

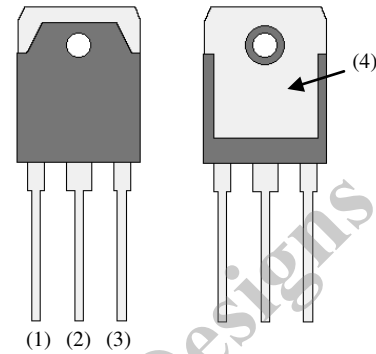
$V_{CEO} = -260 \text{ V}$, $I_C = -15 \text{ A}$
Silicon PNP Epitaxial Planar Transistor
2SA2223A

Description

The 2SA2223A is a PNP transistor of -260 V , -15 A . The product has constant h_{FE} characteristics in a wide current range, providing high-quality audio sounds.

Package

TO3P-3L

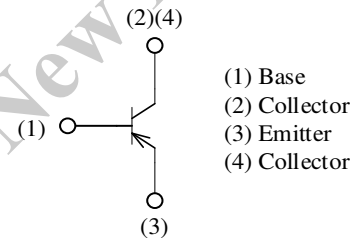


Features

- Complementary to 2SC6145A
 - LAPT (Linear Amplifier Power Transistor)
 - High Transition Frequency
 - Bare Lead Frame: Pb-free (RoHS Compliant)
- | | |
|-------------------|--------|
| • V_{CEO} ----- | -260 V |
| • I_C ----- | -15 A |
| • f_T ----- | 35 MHz |
| • P_C ----- | 160 W |

Application

- Audio Power Amplifier



- (1) Base
- (2) Collector
- (3) Emitter
- (4) Collector

Not to scale

Not Recommended for New Designs

2SA2223A

Absolute Maximum Ratings

Unless otherwise specified, $T_A = 25\text{ }^\circ\text{C}$.

| Parameter | Symbol | Conditions | Rating | Unit |
|--------------------------------|-----------|----------------------------------|------------|------------------|
| Collector to Base Voltage | V_{CBO} | | -260 | V |
| Collector to Emitter Voltage | V_{CEO} | | -260 | V |
| Emitter to Base Voltage | V_{EBO} | | -5 | V |
| Collector Current | I_C | | -15 | A |
| Base Current | I_B | | -4 | A |
| Collector Power Dissipation | P_C | $T_C = 25\text{ }^\circ\text{C}$ | 160 | W |
| Operating Junction Temperature | T_J | | 150 | $^\circ\text{C}$ |
| Storage Temperature | T_{STG} | | -55 to 150 | $^\circ\text{C}$ |

Thermal Characteristics

Unless otherwise specified, $T_A = 25\text{ }^\circ\text{C}$.

| Parameter | Symbol | Conditions | Min. | Typ. | Max. | Unit |
|---|-----------------|------------|------|------|------|---------------------------|
| Thermal Resistance (Junction to Case) | $R_{\theta JC}$ | | — | — | 0.78 | $^\circ\text{C}/\text{W}$ |
| Thermal Resistance (Junction to Ambient) | $R_{\theta JA}$ | | — | — | 35.7 | $^\circ\text{C}/\text{W}$ |

Electrical Characteristics

Unless otherwise specified, $T_A = 25\text{ }^\circ\text{C}$.

| Parameter | Symbol | Conditions | Min. | Typ. | Max. | Unit |
|---|---------------|--|------|------|------|---------------|
| Collector Cut-off Current | I_{CBO} | $V_{CB} = -260\text{ V}, I_E = 0\text{ A}$ | — | — | -10 | μA |
| Emitter Cut-off Current | I_{EBO} | $V_{EB} = -5\text{ V}, I_C = 0\text{ A}$ | — | — | -10 | μA |
| Collector to Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C = -25\text{ mA}$ | -260 | — | — | V |
| DC Current Gain | h_{FE} | $V_{CE} = -4\text{ V}, I_C = -5\text{ A}$ | 40 | — | 140 | — |
| Collector to Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C = -5\text{ A}, I_B = -0.5\text{ A}$ | — | — | -0.5 | V |
| Transition Frequency | f_T | $V_{CE} = -12\text{ V}, I_E = 2\text{ A}$ | — | 35 | — | MHz |
| Collector Output Capacitance | C_{OB} | $V_{CB} = -10\text{ V}, I_E = 0\text{ A},$ $f = 1\text{ MHz}$ | — | 500 | — | pF |

