

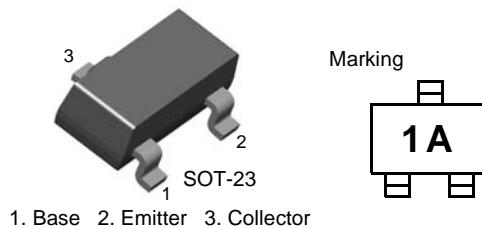


# KST3904

## NPN Epitaxial Silicon Transistor

### Features

- General Purpose Transistor



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

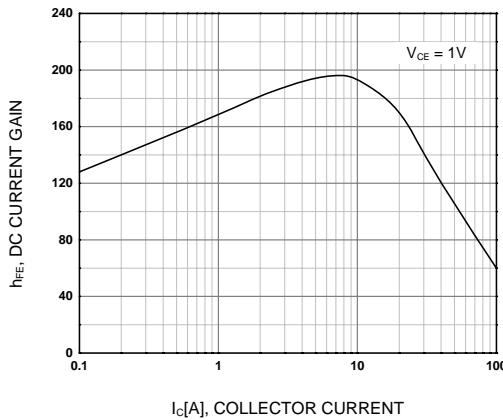
Symbol	Parameter	Value	Units
$V_{CBO}$	Collector-Base Voltage	60	V
$V_{CEO}$	Collector-Emitter Voltage	40	V
$V_{EBO}$	Emitter-Base Voltage	6	V
$I_C$	Collector Current	200	mA
$P_C$	Collector Power Dissipation	350	mW
$T_{STG}$	Storage Temperature Range	-55 to 150	°C

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

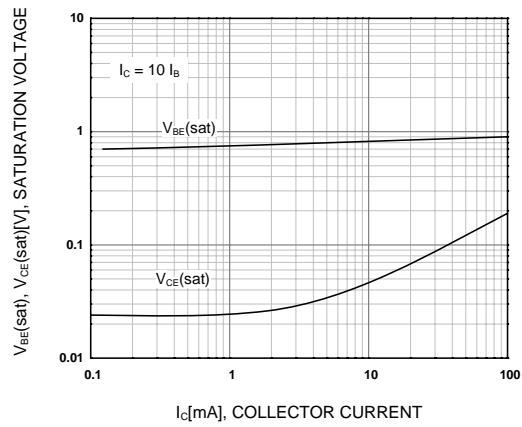
Symbol	Parameter	Test Condition	Min.	Max.	Units
$BV_{CBO}$	Collector-Base Breakdown Voltage	$I_C=10\mu\text{A}$ , $I_E=0$	60		V
$BV_{CEO}$	* Collector-Emitter Breakdown Voltage	$I_C=1\text{mA}$ , $I_B=0$	40		V
$BV_{EBO}$	Emitter-Base Breakdown Voltage	$I_E=10\mu\text{A}$ , $I_C=0$	6		V
$I_{CEX}$	Collector 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	
$V_{CE(\text{sat})}$	* 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
$V_{BE(\text{sat})}$	* 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  $\leq 300\mu\text{s}$ , Duty Cycle  $\leq 2\%$

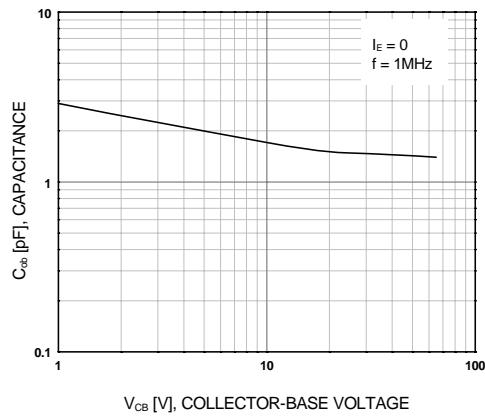
## Typical Performance Characteristics



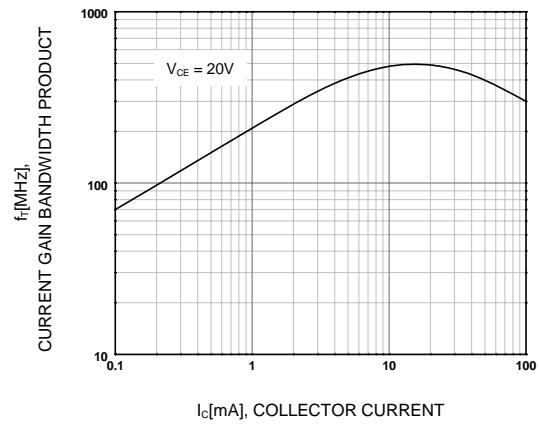
**Figure 1. DC current Gain**



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



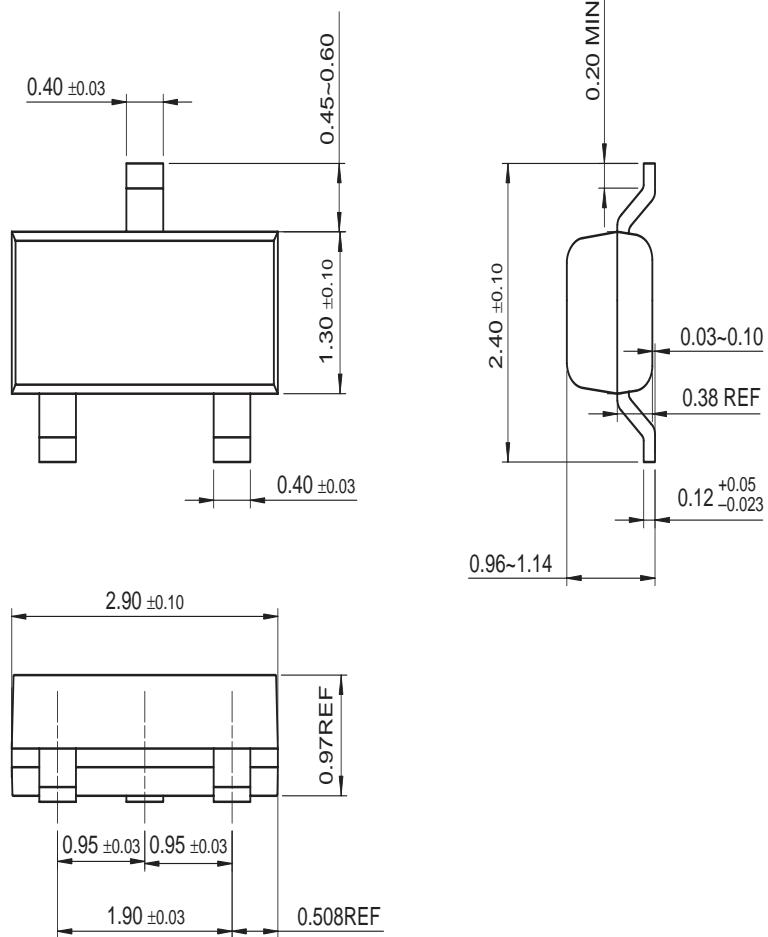
**Figure 3. Output Capacitance**



**Figure 4. Current Gain Bandwidth Product**

## Physical Dimensions

**SOT-23**

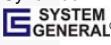


Dimensions in Millimeters



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