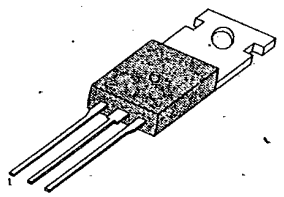
KSB546 PNP EPITAXIAL SILICON TRANSISTOR

T-33-19

TV VERTICAL DEFLECTION OUTPUT

- Complement to KSD401
- Collector-Base Voltage $V_{CBO} = -200V$
- Collector Current $I_C = -2A$
- Collector Dissipation $P_C = 25W$ ($T_C = 25°C$)

TO-220



1. Base 2. Collector 3. Emitter

3

ABSOLUTE MAXIMUM RATINGS ($T_a = 25°C$)

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	V_{CBO}	−200	V
Collector-Emitter Voltage	V_{CEO}	−150	V
Emitter-Base Voltage	V_{EBO}	−5	V
Collector Current	I_C	−2	A
Collector Dissipation ($T_C = 25°C$)	P_C	25	W
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	−55 ~ +150	°C

ELECTRICAL CHARACTERISTICS ($T_a = 25°C$)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	BV_{CBO}	$I_C = -500\mu A$, $I_E = 0$	−200			V
Collector-Emitter Breakdown Voltage	BV_{CEO}	$I_C = -10mA$, $I_B = 0$	−150			V
Emitter-Base Breakdown Voltage	BV_{EBO}	$I_E = -500\mu A$, $I_C = 0$	−5			V
Collector Cut-off Current	I_{CBO}	$V_{CB} = -150V$, $I_E = 0$			−50	μA
DC Current Gain	h_{FE}	$V_{CE} = -10V$, $I_C = -0.4A$	40		240	
Collector-Emitter Saturation Voltage	V_{CE} (sat)	$I_C = -500mA$, $I_B = -50mA$			−1	V
Current Gain-Bandwidth Product	f_T	$V_{CE} = -10V$, $I_C = -0.4A$		5		MHz

h_{FE} CLASSIFICATION

Classification	R	O	Y
h_{FE}	40-80	70-140	120-240

KSB546 PNP EPITAXIAL SILICON TRANSISTOR

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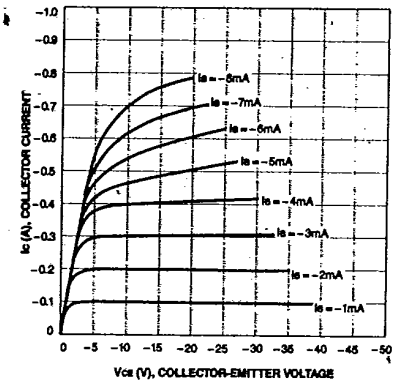
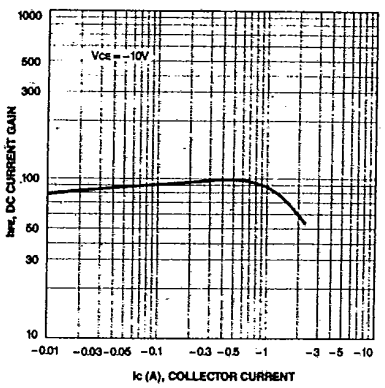
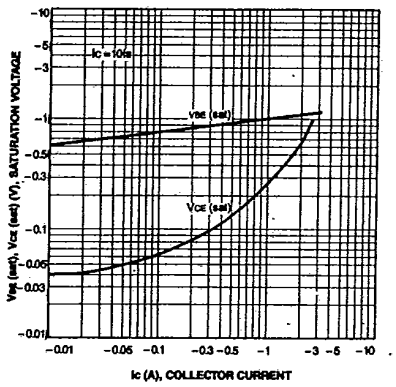
STATIC CHARACTERISTIC



