

**NPN EPITAXIAL SILICON
DARLINGTON TRANSISTOR**

KSD560

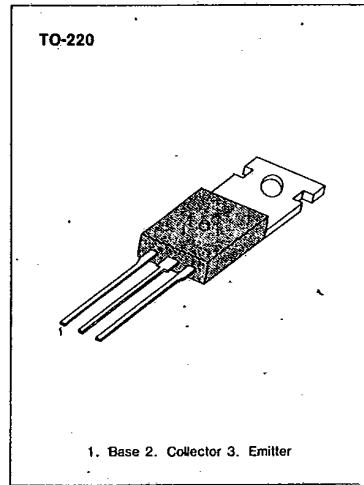
T-33-29

**LOW FREQUENCY POWER AMPLIFIER
LOW SPEED SWITCHING
INDUSTRIAL USE**

- Complement to KSB601

ABSOLUTE MAXIMUM RATINGS (T_a=25°C)

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	V _{CB0}	150	V
Collector-Emitter Voltage	V _{CE0}	100	V
Emitter-Base Voltage	V _{EB0}	7	V
Collector Current (DC)	I _C	±5	A
Collector Current (Pulse)	I _C	±8	A
Base Current	I _B	0.5	A
Collector Dissipation (T _a =25°C)	P _C	1.5	W
Collector Dissipation (T _c =25°C)	P _C	30	W
Junction Temperature	T _J	150	°C
Storage Temperature	T _{stg}	-55~150	°C



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- PW≤10ms, Duty Cycle ≤50%

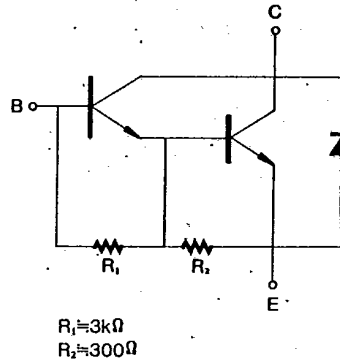
ELECTRICAL CHARACTERISTICS (T_a=25°C)

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Collector Cutoff Current	I _{CB0}	V _{CB} =100V, I _E =0			1	μA
DC Current Gain	h _{FE1}	V _{CE} =2V, I _C =3A	2000	6000	15000	
	h _{FE2}	V _{CE} =2V, I _C =5A	500			
Collector-Emitter Saturation Voltage	V _{CE} (sat)	I _C =3A, I _B =3mA		0.9	1.5	V
Base-Emitter Saturation Voltage	V _{BE} (sat)	I _C =3A, I _B =3mA		1.6	2	V
Turn On Time	t _{on}	I _C =3A, R _L =16.7Ω		1		μs
Storage Time	t _s	I _{B1} =-I _{B2} =3mA		3.5		μs
Fall time	t _f	V _{CC} =50V		1.2		μs

