

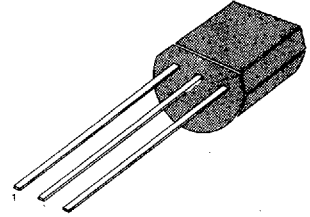
TV PIF AMPLIFIER, FM TUNER RF AMPLIFIER, MIXER, OSCILLATOR

- 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	$^\circ\text{C}$

TO-92



1. Emitter 2. Base 3. Collector

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	$C_c \text{ rbb}'$	$V_{CE} = 6\text{V}, I_E = 1\text{mA}$ $f = 31.9\text{MHz}$		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

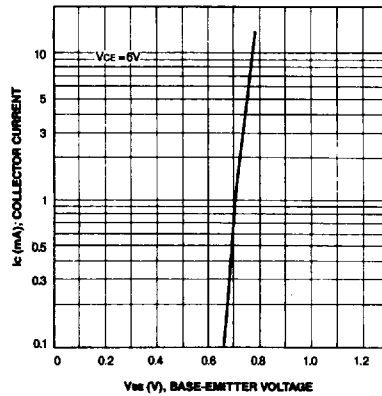
h_{FE} CLASSIFICATION

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

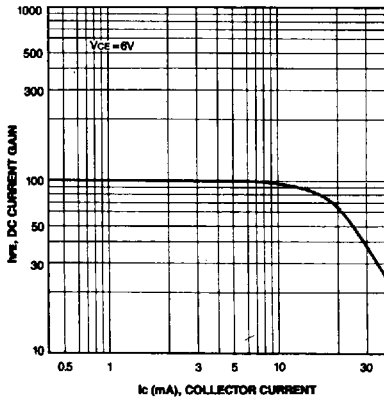
STATIC CHARACTERISTIC



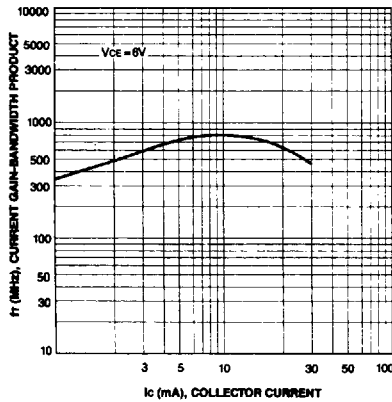
BASE-EMITTER ON VOLTAGE



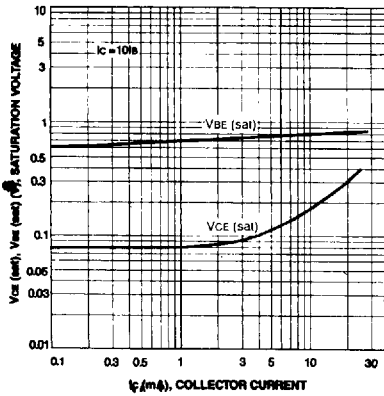
DC CURRENT GAIN



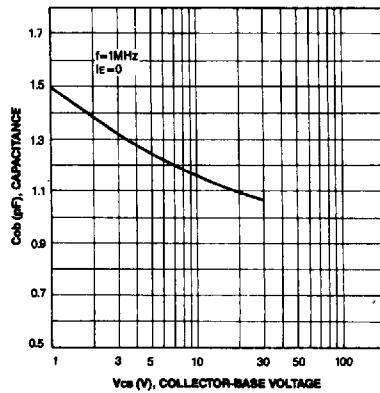
CURRENT GAIN-BANDWIDTH PRODUCT



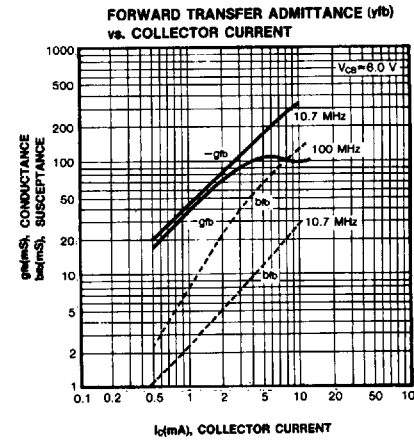
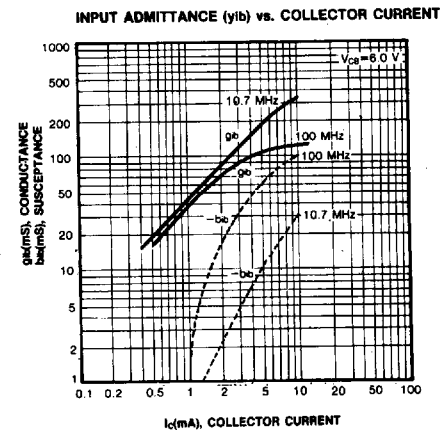
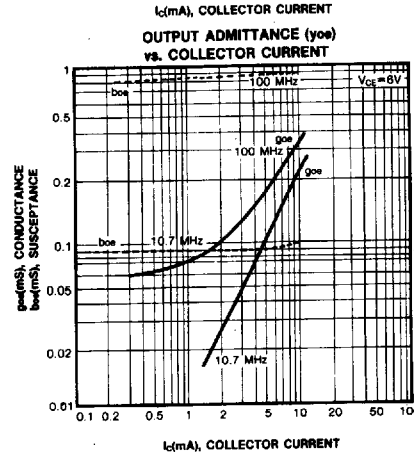
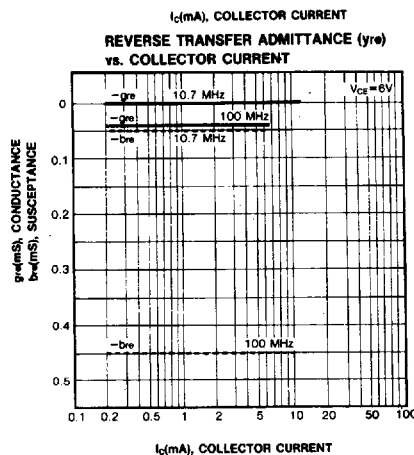
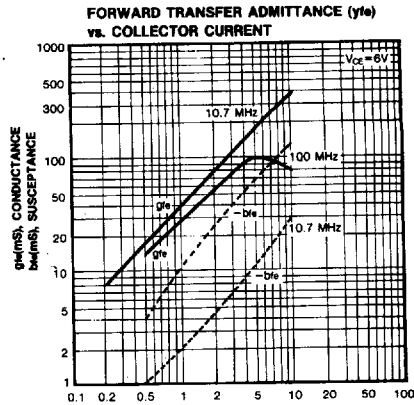
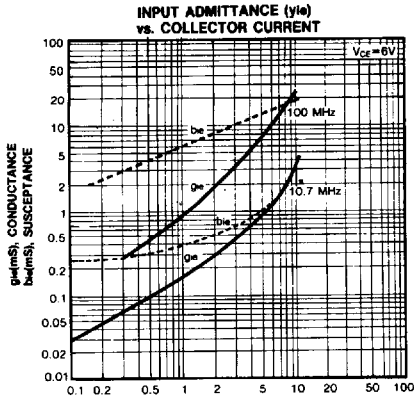
BASE-EMITTER SATURATION VOLTAGE
COLLECTOR-EMITTER SATURATION VOLTAGE