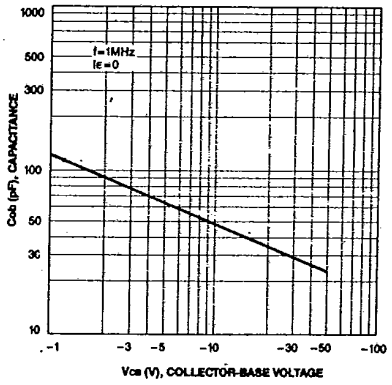
DC CURRENT GAIN



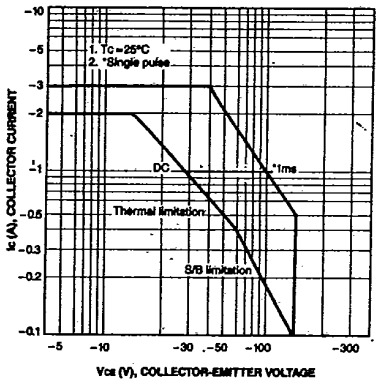
BASE-EMITTER SATURATION VOLTAGE
COLLECTOR-EMITTER SATURATION VOLTAGE



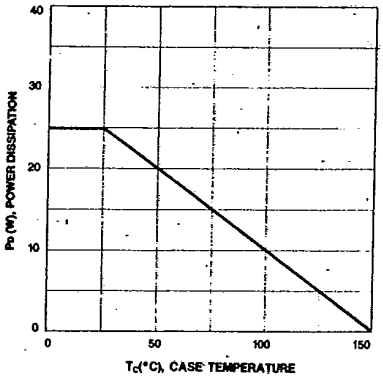
COLLECTOR OUTPUT CAPACITANCE



SAFE OPERATING AREA



POWER DERATING



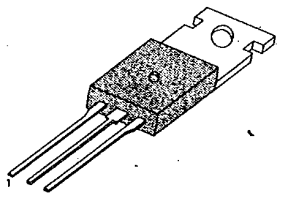
KSB596 PNP EXITAXIAL SILICON TRANSISTOR

T-33-19

POWER AMPLIFIER APPLICATIONS

- Complement to KSD526

TO-220



1. Base 2. Collector 3. Emitter

3

ABSOLUTE MAXIMUM RATINGS (T_a=25°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	I_C	−4	A
Base Current	I_B	−0.4	A
Collector Dissipation (T_c=25°C)	P_C	30	W
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	−55~150	°C

ELECTRICAL CHARACTERISTICS (T_a=25°C)

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Collector Cutoff Current	I_{CBO}	V_{CB}=−80V, I_E=0			−70	μA
Emitter Cutoff Current	I_{EBO}	V_{EB}=−5V, I_C=0			−100	μA
Collector-Emitter Breakdown Voltage	BV_{CEO}	I_C=−50mA, I_B=0	−80			V
Emitter-Base Breakdown Voltage	BV_{EBO}	I_E=−10mA, I_C=0	−5			V
DC Current Gain	h_{FE1}	V_{CE}=−5V, I_C=−0.5A	40		240	
	h_{FE2}	V_{CE}=−5V, I_C=−3A	15			
Collector-Emitter Saturation Voltage	V_{CE} (sat)	I_C=−3A, I_B=−0.3A		−1	−1.7	V
Base-Emitter On Voltage	V_{BE} (on)	V_{CE}=−5V, I_C=−3A		−1	−1.5	V
Current Gain-Bandwidth Product	f_T	V_{CE}=−5V, I_C=−0.5A	3			MHz
Collector Output Capacitance	Cob	V_{CB}=−10V, I_E=0 f=1MHz		130		pF

