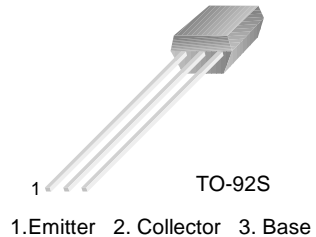


KSC2786

KSC2786

TV PIF Amplifier, FM Tuner RF Amplifier, Mixer, Oscillator

- High Current Gain Bandwidth Product : $f_T=600\text{MHz}$ (TYP.)
- High Power Gain : $G_{PE}=22\text{dB}$ at $f=100\text{MHz}$



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	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	$I_C=5\text{mA}, I_B=0$	20			V
BV_{EBO}	Emitter-Base Breakdown Voltage	$I_E=10\mu\text{A}, I_C=0$	4			V
I_{CBO}	Collector Cut-off Current	$V_{CB}=30\text{V}, I_E=0$			0.1	μA
I_{EBO}	Emitter Cut-off Current	$V_{EB}=4\text{V}, I_C=0$			0.1	μA
h_{FE}	DC Current Gain	$V_{CE}=6\text{V}, I_C=1\text{mA}$	40		240	
$V_{BE}(\text{on})$	Base-Emitter On Voltage	$V_{CE}=6\text{V}, I_C=1\text{mA}$		0.72		V
$V_{CE}(\text{sat})$	Collector-Emitter Saturation Voltage	$I_C=10\text{mA}, I_B=1\text{mA}$		0.1	0.3	V
f_T	Current Gain Bandwidth Product	$V_{CE}=6\text{V}, I_C=1\text{mA}$	400	600		MHz
C_{ob}	Output Capacitance	$V_{CB}=6\text{V}, I_E=0, f=1\text{MHz}$		1.2		pF
$C_{c-rbb'}$	Collector-Base Time Constant	$V_{CE}=6\text{V}, I_C=1\text{mA}$ $f=31.9\text{MHz}$		12	15	ps
NF	Noise Figure	$V_{CE}=6\text{V}, I_C=1\text{mA}$ $R_S=50\Omega, f=100\text{MHz}$		3.0	5.0	dB
G_{PE}	Power Gain	$V_{CE}=6\text{V}, I_C=1\text{mA}$ $f=100\text{MHz}$	18	22		dB

