

# 2SB1398

## Silicon PNP epitaxial planer type

For low-frequency output amplification

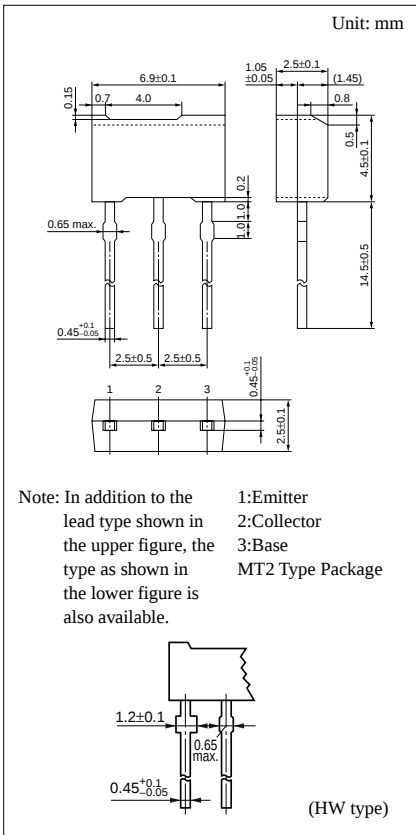
### ■ Features

- Low collector to emitter saturation voltage  $V_{CE(sat)}$ .
- Large collector current  $I_C$ .
- Allowing supply with the radial taping.

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

| Parameter                    | Symbol    | Ratings    | Unit |
|------------------------------|-----------|------------|------|
| Collector to base voltage    | $V_{CBO}$ | -30        | V    |
| Collector to emitter voltage | $V_{CEO}$ | -25        | V    |
| Emitter to base voltage      | $V_{EBO}$ | -7         | V    |
| Peak collector current       | $I_{CP}$  | -8         | A    |
| Collector current            | $I_C$     | -5         | A    |
| Collector power dissipation  | $P_C^*$   | 1          | W    |
| Junction temperature         | $T_j$     | 150        | °C   |
| Storage temperature          | $T_{stg}$ | -55 ~ +150 | °C   |

\* Printed circuit board: Copper foil area of 1cm<sup>2</sup> or more, and the board thickness of 1.7mm for the collector portion



### ■ Electrical Characteristics (Ta=25°C)

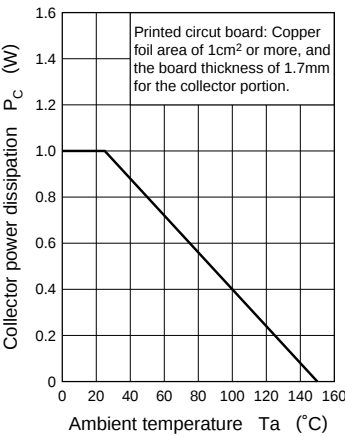
| Parameter                               | Symbol        | Conditions                             | min | typ | max  | Unit |
|-----------------------------------------|---------------|----------------------------------------|-----|-----|------|------|
| Collector cutoff current                | $I_{CBO}$     | $V_{CB} = -10V, I_E = 0$               |     |     | -100 | nA   |
| Emitter cutoff current                  | $I_{EBO}$     | $V_{EB} = -5V, I_C = 0$                |     |     | -100 | nA   |
| Collector to emitter voltage            | $V_{CEO}$     | $I_C = -1mA, I_B = 0$                  | -25 |     |      | V    |
| Emitter to base voltage                 | $V_{EBO}$     | $I_E = -10\mu A, I_C = 0$              | -7  |     |      | V    |
| Forward current transfer ratio          | $h_{FE}^{*1}$ | $V_{CE} = -2V, I_C = -2A^{*2}$         | 90  |     | 205  |      |
| Collector to emitter saturation voltage | $V_{CE(sat)}$ | $I_C = -3A, I_B = -0.1A^{*2}$          |     |     | -1   | V    |
| Transition frequency                    | $f_T$         | $V_{CB} = -6V, I_E = 50mA, f = 200MHz$ |     | 120 |      | MHz  |
| Collector output capacitance            | $C_{ob}$      | $V_{CB} = -20V, I_E = 0, f = 1MHz$     |     |     | 85   | pF   |

\*<sup>2</sup> Pulse measurement

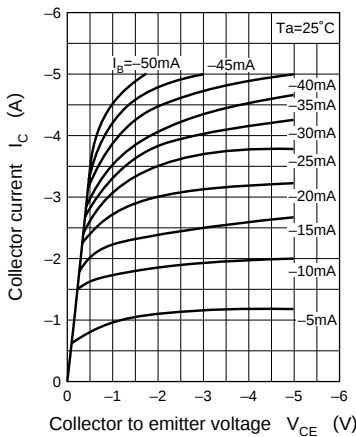
\*<sup>1</sup> $h_{FE}$  Rank classification

| Rank     | P        | Q         |
|----------|----------|-----------|
| $h_{FE}$ | 90 ~ 135 | 120 ~ 205 |

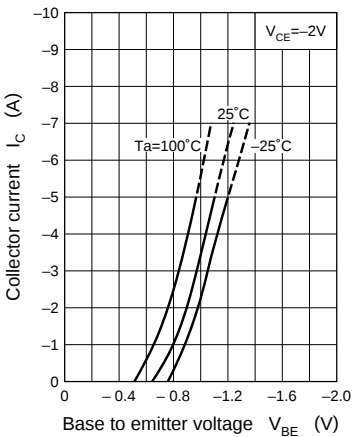
$P_C - T_a$



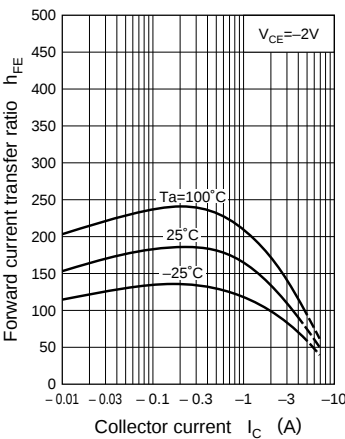
$I_C - V_{CE}$



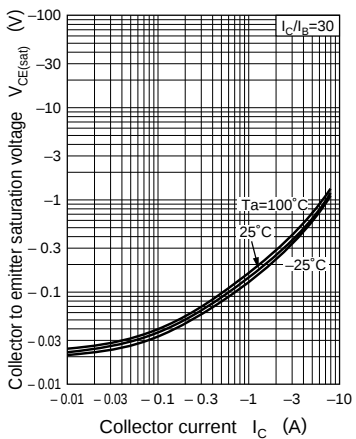
$I_C - V_{BE}$



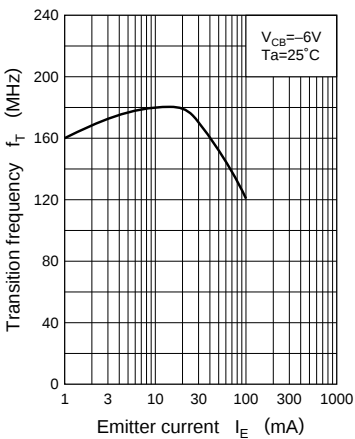
$h_{FE} - I_C$



$V_{CE(sat)} - I_C$



$f_T - I_E$



$C_{ob} - V_{CB}$

