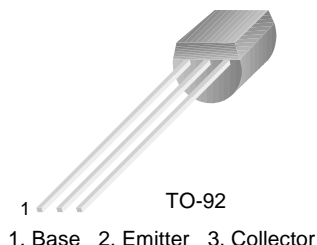


# KSC1393

## 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	$\mu\text{A}$
$h_{FE}$	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

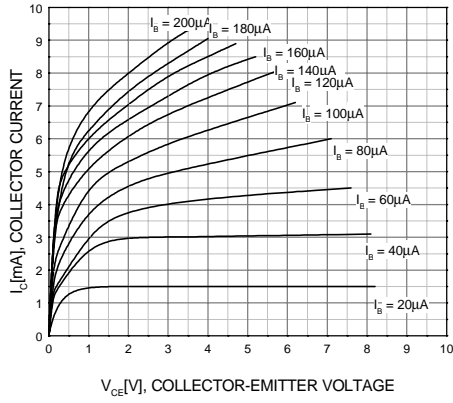


Figure 1. Static Characteristic

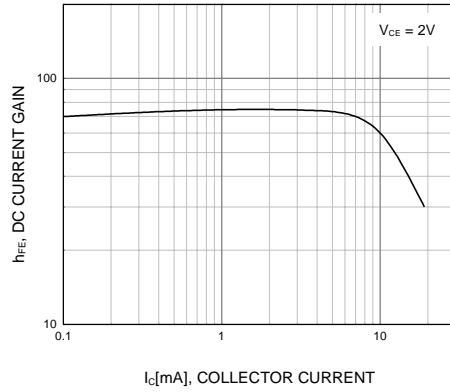


Figure 2. DC current Gain

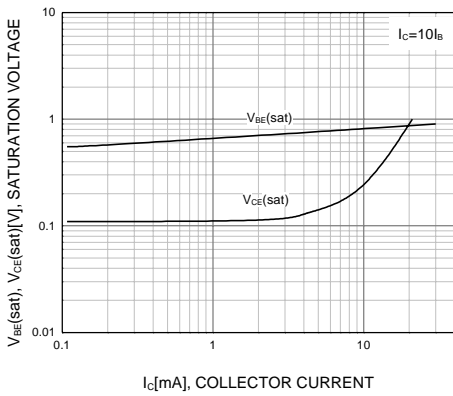


Figure 3. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

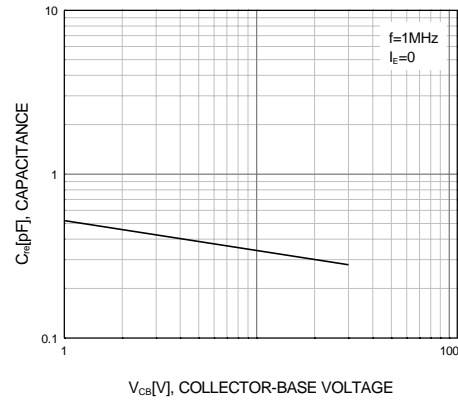


Figure 4. Reverse Capacitance

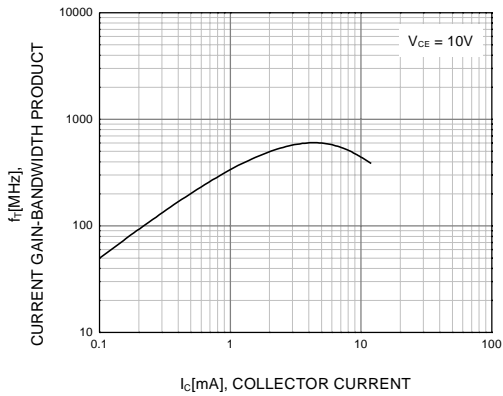


Figure 5. Current Gain Bandwidth Product

# Package Dimensions

KSC1393

## TO-92



Dimensions in Millimeters

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Bottomless <sup>™</sup>	FAST <sup>®</sup>	LittleFET <sup>™</sup>	Power247 <sup>™</sup>	SuperSOT <sup>™</sup> -3
CoolFET <sup>™</sup>	FAST <sup>™</sup>	MicroFET <sup>™</sup>	PowerTrench <sup>®</sup>	SuperSOT <sup>™</sup> -6
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EcoSPARK <sup>™</sup>	GTO <sup>™</sup>	MSX <sup>™</sup>	QT Optoelectronics <sup>™</sup>	TinyLogic <sup>™</sup>
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EnSigna <sup>™</sup>	I <sup>2</sup> C <sup>™</sup>	OCX <sup>™</sup>	RapidConfigure <sup>™</sup>	UHC <sup>™</sup>
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## PRODUCT STATUS DEFINITIONS

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No Identification Needed	Full Production	This datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
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