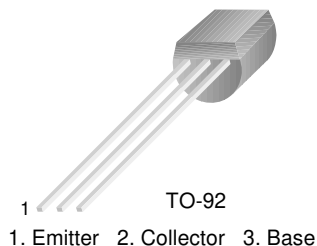


KSB1116/1116A

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_{CBO}	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	
		$V_{CE} = -2\text{V}$, $I_C = -1\text{A}$	81			
$V_{BE(ON)}$	* 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	$V_{CC} = -10\text{V}$, $I_C = -100\text{mA}$ $I_{B1} = -I_{B2} = -10\text{mA}$ $V_{BE(off)} = 2 \sim 3\text{V}$		0.07		μs
t_{STG}	Storage Time			0.7		μs
t_F	Fall Time			0.07		μs

* 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

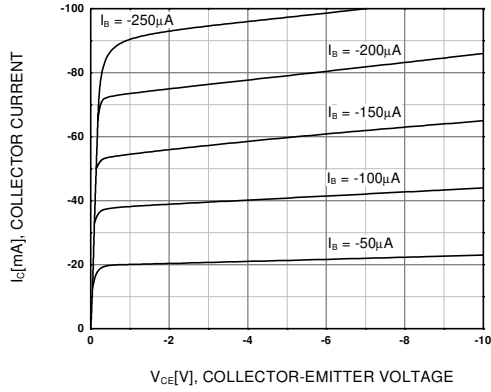


Figure 1. Static Characteristic

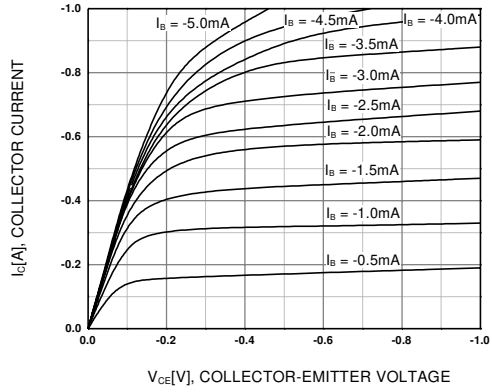


Figure 2. Static Characteristic

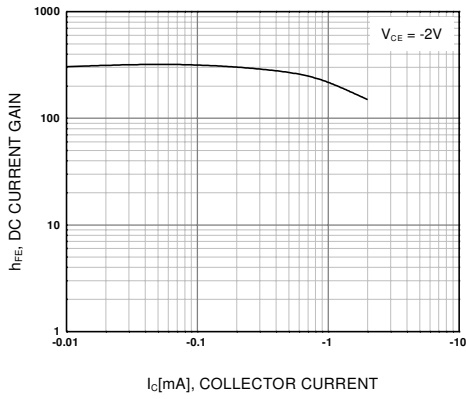


Figure 3. DC current Gain

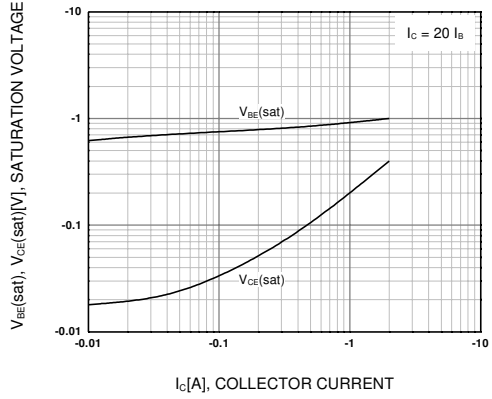


Figure 4. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

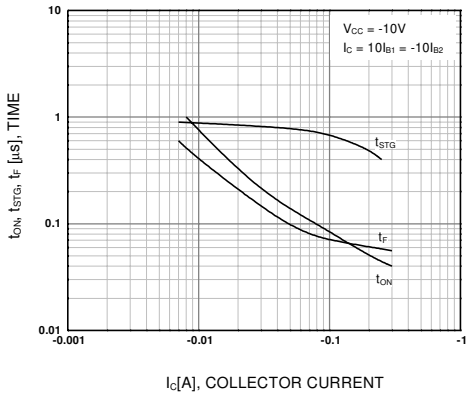


Figure 5. Switching Time

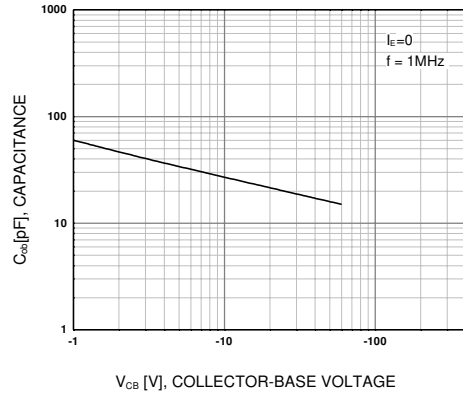


Figure 6. Collector Output Capacitance

Typical Characteristics (Continued)

