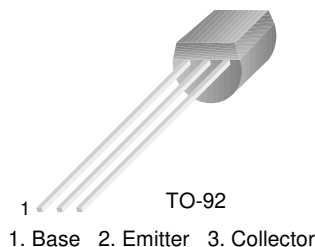


# KSC1393

## 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

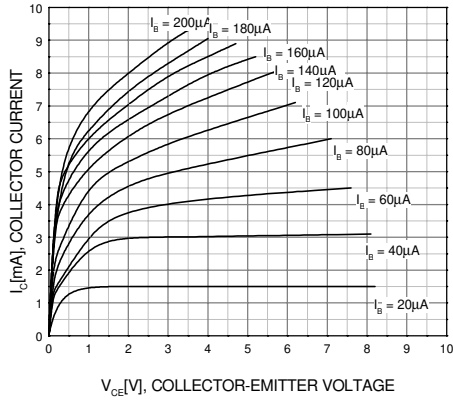


Figure 1. Static Characteristic

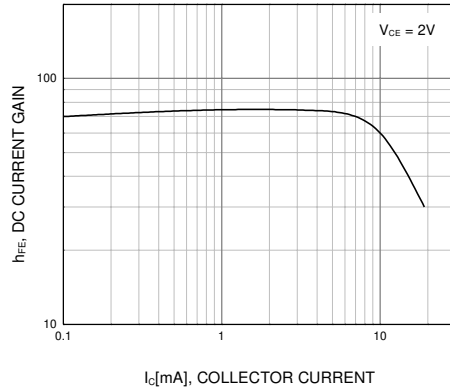


Figure 2. DC current Gain

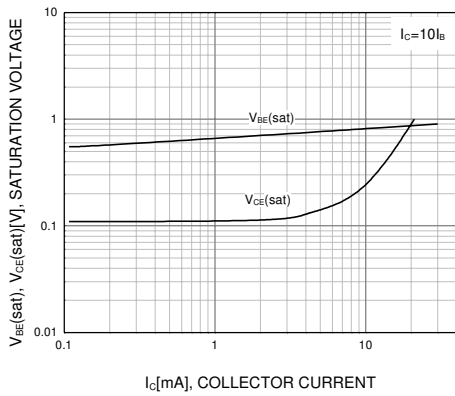


Figure 3. Base-Emitter Saturation Voltage  
Collector-Emmitter Saturation Voltage

