

## 2SB709A TRANSISTOR (PNP)

### FEATURES

- For general amplification
- Complementary to 2SD601A

### MAXIMUM RATINGS (T<sub>a</sub>=25°C unless otherwise noted)

| Symbol                            | Parameter                                        | Value   | Unit |
|-----------------------------------|--------------------------------------------------|---------|------|
| V <sub>CB0</sub>                  | Collector-Base Voltage                           | -45     | V    |
| V <sub>CEO</sub>                  | Collector-Emitter Voltage                        | -45     | V    |
| V <sub>EBO</sub>                  | Emitter-Base Voltage                             | -7      | V    |
| I <sub>C</sub>                    | Collector Current -Continuous                    | -100    | mA   |
| P <sub>C</sub>                    | Collector Power Dissipation                      | 200     | mW   |
| T <sub>J</sub> , T <sub>stg</sub> | Operation Junction and Storage Temperature Range | -55-150 | °C   |



### ELECTRICAL CHARACTERISTICS (T<sub>a</sub>=25°C unless otherwise specified)

| Parameter                            | Symbol               | Test conditions                                           | Min | Max  | Unit |
|--------------------------------------|----------------------|-----------------------------------------------------------|-----|------|------|
| Collector-base breakdown voltage     | V <sub>(BR)CBO</sub> | I <sub>C</sub> = -10 μA, I <sub>E</sub> =0                | -45 |      | V    |
| Collector-emitter breakdown voltage  | V <sub>(BR)CEO</sub> | I <sub>C</sub> = -2mA, I <sub>B</sub> =0                  | -45 |      | V    |
| Emitter-base breakdown voltage       | V <sub>(BR)EBO</sub> | I <sub>E</sub> = -10 μA, I <sub>C</sub> =0                | -7  |      | V    |
| Collector cut-off current            | I <sub>CBO</sub>     | V <sub>CB</sub> = -20 V, I <sub>E</sub> =0                |     | -0.1 | μA   |
| Collector cut-off current            | I <sub>CEO</sub>     | V <sub>CE</sub> = -10V, I <sub>B</sub> =0                 |     | -100 | μA   |
| DC current gain                      | h <sub>FE</sub>      | V <sub>CE</sub> = -10V, I <sub>C</sub> = -2mA             | 160 | 460  |      |
| Collector-emitter saturation voltage | V <sub>CE(sat)</sub> | I <sub>C</sub> =-100 mA, I <sub>B</sub> = -10mA           |     | -0.5 | V    |
| Transition frequency                 | f <sub>T</sub>       | V <sub>CE</sub> = -10V, I <sub>C</sub> = -1mA<br>f=200MHz | 60  |      | MHz  |
| Collector output capacitance         | C <sub>ob</sub>      | V <sub>CB</sub> = -10V, I <sub>E</sub> = 0<br>f=1MHz      |     | 2.7  | pF   |

### CLASSIFICATION OF h<sub>FE</sub>

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

