

# Transistors

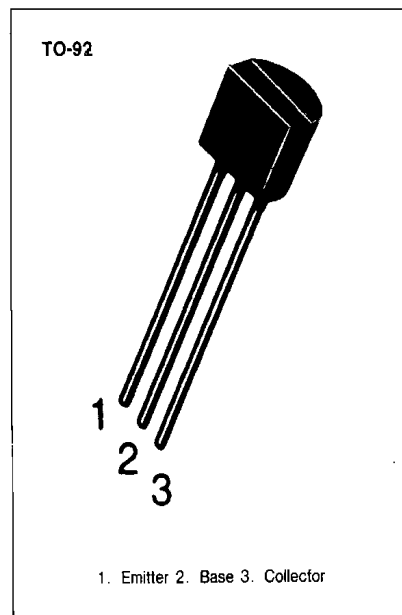
## 2SC1222

### LOW FREQUENCY LOW NOISE AMPLIFIER

- Collector-Base Voltage  $V_{CBO} = 50V$
- Low Noise Level  $NL = 40mV$  (Max)

### ABSOLUTE MAXIMUM RATINGS ( $T_a = 25^\circ C$ )

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	$V_{CBO}$	50	V
Collector-Emitter Voltage	$V_{CEO}$	45	V
Emitter-Base Voltage	$V_{EBO}$	5	V
Collector Current	$I_C$	50	mA
Collector Dissipation	$P_C$	250	mW
Junction Temperature	$T_J$	150	$^\circ C$
Storage Temperature	$T_{stg}$	-55 ~ 150	$^\circ C$



### ELECTRICAL CHARACTERISTICS ( $T_a = 25^\circ C$ )

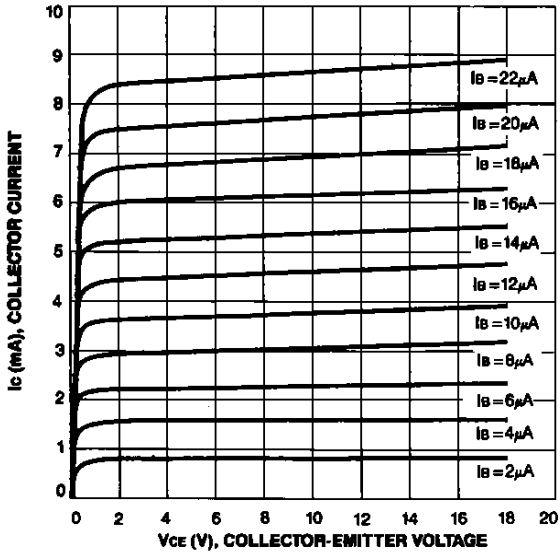
Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	$BV_{CBO}$	$I_C = 100\mu A, I_E = 0$	50			V
Collector-Emitter Breakdown Voltage	$BV_{CEO}$	$I_C = 10mA, I_B = 0$	45			V
Emitter-Base Breakdown Voltage	$BV_{EBO}$	$I_E = 10\mu A, I_C = 0$	5			V
Collector Cut-off Current	$I_{CBO}$	$V_{CB} = 50V, I_E = 0$			50	nA
Emitter Cut-off Current	$I_{EBO}$	$V_{EB} = 5V, I_C = 0$			100	nA
DC Current Gain	$h_{FE}$	$V_{CE} = 3V, I_C = 0.5mA$	120		1000	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 20mA, I_B = 2mA$		0.1	0.2	V
Base-Emitter On Voltage	$V_{BE(on)}$	$V_{CE} = 3V, I_C = 0.5mA$		0.62	0.7	V
Current Gain-Bandwidth Product	$f_T$	$V_{CE} = 3V, I_C = 1mA$	50	100		MHz
Noise Level	NL	$V_{CE} = 12V, I_E = -0.1mA$ $R_S = 25K\Omega$ $A_V = 80dB, (f=1KHz)$		27	40	mV

