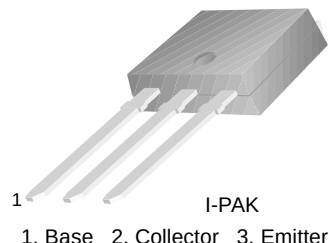


# KSB906

KSB906

## Low Frequency Power Amplifier

- Low Collector- Emitter Saturation Voltage
- Complement to KSD1221



## PNP Epitaxial Silicon Transistor

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

| Symbol    | Parameter                                        | Value      | Units            |
|-----------|--------------------------------------------------|------------|------------------|
| $V_{CBO}$ | Collector-Base Voltage                           | - 60       | V                |
| $V_{CEO}$ | Collector-Emitter Voltage                        | - 60       | V                |
| $V_{EBO}$ | Emitter-Base Voltage                             | - 7        | V                |
| $I_C$     | Collector Current                                | - 3        | A                |
| $I_B$     | Base Current                                     | - 0.5      | A                |
| $P_C$     | Collector Dissipation ( $T_C=25^\circ\text{C}$ ) | 20         | W                |
| $P_C$     | Collector Dissipation ( $T_a=25^\circ\text{C}$ ) | 1          | W                |
| $T_J$     | Junction Temperature                             | 150        | $^\circ\text{C}$ |
| $T_{STG}$ | Storage Temperature                              | - 55 ~ 150 | $^\circ\text{C}$ |

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

| Symbol                 | Parameter                            | Test Condition                                                                                           | Min.     | Typ. | Max.  | Units         |
|------------------------|--------------------------------------|----------------------------------------------------------------------------------------------------------|----------|------|-------|---------------|
| $BV_{CEO}$             | Collector-Emitter Breakdown Voltage  | $I_C = - 50\text{mA}$ , $I_B = 0$                                                                        | - 60     |      |       | V             |
| $I_{CBO}$              | Collector Cut-off Current            | $V_{CB} = - 60\text{V}$ , $I_E = 0$                                                                      |          |      | - 100 | $\mu\text{A}$ |
| $I_{EBO}$              | Emitter Cut-off Current              | $V_{EB} = - 7\text{V}$ , $I_C = 0$                                                                       |          |      | - 100 | $\mu\text{A}$ |
| $h_{FE1}$<br>$h_{FE2}$ | DC Current Gain                      | $V_{CE} = - 5\text{V}$ , $I_C = - 0.5\text{A}$<br>$V_{CE} = - 5\text{V}$ , $I_C = - 3\text{A}$           | 60<br>20 |      | 200   |               |
| $V_{CE(sat)}$          | Collector-Emitter Saturation Voltage | $I_C = - 3\text{A}$ , $I_B = - 0.3\text{A}$                                                              |          | - 1  | - 1.7 | V             |
| $V_{BE(on)}$           | Base-Emitter ON Voltage              | $V_{CE} = - 5\text{V}$ , $I_C = - 0.1\text{A}$                                                           |          | - 1  | - 1.5 | V             |
| $f_T$                  | Current Gain Bandwidth Product       | $V_{CE} = - 5\text{V}$ , $I_C = - 0.5\text{A}$                                                           |          | 9    |       | MHz           |
| $C_{ob}$               | Output Capacitance                   | $V_{CB} = - 10\text{V}$ , $f = 1\text{MHz}$                                                              |          | 150  |       | pF            |
| $t_{ON}$               | Turn ON Time                         | $V_{CC} = - 30\text{V}$ , $I_C = - 1\text{A}$<br>$I_{B1} = - I_{B2} = - 0.2\text{A}$<br>$R_L = 30\Omega$ |          | 0.4  |       | $\mu\text{s}$ |
| $t_{STG}$              | Storage Time                         |                                                                                                          |          | 1.7  |       | $\mu\text{s}$ |
| $t_F$                  | Fall Time                            |                                                                                                          |          | 0.5  |       | $\mu\text{s}$ |

## $h_{FE}$ Classification

| Classification | O        | Y         |
|----------------|----------|-----------|
| $h_{FE}$       | 60 ~ 120 | 100 ~ 200 |

