

# 2SB0709A (2SB709A)

## Silicon PNP epitaxial planar type

For general amplification

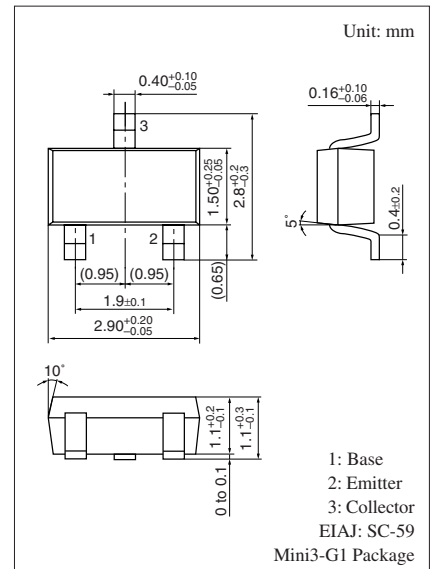
Complementary to 2SD0601A (2SD601A)

### ■ Features

- High forward current transfer ratio  $h_{FE}$
- Mini type package, allowing downsizing of the equipment and automatic insertion through the tape packing and the magazine packing.

### ■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

| Parameter                             | Symbol    | Rating      | Unit             |
|---------------------------------------|-----------|-------------|------------------|
| Collector-base voltage (Emitter open) | $V_{CBO}$ | -45         | V                |
| Collector-emitter voltage (Base open) | $V_{CEO}$ | -45         | V                |
| Emitter-base voltage (Collector open) | $V_{EBO}$ | -7          | V                |
| Collector current                     | $I_C$     | -100        | mA               |
| Peak collector current                | $I_{CP}$  | -200        | mA               |
| Collector power dissipation           | $P_C$     | 200         | mW               |
| Junction temperature                  | $T_j$     | 150         | $^\circ\text{C}$ |
| Storage temperature                   | $T_{stg}$ | -55 to +150 | $^\circ\text{C}$ |



Marking Symbol: B

### ■ Electrical Characteristics $T_a = 25^\circ\text{C} \pm 3^\circ\text{C}$

| Parameter   | Symbol        | Conditions  | Min | Typ  | Max  | Unit          |
|---|---------------|---|-----|------|------|---------------|
| Collector-base voltage (Emitter open)                               | $V_{CBO}$     | $I_C = -10 \mu\text{A}$ , $I_E = 0$                                     | -45 |      |      | V             |
| Collector-emitter voltage (Base open)                               | $V_{CEO}$     | $I_C = -2 \text{ mA}$ , $I_B = 0$                                       | -45 |      |      | V             |
| Emitter-base voltage (Collector open)                               | $V_{EBO}$     | $I_E = -10 \mu\text{A}$ , $I_C = 0$                                     | -7  |      |      | V             |
| Collector-base cutoff current (Emitter open)                        | $I_{CBO}$     | $V_{CB} = -20 \text{ V}$ , $I_E = 0$                                    |     |      | -0.1 | $\mu\text{A}$ |
| Collector-emitter cutoff current (Base open)                        | $I_{CEO}$     | $V_{CE} = -10 \text{ V}$ , $I_B = 0$                                    |     |      | -100 | $\mu\text{A}$ |
| Forward current transfer ratio *                                    | $h_{FE}$      | $V_{CE} = -10 \text{ V}$ , $I_C = -2 \text{ mA}$                        | 160 |      | 460  | —             |
| Collector-emitter saturation voltage                                | $V_{CE(sat)}$ | $I_C = -100 \text{ mA}$ , $I_B = -10 \text{ mA}$                        |     | -0.3 | -0.5 | V             |
| Transition frequency  | $f_T$         | $V_{CB} = -10 \text{ V}$ , $I_E = 1 \text{ mA}$ , $f = 200 \text{ MHz}$ |     | 80   |      | MHz           |
| Collector output capacitance<br>(Common base, input open circuited) | $C_{ob}$      | $V_{CB} = -10 \text{ V}$ , $I_E = 0$ , $f = 1 \text{ MHz}$              |     | 2.7  |      | pF            |

