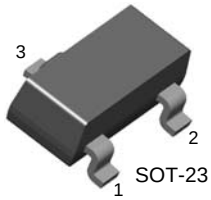
FAIRCHILD SEMICONDUCTOR®

September 2010

# KST3906
# PNP Epitaxial Silicon Transistor

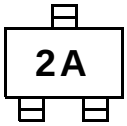
## Features
- General Purpose Transistor




SOT-23

1. Base 2. Emitter 3. Collector

Marking




## Absolute Maximum Ratings $T_a$ = 25°C unless otherwise noted

| Symbol | Parameter | Value | Unit |
|---|---|---|---|
| $V_{CBO}$ | Collector-Base Voltage | -40 | V |
| $V_{CEO}$ | Collector-Emitter Voltage | -40 | V |
| $V_{EBO}$ | Emitter-Base Voltage | -5 | V |
| $I_C$ | Collector Current | -200 | mA |
| $P_C$ | Collector Power Dissipation | 350 | mW |
| $T_{STG}$ | Storage Temperature | 150 | °C |

## Electrical Characteristics $T_a$=25°C unless otherwise noted

| Symbol | Parameter | Test Condition | Min. | Max. | Unit |
|---|---|---|---|---|---|
| $BV_{CBO}$ | Collector-Base Breakdown Voltage | $I_C$= -10μA, $I_E$=0 | -40 | | V |
| $BV_{CEO}$ | * Collector-Emitter Breakdown Voltage | $I_C$= -1.0mA, $I_B$=0 | -40 | | V |
| $BV_{EBO}$ | Emitter-Base Breakdown Voltage | $I_E$= -10μA, $I_C$=0 | -5 | | V |
| $I_{CEX}$ | Collector Cut-off Current | $V_{CE}$= -30V, $V_{EB}$= -3V | | -50 | nA |
| $h_{FE}$ | * DC Current Gain | $V_{CE}$= -1V, $I_C$= -0.1mA<br>$V_{CE}$= -1V, $I_C$= -1mA<br>$V_{CE}$= -1V, $I_C$= -10mA<br>$V_{CE}$= -1V, $I_C$= -50mA<br>$V_{CE}$= -1V, $I_C$= -100mA | 60<br>80<br>100<br>60<br>30 | 300 | |
| $V_{CE}$ (sat) | * Collector-Emitter Saturation Voltage | $I_C$= -10mA, $I_B$= -1.0mA<br>$I_C$= -50mA, $I_B$= -5.0mA | | -0.25<br>-0.4 | V<br>V |
| $V_{BE}$ (sat) | * Base-Emitter Saturation Voltage | $I_C$= -10mA, $I_B$= -1.0mA<br>$I_C$= -50mA, $I_B$= -5.0mA | -0.65 | -0.85<br>-0.95 | V<br>V |
| $f_T$ | Current Gain Bandwidth Product | $I_C$= -10mA, $V_{CE}$= -20V, f=100MHz | 250 | | MHz |
| $C_{ob}$ | Output Capacitance | $V_{CB}$= -5V, $I_E$=0, f=1.0MHz | | 4.5 | pF |
| NF | Noise Figure | $I_C$= -100μA, $V_{CE}$= -5V<br>$R_S$=1KΩ, f=10Hz to 15.7KHz | | 4 | dB |
| $t_{ON}$ | Turn On Time | $V_{CC}$= -3V, $V_{BE}$= -0.5V<br>$I_C$= -10mA, $I_{B1}$= -1mA | | 70 | ns |
| $t_{OFF}$ | Turn Off Time | $V_{CC}$= -3V, $I_C$= -10mA<br>$I_{B1}$=$I_{B2}$= -1mA | | 300 | ns |

