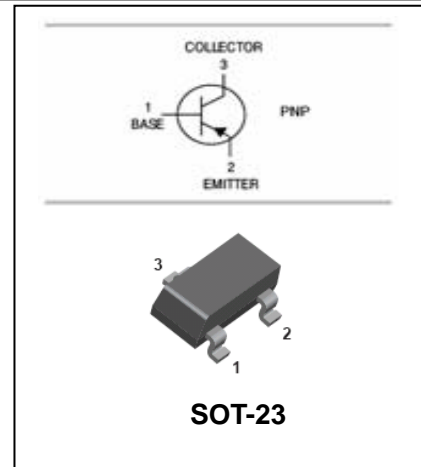


## Silicon Epitaxial Planar Transistor

## 2SB709A

### 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.



### APPLICATIONS

- For general amplification complementary to 2SD601A

### ORDERING INFORMATION

| Type No. | Marking       | Package Code |
|----------|---------------|--------------|
| 2SB709A  | BQ1, BR1, BS1 | SOT-23       |

### MAXIMUM RATING @ $T_a=25^\circ\text{C}$ unless otherwise specified

| Symbol         | Parameter                        | Value   | Units            |
|----------------|----------------------------------|---------|------------------|
| $V_{CBO}$      | Collector-Base Voltage           | -45     | V                |
| $V_{CEO}$      | Collector-Emitter Voltage        | -45     | V                |
| $V_{EBO}$      | Emitter-Base Voltage             | -7      | V                |
| $I_C$          | Collector Current -Continuous    | -200    | mA               |
| $P_C$          | Collector Dissipation            | 200     | mW               |
| $T_j, T_{stg}$ | Junction and Storage Temperature | -55~150 | $^\circ\text{C}$ |

### ELECTRICAL CHARACTERISTICS @ $T_a=25^\circ\text{C}$ unless otherwise specified

**Silicon Epitaxial Planar Transistor****2SB709A**

| Parameter                            | Symbol        | Test conditions                             | MIN | TYP | MAX  | UNIT    |
|--------------------------------------|---------------|---|-----|-----|------|---------|
| Collector-base breakdown voltage     | $V_{(BR)CBO}$ | $I_C = -10\mu A, I_E = 0$                   | -45 |     |      | V       |
| Collector-emitter breakdown voltage  | $V_{(BR)CEO}$ | $I_C = -2mA, I_B = 0$                       | -45 |     |      | V       |
| Emitter-base breakdown voltage       | $V_{(BR)EBO}$ | $I_E = -10\mu A, I_C = 0$                   | -7  |     |      | V       |
| Collector cut-off current            | $I_{CBO}$     | $V_{CB} = -20V, I_E = 0$                    |     |     | -0.1 | $\mu A$ |
| Collector cut-off current            | $I_{CEO}$     | $V_{EB} = -10V, I_C = 0$                    |     |     | -100 | $\mu A$ |
| DC current gain                      | $h_{FE}$      | $V_{CE} = -10V, I_C = -2mA$                 | 160 |     | 460  |         |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C = -100mA, I_B = -10mA$                 |     |     | -0.5 | V       |
| Transition frequency                 | $f_T$         | $V_{CE} = -10V, I_C = -1mA$<br>$f = 200MHz$ | 60  |     |      | MHz     |
| Collector output capacitance         | $C_{ob}$      | $V_{CB} = -10V, I_E = 0, f = 1MHz$          |     | 2.7 |      | pF      |

