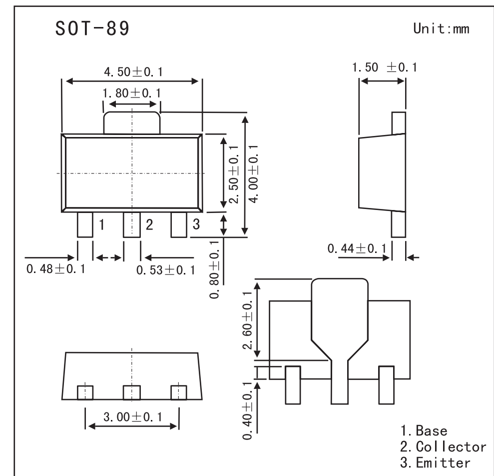
# PNP Epitaxial Planar Silicon Transistors

# 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 Ta = 25℃

| Parameter | Symbol | Rating | Unit |
|---|---|---|---|
| Collector-base voltage | $V_{CBO}$ | -25 | V |
| Collector-emitter voltage | $V_{CEO}$ | -20 | V |
| Emitter-base voltage | $V_{EBO}$ | -5 | V |
| Collector current | $I_C$ | -5 | A |
| Collector current (pulse) | $I_{CP}$ | -8 | A |
| Collector dissipation | $P_C$ | 1.3 | W |
| Jumction temperature | $T_j$ | 150 | ℃ |
| Storage temperature | $T_{stg}$ | -55 to +150 | ℃ |

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## ■ Electrical Characteristics Ta = 25℃

| Parameter | Symbol | Testconditons | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Collector cutoff current | $I_{CBO}$ | $V_{CB}$ = -20V , $I_E$ = 0 | | | -500 | nA |
| Emitter cutoff current | $I_{EBO}$ | $V_{EB}$ = -4V , $I_E$ = 0 | | | -500 | nA |
| DC current Gain | $h_{FE}$ | $V_{CE}$ = -2V , $I_C$ = -500mA | 100 | | 400 | |
| Gain bandwidth product | $f_T$ | $V_{CE}$ = -5V , $I_C$ = -200mA | | 320 | | MHz |
| Output capacitance | $C_{ob}$ | $V_{CB}$ = -10V , f = 1MHz | | 60 | | pF |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C$ = -3A , $I_B$ = -60mA | | -250 | -500 | V |
| Base-emitter saturation voltage | $V_{BE(sat)}$ | $I_C$ = -3A , $I_B$ = -60mA | | -1 | -1.3 | V |
| Collector-base breakdown voltage | $V_{(BR)CBO}$ | $I_C$ = -10μA , $I_E$ = 0 | -25 | | | V |
| Collector-emitter breakdown voltage | $V_{(BR)CEO}$ | $I_C$ = -1mA , $R_{BE}$ = ∞ | -20 | | | V |
| Emitter-base breakdown voltage | $V_{(BR)EBO}$ | $I_E$ = -10μA , $I_C$ = 0 | -5 | | | |
| Turn-on time | $t_{on}$ | | | 40 | | ns |
| Storage time | $t_{stg}$ | | | 200 | | ns |
| Fall time | $t_f$ | | | 10 | | ns |

## ■ $h_{FE}$ Classification

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