

## **KSA1142**

# **Audio Frequency Power Amplifier** High Frequency Power Amplifier • Complement to KSC2682



## **PNP Epitaxial Silicon Transistor**

### **Absolute Maximum Ratings** T<sub>C</sub>=25°C unless otherwise noted

| Symbol           | Parameter                                    | Ratings    | Units |
|------------------|--|------------|-------|
| V <sub>CBO</sub> | Collector-Base Voltage                       | - 180      | V     |
| V <sub>CEO</sub> | Collector-Emitter Voltage                    | - 180      | V     |
| V <sub>EBO</sub> | Emitter-Base Voltage                         | - 5        | V     |
| I <sub>C</sub>   | Collector Current                            | - 100      | mA    |
| P <sub>C</sub>   | Collector Dissipation (T <sub>a</sub> =25°C) | 1.2        | W     |
| P <sub>C</sub>   | Collector Dissipation (T <sub>C</sub> =25°C) | 8          | W     |
| T <sub>J</sub>   | Junction Temperature                         | 150        | °C    |
| T <sub>STG</sub> | Storage Temperature                          | - 55 ~ 150 | °C    |

### Electrical Characteristics $T_C=25$ °C unless otherwise noted

| Symbol                | Parameter                              | Test Condition   | Min. | Тур.   | Max.  | Units |
|-----------------------|--|--|------|--------|-------|-------|
| I <sub>CBO</sub>      | Collector Cut-off Current              | V <sub>CB</sub> = - 180V, I <sub>E</sub> = 0                         |      |        | - 1   | μΑ    |
| I <sub>EBO</sub>      | Emitter Cut-off Current                | $V_{EB} = -3V, I_{C} = 0$  |      |        | - 1   | μΑ    |
| h <sub>FE1</sub>      | * DC Current Gain                      | $V_{CE} = -5V, I_{C} = -1mA$   | 90   | 200    |       |       |
| $h_{FE2}$             |  | $V_{CE} = -5V, I_{C} = -10mA$  | 100  | 200    | 320   |       |
| V <sub>CE</sub> (sat) | * Collector-Emitter Saturation Voltage | $I_C = -50 \text{mA}, I_B = -5 \text{mA}$                            |      | - 0.16 | - 0.5 | V     |
| V <sub>BE</sub> (sat) | * Base-Emitter Saturation Voltage      | $I_C = -50 \text{mA}, I_B = -5 \text{mA}$                            |      | - 0.8  | - 1.5 | V     |
| f <sub>T</sub>        | Current Gain Bandwidth Product         | $V_{CE} = -10V, I_{C} = -20mA$                                       |      | 180    |       | MHz   |
| C <sub>ob</sub>       | Output Capacitance                     | $V_{CB} = -10V, I_{E} = 0, f=1MHz$                                   |      | 4.5    | 7     | pF    |
| NF                    | Noise Figure                           | $V_{CE} = -10V$ , $I_{C} = -1mA$<br>$R_{S} = 10k\Omega$ , $f = 1MHz$ |      | 4      |       | dB    |

<sup>\*</sup> Pulse Test: PW≤350μs, Duty Cycle≤2% Pulsed

## **h**<sub>FE</sub> Classification

| Classification   | 0         | Y         |  |
|------------------|-----------|-----------|--|
| h <sub>FE2</sub> | 100 ~ 200 | 160 ~ 320 |  |

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## **Typical Characteristics**

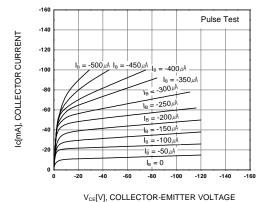


Figure 1. Static Characteristic

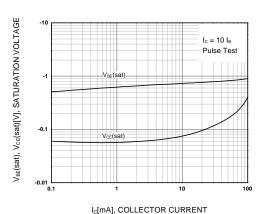


Figure 3. Base-Emitter Saturation Voltage Collector-Emitter Saturation Voltage

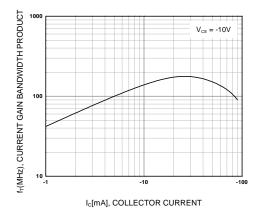


Figure 5. Current Gain Bandwidth Product

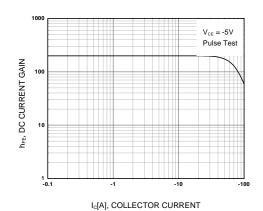


Figure 2. DC current Gain

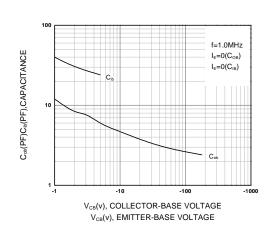


Figure 4. Collector Output Capacitance

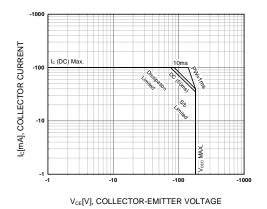


Figure 6. Safe Operating Area

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# Typical Characteristics (Continued)

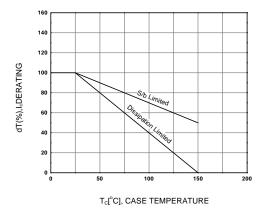


Figure 7. Derating Curve of Safe Operating Areas

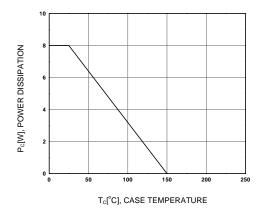
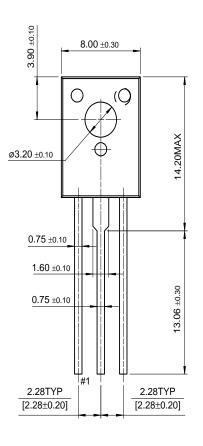
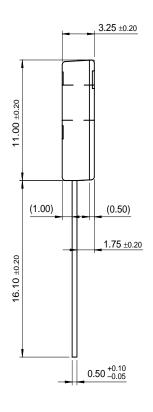


Figure 8. Power Derating

## **Package Demensions**

TO-126





Dimensions in Millimeters

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