

Transistors

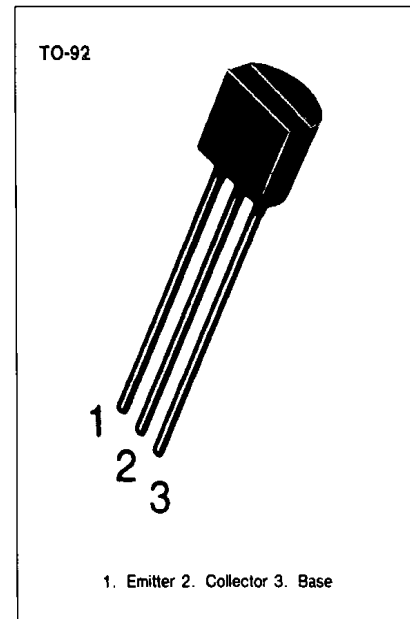
2SA954

AUDIO FREQUENCY AMPLIFIER

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

Characteristic	Symbol	Rating	Unit
Collector Base Voltage	V_{CBO}	-80	V
Collector-Emitter Voltage	V_{CEO}	-80	V
Emitter-Base Voltage	V_{EBO}	-5	V
Collector Current (DC)	I_C	-300	mA
*Collector Current (Pulse)	I_C	-500	mA
Collector Dissipation	P_C	600	mW
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55 ~ 150	$^\circ\text{C}$

* $PW < 10\text{ms}$, Duty Cycle $\leq 50\%$



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

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Collector Cutoff Current	I_{CBO}	$V_{CB} = -80\text{V}, I_E = 0$			-100	nA
Emitter Cutoff Current	I_{EBO}	$V_{BE} = -5\text{V}, I_C = 0$			-100	nA
*DC Current Gain	h_{FE1}	$V_{CE} = -1\text{V}, I_C = -50\text{mA}$	90	200	400	
	h_{FE2}	$V_{CE} = -2\text{V}, I_C = -300\text{mA}$	30	80		
*Base Emitter On Voltage	$V_{BE(on)}$	$V_{CE} = -6\text{V}, I_C = -10\text{mA}$	-600	-660	-700	mV
*Base Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = -300\text{mA}, I_B = -30\text{mA}$		-0.85	-1.2	V
*Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = -300\text{mA}, I_B = -30\text{mA}$		-0.15	-0.6	V
Output Capacitance	C_{OB}	$V_{CB} = -6\text{V}, I_E = 0, f = 1\text{MHz}$		13	25	pF
Current Gain-Bandwidth Product	f_T	$V_{CE} = -6\text{V}, I_E = 10\text{mA}$	50	100		MHz

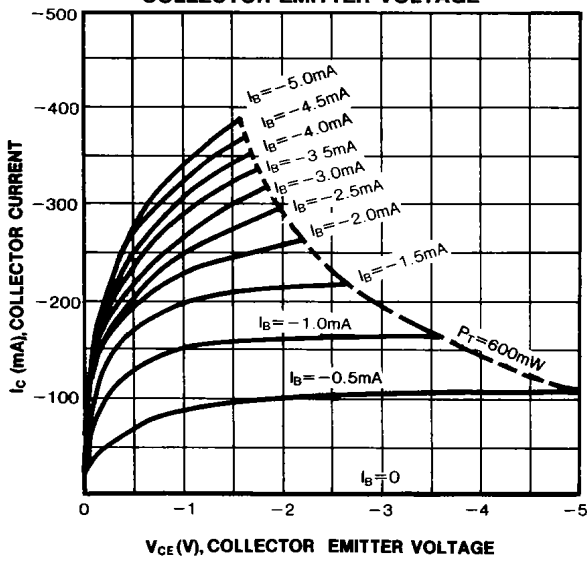
* Pulse Test: $PW \leq 350\mu\text{s}$, Duty Cycle $\leq 2\%$ Pulsed

