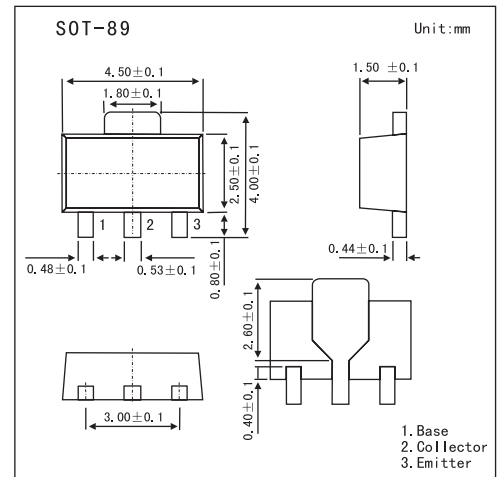


## PNP Epitaxial Planar Silicon Transistors

## 2SB1302

## ■ Features

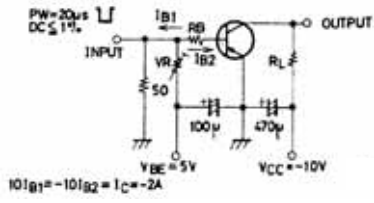
- Adoption of FBET, MBIT processes.
- Low collector-to-emitter saturation voltage.
- Large current capacity.
- Fast switching speed.
- Very small size making it easy to provide highdensity,
- small-sized hybrid ICs.

■ Absolute Maximum Ratings  $T_a = 25^\circ\text{C}$ 

| Parameter                 | Symbol    | Rating      | Unit             |
|---------------------------|-----------|-------------|------------------|
| Collector-base voltage    | $V_{CB0}$ | -25         | V                |
| Collector-emitter voltage | $V_{CE0}$ | -20         | V                |
| Emitter-base voltage      | $V_{EB0}$ | -5          | V                |
| Collector current         | $I_C$     | -5          | A                |
| Collector current (pulse) | $I_{CP}$  | -8          | A                |
| Collector dissipation     | $P_C$     | 1.3         | W                |
| Junction temperature      | $T_j$     | 150         | $^\circ\text{C}$ |
| Storage temperature       | $T_{stg}$ | -55 to +150 | $^\circ\text{C}$ |

## 2SB1302

## ■ Electrical Characteristics Ta = 25°C

| Parameter                            | Symbol               | Testconditions                                                                      | Min | Typ  | Max  | Unit |
|--------------------------------------|----------------------|-------------------------------------------------------------------------------------|-----|------|------|------|
| Collector cutoff current             | ICBO                 | V <sub>CB</sub> = -20V, I <sub>E</sub> = 0                                          |     |      | -500 | nA   |
| Emitter cutoff current               | IEBO                 | V <sub>EB</sub> = -4V, I <sub>E</sub> = 0                                           |     |      | -500 | nA   |
| DC current Gain                      | h <sub>FE</sub>      | V <sub>CE</sub> = -2V, I <sub>C</sub> = -500mA                                      | 100 |      | 400  |      |
| Gain bandwidth product               | f <sub>T</sub>       | V <sub>CE</sub> = -5V, I <sub>C</sub> = -200mA                                      |     | 320  |      | MHz  |
| Output capacitance                   | C <sub>ob</sub>      | V <sub>CB</sub> = -10V, f = 1MHz                                                    |     | 60   |      | pF   |
| Collector-emitter saturation voltage | V <sub>CE(sat)</sub> | I <sub>C</sub> = -3A, I <sub>B</sub> = -60mA                                        |     | -250 | -500 | V    |
| Base-emitter saturation voltage      | V <sub>BE(sat)</sub> | I <sub>C</sub> = -3A, I <sub>B</sub> = -60mA                                        |     | -1   | -1.3 | V    |
| Collector-base breakdown voltage     | V <sub>(BR)CBO</sub> | I <sub>C</sub> = -10μA, I <sub>E</sub> = 0                                          | -25 |      |      | V    |
| Collector-emitter breakdown voltage  | V <sub>(BR)CEO</sub> | I <sub>C</sub> = -1mA, R <sub>BE</sub> = ∞                                          | -20 |      |      | V    |
| Emitter-base breakdown voltage       | V <sub>(BR)EBO</sub> | I <sub>E</sub> = -10μA, I <sub>C</sub> = 0                                          | -5  |      |      |      |
| Turn-on time                         | ton                  |  |     | 40   |      | ns   |
| Storage time                         | tstg                 |                                                                                     |     | 200  |      | ns   |
| Fall time                            | tf                   |                                                                                     |     | 10   |      | ns   |

## ■ hFE Classification

| Marking | BJ      |         |         |
|---------|---------|---------|---------|
| Rank    | R       | S       | T       |
| hFE     | 100~200 | 140~280 | 200~400 |