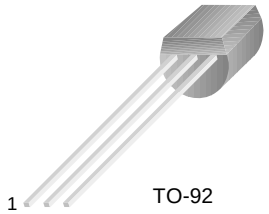
FAIRCHILD
SEMICONDUCTOR®

KSC1674

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

- High Current Gain Bandwidth Product : f_T=600MHz (TYP.)
- High Power Gain : G_{PE}=22dB at f=100MHz
- Suffix "-C" means Center Collector (1. Emitter 2. Collector 3. Base)



TO-92

1. Emitter 2. Base 3. Collector

NPN Epitaxial Silicon Transistor

Absolute Maximum Ratings T_a=25°C unless otherwise noted

Symbol	Parameter	Ratings	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	°C
T_{STG}	Storage Temperature	-55 ~ 150	°C

Electrical Characteristics T_a=25°C unless otherwise noted

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

h_{FE} Classification

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

Typical Characteristics

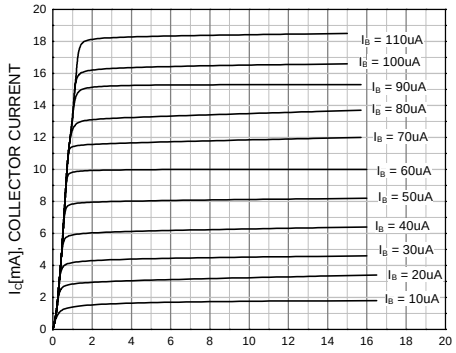


Figure 1. Static Characteristic

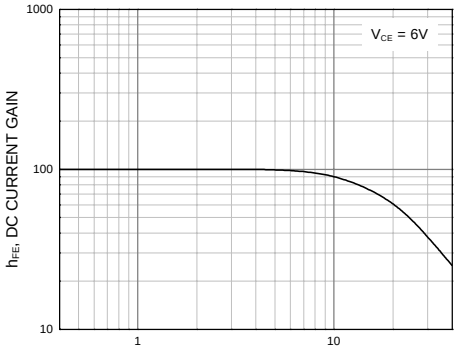


Figure 2. DC current Gain

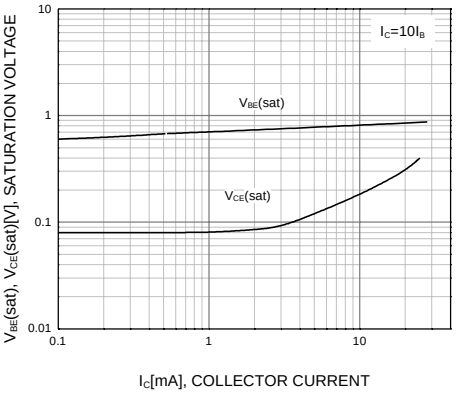


Figure 3. Base-Emitter Saturation Voltage Collector-Emitter Saturation Voltage

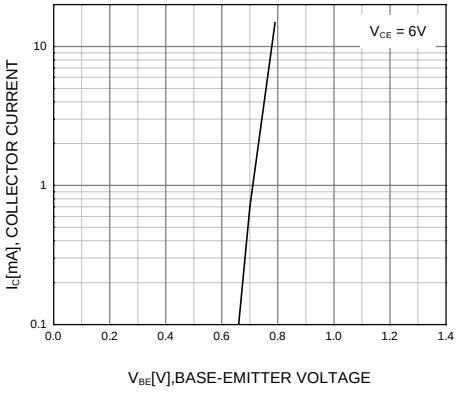


Figure 4. Base-Emitter On Voltage

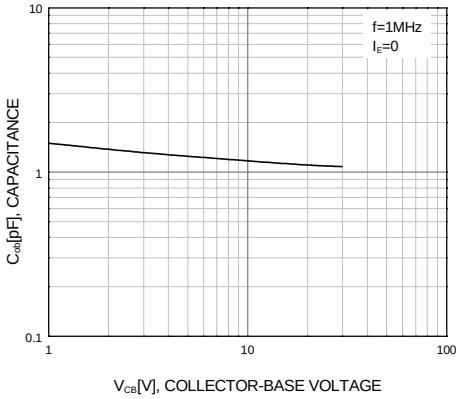


Figure 5. Collector Output Capacitance

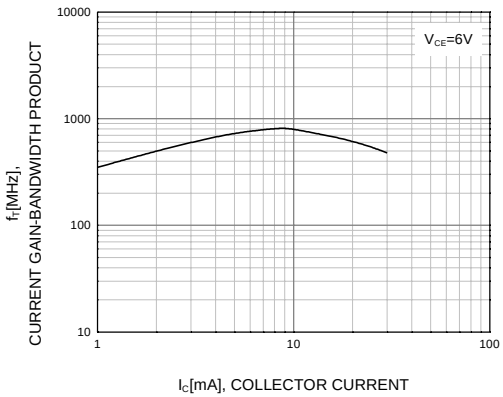


Figure 6. Current Gain Bandwidth Product

Typical Characteristics (Continued)