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

h_{FE}(1) CLASSIFICATION

Classification	R	O	Y
h _{FE} (1)	2000-5000	3000-7000	5000-15000

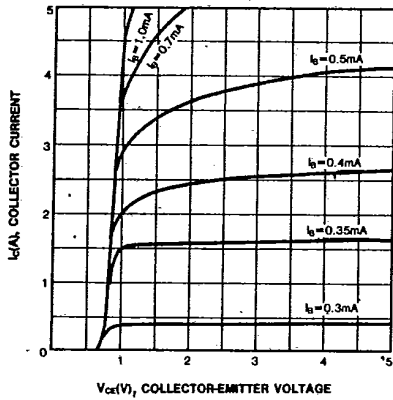


**NPN EPITAXIAL SILICON
DARLINGTON TRANSISTOR**

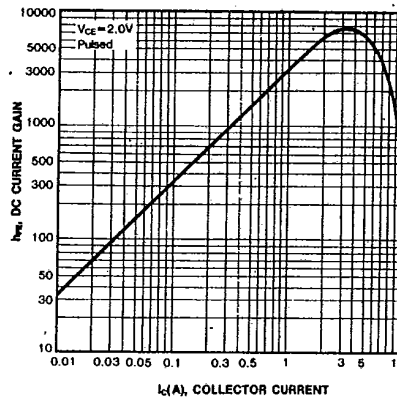
KSD560

T-33-29

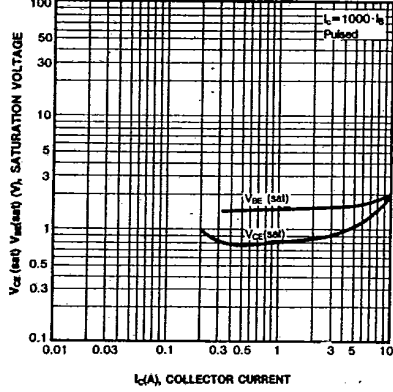
STATIC CHARACTERISTIC



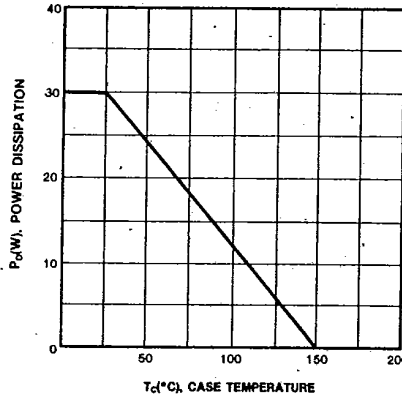
DC CURRENT GAIN



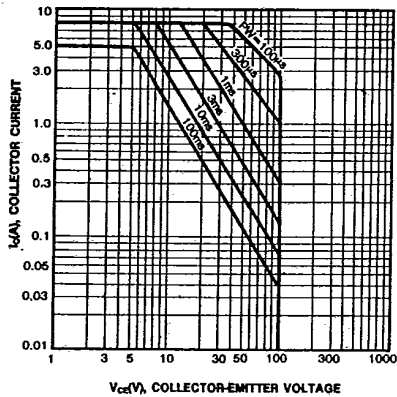
**BASE-EMITTER SATURATION VOLTAGE
COLLECTOR-EMITTER SATURATION VOLTAGE**



POWER DERATING



SAFE OPERATING AREA



KSD568**NPN EPITAXIAL SILICON TRANSISTOR**

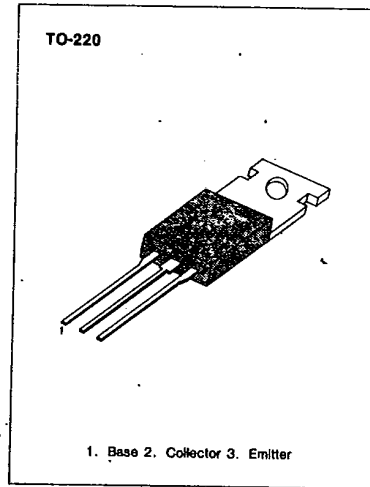
LOW FREQUENCY POWER AMPLIFIER
LOW SPEED SWITCHING
INDUSTRIAL USE

• Complement to KSB707

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

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	V_{CB0}	100	V
Collector-Emitter Voltage	V_{CE0}	60	V
Emitter-Base Voltage	V_{EB0}	7	V
Collector Current (DC)	I_C	7	A
* Collector Current (Pulse)	I_C	15	A
Base Current (DC)	I_B	3.5	A
Collector Dissipation ($T_c = 25^\circ\text{C}$)	P_C	40	W
Collector Dissipation ($T_a = 25^\circ\text{C}$)	P_C	1.5	W
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55~150	$^\circ\text{C}$

* $PW \leq 300\mu\text{s}$, Duty Cycle $\leq 10\%$



3

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

Characteristic	Symbol	Test Condition	Min	Max	Unit
Collector Cutoff Current	I_{CB0}	$V_{CB} = 80\text{V}$, $I_E = 0$		10	μA
Emitter Cutoff Current	I_{EB0}	$V_{EB} = 5\text{V}$, $I_C = 0$		10	μA
* DC Current Gain	h_{FE1}	$V_{CE} = 1\text{V}$, $I_C = 3\text{A}$	40	200	
	h_{FE2}	$V_{CE} = 1\text{V}$, $I_C = 5\text{A}$	20		
* Collector-Emitter Saturation Voltage	$V_{CE}(\text{sat})$	$I_C = 5\text{A}$, $I_B = 0.5\text{A}$		0.5	V
* Base-Emitter Saturation Voltage	$V_{BE}(\text{sat})$	$I_C = 5\text{A}$, $I_B = 0.5\text{A}$		1.5	V