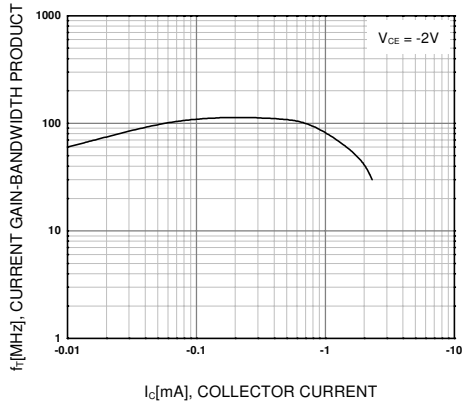


Figure 7. Current Gain Bandwidth Product

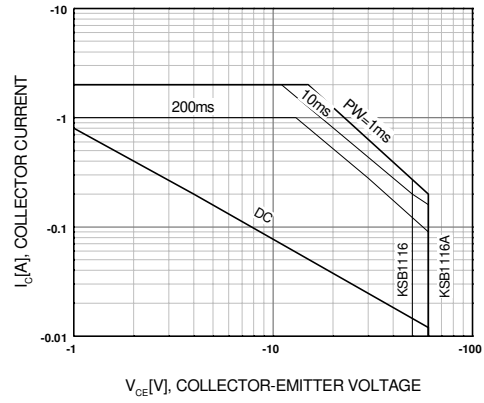


Figure 8. Safe Operating Area

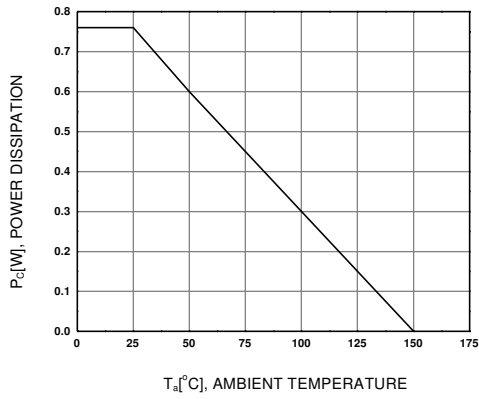
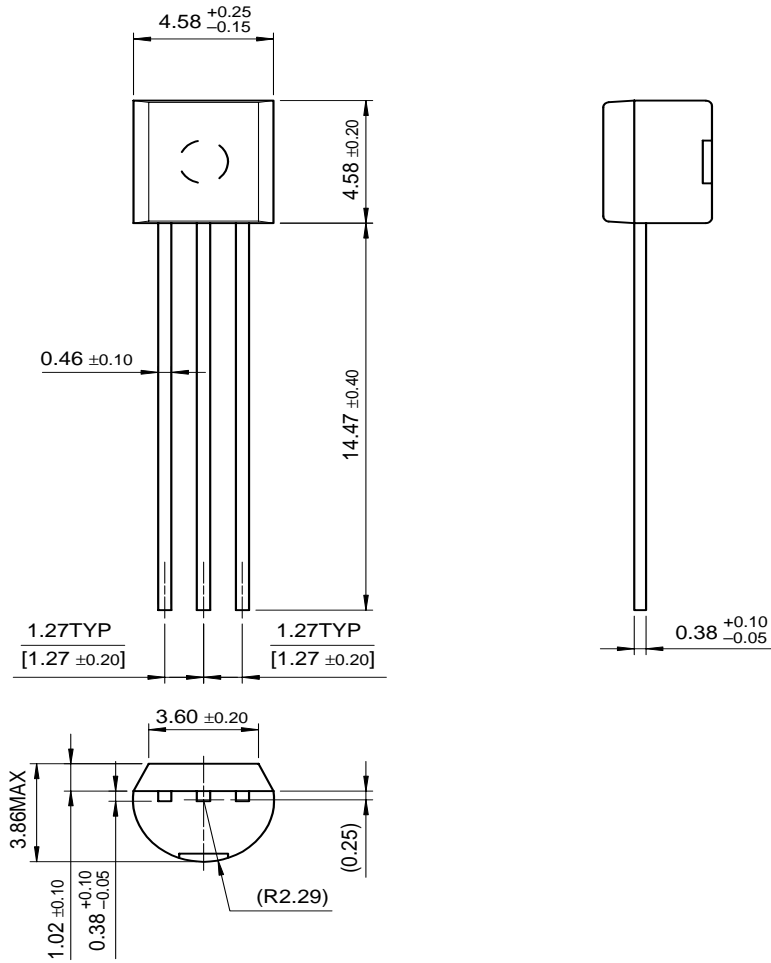


Figure 9. Power Derating

Package Dimensions

TO-92

KSB1116/1116A



Dimensions in Millimeters

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KSB1116

PNP Epitaxial Silicon Transistor

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Product	Product status	Pricing*	Package type	Leads	Packing method
KSB1116LBU	Full Production	\$0.075	TO-92	3	BULK
KSB1116SYTA	Full Production	\$0.075	TO-92	3	TAPE REEL
KSB1116GBU	Full Production	\$0.075	TO-92	3	BULK
KSB1116YBU	Full Production	\$0.075	TO-92	3	BULK
KSB1116SYBU	Full Production	\$0.075	TO-92	3	BULK
KSB1116LTA	Full Production	\$0.075	TO-92	3	TAPE REEL
KSB1116YTA	Full Production	\$0.075	TO-92	3	TAPE REEL
KSB1116GTA	Full Production	\$0.075	TO-92	3	TAPE REEL

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