

## KSB601

### Low Frequency Power Amplifier

- Medium Speed Switching Industrial Use
- Complement to KSD560



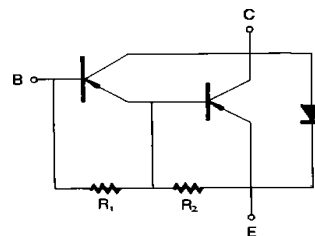
TO-220  
1.Base 2.Collector 3.Emitter

### 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

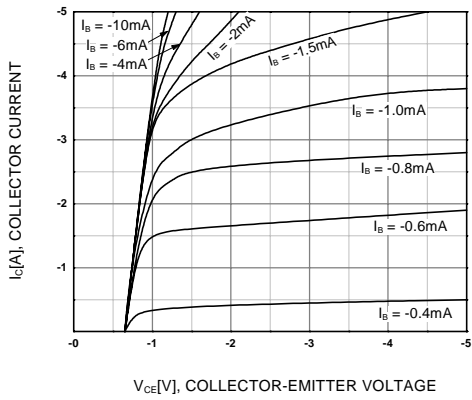


Figure 1. Static Characteristic

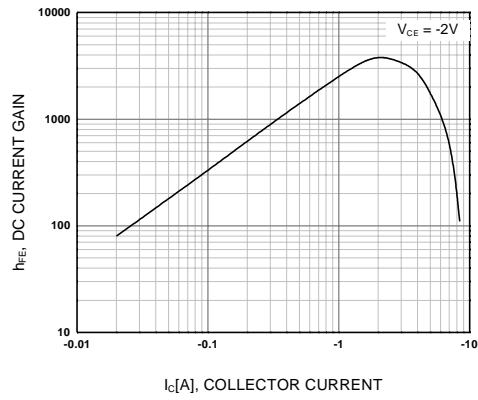


Figure 2. DC current Gain

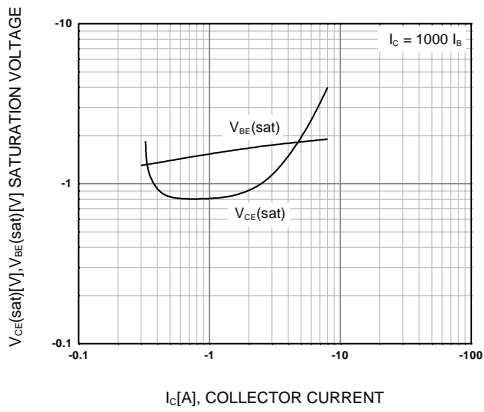


Figure 3. Base-Emitter Saturation Voltage Collector-Emitter Saturation Voltage

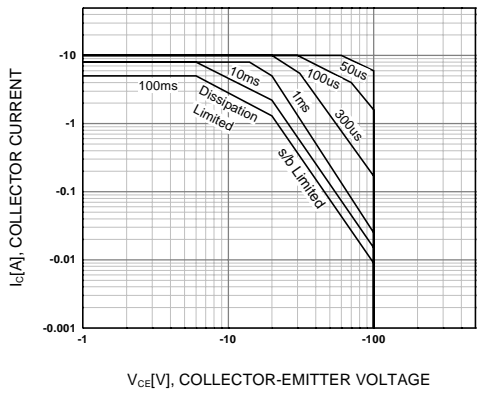


Figure 4. Safe Operating Area