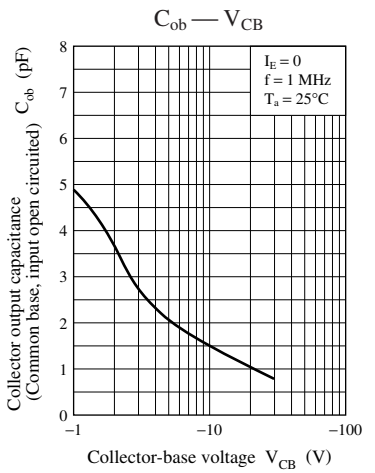
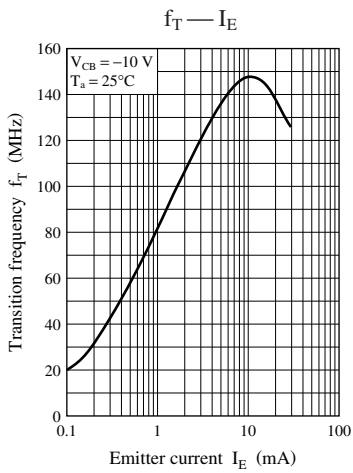
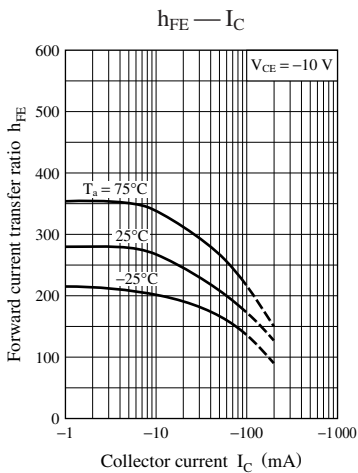
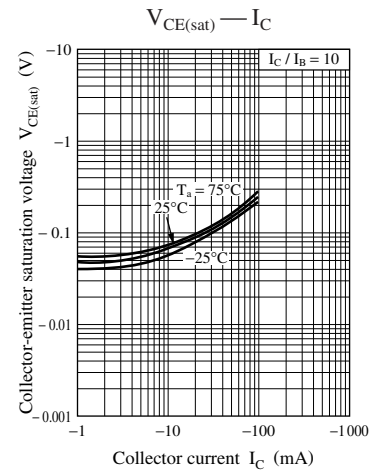
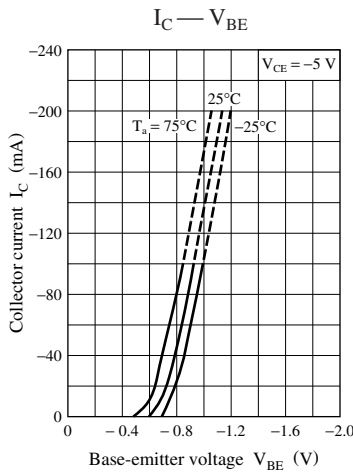
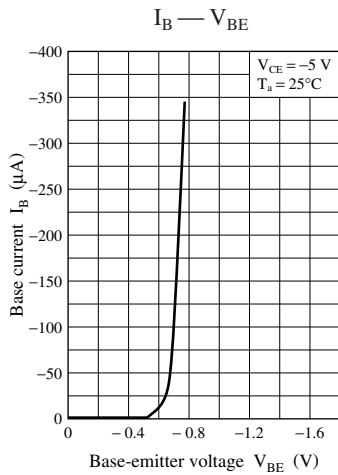
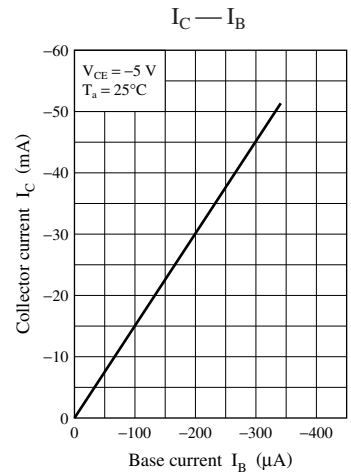
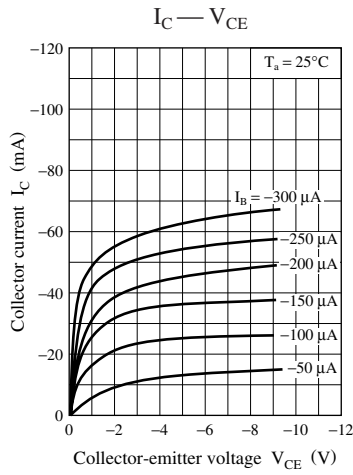
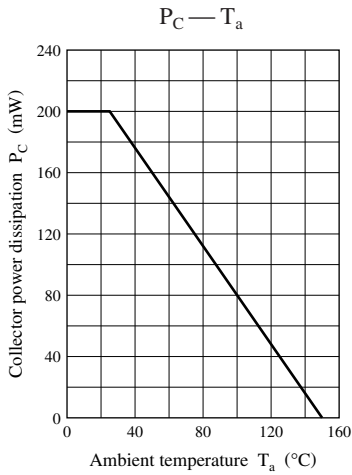
Note) 1. Measuring methods are based on JAPANESE INDUSTRIAL STANDARD JIS C 7030 measuring methods for transistors.

