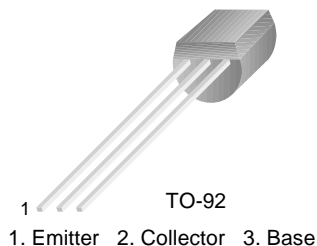


KSB1116/1116A

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 | |
| $V_{BE(on)}$ | * 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

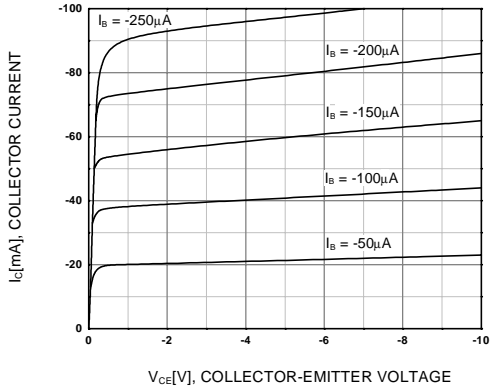


Figure 1. Static Characteristic

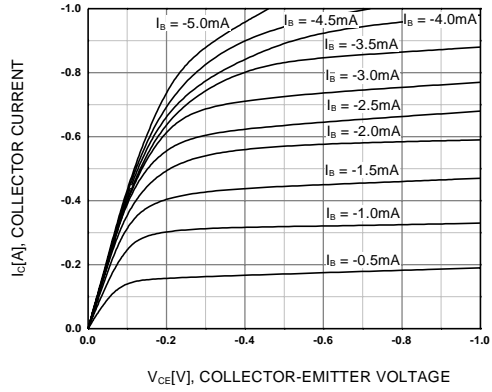


Figure 2. Static Characteristic

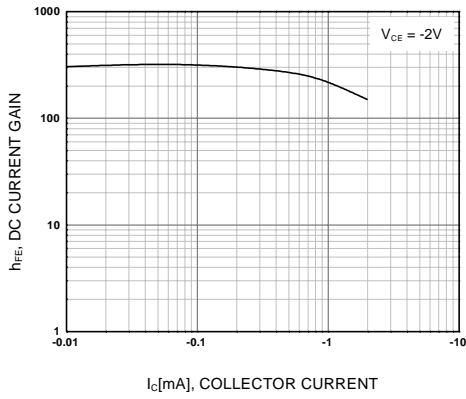


Figure 3. DC current Gain

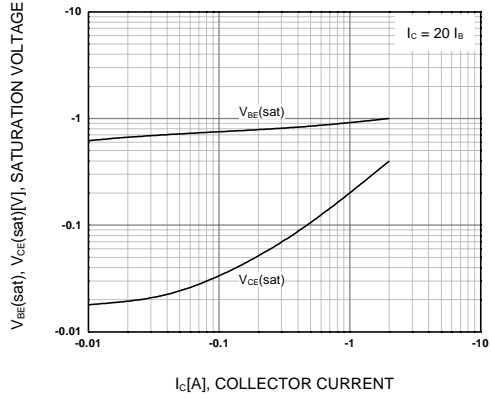


Figure 4. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

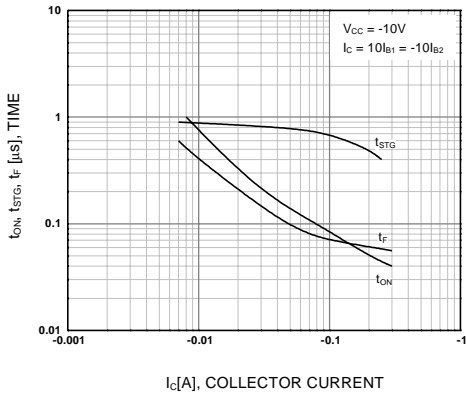


Figure 5. Switching Time

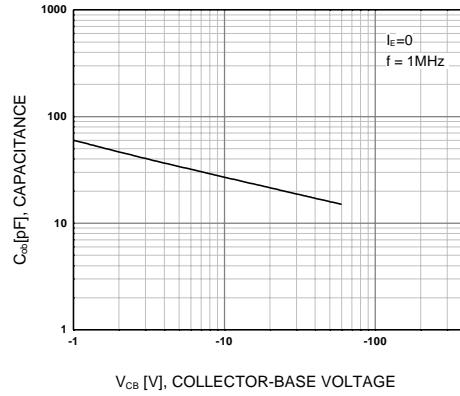


Figure 6. Collector Output Capacitance

Typical Characteristics (Continued)

