

KSC1674

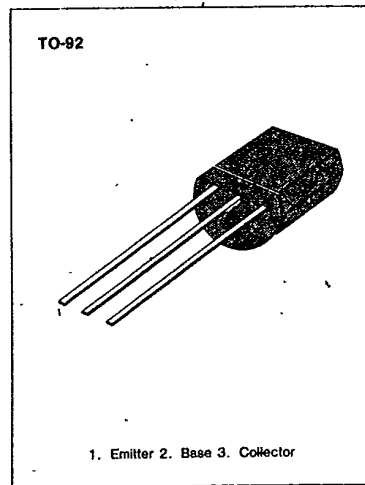
NPN EPITAXIAL SILICON TRANSISTOR

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 $f=100\text{MHz}$

ABSOLUTE MAXIMUM RATINGS ($T_a=25^\circ\text{C}$)

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	V_{CBO}	30	V
Collector-Emitter Voltage	V_{CEO}	20	V
Emitter-Base Voltage	V_{EBO}	4	V
Collector Current	I_C	20	mA
Collector Dissipation	P_C	250	mW
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 - 150	$^\circ\text{C}$



ELECTRICAL CHARACTERISTICS ($T_a=25^\circ\text{C}$)

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

h_{FE} CLASSIFICATION

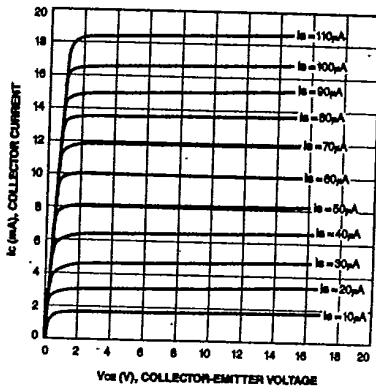
Classification	R	O	Y
h_{FE}	40-80	70-140	120-240

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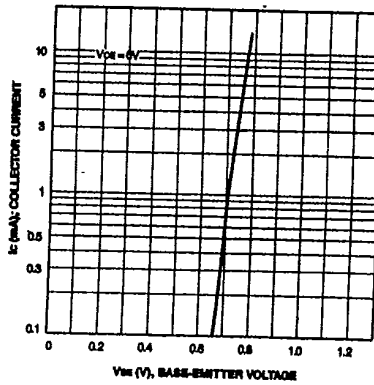
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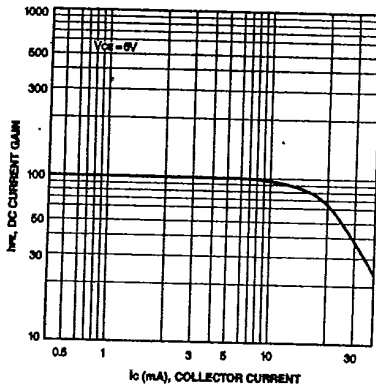
STATIC CHARACTERISTIC



