

# Transistors

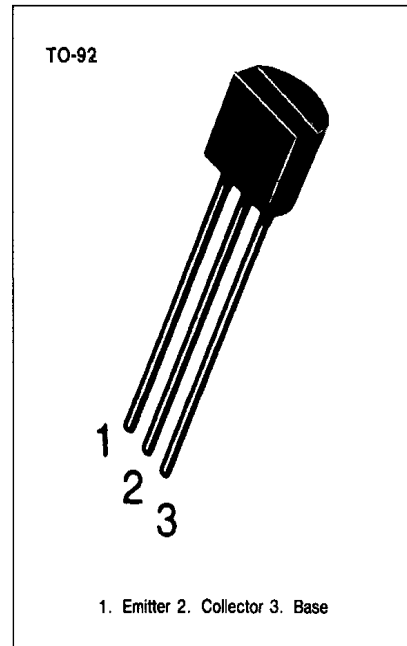
## 2SC1845

### AUDIO FREQUENCY LOW NOISE AMPLIFIER

- Complement to KSA992

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

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	$V_{CBO}$	120	V
Collector-Emitter Voltage	$V_{CEO}$	120	V
Emitter-Base Voltage	$V_{EBO}$	5	V
Collector Current	$I_C$	50	mA
Base Current	$I_B$	10	mA
Collector Dissipation	$P_C$	500	mW
Junction Temperature	$T_j$	150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-55 ~ 150	$^\circ\text{C}$



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

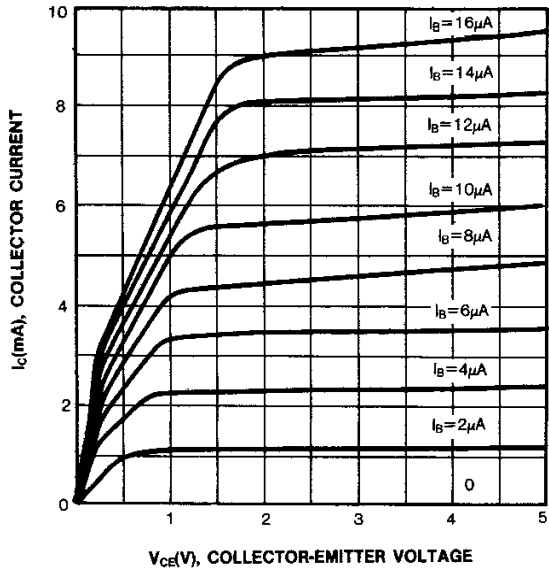
Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=120\text{V}, I_E=0$			50	nA
Emitter Cutoff Current	$I_{EBO}$	$V_{EB}=5\text{V}, I_C=0$			50	nA
DC Current Gain	$h_{FE1}$	$V_{CE}=6\text{V}, I_C=0.1\text{mA}$	150	580		
	$h_{FE2}$	$V_{CE}=6\text{V}, I_C=1\text{mA}$	200	600	1200	
Base Emitter On Voltage	$V_{BE}(\text{on})$	$V_{CE}=6\text{V}, I_C=1\text{mA}$	0.55	0.59	0.65	V
Collector Emitter Saturation Voltage	$V_{CE}(\text{sat})$	$I_C=10\text{mA}, I_B=1\text{mA}$		0.07	0.3	V
Current Gain Bandwidth Product	$f_T$	$V_{CE}=6\text{V}, I_E=1\text{mA}$	50	110		MHz
Output Capacitance	$C_{ob}$	$V_{CB}=30\text{V}, I_E=0$ $f=1\text{MHz}$		1.6	2.5	pF
Noise Voltage	NV			25	40	mV

### $h_{FE}(2)$ CLASSIFICATION

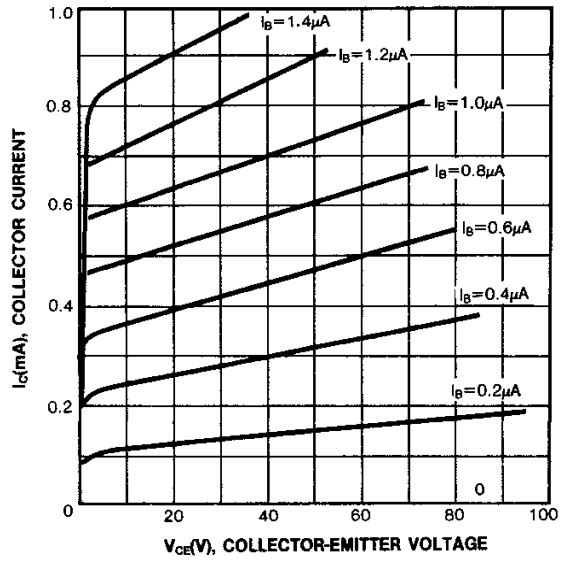
Classification	P	F	E	U
$h_{FE}(2)$	200-400	300-600	400-800	600-1200



