

KSD882**NPN EPITAXIAL SILICON TRANSISTOR****AUDIO FREQUENCY POWER AMPLIFIER
LOW SPEED SWITCHING**

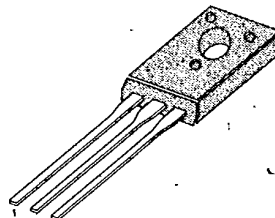
• Complement to KSB772

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

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	V_{CB0}	40	V
Collector-Emitter Voltage	V_{CE0}	30	V
Emitter-Base Voltage	V_{EB0}	5	V
Collector Current (DC)	I_C	3	A
Collector Current (Pulse)	I_C	7	A
Base Current (DC)	I_B	0.6	A
Collector Dissipation ($T_c = 25^\circ\text{C}$)	P_C	10	W
Collector Dissipation ($T_a = 25^\circ\text{C}$)	P_C	1	W
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55~150	$^\circ\text{C}$

• $P_W \leq 10\text{ms}$, Duty Cycle $\leq 50\%$

TO-18



1. Emitter 2. Collector 3. Base

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

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Collector Cutoff Current	I_{CBO}	$V_{CB} = 30\text{V}$, $I_E = 0$			1	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 3\text{V}$, $I_C = 0$			1	μA
• DC Current Gain	h_{FE1}	$V_{CE} = 2\text{V}$, $I_C = 20\text{mA}$	30	150		
	h_{FE2}	$V_{CE} = 2\text{V}$, $I_C = 1\text{A}$	60	160	400	
• Collector Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 2\text{A}$, $I_B = 0.2\text{A}$		0.3	0.5	V
• Base Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 2\text{A}$, $I_B = 0.2\text{A}$		1.0	2.0	V
Current Gain Bandwidth Product	f_T	$V_{CE} = 5\text{V}$, $I_E = -0.1\text{A}$		90		MHz
Output Capacitance	C_{ob}	$V_{CB} = 10\text{V}$, $I_E = 0$ $f = 1\text{MHz}$		45		pF

• Pulse Test: $P_W \leq 350\mu\text{s}$, Duty Cycle $\leq 2\%$ **$h_{FE}(2)$ CLASSIFICATION**

Classification	R	O	Y	G
$h_{FE}(2)$	60-120	100-200	160-320	200-400

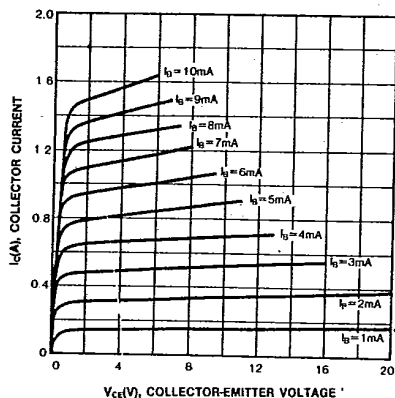


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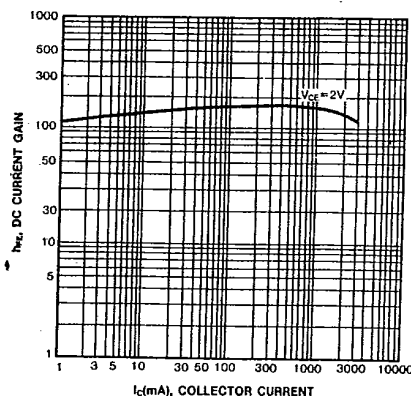
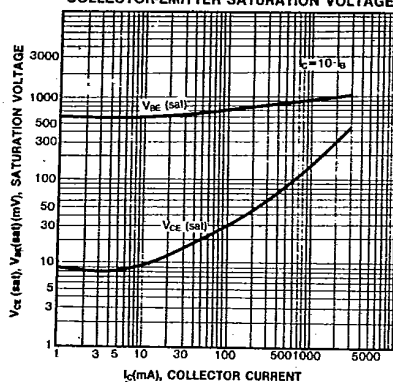
NPN EPITAXIAL SILICON TRANSISTOR