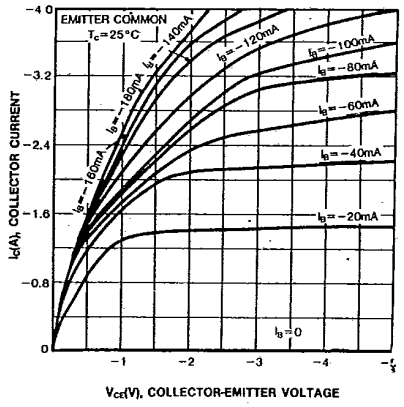
h_{FE}(1) CLASSIFICATION

Classification	R	O	Y
h_{FE}(1)	40-80	70-140	120-240

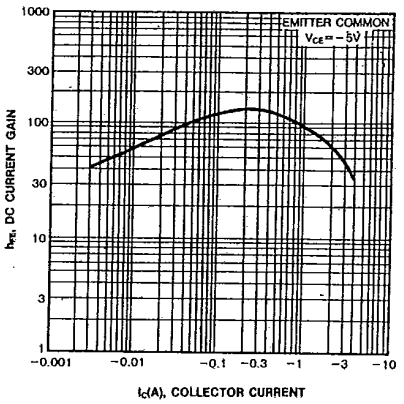
KSB596 PNP EXITAXIAL SILICON TRANSISTOR

T-33-19

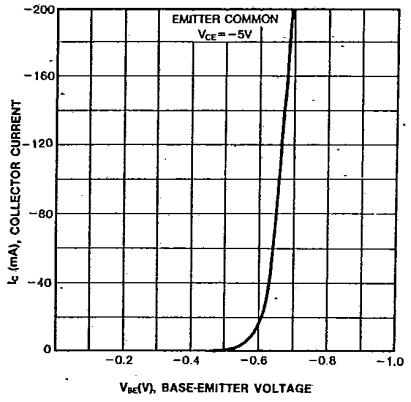
STATIC CHARACTERISTIC



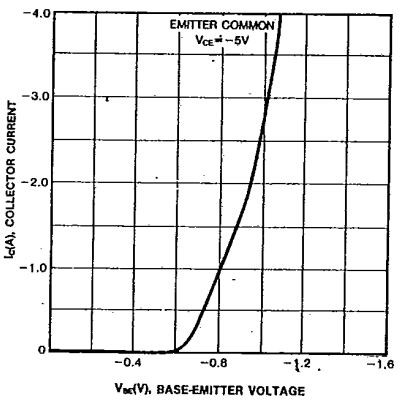
DC CURRENT GAIN



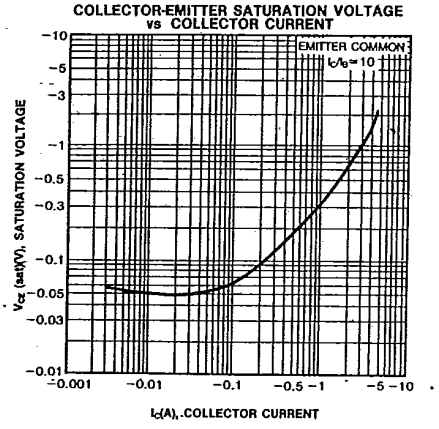
BASE-EMITTER ON VOLTAGE



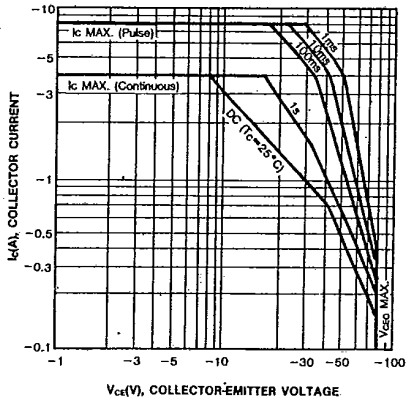
BASE-EMITTER VOLTAGE vs COLLECTOR CURRENT



COLLECTOR-EMITTER SATURATION VOLTAGE vs COLLECTOR CURRENT



SAFE OPERATION AREA



KSB596 PNP EXITAXIAL SILICON TRANSISTOR

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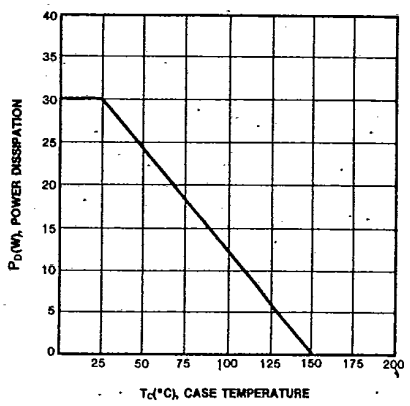
POWER DERATING