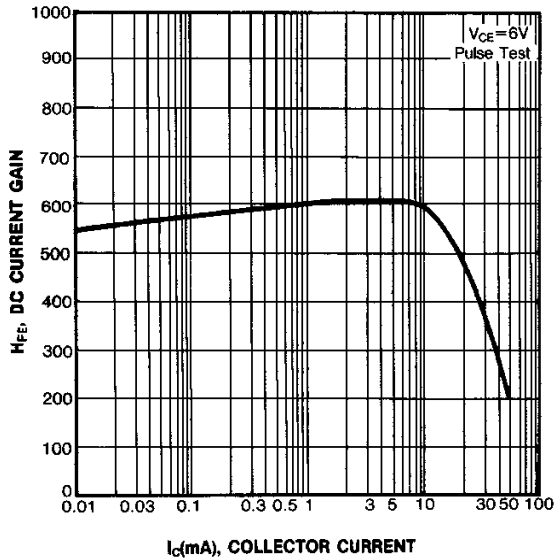
STATIC CHARACTERISTIC



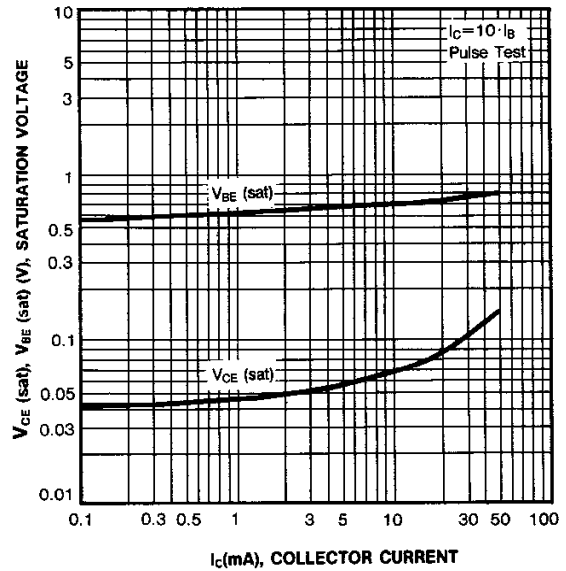
STATIC CHARACTERISTIC



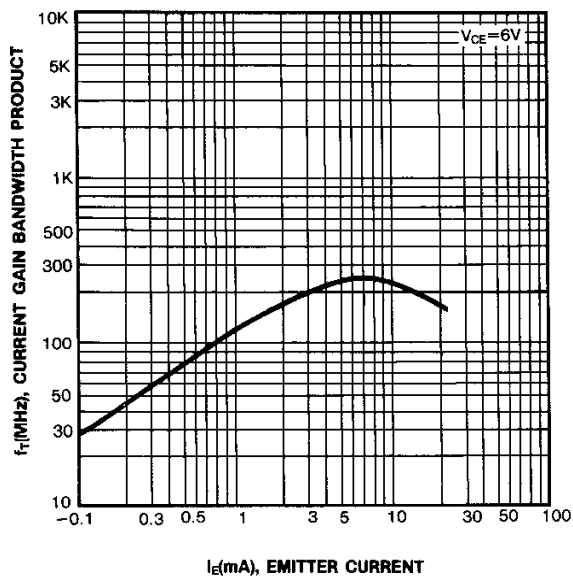
DC CURRENT GAIN



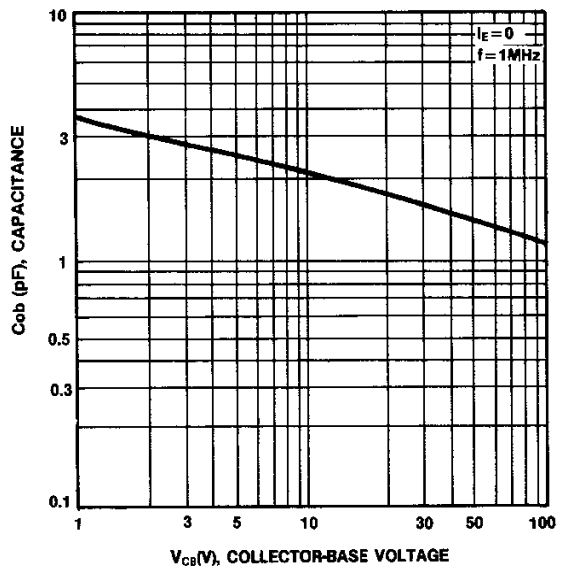
BASE-EMITTER SATURATION VOLTAGE  
COLLECTOR-EMITTER SATURATION VOLTAGE



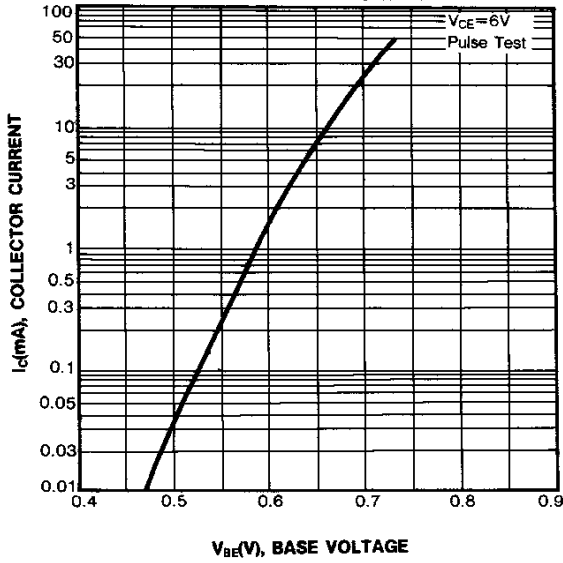
