

KSD794/794A NPN EPITAXIAL SILICON TRANSISTOR

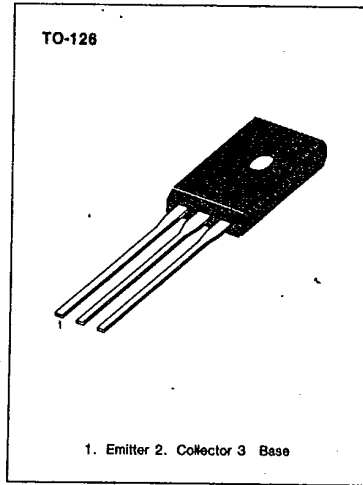
T-33-07

AUDIO FREQUENCY POWER AMPLIFIER

• Complement to KSB744/KSB744A

ABSOLUTE MAXIMUM RATINGS (T_a = 25°C)

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	V _{CB0}	70	V
Collector-Emitter Voltage : KSD794	V _{CE0}	45	V
: KSD794A		60	V
Emitter-Base Voltage	V _{EB0}	5	V
Collector Current (DC)	I _C	3	A
Collector Current (Pulse)	I _C	5	A
Base Current (DC)	I _B	0.6	A
Collector Dissipation (T _a = 25°C)	P _C	1	W
Collector Dissipation (T _c = 25°C)	P _C	10	W
Junction Temperature	T _J	150	°C
Storage Temperature	T _{stg}	-55~150	°C



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* PW ≤ 10ms, Duty Cycle ≤ 50%

ELECTRICAL CHARACTERISTICS (T_a = 25°C)

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Collector Cutoff Current	I _{CB0}	V _{CB} = 45V, I _E = 0			1	μA
Emitter Cutoff Current	I _{EB0}	V _{EB} = 3V, I _C = 0			1	μA
• DC Current Gain	h _{FE1}	V _{CE} = 5V, I _C = 20mA	30	70		
	h _{FE2}	V _{CE} = 5V, I _C = 0.5A	60	100	320	
* Collector Emitter Saturation Voltage	V _{CE (sat)}	I _C = 1.5A, I _B = 0.15A		0.3	2	V
* Base Emitter Saturation Voltage	V _{BE (sat)}	I _C = 1.5A, I _B = 0.15A		0.8	2	V
Current Gain Bandwidth Product	f _T	V _{CE} = 5V, I _C = 0.1A		60		MHz
Output Capacitance	C _{ob}	V _{CB} = 10V, I _E = 0, f = 1MHz		40		pF

* Pulse Test: PW ≤ 350μs, Duty Cycle ≤ 2% Pulsed

h_{FE} (2) CLASSIFICATION

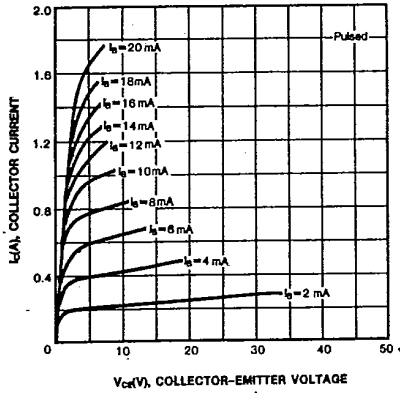
Classification	R	O	Y
h _{FE} (2)	60-120	100-200	160-320

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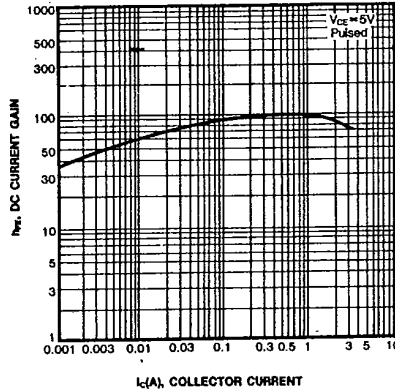
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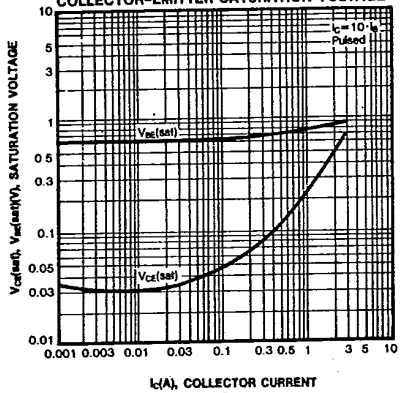
STATIC CHARACTERISTIC



