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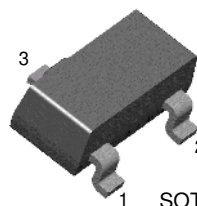
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KSC2223

KSC2223

High Frequency Amplifier

- Very small size to assure good space factor in Hybrid IC applications
- $f_T=600\text{MHz}$ (TYP) at $I_C=1\text{mA}$
- $C_{ob}=1\text{pF}$ (TYP) at $V_{CB}=6\text{V}$
- $NF=3\text{dB}$ (TYP) at $f=100\text{MHz}$



1. Base 2. Emitter 3. Collector

NPN Epitaxial Silicon Transistor

Absolute Maximum Ratings $T_a=25^\circ\text{C}$ unless otherwise noted

| Symbol | Parameter | Value | Units |
|-----------|-----------------------------|-----------|------------------|
| V_{CBO} | Collector-Base Voltage | 30 | V |
| V_{CEO} | Collector-Emitter Voltage | 20 | V |
| V_{EBO} | Emitter-Base Voltage | 4 | V |
| I_C | Collector Current | 20 | mA |
| P_C | Collector Power Dissipation | 150 | mW |
| T_J | Junction Temperature | 150 | $^\circ\text{C}$ |
| T_{STG} | Storage Temperature | -55 ~ 150 | $^\circ\text{C}$ |

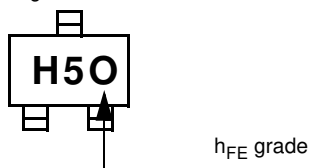
Electrical Characteristics $T_a=25^\circ\text{C}$ unless otherwise noted

| Symbol | Parameter | Test Condition | Min. | Typ. | Max. | Units |
|----------------------|--------------------------------------|---|------|------|------|---------------|
| I_{CBO} | Collector Cut-off Current | $V_{CB}=30\text{V}, I_E=0$ | | | 0.1 | μA |
| h_{FE} | DC Current Gain | $V_{CE}=6\text{V}, I_C=1\text{mA}$ | 40 | 90 | 180 | |
| $V_{CE}(\text{sat})$ | Collector Emitter Saturation Voltage | $I_C=10\text{mA}, I_B=1\text{mA}$ | | 0.1 | 0.3 | V |
| C_{ob} | Output Capacitance | $V_{CB}=6\text{V}, I_E=0, f=1\text{MHz}$ | | 1 | | pF |
| f_T | Current Gain Bandwidth Product | $V_{CE}=6\text{V}, I_C=1\text{mA}$ | 400 | 600 | | MHz |
| C_{c-rbb} | Time Constant | $V_{CB}=6\text{V}, I_C=1\text{mA}$ $f=31.9\text{MHz}$ | | 12 | | ps |
| NF | Noise Figure | $V_{CE}=6\text{V}, I_C=1\text{mA}$ $f=100\text{MHz}, R_S=50\Omega$ | | 3 | | dB |

h_{FE} Classification

| Classification | R | O | Y |
|----------------|---------|----------|----------|
| h_{FE} | 40 ~ 80 | 60 ~ 120 | 90 ~ 180 |