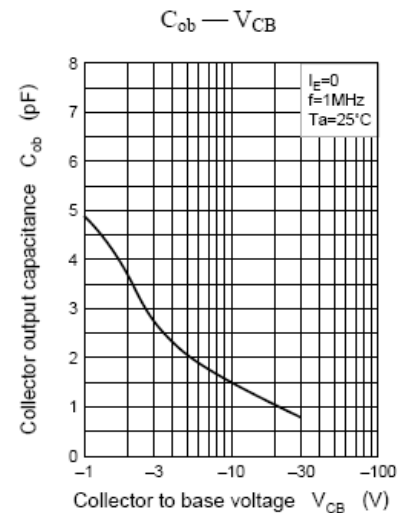
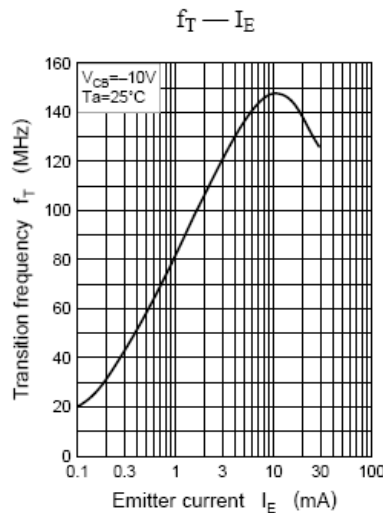
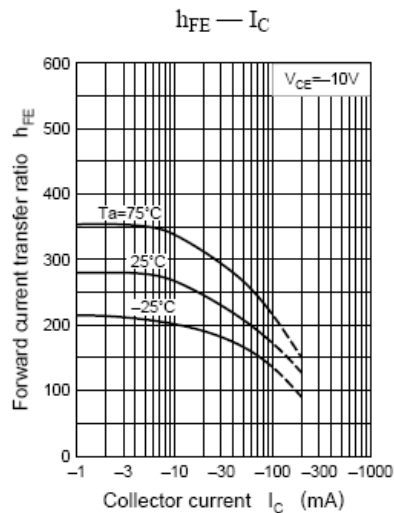
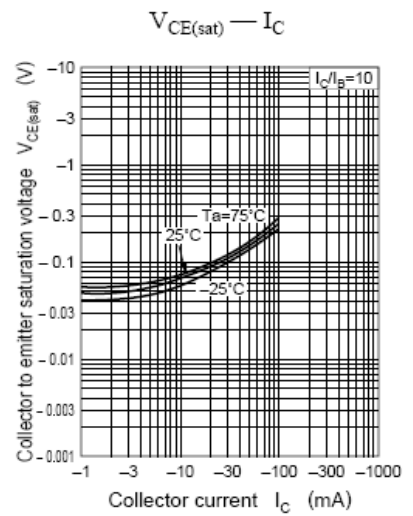
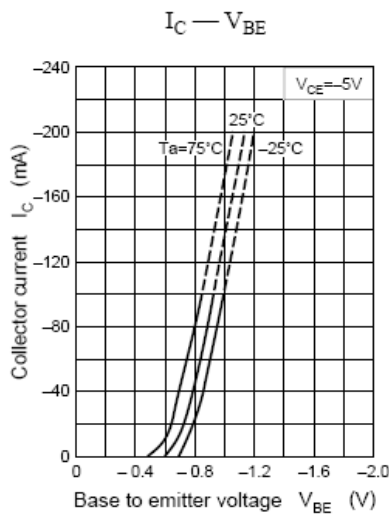
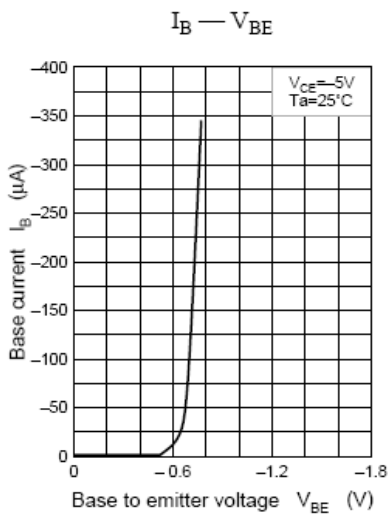
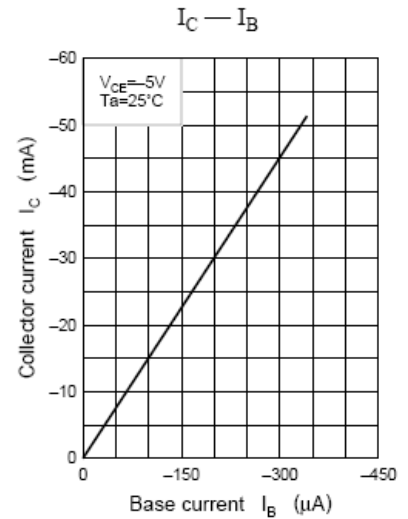
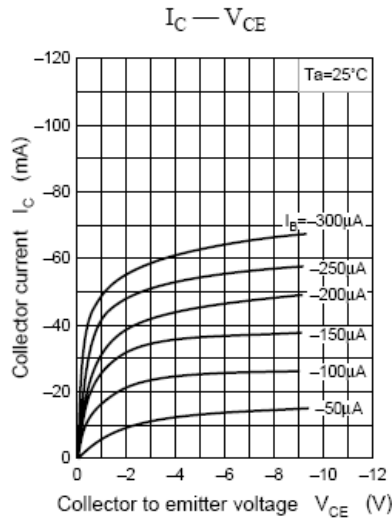
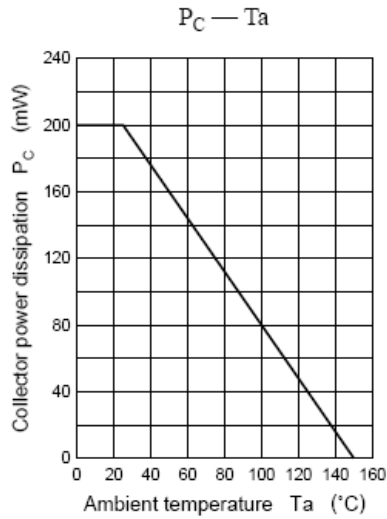
**CLASSIFICATION OF  $h_{FE(1)}$** 

|         |         |         |         |
|---------|---------|---------|---------|
| Range   | 160-260 | 210-340 | 290-460 |
| Marking | BQ1     | BR1     | BS1     |

