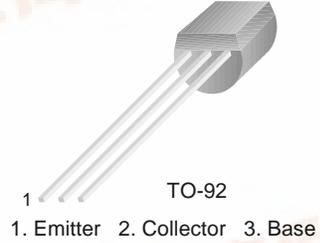


**FAIRCHILD**  
SEMICONDUCTOR®

## KSB1116/1116A

### Audio Frequency Power Amplifier & Medium Speed Switching

- Complement to KSD1616/1616A



### PNP Epitaxial Silicon Transistor

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

Symbol	Parameter	Ratings	Units	
$V_{CB0}$	Collector-Base Voltage	: KSB1116	-60	V
		: KSB1116A	-80	V
$V_{CEO}$	Collector-Emitter Voltage	: KSB1116	-50	V
		: KSB1116A	-60	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	
$h_{FE1}$	* DC Current Gain : KSB1116 : KSB1116A	$V_{CE} = -2\text{V}$ , $I_C = -100\text{mA}$	135		600		
$h_{FE2}$			135		400		
$h_{FE2}$		$V_{CE} = -2\text{V}$ , $I_C = -1\text{A}$	81				
$V_{BE}(\text{on})$	* Base-Emitter On Voltage	$V_{CE} = -2\text{V}$ , $I_C = -50\text{mA}$	-600	-650	-700	mV	
$V_{CE}(\text{sat})$	* Collector-Emitter Saturation Voltage	$I_C = -1\text{A}$ , $I_B = -50\text{mA}$		-0.2	-0.3	V	
$V_{BE}(\text{sat})$	* 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	$V_{CC} = -10\text{V}$ , $I_C = -100\text{mA}$ $I_{B1} = -I_{B2} = -10\text{mA}$ $V_{BE}(\text{off}) = 2\sim 3\text{V}$		0.07		$\mu\text{s}$	
$t_{STG}$	Storage Time				0.7		$\mu\text{s}$
$t_F$	Fall Time				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

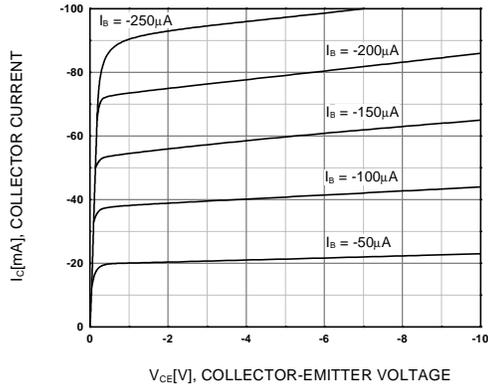


Figure 1. Static Characteristic

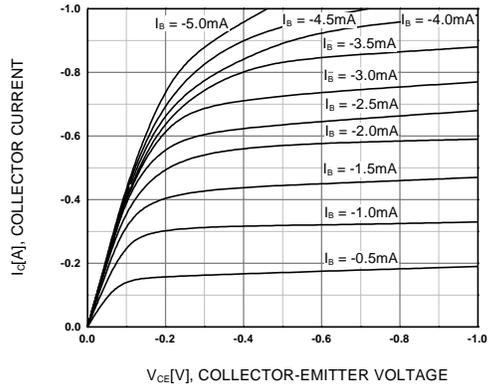


Figure 2. Static Characteristic

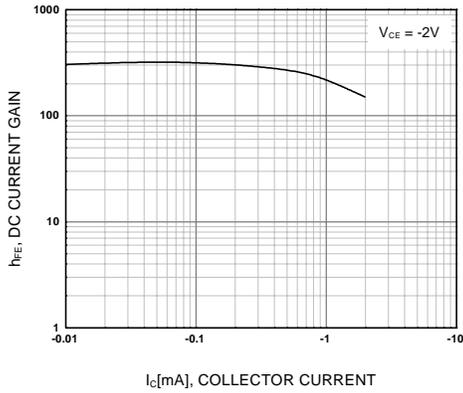


Figure 3. DC current Gain

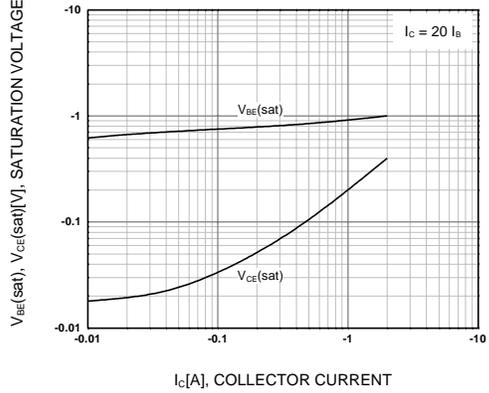


Figure 4. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

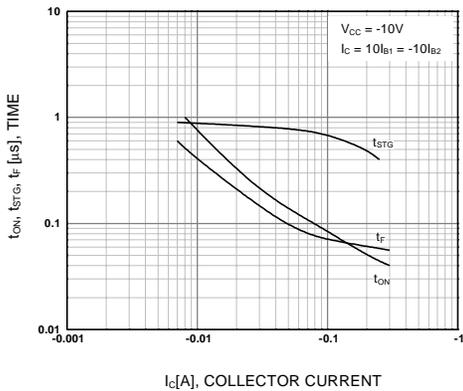


Figure 5. Switching Time

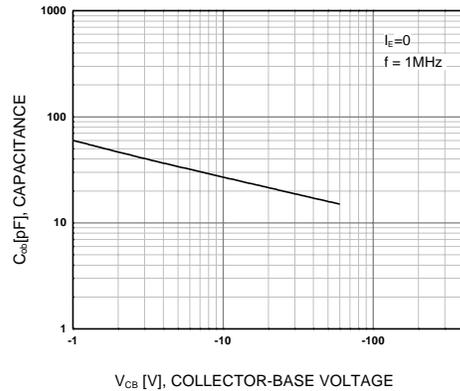


Figure 6. Collector Output Capacitance

Typical Characteristics (Continued)