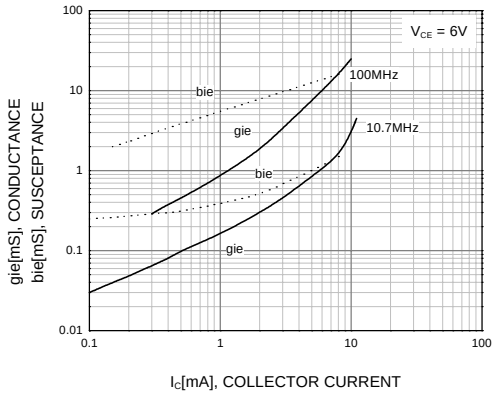


Figure 7. Input Admittance (yie) vs. Collector Current

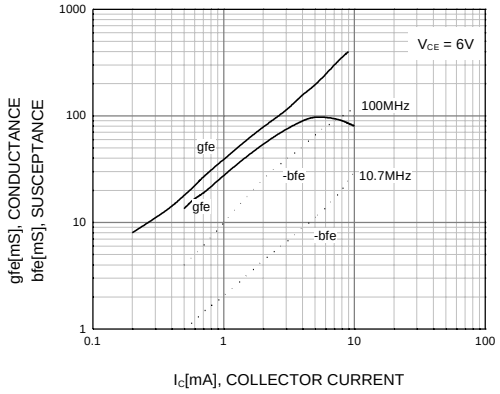


Figure 8. Forward Transfer Admittance (yfe) vs. Collector Current

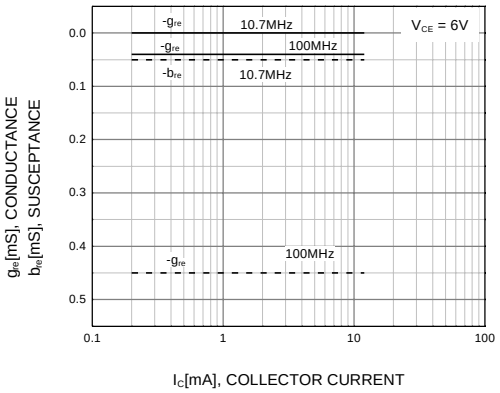


Figure 9. Reverse Transfer Admittance (yre) vs. Collector Current

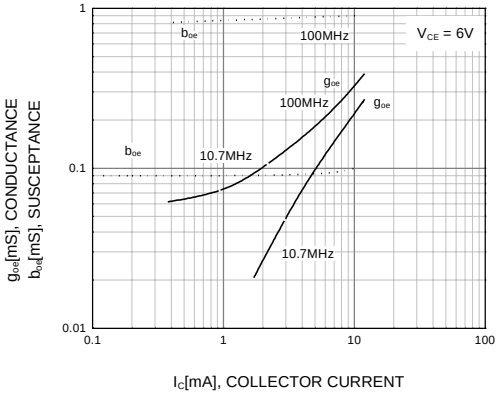


Figure 10. Output Admittance (yoe) vs. Collector Current

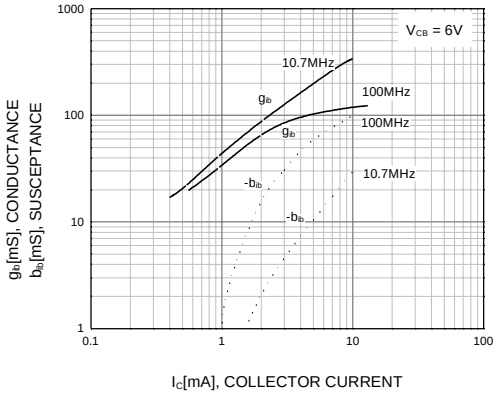


Figure 11. Input Admittance (yib) vs. Collector Current

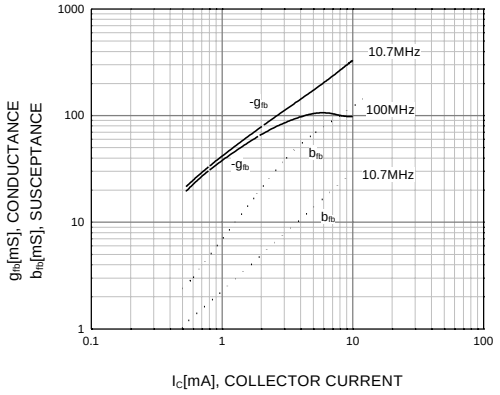


Figure 12. Forward Transfer Admittance (yfb) vs. Collector Current

Typical Characteristics (Continued)