T-33-07

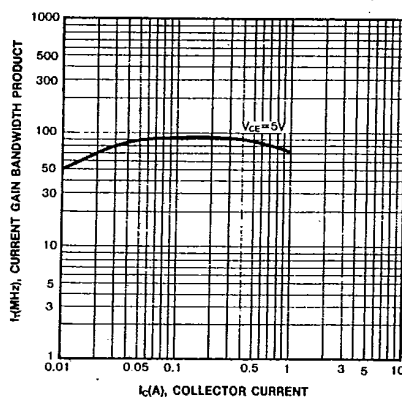
STATIC CHARACTERISTIC



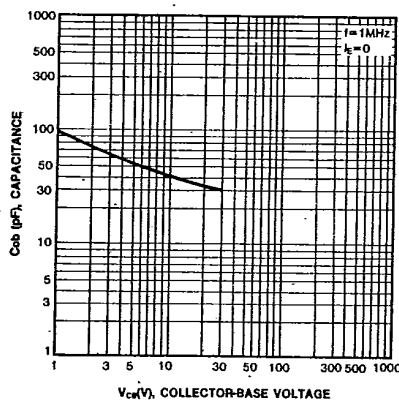
DC CURRENT GAIN

BASE-EMITTER SATURATION VOLTAGE
COLLECTOR-EMITTER SATURATION VOLTAGE

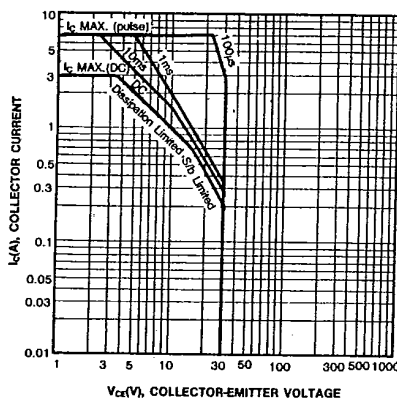
CURRENT GAIN-BANDWIDTH PRODUCT



COLLECTOR OUTPUT CAPACITANCE



SAFE OPERATING AREA

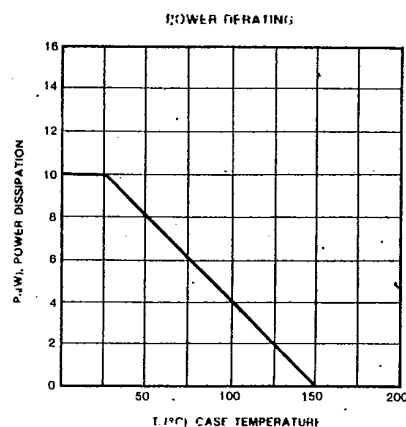
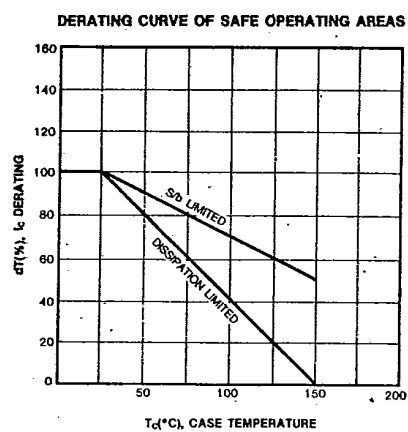


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KSD882**NPN EPITAXIAL SILICON TRANSISTOR**

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KSD985**SAMSUNG SEMICONDUCTOR INC****NPN EPITAXIAL SILICON
DARLINGTON TRANSISTOR****LOW FREQUENCY POWER AMPLIFIER
LOW SPEED SWITCHING
INDUSTRIAL USE****ABSOLUTE MAXIMUM RATINGS ($T_a=25^\circ\text{C}$)**