Marking



Typical Characteristics

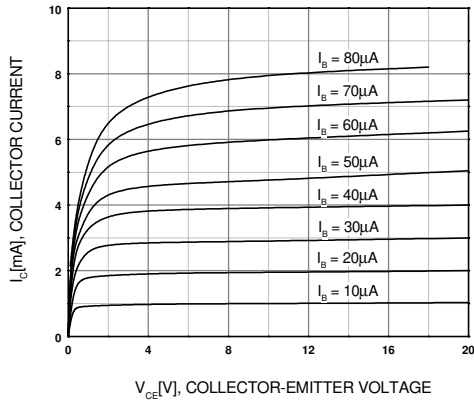


Figure 1. Static Characteristic

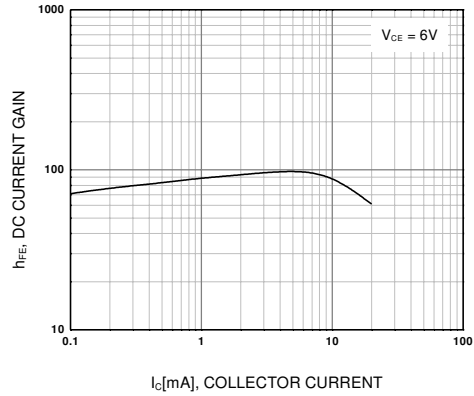


Figure 2. DC current Gain 1

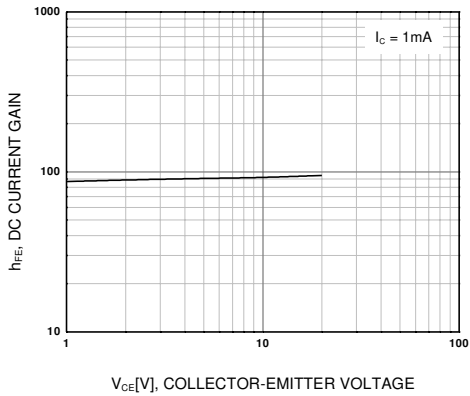


Figure 3. DC current Gain 2

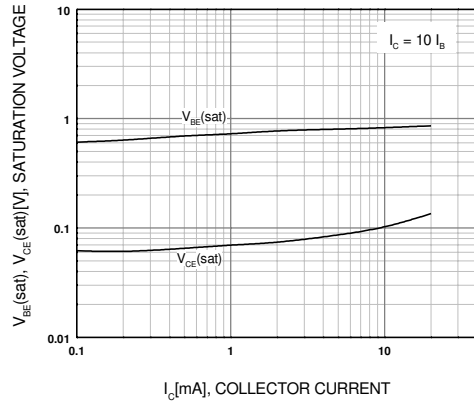


Figure 4. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

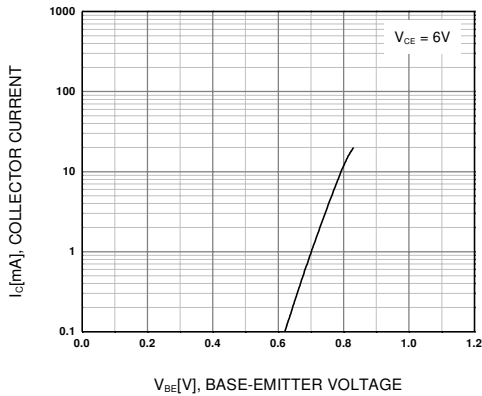


Figure 5. Base-Emitter On Voltage

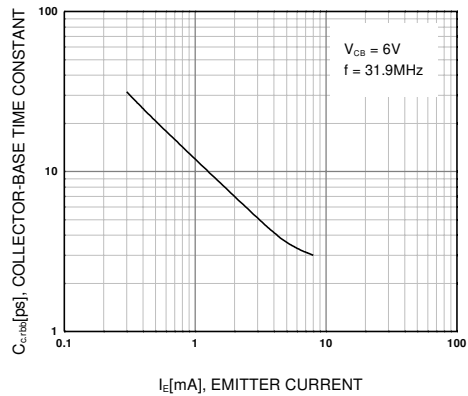


Figure 6. Collector-Base Time Constant

Typical Characteristics (Continued)

