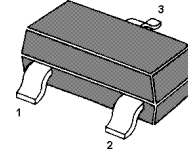


NPN Silicon Epitaxial Planar Transistor

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.



1.Base 2.Emitter 3.Collector
SOT-23 Plastic Package

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

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

| 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 | $^\circ\text{C}$ |
| Storage Temperature Range | T_s | - 65 to + 150 | $^\circ\text{C}$ |

Characteristics ($T_a = 25^\circ\text{C}$)

| Parameter | Symbol | Min. | Typ. | Max. | Unit |
|-------------------------------------------------------------------------------------------|---------------|------|------|------|---------------|
| DC Current Gain at $V_{CE} = 10\text{ V}$, $I_C = 20\text{ mA}$ Current Gain Group | Q h_{FE} | 50 | - | 100 | - |
| | R h_{FE} | 80 | - | 160 | - |
| | S h_{FE} | 125 | - | 250 | - |
| Collector Cutoff Current at $V_{CB} = 10\text{ V}$ | I_{CBO} | - | - | 1 | μA |
| Emitter Cutoff Current at $V_{EB} = 1\text{ V}$ | I_{EBO} | - | - | 1 | μA |
| Gain Bandwidth Product at $V_{CE} = 10\text{ V}$, $I_C = 20\text{ mA}$ | f_T | - | 7 | - | GHz |
| Feed-Back Capacitance at $V_{CB} = 10\text{ V}$, $f = 1\text{ MHz}$ | $C_{re}^{1)}$ | - | 0.55 | 1 | pF |
| Noise Figure at $V_{CE} = 10\text{ V}$, $I_C = 7\text{ mA}$, $f = 1\text{ GHz}$ | 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.



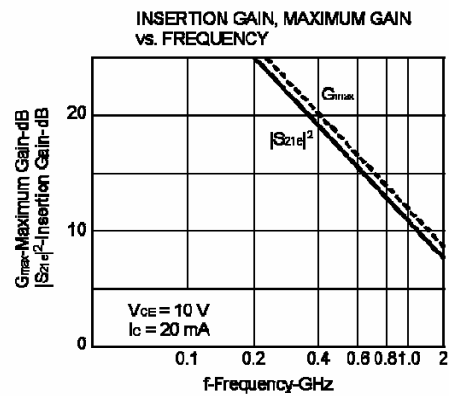
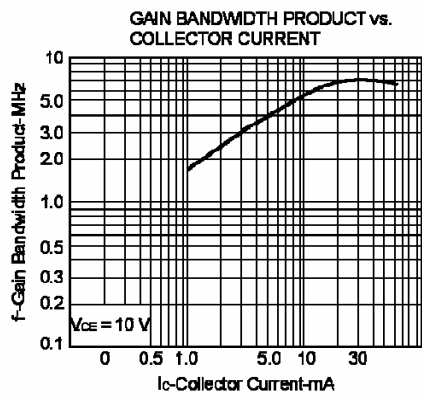
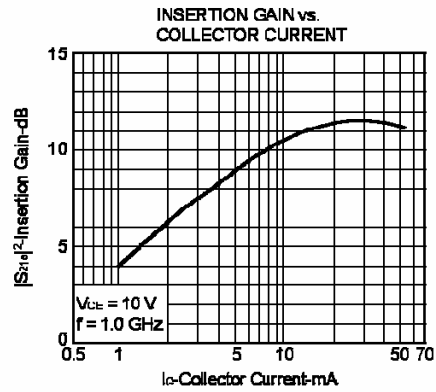
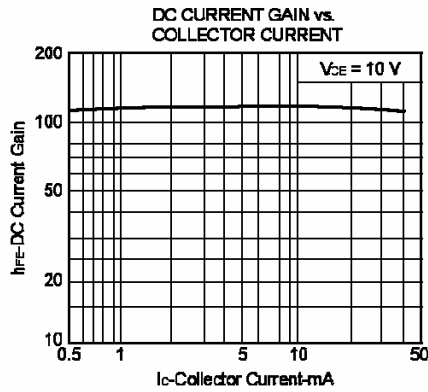
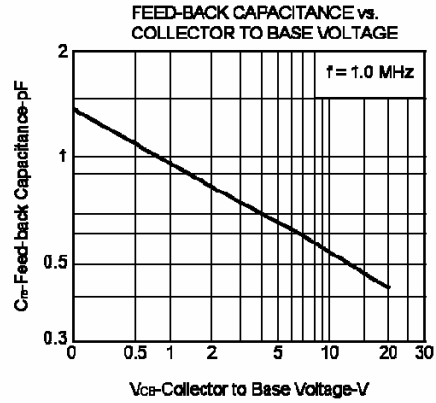
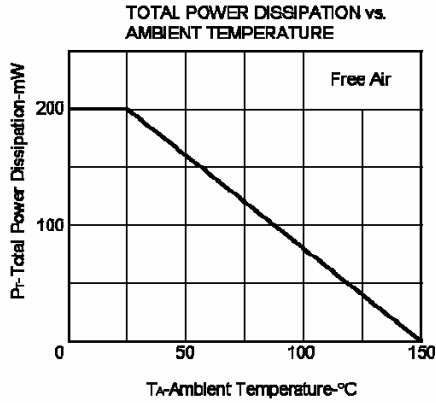
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SOT-23



