $V_{CE}$ = –5 V, $I_C$ = –150 mA |
| Collector output capacitance | Cob | — | 20 | — | pF | $V_{CB}$ = –10 V, $I_E$ = 0, f = 1 MHz |

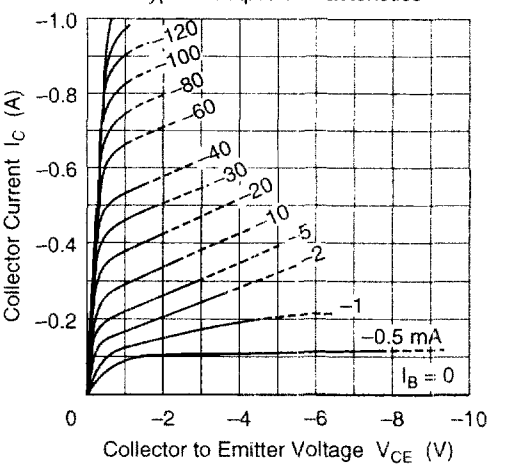
Note: 1. The 2SB1025 is grouped by $h_{FE1}$ as follows.

| Mark | DH | DJ | DK |
|---|---|---|---|
| $h_{FE1}$ | 60 to 120 | 100 to 200 | 160 to 320 |

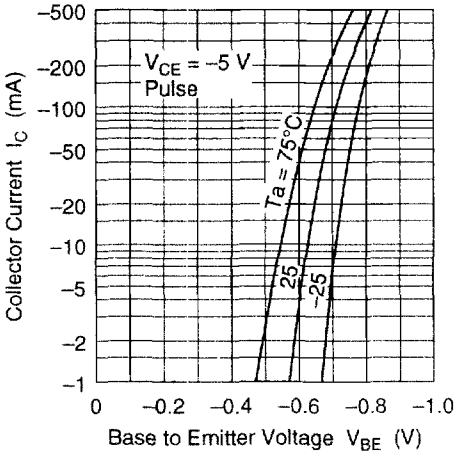
Maximum Collector Dissipation Curve



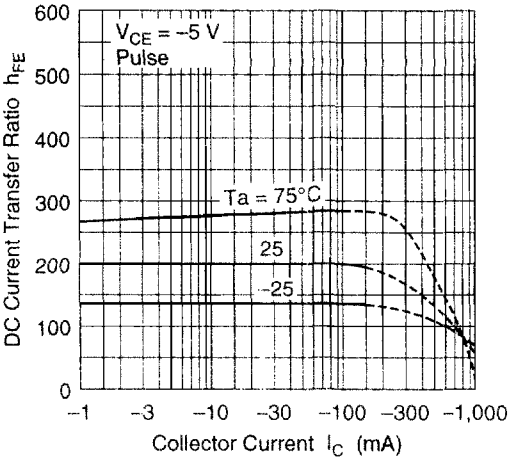

Typical Output Characteristics



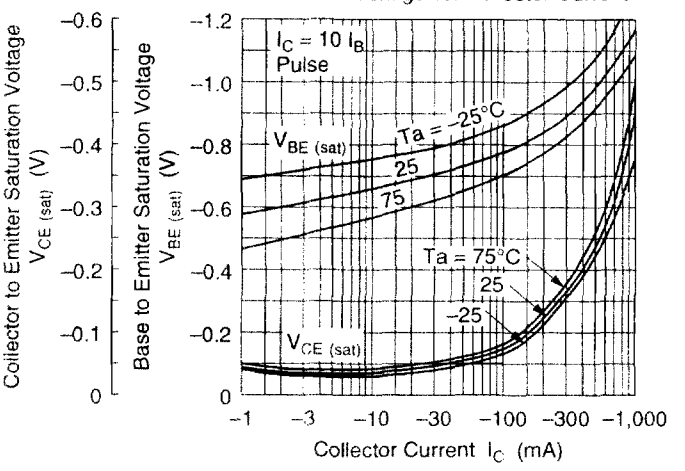

Typical Output Characteristics



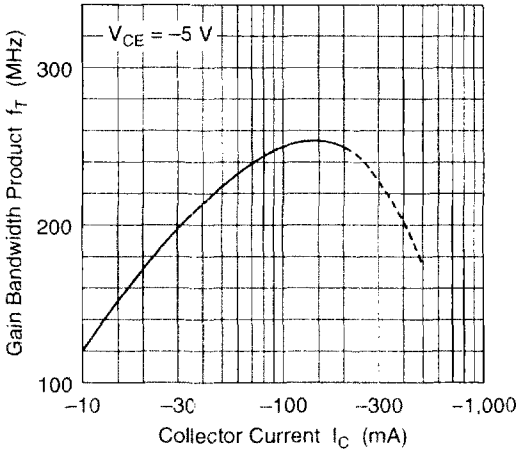

DC Current Transfer Ratio vs. Collector Current



Saturation Voltage vs. Collector Current




Gain Bandwidth Product vs. Collector Current




Collector Output Capacitance vs. Collector to Base Voltage