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

 h_{FE} CLASSIFICATION

Classification	R	O	Y
h_{FE1}	40-80	60-120	100-200

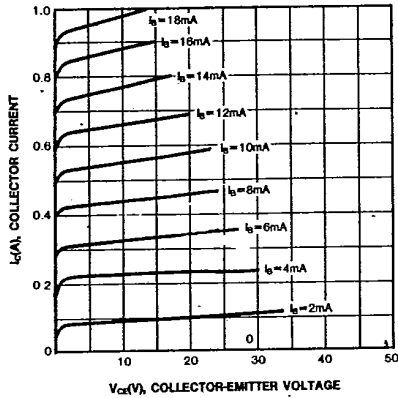


KSD568

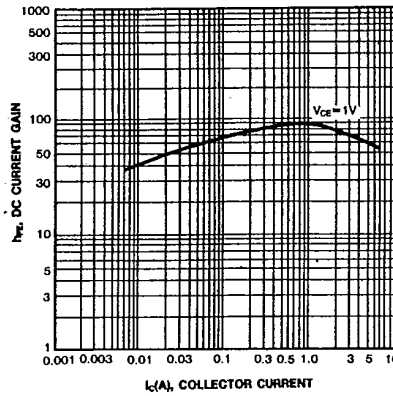
NPN EPTAXIAL SILICON TRANSISTOR

T-33-11

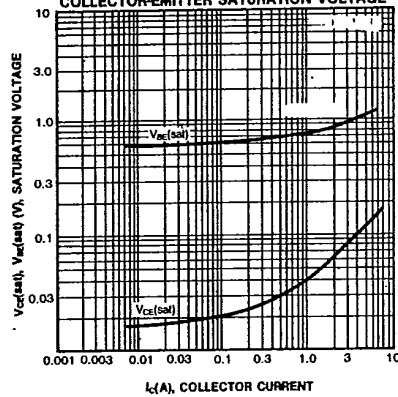
STATIC CHARACTERISTIC



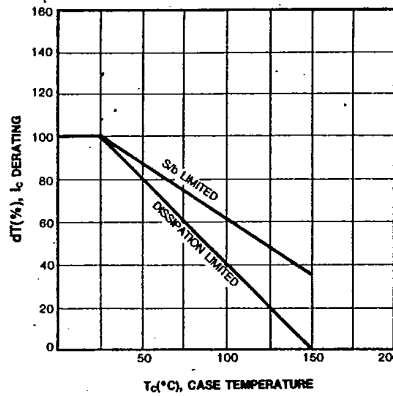
DC CURRENT GAIN



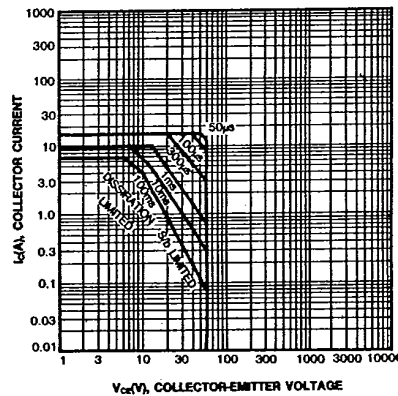
BASE-EMITTER SATURATION VOLTAGE
COLLECTOR-EMITTER SATURATION VOLTAGE



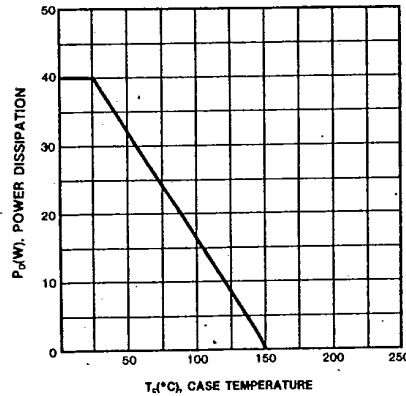
DERATING CURVE OF SAFE OPERATING AREAS



FORWARD BIAS SAFE OPERATING AREA



POWER DERATING



KSD569**NPN EPITAXIAL SILICON TRANSISTOR**

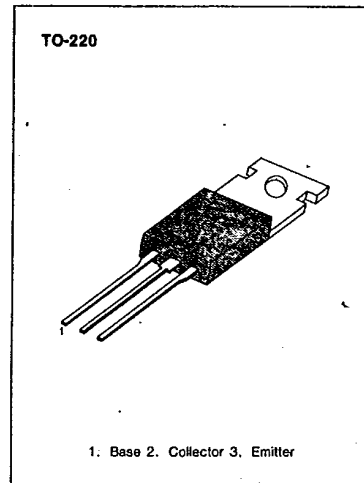
T-33-11

LOW FREQUENCY POWER AMPLIFIER
LOW SPEED SWITCHING
INDUSTRIAL USE

• Complement to KSB708

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

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	V_{CB0}	100	V
Collector-Emitter Voltage	V_{CE0}	80	V
Emitter-Base Voltage	V_{EB0}	7	V
Collector Current (DC)	I_C	7	A
* Collector Current (Pulse)	I_C	15	A
Base Current (DC)	I_B	3.5	A
Collector Dissipation ($T_c = 25^\circ\text{C}$)	P_C	40	W
Collector Dissipation ($T_a = 25^\circ\text{C}$)	P_C	1.5	W
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55~150	$^\circ\text{C}$