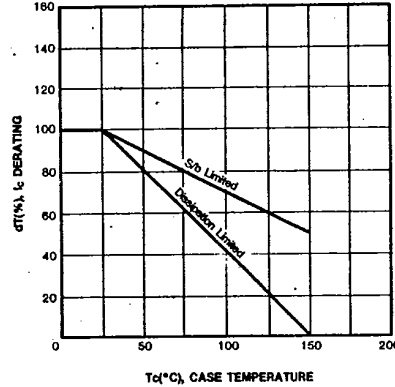
DC CURRENT GAIN



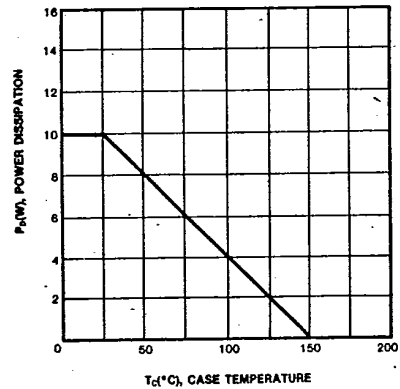
BASE-EMITTER SATURATION VOLTAGE
COLLECTOR-EMITTER SATURATION VOLTAGE



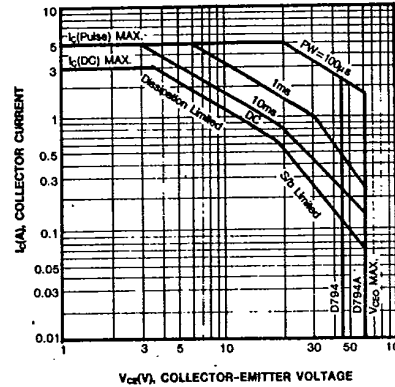
DERATING CURVE OF SAFE OPERATING AREAS



POWER DERATING



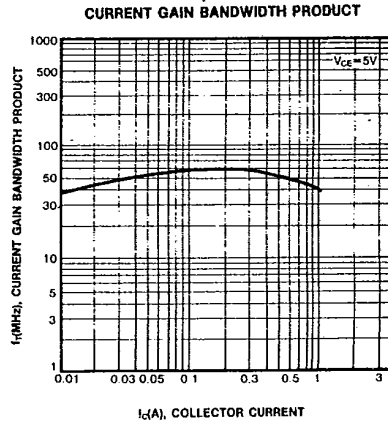
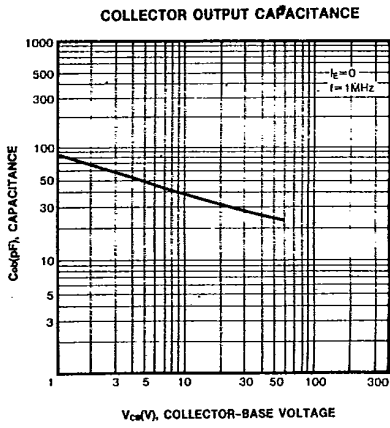
SAFE OPERATING AREA



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KSD880**NPN EPITAXIAL SILICON TRANSISTOR**

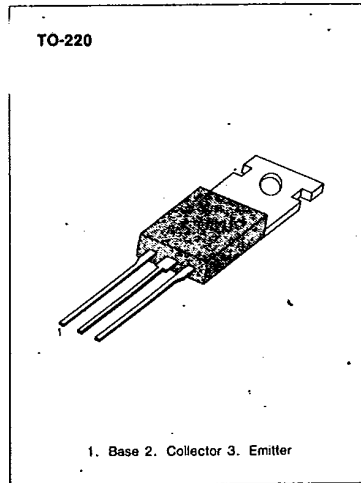
T-33-09

LOW FREQUENCY POWER AMPLIFIER

- Complement to KSB834

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

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	V_{CBO}	60	V
Collector-Emitter Voltage	V_{CEO}	60	V
Emitter-Base Voltage	V_{EBO}	7	V
Collector Current	I_C	3	A
Base Current	I_B	0.3	A
Collector Dissipation ($T_c=25^\circ\text{C}$)	P_C	30	W
Junction Temperature	T_j	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55~150	$^\circ\text{C}$

