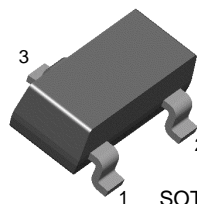


# KSC2756

KSC2756

## Mixer for VHF TV Tuner

- High Conversion Gain :  $G_{CE} = 23\text{dB}$  (TYP.)



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	30	mA
$P_C$	Collector Power Dissipation	150	mW
$T_J$	Junction Temperature	150	$^\circ\text{C}$
$T_{STG}$	Storage Temperature	-55 ~ +150	$^\circ\text{C}$

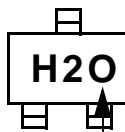
### Electrical Characteristics $T_a=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
$I_{CBO}$	Collector Cut-off Current	$V_{CB}=20\text{V}, I_E=0$			0.1	$\mu\text{A}$
$h_{FE}$	DC Current Gain	$V_{CE}=10\text{V}, I_C=5\text{mA}$	60	120	240	
$V_{CE}(\text{sat})$	Collector-Emitter Saturation Voltage	$I_C=10\text{mA}, I_B=1\text{mA}$			0.5	V
$f_T$	Current Gain Bandwidth Product	$V_{CE}=10\text{V}, I_C=5\text{mA}$	500	850		MHz
$C_{RE}$	Reverse Transfer Capacitance	$V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$		0.35	0.5	pF
$G_{CE}$	Conversion Gain	$V_{CE}=10\text{V}, I_C=3\text{mA}$ $f_{RF}=200\text{MHz}, f_{IF}=58\text{MHz}$	15	23		dB
NF	Noise Figure	$V_{CE}=10\text{V}, I_C=3\text{mA}$ $f_{RF}=200\text{MHz}, f_{IF}=58\text{MHz}$		6.5		dB

## $h_{FE}$ Classification

Classification	R	O	Y
$h_{FE}$	60 ~ 120	90 ~ 180	120 ~ 240

Marking



$h_{FE}$  grade

# Typical Characteristics

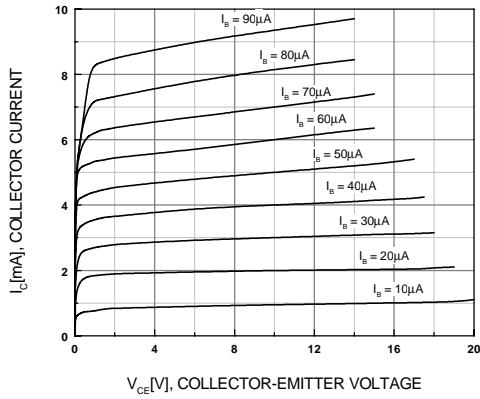


Figure 1. Static Characteristics

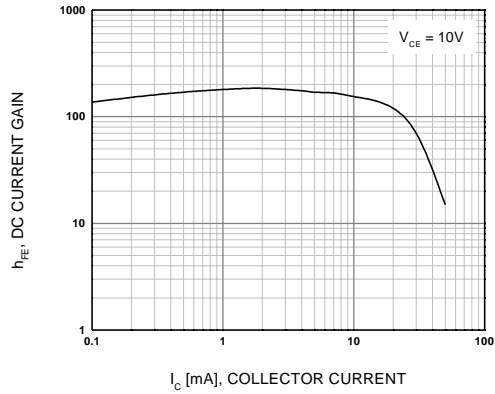


Figure 2. DC Current Gain

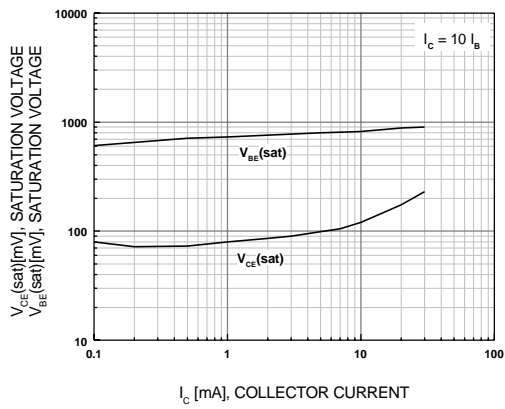


Figure 3. Saturation Voltage

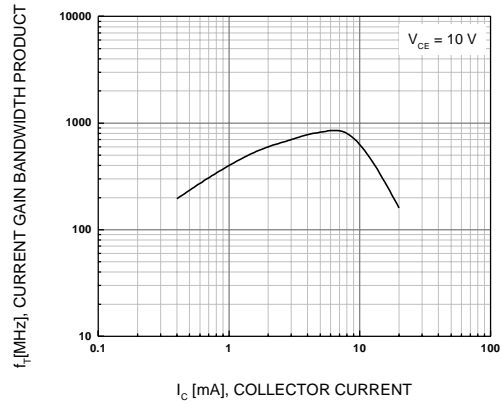


Figure 4.  $f_T - I_C$

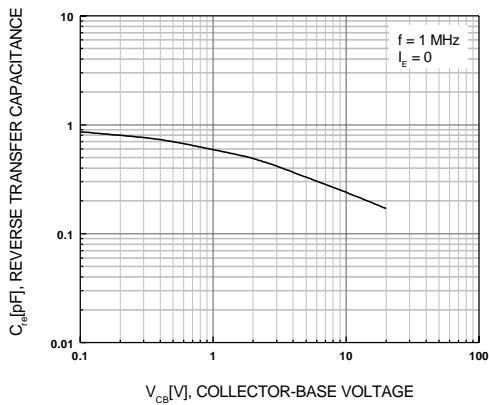


Figure 5.  $C_{re} - V_{CB}$

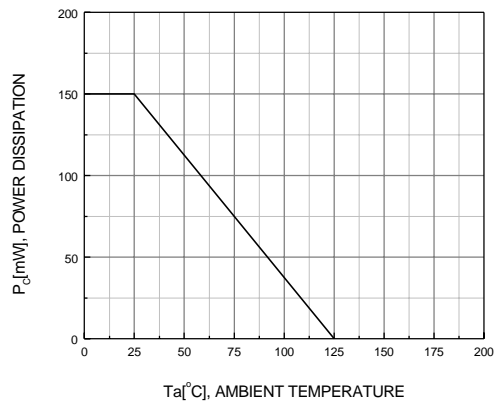


Figure 6. Power Derating

Typical Characteristics (Continued)

