

KSB601

Low Frequency Power Amplifier

- Medium Speed Switching Industrial Use
- Complement to KSD560



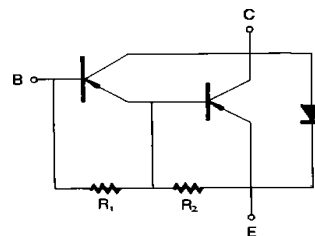
TO-220
1.Base 2.Collector 3.Emitter

PNP Epitaxial Silicon Darlington Transistor

Absolute Maximum Ratings $T_C=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	- 100	V
V_{CEO}	Collector-Emitter Voltage	- 100	V
V_{EBO}	Emitter-Base Voltage	- 7	V
I_C	Collector Current (DC)	- 5	A
I_{CP}	*Collector Current (Pulse)	- 8	A
I_B	Base Current	- 0.5	A
P_C	Collector Dissipation ($T_a=25^\circ\text{C}$)	1.5	W
P_C	Collector Dissipation ($T_C=25^\circ\text{C}$)	30	W
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{STG}	Storage Temperature	- 55 ~ 150	$^\circ\text{C}$

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



$R_1=3\text{k}\Omega$
 $R_2=300\Omega$

Electrical Characteristics $T_C=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
$V_{CEO(sus)}$	Collector-Emitter Sustaining Voltage	$I_C = -3A, I_{B1} = -3mA,$ $L = 1mH$	- 100			V
$V_{CEX(sus)1}$	Collector-Emitter Sustaining Voltage	$I_C = -3A, I_{B1} = -I_{B2} = -3mA$ $V_{BE(off)} = 5V, L = 180\mu H$ Clamped	- 100			V
$V_{CEX(sus)2}$	Collector-Emitter Sustaining Voltage	$I_C = -6A, I_{B1} = -12mA$ $I_{B2} = 3mA, V_{BE(off)} = 5V$ $L = 180\mu H, \text{Clamped}$	- 100			V
I_{CBO}	Collector Cut-off Current	$V_{CB} = -100V, I_E = 0$			-10	μA
I_{CER}	Collector Cut-off Current	$V_{CE} = -100V, R_{BE} = 51\Omega$ $T_C = 125^\circ C$			-1	mA
I_{CEX1}	Collector Cut-off Current	$V_{CE} = -100V, V_{BE(off)} = 1.5V$			-10	μA
I_{CEX2}	Collector Cut-off Current	$V_{CE} = -100V, V_{BE(off)} = 1.5V$ $T_C = 125^\circ C$			-1	mA
I_{EBO}	Emitter Cut-off Current	$V_{EB} = -5V, I_C = 0$			-3	mA
h_{FE1} h_{FE2}	*DC Current Gain	$V_{CE} = -2V, I_C = -3A$ $V_{CE} = -2V, I_C = -5A$	2000 500		15000	
$V_{CE(sat)}$	* Collector-Emitter Saturation Voltage	$I_C = -3A, I_B = -3mA$			-1.5	V
$V_{BE(sat)}$	* Base-Emitter Saturation Voltage	$I_C = -3A, I_B = -3mA$			-2	V
t_{ON}	Turn ON Time	$V_{CC} = -50V, I_C = -3A$ $I_{B1} = -I_{B2} = -3mA$ $R_L = 17\Omega$		0.5		μs
t_S	Storage			1		μs
t_F	Fall time			1		μs

