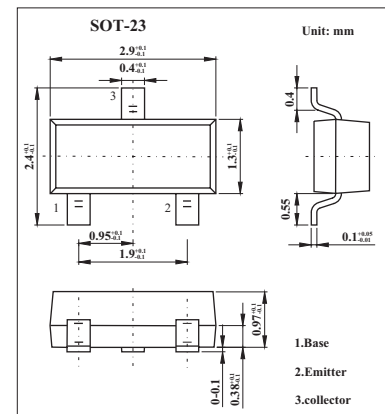


PNP Epitaxial Planar Silicon Transistors

2SA1331

■ Features

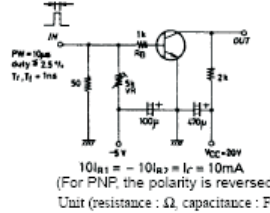
- Fast switching speed.
- High breakdown voltage.

■ 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} | -5 | V |
| Collector current | I_C | -150 | mA |
| Collector current (pulse) | I_{CP} | -400 | mA |
| Base current | I_B | -40 | mA |
| Collector dissipation | P_C | 150 | mW |
| Junction temperature | T_j | 125 | $^\circ\text{C}$ |
| Storage temperature | T_{stg} | -55 to +125 | $^\circ\text{C}$ |

2SA1331

■ Electrical Characteristics Ta = 25°C

| Parameter | Symbol | Testconditions | Min | Typ | Max | Unit |
|---|----------------------|---|-----|-------|------|------|
| Collector cutoff current | IcBO | V _{CB} = -40V , I _E = 0 | | | -0.1 | μA |
| Emitter cutoff current | I _{EBO} | V _{EB} = -4V , I _C = 0 | | | -0.1 | μA |
| DC current Gain | hFE | V _{CE} = -6V , I _C = -1mA | 90 | | 400 | |
| Gain bandwidth product | f _T | V _{CE} = -6V , I _C = -1mA | | 100 | | MHz |
| Common base output capacitance | C _{ob} | V _{CB} = -6V , f = 1MHz | | 3.5 | | pF |
| Collector-to-emitter saturation voltage | V _{CE(sat)} | I _C = -10mA , I _B = -1mA | | -0.1 | -0.4 | V |
| Base-to-emitter saturation voltage | V _{BE(sat)} | I _C = -10mA , I _B = -1mA | | -0.75 | -1.1 | 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 | -5 | | | V |
| Delay time | t _d |  <p>10I_{B1} = -10I_{B2} = I_C = 10mA (For PNP, the polarity is reversed) Unit (resistance : Ω, capacitance : F)</p> | | 40 | ns | |
| Rise time | t _r | | | 120 | ns | |
| Storage time | t _{stg} | | | 190 | ns | |
| Fall time | t _f | | | 200 | ns | |

■ hFE Classification

| Marking | O | | |
|---------|--------|---------|---------|
| Rank | 4 | 5 | 6 |
| hFE | 90~180 | 135~270 | 200~400 |