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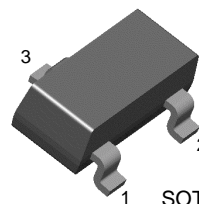
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# KSC2223

KSC2223

## High Frequency Amplifier

- Very small size to assure good space factor in Hybrid IC applications
- $f_T=600\text{MHz}$  (TYP) at  $I_C=1\text{mA}$
- $C_{ob}=1\text{pF}$  (TYP) at  $V_{CB}=6\text{V}$
- $NF=3\text{dB}$  (TYP) at  $f=100\text{MHz}$



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	30	V
$V_{CEO}$	Collector-Emitter Voltage	20	V
$V_{EBO}$	Emitter-Base Voltage	4	V
$I_C$	Collector Current	20	mA
$P_C$	Collector Power Dissipation	150	mW
$T_J$	Junction Temperature	150	$^\circ\text{C}$
$T_{STG}$	Storage Temperature	-55 ~ 150	$^\circ\text{C}$

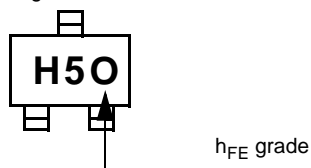
### Electrical Characteristics $T_a=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
$I_{CBO}$	Collector Cut-off Current	$V_{CB}=30\text{V}, I_E=0$			0.1	$\mu\text{A}$
$h_{FE}$	DC Current Gain	$V_{CE}=6\text{V}, I_C=1\text{mA}$	40	90	180	
$V_{CE}(\text{sat})$	Collector Emitter Saturation Voltage	$I_C=10\text{mA}, I_B=1\text{mA}$		0.1	0.3	V
$C_{ob}$	Output Capacitance	$V_{CB}=6\text{V}, I_E=0, f=1\text{MHz}$		1		pF
$f_T$	Current Gain Bandwidth Product	$V_{CE}=6\text{V}, I_C=1\text{mA}$	400	600		MHz
$C_{c-rbb}$	Time Constant	$V_{CB}=6\text{V}, I_C=1\text{mA}$ $f=31.9\text{MHz}$		12		ps
NF	Noise Figure	$V_{CE}=6\text{V}, I_C=1\text{mA}$ $f=100\text{MHz}, R_S=50\Omega$		3		dB