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KSB601

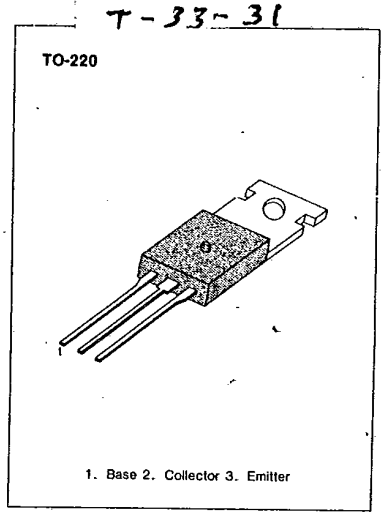
PNP EPITAXIAL SILICON DARLINGTON TRANSISTOR

SAMSUNG SEMICONDUCTOR INC

T-33-31

LOW FREQUENCY POWER AMPLIFIER
MEDIUM SPEED SWITCHING
INDUSTRIAL USE

- Complement to KSD560



ABSOLUTE MAXIMUM RATINGS (T_a=25°C)

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	V_{CBO}	−100	V
Collector-Emitter Voltage	V_{CEO}	−100	V
Emitter-Base Voltage	V_{EBO}	−7	V
Collector Current (DC)	I_C	−5	A
*Collector Current (Pulse)	I_C	−8	A
Base Current (DC)	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	Tj	150	°C
Storage Temperature	Tstg	−55~150	°C

* PW≤10ms, Duty Cycle ≤50%

ELECTRICAL CHARACTERISTICS (T_a=25°C)

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Collector Emitter Sustaining Voltage	V_{CEO} (sus)	I_C=−3A, I_{B1}=−3mA, L=1mH	−100			V
Collector Emitter Sustaining Voltage	V_{CEX} (sus)1	I_C=−3A, I_{B1}=−I_{B2}=−3mA, V_{BE} (off)=5V, L=180μH Clamped	−100			V
Collector Emitter Sustaining Voltage	V_{CEX} (sus)2	I_C=−6A, I_{B1}=−12mA, I_{B2}=3mA, V_{BE} (off)=5V L=180μH, Clamped	−100			V
Collector Cutoff Current	I_{CBO}	V_{CB}=−100V, I_E=0			−10	μA
Collector Cutoff Current	I_{CER}	V_{CE}=−100V, R_{BE}=51Ω T_a=125°C			−1	mA
Collector Cutoff Current	I_{CEX}1	V_{CE}=−100V, V_{BE} (off)=1.5V			−10	μA
Collector Cutoff Current	I_{CEX}2	V_{CE}=−100V, V_{BE}(off)=1.5V T_a=125°C			−1	mA
Emitter Cutoff Current	I_{EBO}	V_{EB}=−5V, I_C=0			−3	mA
*DC Current Gain	h_{FE1}	V_{CE}=−2V, I_C=−3A	2000		15000	
	h_{FE2}	V_{CE}=−2V, I_C=−5A	500			
*Collector-Emitter Saturation Voltage	V_{CE} (sat)	I_C=−3A, I_B=−3mA			−1.5	V
*Base-Emitter Saturation Voltage	V_{BE} (sat)	I_C=−3A, I_B=−3mA			−2	V
Turn On Time	ton	I_c = −3A, RL=17Ω		0.5		μs
Storage Time	ts	I_{B1}=−I_{B2}=−3mA		1		μs
Fall time	tf	V_{CC}≅−50V		1		μs

