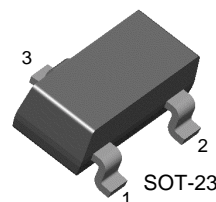


KST3904

KST3904

General Purpose Transistor



1. Base 2. Emitter 3. Collector

NPN Epitaxial Silicon Transistor

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

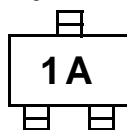
| Symbol | Parameter | Value | Units |
|-----------|-----------------------------|-------|------------------|
| V_{CBO} | Collector-Base Voltage | 60 | V |
| V_{CEO} | Collector-Emitter Voltage | 40 | V |
| V_{EBO} | Emitter-Base Voltage | 6 | V |
| I_C | Collector Current | 200 | mA |
| P_C | Collector Power Dissipation | 350 | mW |
| T_{STG} | Storage Temperature | 150 | $^\circ\text{C}$ |

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

| Symbol | Parameter | Test Condition | Min. | Max. | Units |
|---------------|--|--|-----------------------------|--------------|--------|
| BV_{CBO} | Collector-Base Breakdown Voltage | $I_C=10\mu\text{A}, I_E=0$ | 60 | | V |
| BV_{CEO} | * Collector-Emitter Breakdown Voltage | $I_C=1\text{mA}, I_B=0$ | 40 | | V |
| BV_{EBO} | Emitter-Base Breakdown Voltage | $I_E=10\mu\text{A}, I_C=0$ | 6 | | V |
| I_{CEX} | Collector Cut-off Current | $V_{CE}=30\text{V}, V_{EB}=3\text{V}$ | | 50 | nA |
| h_{FE} | * DC Current Gain | $V_{CE}=1\text{V}, I_C=0.1\text{mA}$ $V_{CE}=1\text{V}, I_C=1\text{mA}$ $V_{CE}=1\text{V}, I_C=10\text{mA}$ $V_{CE}=1\text{V}, I_C=50\text{mA}$ $V_{CE}=1\text{V}, I_C=100\text{mA}$ | 40 70 100 60 30 | 300 | |
| $V_{CE(sat)}$ | * Collector-Emitter Saturation Voltage | $I_C=10\text{mA}, I_B=1\text{mA}$ $I_C=50\text{mA}, I_B=5\text{mA}$ | | 0.2 0.3 | V V |
| $V_{BE(sat)}$ | * Base-Emitter Saturation Voltage | $I_C=10\text{mA}, I_B=1\text{mA}$ $I_C=50\text{mA}, I_B=5\text{mA}$ | 0.65 | 0.85 0.95 | V V |
| C_{ob} | Output Capacitance | $V_{CB}=5\text{V}, I_E=0, f=1\text{MHz}$ | | 4 | pF |
| f_T | Current Gain-Bandwidth Product | $V_{CE}=20\text{V}, I_C=10\text{mA}, f=100\text{MHz}$ | 300 | | MHz |
| NF | Noise Figure | $I_C=100\mu\text{A}, V_{CE}=5\text{V}, R_S=1\text{K}\Omega$ $f=10\text{Hz to } 15.7\text{KHz}$ | | 5 | dB |
| t_{ON} | Turn On Time | $V_{CC}=3\text{V}, V_{BE}=0.5\text{V}$ $I_C=10\text{mA}, I_{B1}=1\text{mA}$ | | 70 | ns |
| t_{OFF} | Turn Off Time | $V_{CC}=3\text{V}, I_C=10\text{mA},$ $I_{B1}=I_{B2}=1\text{mA}$ | | 250 | ns |

* Pulse Test: Pulse Width \leq 300 μs , Duty Cycle \leq 2%

Marking



Typical Characteristics

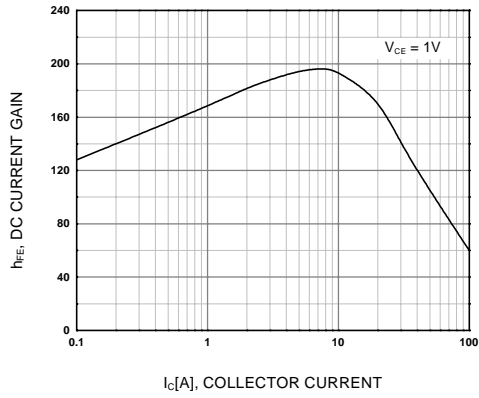


Figure 1. DC current Gain

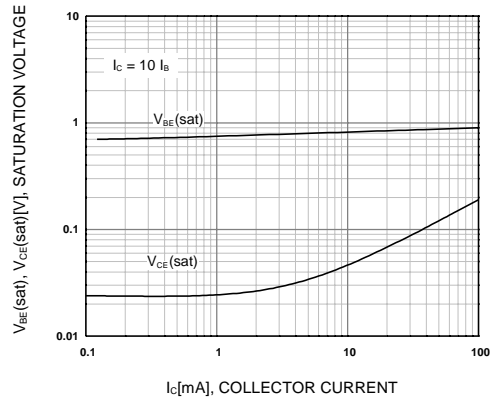


Figure 2. Base-Emitter Saturation Voltage
Collector-Emmitter Saturation Voltage

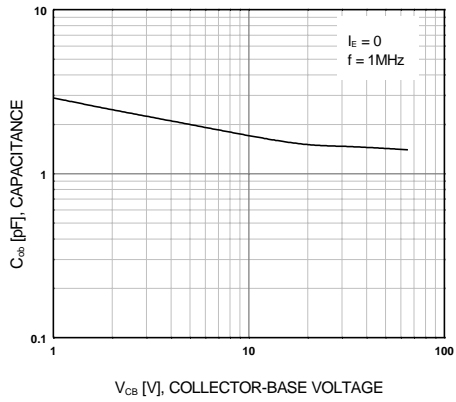


Figure 3. Output Capacitance

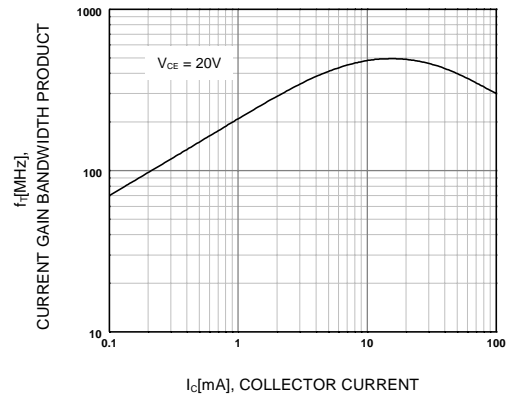


Figure 4. Current Gain Bandwidth Product

Package Dimensions

SOT-23



Dimensions in Millimeters

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