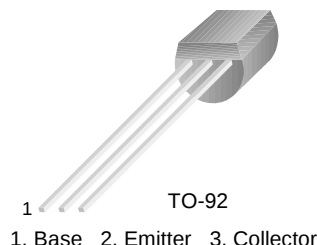


KSC1393

KSC1393

TV VHF Tuner RF Amplifier (Forward AGC)

- High Current Gain Bandwidth Product : $f_T=700\text{MHz}$ (TYP.)
- Low Noise Figure : $NF=3.0\text{dB}$ (MAX.) at $f=200\text{MHz}$
- Low Reverse Transfer Capacitance : $C_{RE}=0.5\text{pF}$ (MAX.)



NPN Epitaxial Silicon Transistor

Absolute Maximum Ratings $T_a=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Ratings	Units
V_{CBO}	Collector-Base Voltage	30	V
V_{CEO}	Collector-Emitter Voltage	30	V
V_{EBO}	Emitter-Base Voltage	4	V
I_C	Collector Current	20	mA
P_C	Collector Power Dissipation	250	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
BV_{CBO}	Collector-Base Breakdown Voltage	$I_C=10\mu\text{A}$, $I_E=0$	30			V
BV_{CEO}	Collector-Emitter Breakdown Voltage	$I_C=5\text{mA}$, $I_B=0$	30			V
BV_{EBO}	Emitter-Base Breakdown Voltage	$I_E=10\mu\text{A}$, $I_C=0$	4			V
I_{CBO}	Collector Cut-off Current	$V_{CB}=20\text{V}$, $I_E=0$			0.1	μA
h_{FE}	DC Current Gain	$V_{CE}=10\text{V}$, $I_C=2\text{mA}$	40		180	
f_T	Current Gain Bandwidth Product	$V_{CE}=10\text{V}$, $I_C=3\text{mA}$	400	700		MHz
C_{RE}	Reverse Transfer Capacitance	$V_{CB}=10\text{V}$, $I_E=0$, $f=1\text{MHz}$		0.35	0.5	pF
G_{PE}	Power Gain	$V_{CE}=10\text{V}$, $I_C=3\text{mA}$ $f=200\text{MHz}$	20	24		dB
I_{AGC}	AGC Current	I_E at $G_R=-30\text{dB}$, $f=200\text{MHz}$		-10	-12	mA
NF	Noise Figure	$V_{CE}=10\text{V}$, $I_C=3\text{mA}$ $f=200\text{MHz}$		2.0	3.0	dB