### $h_{FE}$ CLASSIFICATION

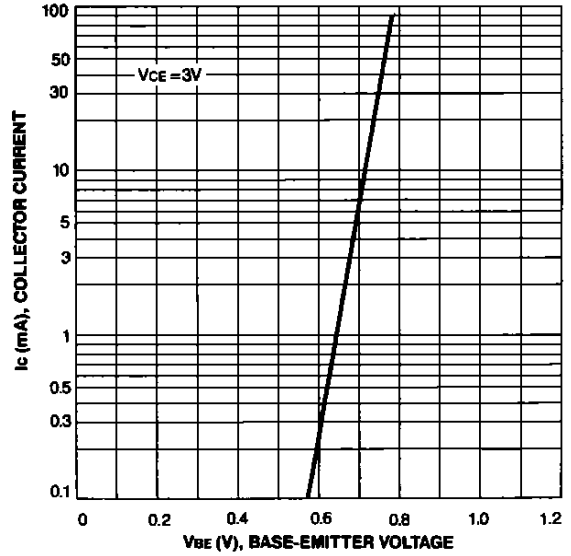
Classification	Y	G	L	V
$h_{FE}$	120-240	200-400	350-700	600-1000



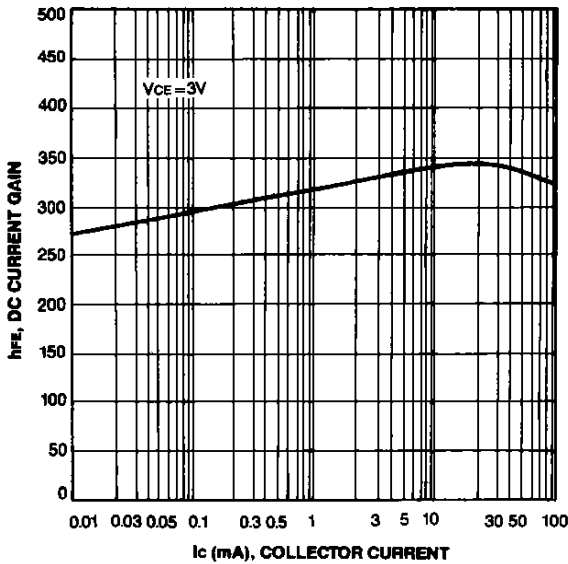
STATIC CHARACTERISTIC



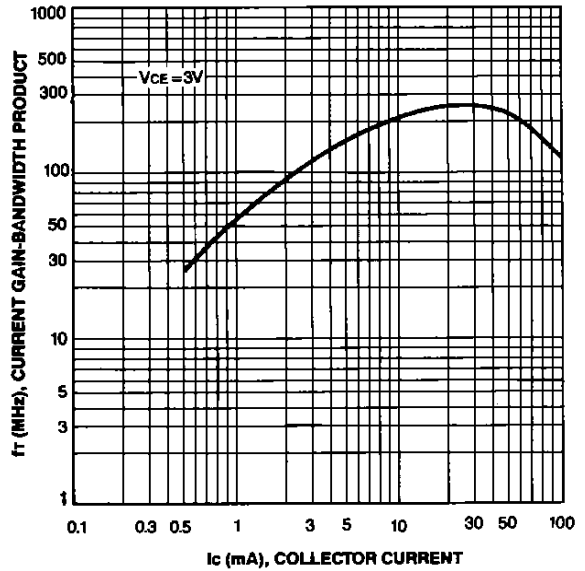
BASE-EMITTER ON VOLTAGE



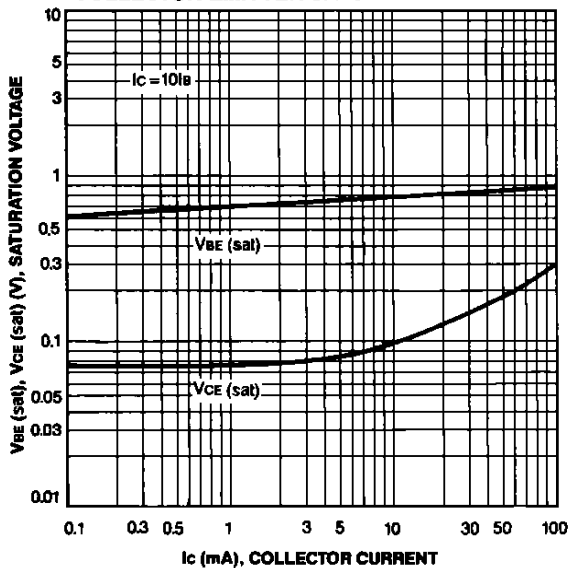