h_{FE} Rank

For the marking area of the rank, see the Marking Diagram.

| Rank | R | O | Y |
|----------|----------|-----------|-----------|
| h_{FE} | 40 to 80 | 50 to 100 | 70 to 140 |

Rating and Characteristic Curves

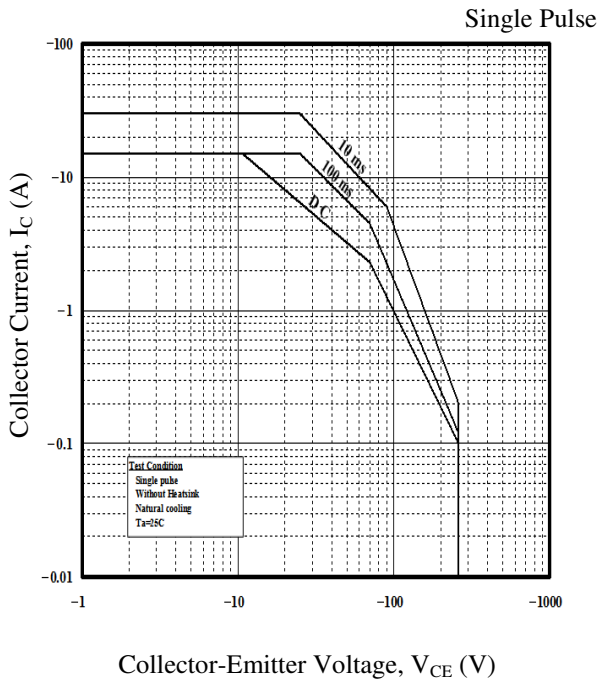


Figure 1. Safe Operating Area

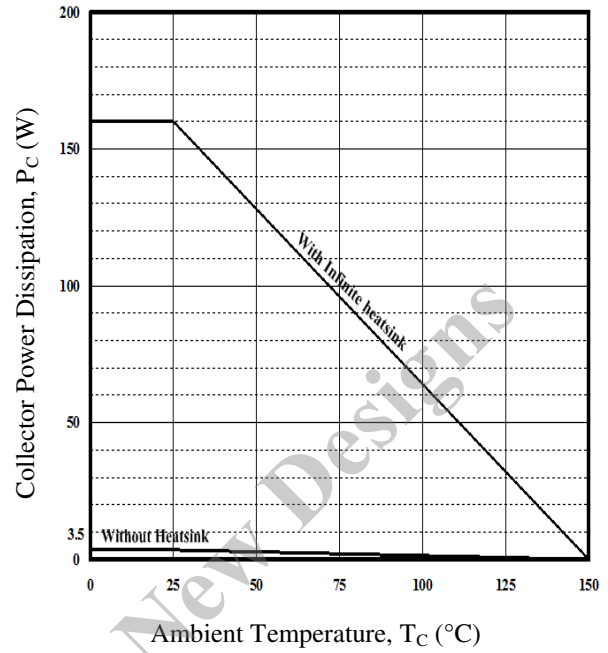


Figure 2. Power Dissipation vs. Ambient Temperature

