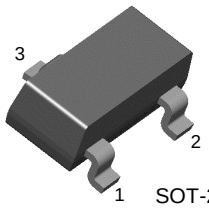
FAIRCHILD
SEMICONDUCTOR®

KSC2223

High Frequency Amplifier

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



SOT-23

1. Base 2. Emitter 3. Collector

NPN Epitaxial Silicon Transistor

Absolute Maximum Ratings T_a=25°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	°C
T_{STG}	Storage Temperature	-55 ~ 150	°C

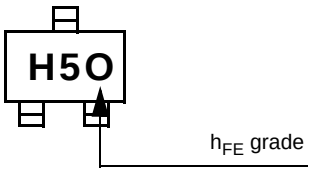
Electrical Characteristics T_a=25°C unless otherwise noted

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

h_{FE} Classification

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

Marking



Typical Characteristics

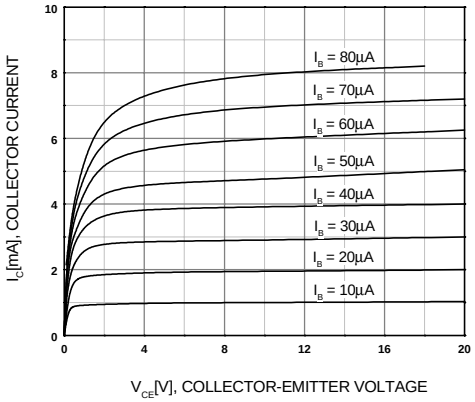


Figure 1. Static Characteristic

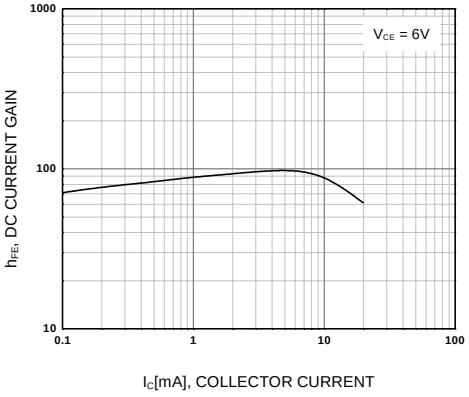


Figure 2. DC current Gain 1

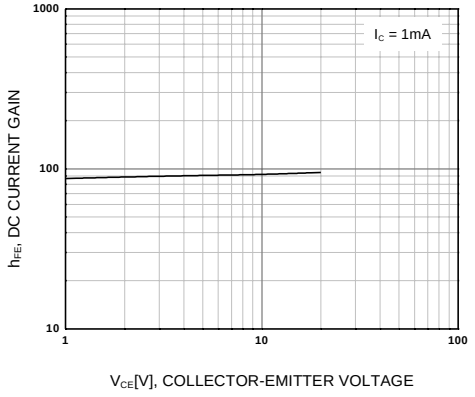


Figure 3. DC current Gain 2

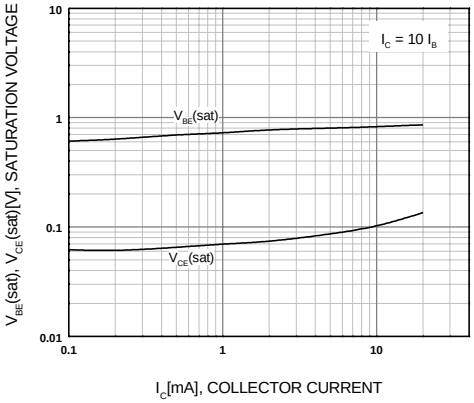


Figure 4. Base-Emitter Saturation Voltage Collector-Emitter Saturation Voltage

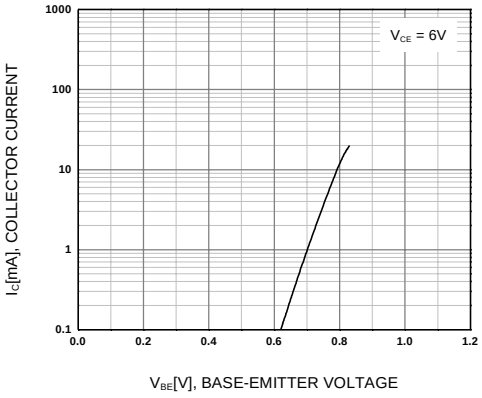


Figure 5. Base-Emitter On Voltage

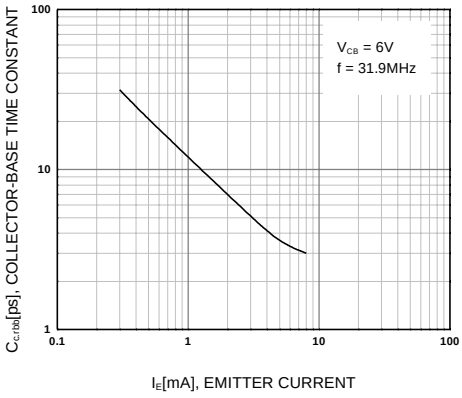


Figure 6. Collector-Base Time Constant

Typical Characteristics (Continued)