CURRENT GAIN-BANDWIDTH PRODUCT



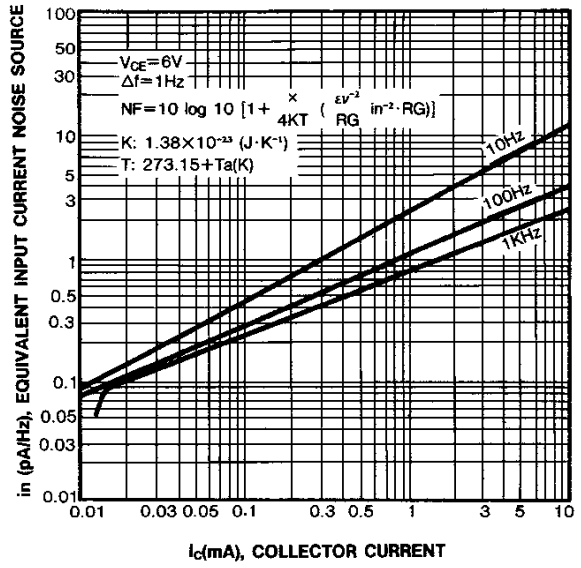
COLLECTOR OUTPUT CAPACITANCE



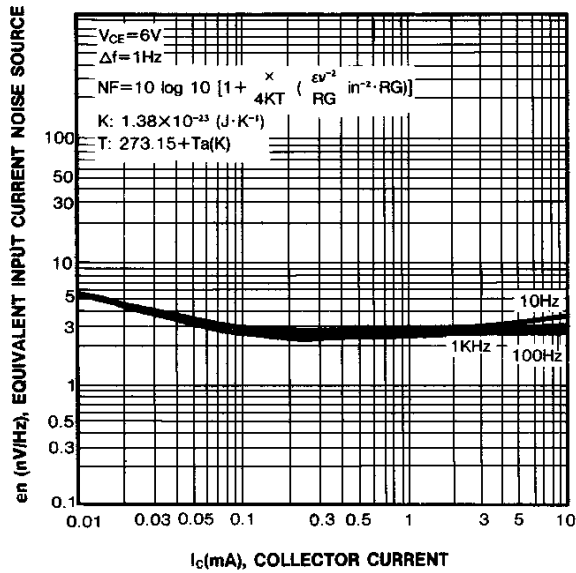
**COLLECTOR CURRENT vs BASE-EMITTER VOLTAGE**



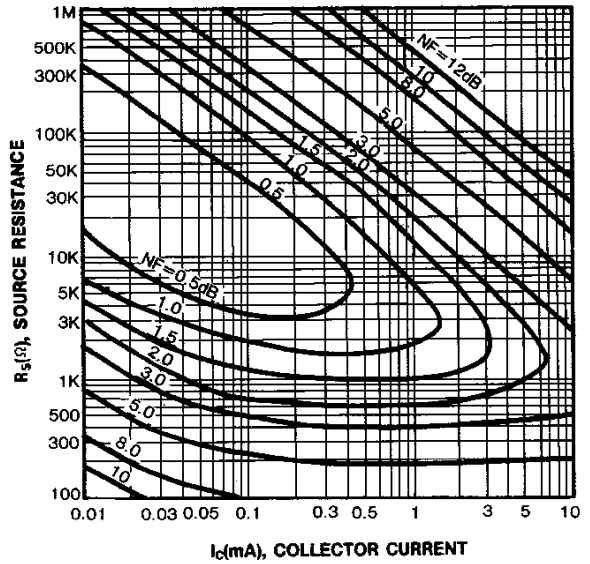
**EQUIVALENT INPUT CURRENT NOISE SOURCE**



**EQUIVALENT INPUT CURRENT NOISE SOURCE**



**NOISE FIGURE MHP**



**POWER DERATING**

