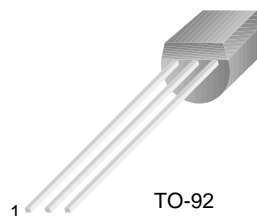


# KSB1116S

KSB1116S

## Audio Frequency Power Amplifier & Medium Speed Switching



TO-92  
1. Emitter 2. Base 3. Collector

## PNP Epitaxial Silicon Transistor

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

Symbol	Parameter	Ratings	Units
$V_{CBO}$	Collector-Base Voltage	-60	V
$V_{CEO}$	Collector-Emitter Voltage	-50	V
$V_{EBO}$	Emitter-Base Voltage	-6	V
$I_C$	Collector Current (DC)	-1	A
$I_{CP}$	* Collector Current (Pulse)	-2	A
$P_C$	Collector Power Dissipation	0.75	W
$T_J$	Junction Temperature	150	$^\circ\text{C}$
$T_{STG}$	Storage Temperature	-55 ~ 150	$^\circ\text{C}$

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

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

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
$I_{CBO}$	Collector Cut-off Current	$V_{CB} = -60\text{V}$ , $I_E = 0$			-100	nA
$I_{EBO}$	Emitter Cut-off Current	$V_{EB} = -6\text{V}$ , $I_C = 0$			-100	nA
$h_{FE1}$ $h_{FE2}$	* DC Current Gain	$V_{CE} = -2\text{V}$ , $I_C = -100\text{mA}$ $V_{CE} = -2\text{V}$ , $I_C = -1\text{A}$	135 81		600	
$V_{BE(on)}$	* Base-Emitter On Voltage	$V_{CE} = -2\text{V}$ , $I_C = -50\text{mA}$	-600	-650	-700	mV
$V_{CE(sat)}$	* Collector-Emitter Saturation Voltage	$I_C = -1\text{A}$ , $I_B = -50\text{mA}$		-0.2	-0.3	V
$V_{BE(sat)}$	* Base-Emitter Saturation Voltage	$I_C = -1\text{A}$ , $I_B = -50\text{mA}$		-0.9	-1.2	V
$C_{ob}$	Output Capacitance	$V_{CB} = -10\text{V}$ , $I_E = 0$ , $f = 1\text{MHz}$		25		pF
$f_T$	Current Gain Bandwidth Product	$V_{CE} = -2\text{V}$ , $I_C = -100\text{mA}$	70	120		MHz
$t_{ON}$	Turn On Time	$V_{CC} = -10\text{V}$ , $I_C = -100\text{mA}$		0.07		$\mu\text{s}$
$t_{STG}$	Storage Time	$I_{B1} = -I_{B2} = -10\text{mA}$		0.7		$\mu\text{s}$
$t_F$	Fall Time	$V_{BE(off)} = 2 \sim 3\text{V}$		0.07		$\mu\text{s}$