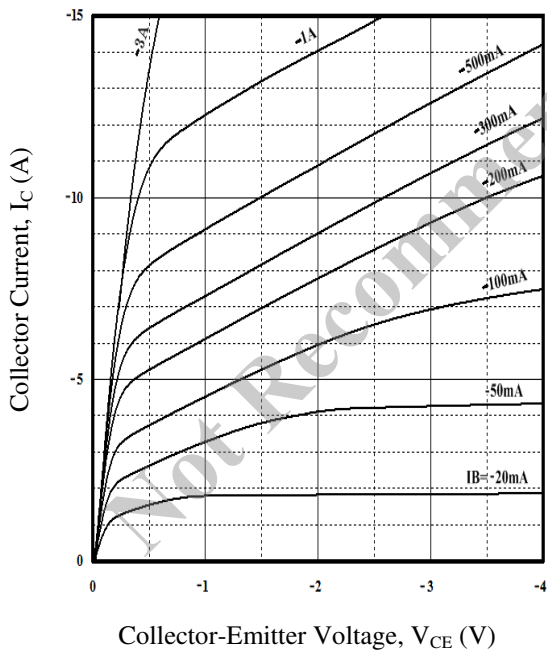


Figure 3. Collector Current vs. Collector-Emitter Voltage

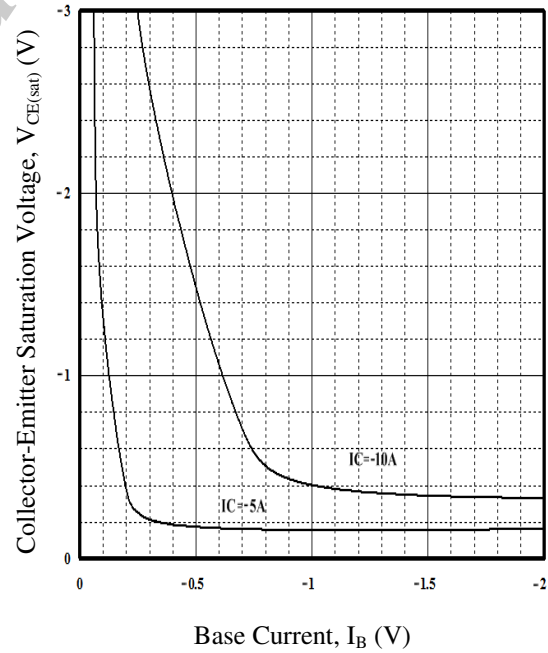


Figure 4. Collector-Emitter Saturation Voltage vs. Base Current

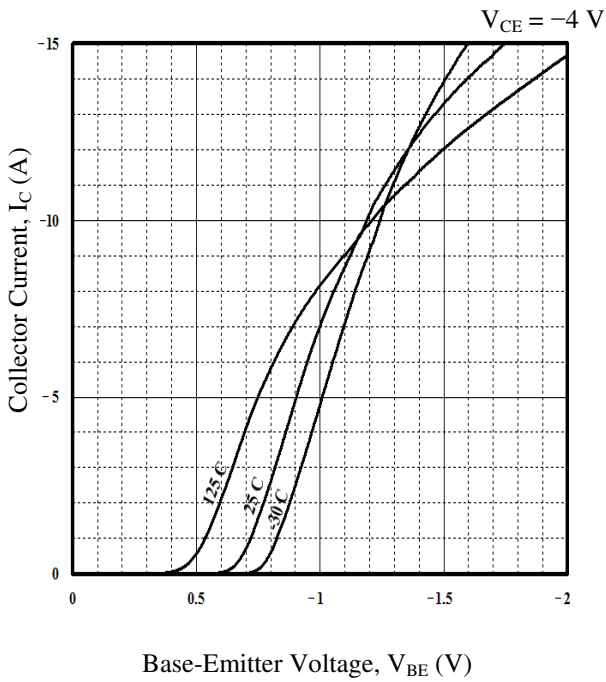


Figure 5. Collector Current vs. Base-Emitter Voltage

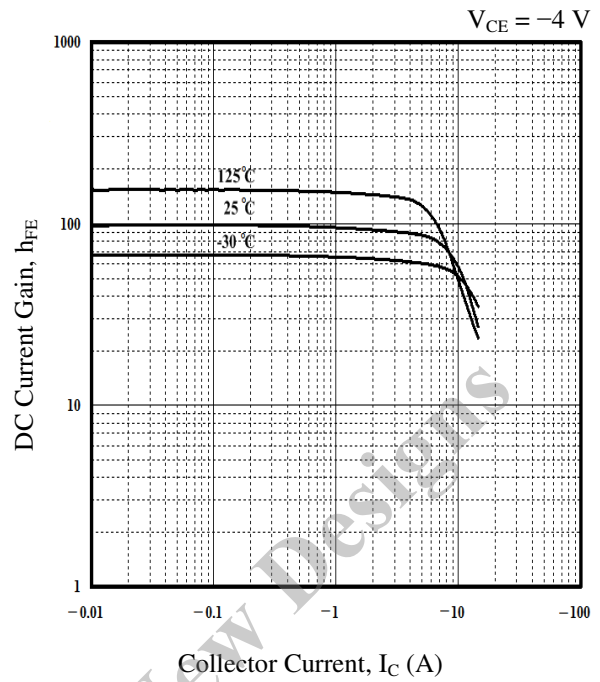


Figure 6. DC Current Gain vs. Collector Current

