

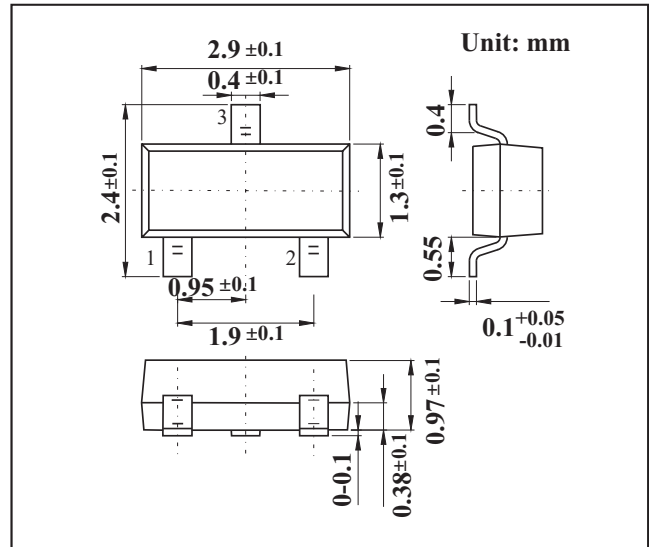
## SOT-23 Plastic-Encapsulate Transistors

### Features

- For general amplification
- Complimentary to 2SD601A.
- PNP Transistors

### MECHANICAL DATA

- Case style: SOT-23 molded plastic
- Mounting position: any



## MAXIMUM RATINGS AND CHARACTERISTICS

@ 25°C Ambient Temperature (unless otherwise noted)

| Parameter                      | Symbol    | Rating     | Unit |
|--------------------------------|-----------|------------|------|
| Collector - Base Voltage       | $V_{CBO}$ | -45        | V    |
| Collector - Emitter Voltage    | $V_{CEO}$ | -45        |      |
| Emitter - Base Voltage         | $V_{EBO}$ | -7         |      |
| Collector Current - Continuous | $I_C$     | -100       | mA   |
| Collector Power Dissipation    | $P_C$     | 200        | mW   |
| Junction Temperature           | $T_J$     | 150        | °C   |
| Storage Temperature range      | $T_{stg}$ | -55 to 150 |      |

### PACKAGE INFORMATION

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

| Parameter                            | Symbol        | Test Conditions                            | Min | Typ | Max  | Unit |
|--------------------------------------|---------------|--------------------------------------------|-----|-----|------|------|
| Collector- base breakdown voltage    | $V_{CBO}$     | $I_C = -100 \mu A, I_E = 0$                | -45 |     |      | V    |
| Collector- emitter breakdown voltage | $V_{CEO}$     | $I_C = -2 mA, I_B = 0$                     | -45 |     |      |      |
| Emitter - base breakdown voltage     | $V_{EBO}$     | $I_E = -100 \mu A, I_C = 0$                | -7  |     |      |      |
| Collector-base cut-off current       | $I_{CBO}$     | $V_{CB} = -40 V, I_E = 0$                  |     |     | -0.1 | uA   |
| Collector-Emitter cut-off current    | $I_{CEO}$     | $V_{CE} = -20 V, I_B = 0$                  |     |     | -100 |      |
| Emitter cut-off current              | $I_{EBO}$     | $V_{EB} = -6 V, I_C = 0$                   |     |     | -0.1 |      |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C = -100 mA, I_B = -10 mA$              |     |     | -0.5 | V    |
| Base - emitter saturation voltage    | $V_{BE(sat)}$ | $I_C = -100 mA, I_B = -10 mA$              |     |     | -1.2 |      |
| DC current gain                      | $h_{FE}$      | $V_{CE} = -10 V, I_C = -2 mA$              | 160 |     | 460  |      |
| Collector output capacitance         | $C_{ob}$      | $V_{CB} = -10 V, I_E = 0, f = 1 MHz$       |     |     | 2.7  | pF   |
| Transition frequency                 | $f_T$         | $V_{CE} = -10 V, I_C = -1 mA, f = 200 MHz$ | 60  |     |      | MHz  |

### Classification of $h_{FE}$

| Type    | 2SB709A- Q | 2SB709A- R | 2SB709A- S |
|---------|------------|------------|------------|
| Range   | 160-260    | 210-340    | 290-460    |
| Marking | BQ1        | BR1        | BS1        |

## RATINGS AND CHARACTERISTIC CURVES

### Typical Characteristics