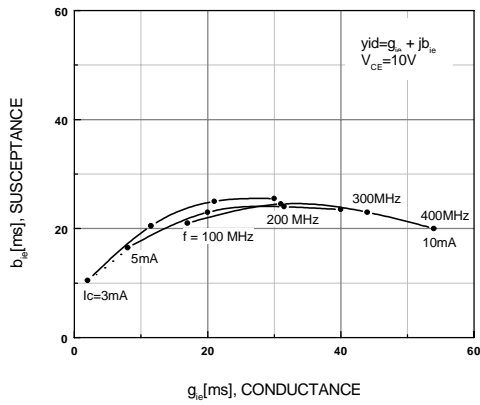


Figure 7.  $y_{ie} - f$

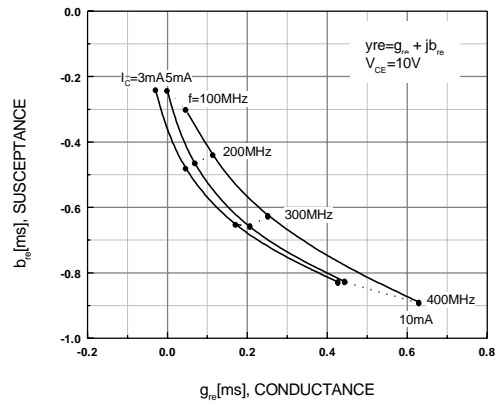


Figure 8.  $y_{re} - f$

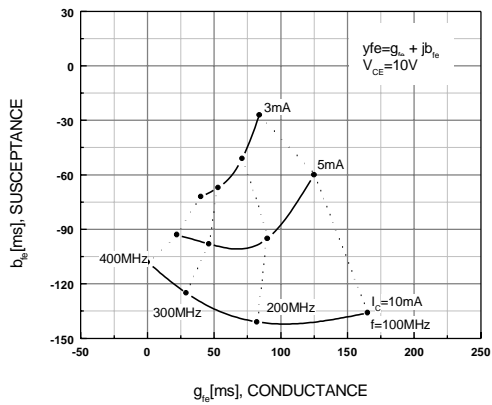


Figure 9.

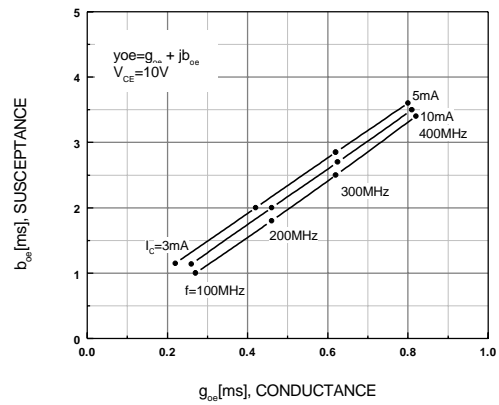


Figure 10.  $y_{oe} - f$

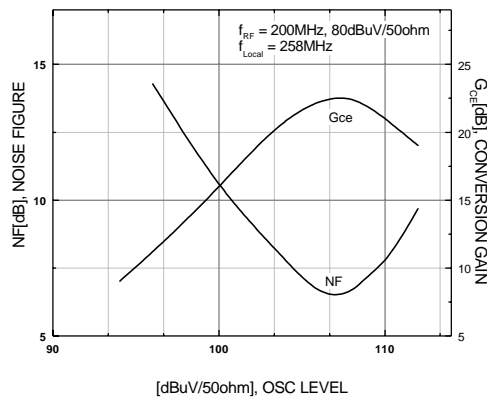


Figure 11. NF,  $G_{CE} - OSC$  Level

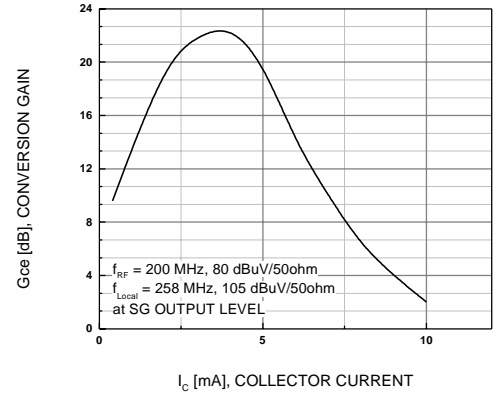


Figure 12. Conversion Gain

# Package Dimensions

## SOT-23



Dimensions in Millimeters

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CoolFET <sup>™</sup>	FAST <sup>™</sup>	MicroFET <sup>™</sup>	PowerTrench <sup>®</sup>	SuperSOT <sup>™</sup> -6
CROSSVOLT <sup>™</sup>	FRFET <sup>™</sup>	MicroPak <sup>™</sup>	QFET <sup>™</sup>	SuperSOT <sup>™</sup> -8
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