

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.

Features

- Complementary to 2SC6145A
- LAPT (Linear Amplifier Power Transistor)
- High Transition Frequency
- Bare Lead Frame: Pb-free (RoHS Compliant)

•	V _{CEO}	
•	I _С	
•	f _T 35 MHz	

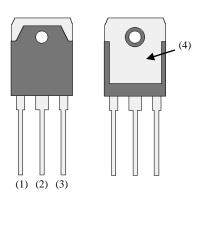
• P_C-----160 W

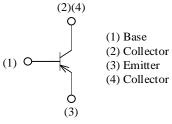
Application

• Audio Power Amplifer









Not to scale

Absolute Maximum Ratings

Unless otherwise specified, $T_A = 25$ °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	А
Base Current	I _B		-4	А
Collector Power Dissipation	P _C	$T_C = 25 \ ^{\circ}C$	160	W
Operating Junction Temperature	T _J		150	°C
Storage Temperature	T _{STG}		-55 to 150	°C

Thermal Characteristics

Unless otherwise specified, $T_A = 25$ °C.

Parameter	Symbol	Conditions	Min.	Тур.	Max.	Unit
Thermal Resistance (Junction to Case)	$R_{\theta JC}$		_	_	0.78	°C/W
Thermal Resistance (Junction to Ambient)	$R_{\theta JA}$				35.7	°C/W

Electrical Characteristics

Unless otherwise specified, $T_A = 25$ °C.

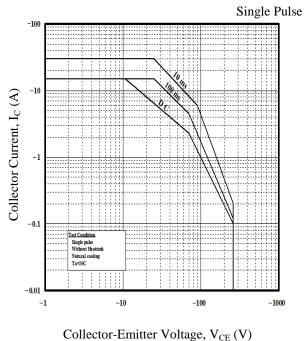
Parameter	Symbol	Conditions	Min.	Тур.	Max.	Unit
Collector Cut-off Current	I _{CBO}	$V_{CB} = -260 \text{ V}, I_E = 0 \text{ A}$		_	-10	μA
Emitter Cut-off Current	I_{EBO}	$V_{\rm EB} = -5 \rm V, I_{\rm C} = 0 \rm A$		_	-10	μA
Collector to Emitter Breakdown Voltage	V _{(BR)CEO}	$I_C = -25 \text{ mA}$	-260			V
DC Current Gain	h_{FE}	$V_{CE} = -4 V, I_C = -5 A$	40	_	140	_
Collector to Emitter Saturation Voltage	V _{CE(sat)}	$I_{\rm C} = -5$ A, $I_{\rm B} = -0.5$ A			-0.5	V
Transition Frequency	\mathbf{f}_{T}	$V_{CE} = -12 \text{ V}, I_E = 2 \text{ A}$		35		MHz
Collector Output Capacitance	C _{OB}	$\label{eq:V_CB} \begin{split} V_{CB} = -10 \ V, \ I_E = 0 \ A, \\ f = 1 \ MHz \end{split}$		500		pF

h_{FE} Rank

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

Rank	R	0	Y
h _{FE}	40 to 80	50 to 100	70 to 140

Rating and Characteristic Curves



Confector-Ennitier voltage, $v_{CE}(v)$

Figure 1. Safe Operating Area

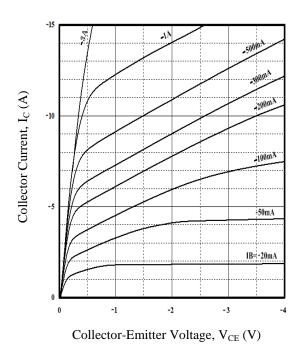


Figure 3. Collector Current vs. Collector-Emitter Voltage

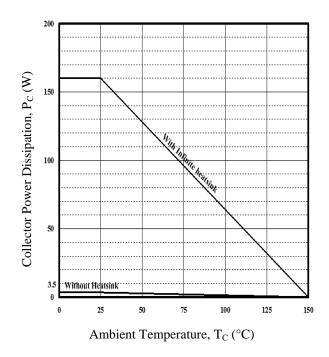


Figure 2. Power Dissipation vs. Ambient Temperature

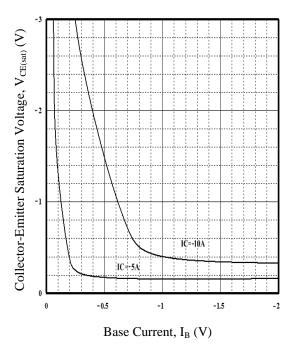
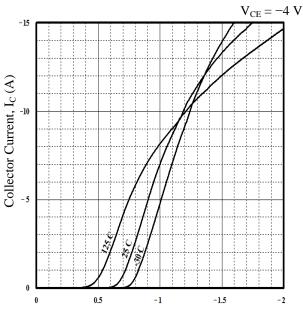