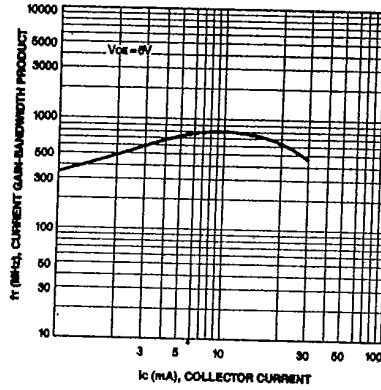
BASE-EMITTER ON VOLTAGE



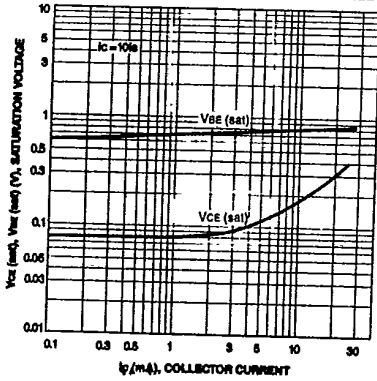
DC CURRENT GAIN



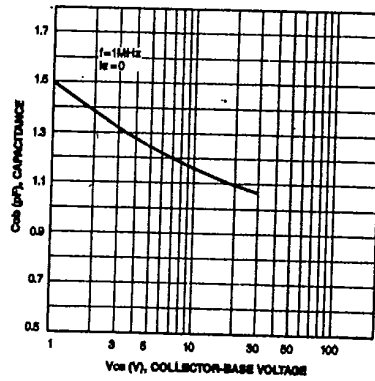
CURRENT GAIN-BANDWIDTH PRODUCT



BASE-EMITTER SATURATION CURRENT
COLLECTOR-EMITTER SATURATION VOLTAGE



COLLECTOR OUTPUT CAPACITANCE



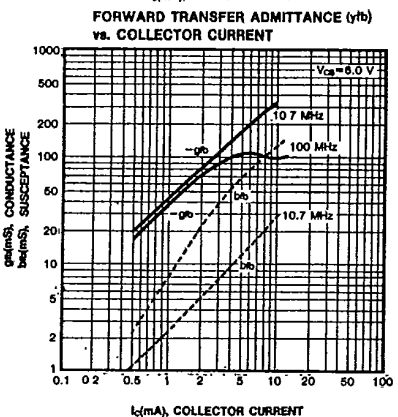
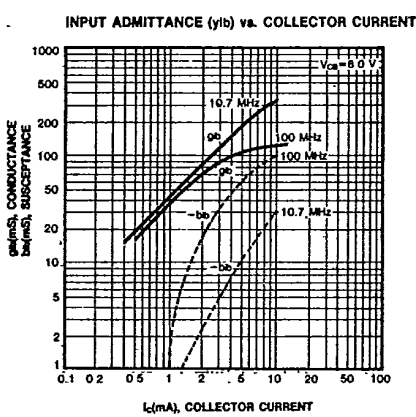
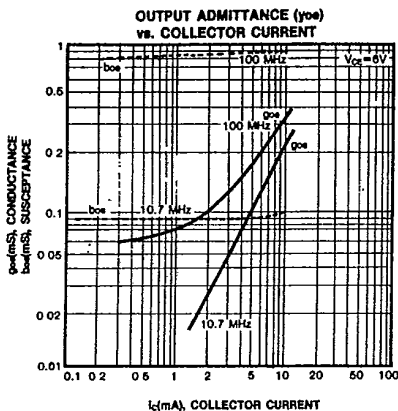
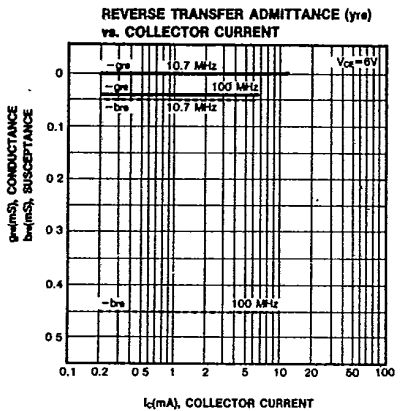
