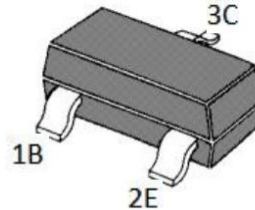




NPN Silicon Epitaxial Planar Transistor

for microwave low noise amplifier at VHF, UHF and CATV band

The transistor is subdivided into three groups, Q, R and S, according to its DC current gain.



SOT-23-3L Plastic Package

| HFE | MARKING |
|-----|---------|
| Q | R23 |
| R | R24 |
| S | R25 |

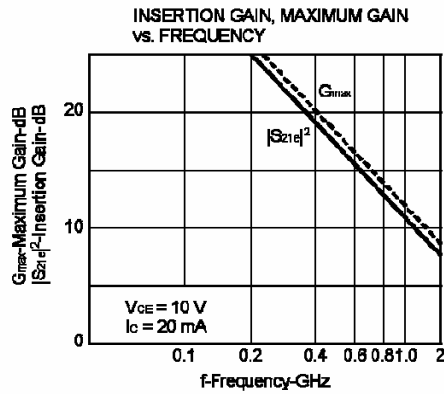
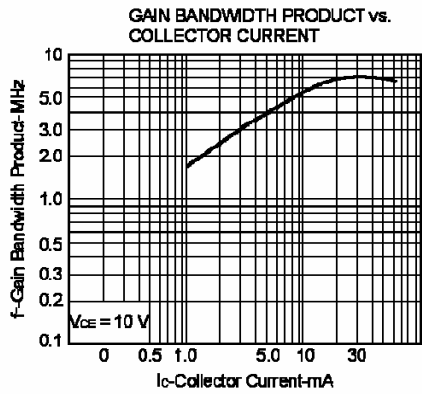
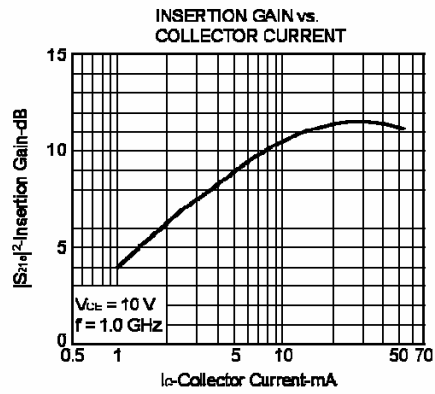
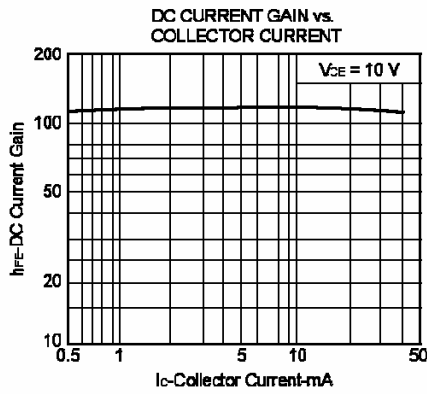
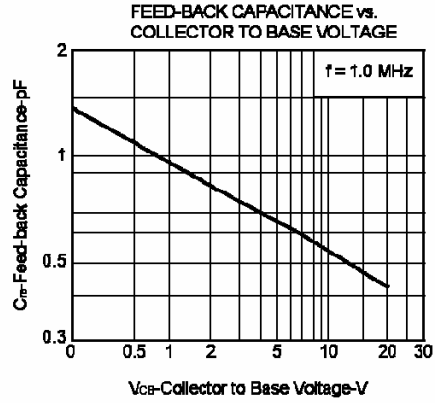
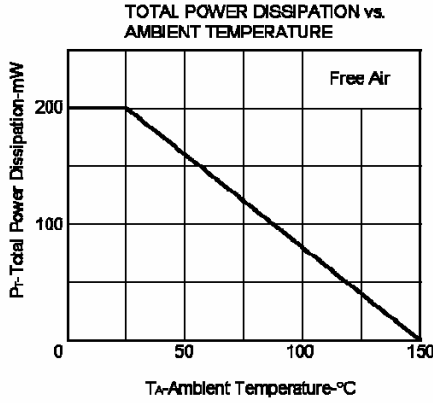
Absolute Maximum Ratings (T_a = 25 °C)

| Parameter | Symbol | Value | Unit |
|---------------------------|------------------|---------------|------|
| Collector Base Voltage | V _{CBO} | 20 | V |
| Collector Emitter Voltage | V _{CEO} | 12 | V |
| Emitter Base Voltage | V _{EBO} | 3 | V |
| Collector Current | I _C | 100 | mA |
| Power Dissipation | P _{tot} | 200 | mW |
| Junction Temperature | T _j | 150 | °C |
| Storage Temperature Range | T _s | - 65 to + 150 | °C |