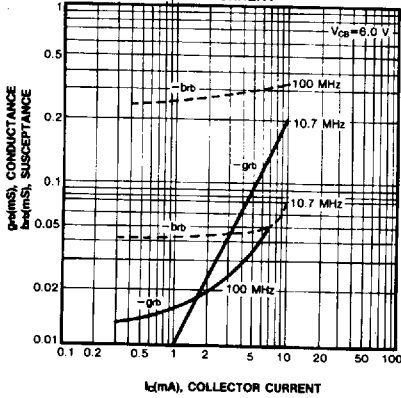
COLLECTOR OUTPUT CAPACITANCE



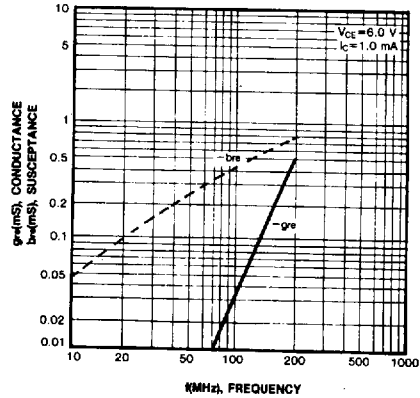
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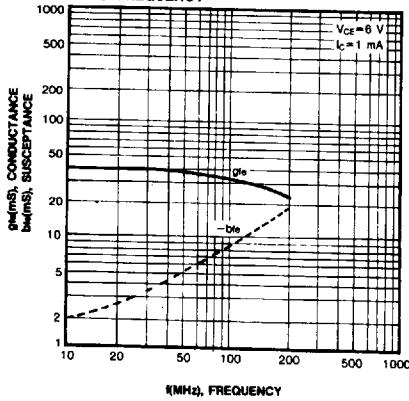
REVERSE TRANSFER ADMITTANCE (yrb)
vs. COLLECTOR CURRENT



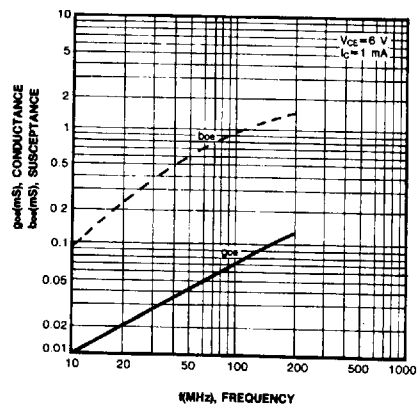
REVERSE TRANSFER ADMITTANCE (yrb)
vs. FREQUENCY



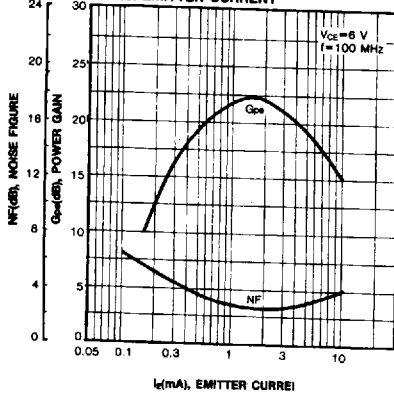
FORWARD TRANSFER ADMITTANCE (yfe)
vs. FREQUENCY



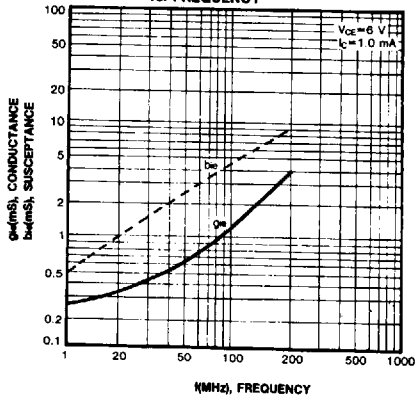
OUTPUT ADMITTANCE (yoe) vs. FREQUENCY



POWER GAIN AND NOISE FIGURE
vs. EMITTER CURRENT



INPUT ADMITTANCE (yie)
vs. FREQUENCY



3

100MHz G_{pe} , NF TEST CIRCUIT