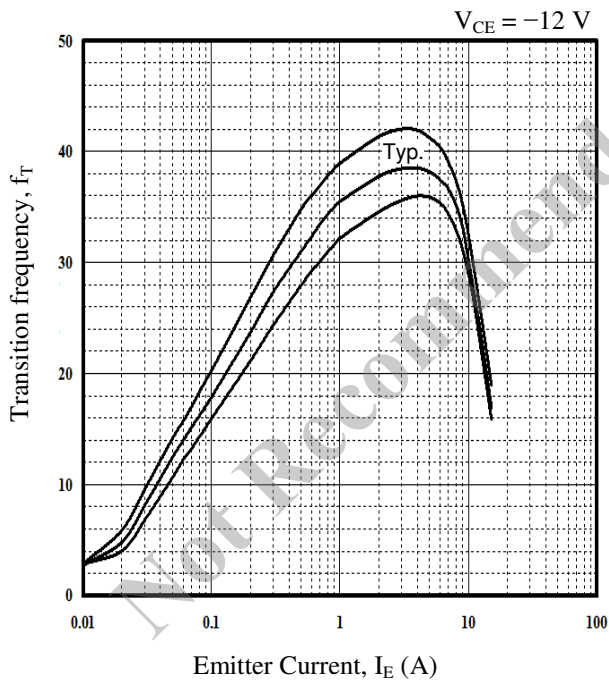


Figure 7. Transition Frequency vs. Emitter Current

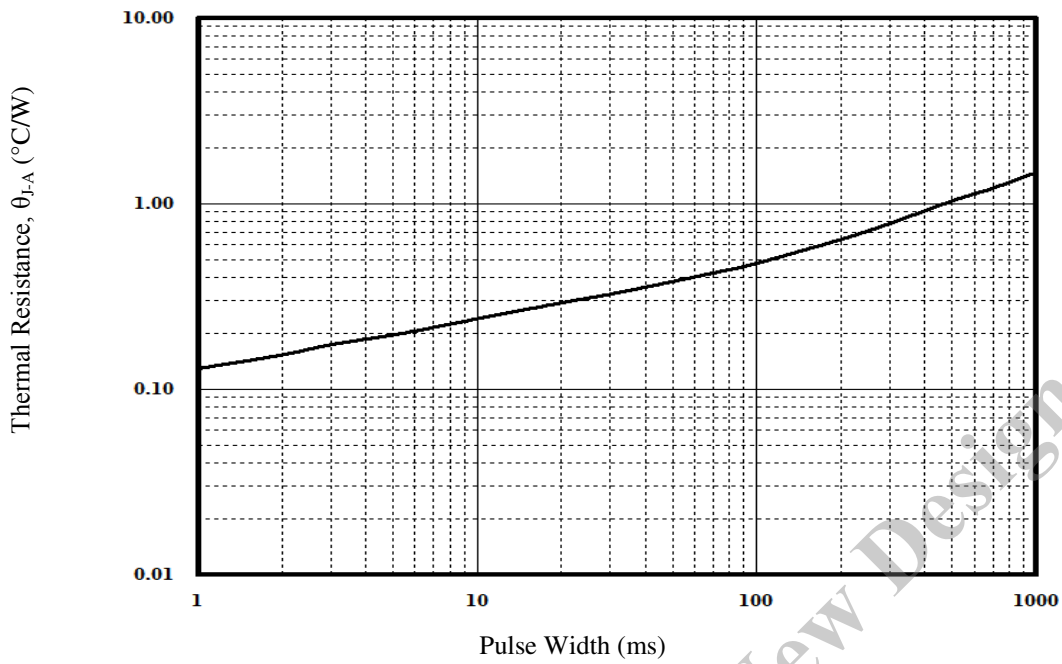


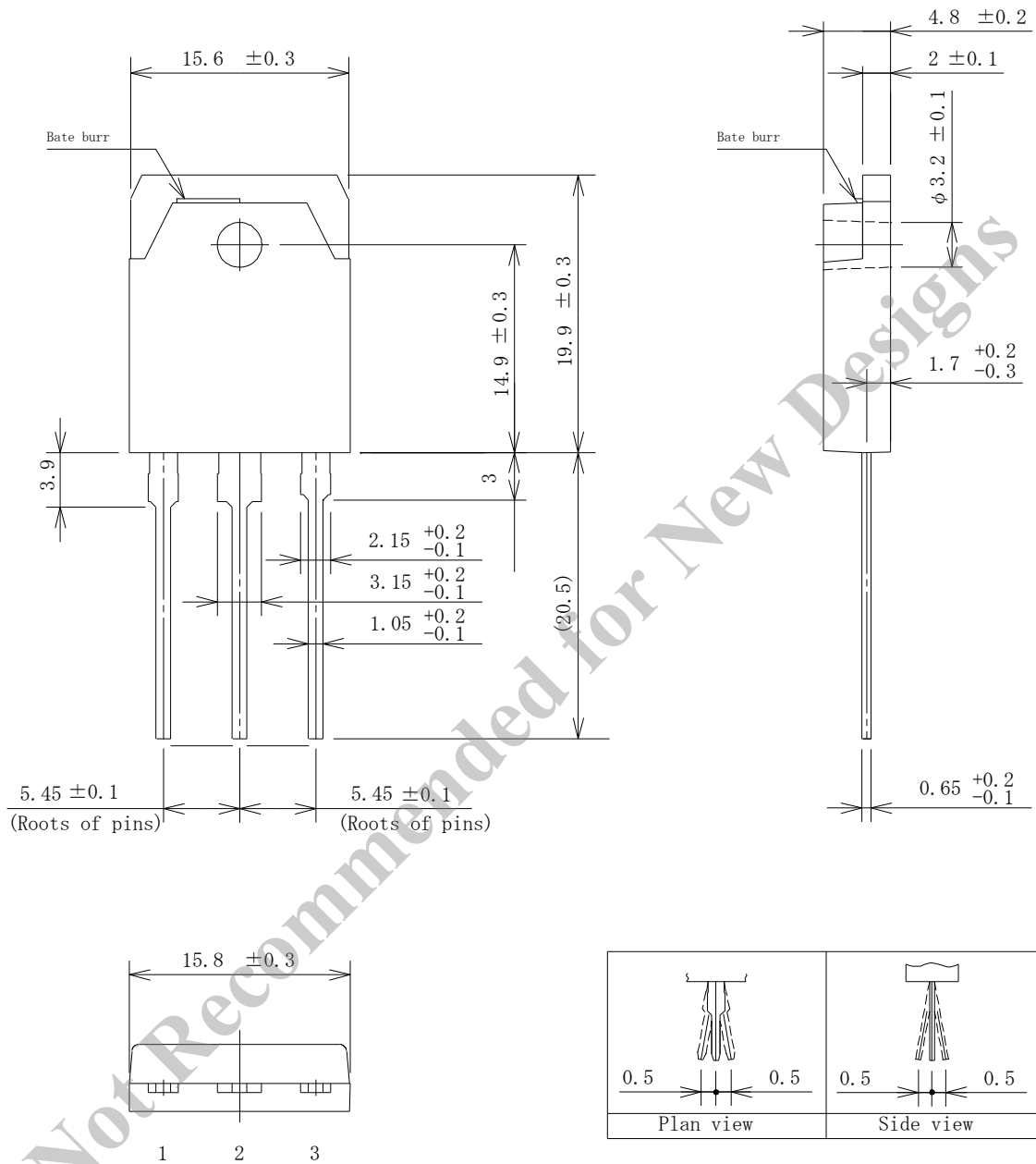
Figure 8. Transient Thermal Resistance

Not Recommended for New Designs

2SA2223A

Physical Dimensions

● TO3P-3L



NOTES:

- Gate burr: 0.3 mm (max.)
- All dimensions in millimeters
- Bare lead frame: Pb-free (RoHS compliant)