DC CURRENT GAIN



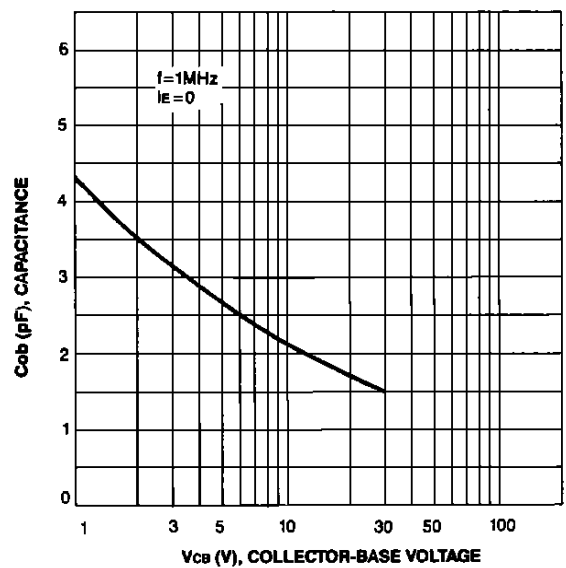
CURRENT GAIN-BANDWIDTH PRODUCT



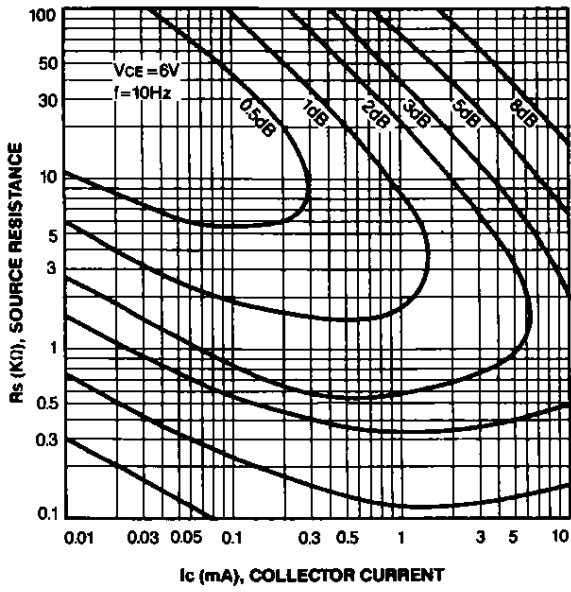
BASE-EMITTER SATURATION VOLTAGE  
COLLECTOR-EMITTER SATURATION VOLTAGE



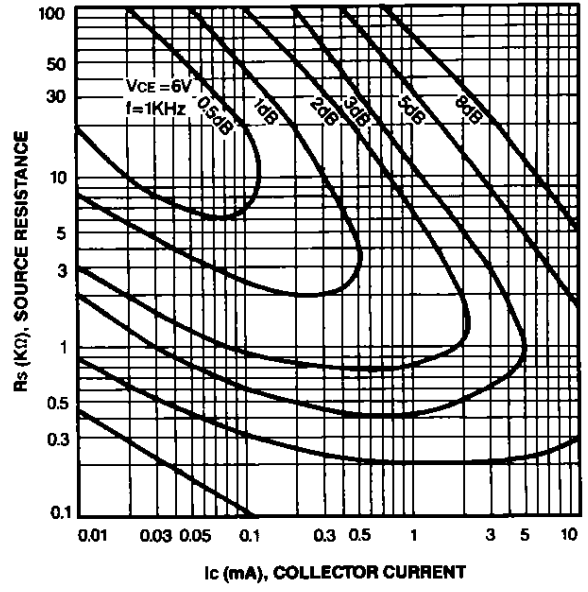
OUTPUT CAPACITANCE



**NOISE FIGURE**



**NOISE FIGURE**



**NOISE FIGURE**