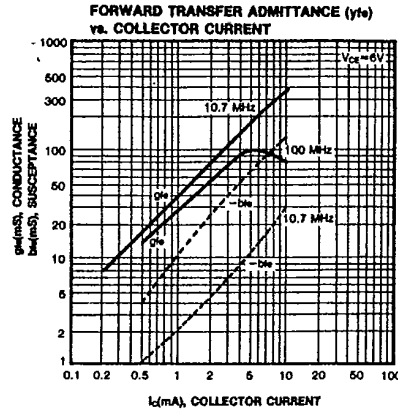
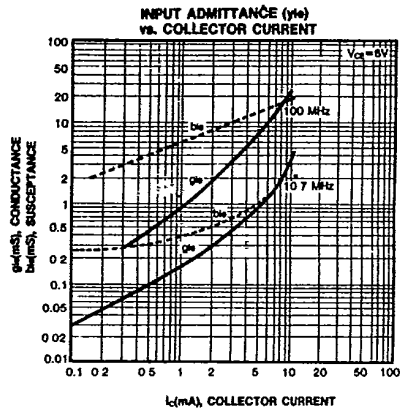
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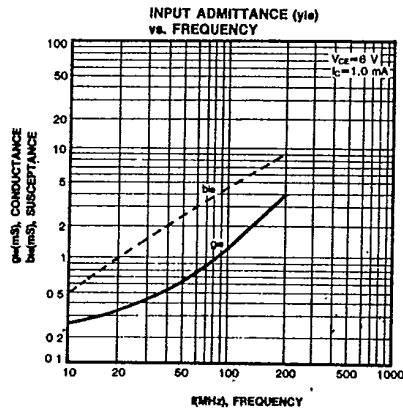
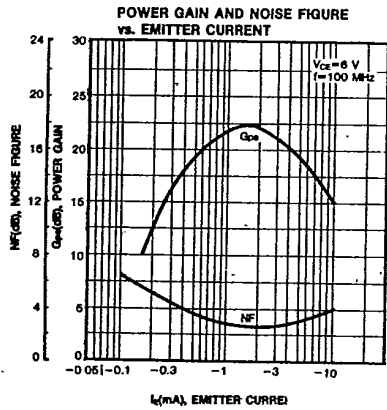
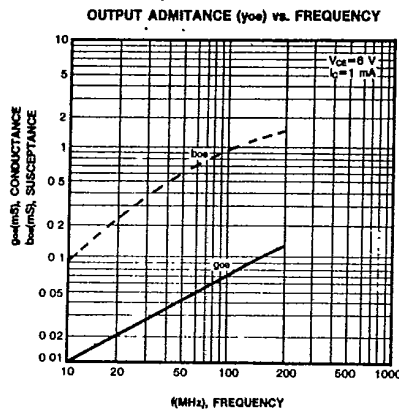
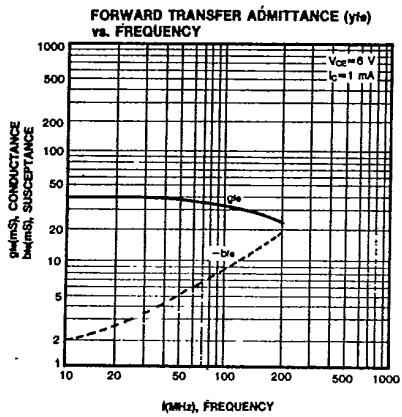
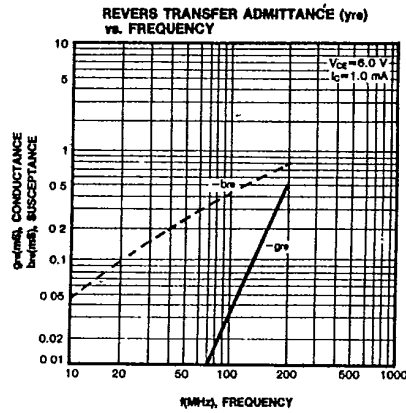
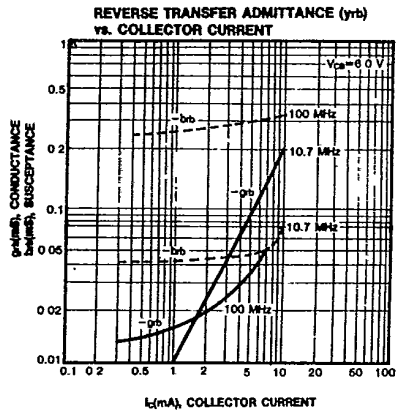
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100MHz G_{ps}, NF TEST CIRCUIT