Figure 4. Collector-Emitter Saturation Voltage vs. Base Current

2SA2223A



Base-Emitter Voltage, V_{BE} (V)

Figure 5. Collector Current vs. Base-Emitter Voltage

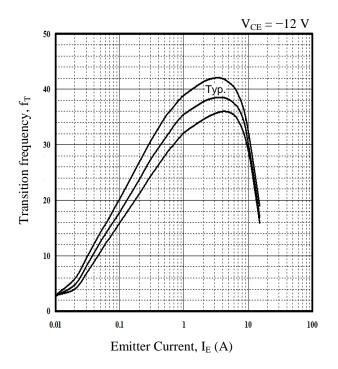


Figure 7. Transition Frequency vs. Emitter Current

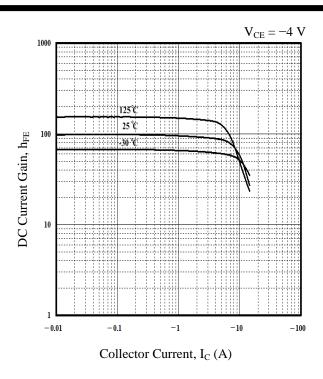


Figure 6. DC Current Gain vs. Collector Current

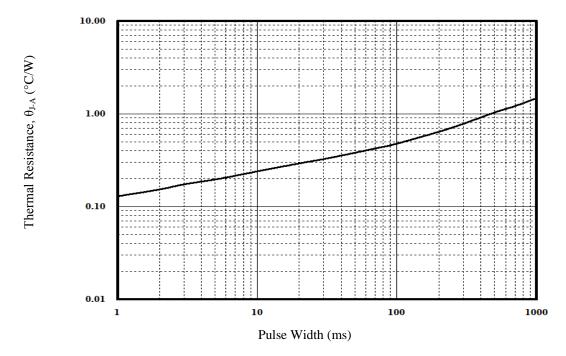
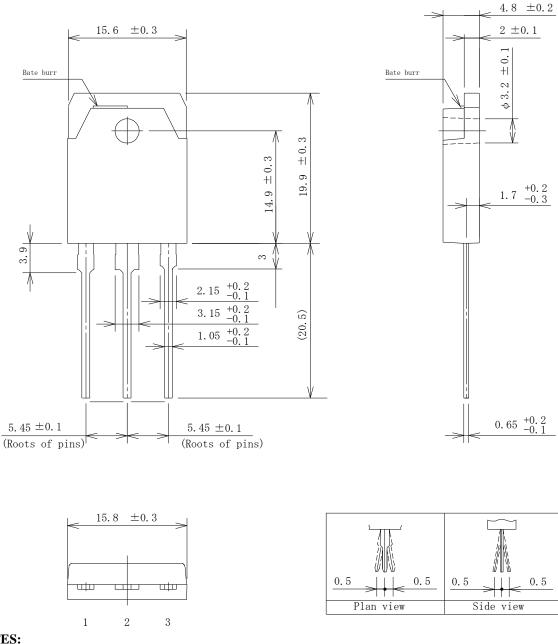


Figure 8. Transient Thermal Resistance

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:

 $260 \pm 5 \ ^{\circ}C$ $10 \pm 1 \text{ s}, 2 \text{ times (flow)}$

 380 ± 10 °C 3.5 ± 0.5 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

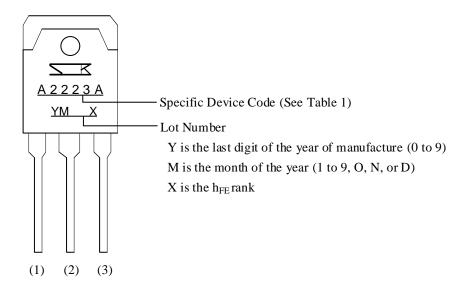


Table 1. Specific Device Code

Specific Device Code	Part Number
A2223A	2SA2223A

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