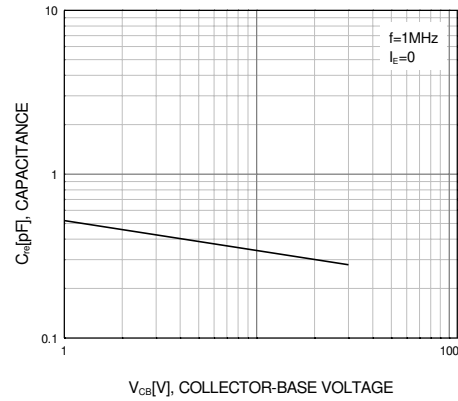


Figure 4. Reverse Capacitance

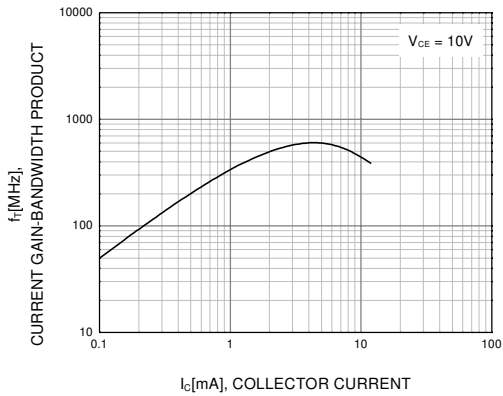
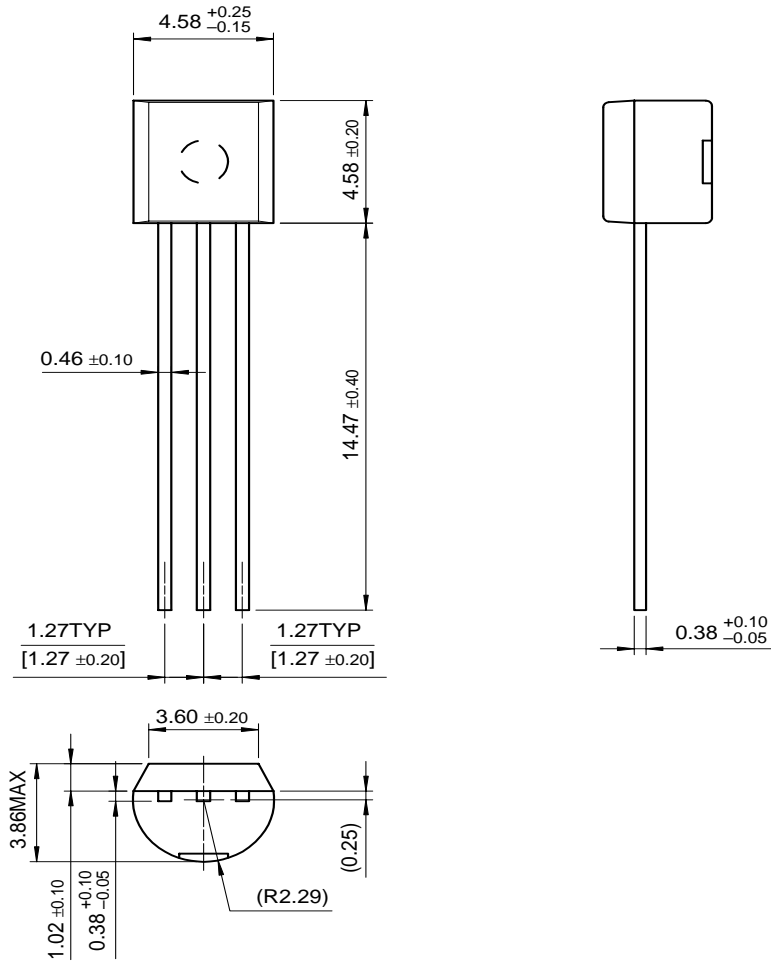


Figure 5. Current Gain Bandwidth Product

# Package Dimensions

KSC1393

## TO-92



Dimensions in Millimeters

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Bottomless <sup>TM</sup>	FAST <sup>®</sup>	LittleFET <sup>TM</sup>	Power247 <sup>TM</sup>	SuperSOT <sup>TM</sup> -3
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CROSSVOL <sup>TM</sup>	FRFET <sup>TM</sup>	MicroPak <sup>TM</sup>	QFET <sup>TM</sup>	SuperSOT <sup>TM</sup> -8
DOME <sup>TM</sup>	GlobalOptoisolator <sup>TM</sup>	MICROWIRE <sup>TM</sup>	QS <sup>TM</sup>	SyncFET <sup>TM</sup>
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## PRODUCT STATUS DEFINITIONS

### Definition of Terms

Datasheet Identification	Product Status	Definition
Advance Information	Formative or In Design	This datasheet contains the design specifications for product development. Specifications may change in any manner without notice.
Preliminary	First Production	This datasheet contains preliminary data, and supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
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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KSC1393RBU	Full Production	 Full Production	\$0.025	<a href="#">TO-92</a>	3	BULK	<a href="#">Line 1: C1393</a> <a href="#">Line 3: R-&amp;3</a>
KSC1393RTA	Full Production	 Full Production	\$0.025	<a href="#">TO-92</a>	3	AMMO	<a href="#">Line 1: C1393</a> <a href="#">Line 3: R-&amp;3</a>
KSC1393YBU	Full Production	 Full Production	\$0.025	<a href="#">TO-92</a>	3	BULK	<a href="#">Line 1: C1393</a> <a href="#">Line 3: Y-&amp;3</a>
KSC1393YTA	Full Production	 Full Production	\$0.025	<a href="#">TO-92</a>	3	AMMO	<a href="#">Line 1: C1393</a> <a href="#">Line 3: Y-&amp;3</a>

\* Fairchild 1,000 piece Budgetary Pricing

\*\* A sample button will appear if the part is available through Fairchild's on-line samples program. If there is no sample button, please contact a [Fairchild distributor](#) to obtain samples



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<a href="#">KSC1393RTA</a>
<a href="#">KSC1393YBU</a>
<a href="#">KSC1393YTA</a>

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