h_{FE} Classification

Classification	R	O	Y
h_{FE}	40 ~ 80	70 ~ 140	120 ~ 240

Typical Characteristics

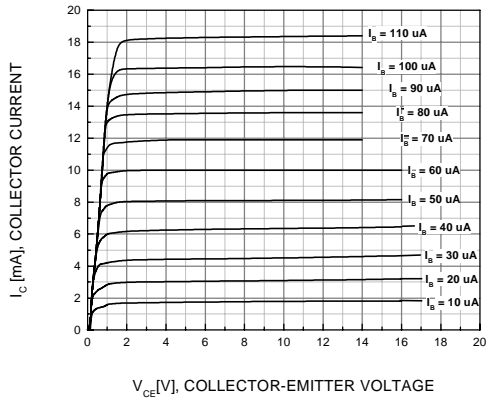


Figure 1. Static Characteristics

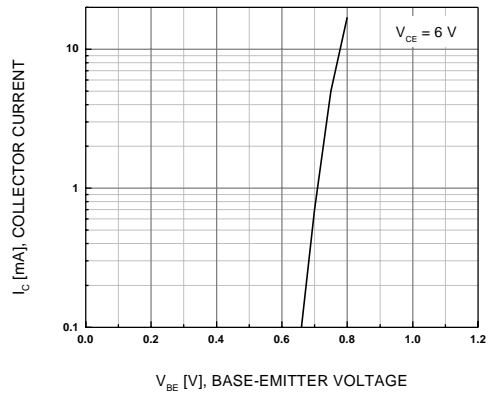


Figure 2. Base-Emitter On Voltage

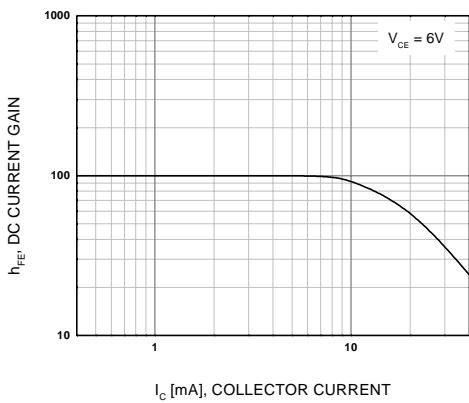


Figure 3. DC Current Gain

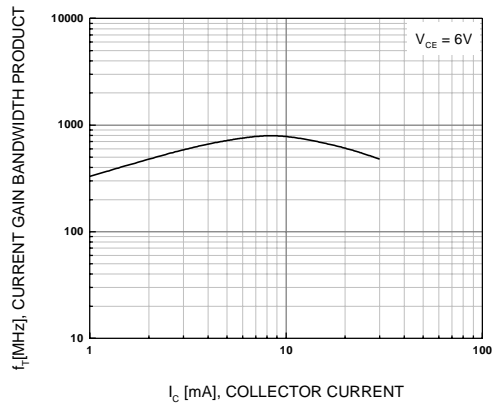


Figure 4. $f_T - I_c$

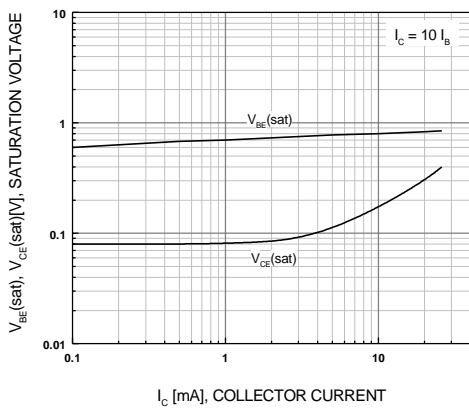


Figure 5. Saturation Voltage

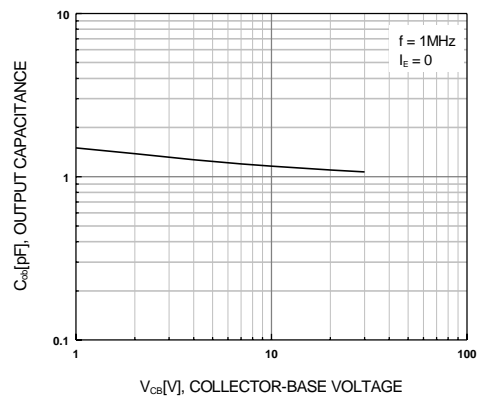


Figure 6. Output Capacitance

Typical Characteristics (Continued)

