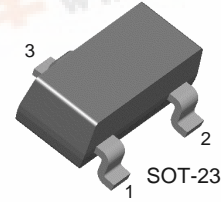


FAIRCHILD
SEMICONDUCTOR®

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

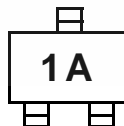
Symbol	Parameter	Value	Units
V_{CB0}	Collector-Base Voltage	60	V
V_{CE0}	Collector-Emitter Voltage	40	V
V_{EBO}	Emitter-Base Voltage	6	V
I_C	Collector Current	200	mA
P_C	Collector Power Dissipation	350	mW
T_{STG}	Storage Temperature	150	$^\circ\text{C}$

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

Symbol	Parameter	Test Condition	Min.	Max.	Units
BV_{CB0}	Collector-Base Breakdown Voltage	$I_C=10\mu\text{A}, I_E=0$	60		V
BV_{CE0}	* 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
$V_{BE(sat)}$	* 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
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

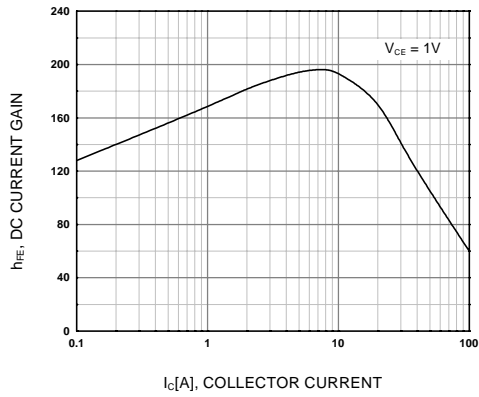


Figure 1. DC current Gain

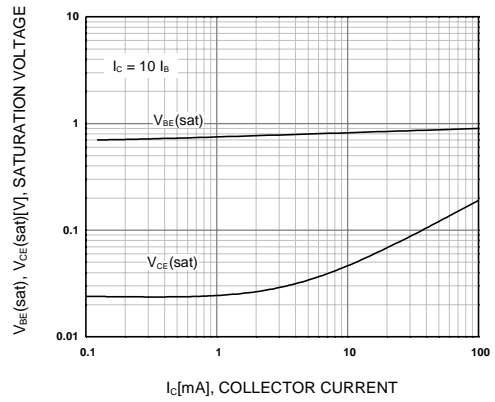


Figure 2. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

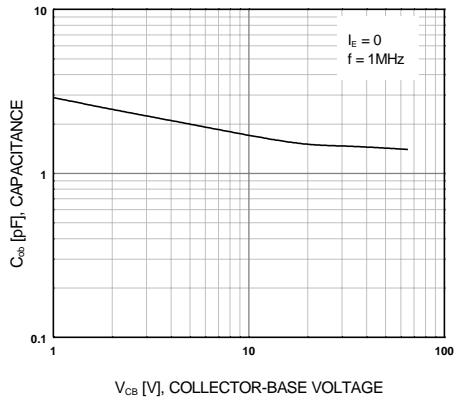


Figure 3. Output Capacitance

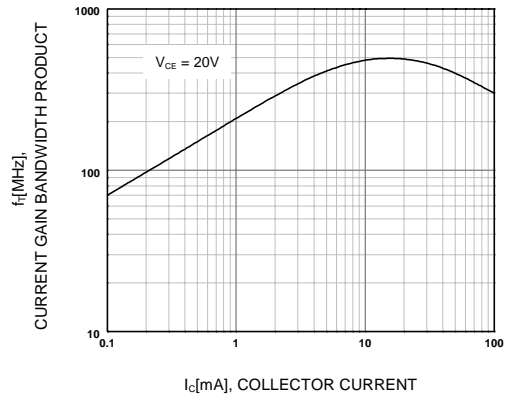
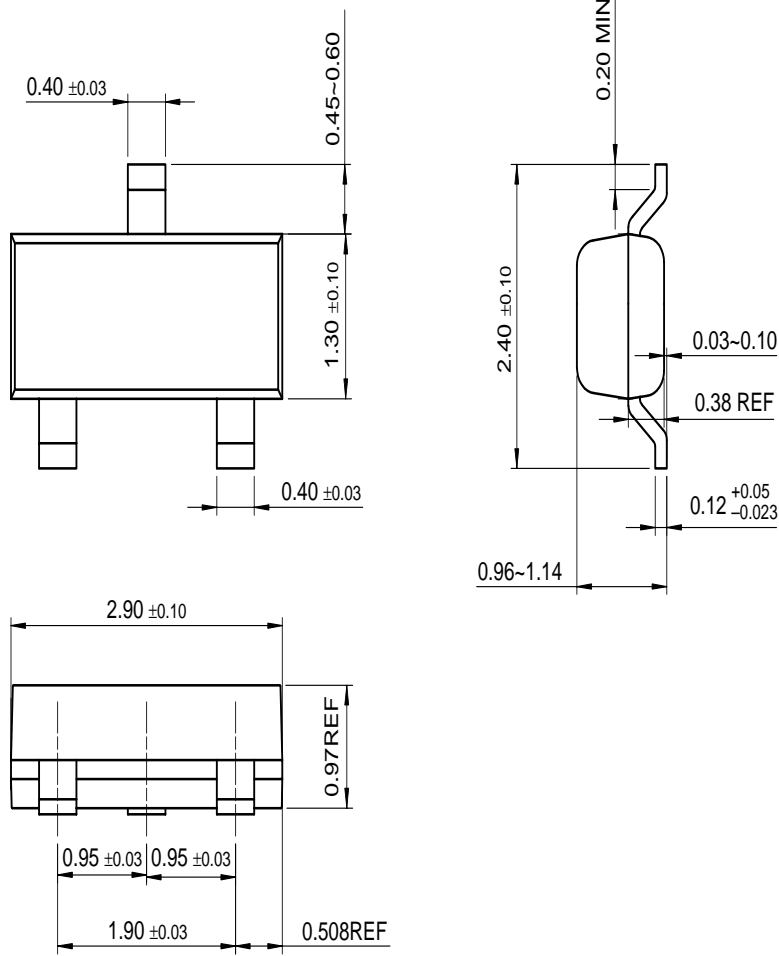


Figure 4. Current Gain Bandwidth Product

Package Dimensions

SOT-23



Dimensions in Millimeters

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CoolFET™	FASTr™	MicroFET™	PowerTrench®	SuperSOT™-6
CROSSVOLT™	FRFET™	MicroPak™	QFET™	SuperSOT™-8
DOMET™	GlobalOptoisolator™	MICROWIRE™	QS™	SyncFET™
EcoSPARK™	GTO™	MSX™	QT Optoelectronics™	TinyLogic™
E ² CMOS™	HiSeC™	MSXPro™	Quiet Series™	TruTranslation™
EnSigna™	I ² C™	OCX™	RapidConfigure™	UHC™
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Programmable Active Droop™		OPTOPLANAR™	SMART START™	

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PRODUCT STATUS DEFINITIONS

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