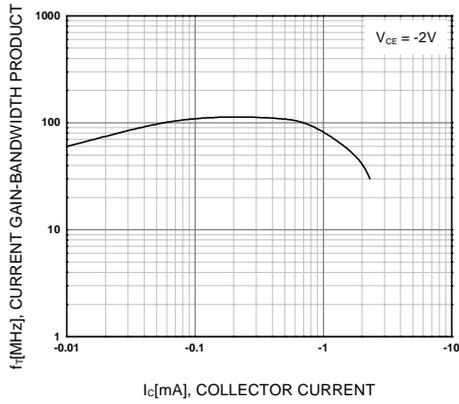


Figure 7. Current Gain Bandwidth Product

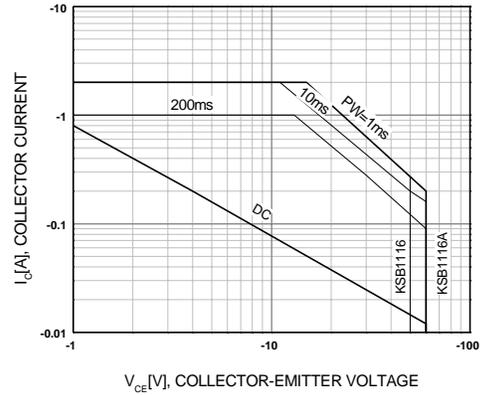


Figure 8. Safe Operating Area

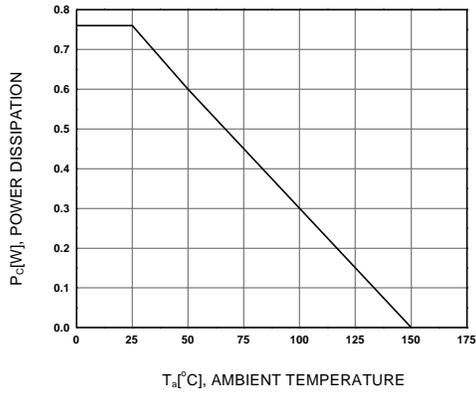
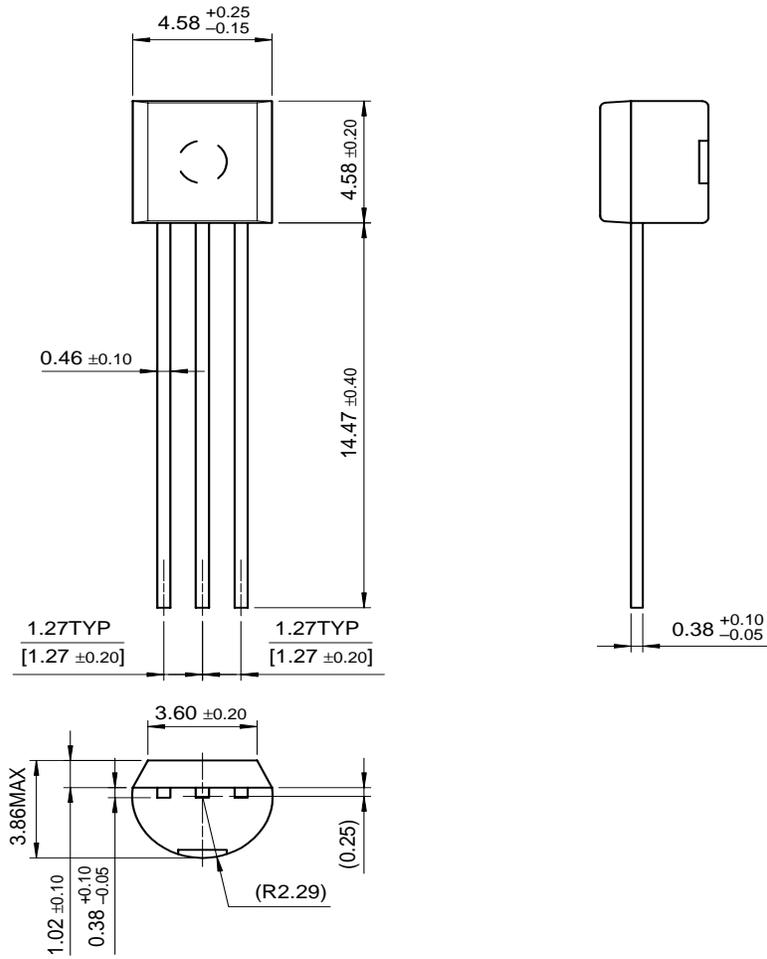


Figure 9. Power Derating

# Package Dimensions

## TO-92

KSB116/116A



Dimensions in Millimeters

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DenseTrench <sup>TM</sup>	GTO <sup>TM</sup>	Power247 <sup>TM</sup>	SuperSOT <sup>TM</sup> -6	
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FACT <sup>TM</sup>	MicroPak <sup>TM</sup>	Quiet Series <sup>TM</sup>	UHC <sup>TM</sup>	
FACT Quiet Series <sup>TM</sup>	MICROWIRE <sup>TM</sup>	SLIENT SWITCHER <sup>®</sup>	UltraFET <sup>®</sup>	

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