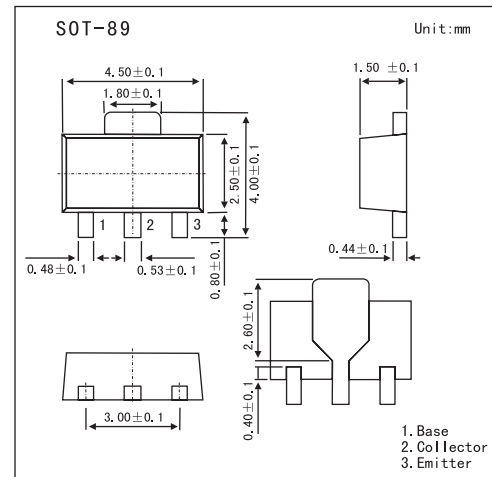


High-Current Switching Applications

2SB1123

■ Features

- Adoption of FBET, MBIT processes.
- Low collector-to-emitter saturation voltage.
- Large current capacity and wide ASO.
- Fast switching speed.

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

| Parameter | Symbol | Rating | Unit |
|---|-----------|-------------|------------------|
| Collector-base voltage | V_{CB0} | -60 | V |
| Collector-emitter voltage | V_{CE0} | -50 | V |
| Emitter-base voltage | V_{EB0} | -6 | V |
| Collector current | I_C | -2 | A |
| Collector current (pulse) | I_{CP} | -4 | A |
| Collector dissipation | P_C | 0.5 | W |
| Mounted on a ceramic board (250mm250.8mm) | | 1.3 | W |
| Junction temperature | T_j | 150 | $^\circ\text{C}$ |
| Storage temperature | T_{stg} | -55 to +150 | $^\circ\text{C}$ |

2SB1123

■ Electrical Characteristics Ta = 25°C

| Parameter | Symbol | Testconditions | Min | Typ | Max | Unit | |
|--|----------------------|---|-----|------|------|------|----|
| Collector cutoff current | ICBO | V _{CB} = -50V , I _E = 0 | | | -100 | nA | |
| Emitter-base cutoff current | IEBO | V _{EB} = -4 V , I _C = 0 | | | -100 | nA | |
| DC current Gain | hFE | V _{CE} = -2V , I _C = -100mA | 100 | | 560 | | |
| Gain bandwidth product | f _T | V _{CE} = -10V , I _C = -50mA | | 150 | | MHz | |
| Output capacitance | C _{ob} | V _{CB} = -10V , f = 1MHz | | 22 | | pF | |
| Collector-emitter saturation voltage | V _{CE(sat)} | I _C = -1A , I _B = -50mA | | -0.3 | -0.7 | V | |
| Base-emitter saturation voltage | V _{BE(sat)} | I _C = -1A , I _B = -50mA | | -0.9 | -1.2 | V | |
| Collector-to-base breakdown voltage | V _{(BR)CBO} | I _C = -10μA , I _E = 0 | -60 | | | V | |
| Collector-to-emitter breakdown voltage | V _{(BR)CEO} | I _C = -1mA , R _{BE} = ∞ | -50 | | | V | |
| Emitter-to-base breakdown voltage | V _{(BR)EBO} | I _E = -10μA , I _C = 0 | -6 | | | V | |
| Turn-ON Time | ton | <p>10I_{B1} = -10I_{B2} = I_C = 500mA (For PNP, the polarity is reversed)</p> | | 60 | | ns | |
| Storage Time | tstg | | | | 450 | | ns |
| Fall Time | tf | | | | 30 | | ns |

■ hFE Classification

| Marking | BF | | | |
|---------|---------|---------|---------|---------|
| Rank | R | S | T | U |
| hFE | 100~200 | 140~280 | 200~400 | 280~560 |