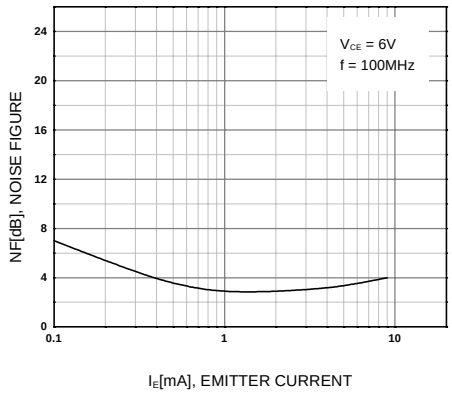


Figure 7. Noise Figure

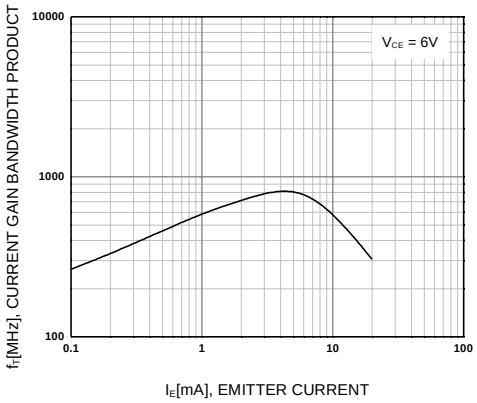


Figure 8. Current Gain Bandwidth Product

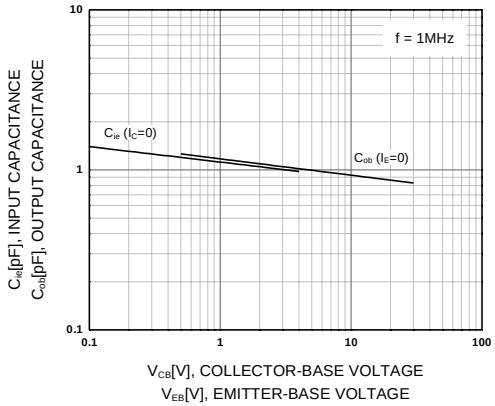


Figure 9. Input and Output Capacitance

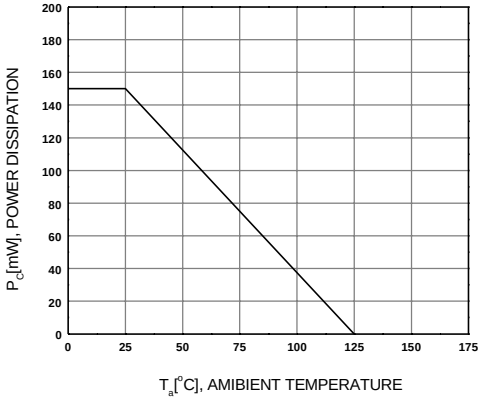
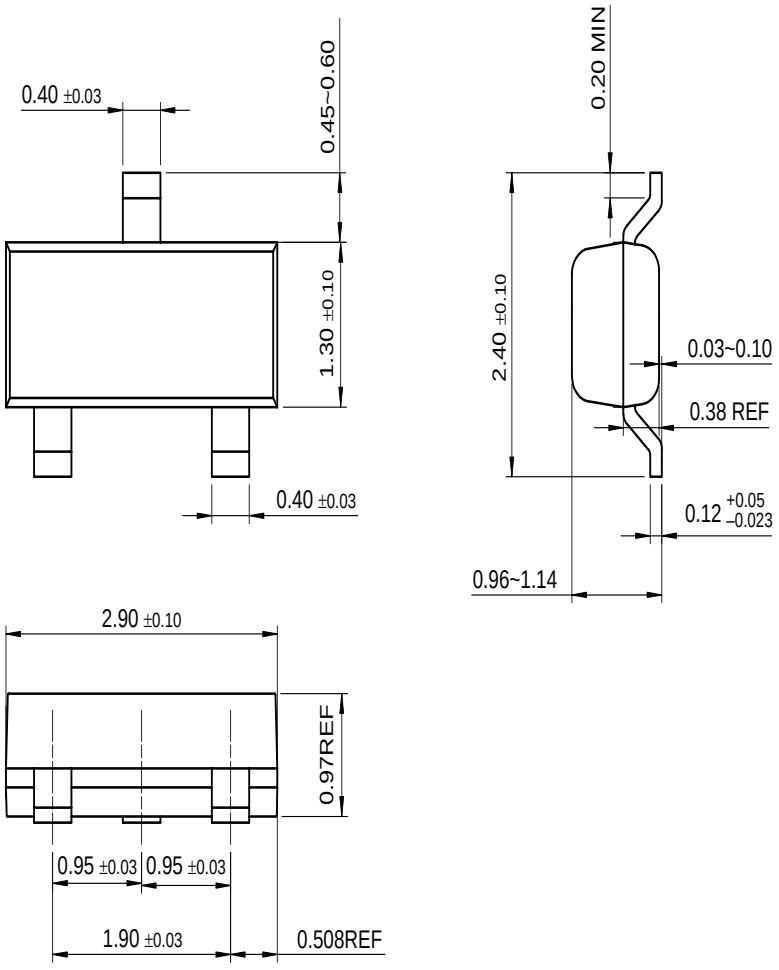


Figure 10. Power Derating

Package Dimensions

SOT-23



Dimensions in Millimeters

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

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