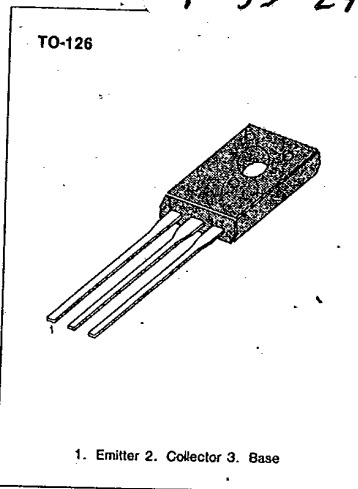
Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	V_{CB0}	150	V
Collector-Emitter Voltage	V_{CE0}	60	V
Emitter-Base Voltage	V_{EB0}	8.0	V
Collector Current (DC)	I_C	± 1.5	A
*Collector Current (Pulse)	I_C	± 3.0	A
Base Current (DC)	I_B	0.15	A
Collector Dissipation ($T_a=25^\circ\text{C}$)	P_C	1.0	W
Collector Dissipation ($T_c=25^\circ\text{C}$)	P_C	10	W
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	$-55\sim 150$	$^\circ\text{C}$

* $PW \leq 300\mu\text{s}$, Duty Cycle $\leq 10\%$ **ELECTRICAL CHARACTERISTICS ($T_a=25^\circ\text{C}$)**

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Collector Cutoff Current	I_{CB0}	$V_{CB}=60\text{V}$, $I_E=0$			10	μA
Collector Cutoff Current	I_{CER}	$V_{CE}=60\text{V}$, $R_{BE}=51\Omega$ $T_a=125^\circ\text{C}$			1.0	mA
Collector Cutoff Current	I_{CEX1}	$V_{CE}=60\text{V}$, $V_{BE}(\text{off})=-1.5\text{V}$			10	μA
Collector Cutoff Current	I_{CEX2}	$V_{CE}=60\text{V}$, $V_{BE}(\text{off})=-1.5\text{V}$ $T_a=125^\circ\text{C}$			1.0	mA
Emitter Cutoff Current	I_{EB0}	$V_{EB}=5\text{V}$, $I_C=0$			1.0	mA
*DC Current Gain	h_{FE1}	$V_{CE}=2\text{V}$, $I_C=0.5\text{A}$	1000			
	h_{FE2}	$V_{CE}=2\text{V}$, $I_C=1\text{A}$	2000		30000	
*Collector-Emitter Saturation Voltage	$V_{CE}(\text{sat})$	$I_C=1\text{A}$, $I_B=1\text{mA}$			1.5	V
*Base-Emitter Saturation Voltage	$V_{BE}(\text{sat})$	$I_C=1\text{A}$, $I_B=1\text{mA}$			2.0	V
Turn On Time	t_{on}	$I_C=1\text{A}$, $R_L=50\Omega$		0.5		μs
Storage Time	t_s	$I_B1=-I_B2=1\text{mA}$		1.0		μs
Fall time	t_f	$V_{CC}=50\text{V}$		1.0		μs

*Pulse Test: $PW \leq 350\mu\text{s}$, Duty Cycle $\leq 2\%$ **$h_{FE}(2)$ CLASSIFICATION**

Classification	R	O	Y
$h_{FE}(2)$	2000-5000	4000-10000	8000-30000

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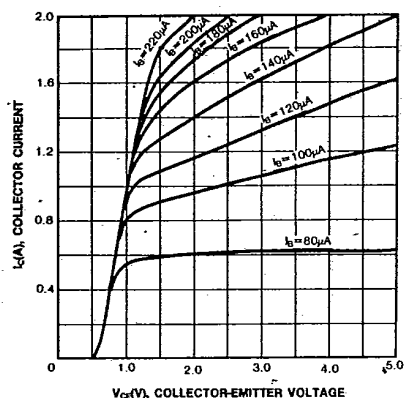
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SAMSUNG SEMICONDUCTOR INC