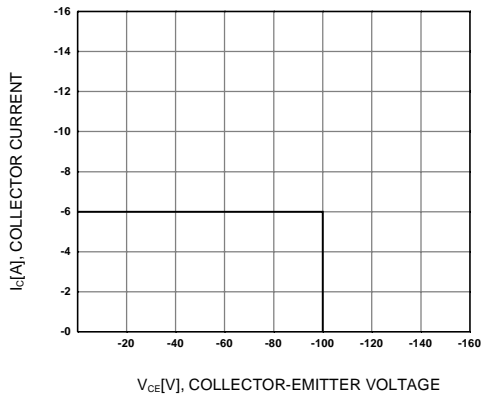


Figure 5. Reverse Bias Safe Operating Areas

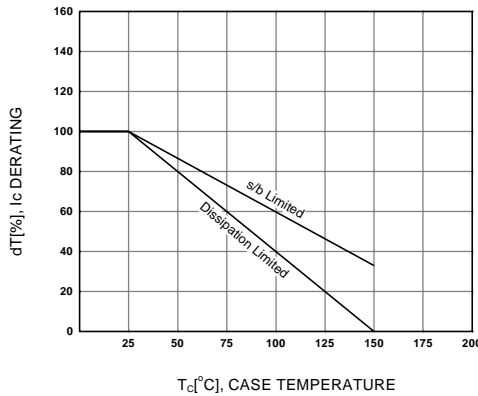


Figure 6. Derating Curve of Safe Operating Areas

# Typical Characteristics (Continued)

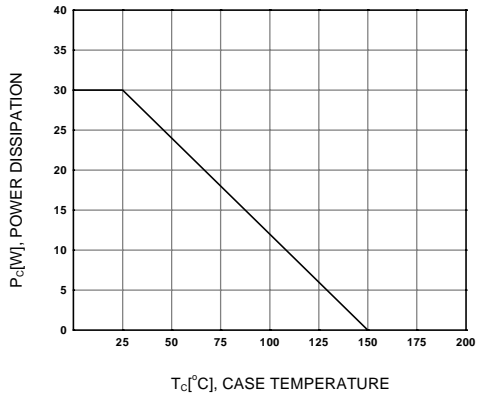
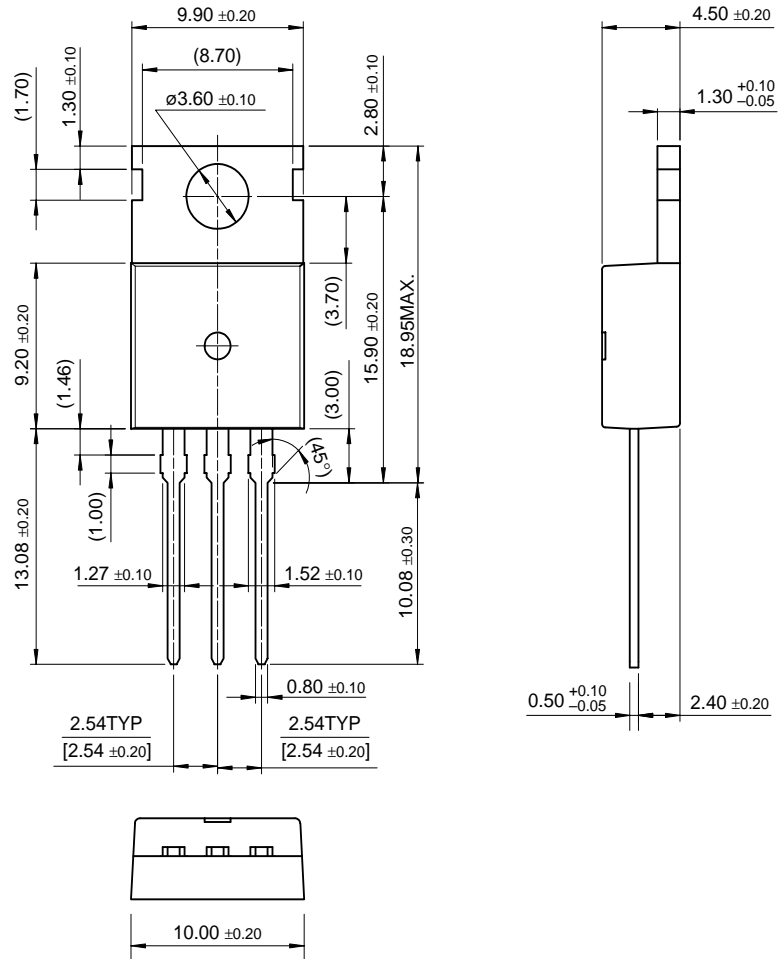


Figure 7. Power Derating

# Package Dimensions

KSB601

## TO-220



Dimensions in Millimeters

## TRADEMARKS

The following are registered and unregistered trademarks Fairchild Semiconductor owns or is authorized to use and is not intended to be an exhaustive list of all such trademarks.