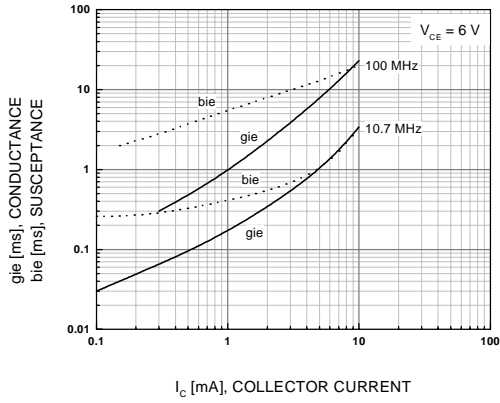


Figure 7. $y_{ie} - f$

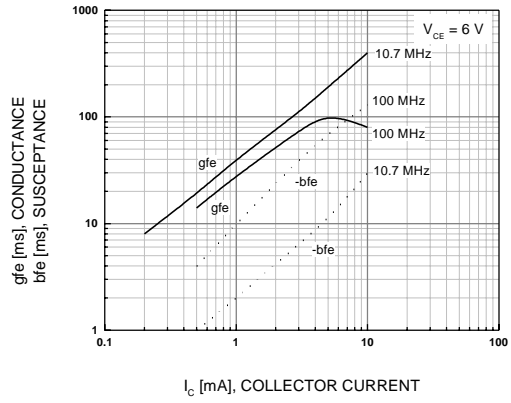


Figure 8. $y_{fe} - f$

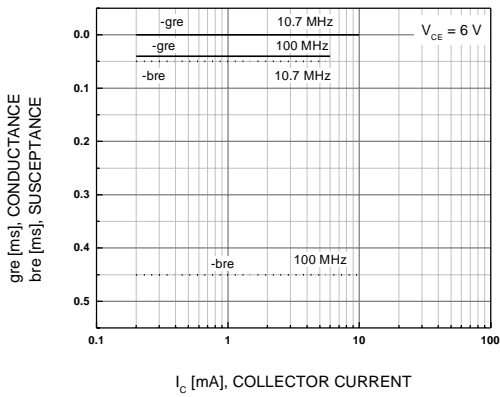


Figure 9. $y_{re} - f$

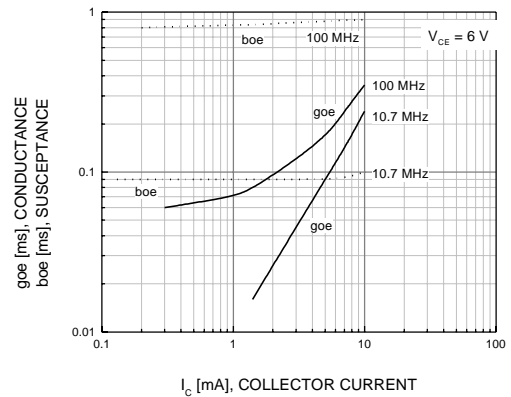


Figure 10. $y_{oe} - f$

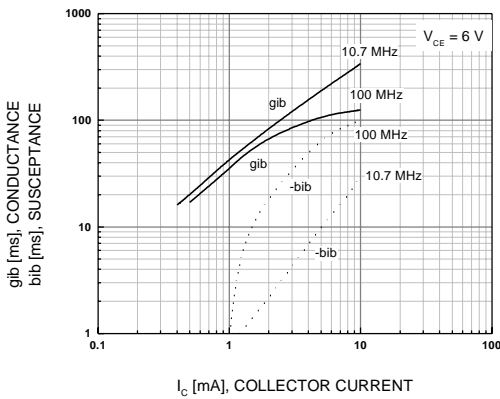


Figure 11. $y_{ib} - f$

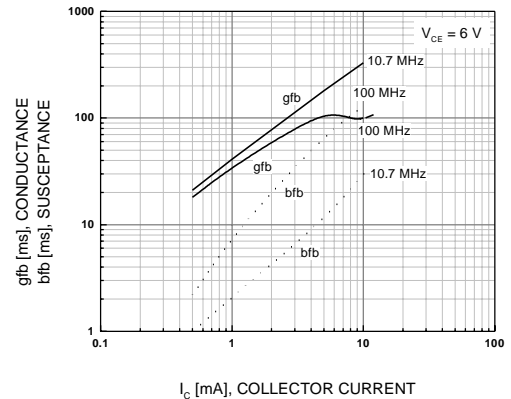


Figure 12. $y_{fb} - f$

Typical Characteristics (Continued)

