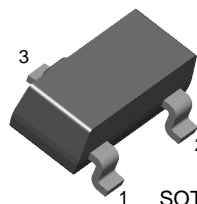


KSC2756

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	$^\circ\text{C}$

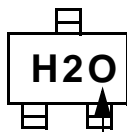
Electrical Characteristics $T_a=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
I_{CBO}	Collector Cut-off Current	$V_{CB}=20\text{V}, I_E=0$			0.1	μA
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

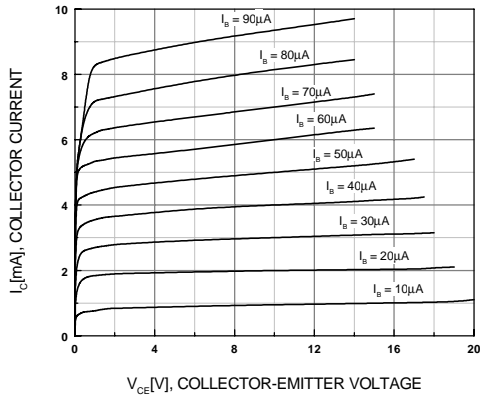


Figure 1. Static Characteristics

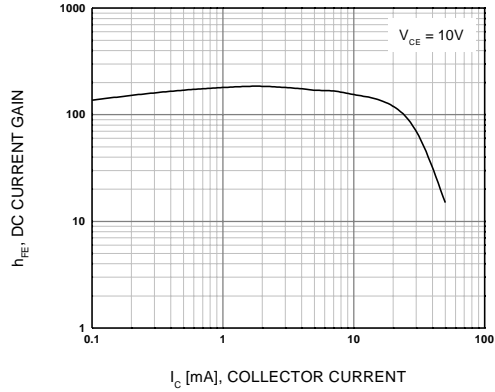


Figure 2. DC Current Gain

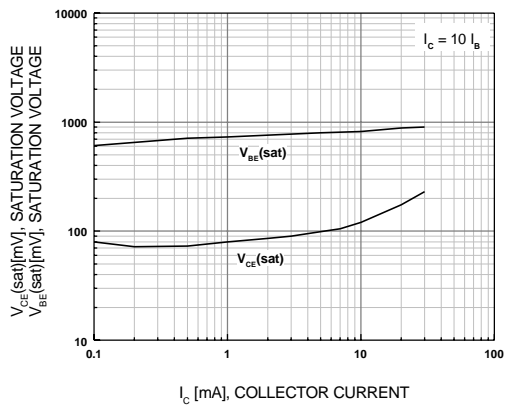


Figure 3. Saturation Voltage

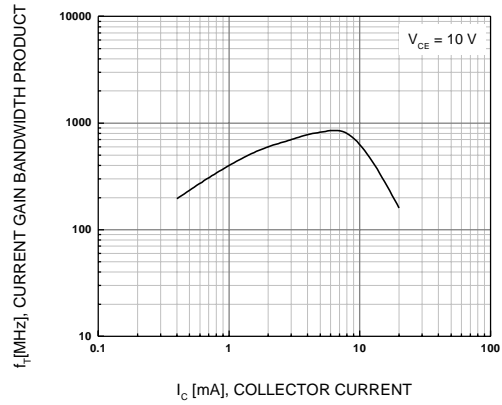


Figure 4. $f_T - I_C$

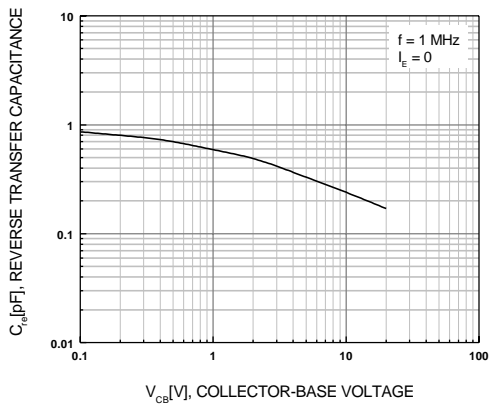


Figure 5. $C_{re} - V_{CB}$

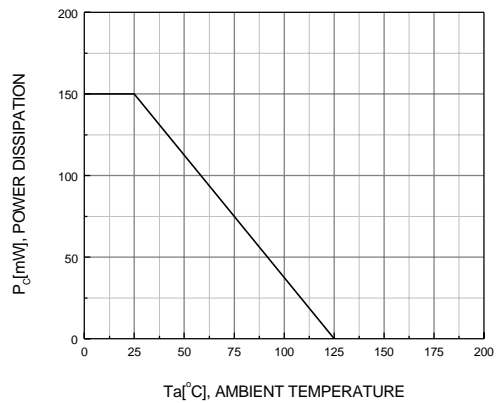


Figure 6. Power Derating

Typical Characteristics (Continued)