## Typical Characteristics

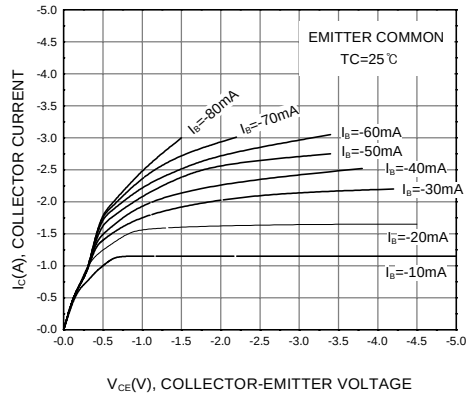


Figure 1. Static Characteristic

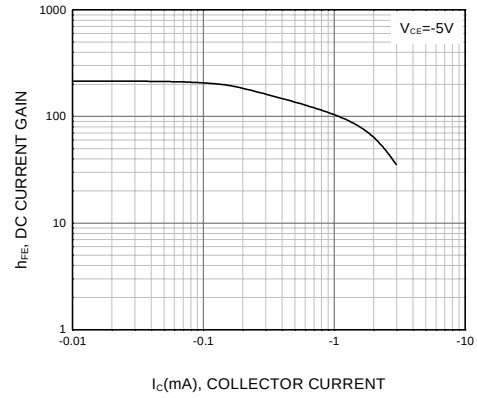


Figure 2. DC current Gain

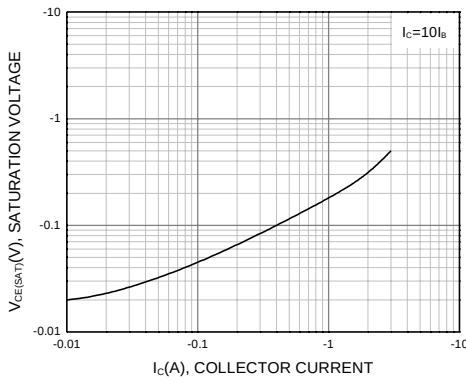


Figure 3. Collector-Emitter Saturation Voltage

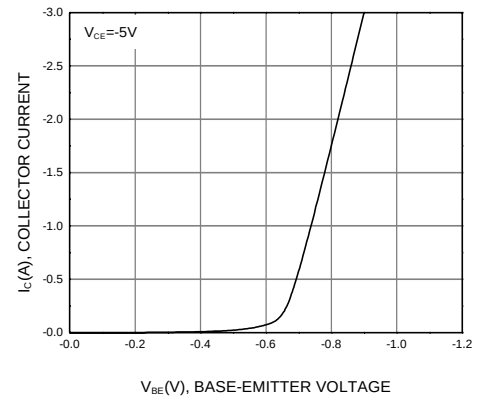


Figure 4. Base-Emitter On Voltage

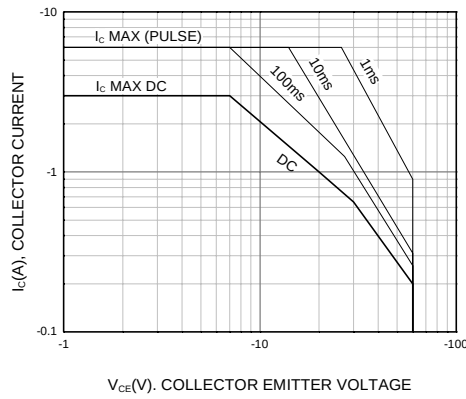


Figure 5. Safe Operating Area

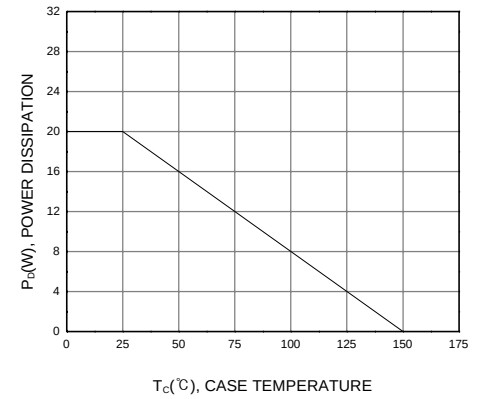
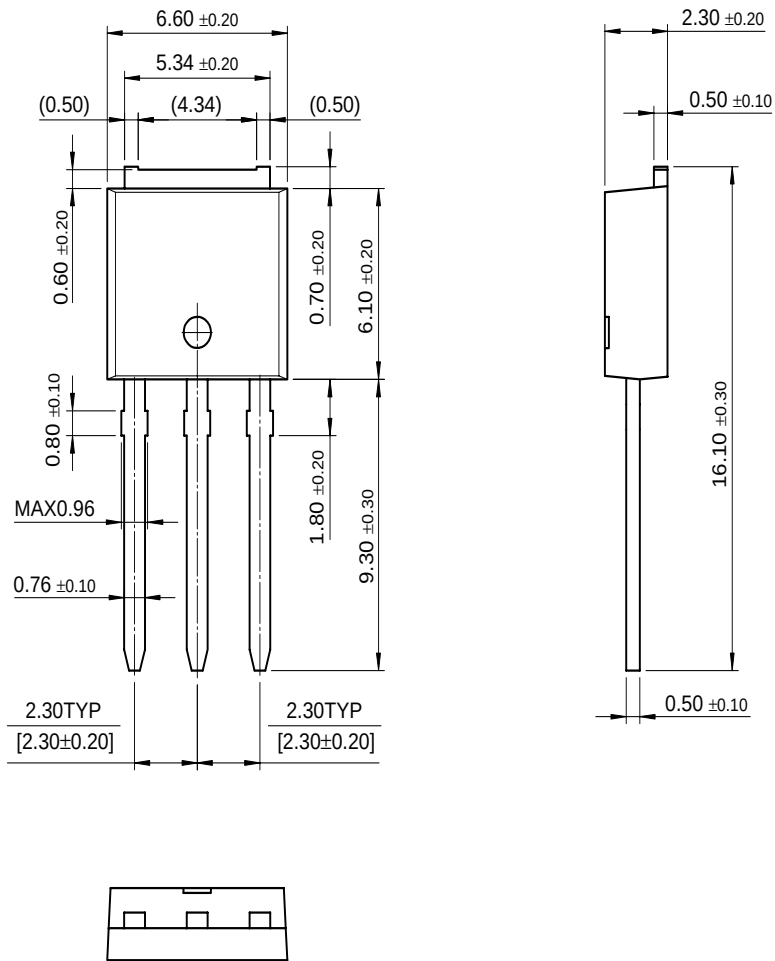


Figure 6. Power Derating

# Package Dimensions

## I-PAK



Dimensions in Millimeters

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| DenseTrench™         | GTO™                | PowerTrench®        | SuperSOT™-8     |
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| FACT™                | MICROWIRE™          | SLIENT SWITCHER®    | UltraFET®       |
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