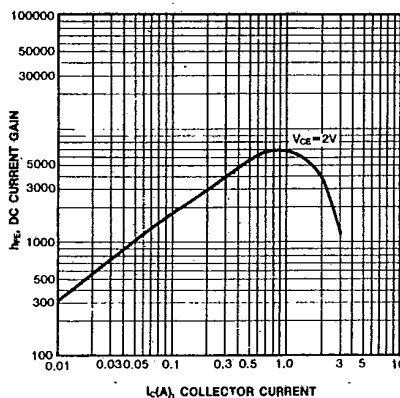
NPN EPITAXIAL SILICON DARLINGTON TRANSISTOR

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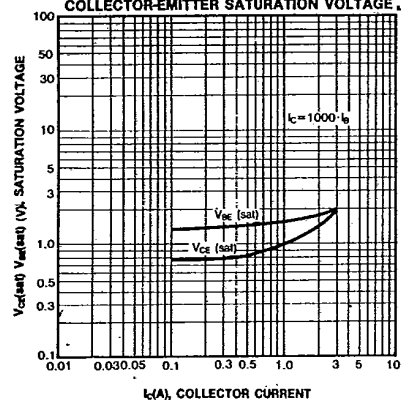
STATIC CHARACTERISTIC



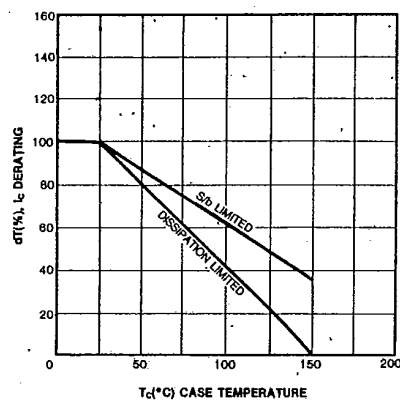
DC CURRENT GAIN



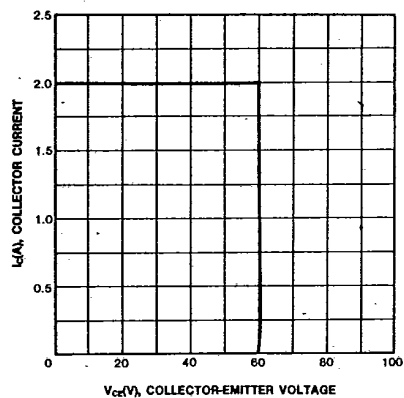
BASE-EMITTER SATURATION VOLTAGE
COLLECTOR-EMITTER SATURATION VOLTAGE.



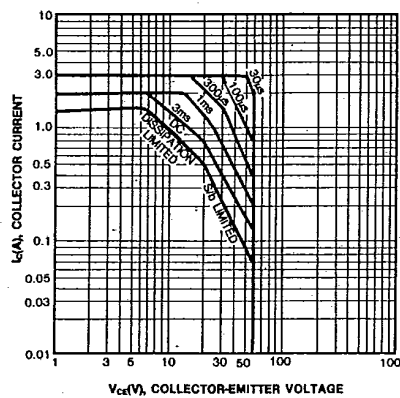
DERATING CURVE OF SAFE OPERATING AREAS



REVERSE BIAS SAFE OPERATING AREAS



SAFE OPERATING AREA

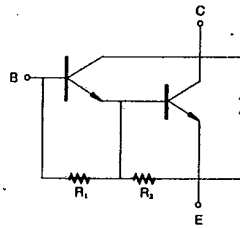
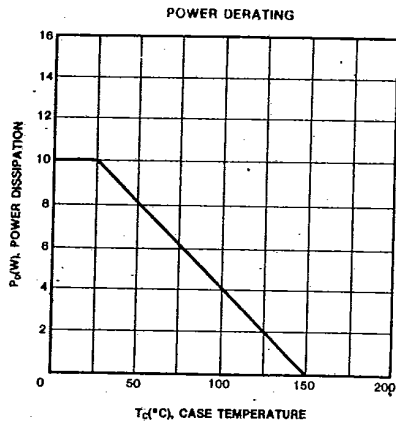


SAMSUNG SEMICONDUCTOR

NPN EPITAXIAL SILICON DARLINGTON TRANSISTOR

KSD985
SAMSUNG SEMICONDUCTOR INC

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$R_1 = 10k\Omega$
 $R_2 = 500\Omega$

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