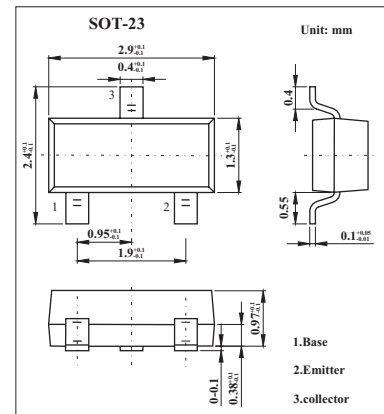


## PNP High-Voltage Transistors

## BSR20,BSR20A

## ■ Features

- Low current (max. 300 mA)
- High voltage (max. 150 V).



## ■ Absolute Maximum Ratings Ta = 25°C

| Parameter                                     |        | Symbol              | Rating      | Unit |
|-----------------------------------------------|--------|---------------------|-------------|------|
| Collector-base voltage                        | BSR20  | V <sub>CB0</sub>    | -130        | V    |
|                                               | BSR20A |                     | -160        | V    |
| Collector-emitter voltage                     | BSR20  | V <sub>CEO</sub>    | -120        | V    |
|                                               | BSR20A |                     | -150        | V    |
| Emitter-base voltage                          |        | V <sub>EB0</sub>    | -5          | V    |
| Collector current                             |        | I <sub>C</sub>      | -300        | mA   |
| Peak collector current                        |        | I <sub>CM</sub>     | -600        | mA   |
| Base current                                  |        | I <sub>B</sub>      | -100        | mA   |
| Total power dissipation *                     |        | P <sub>tot</sub>    | 250         | mW   |
| Storage temperature                           |        | T <sub>stg</sub>    | -65 to +150 | °C   |
| Junction temperature                          |        | T <sub>j</sub>      | 150         | °C   |
| Operating ambient temperature                 |        | R <sub>amb</sub>    | -65 to +150 | °C   |
| Thermal resistance from junction to ambient * |        | R <sub>th j-a</sub> | 500         | K/W  |

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

**BSR20,BSR20A**

## ■ Electrical Characteristics Ta = 25℃

| Parameter                            | Symbol | Testconditons                         | Min | Typ | Max  | Unit |
|--------------------------------------|--------|---------------------------------------|-----|-----|------|------|
| Collector cutoff current BSR20       | ICBO   | IE = 0; VCB = -100 V                  |     |     | -100 | nA   |
|                                      |        | IE = 0; VCB = -100 V; Tamb = 100 °C   |     |     | -100 | μA   |
| Collector cutoff current BSR20A      | ICBO   | IE = 0; VCB = -120 V                  |     |     | -50  | nA   |
|                                      |        | IE = 0; VCB = -120 V; Tamb = 100 °C   |     |     | -50  | μA   |
| Emitter cutoff current               | IEBO   | IC = 0; VEB = -4 V                    |     |     | -50  | nA   |
| DC current gain BSR20<br>BSR20A      | hFE    | IC = -1 mA; VCE = -5 V                | 30  |     |      |      |
|                                      |        |                                       | 50  |     |      |      |
| DC current gain BSR20<br>BSR20A      | hFE    | IC = -10 mA; VCE = -5 V               | 40  |     | 180  |      |
|                                      |        |                                       | 60  |     | 240  |      |
| DC current gain BSR20<br>BSR20A      | hFE    | IC = -50 mA; VCE = -5 V               | 40  |     |      |      |
|                                      |        |                                       | 50  |     |      |      |
| base-emitter saturation voltage      | VCEsat | IC = -10 mA; IB = -1 mA               |     |     | -200 | mV   |
|                                      |        | IC = -50 mA; IB = -5 mA               |     |     | -500 | mV   |
| Collector capacitance                | Cc     | IE = ie = 0; VCB = -10 V; f = 1 MHz   |     |     | 6    | pF   |
| Transition frequency BSR20<br>BSR20A | fr     | IC = -10 mA; VCE = -10 V; f = 100 MHz | 100 |     | 400  | MHz  |
|                                      |        |                                       | 100 |     | 300  | MHz  |

## ■ hFE Classification

| TYPE    | BSR20 | BSR20A |
|---------|-------|--------|
| Marking | T35   | T36    |