* $PW \leq 300\mu\text{s}$, Duty Cycle $\leq 10\%$ 

3

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

Characteristic	Symbol	Test Condition	Min	Max	Unit
Collector Cutoff Current	I_{CBO}	$V_{CB} = 80\text{V}$, $I_E = 0$		10	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB} = 5\text{V}$, $I_C = 0$		10	μA
* DC Current Gain	h_{FE1}	$V_{CE} = 1\text{V}$, $I_C = 3\text{A}$	40	200	
	h_{FE2}	$V_{CE} = 1\text{V}$, $I_C = 5\text{A}$	20		
* Collector-Emitter Saturation Voltage	$V_{CE}(\text{sat})$	$I_C = 5\text{A}$, $I_B = 0.5\text{A}$		0.5	V
* Base-Emitter Saturation Voltage	$V_{BE}(\text{sat})$	$I_C = 5\text{A}$, $I_B = 0.5\text{A}$		1.5	V

* Pulse Test: $PW \leq 350\mu\text{s}$, Duty Cycle $\leq 2\%$ **h_{FE} (1) CLASSIFICATION**

Classification	R	O	Y
h_{FE} (1)	40-80	60-120	100-200

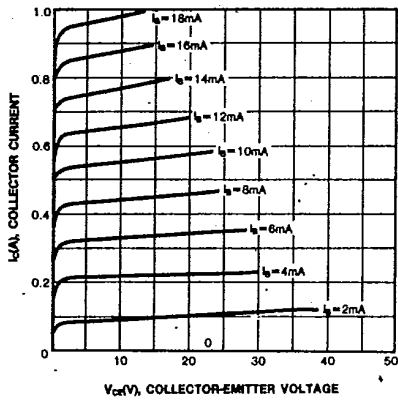


KSD569

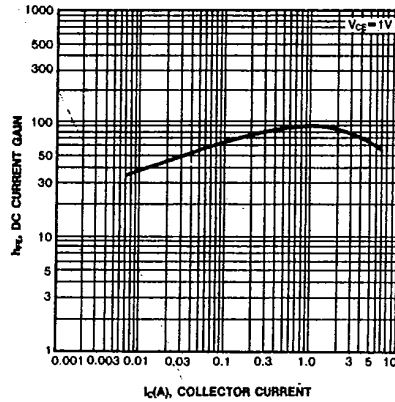
NPN EPITAXIAL SILICON TRANSISTOR

T-33-11

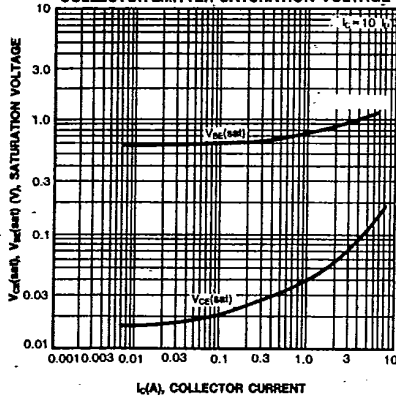
STATIC CHARACTERISTIC



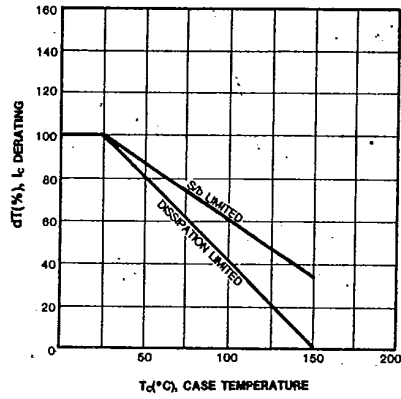
DC CURRENT GAIN



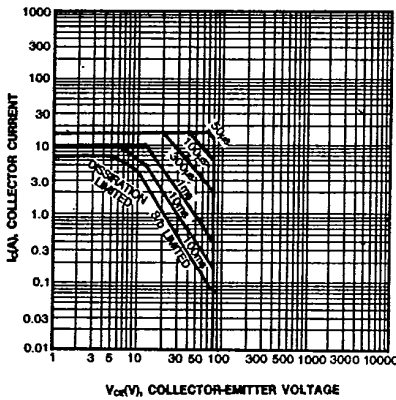
**BASE-EMITTER SATURATION VOLTAGE
COLLECTOR-EMITTER SATURATION VOLTAGE**



DERATING CURVE OF SAFE OPERATING AREAS



FORWARD BIAS SAFE OPERATING AREA



POWER DERATING

