

## KSB601

### Low Frequency Power Amplifier

- Medium Speed Switching Industrial Use
- Complement to KSD560



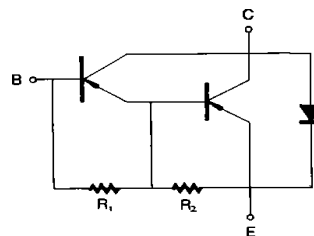
TO-220  
1.Base 2.Collector 3.Emitter

### 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	$\mu A$
$I_{CER}$	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	$\mu A$
$I_{CEX2}$	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		$\mu s$
$t_S$	Storage			1		$\mu s$
$t_F$	Fall time			1		$\mu s$

\* 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

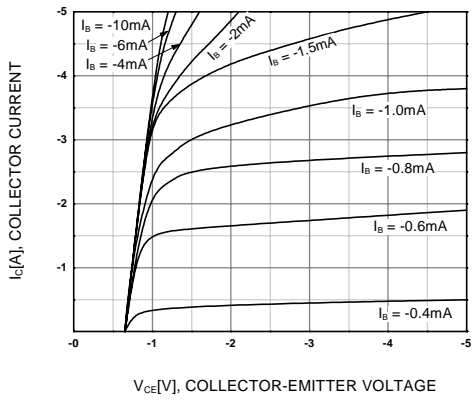


Figure 1. Static Characteristic

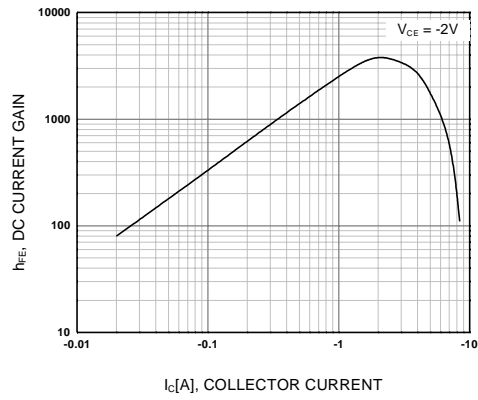


Figure 2. DC current Gain

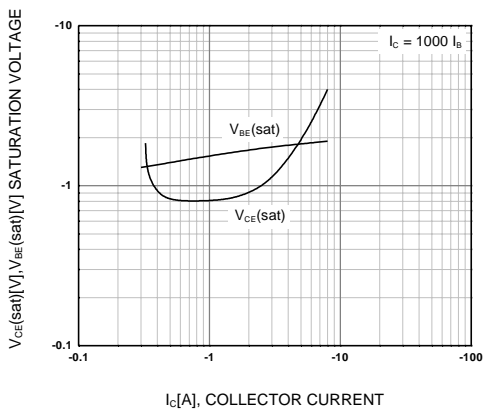


Figure 3. Base-Emitter Saturation Voltage  
Collector-Emmitter Saturation Voltage