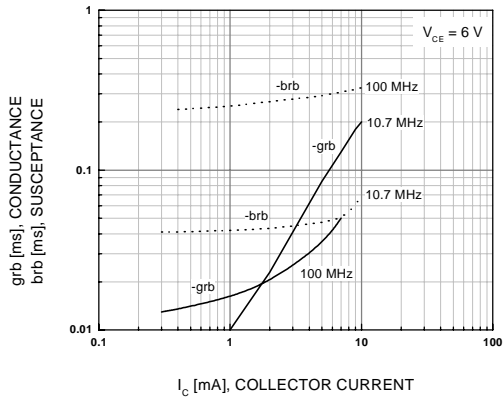


Figure 13. yrb - f

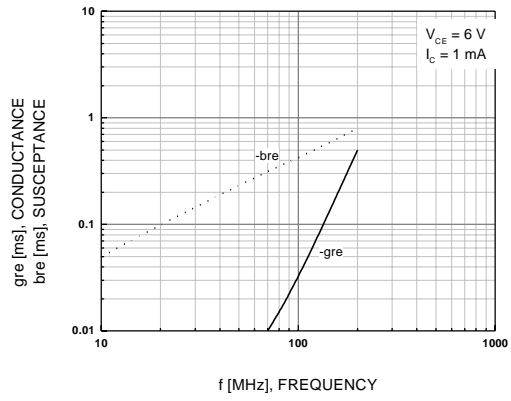


Figure 14. yre - f

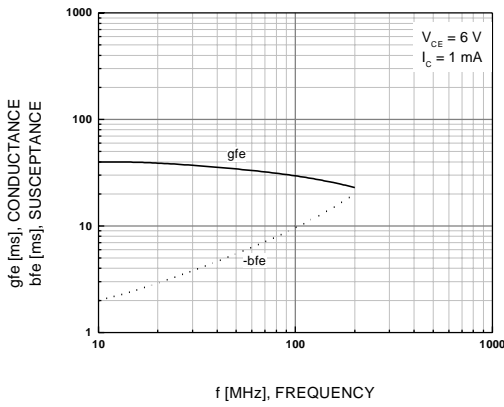


Figure 15. yfe - f

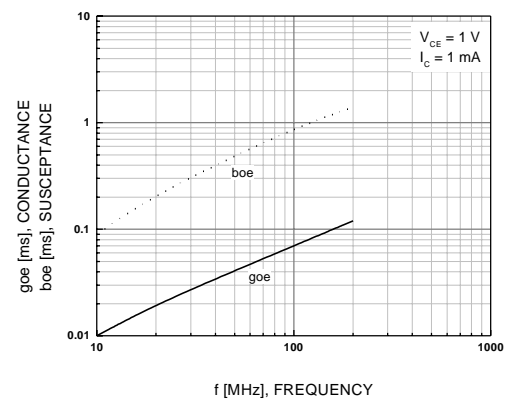


Figure 16. yoe - f

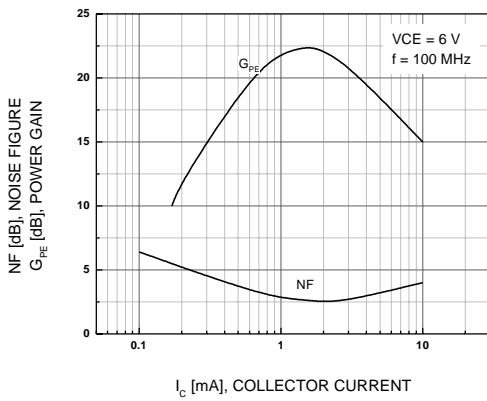


Figure 17. Power Gain & NF

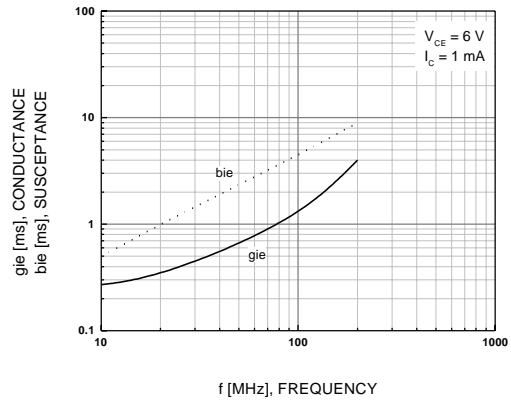
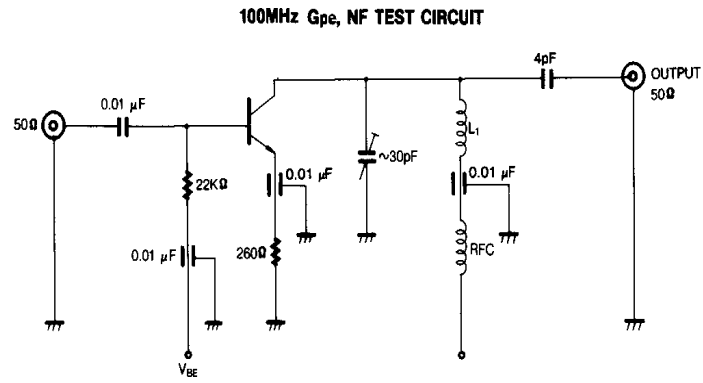