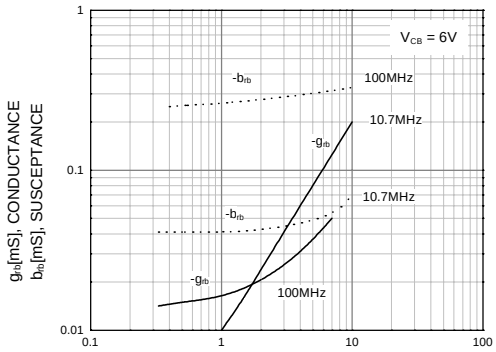


Figure 13. Reverse Transfer Admittance (yrb) vs. Collector Current

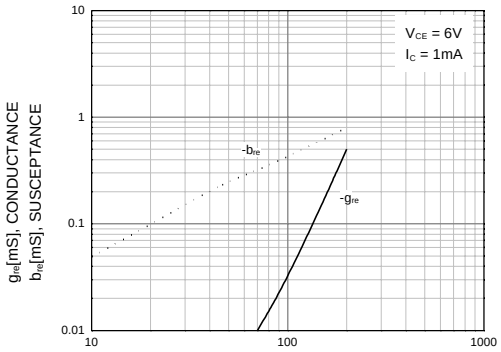


Figure 14. Reverse Transfer Admittance (yre) vs. Frequency

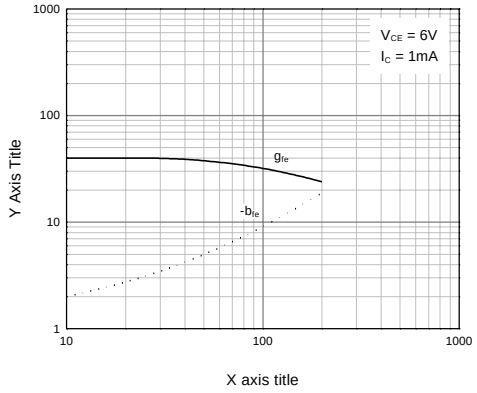


Figure 15. Forward Transfer Admittance (yfe) vs. Frequency

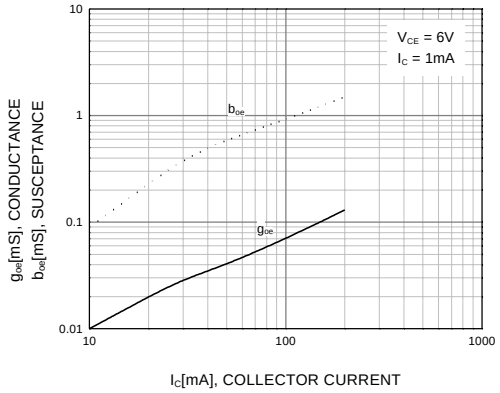


Figure 16. Output Admittance (yoe) vs. Frequency

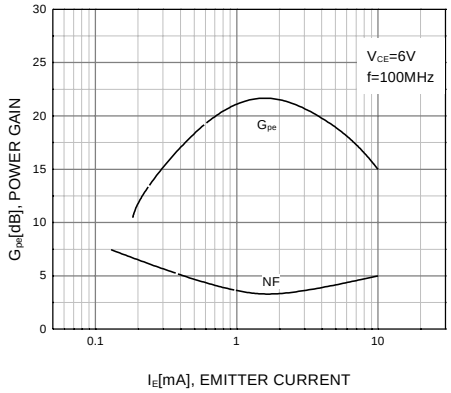


Figure 17. Power Gain and Noise Figure vs. Emitter Current