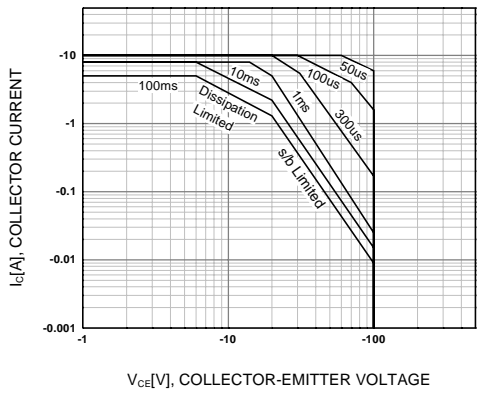


Figure 4. Safe Operating Area

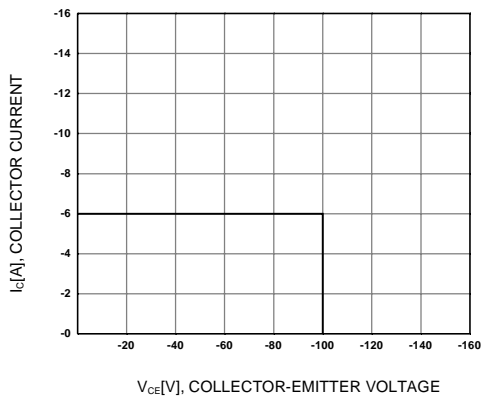


Figure 5. Reverse Bias Safe Operating Areas

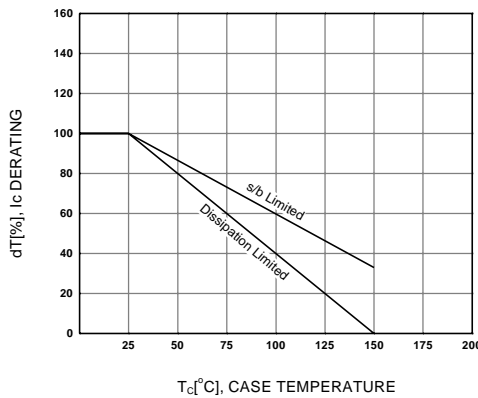


Figure 6. Derating Curve of Safe Operating Areas

# Typical Characteristics (Continued)

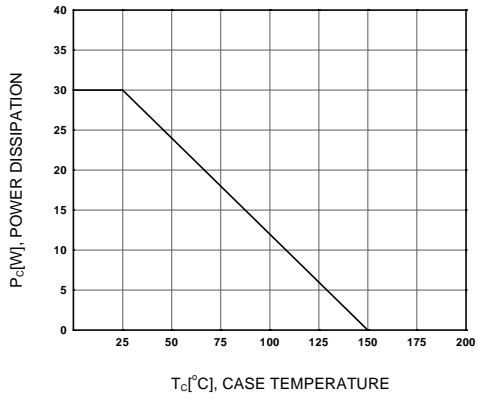
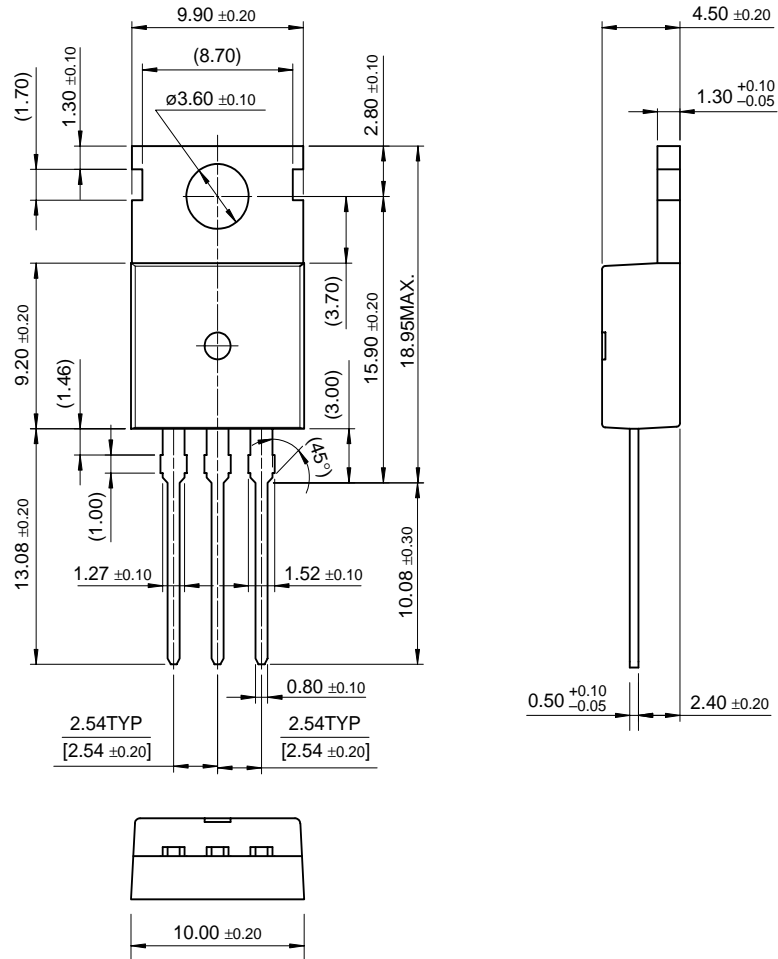


Figure 7. Power Derating

# Package Dimensions

KSB601

## TO-220



Dimensions in Millimeters

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E <sup>2</sup> CMOS™	PowerTrench®	VCX™
FACT™	QFET™	
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FAST®	Quiet Series™	
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