- When soldering the product, be sure to minimize the working time within the following limits:

| | |
|-------------------------------------|---|
| $260 \pm 5 \text{ }^\circ\text{C}$ | $10 \pm 1 \text{ s}$, 2 times (flow) |
| $380 \pm 10 \text{ }^\circ\text{C}$ | $3.5 \pm 0.5 \text{ s}$, 1 time (soldering iron) |
- Soldering should be at a distance of at least 1.5 mm from the body of the product.
- The recommended screw torque for TO3P: 0.686 N·m to 0.882 N·m (7 kgf·cm to 9 kgf·cm)

Marking Diagram

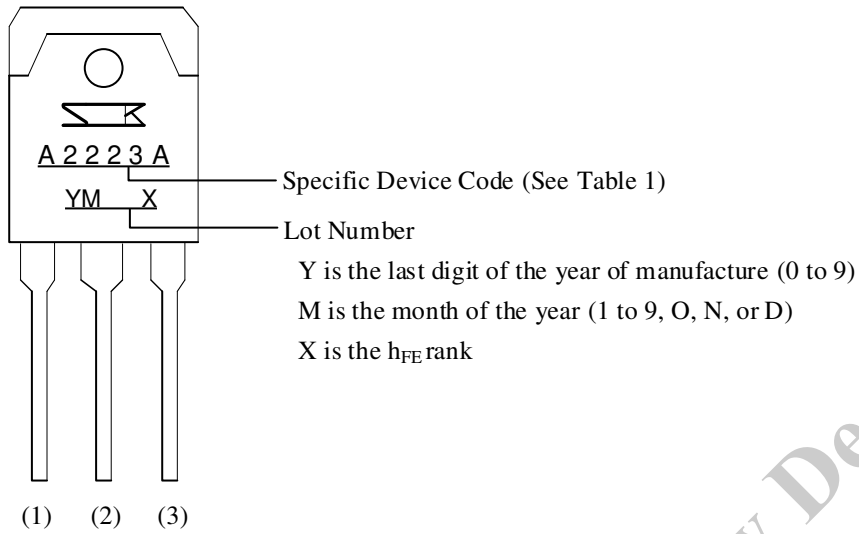


Table 1. Specific Device Code

| Specific Device Code | Part Number |
|----------------------|-------------|
| A2223A | 2SA2223A |

Not Recommended for New Designs

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