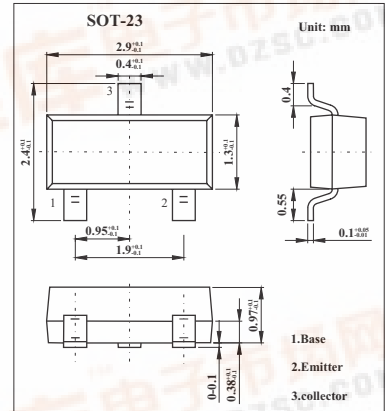


SMD Type Transistors

NPN High-Voltage Transistors  
BSR19,BSR19A

■ Features

- Low current (max. 300 mA)
- High voltage (max. 160 V).



■ Absolute Maximum Ratings Ta = 25°C

| Parameter                                     | Symbol  | Rating      | Unit |
|---|---------|-------------|------|
| Collector-base voltage                        | BSR19   | 160         | V    |
|   | BSR19A  | 180         | V    |
| Collector-emitter voltage                     | BSR19   | 140         | V    |
|   | BSR19A  | 160         | V    |
| Emitter-base voltage                          | VEBO    | 6           | V    |
| Collector current                             | IC      | 300         | mA   |
| Peak collector current                        | ICM     | 600         | mA   |
| Base current                                  | IB      | 100         | mA   |
| Peak base current                             | IBM     | 100         | mA   |
| Total power dissipation *                     | Ptot    | 250         | mW   |
| Storage temperature                           | Tstg    | -65 to +150 | °C   |
| Junction temperature                          | Tj      | 150         | °C   |
| Operating ambient temperature                 | Ramb    | -65 to +150 | °C   |
| Thermal resistance from junction to ambient * | Rth j-a | 500         | K/W  |

\* Transistor mounted on an FR4 printed-circuit board.

## BSR19,BSR19A

## ■ Electrical Characteristics Ta = 25°C

| Parameter                            | Symbol             | Testconditons  | Min | Typ | Max | Unit |
|--------------------------------------|--------------------|--|-----|-----|-----|------|
| Collector cutoff current BSR19       | I <sub>CBO</sub>   | I <sub>E</sub> = 0; V <sub>CB</sub> = 100 V                            |     |     | 100 | nA   |
|                                      |                    | I <sub>E</sub> = 0; V <sub>CB</sub> = 100 V; T <sub>amb</sub> = 100 °C |     |     | 100 | μA   |
| Collector cutoff current BSR19A      | I <sub>CBO</sub>   | I <sub>E</sub> = 0; V <sub>CB</sub> = 120 V                            |     |     | 50  | nA   |
|                                      |                    | I <sub>E</sub> = 0; V <sub>CB</sub> = 120 V; T <sub>amb</sub> = 100 °C |     |     | 50  | μA   |
| Emitter cutoff current               | I <sub>EBO</sub>   | I <sub>C</sub> = 0; V <sub>EB</sub> = 4 V                              |     |     | 50  | nA   |
| DC current gain *                    | h <sub>FE</sub>    | I <sub>C</sub> = 10 mA; V <sub>CE</sub> = 5 V                          | 60  |     | 250 |      |
|                                      |                    |  | 80  |     | 250 |      |
| DC current gain *                    | h <sub>FE</sub>    | I <sub>C</sub> = 50 mA; V <sub>CE</sub> = 5 V                          | 20  |     |     |      |
|                                      |                    |  | 30  |     |     |      |
| collector-emitter saturation voltage | V <sub>CEsat</sub> | I <sub>C</sub> = 10 mA; I <sub>B</sub> = 1 mA                          |     |     | 150 | mV   |
| collector-emitter saturation voltage | V <sub>CEsat</sub> | I <sub>C</sub> = 50 mA; I <sub>B</sub> = 5 mA                          |     |     | 250 | mV   |
|                                      |                    |  |     |     | 200 | mV   |
| Collector capacitance                | C <sub>c</sub>     | I <sub>E</sub> = i <sub>e</sub> = 0; V <sub>CB</sub> = 10 V; f = 1 MHz |     |     | 6   | pF   |
| Transition frequency                 | f <sub>T</sub>     | I <sub>C</sub> = 10 mA; V <sub>CE</sub> = 10 V; f = 100 MHz            | 100 |     | 300 | MHz  |

## ■ hFE Classification

| TYPE    | BSR19 | BSR19A |
|---------|-------|--------|
| Marking | U35   | U36    |