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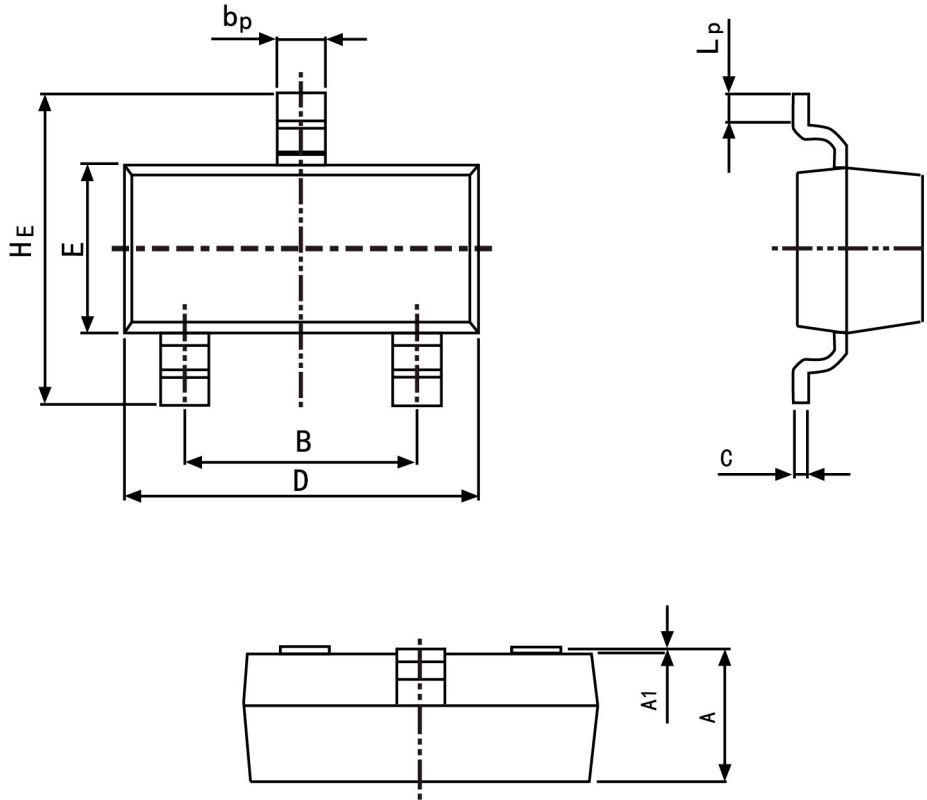




PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT-23



| Symbol | Dimension in Millimeters | |
|--------|--------------------------|-------|
| | Min | Max |
| A | 0.95 | 1.40 |
| B | 1.78 | 2.04 |
| bp | 0.35 | 0.50 |
| C | 0.08 | 0.19 |
| D | 2.70 | 3.10 |
| E | 1.20 | 1.65 |
| HE | 2.20 | 3.00 |
| A1 | 0.100 | 0.013 |
| Lp | 0.20 | 0.50 |