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

### $h_{FE}$ Classification

Classification	Y	G	L
$h_{FE1}$	135 ~ 270	200 ~ 400	300 ~ 600

# Typical Characteristics

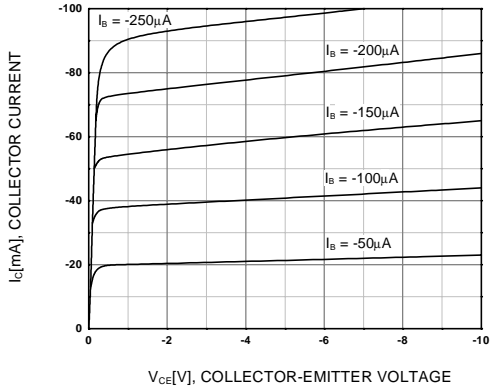


Figure 1. Static Characteristic

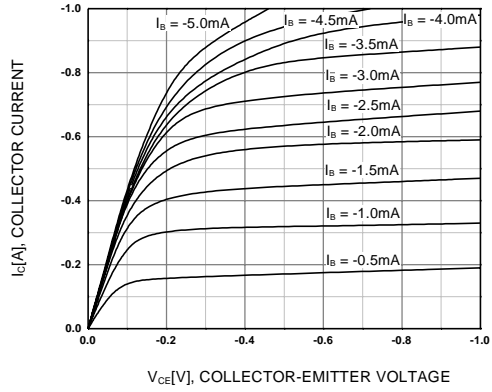


Figure 2. Static Characteristic

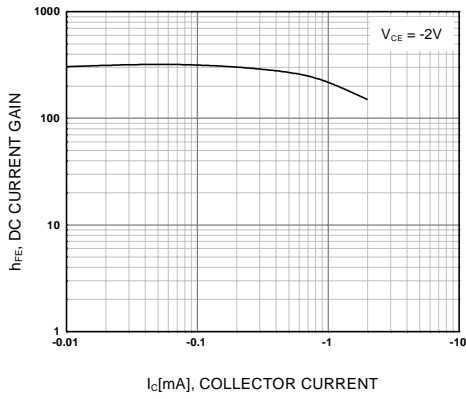


Figure 3. DC current Gain

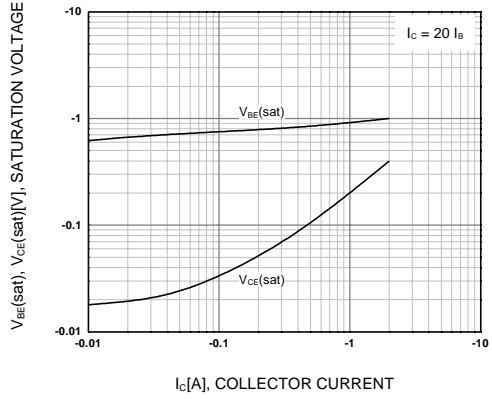


Figure 4. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

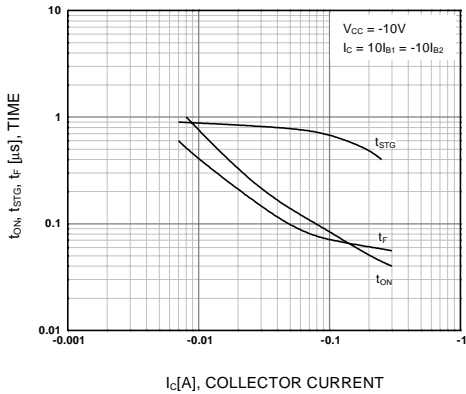


Figure 5. Switching Time

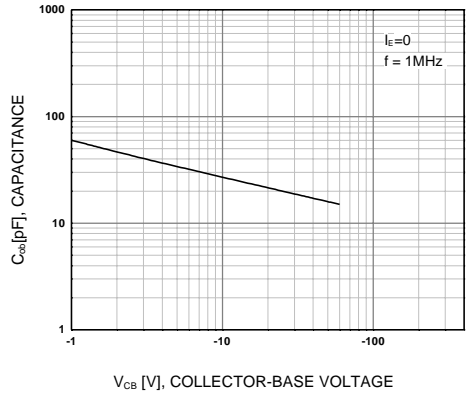


Figure 6. Collector Output Capacitance

Typical Characteristics (Continued)

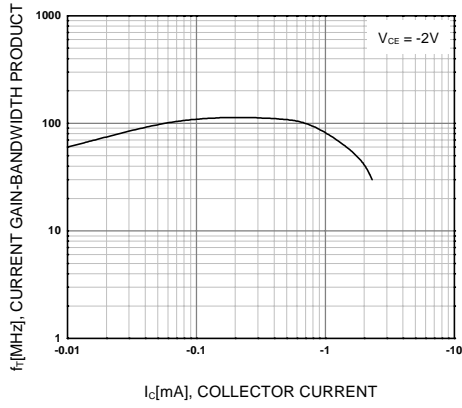


Figure 7. Current Gain Bandwidth Product

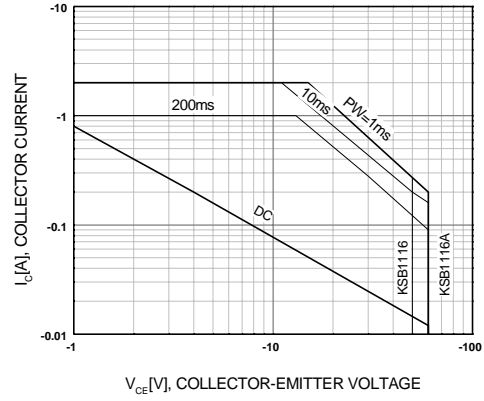


Figure 8. Safe Operating Area

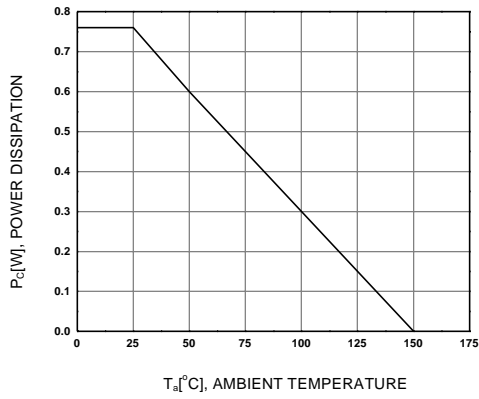


Figure 9. Power Derating

# Package Dimensions

KSB1116S

## TO-92



Dimensions in Millimeters

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CoolFET <sup>™</sup>	FAST <sup>™</sup>	MicroFET <sup>™</sup>	PowerTrench <sup>®</sup>	SuperSOT <sup>™</sup> -6
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