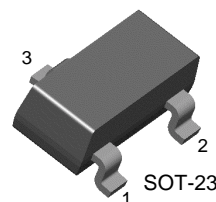


# KST3904

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

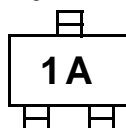
Symbol	Parameter	Value	Units
$V_{CBO}$	Collector-Base Voltage	60	V
$V_{CEO}$	Collector-Emitter Voltage	40	V
$V_{EBO}$	Emitter-Base Voltage	6	V
$I_C$	Collector Current	200	mA
$P_C$	Collector Power Dissipation	350	mW
$T_{STG}$	Storage Temperature	150	$^\circ\text{C}$

### 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 $\mu\text{s}$ , Duty Cycle $\leq$ 2%

### Marking



# Typical Characteristics

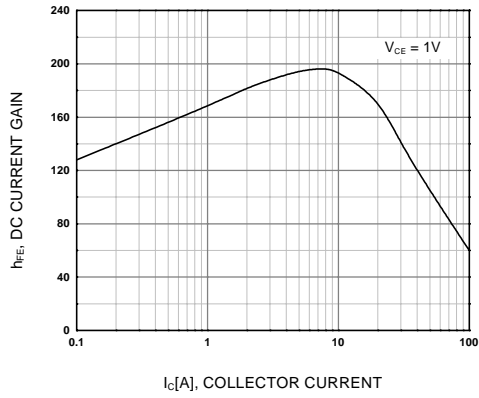


Figure 1. DC current Gain

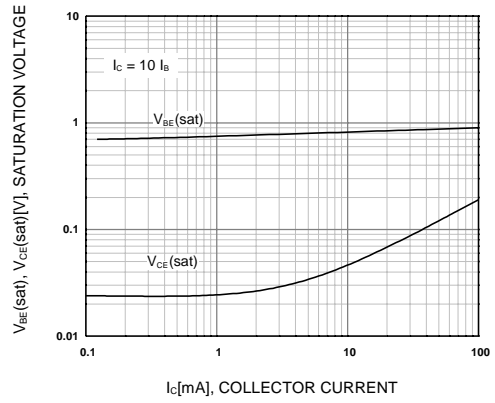


Figure 2. Base-Emitter Saturation Voltage  
Collector-Emmitter Saturation Voltage

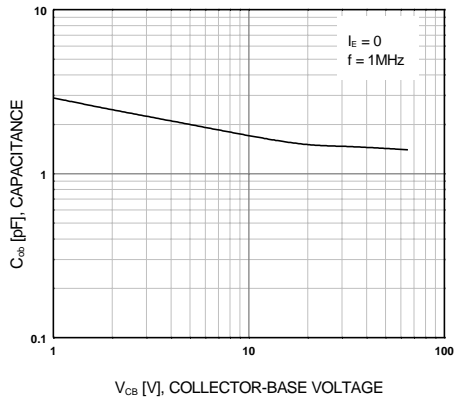


Figure 3. Output Capacitance

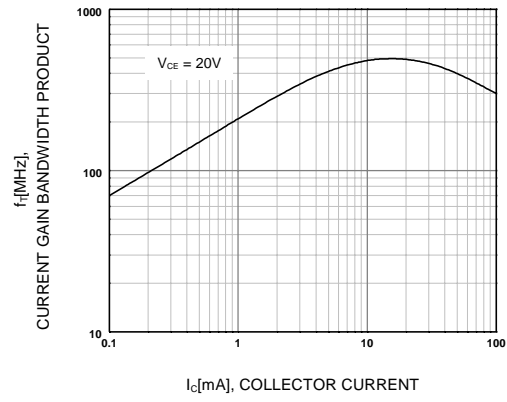


Figure 4. Current Gain Bandwidth Product

# Package Dimensions

## SOT-23



Dimensions in Millimeters

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ActiveArray <sup>™</sup>	FACT Quiet series <sup>™</sup>	ISOPLANAR <sup>™</sup>	POP <sup>™</sup>	Stealth <sup>™</sup>
Bottomless <sup>™</sup>	FAST <sup>®</sup>	LittleFET <sup>™</sup>	Power247 <sup>™</sup>	SuperSOT <sup>™</sup> -3
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