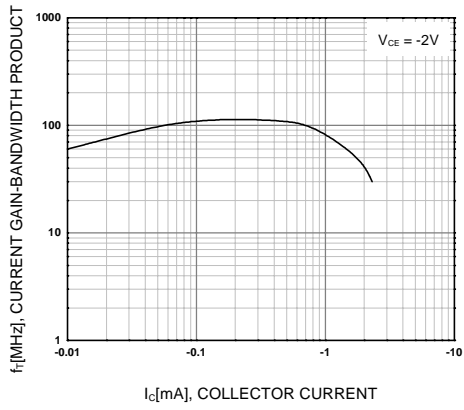


Figure 7. Current Gain Bandwidth Product

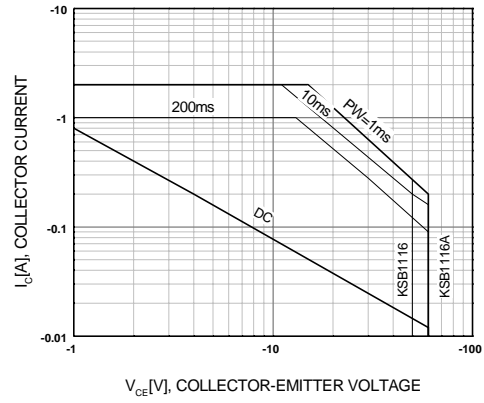


Figure 8. Safe Operating Area

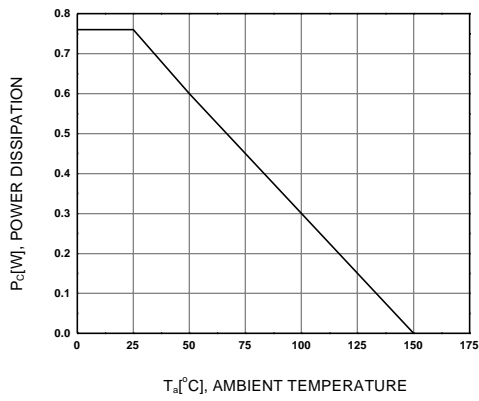
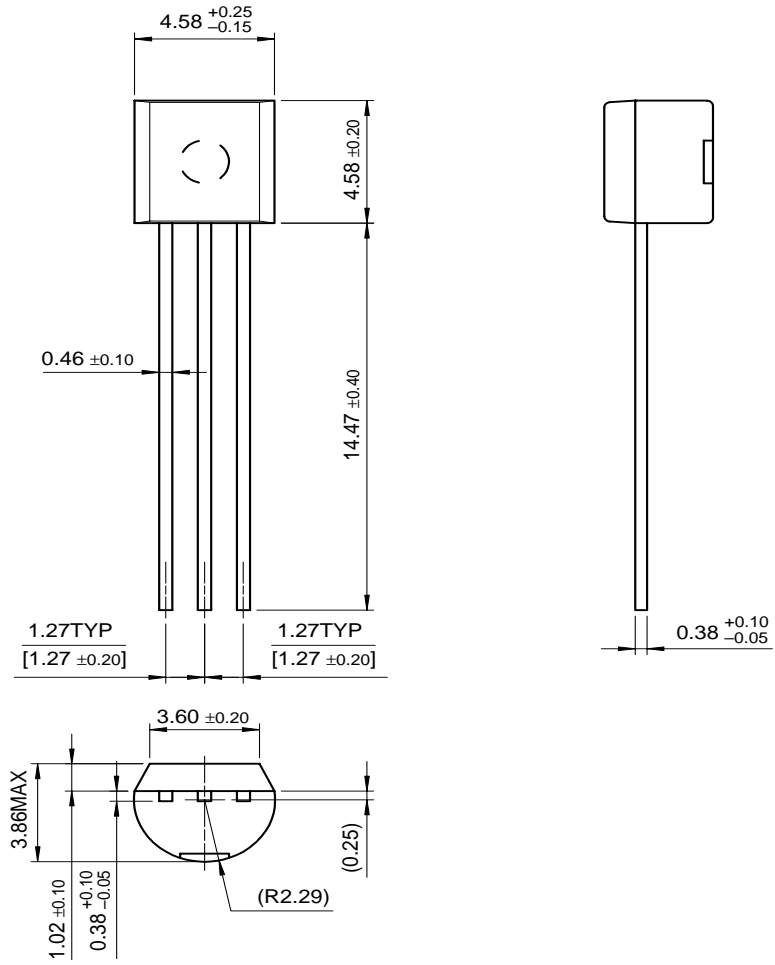


Figure 9. Power Derating

Package Dimensions

TO-92

KSB1116/1116A



Dimensions in Millimeters

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