$h_{FE(1)}$ CLASSIFICATION

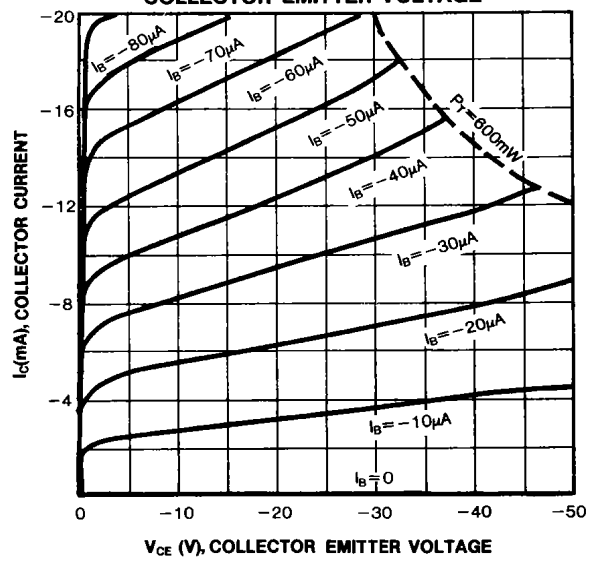
Classification	O	Y	G
$h_{FE(1)}$	90 ~ 180	135 ~ 270	200 ~ 400



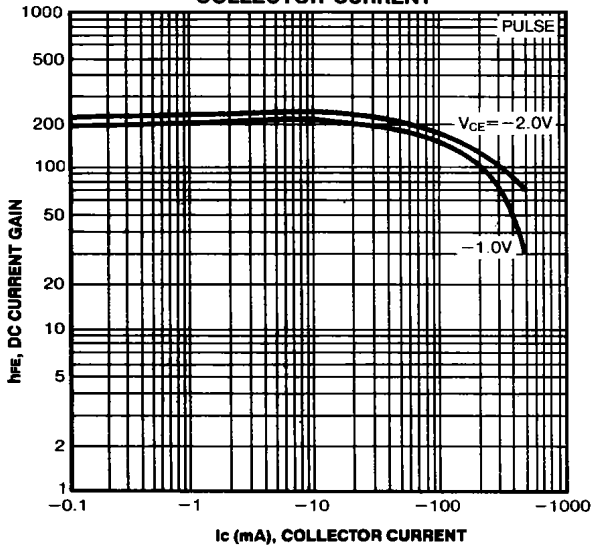
COLLECTOR CURRENT vs. COLLECTOR EMITTER VOLTAGE



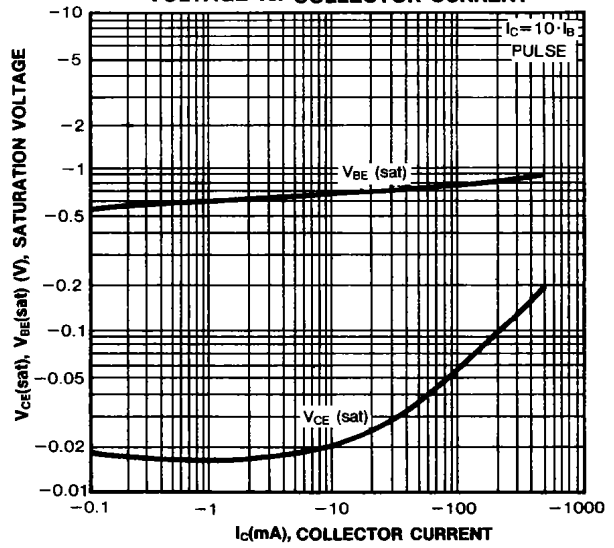
COLLECTOR CURRENT vs. COLLECTOR EMITTER VOLTAGE