*Pulse Test: PW≤350μs, Duty Cycle≤2%

h_{FE}(1) CLASSIFICATION

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

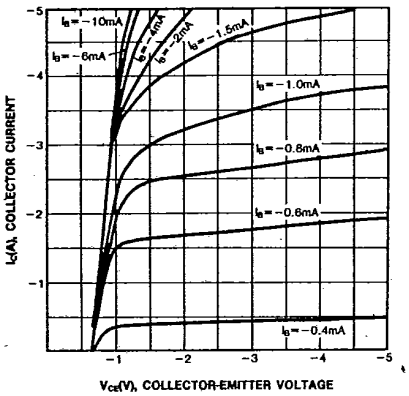
KSB601

PNP EPITAXIAL SILICON DARLINGTON TRANSISTOR

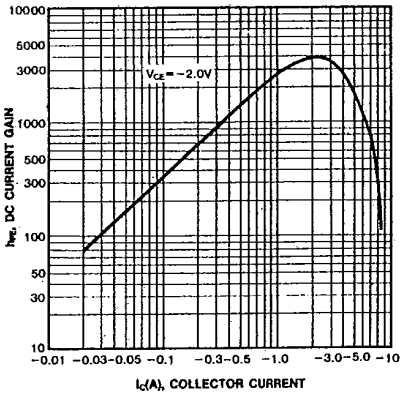
SAMSUNG SEMICONDUCTOR INC

T-33.31

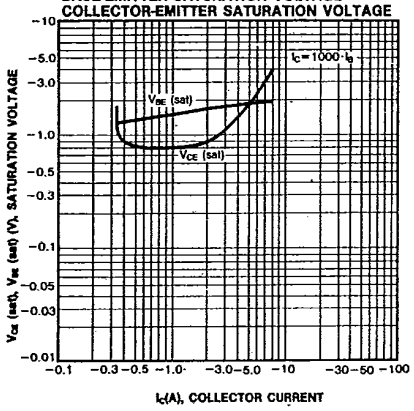
STATIC CHARACTERISTIC



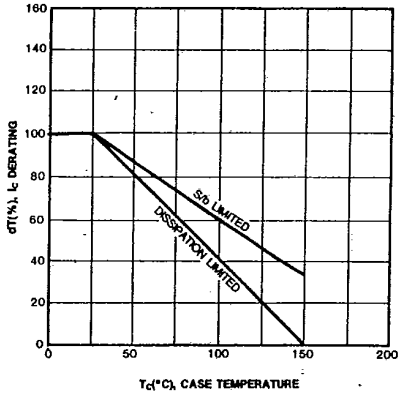
DC CURRENT GAIN



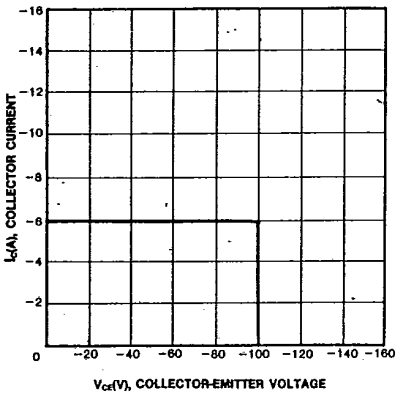
BASE-EMITTER SATURATION VOLTAGE
COLLECTOR-EMITTER SATURATION VOLTAGE



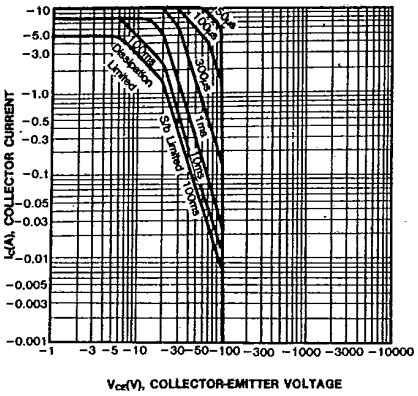
DERATING CURVE OF SAFE OPERATING AREAS



REVERSE BIAS SAFE OPERATING AREAS



SAFE OPERATING AREA



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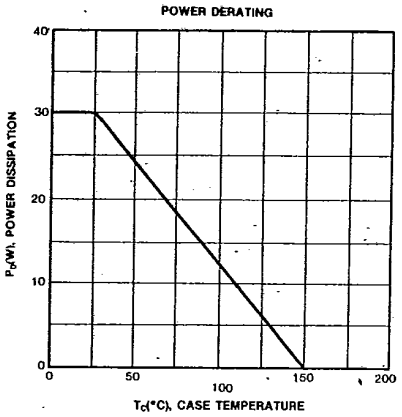
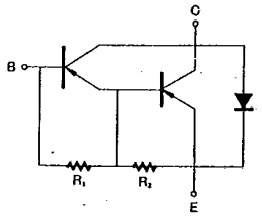
PNP EPITAXIAL SILICON DARLINGTON TRANSISTOR

T-33-31





$R_1 \approx 3k\Omega$
$R_2 \approx 300\Omega$