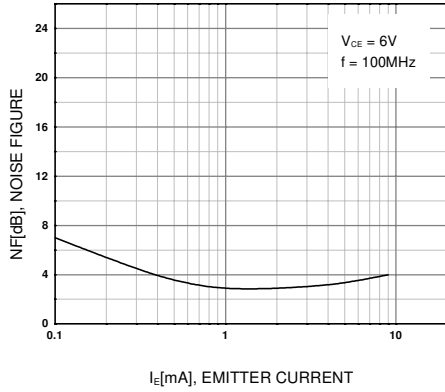


Figure 7. Noise Figure

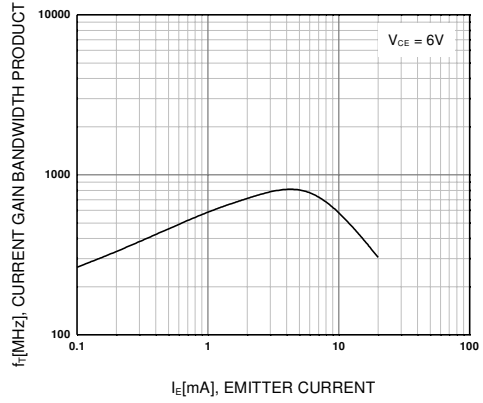


Figure 8. Current Gain Bandwidth Product

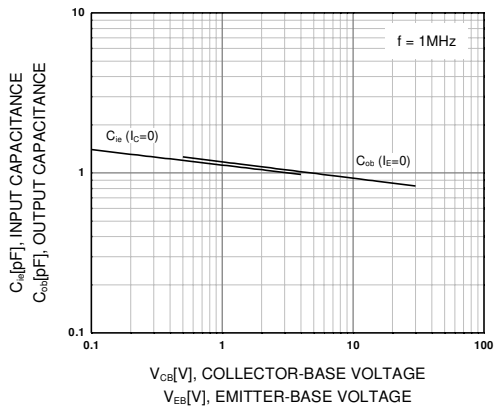


Figure 9. Input and Output Capacitance

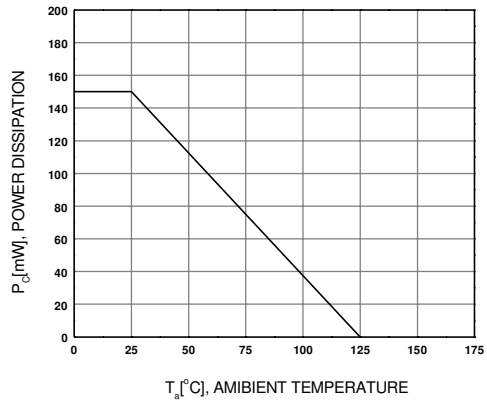
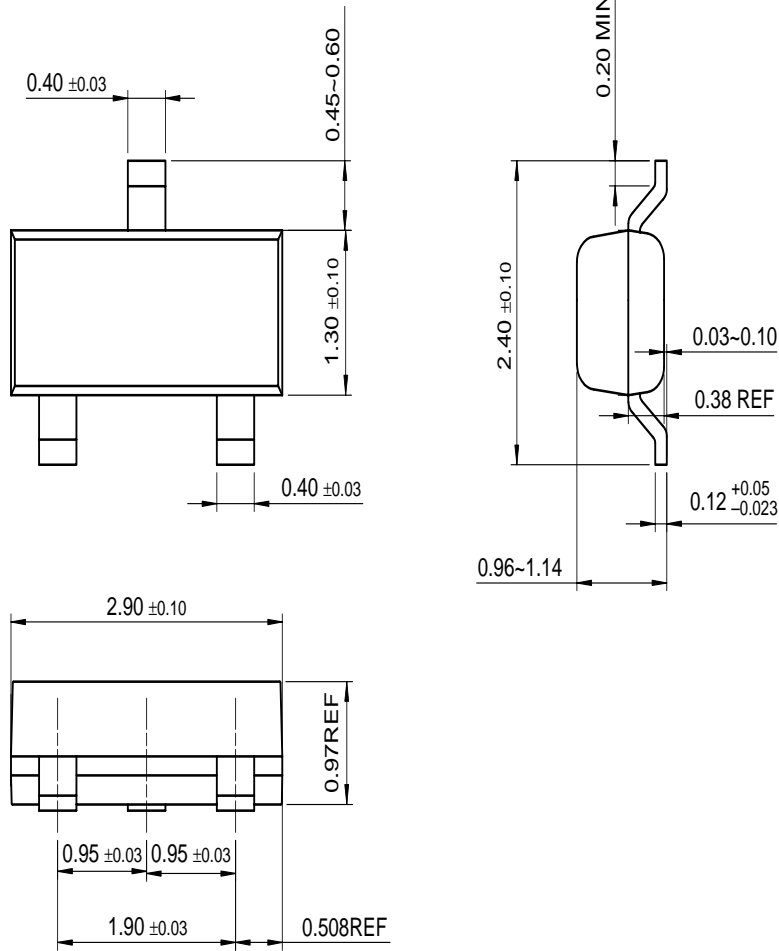


Figure 10. Power Derating

Package Dimensions

SOT-23



Dimensions in Millimeters

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| EnSigna™ | I ² C™ | OCX™ | RapidConfigure™ | UHC™ |
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