## Silicon Epitaxial Planar Transistor

## 2SB709A

### TYPICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified



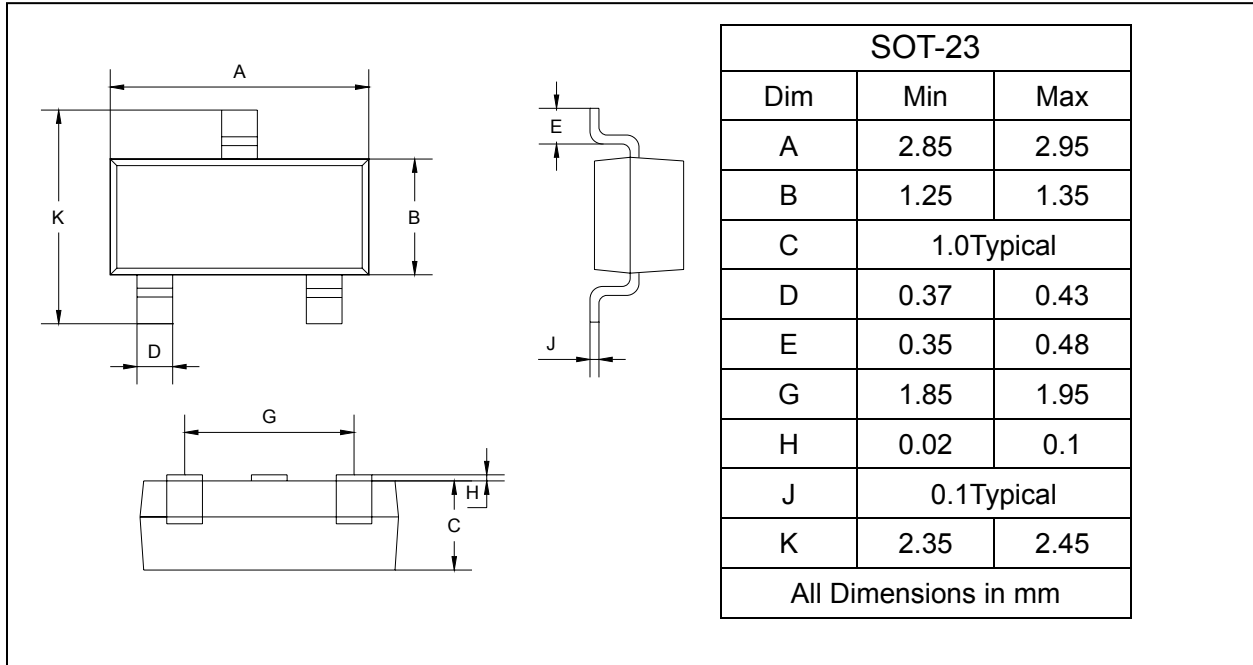
## Silicon Epitaxial Planar Transistor

## 2SB709A

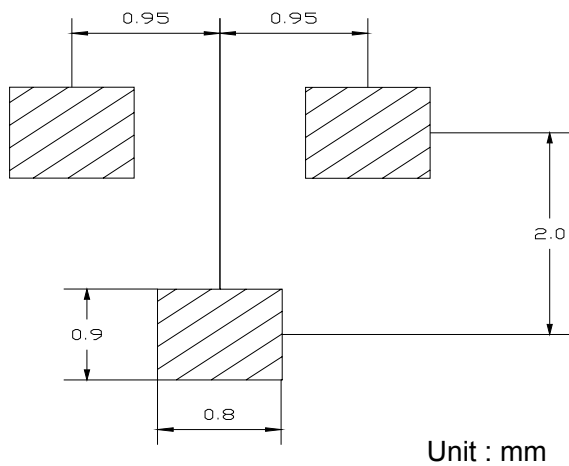
### PACKAGE OUTLINE

Plastic surface mounted package

SOT-23



### SOLDERING FOOTPRINT



### PACKAGE INFORMATION

| Device  | Package | Shipping       |
|---------|---------|----------------|
| 2SB709A | SOT-23  | 3000/Tape&Reel |