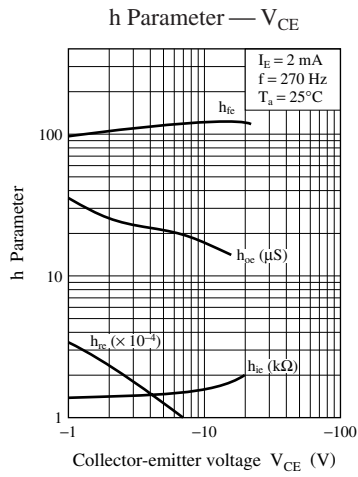
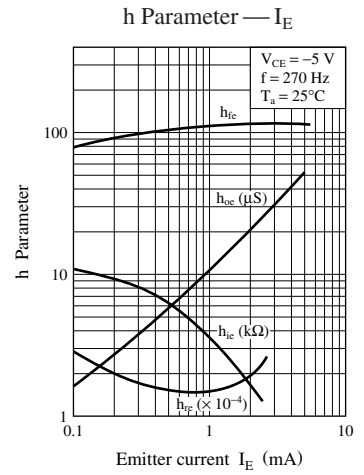
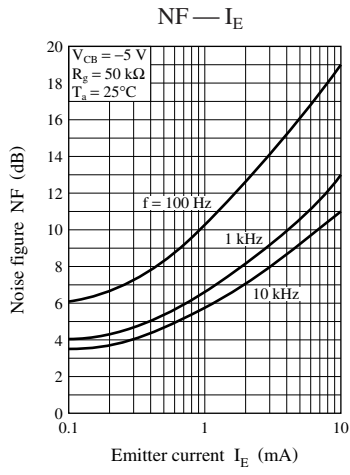
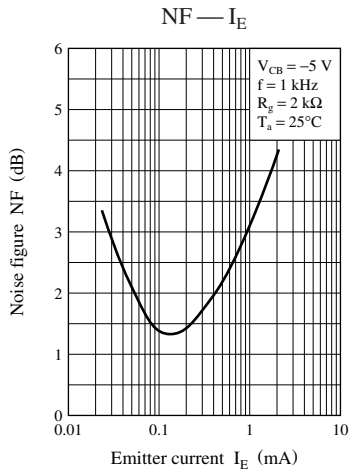
2. \*: Rank classification

| Rank           | Q          | R          | S          | No-rank    |
|----------------|------------|------------|------------|------------|
| $h_{FE}$       | 160 to 260 | 210 to 340 | 290 to 460 | 160 to 460 |
| Marking symbol | BQ         | BR         | BS         | B          |

Product of no-rank is not classified and have no marking symbol for rank.

Note) The part number in the parenthesis shows conventional part number.





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