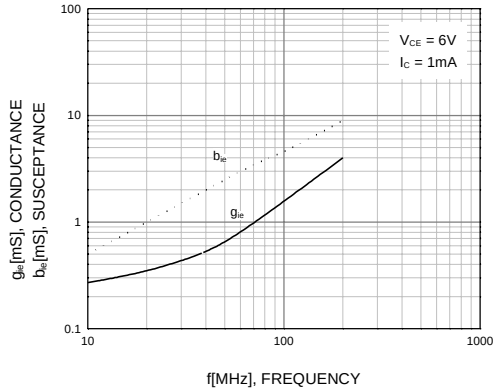
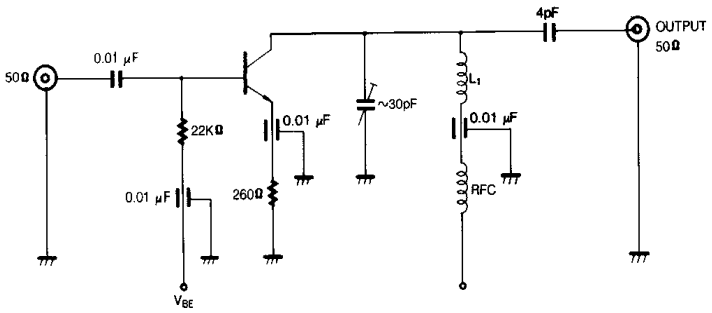


Figure 18. Input Admittance (yie) vs. Frequency

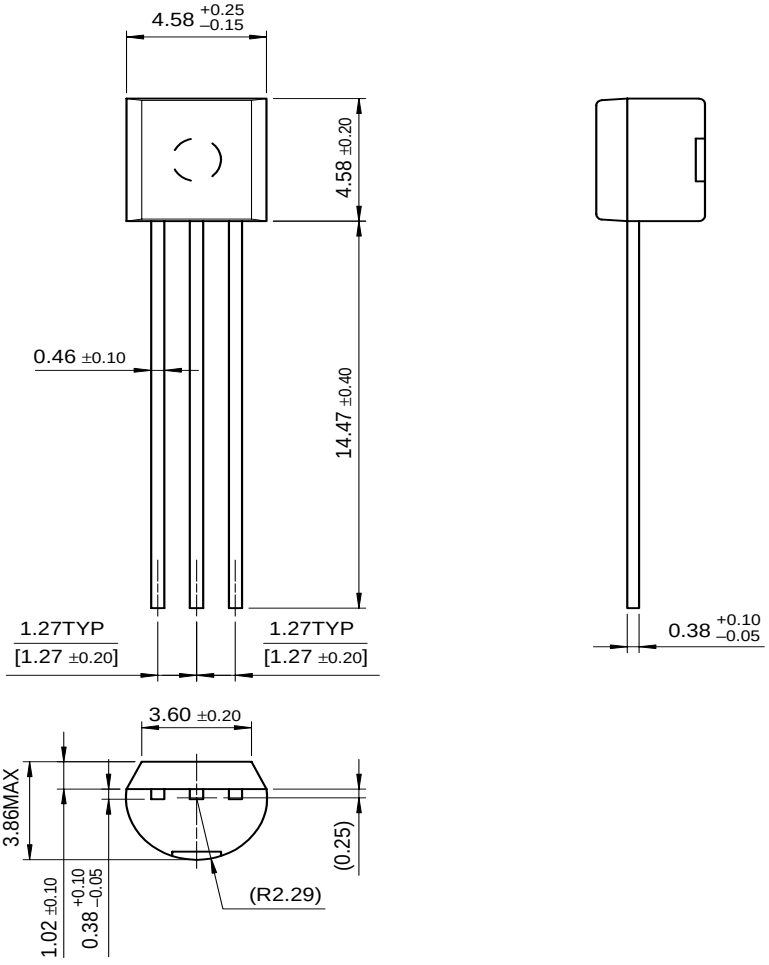
Typical Characteristics (Continued)

100MHz Gpe, NF TEST CIRCUIT



Package Demensions

TO-92



Dimensions in Millimeters

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PowerTrench®
QFET™
QS™
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2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

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