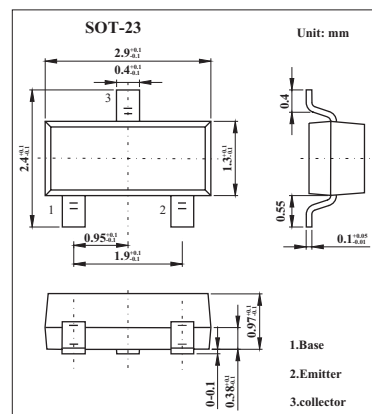


Silicon NPN Epitaxial

2SC3011

■ Features

- High Gain : $|S_{21e}|^2=12\text{dB(TYP.)}$
- Low Noise Figure: $\text{NF}=2.3\text{dB(Typ.)}$ $f=1\text{GHz}$
- High f_T : $f_T=6.5\text{GHz}$

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

| Parameter | Symbol | Rating | Unit |
|-----------------------------|-----------|-------------|------------------|
| Collector-base voltage | V_{CB0} | 20 | V |
| Collector-emitter voltage | V_{CEO} | 7 | V |
| Emitter-base voltage | V_{EBO} | 3 | V |
| Collector current | I_C | 30 | mA |
| Emitter current | I_E | 10 | mA |
| Collector power dissipation | P_C | 150 | mW |
| Junction temperature | T_j | 125 | $^\circ\text{C}$ |
| Storage temperature | T_{stg} | -55 to +125 | $^\circ\text{C}$ |

■ Electrical Characteristics $T_a = 25^\circ\text{C}$

| Parameter | Symbol | Testconditons | Min | Typ | Max | Unit |
|--------------------------------------|---------------|--|-----|------|-----|---------------|
| Collector cut-off current | I_{CBO} | $V_{CB} = 10\text{ V}, I_E = 0$ | | | 1.0 | μA |
| Emitter cut-off current | I_{EBO} | $V_{EB} = 1.0\text{ V}, I_C = 0$ | | | 1.0 | μA |
| Collector-emitter breakdown voltage | $V_{(BR)CEO}$ | $I_C = 0.5\text{ mA}, I_B = 0$ | 7 | | | V |
| DC current gain | h_{FE} | $V_{CE} = 5\text{ V}, I_C = 10\text{ mA}$ | 30 | 120 | | |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C = 10\text{ mA}, I_B = 1\text{ mA}$ | | 0.1 | | V |
| Base-emitter saturation voltage | $V_{BE(sat)}$ | | | 0.87 | | V |
| Collector output capacitance | C_{ob} | $V_{CB} = 5\text{ V}, I_E = 0, f = 1\text{ MHz}$ | | 0.7 | 0.9 | pF |
| Reverse Transfer Capacitance | C_{re} | | | 0.5 | | pF |
| Input Capacitance | C_{ib} | $V_{EB}=0, I_C=0, f=1\text{MHz}$ | | 0.8 | | pF |
| Transition Frequency | f_T | $V_{CE}=5\text{V}, I_C=10\text{mA}$ | | 6.5 | | GHz |
| Insertion Gain | $ S_{21e} ^2$ | $V_{CE}=5\text{V}, I_C=10\text{mA}, f=1\text{GHz}$ | | 12 | | dB |
| Noise Figure | NF | $V_{CE}=5\text{V}, I_C=5\text{mA}, f=1\text{GHz}$ | | 2.3 | | dB |

■ Marking

| | |
|---------|----|
| Marking | MA |
|---------|----|