

# 2SB1209

## Silicon PNP triple diffusion planer type

For low-frequency amplification

### Features

- High collector to base voltage  $V_{CBO}$ .
- High collector to emitter voltage  $V_{CEO}$ .
- Low collector to emitter saturation voltage  $V_{CE(sat)}$ .

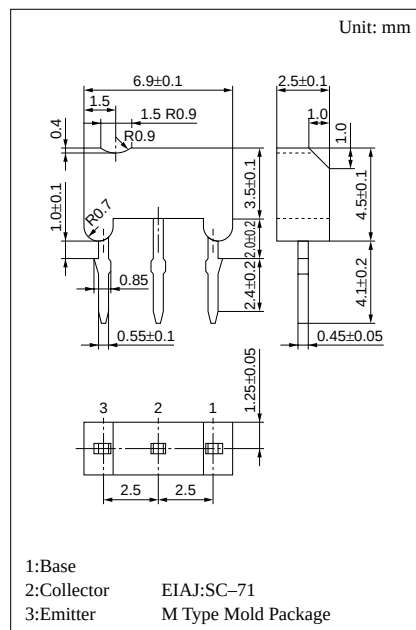
### Absolute Maximum Ratings (Ta=25°C)

| Parameter                    | Symbol    | Ratings    | Unit |
|------------------------------|-----------|------------|------|
| Collector to base voltage    | $V_{CBO}$ | -400       | V    |
| Collector to emitter voltage | $V_{CEO}$ | -400       | V    |
| Emitter to base voltage      | $V_{EBO}$ | -5         | V    |
| Peak collector current       | $I_{CP}$  | -200       | mA   |
| Collector current            | $I_C$     | -100       | mA   |
| Collector power dissipation  | $P_C^*$   | 1          | W    |
| Junction temperature         | $T_j$     | 150        | °C   |
| Storage temperature          | $T_{stg}$ | -55 ~ +150 | °C   |

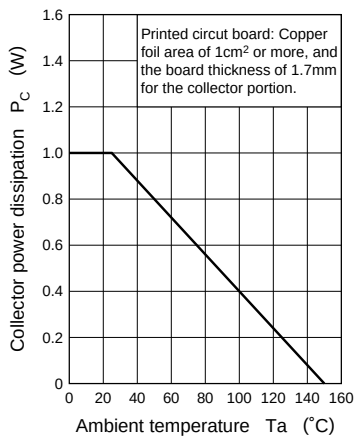
\* Printed circuit board: Copper foil area of 1cm<sup>2</sup> or more, and the board thickness of 1.7mm for the collector portion

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

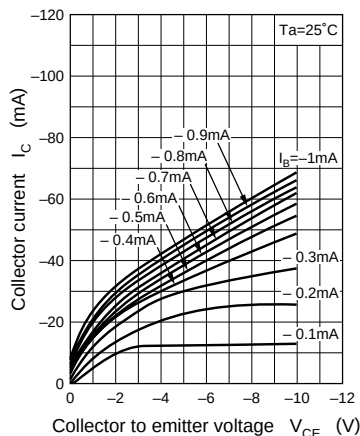
| Parameter                               | Symbol        | Conditions                                    | min  | typ | max  | Unit |
|-----------------------------------------|---------------|-----------------------------------------------|------|-----|------|------|
| Collector to base voltage               | $V_{CBO}$     | $I_C = -100\mu A$ , $I_E = 0$                 | -400 |     |      | V    |
| Collector to emitter voltage            | $V_{CEO}$     | $I_C = -500\mu A$ , $I_B = 0$                 | -400 |     |      | V    |
| Emitter to base voltage                 | $V_{EBO}$     | $I_E = -100\mu A$ , $I_C = 0$                 | -5   |     |      | V    |
| Forward current transfer ratio          | $h_{FE}$      | $V_{CE} = -5V$ , $I_C = -30mA$                | 40   |     |      |      |
| Collector to emitter saturation voltage | $V_{CE(sat)}$ | $I_C = -10mA$ , $I_B = -1mA$                  |      |     | -0.6 | V    |
| Base to emitter saturation voltage      | $V_{BE(sat)}$ | $I_C = -50mA$ , $I_B = -5mA$                  |      |     | -1.5 | V    |
| Transition frequency                    | $f_T$         | $V_{CB} = -30V$ , $I_E = 20mA$ , $f = 200MHz$ |      | 50  |      | MHz  |
| Collector output capacitance            | $C_{ob}$      | $V_{CB} = -30V$ , $I_E = 0$ , $f = 1MHz$      |      |     | 9    | pF   |



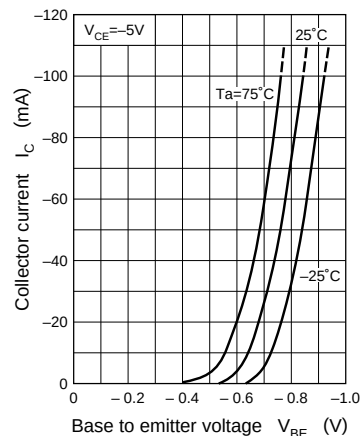
$P_C - T_a$



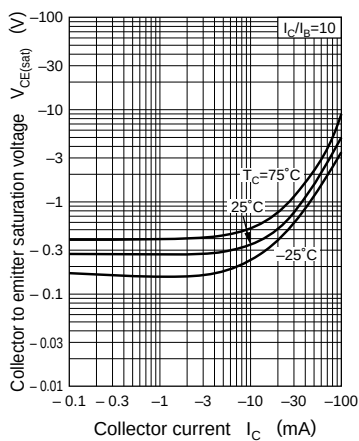
$I_C - V_{CE}$



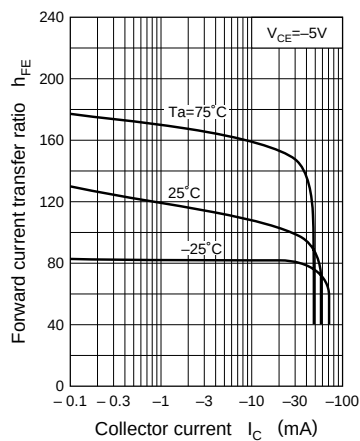
$I_C - V_{BE}$



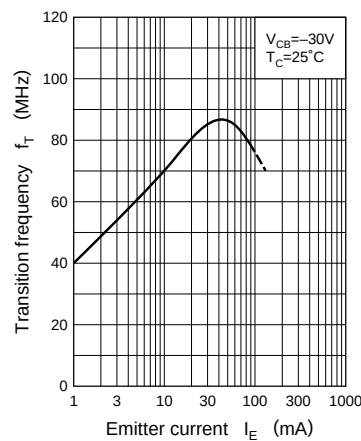
$V_{CE(sat)} - I_C$



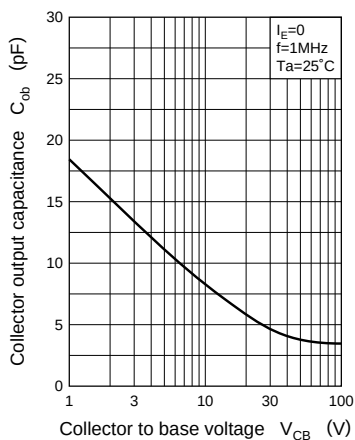
$h_{FE} - I_C$



$f_T - I_E$



$C_{ob} - V_{CB}$



Area of safe operation (ASO)