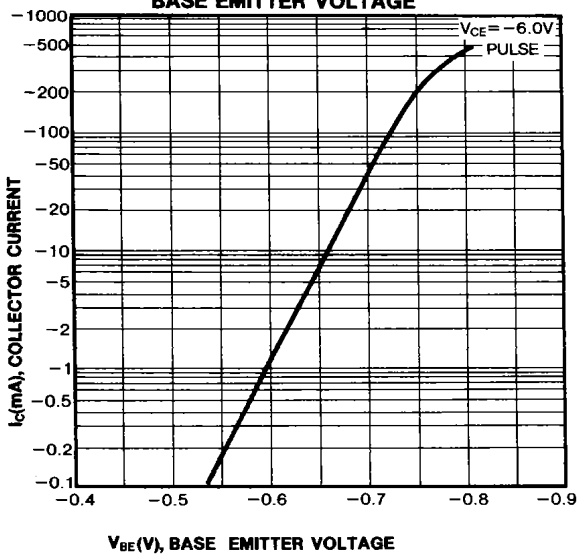
DC CURRENT GAIN vs. COLLECTOR CURRENT



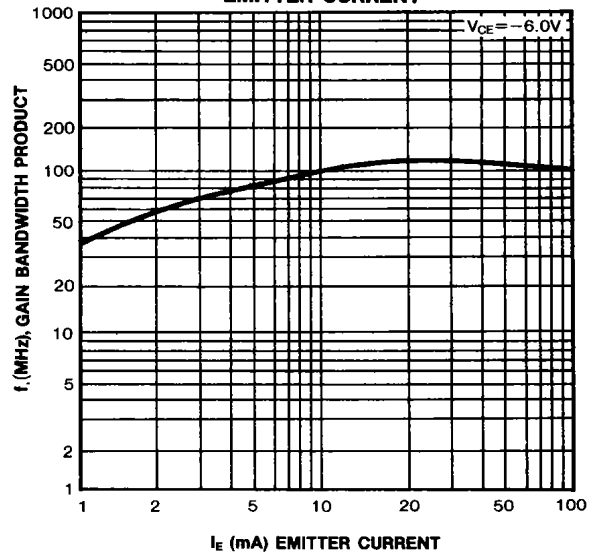
BASE AND COLLECTOR SATURATION VOLTAGE vs. COLLECTOR CURRENT



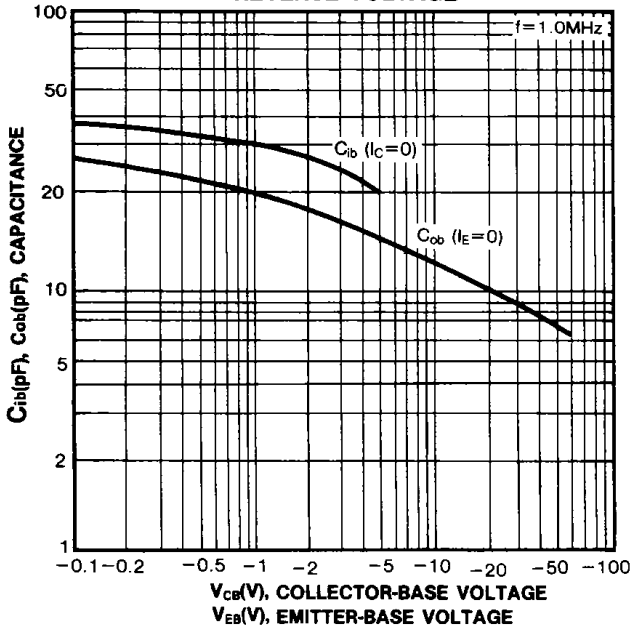
COLLECTOR CURRENT vs. BASE EMITTER VOLTAGE



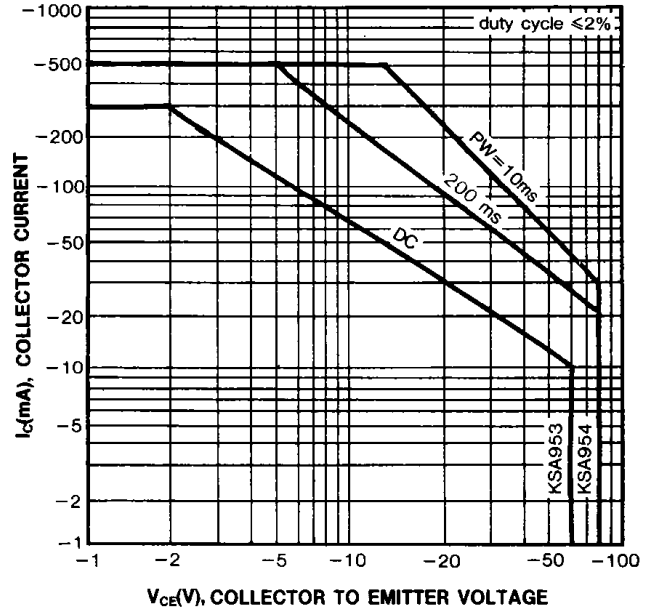
GAIN BANDWIDTH PRODUCT vs. EMITTER CURRENT



INPUT AND OUTPUT CAPACITANCE vs. REVERSE VOLTAGE



SAFE OPERATING AREA



POWER DERATING