Characteristics (T_a = 25°C)

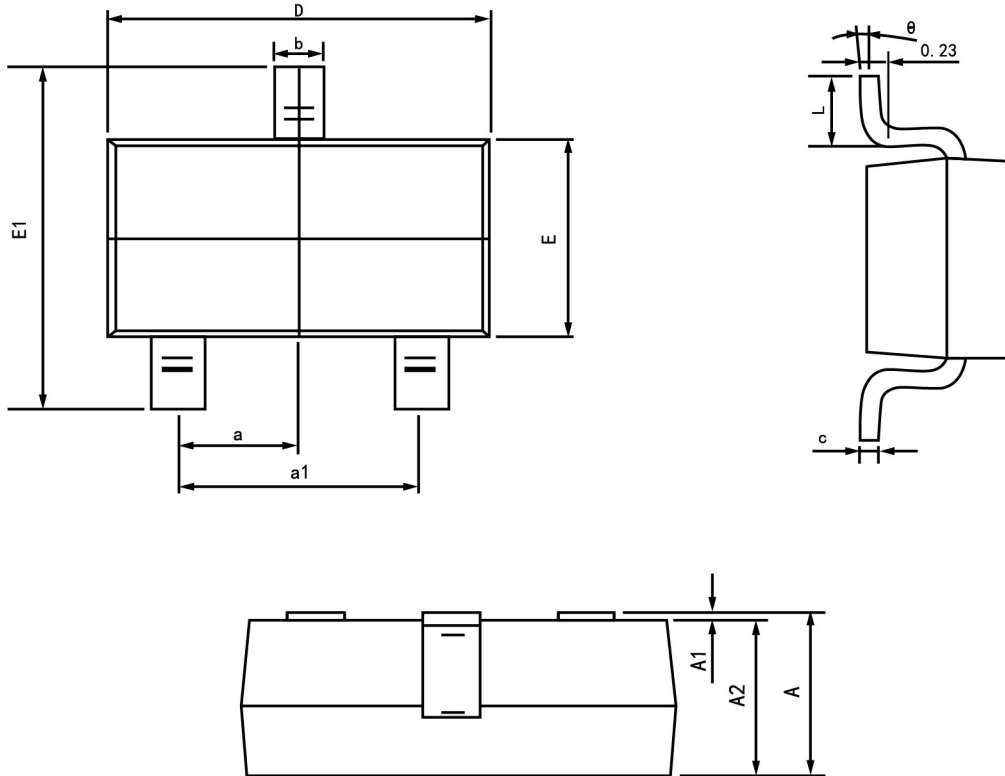
| Parameter | Symbol | Min. | Typ. | Max. | Unit | |
|--|-------------------------------|-----------------|------|------|------|---|
| DC Current Gain at V _{CE} = 10 V, I _C = 20 mA Current Gain Group | Q | h _{FE} | 50 | - | 100 | - |
| | R | h _{FE} | 80 | - | 160 | - |
| | S | h _{FE} | 125 | - | 250 | - |
| | | | | | | |
| Collector Cutoff Current at V _{CB} = 10 V | I _{CBO} | - | - | 1 | μA | |
| Emitter Cutoff Current at V _{EB} = 1 V | I _{EBO} | - | - | 1 | μA | |
| Gain Bandwidth Product at V _{CE} = 10 V, I _C = 20 mA | f _T | - | 7 | - | GHz | |
| Feed-Back Capacitance at V _{CB} = 10 V, f = 1 MHz | C _{re} ¹⁾ | - | 0.55 | 1 | pF | |
| Noise Figure at V _{CE} = 10 V, I _C = 7 mA, f = 1 GHz | NF | - | 1.1 | 2 | dB | |

1) The emitter terminal and the case shall be connected to the guard terminal of the three-terminal capacitance bridge.





SOT-23-3L Package Outline Dimensions



| Symbol | Dimension in Millimeters | |
|--------|--------------------------|-------|
| | Min | Max |
| A | 1.050 | 1.250 |
| A1 | 0.000 | 0.100 |
| A2 | 1.050 | 1.150 |
| b | 0.300 | 0.500 |
| c | 0.100 | 0.200 |
| D | 2.820 | 3.020 |
| E | 1.500 | 1.700 |
| E1 | 2.650 | 2.950 |
| e | 0.950 (Basic) | |
| e1 | 1.800 | 2.000 |
| L | 0.300 | 0.600 |
| θ | 0° | 8° |