## $h_{FE}$ Classification

Classification	R	O	Y
$h_{FE}$	40 ~ 80	60 ~ 120	90 ~ 180

Marking



# Typical Characteristics

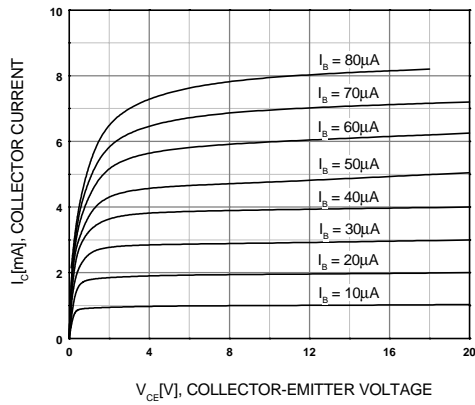


Figure 1. Static Characteristic

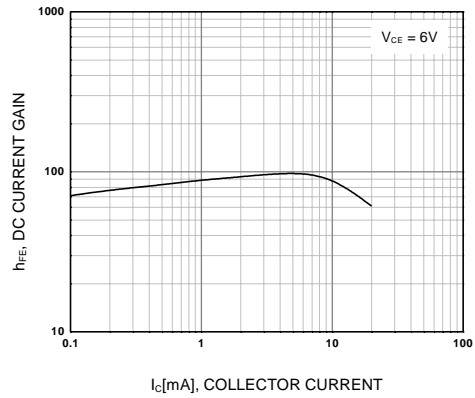


Figure 2. DC current Gain 1

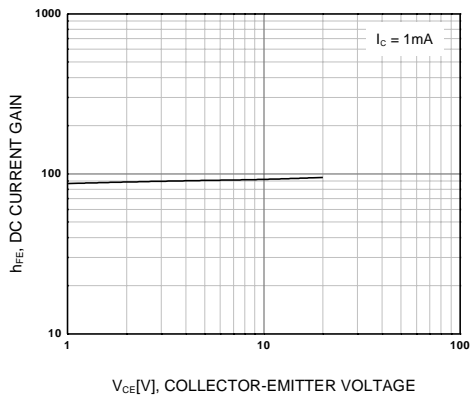


Figure 3. DC current Gain 2

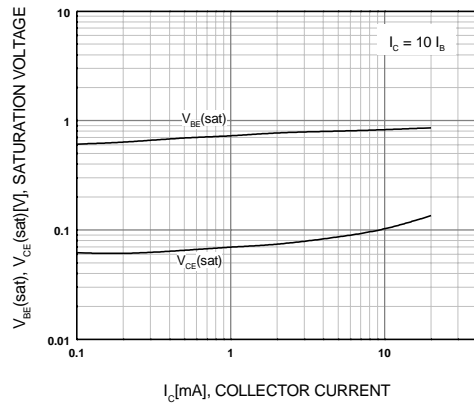


Figure 4. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

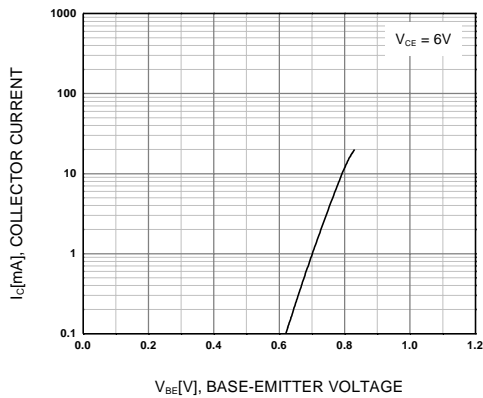


Figure 5. Base-Emitter On Voltage

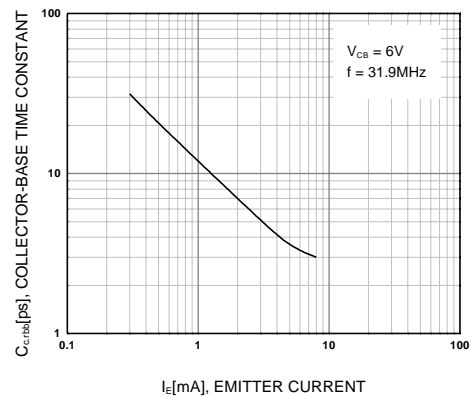


Figure 6. Collector-Base Time Constant

Typical Characteristics (Continued)