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

## Typical Performance Characteristics

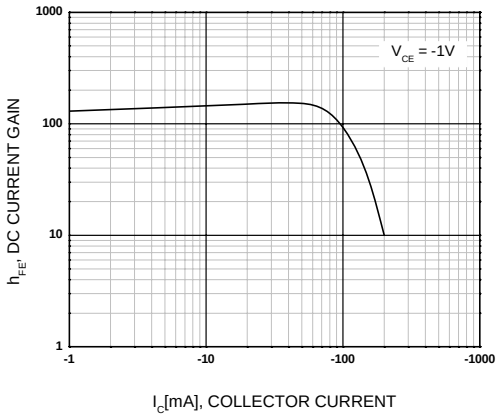



**Figure 1. DC current Gain**

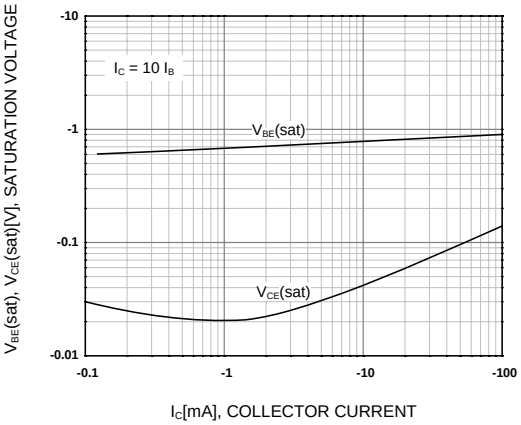



**Figure 2. Base-Emitter Saturation Voltage Collector-Emitter Saturation Voltage**

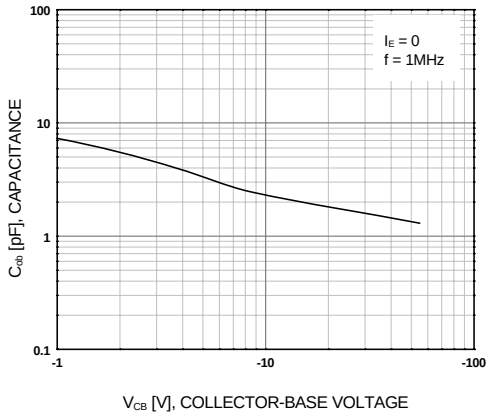



**Figure 3. Output Capacitance**

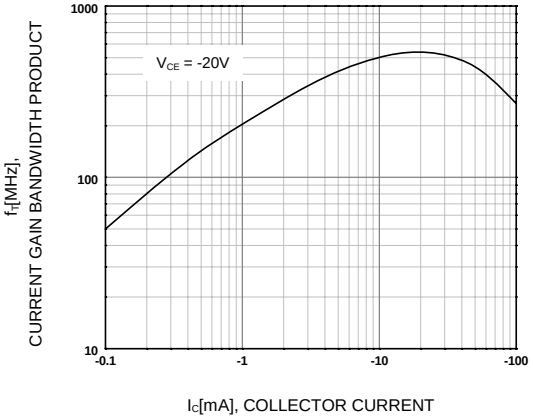
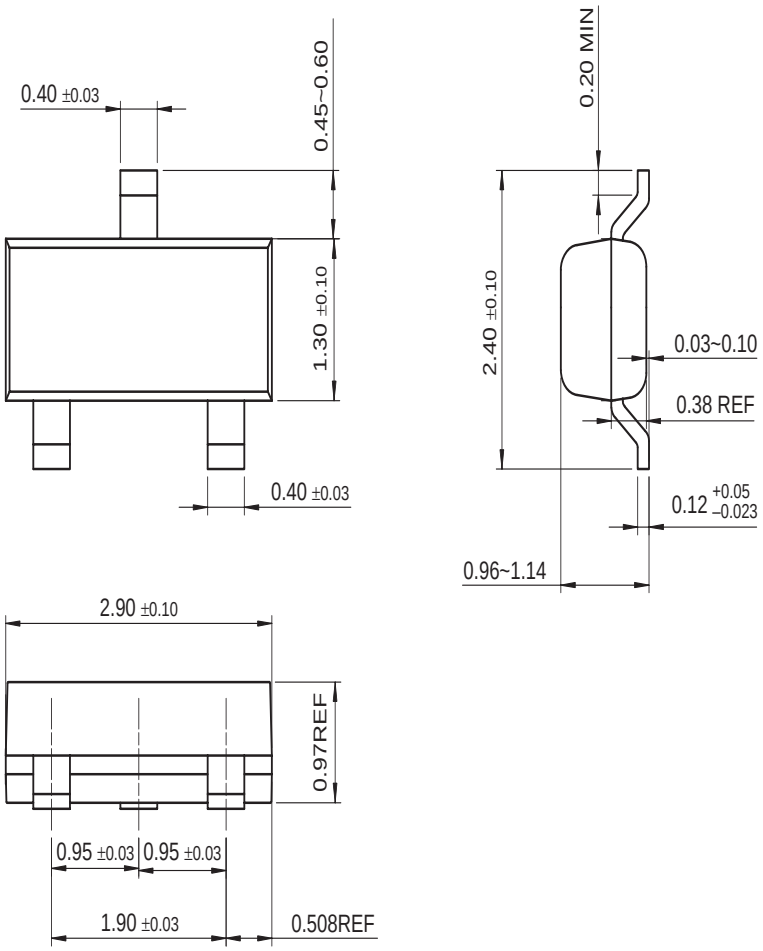



**Figure 4. Current Gain Bandwidth Product**

## Physical Dimensions

# SOT-23




Dimensions in Millimeters

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