ACEx™	HiSeC™	SuperSOT™-8
Bottomless™	ISOPLANAR™	SyncFET™
CoolFET™	MICROWIRE™	TinyLogic™
CROSSVOLT™	POP™	UHC™
E <sup>2</sup> CMOS™	PowerTrench®	VCX™
FACT™	QFET™	
FACT Quiet Series™	QS™	
FAST®	Quiet Series™	
FASTr™	SuperSOT™-3	
GTO™	SuperSOT™-6	

## DISCLAIMER

FAIRCHILD SEMICONDUCTOR RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION OR DESIGN. FAIRCHILD DOES NOT ASSUME ANY LIABILITY ARISING OUT OF THE APPLICATION OR USE OF ANY PRODUCT OR CIRCUIT DESCRIBED HEREIN; NEITHER DOES IT CONVEY ANY LICENSE UNDER ITS PATENT RIGHTS, NOR THE RIGHTS OF OTHERS.

## LIFE SUPPORT POLICY

FAIRCHILD'S PRODUCTS ARE NOT AUTHORIZED FOR USE AS CRITICAL COMPONENTS IN LIFE SUPPORT DEVICES OR SYSTEMS WITHOUT THE EXPRESS WRITTEN APPROVAL OF FAIRCHILD SEMICONDUCTOR INTERNATIONAL.

As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, or (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in significant injury to the user.
2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

## PRODUCT STATUS DEFINITIONS

### Definition of Terms

Datasheet Identification	Product Status	Definition
Advance Information	Formative or In Design	This datasheet contains the design specifications for product development. Specifications may change in any manner without notice.
Preliminary	First Production	This datasheet contains preliminary data, and supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
No Identification Needed	Full Production	This datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design.
Obsolete	Not In Production	This datasheet contains specifications on a product that has been discontinued by Fairchild semiconductor. The datasheet is printed for reference information only.

Fairchild Semiconductor

SEARCH | [Parametric](#) | [Cross Reference](#)

space

Product Folders and

Applies

find products

[Home](#) >> [Find products](#) >>

- [Products groups](#)
- [Analog and Mixed](#)
- [Signal](#)
- [Discrete](#)
- [Interface](#)
- [Logic](#)
- [Microcontrollers](#)
- [Non-Volatile](#)
- [Memory](#)
- [Optoelectronics](#)
- [Markets and applications](#)
- [New products](#)
- [Product selection and parametric search](#)
- [Cross-reference search](#)

KSB601  
PNP Epitaxial Silicon Darlington Transistor

Contents  
[Features](#) | [Applications](#) | [Product status/pricing/packaging](#)

Features

- Medium Speed Switching Industrial Use
- Complement to KSD560

[back to top](#)

Applications

**Low Frequency Power Amplifier**

[back to top](#)

Product status/pricing/packaging

Datasheet  
[Download this datasheet](#)

PDF

[e-mail this datasheet](#)

[E-]

This page  
[Print version](#)

Related Links

[Request samples](#)

[How to order products](#)

[Product Change Notices \(PCNs\)](#)

[Support](#)

[Distributor and field sales representatives](#)

[Quality and reliability](#)

[Design tools](#)

technical information

buy products

technical support

my Fairchild

company

Product	Product status	Pricing*	Package type	Leads	Packing method
KSB601YTSTU	Full Production	\$0.425	TO-220	3	RAIL
KSB601Y	Full Production	\$0.425	TO-220	3	BULK
KSB601O	Full Production	\$0.425	TO-220	3	BULK
KSB601R	Full Production	\$0.425	TO-220	3	BULK
KSB601OTU	Full Production	\$0.425	TO-220	3	RAIL
KSB601YTU	Full Production	\$0.425	TO-220	3	RAIL

\* 1,000 piece Budgetary Pricing

[back to top](#)

[Home](#) | [Find products](#) | [Technical information](#) | [Buy products](#) |  
[Support](#) | [Company](#) | [Contact us](#) | [Site index](#) | [Privacy policy](#)

---

[© Copyright 2002 Fairchild Semiconductor](#)

---