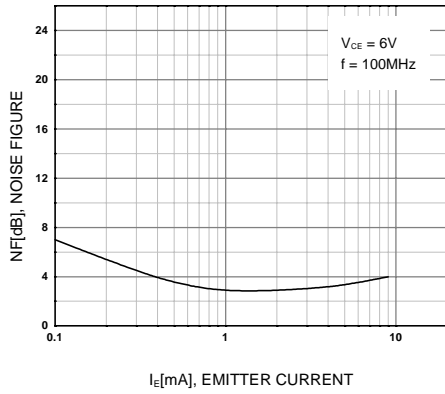


Figure 7. Noise Figure

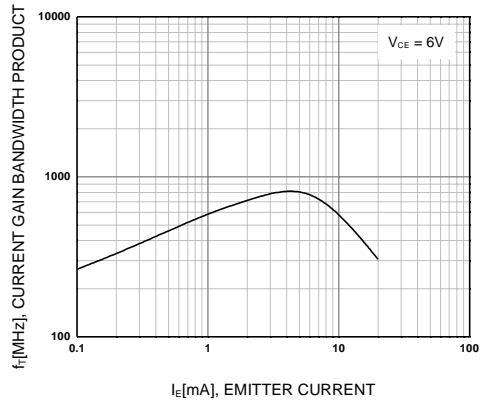


Figure 8. Current Gain Bandwidth Product

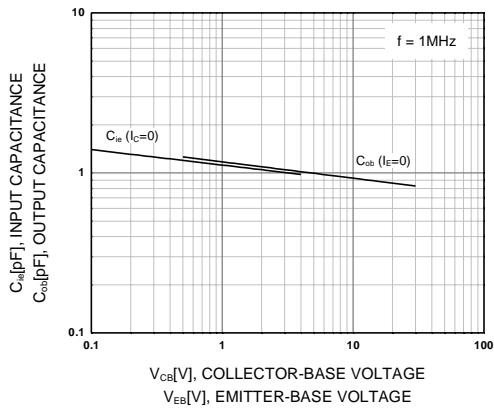


Figure 9. Input and Output Capacitance

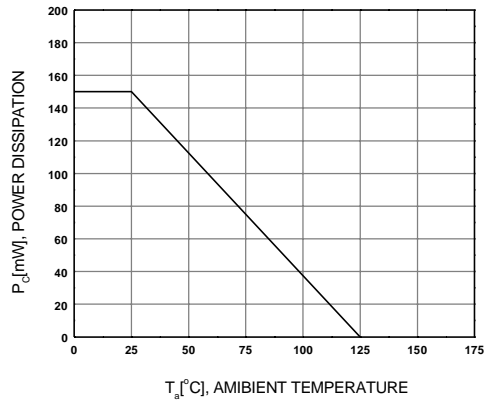
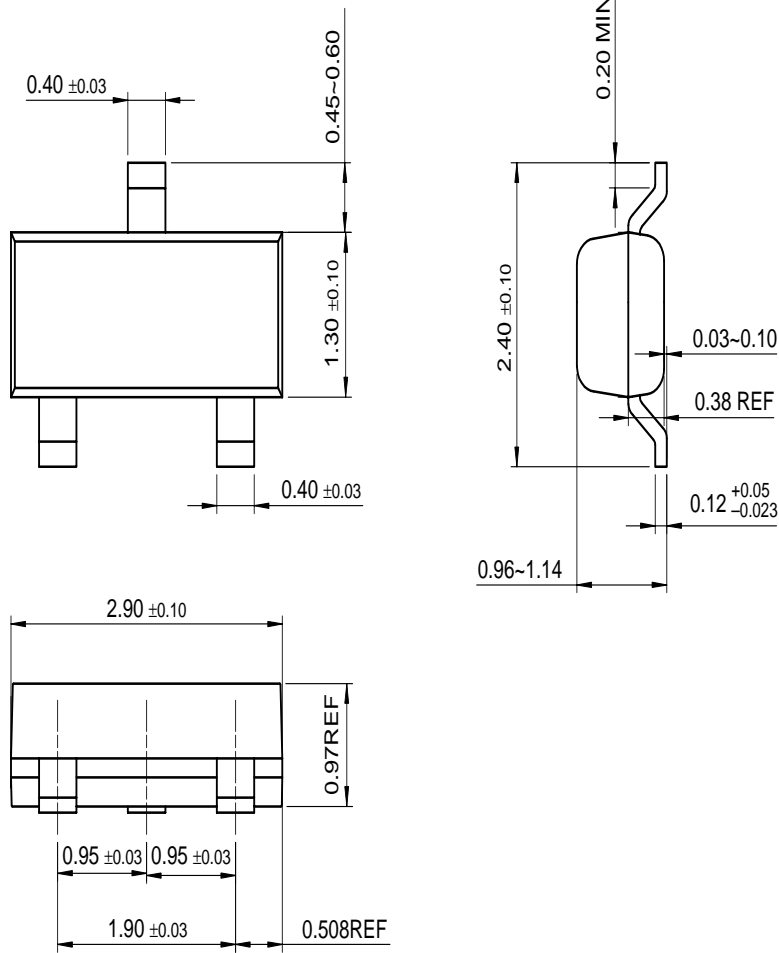


Figure 10. Power Derating

# Package Dimensions

## SOT-23



Dimensions in Millimeters

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