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

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Collector Cutoff Current	I_{CBO}	$V_{CB}=60\text{V}, I_E=0$			100	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=7\text{V}, I_C=0$			100	μA
Collector-Emitter Breakdown Voltage	BV_{CEO}	$I_C=50\text{mA}, I_B=0$	60			V
DC Current Gain	h_{FE1}	$V_{CE}=5\text{V}, I_C=0.5\text{A}$	60		300	
	h_{FE2}	$V_{CE}=5\text{V}, I_C=3\text{A}$	20			
Collector Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=3\text{A}, I_B=0.3\text{A}$		0.4	1	V
Base Emitter On Voltage	$V_{BE(on)}$	$V_{CE}=5\text{V}, I_C=0.5\text{A}$		0.7	1	V
Current Gain Bandwidth Product	f_T	$V_{CE}=5\text{V}, I_C=0.5\text{A}$		3		MHz
Collector Output Capacitance	C_{ob}	$V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$		70		pF
Turn on Time	t_{on}	$I_B1=-I_B2=0.2\text{A}$		0.8		μs
Storage Time	t_s	$V_{CC}=30\text{V}$		1.5		μs
Fall Time	t_f			0.8		μs

 $h_{FE}(1)$ CLASSIFICATION

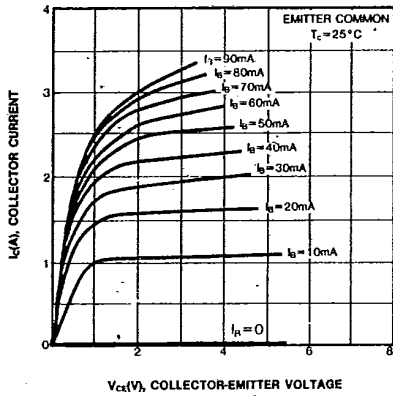
Classification	O	Y	G
$h_{FE}(1)$	60-120	100-200	150-300

KSD880

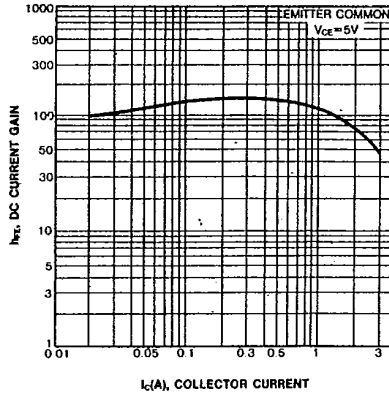
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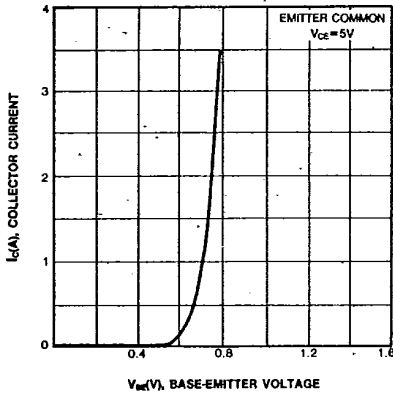
STATIC CHARACTERISTIC



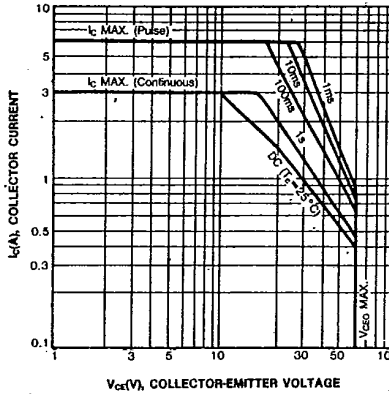
DC CURRENT GAIN



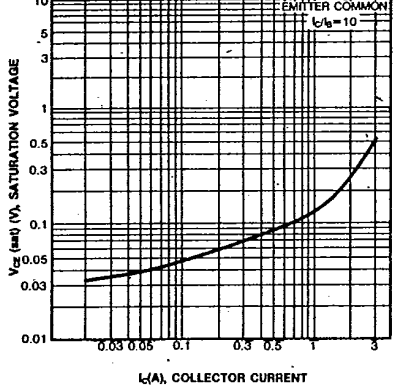
BASE-EMITTER ON VOLTAGE



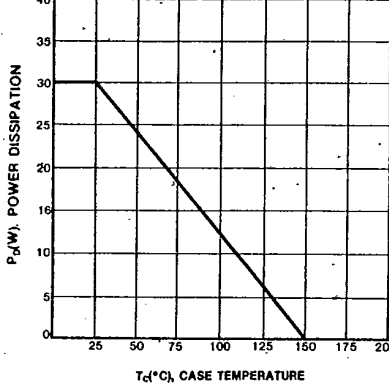
SAFE OPERATING AREA



COLLECTOR-EMITTER SATURATION VOLTAGE vs COLLECTOR CURRENT



POWER DERATING



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