h_{FE} Classification

Classification	R	O	Y
h_{FE}	40 ~ 80	60 ~ 140	90 ~ 180

Typical Characteristics

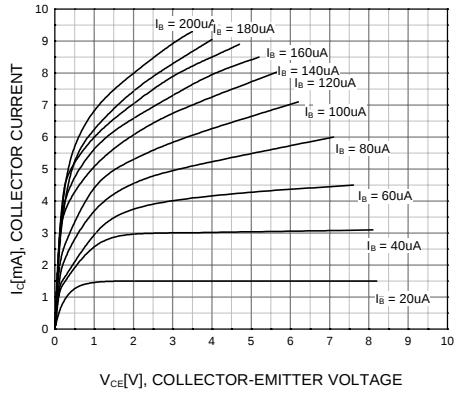


Figure 1. Static Characteristic

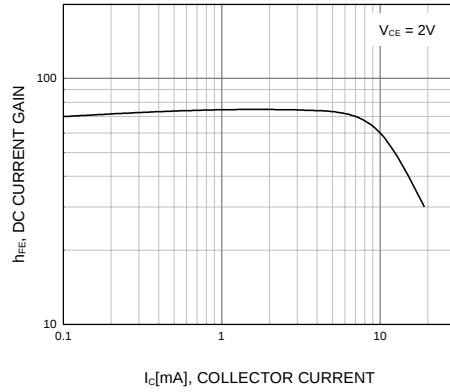


Figure 2. DC current Gain

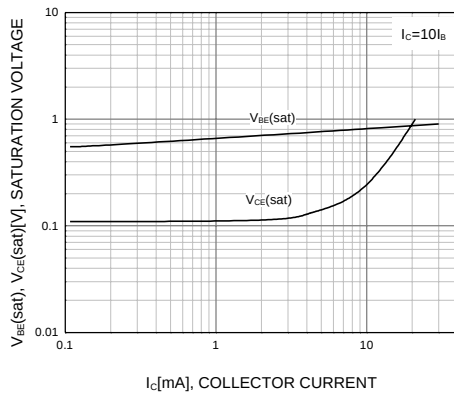


Figure 3. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

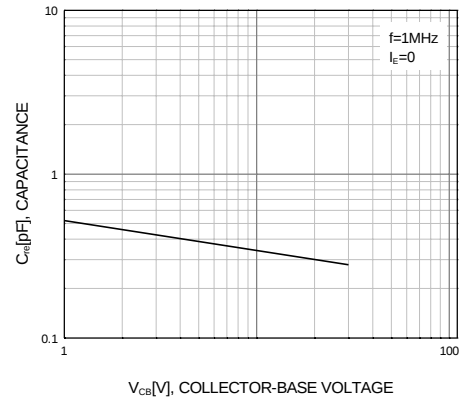


Figure 4. Reverse Capacitance

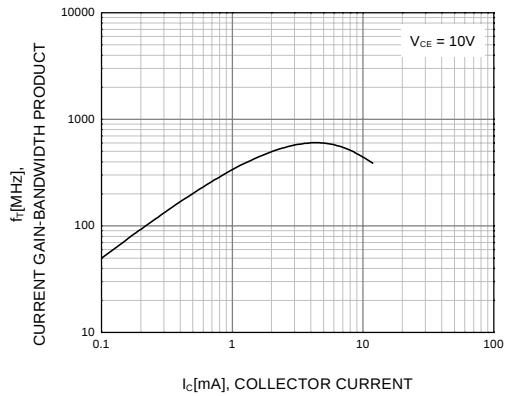


Figure 5. Current Gain Bandwidth Product

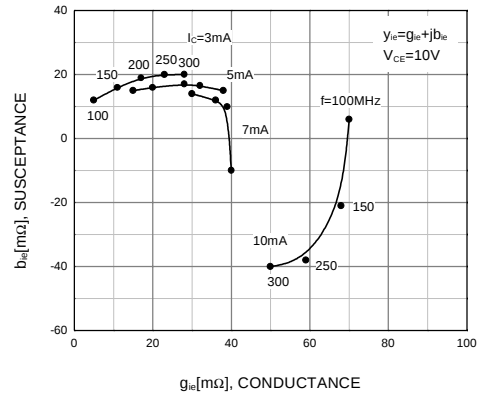


Figure 6. Input Admittance (y_{ie}) vs. Frequency

Typical Characteristics (Continued)

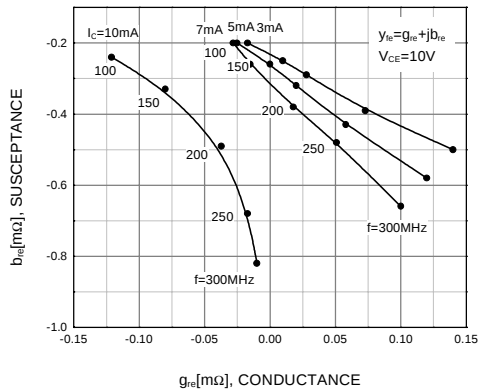


Figure 7. Reverse Transfer Admittance (yre) vs. Frequency

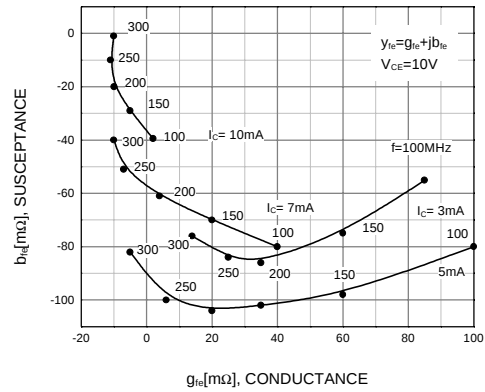


Figure 8. Forward Transfer Admittance (y_{fe}) vs. Frequency

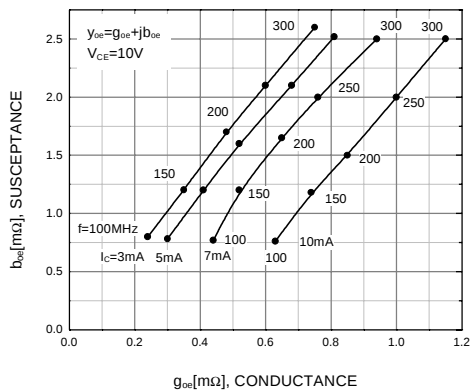


Figure 9. Output Admittance (yoe) vs. Frequency

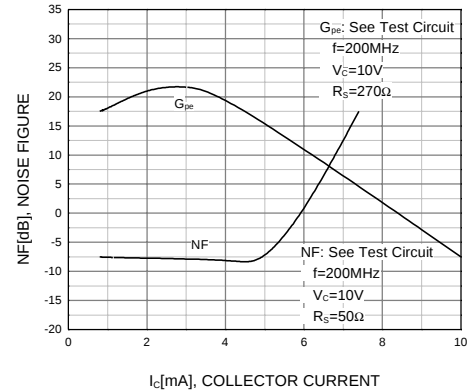
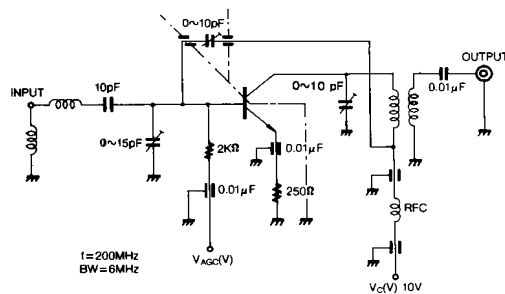


Figure 10. Power Gain and Noise Figure vs. Collector Current

POWER GAIN AND NOISE FIGURE TEST CIRCUIT



Package Dimensions

TO-92



Dimensions in Millimeters

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