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

Classification	R	O	Y
h_{FE1}	2000 ~ 5000	3000 ~ 7000	5000 ~ 15000

Typical Characteristics

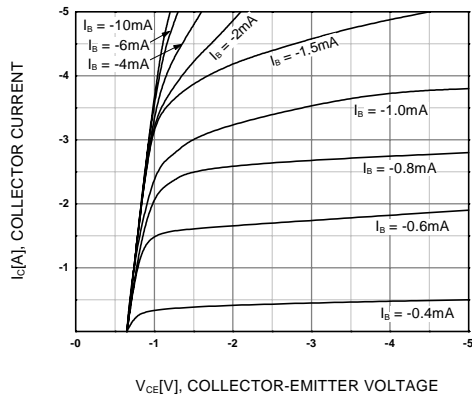


Figure 1. Static Characteristic

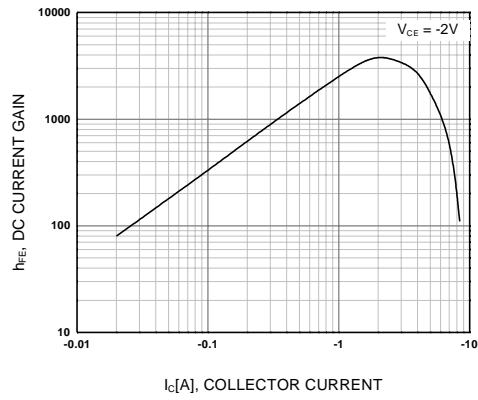


Figure 2. DC current Gain

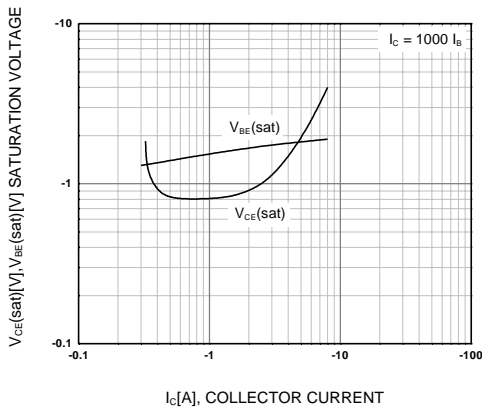


Figure 3. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

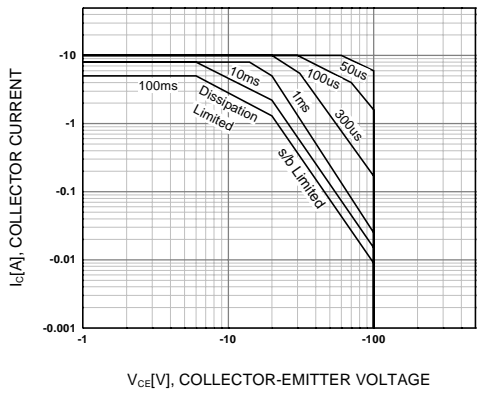


Figure 4. Safe Operating Area

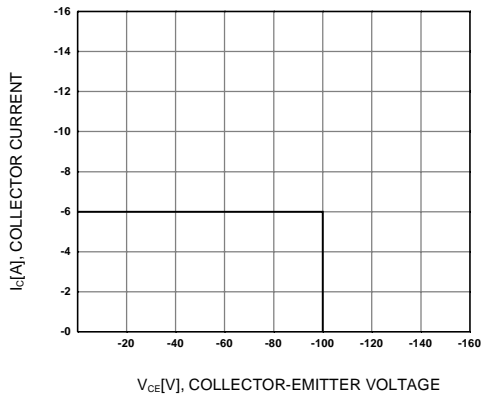


Figure 5. Reverse Bias Safe Operating Areas

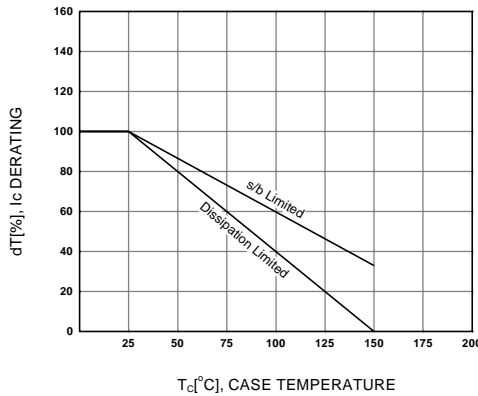


Figure 6. Derating Curve of Safe Operating Areas

Typical Characteristics (Continued)

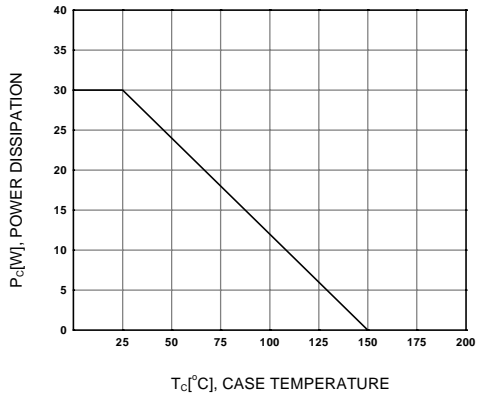
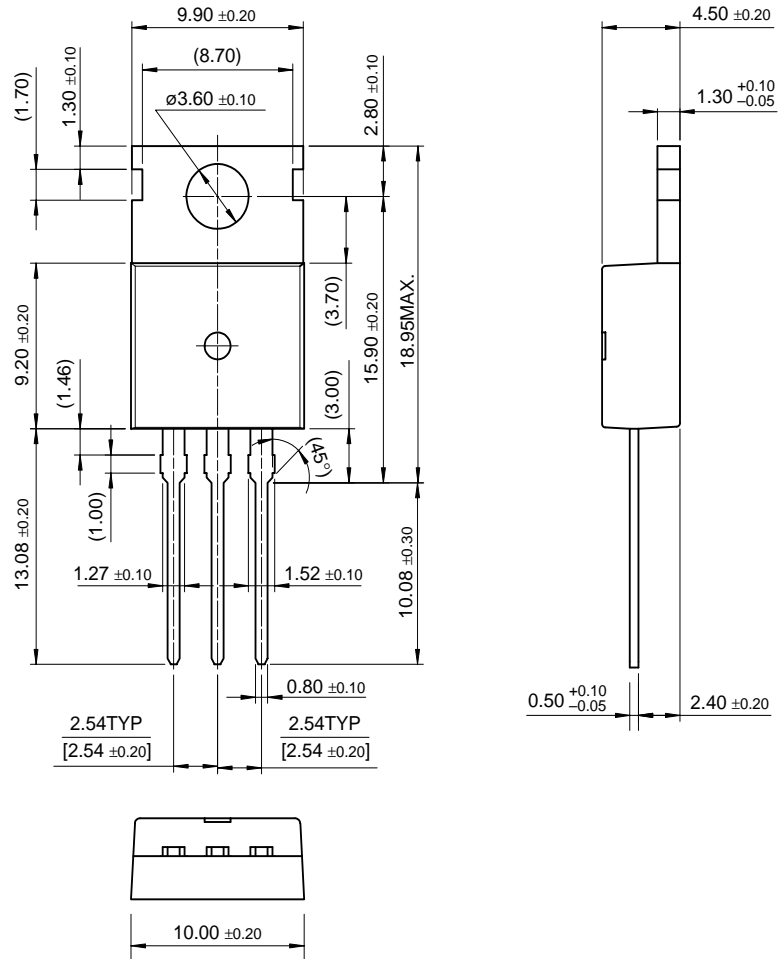


Figure 7. Power Derating

Package Dimensions

KSB601

TO-220



Dimensions in Millimeters

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