Figure 18. yie - f

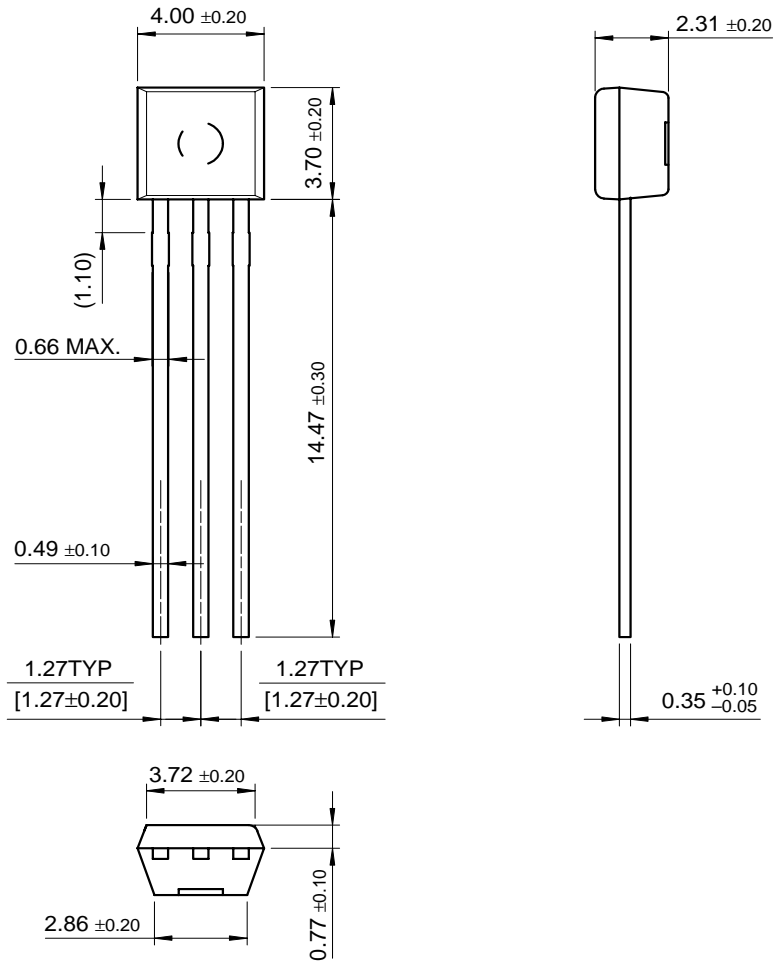
Typical Characteristics (Continued)

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Package Dimensions

TO-92S



Dimensions in Millimeters

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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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KSC2786
NPN Epitaxial Silicon Transistor

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Features

- High Current Gain Bandwidth Product : $f_T=600\text{MHz}$ (TYP.)
- High Power Gain : $G_{PE}=22\text{dB}$ at $f=100\text{MHz}$

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Applications

TV PIF Amplifier, FM Tuner RF Amplifier, Mixer, Oscillator

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Product status/pricing/packaging

Product	Product status	Pricing*	Package type	Leads	Packing method
KSC2786OBU	Full Production	\$0.053	TO-92S	3	BULK
KSC2786RTA	Full Production	\$0.053	TO-92S	3	TAPE REEL
KSC2786OTA	Full Production	\$0.053	TO-92S	3	TAPE REEL
KSC2786RBU	Full Production	\$0.053	TO-92S	3	BULK
KSC2786YTA	Full Production	\$0.053	TO-92S	3	TAPE REEL
KSC2786YBU	Full Production	\$0.053	TO-92S	3	BULK

* 1,000 piece Budgetary Pricing

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