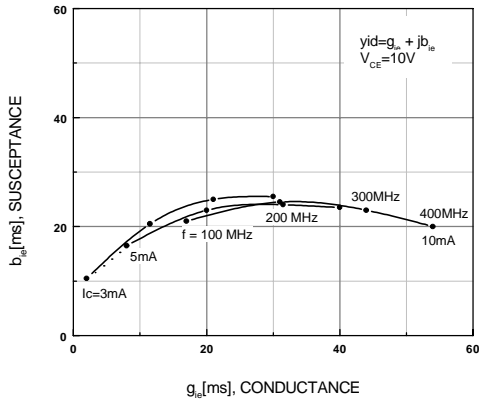


Figure 7. $y_{ie} - f$

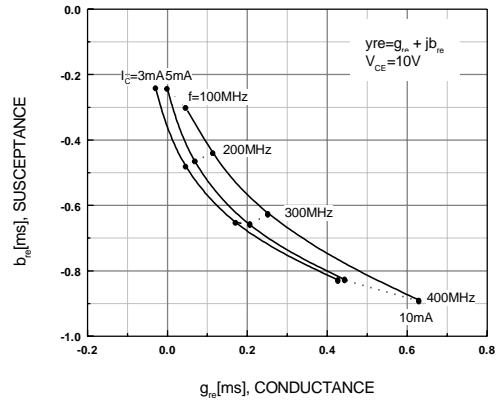


Figure 8. $y_{re} - f$

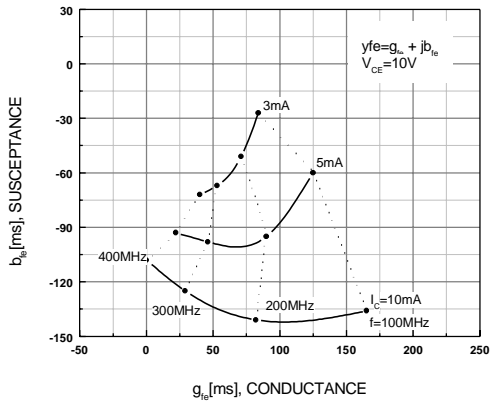


Figure 9.

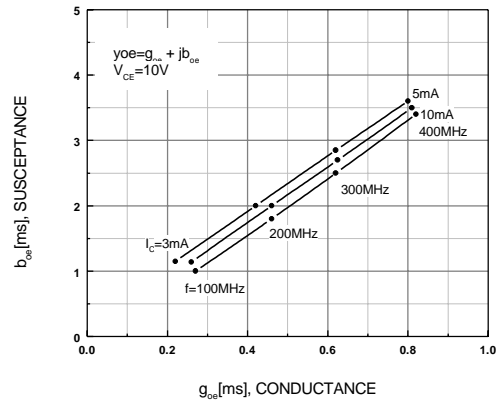


Figure 10. $y_{oe} - f$

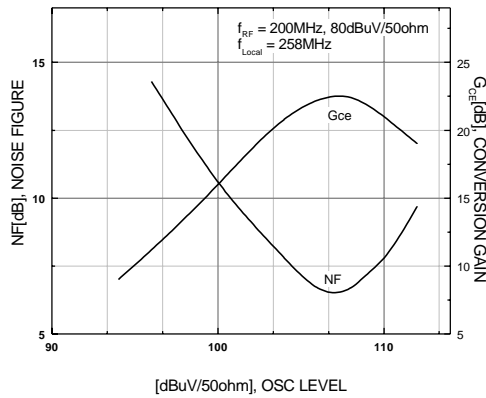


Figure 11. NF, $G_{CE} - OSC$ Level

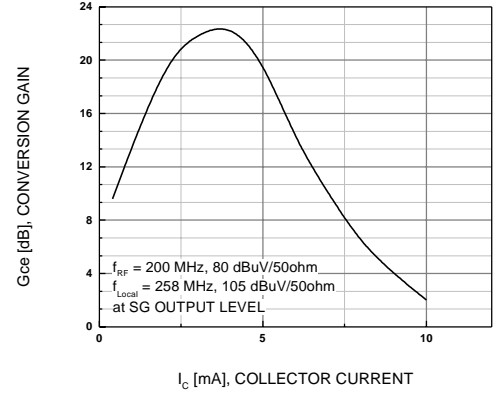


Figure 12. Conversion Gain

Package Dimensions

SOT-23



Dimensions in Millimeters

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